Regular Meeting of the Mt. Pleasant City Commission
Monday, September 11, 2023
7:00 p.m.

AGENDA

CALL TO ORDER:

PLEDGE OF ALLEGIANCE:

LAND ACKNOWLEDGEMENT STATEMENT:

ROLL CALL:

PROCLAMATIONS AND PRESENTATIONS:

1. Introduction of Utility Billing Office Professional Susan Tham.
2. Introduction of Parks and Public Spaces I Joe Bryant.
3. Proclamation recognizing International Day of Peace (September 21, 2023).
4. Presentation on PACE by Mary Freeman of Lean & Green Michigan.
5. Presentation on Municipal Employees' Retirement System of Michigan (MERS) pension by Tony Radjenovich of MERS.
6. Presentation on Act 345 by Casey Thomas Ahlbrandt-Rains of Gabriel, Roeder, Smith & Company (GRS).

ADDITIONS/ DELETIONS TO AGENDA:

PUBLIC INPUT ON AGENDA ITEMS:

RECEIPT OF PETITIONS AND COMMUNICATIONS:

7. Monthly report on police related citizen complaints received.
8. Minutes of the Zoning Board of Appeals (November).
9. Notice of Temporary Traffic Control Order #6-2023 and #7-2023.

CONSENT ITEMS:

10. Approval of the minutes from the regular meeting held August 28, 2023.
11. Consider resolution in support of final approval of Temporary Traffic Control Order #5-2023.
12. Consider approval of an amendment to the bond counsel contract with Dickinson Wright.
13. Consider approval of a contract with R & T Murphy Trucking for 2023-2024 leaf hauling.

All interested persons may attend and participate. Persons with disabilities who need assistance to participate may call the Human Resources Office at 989-779-5313. A 48-Hour advance notice is necessary for accommodation. Hearing or speech impaired individuals may contact the City via the Michigan Relay Service by dialing 7-1-1.

14. Consider approval of a contract with R & T Murphy Trucking for 2023-2025 snow hauling.
15. Consider approval of a contract with Fleis & Vandenbrink for professional engineering services-Mill Pond Park weir & pedestrian bridge repairs and Chipp-A-Waters Park riverbank restoration.
16. Receive fall 2023 Saginaw Chippewa Indian Tribe 2% funding requests from City departments.
17. Receive proposed 2024 Annual Operating Budget and set a public hearing for November 13, 2023, on the same.
18. Consider resolution to amend 2023 Operating Budget.
19. Consider approval of Payrolls and Warrants.

PUBLIC HEARINGS:

NEW BUSINESS:

20. Consider appointments to the Local Officers Compensation Commission as recommended by the Appointments Committee.
21. Consider approval of a sole source purchase of peristaltic lime pumps.

ANNOUNCEMENTS ON CITY-RELATED ISSUES AND NEW BUSINESS:

PUBLIC COMMENT ON AGENDA AND NON-AGENDA ITEMS:

RECESS:

WORK SESSION:

CLOSED SESSION:

ADJOURNMENT:

All interested persons may attend and participate. Persons with disabilities who need assistance to participate may call the Human Resources Office at 989-779-5313. A 48-Hour advance notice is necessary for accommodation. Hearing or speech impaired individuals may contact the City via the Michigan Relay Service by dialing 7-1-1.

TO: MAYOR AND CITY COMMISSION SEPTEMBER 11, 2023

FROM: AARON DESENTZ, CITY MANAGER

SUBJECT: CITY MANAGER REPORT ON AGENDA ITEMS

Proclamations and Presentations:

4. Presentation on PACE by Mary Freeman of Lean & Green Michigan.
    a. Following up on information provided by the City's former Sustainability Intern, Mary Freeman from Lean & Green Michigan will be at the next City Commission meeting to provide information on the PACE (Property Assessed Clean Energy) program. The program allows a governing body to establish a PACE district by Resolution. Property owners within the district can borrow from financial institutions for energy efficiency, water efficiency, or renewable energy projects and have the payments made as part of a special assessment. This would keep the project costs with the property rather than the owner making transfer of these properties easier than other financing programs. The City Commission will be able to ask any questions of the representatives from Lean & Green Michigan. If the City Commission is interested in moving forward with the program, a Resolution establishing the PACE district would be brought forward later for consideration.
5. Presentation on Municipal Employees' Retirement System of Michigan (MERS) pension by Tony Radjenovich of MERS.
6. Presentation on Act 345 by Casey Thomas Ahlbrandt-Rains of Gabriel, Roeder, Smith & Company (GRS).
    a. The above presentations on the City's two (2) pension systems are being provided for general information to the City Commission. Both representatives will be in attendance to provide the 2022 pension actuarial reports. The City Commission will be able to ask any questions regarding the above programs.

Receipt of Petitions and Communications:

Consent Items:

11. Consider resolution in support of final approval of Temporary Traffic Control Order #5-2023.
    a. TCO #5-2023 will remove a 15-minute parking sign at 121 S. Kinney that is no longer required.

12. Consider approval of an amendment to the bond counsel contract with Dickinson Wright.
    a. At the May 22nd, 2023, City Commission meeting, the Commission approved a contract with Dickinson Wright to act as our Bond Counsel to secure funding for Phase II of the Water Resource Recovery Facility rehabilitation and upgrades. The engagement letter from Dickinson Wright estimated the cost to be $9 million. The project total was $27 million. The amendment authorizes payment of $10,500 above what was previously approved.
13. Consider approval of a contract with R & T Murphy Trucking for 2023-2024 leaf hauling.

a. The City hires a contractor for the removal of leaves in the fall. Staff received two (2) bids and are asking for approval of the bid from the low bidder R & T Murphy Trucking. The City has worked with this contractor in the past and found their work to be favorable.

14. Consider approval of a contract with R & T Murphy Trucking for 2023-2025 snow hauling.
    a. The City hires a contractor for the removal of snow in the downtown. Staff received two (2) bids and are asking for approval of the bid from the low bidder R & T Murphy Trucking. The City has worked with this contractor in the past and found their work to be favorable.
15. Consider approval of a contract with Fleis & Vandenbrink for professional engineering services- Mill Pond Park weir & pedestrian bridge repairs and Chipp-A-Waters Park riverbank restoration.
    a. The City obtained an evaluation of the Mill Pond Park Weir and Pedestrian Bridge which had several recommendations for improvements. Those improvements as well as improvements to the river bank have been combined into a single project estimated to cost $750,000. Staff is asking for the Commission to award the engineering contract to F&V Engineering for $77,500.
16. Receive fall 2023 Saginaw Chippewa Indian Tribe 2% funding requests from City departments.
    a. City staff has prepared several grant applications for the fall 2% funding program through the Saginaw Chippewa Indian Tribe. Each City Commissioner is asked to prioritize their top five (5) projects for consideration and to provide this information at the September 25th meeting. From there, the grant applications along with this priority ranking will be provided to the Tribe. The Tribe will then announce the awards in November.
17. Receive proposed 2024 Annual Operating Budget and set a public hearing for November 13, 2023, on the same.
    a. The City Charter requires the proposed 2024 Annual Operating Budget be provided to the City Commission at the first meeting of September. The budget document will be provided to the Commission electronically and made available to residents on Monday, September 11, 2023. Members of the community may view the document through the City's website. A formal presentation on the overview of the proposed budget will occur during the September 25th City Commission meeting. Work sessions on the budget will be in October and November. It is recommended the City Commission set a public hearing for November 13, 2023, to obtain public comment on the proposed budget.
18. Consider resolution to amend 2023 Operating Budget.
    a. City staff has prepared a list of budget amendments for the 2023 fiscal year budget. These amendments are based on projected year-end positions and known financial needs of the organization. Overall health in the General Fund is very good with the fund posting more to unassigned fund balance than previously anticipated. The City Commission should consider future assignment of unassigned fund balance toward unfunded liabilities after the close of the 2023 fiscal year. Future considerations will need to be made regarding streets and recreation funding. Those discussions will take place as part of the proposed 2024 Annual Operating Budget discussion.

Public Hearings:

New Business:

20. Consider appointments to the Local Officers Compensation Commission as recommended by the Appointments Committee.
    a. The City Charter requires that a Local Officers Compensation Commission be formed to determine the salary of each elected City official. The Commission must meet this year (once every 5 years). The Appointments Committee has provided a list of individuals it recommends for service on this Commission.
21. Consider approval of a sole source purchase of peristaltic lime pumps.
    a. The City peristaltic lime pumps at the Water Treatment Plant need replacement. Staff is recommending a sole source purchase from Kerr Pump & Supply based on staff experience with the pumps. Staff will attend the City Commission meeting and provide justification for the sole source purchase request.
        i. Recommended Action: A motion to approve the purchase of three Netzsch Peripro peristaltic pumps and one set of replacement parts from Kerr Pump & Supply for $41,690.

Work Session:

Closed Session:

PROCLAMATION

WHEREAS, The United Nations General Assembly established the International Day of Peace in 1981; and

WHEREAS, Two decades later in 2001, the General Assembly unanimously voted to designate September 21 as a day for global non-violence and cease-fire; and

WHEREAS, The International Day of Peace is a day dedicated to strengthening the ideals of peace where all nations and people honor the cessation of hostilities for the duration of the day; and

WHEREAS, Supporting the United Nations with this initiative will bring us all closer to having a more peaceful, just, and inclusive society, that is free from fear and violence.

NOW, THEREFORE, I, Amy Perschbacher, Mayor of the City of Mt. Pleasant on behalf of the City Commission do hereby officially proclaim and observe September 21 as

International Day of Peace

in Mt. Pleasant and encourages our residents to recognize our individual and collective responsibility to foster peace both within our community and among all nations and peoples.

In Witness Whereof, I hereunto set my hand and the Great Seal of the City of Mount Pleasant, Michigan, this 11th day of September 2023.

_____

Amy Perschbacher, Mayor
City of Mount Pleasant, Michigan

Property Assessed Clean Energy

A quick intro

City of Mount Pleasant
September 11, 2023

Meet our Team

Todd Williams

President and General Counsel

Mary Freeman

Owner and Outreach

Jon Wylie

Associate Counsel

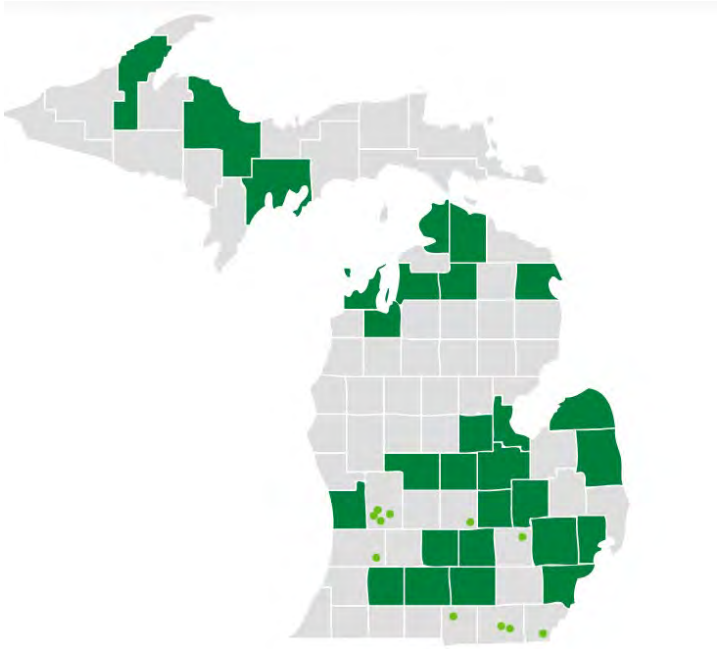
Meghan Ross

Communications and Business Associate

PACE In Michigan

PACE was established by the Michigan Property Assessed Clean Energy Act (PA 270, 2010).

Lean & Green Michigan is a public-private partnership launched in 2012 that **serves 55 counties, cities and townships** in Michigan, comprising **over 74% of Michiganders.**



lean & green MICHIGAN

Problem

Energy efficiency, water efficiency, and renewable energy projects can be expensive.

Traditional financing tools require large, up-front capital investment for a slow, long-term payback, providing little incentive for businesses to undertake these projects.

INTRODUCTION

Solution

PACE financing allows a property owner to voluntarily enter into a special assessment agreement, which can be repaid over a period up to 25 years.

Local governments get a free economic development tool.

Property owners get 100 percent up-front financing and a fixed interest rate.

PACE lenders get the security of a property lien created by the special assessment.

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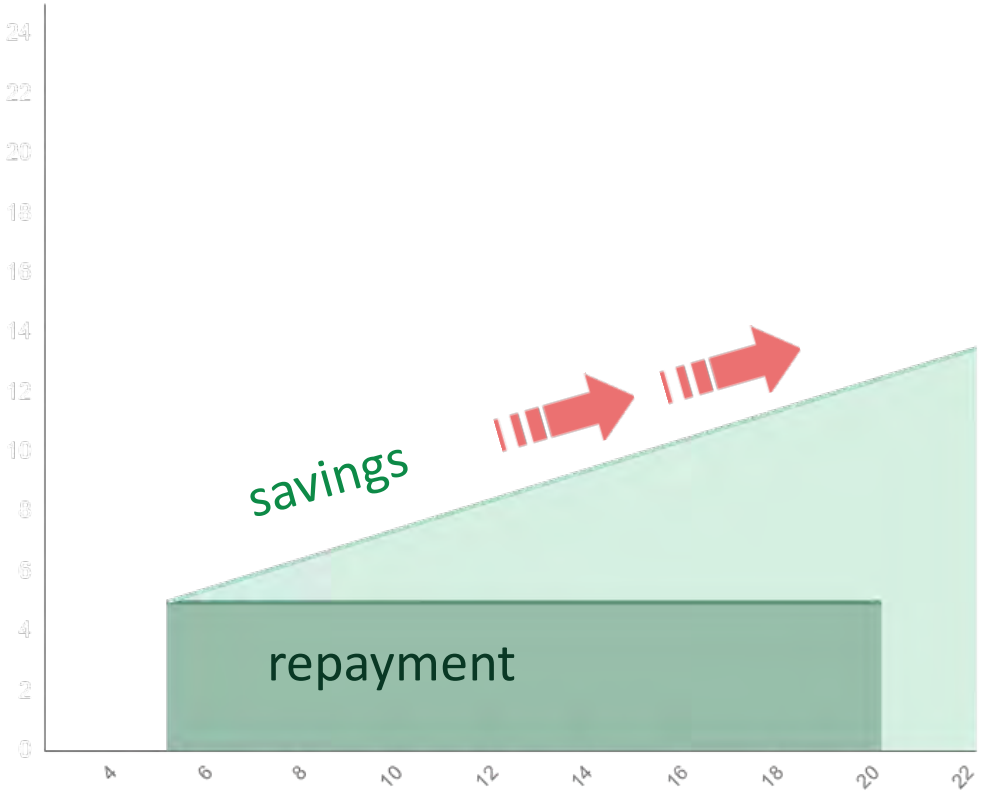
Project Cost vs. Savings



- 100% upfront financing
- Up to 25% loan-to-value ratio
- Fixed interest rates
- Long-term loans, up to 25 years
- The loan runs with the land

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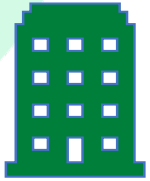
Qualified Properties:



Commercial & Industrial hotels, hospitals, restaurants, office buildings, senior living & more

Multifamily housing both market-rate and low-income apartment buildings

Agricultural farms, wineries, & more

Nonprofits houses of worship, private schools, cooperatives & more

Qualified PACE Upgrades:

Energy efficiency lighting, HVAC, windows, EV charging, insulation, roofing, caulking

Water efficiency stormwater recapture, low-flow toilets/sinks/showerheads, greywater systems, green roof, permeable pavement

Renewables solar energy, solar roofs, wind energy, geothermal, CHP

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EV charging stations are eligible

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PACE vs. PACE EXPRESS

	TRADITIONAL PACE	PACE EXPRESS
Project Cost	Greater than $250,000	$250,000 or less
Savings Guarantee		
Savings-to-Investment Ratio	Must be > 1	N/A

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Property Owner
-Business
-Hospitality
-Industiral/Agricultural
-Mixed Use
-Multi-family
-Nonprofit
-Senior Living
Contractor
-Design Poject
-Provide energy audit
-Guarentee SIR>1
PACE PROCESS
Local Government
-Provide security through special assessment
-Support local economic development
Lender
-Provide financial capital
-Underwriting process
LAGM
-Coordinate parties
-Administer of behalf of local governments
-Screen for eligible projects

PACE Amended; effective early 2024

Senate Bills SB302 and SB303

- Property owners will have the option to waive the SIR and savings guarantee for projects.

- New PACE construction projects are now required to be built above Michigan's energy code, but will no longer require a savings to investment ratio (SIR) or savings guarantee.

- Expands PACE to allow for the financing of Environmental Hazard Projects: mitigate harmful substances from drinking water, mitigate the effects of flood or drought, increase the resiliency of the property against severe weather, and mitigate lead paint contamination.

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MARKET DATA

72

PACE projects financed since 2015

$254 million

Private investment

LEAN & GREEN'S IMPACT	
kWh of Electricity Savings	574,497,680
Metric Tons of CO2 Savings	1,094,656
Gallons of Water Saved	569,226,547
Money Saved	$223,000,000+
Jobs Created	2,494

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THANK YOU!

Get in touch :

mary@leanandgreenmi.com

(313) 444 – 1474

www.leanandgreenmi.com

Mt. Pleasant Police Department

Citizen Complaint Summary

DATE: September 1, 2023
TO: Aaron Desentz, City Manager
FROM: Paul Lauria, Director of Public Safety
SUBJECT: Citizen Complaint Update

2023	Total Submitted	Gender Identification			Race (if known)							Nature of Complaint
		Female	Male	Neutral	African American	Asian	Caucasian	Hispanic/ Latino	Native American	Not Identified	Other	
January	0											
February	0											
March	0											
April	0											
May	0											
June	0											
July	1		X		X							Excessive Force
August	0											
September												
October												
November												
December												
TOTALS:	1											

Mt. Pleasant Zoning Board of Appeals
Minutes of the Regular Meeting
November 16, 2022

I. Chair Raisanen called the meeting to order at 7:00 p.m.

Present: Friedrich, McGuire, Orlik, Raisanen, Stressman, White
Absent:

Staff: Brian Kench, Laura Delamater

Kench noted we have a quorum

II. Approval of the Agenda:

Motion by Stressman support by Friedrich to approve the agenda.

Ayes: Friedrich, McGuire, Orlik, Raisanen, Stressman, White
Nays: None

Motion was approved unanimously.

III. Approval of the Minutes:

A. October 26, 2022

Orlik requested a change to page 2… that the actual point of entry is (add still) facing Broadway. Orlik also requested that it show the Public Comments were closed by Raisanen, not Orlik

Raisanen requested the word minutes be added to the correct on page 3 of the July 27, 2022 (minutes). Raisanen also requested adding (Kench) to the last sentence on page two …why Brian (Kench) spent so…

Motion by McGuire support by Friedrich to approve the October 26, 2022 minutes as amended.

Ayes: Friedrich, McGuire, Orlik, Raisanen, Stressman, White
Nays: None

Motion was approved unanimously.

IV. Communications:

A. None

V. Public Hearings:

Chair Raisanen reviewed the bylaws and board procedures for the Public Hearing.

Commissioner McGuire recused himself from ZBA-22-04 due to a conflict of interest. Alternate White participated in this case.

A. ZBA-22-04 – 514 S. Franklin – Request for a variance from Section 154.405.A of the Zoning Ordinance to allow the reduction in the required side set back from 6 feet to 5 feet as part of a lot split.

Kench introduced the ZBA-22-04 submitted by Tim Beebe on behalf of Slave & Steve Vasilovski requesting a variance from Section 154.405.A of the Zoning Ordinance to allow the reduction in the required side set back from 6 feet to 5 feet as part of a lot split.

Kench reviewed the property's zoning and other characteristics as well as the current use, zoning, and future land use of adjacent properties. The property is zoned CD-3 with the future land use being designated mixed use medium density.

Kench shared photos of the area and current conditions of the buildings currently on the property. Kench explained that other than the eve (overhang), the sites would both comply with the proposed lot split.

Kench reviewed the submitted site plans.

Discussion took place.

Orlik asked if we dealt with the issue of the (roof) overhang, and that went away or was significantly reduced, there wouldn't be any need for that variance, correct?

Kench responded that open porches may extend to the property line and if they were able to remove the 12-inch roof overhang, a variance would not be needed.

Raisanen called on the applicant(s) to present their case.

Tim Beebe, Central Michigan Survey & Development, along with Slave and Steve Vasilovski, owners of 514 S. Franklin were on hand to present their case and answer questions from the board. Beebe presented the board a series of printed photos (copies attached and made part of the minutes) of the current site containing the single-family home with the address of 209 E. Maple and the duplex addressed as 514 and 514 ½ S.

Franklin. Beebe explained that they are trying to bring the site more into compliance with the zoning ordinance as they can. Beebe explained the open-air stair case is the only entrance to the upstairs apartment and that the overhang is an important as it is the only protection from the elements.

Raisanen asked if there were any questions for the applicant(s).

Orlik asked if the stairway could be moved closer to the house to take advantage of the other part of the covering?

Beebe explained that the stairway is attached to the house. Narrowing the stairway doesn't seem practical. Beebe stated that the stairway could run all the way out to the back by the back fence to the north and then walk all the way around, but it was not very practical.

Orlik discussed the memo from the new Planning Director questioning the impervious surface coverage on the larger lot (514 S. Franklin).

Raisanen also discussed concerns for impervious surface coverage for both proposed lots and parking for the rentals.

Kench explained that they had reached out to Mr. Beebe for a calculation of impervious surface coverage. They provided updated calculations in the packet.

Vasilovski explained that the driveway of (514) actually fits 2 cars side by side.

Beebe provided a calculation of impervious surface coverage including the driveway on 514 S. Franklin as well as 209 E. Maple.

Friedrich asked for clarification that in order to meet current code, it's just the roof part (overhang) of the lower portion. They could remove 1 foot off the edge, is that correct?

Kench explained that it is only the eve (overhang) of the roof that extends over the lot line.

Friedrich asked if the most westerly post for the roof to the west of the concrete.

Beebe explained that the post was 6.1 feet and 6.2 feet but then there is a 1-foot overhang.

Friedrich questioned that if they removed the overhang, then they would be in compliant?

Beebe and Kench both responded that it would then be in compliance.

Raisanen opened the Public Hearing.

Kench noted that there were no electronic communications. There being no one who wished to speak, Raisanen closed the Public Hearing.

Raisanen asked if there were any correspondence regarding the case.

Kench discussed the (2) two comments he had received via telephone calls and comments from Director of Fire Safety, the Department of Public Works and the Director of Planning and Community Development.

Discussion took place.

Raisanen went through the finding of facts.

Discussion took place.

Friedrich stated that it seems to comply with the code is a fairly small change.

Motion by Orlik support by Friedrich to approve ZBA-22-04 filed by Slave & Steve Vasilovski, in order to permit a variance splitting two (s) conforming parcels, a variance of 11 inches in the lot line separating in what would become two (2) separate properties.

Roll Call Vote:
Ayes: Stressman, White
Nays: Friedrich, Orlik, Raisanen,

Motion did not pass; the variance was not granted.

Raisanen encouraged the applicant to work with staff (Mr. Kench) to look at alternative options.

B. ZBA-22-05 – Vacant lot at the corner of Crosslanes and Kane – Request for a variance from Section 154.405.A of the Zoning Ordinance outlining the CD-3L standards to permit the construction of a new home with the main entrance in the façade along the secondary frontage.

Kench introduced the ZBA-22-05 submitted by Chris West requesting a variance from Section 154.405.A of the Zoning Ordinance outlining the CD-3L standards to permit the construction of a new home with the main entrance in the façade along the secondary frontage.

Kench reviewed the property's zoning and other characteristics as well as the current use, zoning, and future land use of adjacent properties. The property is zoned CD-3L with the future land use – residential.

Kench reviewed the site plans of the proposed project.

Kench shared photos of the neighboring area and similar properties fronting along Kane Street.

Discussion took place.

Friedrich asked if a variance is granted should we look at increasing the amount of glazing on the Crosslanes frontage to be more in line with the 10 % zoning ordinance requirements.

Kench explained that the small increase would bring the windows into that range.

Raisanen called on the applicant to present their case.

Chris West, owner of the property was on hand to present his case and answer questions from the board.

West explained that in planning the new home, he wanted to conform with the neighborhood.

Orlik felt that the key issue is to maintain the character of the neighborhood. Orlik felt that having the primary frontage along Kane Street definitely was in character with the neighborhood. Orlik also stated that on the secondary frontage, he agreed with the commentary in the packet; the windows are out of character, they are too small for a frontage of that size.

Kench explained the glazing requirement was 10 % of the wall area and excludes the gable area.

Stressman asked about the setbacks and distance from the curb to the front of the house.

Kench explained that what was showing on the site plan were the zoning ordinance minimums. The actual setbacks would be at/or about where the existing houses are now.

Discussion took place.

Raisanen opened the Public Hearing.

Kench noted that there were no electronic communications. There being no one who wished to speak, Raisanen closed the Public Hearing.

Raisanen asked if there were any correspondence regarding the case.

Kench discussed the requirements from the Department of Public Works, building permits from the Department of Building Safety and one other comment from Judy and Mike McCracken who own 1309 E. Lincoln have no objections for this request.

Discussion took place.

Raisanen went through the finding of facts.

Motion by Orlik support by Friedrich to approve ZBA-22-05, filed by Chris West, taking into consideration that this request involves a rare vacant lot in an existing neighborhood where this house needs to conform to the existing orientation of the houses; provided that the applicant increase the proposed size of the windows facing Crosslanes by at least 10 % and meets all DPW requirements.
Vote:
Ayes: Friedrich, McGuire, Orlik, Raisanen, Stressman, White
Nays:

Motion was approved unanimously; the variance is granted.

VI. Public Comments:

Raisanen opened the public comment. Kench noted that there were no public comments submitted via zoom or electronically. There being no one who wished to address the board, Raisanen closed public comment.

VII. Old Business:

A. None

VIII. New Business:

A. Proposed Meeting Schedule for 2023

Motion by Friedrich, support by Stressman to approve the 2023 Meeting Schedule.

Vote:
Ayes: Friedrich, McGuire, Orlik, Raisanen, Stressman, White
Nays:

Motion approved unanimously

IX. Other Business:

A. None

X. Adjournment:

Motion by Friedrich, support by McGuire to adjourn.

Ayes: Friedrich, McGuire, Orlik, Raisanen, Stressman, White
Nays: None

Motion approved unanimously.

Meeting adjourned at 8:06 p.m.

lkd

City of Mt. Pleasant, Michigan
Traffic Control Order

TRAFFIC CONTROL ORDER NO. 6-2023

Issued By: _____ Date: 5-22-23
Traffic Engineer

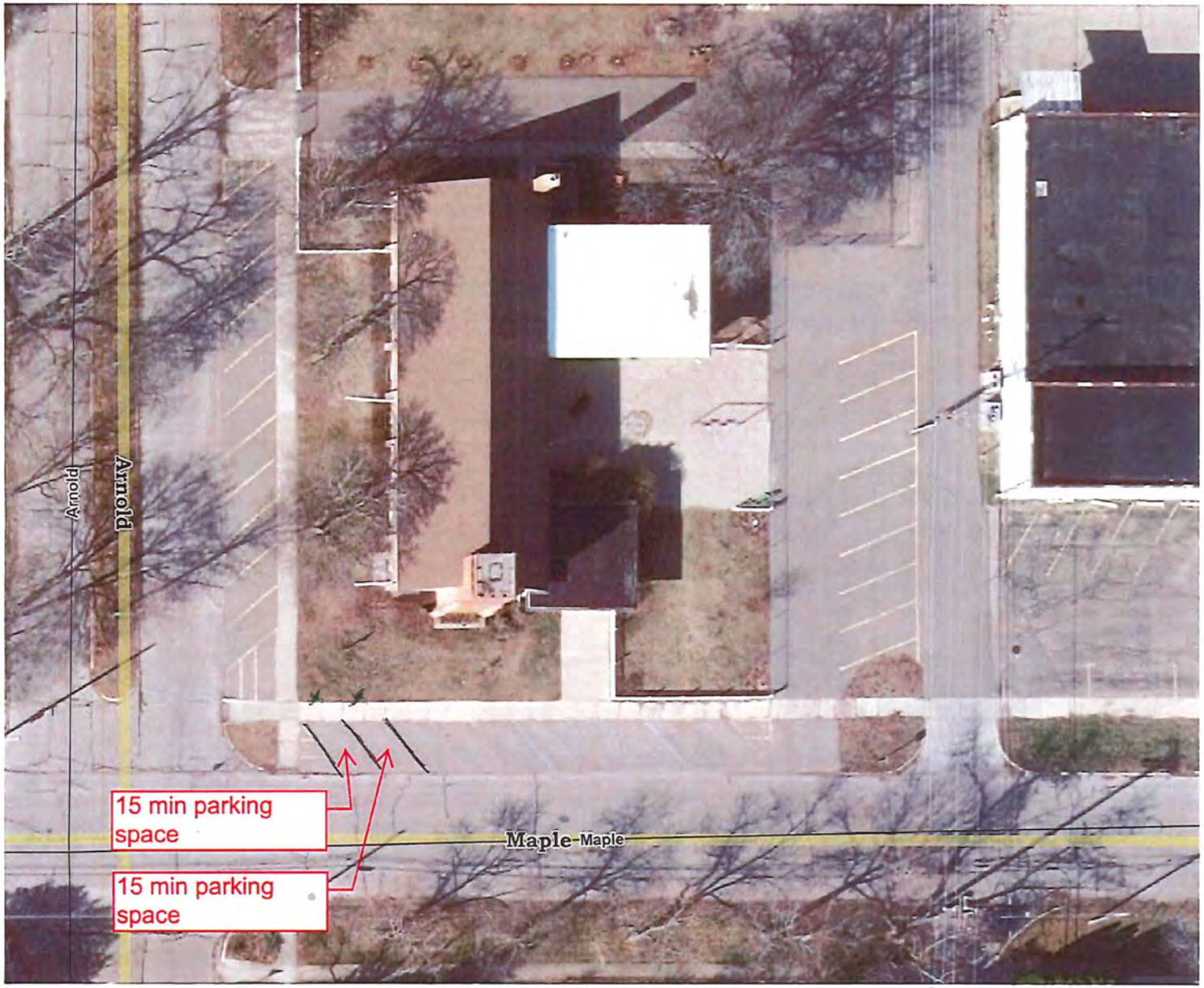
Signs/work by: #160 & #181 Date: 8-24-23
Street Department

Filed/ Attested: _____ Date: _____
City Clerk

This Traffic Control Order shall be presented to the City Commission and may receive final approval not more than 90 days from the date the work was performed by the Street Department. It shall not be renewed or extended except upon action by the City Commission.

Content: Place two 15 minute limited parking signs on the first two angled parking spaces on the north side of Maple Street east of Arnold Street in front of 701 E. Maple Street. Signs to read "15 MIN PARKING 7:30 am-5:30 pm M-F".

City of Mt. Pleasant GIS



Legend

Cadastral
Parcels
Easements

DPW

Sewer

Storm
Storm Mains
Public
Private
Current Main (Atlas)
Abandoned
Storm MHs
CBs
Inlets

Sanitary
Sewer Service
Sanitary Mains
Public
Private
Current Main (Atlas)
Abandoned
Sanitary Force Mains
Sanitary MHs
Public
Private

Water
Water Mains
Public
Private
Abandoned
Hydrants
Public
Private
Township
Valves
Water Valves
Left to Open
Right to Open
Private
Broken
Water Services
Water Services
Public
Fire Service
Private

Printed: 05-22-2023

Signs Just behind Sidewalk

City of Mt. Pleasant, Michigan
Traffic Control Order

TRAFFIC CONTROL ORDER NO. 7-2023

Issued By: Steve Tewari
Traffic Engineer

Date: 7-27-23

Signs/work by: PI + 90
Street Department

Date: 8-24-23

Filed/ Attested: _____
City Clerk

Date: _____

This Traffic Control Order shall be presented to the City Commission and may receive final approval not more than 90 days from the date the work was performed by the Street Department. It shall not be renewed or extended except upon action by the City Commission.

Content: Place a no parking sign at the dead end of North Washington Street in city street right-of-way near 603 N. Washington.

Minutes of the regular meeting of the City Commission held Monday, August 14, 2023, at 7:00 p.m. in the City Commission Room, 320 W. Broadway St., Mt. Pleasant, Michigan with virtual options.

Mayor Perschbacher called the meeting to order.

The Pledge of Allegiance was recited.

Land Acknowledgement statement was recited.

Commissioners Present: Mayor Amy Perschbacher, Vice Mayor Mary Alsager; Commissioners Brian Assmann, Bryan Chapman & Maureen Eke

Commissioners Absent: Liz Busch & Boomer Wingard

Others Present: City Manager Aaron Desentz and City Clerk Heather Bouck

Moved by Commissioner Chapman and seconded by Commissioner Eke to approve the agenda as presented. Motion unanimously adopted.

Public Input on Agenda Items

Dee Obrect, Director of Isabella County Restoration House, 5048 N. Mission Rd., Rosebush, explained the difference between affordable housing and housing insecurity and provided statistical information on the housing needs in the area.

Receipt of Petitions and Communications

Received the following petitions and communications:

1. Monthly report on police related citizen complaints received.
2. Traffic Control Committee May Meeting Minutes.
3. Parks and Recreation Commission June Meeting Minutes.
4. Planning Commission July Meeting Minutes.
5. Communication from resident James Wilmot regarding Mosher Street.
6. Notice of Temporary Traffic Control Order #5-2023.

Moved by Commissioner Eke and seconded by Vice Mayor Alsager to approve the following items on the Consent Calendar:

7. Minutes of the regular meeting of the City Commission held July 24, 2023;
8. Minutes of the closed session of the City Commission held July 24, 2023;
9. Payrolls and Warrants dated July 17, 26, & 28, 2023 and August 7 & 10, 2023 all totaling $4,020,880.47.

Motion unanimously adopted.

Held a public hearing on proposed Ordinance to adopt the 2021 International Property Maintenance Code (IPMC) and amend Title IX: GENERAL REGULATIONS; Chapter 96. *NUISANCES*; Title XV: LAND USAGE, Chapter 150. *BUILDING REGULATIONS* and Chapter

152. *HOUSING LICENSING CODE* of the Mt. Pleasant City Code to align with the new property maintenance standards.

Joe Wentworth, 704 S. University expressed his concerns with homeowners being able to maintain the Code requirements and feels the IPMC is an overreach.

There being no additional public comments or communications received, the Mayor closed the public hearing.

Moved by Commissioner Eke and seconded by Commissioner Assmann that Ordinance 1089, an Ordinance to adopt the 2021 International Property Maintenance Code (IPMC) and amend Title IX: GENERAL REGULATIONS; Chapter 96. *NUISANCES*; Title XV: LAND USAGE, Chapter 150. *BUILDING REGULATIONS* and Chapter 152. *HOUSING LICENSING CODE* of the Mt. Pleasant City Code to align with the new property maintenance standards having been introduced and read, now be passed, ordained and ordered published.

AYES: Commissioners Alsager, Assmann, Chapman, Eke & Perschbacher
NAYS: None
ABSENT: Commissioners Busch & Wingard
Motion unanimously adopted.

Moved by Vice Mayor Alsager and seconded by Commissioner Eke to appoint Mayor Perschbacher as the voting delegate and Vice Mayor Alsager as alternate for the Michigan Municipal League (MML) 2023 Annual Convention. Motion unanimously adopted.

Moved by Commissioner Chapman and seconded by Commissioner Eke to approve the Michigan Department of Labor & Economic Opportunity (MI-LEO) Michigan Community Center Grant Resolution as follows and direct staff to sign all grant documentation as necessary.

WHEREAS, the City Commission of Mt. Pleasant supports the submission of an application titled, Island Park South/Farmers' Market Pavilion Replacement to the MI Community Center grant program and,

WHEREAS, the City of Mt. Pleasant is hereby making a financial commitment to the project in the amount of $125,000 in matching, in-kind funds, and,

NOW THEREFORE, BE IT RESOLVED that City Commission hereby authorizes submission of a MI Community Center Grant Application for $2,500,000, and further resolves to make available its financial obligation amount of $125,000 (4.76%) of a total $2,625,000 project cost, during the 2023-2024 fiscal year.

AYES: Commissioners Alsager, Assmann, Chapman, Eke & Perschbacher
NAYS: None
ABSENT: Commissioners Busch & Wingard
Motion unanimously adopted.

Moved by Commissioner Eke and seconded by Commissioner Chapman to direct staff to negotiate terms of the proposed PILOT at 410 Mill St. and 200 Walnut St. Motion unanimously adopted.

Announcements on City-Related Issues and New Business

Mayor Perschbacher announced that she and Vice Mayor Alsager attended the Mayors' Convention held in Northville, Michigan. She commented that Northville has a great downtown and is a thriving area. Additionally, she announced Mt. Pleasant Public Schools, Mid-Michigan Community College and Central Michigan University will be starting back to school soon and asks all residents to be kind and patient.

Commissioner Eke announced that the Isabella County Human Rights Committee will be sponsoring a Peace Event on September 23rd at Island Park commencing at 3 p.m. In addition, she asks that all residents be welcoming and helpful to the international students joining our community.

Moved by Commissioner Eke and seconded by Commissioner Chapman to adjourn the meeting at 8:31 p.m. Motion unanimously adopted.

_____ _____

Amy Perschbacher, Mayor Heather Bouck, City Clerk

WHEREAS, under the date of July 27, 2023 the Traffic Engineer of the City of Mt. Pleasant issued temporary traffic control order No. 5-2023:

> Remove 15 minute parking sign at 121 S Kinney. New property owners do not want the sign. Sign was requested by a previous owner.

Said temporary traffic control order was presented to the City Commission on September 11, 2023, for review and after reviewing said temporary control order and being fully advised in the premises,

BE IT RESOLVED, that the City Commission approves making temporary traffic control order No. 5-2023 a permanent traffic control order.

City of Mt. Pleasant, Michigan
Traffic Control Order

TRAFFIC CONTROL ORDER NO. TCO 5-2023

Issued By: _____ Date: 7-27-23
Traffic Engineer

Signs/work by: _____ Date: 8-7-23
Street Department

Filed/ Attested: _____ Date: _____
City Clerk

This Traffic Control Order shall be presented to the City Commission and may receive final approval not more than 90 days from the date the work was performed by the Street Department. It shall not be renewed or extended except upon action by the City Commission.

Content: Remove 15 minute parking sign at 121 S Kinney. New property owners do not want the sign. Sign was requested by a previous owner.

Memorandum

Mt. Pleasant [meet here]

TO: Aaron Desentz, City Manager

FROM: Chris Saladine, Finance Director

DATE: September 11, 2023

SUBJECT: Bond Counsel Contract Amendment

At the May 22, 2023 City Commission meeting, the City Commission approved a contract with Dickinson Wright to act as our Bond Counsel to secure funding for Phase II of the Water Resource Recovery Facility rehabilitation and upgrades. The engagement letter sent by Dickinson Wright had an estimated cost that was based on the previously budgeted $9,000,000 in bonding. The engagement letter spelled out a pricing structure for various levels of bonding; however, staff did not realize the estimated cost in the letter was based on the old cost estimate prior to the bid opening. As a result, staff did not seek appropriate contract approval from the City Commission on May 22. To rectify this discrepancy, we need approval for an additional $10,500. Sufficient fund balance and budget exist within the Water Resource Recovery fund to cover this variance.

Requested Action:

Recommend approving revised bond counsel contract with Dickinson Wright for an additional $10,500

Memorandum

Mt. Pleasant [meet here]

TO: Aaron Desentz, City Manager

FROM: Jason Moore, DPW Director

DATE: August 30, 2023

SUBJECT: Award 2023-2024 Leaf Hauling Contract

The City Commission is requested to award the 2023-2024 Leaf Hauling contract to the R & T Murphy Trucking for the bid prices stated.

The City contracts with a private trucking company for leaf hauling citywide. In order to obtain the best pricing, this bid was let as a two-season contract for the 2023 and 2024 fall seasons. The bid specifications allowed for bidders to offer a discounted hourly rate if the 2023-2024 leaf hauling and 2023-2025 snow hauling contracts are awarded to the same firm. Two bids were received, and each company submitted the same pricing for both bids.

The following bids were received on August 29, 2023. For reference, the 2021-2022 bid pricing is listed in parentheses.

Truck and Operator		
Item	R & T Murphy Trucking Mt. Pleasant	Fisher Transportation Mt. Pleasant
Number of Trucks & Capacity	3 @ 45.6 cyd	5 @ 45.6 cyd 25 @ 39 cyd
Cost per hour per truck	$124.50/hr. ($118.00)	$165.00/hr. ($145.00) $150.00/hr. ($130.00)
Cost per Cubic Yard	$2.73	$3.62 and $3.85
Discounted rate if bidder is awarded both contracts	N/A (no discount)	N/A (no discount)

R & T Murphy Trucking is the low bidder. The City has contracted with R & T Murphy for several years and they have completed the work in a satisfactory manner.

I recommend the City Commission award the 2023-2024 Leaf Hauling contract to R & T Murphy Trucking for $124.50 per hour. Funds for this year's leaf collection are available in the 2023 Solid Waste Budget. Funds for next fall's collection will be included in the 2024 budget.

Memorandum

Mt. Pleasant [meet here]

TO: Aaron Desentz, City Manager

FROM: Jason Moore, DPW Director

DATE: August 30, 2023

SUBJECT: Award 2023-2025 Snow Hauling Contract

The City Commission is requested to award the 2023-2025 Snow Hauling contract to R & T Murphy Trucking for the bid prices stated.

As with leaf hauling, the City also contracts with a private trucking company for the removal of snow from the central business district. This bid includes the 2023-2024 and 2024-2025 winter seasons. The bid specifications allowed for bidders to offer a discounted hourly rate if the 2023-2024 Leaf Hauling and 2023-2025 Snow Hauling bids are awarded to the same firm. Two bids were received and each company submitted the same pricing for both bids.

The following bids were received on August 29, 2023. For reference, the 2021-2023 bid pricing is listed in parentheses.

Truck and Operator		
Item	R & T Murphy Trucking Mt. Pleasant	Fisher Transportation Mt. Pleasant
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Cost per Cubic Yard	$2.73	$3.62 and $3.85
Discounted rate if bidder is awarded both contracts	No discount	No discount

R & T Murphy Trucking is the low bidder.

I recommend the City Commission award the 2023-2025 Snow Hauling contract to R & T Murphy Trucking for $124.50 per hour. Funds are available in the Major Streets and Downtown Development Operating budgets for the 2023 portion of the contract. Funding for the remaining portion of the contract will be included in future operating budgets.

Memorandum

Mt. Pleasant [meet here]

TO: Aaron Desentz
City Manager

FROM: Phil Biscorner
Director of Parks and Recreation

DATE: August 31, 2023

SUBJECT: 2023 Professional Engineering Services – Mill Pond Park Weir & Pedestrian Bridge Repairs and Chipp-A-Waters Park Riverbank Restoration

Request:
The City Commission is requested to authorize award of the contract for "2023 Professional Engineering Services – Mill Pond Park Weir & Pedestrian Bridge Repairs and Chipp-A-Waters Park Riverbank Restoration" to Fleis & Vandenbrink of Midland, MI for a total price of $77,500. This project includes the repairs of the Mill Pond Park Weir and Pedestrian Bridge and restoration of the riverbank at Chipp-A-Waters Park.

Reason for Purchase:
This project was included in the 2023-24 CIP budget with a budget of $450,000 for construction and engineering with additional $300,000 proposed to come from a grant from the Michigan Department of Natural Resources Trust Fund to assist with implementing the project.
The City recently obtained an evaluation of the structure that recommended the following:

- In-depth evaluation of the concrete spillway structure.
- Removal of woody debris from the upstream ends of the piers.
- Patching, crack repair and waterproofing of the substructure units.
- Epoxy overlay of the concrete deck.
- Replacement of timber railings.
- Tree removal and clearing around the footprint of the structure.
- Slope stabilization.
- Asphalt trail repairs (anticipating damage during construction).

To take advantage of economy of scale savings, the City is planning to stabilize a section of the riverbank (43.5939, -84.7950) where bank erosion is encroaching on the river trail in Chipp-A-Waters Park as part of the Mill Pond Park project.

Process:
On August 22, 2023 bids were received through the City's competitive bid process. Funds for this project will come from the Capital Improvement millage.

Company Name	Address	Bid Amount
Fleis & Vandenbrink	2125 Ridgewood Dr, Ste 101, Midland	$77,500

Staff is recommending award of the bid to Fleis & Vandenbrink for a total price of $77,500 (low bidder) which is within the anticipated amount for the project. The City has reviewed references and they have successfully completed work of similar scope so we have confidence in their ability to complete the project.

Memorandum

Mt. Pleasant [meet here]

Recommended Action:
Staff recommends the City Commission authorize award of the contract for the "2023 Professional Engineering Services – Mill Pond Park Weir & Pedestrian Bridge Repairs and Chipp-A-Waters Park Riverbank Restoration" to Fleis & Vandenbrink for a total price of $77,500.

FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

May 8, 2023

Via Email: pbiscorner@mt-pleasant.org

Philip Biscorner
City of Mt. Pleasant
320 W. Broadway Street
Mt. Pleasant, MI 48858

RE: Planning Assistance for Mill Pond Park Dam Improvements

Dear Philip,

We have completed our evaluation of the City's dam/weir structure in Mill Pond Park that also carries a pedestrian bridge linking non-motorized trails in the park. We offer the following:

Existing Conditions & Recommendations

- The existing structure is a cast-in-place concrete weir maintaining a difference in upstream/downstream water levels of approximately 4 feet. The substructure includes concrete abutments at the east and west ends of the structure, two intermediate concrete piers and concrete wingwalls in the southwest and southeast quadrants. The concrete substructure supports a cast-in-place concrete deck span that carries the non-motorized trail with timber railings mounted to either side of the deck. The structure appears to be stable and in fair condition, however, several repairs and improvements are recommended to mitigate extend its useful life. Removal or replacement does not appear to be warranted at this time from a condition standpoint.
- The concrete substructure appears to be in fair condition with evidence of prior repairs. We noted scattered cracking, delamination and spalling, primarily on the ends of the piers and exposed areas of the abutments that should be repaired. A waterproofing treatment (silane or similar) is also recommended to protect the concrete from water intrusion, as the freeze-thaw cycle drives concrete deterioration.
- The concrete spillway appears to be in fair condition, however, a more in-depth evaluation with special access equipment and/or diving would be required for a full evaluation. We didn't note evidence of significant undermining or concrete deterioration. We did note significant woody debris caught on the upstream ends of the piers, which should be removed to restore a free-flowing condition.
- The concrete deck also appears to be in fair condition. We noted cracking and scaling on the surface. An epoxy overlay (or similar) is recommended to seal cracking and provide a new uniform wearing surface.
- The timber railings are in fair to poor condition. They appear to be sound, however, we noted several boards with significant warping, splitting and other defects. The railings are reaching the end of their useful life. Removal is recommended to facilitate other repair work and we recommend replacing them with new materials.

2125 Ridgewood Drive, Suite 101
Midland, MI 48642
P: 989.837.3280
F: 989.837.3290
www.fveng.com

- We noted slope erosion in all four quadrants of the structure. At the end of the southeast wingwall, geotextile fabric has been exposed by riprap loss. This riprap should be replaced. In the southwest quadrant, trees and brush should be removed to prevent root growth from impacting the structure and to allow for better visual evaluation. Additional riprap is recommended. In the northwest and northeast slopes, removal of trees and brush is recommended and construction of a sheet pile wingwall to better support the slope. Riprap in the area should be removed, salvaged, reinstalled and supplemented.
- The asphalt trail approaches to the structure are in fair condition. We noted limited cracking and settlement. Given the unique access restrictions for the site, a certain amount of asphalt damage should be anticipated, and repair costs should be accounted for in project budgeting.

Photographs taken during our site visit are attached to illustrate the existing conditions observed. Recommended repairs and improvements are illustrated in the attached Schematic Repair Plan.

Project Costs

The pre-design project cost estimate for the repair project described above is approximately $450,000. The unique access requirements for the site are anticipated to be a primary driver of construction costs. A breakdown is attached. This is a fraction of the anticipated costs of removal of the weir structure and construction of a standalone pedestrian bridge crossing.

The cost estimate also includes a budgetary estimate for bank stabilization work in Chipp-A-Waters Park. That work is similar in nature to the Mill Pond structure repairs (with similar access challenges) and including it in the overall project scope is anticipated to have economy of scale savings. The budgetary estimate for that work is approximately $180,000, depending on the length of bank to be addressed and the type of stabilization measures utilized.

Project Funding Options

We understand the City has been budgeting to address these needs. We have also identified the following potential funding programs that may be viable:

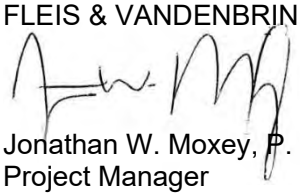
- Michigan Department of Natural Resources (MDNR) Michigan Natural Resources Trust Fund: The Trust Fund Program provides grants between $15,000 and $300,000 focused on natural resource protection and outdoor recreation. A minimum local match of 25% is required, however, we have found that at least 30-50% is required to be competitive, depending on the community and project. Applications are due April 1st annually, and having a 5-year Park and Recreation Plan on file with MDNR prior to February 1st is required. We recommend that the project be listed in the Capital Improvements Plan within the Rec Plan to demonstrate that it is a priority for the community.
- MDNR Recreation Passport Program: The Passport Program is similar to the Trust Fund but has more of a focus on renovation of existing facilities. It provides grants between $7,500 and $150,000. The local match, Rec Plan requirements and timeframes are the same as the Trust Fund Program.
- Michigan Department of Environment, Great Lakes and Energy (EGLE) Dam Risk Reduction Program: This program's objectives are to reduce or eliminate risk associated with dams; ensure regulated dams are in compliance with Part 307 or Park 315; develop strong relationships with private dam owners or operators and provide resources as needed; protect environmental and human health threatened by aging dam infrastructure. Part 307 and 315 only apply to structures over 6 feet in height and based on preliminary measurements (and the fact that the structure is not currently being inspected under Part 307/315), this structure does not appear to be eligible for funding. If the 6-foot height was demonstrated, this program had $13M available in the 2023 funding cycle with a minimum local match of 10%. The 2024 funding cycle is anticipated to begin in fall 2023 with applications due March 1, 2024.

We are available to assist the City in submitting applications for any of the programs listed above, and others. Outside funding is competitive, comes with program-specific requirements and dictates the schedule to some extent.

We appreciate the opportunity to assist you with this project and look forward to next steps, whatever they may be. In the meantime, please feel free to contact us with any questions.

Sincerely,

FLEIS & VANDENBRINK



Jonathan W. Moxey, P. E.
Project Manager

Enclosures

View of structure from east approach

Elevation view of structure looking north

Weathering and splitting in timber railing

Cracking and scaling in concrete surface

Severe warping in timber rail member in northwest

Slope erosion in northwest encroaching on trail

View of southwest railing transition area

Slope erosion in northwest encroaching on trail

Spalling and prior repairs on southeast abutment/wingwall area

View of southeast wingwall looking northeast

View of southwest wingwall area looking north

Cracking, delamination and spalling on upstream end of pier

Elevation view of structure looking south

Tree and brush growth in northwest quadrant

Cracking and delamination on south end of west pier

Cracking and delamination on southwest abutment/wingwall area

Heavy timber debris caught on piers

Asphalt curbing/spillway area in southeast

Exposed geotextile from riprap loss at end of southeast wingwall

Tree and brush growth in northeast quadrant

View of downstream spillway area looking west

View of east span from northeast bank area

View of spillway area looking west

Area of bank erosion concern in Chipp-A-Waters Park

City of Mt. Pleasant
Mill Pond Weir & Pedestrian Bridge Structure Repairs
Engineer's Pre-Design Estimate of Probable Project Costs

FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

Project No.: 859320
By: JWM
Date: 5/6/2023

Mill Pond Park Structure Repairs

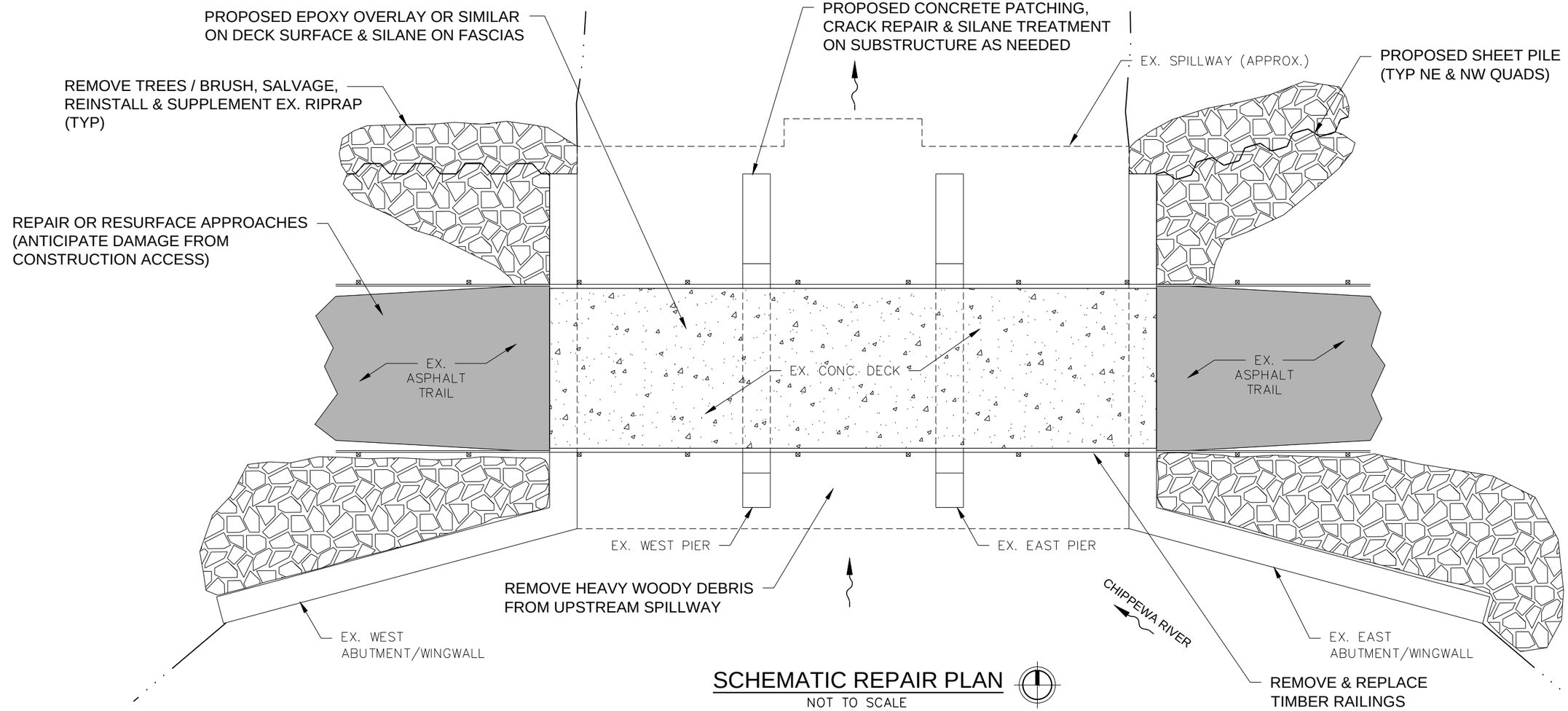
ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	EST. UNIT PRICE	EST. PRICE
1	General Conditions, Bonds & Insurances (10%)	LSUM	1	$ 23,300.00	$ 23,300.00
2	Temporary Site & Traffic Controls	LSUM	1	$ 10,000.00	$ 10,000.00
3	Soil Erosion & Sedimentation Controls	LSUM	1	$ 5,000.00	$ 5,000.00
4	Falsework and Shoring	LSUM	1	$ 25,000.00	$ 25,000.00
5	Tree Removal and Clearing	LSUM	1	$ 10,000.00	$ 10,000.00
6	Concrete Patching	Cft	100	$ 250.00	$ 25,000.00
7	Concrete Crack Repair	Ft	100	$ 100.00	$ 10,000.00
8	Silane Treatment	LSUM	1	$ 20,000.00	$ 20,000.00
9	Steel Sheet Piling	Sft	1,000	$ 50.00	$ 50,000.00
10	Riprap, Heavy	Syd	200	$ 100.00	$ 20,000.00
11	Epoxy Overlay	Syd	60.0	$ 100.00	$ 6,000.00
12	Approach Asphalt Repairs	LSUM	1	$ 100,000.00	$ 100,000.00
13	Turf Restoration & Mulch Blanket	Syd	200	$ 10.00	$ 2,000.00

Estimated Construction Costs (rounded):	$ 307,000
Undeveloped Details & Contingencies (25%):	$ 77,000
Est. Design & Construction Engineering, Permitting & Admin (20%):	$ 62,000
Total Estimated Project Cost:	**$ 446,000**

Chipp-A-Waters Park Bank Stabilization

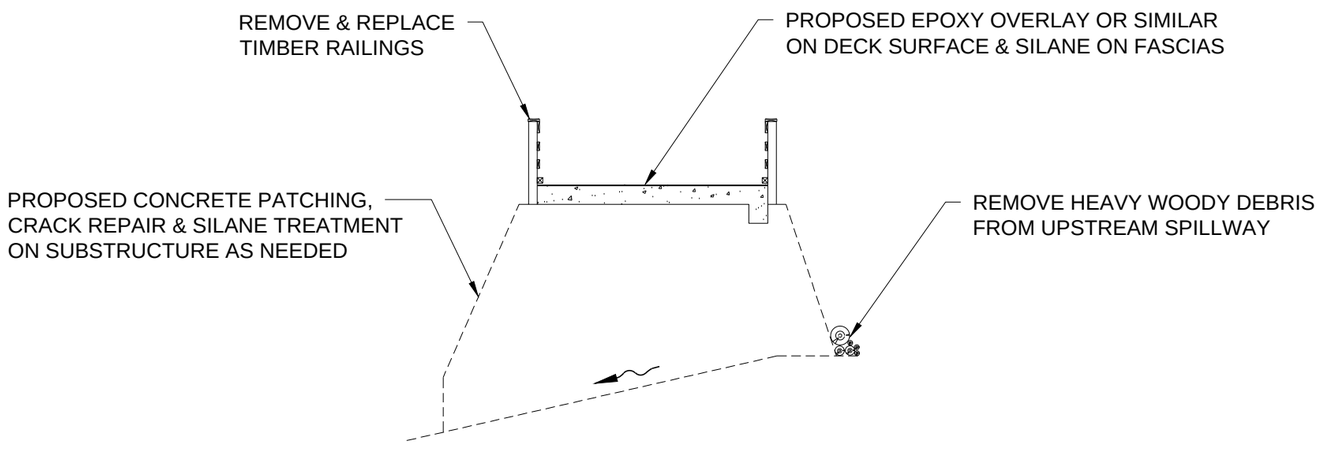
ITEM NO.	ITEM DESCRIPTION	UNIT	EST. QTY.	EST. UNIT PRICE	EST. PRICE
1	General Conditions, Bonds & Insurances (10%)	LSUM	1	$ 10,000.00	$ 10,000.00
2	Temporary Site & Traffic Controls	LSUM	1	$ 5,000.00	$ 5,000.00
3	Soil Erosion & Sedimentation Controls	LSUM	1	$ 5,000.00	$ 5,000.00
4	Tree Removal and Clearing	LSUM	1	$ 2,000.00	$ 2,000.00
5	Bank Stabilization	Ft	150	$ 200.00	$ 30,000.00
6	Riprap, Heavy	Syd	400	$ 100.00	$ 40,000.00
7	Approach Asphalt Repairs	LSUM	1	$ 20,000.00	$ 20,000.00
8	Turf Restoration & Mulch Blanket	Syd	1,000	$ 10.00	$ 10,000.00

Estimated Construction Costs (rounded):	$ 122,000
Undeveloped Details & Contingencies (25%):	$ 31,000
Est. Design & Construction Engineering, Permitting & Admin (20%):	$ 25,000
Total Estimated Project Cost:	**$ 178,000**



SCHEMATIC REPAIR PLAN

NOT TO SCALE



SCHEMATIC REPAIR SECTION

NOT TO SCALE

CITY OF MT. PLEASANT
ISABELLA COUNTY, MICHIGAN
MILL POND WEIR
& PEDESTRIAN BRIDGE
SCHEMATIC REPAIR PLAN
FIGURE 1

F&V PROJECT NO. 859320

F&V

Mill Pond Park Dam

PROFESSIONAL SERVICES AGREEMENT

FLEIS & VANDENBRINK ENGINEERING, INC.
2125 Ridgewood Drive, Suite 101, Midland, MI 48642
P: 989.837.3280 F: 989.837.3290

This Professional Services Agreement ("PSA") is entered into between Fleis & VandenBrink Engineering, Inc. ("Engineer") and **City of Mt. Pleasant**, whose address is **320 W. Broadway Street, Mt. Pleasant, MI 48858**, ("Owner") where Engineer agrees to provide services for Owner and Owner agrees to pay Engineer, all in accordance with the terms of this PSA.

DESCRIPTION OF PROJECT AND SCOPE OF SERVICES: The description of the Project ("Project") and the scope of services ("Services") provided under this PSA is as follows: **Mill Pond Park Weir & Pedestrian Bridge Repairs and Chipp-A-Waters Park Riverbank Restoration**

AGREEMENT DOCUMENTS: All obligations covered under this PSA are governed by the Agreement Documents, which specifically include this PSA and all of the following documents, which are all incorporated herein by reference:
Engineer's proposal dated **August 22, 2023.**

COMPENSATION OF ENGINEER:
This contract is a Lump Sum Fee contract in the amount of **$77,500**, billed monthly based on the percentage of Work completed.

Authorized additional services will be provided on an hourly basis plus 1.1 times reimbursable expenses unless otherwise negotiated.

Owner shall Pay Engineer for all Services and reimbursable expenses on a monthly basis or as otherwise stated herein which shall be due and payable within fifteen (15) calendar days of presentation of the invoice. Invoices shall be past due fifteen (15) calendar days after presentation, and shall then incur interest at the rate of 7% per annum, or the highest rate permitted by law, whichever is lower. Reimbursable expenses include the cost of subconsultants.

PAYMENT. If Owner fails to make any payment when due, Engineer may suspend performance of Services hereunder until all past due amounts and accrued interest are paid. Engineer shall have no liability of any type as a result of suspension of services caused by Owner's failure to pay. The suspension of Services shall not limit any other remedy available to Engineer.

If Owner objects to any portion of an invoice, Owner shall notify Engineer in writing within seven (7) calendar days of presentation. Owner shall identify the disputed charges and shall pay when due that portion of the invoice not in dispute. If the disputed amount of the invoice is resolved in Engineer's favor and not paid by the invoice due date, interest as stated in the agreement shall be paid by Owner on the disputed amount from the original due date.

The Owner's Payment of Engineer's invoices shall not be subject to any right of setoff, and payment shall be due regardless of suspension or termination of this Agreement by either party. If any payment obligation is not paid when due, Owner agrees to pay all costs of the collection, including actual attorney's fees through all levels of appeal, whether or not a legal proceeding for collection is commenced as part of the collection process.

OWNER REPRESENTATIVE. The Owner's representative for this Project shall be the **Parks & Public Spaces Director** who shall have complete actual authority on behalf of the Owner and its governing body to make all decisions in connection with the PSA.

OWNER RESPONSIBILITIES. The Owner shall timely furnish, at the Owner's expense, all information, requirements, reports, data, surveys and instructions required by this Agreement. The Engineer may use such information, requirements, reports, data, surveys and instructions in performing its services and is entitled to rely upon the accuracy and completeness thereof. The Engineer shall not be held responsible for any errors or omissions that may arise as a result of erroneous or incomplete information provided by the Owner and/or the Owner's Engineers and contractors.

CHANGES. For all services that were completed due to changes to the Description of the Project and/or the Scope of Services, Engineer shall be paid by Owner on an hourly basis at Engineer's customary hourly rates, plus 1.1 times reimbursable expenses, unless otherwise negotiated. If the construction period extends beyond the contracted period in the Scope of Services or the contracted completion date, all services of Engineer thereafter shall continue to be performed and shall be paid by Owner on an hourly basis plus 1.1 times reimbursable expenses. Owner understands and accepts that field techniques and analytical capabilities are evolving and that the standards and regulations are subject to rapid change such that currently acceptable investigative approaches and techniques may become superseded after the time of the signing of this PSA. Such changes will constitute changed conditions requiring adjustment in the Services and Engineer's Compensation.

DELAYS. Engineer shall not be responsible to Owner for any delay of any type or kind unless caused in whole by Engineer.

CONSULTANTS. Engineer may engage Consultants and subcontractors to perform, in its sole discretion, all or any portion of the Services.

COST ESTIMATES. Engineer has no control over the costs of labor and material for construction or over competitive bidding and market conditions. All cost estimates provided by Engineer are based on Engineer's experience and are considered opinions of probable cost. Engineer does not warrant the accuracy of any cost estimate. If project costs exceed the Owner's expectations and the Owner decides to re-design or re-bid any or all portions of the Work, all re-design, re-bid or other services provided by Engineer shall be paid by Owner on an hourly basis at Engineer's customary hourly rates, plus 1.1 times reimbursable expenses.

INDEMNITY. Owner indemnifies, defends and holds harmless Engineer and its agents, consultants and employees, from and against any claim, injury, damage, cost, expense or liability, regardless of the legal theory, including actual attorneys' fees, whether arising before, during or after completion of Services performed under the PSA, caused by, arising out of, resulting from or occurring in connection with the performance of the Services or any activity associated with the Services, whether or not caused in part by the active or passive negligence or other fault of Engineer excepting only injury to person or damage to property caused by the sole negligence of Engineer. In the case of claims against Engineer or any of its consultants, agents or employees by anyone for whose acts Owner may be liable, this indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable under workers' compensation acts and/or disability benefit acts. This indemnity includes, but is not limited to, any claims resulting from interpretation of or changes to the documents prepared as a result of this PSA. This indemnity survives termination of this PSA.

In addition to the indemnity provided herein by Owner, Owner shall indemnify and hold harmless Engineer and its officers, directors, partners, agents, employees and consultants from and against any and all claims, costs, losses, and damages (including but not limited to all fees and charges of Engineer, architects, attorneys and other professionals, and all court, arbitration, or other dispute resolution costs) caused by, arising out of, relating to or resulting from any and all environmental contamination on the Project.

Engineer, to the extent covered by insurance, indemnifies, defends and holds harmless Owner and its agents and employees, from and against any claim, injury, damage, cost, expense or liability, arising out of or relating to the Services provided by Engineer for the Project, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or injury to or destruction of tangible property other than the work itself, but only to the extent caused solely by any negligent act or omission of Engineer or Engineer's officers, directors, partners, employees or consultants.

To the fullest extent permitted by law, a party's total liability to the other party under the terms and conditions of this PSA including any indemnity, as well as to anyone claiming by, through or under the other party, for any cost, loss, or damages caused in part by the negligence of the party and in part by the negligence of the other party, and any other negligent entity or individual, shall not exceed the percentage share that the party's negligence bears to the total negligence of all of the responsible parties.

PERFORMANCE STANDARDS. The Engineer shall perform its services consistent with the professional skill and care ordinarily provided by other engineers performing similar services in the same or similar locality under the same or similar circumstances. The Engineer shall perform its services as expeditiously as is consistent with such skill and care and the orderly progress of the Project.

MUNICIPAL ADVISOR. Engineer's services do not include (1) serving as a "municipal advisor" for purposes of the registration requirements of Section 975 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010) or the municipal advisor registration rules issued by the Securities and Exchange Commission, or (2) advising Owner, or any municipal entity or other person or entity, regarding municipal financial products or the issuance of municipal securities, including advice with respect to the structure, timing, terms, or other similar matters concerning such products or issuances.

LIMITATION OF LIABILITY. Engineer shall not be liable for any claim, damage, cost, expense or other liability not caused by negligent acts, errors or omissions of Engineer. The total liability of Engineer under any legal theory whatsoever, in the aggregate, as well as any claimed liability of Engineer's officers, directors, employees, or agents or consultants, for any claims arising out of the PSA, shall not exceed the fees actually paid by the Owner for the particular Service which forms the basis of the claimed liability.

Engineer makes no warranties, express or implied, with respect to the Services under the PSA, and disclaims any liability for implied warranties of any type or kind, including but not limited to implied warranties of fitness or merchantability, and disclaims any liability for special or consequential damages of any type or kind. Within these limitations, Engineer shall not be liable in any way for errors, omissions or negligence unless caused by the sole and exclusive negligence of Engineer. For all PSAs which involve multiple projects or general consultations, or various services for various projects over a period of time, liability shall not exceed the fee actually paid by the Owner for the particular Services on the specific Project or consultation or assignment which forms the basis of the claimed liability and any statute of limitations shall commence upon the completion of the task giving rise to the claim, not the last unrelated service provided under the PSA for general consultation services. To the extent that Engineer may be found liable under the terms of this paragraph, and only to such extent, Engineer's liability shall not exceed the percentage share of Engineer's responsibility.

INSURANCE. Upon Owner's request, Engineer will furnish Owner with a written statement of insurance coverage. No oral representations regarding insurance shall be binding.

SITE ACCESS. Owner shall be solely responsible for obtaining all site access, easements, and permission from third party property owners for Engineer to access the site to perform the Services herein. Owner is solely responsible for any claims arising from the disturbance of surface or subsurface soil or water conditions caused by the performance of Engineer's Services, excepting damages caused by the sole negligence of Engineer. Engineer will take reasonable precautions to avoid damage to underground structures and utilities. Owner indemnifies Engineer from any damage caused by or to underground structures and utilities not called to Engineer's attention, all in accordance with the indemnity provisions herein. Owner shall provide Engineer with a list of all known hazardous substances on site and a list of protective measures in case of exposure, all in compliance with the current Federal, State and Local Right to Know laws and Federal Hazard Communication Standards.

SHOP DRAWINGS AND SUBMITTALS. If shop drawing or submittal review is part of the Services Engineer provides, Engineer will review the shop drawings and submittals only for conformance with the design concept of the project and compliance with the Contract Documents. Unless specifically indicated in writing, this PSA does not include the preparation of record drawings.

REJECTION OF WORK. In the event that the Scope of Services includes construction phase services in the form of site observation, then Engineer shall have the authority to reject any work which is not, in the judgment of the Engineer, in conformance with the Contract Documents, Plans and Specifications. Neither this authority nor Engineer's good faith judgment to reject or not reject any work shall subject Engineer to any liability or cause of action to any contractor, subcontractor, supplier, or Owner on the Project.

SPREAD OF CONTAMINATION. Owner understands and agrees that Engineer shall not be responsible for any claims or damages which may arise as a result of or from the spread of contamination caused by drilling, sampling or any other activity unless such spread or contamination is substantially caused by the negligence of Engineer. To the extent that Engineer may be found liable under the terms of this Paragraph, and only to such extent, Engineer's liability shall not exceed the percentage share of Engineer's responsibility.

FAILURE TO ENCOUNTER HAZARDOUS MATERIALS. Owner understands that the failure to discover hazardous materials does not guarantee that; (1) hazardous materials do not exist at the project site, and/or (2) that a non-contaminated site may later become contaminated. Although Engineer will use reasonable care and a level of skill ordinarily exercised by members of the profession currently practicing in the city, municipality or political subdivision where the Project is located under similar conditions, Owner agrees that Engineer shall not be responsible for the failure to detect the presence of hazardous materials through techniques and practices commonly used for those purposes.

PERMITS AND APPROVALS. Unless otherwise specifically stated in the Scope of Services, obtaining permits and approvals for the Project is the responsibility of the Owner. For an additional fee, Engineer may assist the Owner provided the assistance shall consist of completing and submitting forms as to the results of certain work included in the Scope of Services and the assistance does not include special studies, special research, attendance at meetings with public authorities, special testing or special documentation not normally required for similar projects. If Engineer participates in any way with any permitting process, Engineer provides no guaranty or warranty that any permits or approvals will be provided. Owner shall pay Engineer for all fees and reimbursable expenses under this PSA regardless of the outcome of approval or denial of permits or other approvals.

ADA AND CODE COMPLIANCE. The Americans with Disabilities Act ("ADA") provides that alterations to a facility must be made in such a manner that, to the maximum extent feasible, the altered portions of the facility are accessible to persons with disabilities. The Owner acknowledges that the

requirements of the ADA will be subject to various and possibly contradictory interpretations. To the extent applicable, the Engineer will use its reasonable professional efforts and judgment to interpret applicable ADA requirements and other federal, state and local laws, rules, codes, ordinances and regulations as they may apply to the Project. The Engineer does not warrant or guarantee that the Project will comply with all interpretations of the ADA requirements and/or the requirements of other federal, state and local codes, rules, laws, ordinances and regulations as they may apply to the Project. Owner shall pay Engineer its customary hourly fees plus 1.1 times reimbursable expenses for any design changes made necessary by newly enacted laws, codes and regulations, or changes to any existing laws, codes or regulations after the date that this PSA is last signed by the parties.

WAIVER. No delay on the part of any party hereto in the exercise of any right or remedy shall operate as a waiver of such right or remedy and a waiver on any one (1) occasion shall not be construed as a bar to or a waiver of any subsequent breach of the same or any other provision of the agreement on a future occasion. No waiver by Engineer of any breach by Owner of a provision of this PSA shall be deemed a waiver of any other provision hereof or of any subsequent breach by Owner of such provision.

ENFORCEABILITY. This agreement shall be binding upon the parties hereto and their respective successors and assigns.

SEVERABILITY. In the event that any one (1) or more provisions contained in the agreement shall be declared invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions of the agreement shall not be affected or impaired.

OWNERSHIP OF INSTRUMENTS OF SERVICE. Engineer's documents prepared pursuant to this PSA, including those in electronic format, are instruments of service. All reports, plans, specifications, computer files, field data, notes and other documents prepared by Engineer as instruments of service shall remain the property of Engineer. Engineer shall retain all common law, statutory and other reserved rights, including the copyright thereto and all other intellectual property rights. Owner shall not use or permit the use of said documents on any other project. Owner fully indemnifies Engineer against any and all claims for unauthorized use.

TERMINATION: This PSA may be terminated by either party upon seven (7) calendar days' written notice. Upon termination, Engineer shall be paid by Owner for all Services performed up to the notice of termination, as well as all costs necessary to demobilize from the site.

DISPUTE RESOLUTION: In the event of a dispute arising out of or relating to this Agreement or the services to be rendered hereunder, the Owner and the Engineer agree to attempt to resolve such disputes in the following manner: First, the parties agree to attempt to resolve such disputes through direct negotiations between the appropriate representatives of each party. Second, if such negotiations are not fully successful, the parties agree to attempt to resolve any remaining dispute through mediation using a mediator agreed upon between both parties. Owner and Engineer agree to participate in the mediation process in good faith. The process shall be conducted on a confidential basis, and shall be completed within 120 days. If such mediation is unsuccessful in resolving a Dispute, then the parties may (1) mutually agree to a dispute resolution of their choice, or (2) either party may seek to have the Dispute resolved by a court of competent jurisdiction. The venue for a court resolution will be Kent County, Michigan.

NO THIRD PARTY BENEFICIARIES. There are no third party beneficiaries to this PSA and the Services provided herein are exclusively for the direct benefit of the Owner indicated above. Owner shall ensure that all other agreements relating to this project reflect that there are no third party beneficiaries to this PSA.

ASSIGNMENT. This is a professional services contract and is non-assignable without the express written consent of Engineer.

MISCELLANEOUS. No additional or contrary terms, whether contained in an order, acknowledgment, or other document from Owner, shall be binding upon Engineer unless agreed to in writing signed by an authorized representative of Engineer, and Engineer expressly rejects all such additional or contrary terms as may be contained in Owner's documents. The terms in this PSA will have precedence over any other terms expressed by the Owner's authorization process such as a purchase order. Engineer's performance is conditioned on Owner's unmodified consent exclusively to this PSA. Engineer shall have the right to correct any errors, whether clerical or mathematical, which are contained in this PSA. Unless otherwise specifically indicated in writing or otherwise required by law and paid for by Owner, there are no Performance or Payment bonds required on this Project. This PSA shall be binding upon and shall inure to the benefit of the parties hereto and their successors and permitted assigns. This PSA shall be governed by the laws of the State of Michigan. This contract sets forth the entire agreement between Engineer and Owner. This is a fully integrated contract.

ELECTRONIC/FACSIMILE SIGNATURES. The signatures on this PSA shall be deemed to be original signatures when transmitted electronically or by facsimile machine or by any other medium. No party shall be required to produce a PSA with an original signature in order to enforce any provision of this PSA.

IN WITNESS WHEREOF, the parties hereto have made and entered into this PSA. To be valid, this PSA must be signed by an authorized representative of Fleis & VandenBrink Engineering, Inc.

OWNER **CITY OF MT. PLEASANT**		ENGINEER **FLEIS & VANDENBRINK ENGINEERING, INC.**	
By:	_____	By:	_____
	_____		Gary Bartow
Title:	_____	Title:	Group Manager
By:	_____	By:	_____
	_____		Jonathan W. Moxey, PE
Title:	_____	Title:	Project Manager
Date:	_____	Date:	September 1, 2023

ADDITIONAL PROVISIONS - CONSTRUCTION OBSERVATION

1. **DEFINITIONS.**

1.1. Contract Documents shall mean construction agreement(s) between Owner and Contractor(s), including plans, specifications, addenda and change orders.

1.2. Contractor shall mean the person or entity providing construction services to Owner, as defined in the Contract Documents.

2. **SITE OBSERVATION.**

2.1. The Engineer shall visit the site as defined in the Scope of Services to become generally familiar with the progress and quality of the portion of the Work completed, and to determine, in general, if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Engineer shall not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits, the Engineer shall keep the Owner reasonably informed about the progress and quality of the portion of the Work completed. Engineer will not be responsible for the means, methods, techniques, and procedures of construction observed during such visits. Engineer will not be responsible for the Contractor's failure to perform the work in accordance with the Contract Documents.

2.2. Based solely on Engineer's on-site observations and Engineer's review of the Contractor's applications for payment, Engineer will recommend in writing to Owner payment to the Contractor. Such recommendations of payment to constitute a representation to Owner, based solely on such observation, review and the data comprising such applications, that to the Engineer's knowledge, information and belief, the work has progressed to the point indicated and that to the Engineer's knowledge, information and belief the quality of the work is generally in accordance with the Contract Documents.

2.3. Engineer will conduct, in company with Owner, a final review of the Project for conformance with the design concept of the Project, and compliance with the information given by the Contract Documents, and recommend, in writing, payment to the Contractor, on the same basis as set forth above.

3. **OWNER RESPONSIBILITIES.** Owner will:

3.1. Provide full information as to his requirements for the Project. Assist Engineer by placing at Engineer's disposal all available information pertinent to the Project, including previous site reports and any other data relative to the design or construction of the Project.

4. **SITE SAFETY PROGRAMS AND PRECAUTIONS.**

4.1. Owner acknowledges that the Contractor, not Engineer, is responsible for initiating, maintaining and supervising all safety programs and all safety precautions in connection with the work.

4.2. Engineer shall neither have control over, nor be responsible for, safety programs and precautions in connection with the work, since these are solely the responsibility of the Contractor.

4.3. Neither the professional activities of the Engineer, nor the presence of the Engineer or its employees at the site, shall impose any duty on the Engineer, nor relieve the Contractor of its responsibility for jobsite safety.

Chipp-A-Waters Park River Bank Restoration

SEMI-ANNUAL TWO PERCENT ALLOCATION

CITY OF MT. PLEASANT REQUESTS

FALL 2023

DEPARTMENT/PROJECT NAME		AMOUNT	PRIORITY
Airport			
Runway/Taxiway Rehab	$	50,000	C
Building			
Energy Efficiency and Building Sustainability	$	60,000	H
Downtown Development			
Town Center Civic Space	$	189,000	H
Engineering			
1303 N Franklin Former Landfill Remediation & Monitoring	$	50,000	L
City Hall Retaining Wall-Broadway Street Sidewalk Replacement	$	70,000	M
Sidewalk Replacement	$	150,000	M
Parks			
Mid Michigan/GKB Riverwalk Pathway Northern Connection	$	200,000	H
Police			
Aerial Fire Apparatus	$	250,000	C
Mt. Pleasant Police Vehicle and Body Camera Project	$	406,620	C
Public Works			
Pickard and Bradley Traffic Signal	$	84,100	H
Streets			
Asphalt Overlays and Street Resurfacing	$	976,000	M
Broadway Street Storm Sewer Upgrade	$	215,000	M
Close Crawford Road Sidewalk Gaps	$	23,000	M
Kinney Street Mill and Overlay	$	290,000	M
Pickard Storm Sewer	$	247,780	H
Water			
Automatic Water Meters	$	59,940	M
Lime Disposal	$	215,000	H
Water Resource Recovery			
Food Waste/Organics Receiving	$	300,000	M
Total Requested	**$**	**3,836,440**	

Priority Definitions

Critical:

- Project must be done to address failure of infrastructure OR
- Funding is needed to support essential program or it will not be able to continue

High:

- Important project or program to meet current service or program needs

Medium:

- Important project or program to meet future or new service or program needs

Low:

- New project or program that would be nice to have

Overview

Project Name
Runway/Taxiway Rehab

Total Requested
$50,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
Critical

Reocurring Need?
This Request is Reocurring

Applicant Information

Applicant Name
bbrickner@mt-pleasant.org

Applicant Email
Bill Brickner

Organization
Mt. Pleasant Airport

Address
5453 E. Airport Rd
Mt. Pleasant , 48858

Phone Number
9897722965

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Project Partners

Partnered With
Union Township

Authorizers
Mark Stuhldreher mstuhldreher@uniontownshipmi.com

Status
Review

Address
2010 S Lincoln Road
Mount Pleasant, Michigan 48858

Phone
989-772-4600

Fax

989-773-1988

Partnered With
Isabella County

Authorizers
nfrost@isabellacounty.org

Dan Gahagan dgahagan@sagchip.org

Erik Rodriguez erodriguez@sagchip.org

Status
Review

Address
200 N. Main Street
Mount Pleasant, Michigan 48858

Phone
989 772-0911

Fax

Categories

- Economic development
- Infrastructure
- Safety/Security
- Transportation

Project Description

This funding is to match the Federal and State funding provided to rehabilitate Taxiway "A" and Runway 9/27. In 2022, consultants began the design work for the Taxiway "A" rehabilitation. This project will include lighting, signage, runway re-designation, and repaving of Taxiway "A". It is anticipated the construction work will commence during the 2024 construction season. In 2024, it is anticipated the design work for Runway 9/27 would begin with construction taking place in 2025. Projected costs for these projects are $7,036,000 with Federal grants covering $6,332,400, and State grants covering $351,800, and required local share of $351,800. The lighting and pavement in these areas are near the end of their useful life, and will be in need of rehabilitation in order for the airport to remain an economic driver for the community.

Benefit Description

The airport is a driver for economic development and business growth. The Mt. Pleasant Airport is a major gateway to the Tribal community's casino and resort operations. The funding would help to ensure safe airport operations by having safe and reliable infrastructure. Entertainers and patrons alike, appreciate the convenience and service they experience at the airport when coming to visit or preform at the resort. Runways and Taxiways are the most important features for safe travel to and from the airport.

Funding Requirements

The funding request is for $50,000 for each of the next two years, to accumulate funds, which will assist in covering the match requirements for Federal and State grants for these required projects. This request is for the third contribution towards the required match.

Description of Reocurring Need

Project Timeline

Taxiway "A" anticipated schedule
2022 Design
2024 Construction

Runway 9/27 anticipated schedule

2024 Design
2025 Construction

Budget Items

Name	Cost	Quantity	Total	Category
Runway/Taxiway Rehab	$50,000.00	1	$50,000.00	Transportation
AmountRequested	**$50,000.00**			

Matching Funds

Name	Cost	Quantity	Total
Runway/Taxiway Rehab Federal Grant	$6,332,400.00	1	$6,332,400.00
Runway/Taxiway Rehab State Grant	$351,800.00	1	$351,800.00
Runway/Taxiway Rehab Local Share	$351,800.00	1	$351,800.00
AmountMatched	**$7,036,000.00**		

Budget Summary

Amount Requested

$50,000.00

Amount Matched

$7,036,000.00

Total Amount

$7,086,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name
Energy Efficiency and Building Sustainability

Total Requested
$60,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
High

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
bkench@mt-pleasant.org

Applicant Email
Brian Kench

Organization
City of Mt. Pleasant

Address
320 W Broadway Street
Mount Pleasant , 48858

Phone Number
9893303866

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Education
- Environmental

Project Description

• Building Sustainability
Project Description

Central Michigan University sponsored an internship with the city to assist in creating a city-wide energy efficiency and building sustainability program in the summer of 2023. Much of the initial work included reviewing available rebate/grant opportunities and placing them into a condensed and easily understandable format for residents. Some of that work is already available on the City's website.

The next phase of the project will include securing funding to provide an extensive energy audit, for residents, that will provide a report

that will target low cost-no cost items to reduce energy, along with recommendation on upgrading obsolete heating and cooling equipment, water heaters, water saving devices, along with improving building envelope to address comfort and performance through updated windows, insulation, and sealants.

The program will allow us to benchmark the city as a whole and look for ways to challenge the community in making updates to their property that are more sustainable and reduce the use of fossil fuels. The program will also explore the use of alternative energy such as wind and solar.

Staff will be looking to do this work as part of a paid internship with CMU, along with contracting the services of an approved energy auditor. The estimated cost for the audit is planned at $500 per site. The review will take into consideration the following:
Energy Audit (Example)
• Explore options for initiating the energy audit, i.e., consultant, other resources that may be available, or looking at energy raters through the State of Michigan/Utility Companies.
• Program to evaluate the home for energy consumption in comparison with similar buildings/uses.
• Conduct a “blower door” test as part of the energy audit to determine building tightness.
• Use infrared scanning to identify air leakage through windows, doors, and wall areas.

Low Cost / No Cost items (Inventory components of building envelope)
• Sealing penetrations of the exterior envelope
• Weather sealing (doors and windows)
• Window condition and type
• Door condition and type
• Insulation types and levels
• Scheduling equipment
• Low flow water reducing devices.
• Smart devices to turn out lights and adjust systems.
• Planned landscaping for shading.
• Window treatments

Low Cost/Short Term return on investment (1-2 years)

• Heating Equipment -Fuel, type, size (Was the equipment sized properly for the home)
• Water Heating-Fuel, type, size (Age, is the tank insulated, is there a recirculating pump for on-demand systems, etc.)
• Windows – Low E or better
• Increased insulation in foundation, walls, and attics. (Type and R-value)

Alternative Energy

• Photovoltaic, PV’s (Electricity from the Sun)
• Wind Generation

Funding Requirements – Request for $60,000

Partnerships with area agencies will be a focus along with pursuit and leveraging of available grants to offset cost for upgrade to the building.

This project is proposed to be complete in 2024 -2025

Benefit Description

The community will benefit through reducing our use of fossil fuels. This program will provide an educational component with CMU and provide information to the public on ways in which to reduce our use of fossil fuels through energy efficiency and building sustainability.

Funding Requirements

We are looking at a start up of $60,000.

$15,000 for paid internship
$45,000 allocated to cost associated with energy audits of homes.

Project Timeline

Staff will continue our energy efficiency and building sustainability work in early 2024.

November - Dec Work with CMU to bring our second intern to head up the program.

Jan 2023 - Partner with our utility providers on rebates incentives for energy efficiency upgrades for homeowners.

Jan-March 2024 Work with local material suppliers and HVAC (Heating, Ventilating and Air-Conditioning) contractors to seek potential incentives to buy/contract local as part of our program.

Jan-Feb - Solicit energy consultant to assist with energy audits and reporting.

Jan-Feb Complete program requirements and application

March 2023 Promote program through social media, radio, website and mailings.

April - Oct - Field Work

Oct - Dec Evaluate program and review our findings

Budget Items

Name	Cost	Quantity	Total	Category
Energy Efficiency and Building Sustainability	$60,000.00	1	$60,000.00	Environmental
AmountRequested	**$60,000.00**			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	**$0.00**		

Budget Summary

Amount Requested

$60,000.00

Amount Matched

$0.00

Total Amount

$60,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name
Town Center Civic Space

Total Requested
$189,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
High

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
msponseller@mt-pleasant.org

Applicant Email
Michelle Sponseller

Organization
City of Mt. Pleasant

Address
320 West Broadway
Mt. Pleasant , 48858

Phone Number
9897795348

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Economic development
- Park Improvements

Project Description

The Town Center Civic Space project is to create a dynamic community space that is accessible and inclusive to all members of the community. The proposed design will increase the green space by 4 ½ times, incorporate universal accessibility design principles, offer public restrooms, expand sidewalks, install seating and bike racks, upgrade electrical for special events, and install electrical car charging stations.

The total project estimated cost is $2,278,462 and is intended to be a long-term investment in the city's economic development. The proposed Town Center Civic Space will be an attractive destination for tourists and will help to create a vibrant business district in the heart of Mt. Pleasant. More importantly, the project will be a community gathering space, providing year-round entertainment for all ages and abilities, and an outdoor venue for art, music, and other events.

Public Space Features:
• Multi-Purpose Community Hub: A versatile space for year-round public gatherings, events, and activities, including farmers' markets, music concerts, and festivals.
• Expansive Green Space and Enhanced Urban Greenery: Significant increase in green space, with added trees and plantings to improve air quality, provide shade, and support biodiversity.
• Universal Accessibility Design: Curbless transitions between parking and multi-functional areas, wide accessible sidewalks, and seating areas to ensure easy navigation and maximum comfort for all community members.
• Accessible Public Restrooms: Construction of public restrooms adhering to accessibility standards to ensure comfort and convenience for all community members during events and daily activities.
• Comprehensive Site Amenities: Installation of comfortable benches, strategically placed trash cans, bike racks, universally accessible pathways, and seating areas to encourage a clean, welcoming environment and promote alternative transportation options.
• Upgraded Electrical Infrastructure: Modernized electrical systems to support a wide range of events and activities, enhancing the functionality and adaptability of the multi-functional space.
• Traffic Calming Measures: Removal of a bypass around the historic downtown area to encourage slower vehicle speeds, increased pedestrian safety, and a more vibrant, walkable community.
• Enhanced Pedestrian Lighting: Additional pedestrian lighting throughout the area to promote comfort, safety, and a sense of security during nighttime hours and low-light conditions.
• Green Infrastructure and Sustainability: Commitment to sustainable practices, including the installation of electric vehicle charging stations to promote clean transportation options and reduce the community's carbon footprint.

Benefit Description

The Town Center Civic Space project will greatly benefit the community by creating a modern, accessible, and multifunctional space that caters to the diverse needs of Mt. Pleasant's residents and visitors, 63% of whom are low to moderate-income individuals. The universal accessible design will provide a year-round event and gathering area for the community, becoming an attractive venue for events such as concerts, the weekly farmers' market, and various other community activities. This revitalized space will not only enhance the quality of life for residents but also serve as a catalyst for economic development and increased tourism in the downtown area.

Funding Requirements

The estimated cost for the Town Center Civic Space project is $2,278,462. The budget breakdown is as follows:
• Site Amenities: $189,000 (universally accessible walkways, trees, benches, bike racks, electrical upgrades and EV car charging stations)
• Universally accessible restrooms: $553,625
• Additional green space: $353,060
• Parking lot reconstruction and additional on-street parking spaces: $1,182,777

Funding Requirements Met: $2,089,462
$1,000,000 = Revitalization and Placemaking Grant from Michigan Economic Development Corporation
$1,089,462 = City of Mt. Pleasant

Project Timeline

The proposed timeline for the Town Center Civic Space project is as follows:
• May - August 2023: Project planning and design phase, including community engagement and public consultation phase
• November 2023: Design finalized
• January 2024: Project bid
• May 2024: Construction begins
• October 2024: Project completion

Budget Items

Name	Cost	Quantity	Total	Category
Site Amenities	$189,000.00	1	$189,000.00	Park Improvements
AmountRequested	**$189,000.00**			

Matching Funds

Name	Cost	Quantity	Total
Universally Accessible Bathrooms	$553,625.00	1	$553,625.00
Additional Green Space	$353,060.00	1	$353,060.00
Parking Lot Reconstruction and On-street Parking	$1,182,777.00	1	$1,182,777.00
AmountMatched	**$2,089,462.00**		

Budget Summary

Amount Requested

$189,000.00

Amount Matched

$2,089,462.00

Total Amount

$2,278,462.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name
1303 N Franklin Former Landfill Remediation

Total Requested
$50,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
Medium

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
jmoore@mt-pleasant.org

Applicant Email
Jason Moore

Organization
City of MtPleasant

Address
320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number
9897795405

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Environmental

Project Description

This request is for funding to continue work at 1303 N Franklin Street (a City-owned property). We would continue work according to the advisement of our environmental consultant and the Michigan Department of Environment Great Lakes and Energy (EGLE). We are expecting to be able to begin remediation activities once the site assessment has been completed. This funding would be used for the eventual remediation project.

Community landfills were common throughout the state and country for several decades for the disposal of local trash. This former landfill was operated until 1975 for placement of general refuse from residents and business owners throughout the community. In the early 1980s, the landfill was closed and capped with clean fill material, as appropriate with the regulatory requirements applicable at the time. The City is working in conjunction with the State and Federal regulatory agencies to evaluate the environmental condition of the former landfill.

Previous funding awarded during the 2020-2022 two-percent processes have allowed for further characterization of the site and refinement of the Conceptual Site Model (CSM). Deep wells were installed in the spring of 2022 and have been sampled. The environmental consultant compiled data and put together a report of work done. It was determined that another deep well outside the landfill area should be installed and water tested to verify that the clay layer found during prior work is sufficient to eliminate the drinking water pathway. This work has been completed.

Benefit Description

The retired municipal landfill at 1303 N Franklin was utilized by Mt. Pleasant and the surrounding area from some time in the 1950s to 1975 when it was closed. Shortly after closure, the area had a clay cap placed over it to limit the rainwater entering the landfill area.

Funding for this project will allow for future work at the site in accordance with the advisement of our environmental consultant and the Michigan Department of Environment Great Lakes and Energy (EGLE).

Funding Requirements

Future funding requirements are unknown and will depend on the type of remediation that may be required.

Project Timeline

Fall of 2023 to Summer of 2024

Budget Items

Name	Cost	Quantity	Total	Category
Remediation	$50,000.00	1	$50,000.00	Environmental
AmountRequested	**$50,000.00**			

Matching Funds

Name	Cost	Quantity	Total
Remediation	$50,000.00	1	$50,000.00
AmountMatched	**$50,000.00**		

Budget Summary

Amount Requested

$50,000.00

Amount Matched

$50,000.00

Total Amount

$100,000.00

Uploaded Files

Name
M3460004Report_2023-09-06.pdf
M3460003ReportRed_2023-09-06.pdf

There are no comments to display.

June 22, 2023

Mr. Jason Moore
DPW Director
City of Mount Pleasant, Michigan
320 West Broadway
Mount Pleasant, Michigan 48858

RE: Deep Groundwater Monitoring Well
Former Mount Pleasant Landfill
Mount Pleasant, Michigan

Dear Mr. Moore:

The Mannik & Smith Group, Inc. (MSG) was retained by the City of Mount Pleasant, Michigan to provide professional environmental consulting services for investigation of a former landfill area at City-owned property located north of the intersection of West Pickard and North Franklin Streets in Mount Pleasant. The subject site is located at 1303 North Franklin Street in Mount Pleasant, Michigan.

MSG has been assisting the City with regulatory compliance issues associated with the former landfill area since November 2020. This letter report documents the installation and sampling of a deep groundwater monitoring well at the former landfill area, as authorized by the City on February 28, 2023 under an Agreement for Services between the City of Mount Pleasant and MSG based on MSG's February 1, 2023 Proposal No. M3460003.CO1.

DEEP MONITORING WELL INSTALLATION

A deep exploratory boring designated MW-300 was drilled and sampled at the approximate location shown on *Figure 1*, *Site Map,* in *Attachment A*, *Figure 1*. The boring was drilled and sampled on April 4, 2023 by Cascade Environmental (Cascade) of Flint, Michigan using a rubber track mounted Boart Longyear 150 Minisonic drill rig and rotosonic drilling methodology. A subsurface utility staking request was made through the MISS DIG utility locating system prior to commencement of drilling and sampling. The boring log for MW-300 is included in *Attachment B, Boring and Monitoring Well Log*. Photographs of the field activities are included in *Attachment C, Photo Log*.

The rotosonic drilling method uses high-frequency resonant energy to advance a core barrel into the subsurface formations. The resonant energy is transferred down the drill string to the drill bit face at various sonic frequencies. The subsurface materials are continuously cored and recovered using a 4-inch diameter steel coring barrel. The 4-inch diameter coring barrel is overridden by a six-inch diameter steel barrel that cases the borehole and prevents collapse. Water is used when necessary to reduce drilling friction and heat buildup. Potable water from the City of Mount Pleasant's municipal water system was used by Cascade.

Four-inch diameter soil cores were collected on a continuous basis from the ground surface to the boring terminus depth at 85 feet below the ground surface (bgs). Five-foot long coring runs were used in the uppermost 10 feet of drilling, followed by 10-foot long runs. The recovered soils at each boring location were examined and logged in the

2365 Haggerty Road South, Canton, Michigan 48188 Tel: 734.397.3100 Fax: 734.397.3131 www.MannikSmithGroup.com

field by an experienced MSG Certified Professional Geologist (CPG).

A groundwater monitoring well was installed in boring MW-300 on April 5, 2023 following completion of drilling and soil sampling. The monitoring well construction details are included on the boring/monitoring well log in Attachment B. The well assembly for monitoring well MW-300 consists of a 2-inch diameter 10-slot[1] Schedule 40 PVC well screen flush threaded to 2-inch diameter Schedule 40 PVC riser pipe. The 10 foot-long well screen for MW-300 was set in the 75-85 feet bgs depth interval.

The location of monitoring well MW-300 was surveyed by MSG field personnel using a hand-held global positioning system (GPS) instrument with sub-centimeter accuracy capability. The location coordinates are included on the boring and well construction log in Attachment B. The ground surface and top of casing elevation for MW-300 were surveyed to the nearest 0.1 foot and 0.01 foot, respectively, as referenced to an onsite vertical datum established by a professional survey crew from MSG's Canton, Michigan office.

As shown on the boring log in Attachment B, no granular soil layers were observed below a depth of 25 feet bgs at the location of MW-300. A boulder, or possibly a portion of a boulder, was encountered in the depth interval of approximately 81-83 feet bgs, within the screened interval of monitoring well MW-300 (see page 8 of the photo log in Attachment B). It is possible that there is a layer of cobbles and boulders within the glacial till at that depth that extends laterally outward beyond the 4-inch radius of the MW-300 soil core.

GROUNDWATER SAMPLING AND ANALYSIS

Monitoring well MW-300 was initially purged by MSG personnel on April 20, 2023 using a bladder pump and a new, disposable high density polyethylene (HDPE) bailer. Following removal of approximately 32 gallons of purge water from MW-300, the purge water was cloudy and silty and was not suitable for representative groundwater sampling.

MSG personnel returned to the site on May 24, 2023 and removed an additional 35 gallons of water from monitoring well MW-300 using a submersible pump[2] and new HDPE tubing. Upon completion of purging on May 24, 2023, the purge water from MW-300 appeared relatively clear and free of visible silt or sediment. A groundwater sample was collected using the purge pump and HDPE tubing. A new, disposable HDPE bailer was also used for sampling for per and polyfluoroalkyl substances (PFAS) analysis. Both filtered and unfiltered groundwater samples were collected for metals analysis. The filtered sample (designated as sample MW-300F) was collected using a disposable 0.45-micron filter specifically designed for environmental groundwater sampling.

Two groundwater samples were collected from MW-300 for PFAS analysis. Groundwater sample MW-300P was collected using the purge pump and HDPE tubing. Groundwater sample MW-300 was collected using a new, disposable HDPE bailer. A field blank sample was also collected for PFAS analysis. The field sampling forms are included in *Attachment D*, *Field Sampling Forms*.

The groundwater samples from MW-300 on May 24, 2023, the field blank sample, and a laboratory-supplied trip blank sample were submitted under standard chain of custody protocol to the ALS Environmental laboratory in Holland, Michigan (ALS) for analysis. The groundwater samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), total and dissolved phase metals (10 Michigan metals plus aluminum, antimony, beryllium, boron, nickel, and thallium), ammonia, and PFAS

[1] A 10-slot well screen has 0.010-inch openings

[2] Geo-Squirt purge pump manufactured by Geotech Environmental Equipment, Inc. (Denver, Colorado)

compounds. The field blank was analyzed for PFAS compounds. The trip blank sample was analyzed for VOCs. The laboratory analytical data report is included in *Attachment E*, *Laboratory Analytical Report*.

GROUNDWATER SAMPLE ANALYTICAL RESULTS

As shown on the laboratory analytical data report in Attachment E, PCBs, VOCs, and SVOCs were not detected in the groundwater samples collected from monitoring well MW-300. The reported ammonia concentration of 1.2 milligrams/liter (mg/l) is below the Michigan Public Act 451 Part 201 Generic Residential Cleanup Criterion (GRCC) of 10 mg/l for drinking water. The reported aluminum concentration of 0.42 mg/l for the unfiltered groundwater sample is above the aesthetic GRCC of 0.050 mg/l for aluminum. However, aluminum was not reported at or above the laboratory reporting limit of 0.010 mg/l for the filtered groundwater sample (sample MW-300F).

MSG appreciates the opportunity to be of service to the City of Mount Pleasant. Please do not hesitate to contact the undersigned if you have any questions or require clarifications pertaining to the specifics of this report.

Sincerely,

The Mannik & Smith Group, Inc.

David Adler

David J. Adler, CPG

Project Manager

Cc: Larry Engelhart, EGLE RRD

Bay City District Office

ATTACHMENT A

FIGURE 1

Legend

- Soil Boring Location - MSG (May 2021)
- Soil Boring Location - MSG (April 2022)
- PVC Monitoring Well - MSG (April 2023)
- PVC Monitoring Well -- MSG (April 2022)
- PVC Monitoring Well - MSG (Nov. 2020)
- PVC Monitoring Well - AKT (2019-2020)
- Steel Monitoring Well - Keck (1977)
- Monitoring Well - Undocumented Origin
- Approximate Extent of Buried Refuse
- Site Boundary (Approximate)

0 200 400

Feet

Notes:
1. Site boundary adapted from parcel boundaries provided on the Isabella County website and AKTPeerless "Site Map" dated July 26, 2020.
2. Aerial imagery collected on November 18, 2020.
3. 2-inch diameter steel monitoring wells are believed to be wells installed by Keck in 1977.
4. Monitoring well MW-11-20 could not be located in the field.

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

FIGURE 1

Site Map

1301-1303 North Franklin Street
Mount Pleasant, Isabella County, MI

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
6/1/2023	JRO	DJA	M3460003

Date Saved: 6/1/2023 12:17:06 PM
Path: W:\Projects\Projects K-O\M3460004\ENGAPPS\M3460004_Fig1_Site Plan.mxd

ATTACHMENT B

BORING AND MONITORING WELL LOG

BORING / WELL ID: MW-300

The Mannik & Smith Group, Inc.
2365 Haggerty Road South, Canton, MI 48188
ph: (734) 397-3100 fax: (734) 397-3131
www.manniksmithgroup.com

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill
PROJECT NUMBER M3460004
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/4/23 **COMPLETED** 4/5/23
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 772,009.8 N; 13,015,468.6 E (USSP MI South)
DRILLING METHOD Rotosonic
TOP OF CASING ELEV.: 761.58 feet NAD83
LOGGED BY DJA **CHECKED BY** PDH
GROUND WATER ENCOUNTERED DURING DRILLING: 8 FEET BGS
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
0									Surface Elev. = 758.60 NAD83	Above-Ground Protective Cover
	SC 1	5.0			SAND and Clayey SAND, Trace - little gravel and debris (brick, wood, asphalt, concrete), Moist (FILL)					Concrete Pad
5										Bentonite Chips from 1.5-8' bgs
	SC 2	5.0			▽ Becomes wet at approximately 8' bgs					
10				10.5		748.1				
					Brown SAND, Trace - little Silt, Trace - little Gravel, Wet					
				14.0		744.6				
15	SC 3	10.0			Light Brown Silty fine SAND, Trace Gravel, Wet					
20										Bentonite Grout from 8-64' bgs
				24.5		734.1				
25	SC 4	10.0		25.0	Gray Sandy SILT, Wet	733.6				
					Gray Silty Clay, Trace - some Sand, Trace - little Gravel, Dry-Moist (Very Hard Till CLAY)					
30										
	SC 5	10.0			Becomes Dry-Moist, very hard Till Clay at 33.5' bgs					
35										

ENV BORING/WELL LOG (PID) - GINT STD US LAB.GDT - 5/31/23 16:09 - W:\PROJECTS\PROJECTS K-O\M3460004\ADMIN\BORING LOGS\M3460004 BORING LOGS REV2.GPJ

(Continued Next Page)

The Mannik & Smith Group, Inc.
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BORING / WELL ID: MW-300

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill
PROJECT NUMBER M3460004
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/4/23 **COMPLETED** 4/5/23
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 772,009.8 N; 13,015,468.6 E (USSP MI South)
DRILLING METHOD Rotosonic
TOP OF CASING ELEV.: 761.58 feet NAD83
LOGGED BY DJA **CHECKED BY** PDH
GROUND WATER ENCOUNTERED DURING DRILLING: 8 FEET BGS
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
35	SC 5 *(cont.)*	10.0 *(cont.)*			Gray Silty Clay, Trace - some Sand, Trace - little Gravel, Dry-Moist (Very Hard Till CLAY) *(continued)*					
40	SC 6	10.0			Becomes less Sandy from 41-48' bgs.					
45										
50	SC 7	10.0								Bentonite Grout from 8-64' bgs
55										
60	SC 8	5.0			Becomes more Sandy and Hardpan-like till at 60' bgs.					
65	SC 9	10.0								Bentonite Chips from 64-72' bgs
70				69.0	Becomes very hard till Clay at 70' bgs.	689.6				

(Continued Next Page)

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SURVEY COORDINATES: 772,009.8 N; 13,015,468.6 E (USSP MI South)
DRILLING METHOD Rotosonic
TOP OF CASING ELEV.: 761.58 feet NAD83
LOGGED BY DJA **CHECKED BY** PDH
GROUND WATER ENCOUNTERED DURING DRILLING: 8 FEET BGS
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
70										
75	SC 9 *(cont.)*	10.0 *(cont.)*			Gray Silty Clay, Trace - some Sand, Trace - little Gravel, Dry-Moist (Very Hard Till CLAY) *(continued)*					Bentonite Chips from 64-72' bgs; Filter Sand
80	SC 10	10.0			Becomes Hardpan-like till from 76.5-85' bgs.					2" Diameter 10-Slot PVC Screen
85				85.0	Boulder from approx. 81-83' bgs	673.6				
					Bottom of borehole at 85.0 feet.					

ATTACHMENT C

PHOTO LOG

Deep Groundwater Monitoring Well
Former Mount Pleasant Landfill
April 2023

Boart Longyear Minisonic Drill Rig (4/4/2023).

Retrieving soil core sample (4/4/2023).

Rotosonic drilling and soil sampling at MW-300 (4/4/2023).

Brown glacial outwash sand from 10.5-14 feet bgs at MW-300 (4/4/2023).

Brown glacial outwash sand from 10.5-14 feet bgs at MW-300 (4/4/2023).

Lt. brown glacial outwash silty fine sand from 14-24.5 feet bgs at MW-300 (4/4/2023).

Lt. brown glacial outwash silty fine sand from 14-24.5 feet bgs at MW-300 (4/4/2023).

Gray sandy silt (bottom of photo) transitioning to gray glacial till clay at 25 feet bgs at MW-300 (4/4/2023).

Hard glacial till clay from 25-30 feet bgs at MW-300 (4/4/2023).

Hard glacial till clay from 25-30 feet bgs at MW-300 (4/4/2023).

Hard glacial till clay from 30-35 feet bgs at MW-300 (4/4/2023).

Hard glacial till clay from 45-50 feet bgs at MW-300 (4/4/2023).

Very hard glacial till clay from 55-60 feet bgs at MW-300 (4/4/2023).

Very hard glacial till clay from 55-60 feet bgs at MW-300 (4/4/2023).

Hardpan-like glacial till from 60-65 feet bgs at MW-300 (4/4/2023).

Very hard glacial till clay at 70 feet bgs at MW-300 (4/4/2023).

Very hard glacial till clay from 70-75 feet bgs at MW-300 (4/4/2023).

Very hard glacial till clay from 75-80 feet bgs at MW-300 (4/4/2023).

Hardpan-like glacial till from 76.5-80 feet bgs at MW-300 (4/4/2023).

Glacial till from 75-85 feet bgs at MW-300. Note boulder @ 81 -83 ft. bgs near bottom left (4/4/2023).

Hardpan-like glacial till and boulder from 80-85 feet bgs at MW-300 (4/4/2023).

Hardpan-like glacial till and boulder from 80-85 feet bgs at MW-300 (4/4/2023).

Hardpan-like glacial till from 79-81 feet bgs (just above boulder) at MW-300 (4/4/2023).

Very hard glacial till clay at 80 feet bgs at MW-300 (4/4/2023).

Location of boring/monitoring well MW-300 (4/5/2023).

Installing filter sand in annular space at MW-300 (4/5/2023).

Installing bentonite chip seal in annular space at MW-300 (4/5/2023).

Tremie grouting annular space at MW-300 (4/5/2023).

Monitoring well MW-300 looking south (4/5/2023).

Monitoring well MW-300 looking east (4/5/2023).

MW-300 soil sample from 10-15 ft bgs (4/8/2023).

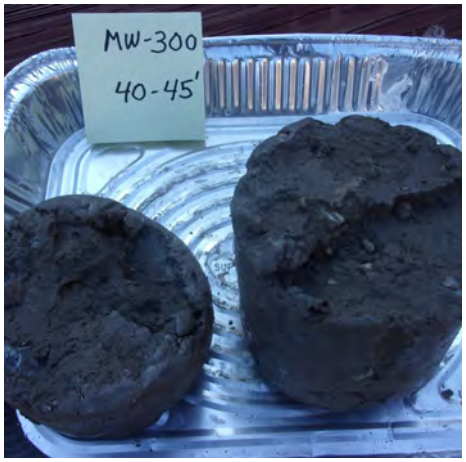
MW-300 soil sample from 15-20 ft bgs (4/8/2023).

MW-300 soil sample from 20-25 ft bgs (4/8/2023).

MW-300 soil sample from 25-30 ft bgs (4/8/2023).

MW-300 soil sample from 30-35 ft bgs (4/8/2023).

MW-300 soil sample from 35-40 ft bgs (4/8/2023).



MW-300 soil sample from 40-45 ft bgs (4/8/2023).

MW-300 soil sample from 45-50 ft bgs (4/8/2023).

MW-300 soil sample from 45-50 ft bgs (4/8/2023).

MW-300 soil sample from 50-55 ft bgs (4/8/2023).

MW-300 soil sample from 55-60 ft bgs (4/8/2023).

MW-300 soil sample from 60-65 ft bgs (4/8/2023).

MW-300 soil sample from 65-70 ft bgs (4/8/2023).

MW-300 soil sample from 70-75 ft bgs (4/8/2023).

MW-300 soil sample from 75-80 ft bgs (4/8/2023).

MW-300 soil sample from 80-85 ft bgs (4/8/2023).

Boulder encountered in MW-300 from approx. from 81-83 ft bgs (4/8/2023).

Boulder encountered in MW-300 from approx. from 81-83 ft bgs (4/8/2023).

Purging Deep Monitoring Well MW-300 (4/20/2023).

Bladder Pump Controller (4/20/2023).

MW-300 Cloudy/Silty Purge Water (4/20/2023).

Purging Deep Monitoring Well MW-300 (4/20/2023).

MW-300 Cloudy Purge Water (4/20/2023).

Establishing MW-300 location coordinates with GPS (4/20/2023).

ATTACHMENT D

FIELD SAMPLING FORMS

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 4 / 20 / 23

PERSONNEL: DA, PH

OBSERVERS: JASON MOORE, LALLY ENGELHART

SAMPLE LOCATION: MW-300

PROJECT #: M346.0004

SITE NAME: FORMER MT PLEASANT LANDFILL

SITE ADDRESS:

SITE CONDITIONS:

DEPTH OF WELL: 85'

SCREEN LENGTH: 10'

TUBING TYPE: HDPE

DEPTH TO WATER LEVEL: 13.38' TOC

WELL DIAMETER: 2"

CASING TYPE: PVC

MONITORING EQUIPMENT: GEOTECH BLADDER PUMP (RENTAL), HORIBA, HDPE TUBING

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1107	18.76	53.2	7.26	-114	0.566	1000+	6.06			
1110	19.70	52.6	7.40	-181	0.549	1000+	4.10			
1113	20.25	52.3	7.38	-194	0.535	1000+	3.63			
1116	21.69	52.4	7.58	-200	0.535	1000+	3.55			
1119	22.10	53.0	7.54	-201	0.587	1000+	3.46			
1122	22.82	53.0	7.56	-206	0.651	1000+	3.26			
1125										
1130	24.15	53.1	7.55	-208	0.803	1000+	3.07			
1135	25.25	53.5	7.59	-206	0.654	1000+	2.94			
1140	25.97	53.7	7.58	-205	0.926	1000+	2.91			
1145										
1150	27.64	53.6	7.52	-197	1.07	1000+	2.74			
1155	28.86	53.5	7.51	-191	1.11	1000+	2.79	5		
1200	29.63	54.1	7.49	-186	1.17	1000+	2.76			
1205	29.95	54.3	7.56	-184	1.17	1000+	2.95			
1210	30.47	54.0	7.48	-183	1.24	1000+	2.93			
1215	31.42	54.1	7.48	-182	1.20	1000+	2.86			

SAMPLE ID:

SAMPLE DATE:

SAMPLE TIME:

Notes: NO SAMPLE COLLECTED. WATER IN WELL WAS TOO CLOUDY

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 4 / 20 / 2023

SAMPLE LOCATION: MW-300

PROJECT #: M3460003

SITE NAME: FORMER MT. PLEASANT LANDFILL

PERSONNEL: DA, PH

SITE ADDRESS: _____

OBSERVERS: LARRY ENGELHART, ELGER

SITE CONDITIONS: _____

DEPTH OF WELL: 85'

DEPTH TO WATER LEVEL: 13.38' TOC

SCREEN LENGTH: 10'

WELL DIAMETER: 2"

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: _____

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1225	33.45	54.6	7.47	1.19	1.19	1000+	3.03			
1235	35.22	55.1	7.41	~~-176~~ -174	1.26	937	2.83			
1245	36.11	55.0	7.39	-175	1.38	1000	2.81			
1255	37.55	55.4	7.35	-172	1.44	925	2.71	10		
1305	38.14	55.0	7.33	-172	1.51	852	2.53			
1315	38.99	55.6	7.32	-175	1.65	740	1.84			
1325	39.29	57.3	7.29	-174	1.86	852	1.62	12.5		
1354	59.20							17.5		USING HDPE BAILER
1411	72.41							22.5		"
1430	78.75							27.5		BAILER
1447	81.40							32		BAILER

SAMPLE ID: _____

SAMPLE DATE: _____

SAMPLE TIME: _____

Notes: STOPPED EVACUATING AT 1446 - ≈ 32 GALLONS TOTAL REMOVED. NO GROUNDWATER SAMPLE COLLECTED, WATER IN WELL WAS TOO SILTY + CLOUDY.

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/24/2023

SAMPLE LOCATION: MW-300

PROJECT #: M3460004

SITE NAME: FORMER MT. PLEASANT LANDFILL

PERSONNEL: DA, PH

SITE ADDRESS: _____

OBSERVERS: _____

SITE CONDITIONS: _____

DEPTH OF WELL: 85'

DEPTH TO WATER LEVEL: 13.60 FT BTOC

SCREEN LENGTH: 10'

WELL DIAMETER: 2"

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: _____

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
~~1030~~ ~~1040~~	13.60							0		
1045	32.54							5		
1108	47.61							10		
1140	52.80							15		
1209	59.81							20		
1235	62.87							25		
1309	65.04							30		
1338	65.10							35		

SAMPLE ID: MW-300

SAMPLE DATE: 5-24-2023

SAMPLE TIME: 1400

Notes: PURGED 35 GALLONS FROM MON. WELL MW-300 WITH GEOTECH GEOSQUIRT PUMP + NEW HDPE TUBING. WATER SAMPLED WAS CLEAR - NO VISIBLE SILT OR SEDIMENT.

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

ATTACHMENT E

LABORATORY ANALYTICAL REPORT

06-Jun-2023

Dave Adler
The Mannik & Smith Group, Inc.
2365 Haggerty Road South
Suite 100
Canton, MI 48188

Re: **Former Mount Pleasant Landfill** Work Order: **23052445**

Dear Dave,

ALS Environmental received 5 samples on 25-May-2023 10:30 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 55.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Bill Carey

Bill Carey
Project Manager

ALS Group, USA

Date: 06-Jun-23

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Work Order: **23052445**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
23052445-01	MW-300	Groundwater		5/24/2023 14:00	5/25/2023 22:30	☐
23052445-02	MW-300F	Groundwater		5/24/2023 14:00	5/25/2023 22:30	☐
23052445-03	MW-300P	Groundwater		5/24/2023 14:00	5/25/2023 22:30	☐
23052445-04	Trip Blank	Water		5/24/2023	5/25/2023 22:30	☐
23052445-05	Field Blank	Water		5/24/2023 14:00	5/25/2023 22:30	☐

Client:	The Mannik & Smith Group, Inc.
Project:	Former Mount Pleasant Landfill
WorkOrder:	**23052445**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µg/L	Micrograms per Liter
mg NH3-N/L	Milligrams Ammonia-Nitrogen per Liter
mg/L	Milligrams per Liter
ng/L	Nanograms per Liter

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Work Order: 23052445

Case Narrative

The attached "Sample Receipt Checklist" documents the date of receipt, status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. A copy of the laboratory's scope of accreditation is available upon request.

Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

Any flags on MS/MSD samples not addressed in this narrative are unrelated to samples in this report.

With the following exceptions, all sample analyses achieved analytical criteria.

Batch 217127, Method E537 Mod, Sample MW-300 (23052445-01E): Sediment present in sample bottle. Sample spiked and poured off into 250 mL HDPE.

ALS Group, USA

Date: *06-Jun-2023*

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Work Order: 23052445
Sample ID: MW-300
Lab ID: 23052445-01
Collection Date: 5/24/2023 02:00 PM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/30/23 15:40	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1221	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1232	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1242	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1248	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1254	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1260	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1262	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1268	ND		0.20	µg/L	1	5/30/2023 08:10 PM
PCBs, Total	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Surr: Decachlorobiphenyl	*88.7*		*45-143*	*%REC*	1	5/30/2023 08:10 PM
Surr: Tetrachloro-m-xylene	*99.4*		*64-125*	*%REC*	1	5/30/2023 08:10 PM
MERCURY BY CVAA			**SW7470A**		Prep: SW7470 5/30/23 15:26	Analyst: **KRA**
Mercury	ND		0.00020	mg/L	1	5/30/2023 04:40 PM
METALS BY ICP-MS			**SW6020B**		Prep: SW3015A 6/1/23 16:54	Analyst: **STP**
Aluminum	**0.42**		**0.010**	**mg/L**	1	6/1/2023 08:01 PM
Antimony	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Arsenic	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Barium	**0.030**		**0.0050**	**mg/L**	1	6/1/2023 08:01 PM
Beryllium	ND		0.0020	mg/L	1	6/1/2023 08:01 PM
Boron	**0.26**		**0.020**	**mg/L**	1	6/1/2023 08:01 PM
Cadmium	ND		0.0020	mg/L	1	6/1/2023 08:01 PM
Chromium	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Copper	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Lead	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Nickel	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Selenium	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Silver	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Thallium	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Zinc	ND		0.010	mg/L	1	6/1/2023 08:01 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/30/23 17:51	Analyst: **MNM**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorobutanesulfonic Acid (PFBS)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorobutanoic Acid (PFBA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		5.1	ng/L	1	5/31/2023 03:19 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 23052445
Sample ID: MW-300 **Lab ID:** 23052445-01
Collection Date: 5/24/2023 02:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorododecanoic Acid (PFDoA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluoroheptanoic Acid (PFHpA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorohexanoic Acid (PFHxA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorononanesulfonic Acid (PFNS)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorononanoic Acid (PFNA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorooctanesulfonamide (PFOSA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		2.0	ng/L	1	5/31/2023 03:19 AM
Perfluorooctanoic Acid (PFOA)	ND		2.0	ng/L	1	5/31/2023 03:19 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluoropentanoic Acid (PFPeA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorotridecanoic Acid (PFTriA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluoroundecanoic Acid (PFUnA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		5.1	ng/L	1	5/31/2023 03:19 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
11Cl-Pf3OUdS	ND		5.1	ng/L	1	5/31/2023 03:19 AM
9Cl-PF3ONS	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Surr: 13C2-FtS 4:2	*95.1*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C2-FtS 6:2	*99.2*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C2-FtS 8:2	*72.2*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C2-PFDA	*79.3*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C2-PFDoA	*73.9*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C2-PFHxA	*91.9*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C2-PFTeA	*97.4*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C2-PFUnA	*71.5*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C3-HFPO-DA	*75.2*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C3-PFBS	*91.1*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C4-PFBA	*88.4*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C4-PFHpA	*84.7*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C4-PFOA	*95.5*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C4-PFOS	*85.1*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C5-PFNA	*88.4*		*50-150*	*%REC*	1	5/31/2023 03:19 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 23052445
Sample ID: MW-300 **Lab ID:** 23052445-01
Collection Date: 5/24/2023 02:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*74.2*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 13C8-FOSA	*78.7*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: 18O2-PFHxS	*97.8*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: d5-N-EtFOSAA	*65.0*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
Surr: d3-N-MeFOSAA	*63.4*		*50-150*	*%REC*	1	5/31/2023 03:19 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW8270E**		Prep: SW3510 5/31/23 12:17	Analyst: **MMO**
1,1`-Biphenyl	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,4,5-Trichlorophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,4,6-Trichlorophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,4-Dichlorophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,4-Dimethylphenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,4-Dinitrophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,4-Dinitrotoluene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,6-Dinitrotoluene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2-Chloronaphthalene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2-Chlorophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2-Methylnaphthalene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2-Methylphenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2-Nitroaniline	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2-Nitrophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
3&4-Methylphenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
3,3´-Dichlorobenzidine	ND		3.5	µg/L	1	6/1/2023 03:33 PM
3-Nitroaniline	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4,6-Dinitro-2-methylphenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4-Bromophenyl phenyl ether	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4-Chloro-3-methylphenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4-Chloroaniline	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4-Chlorophenyl phenyl ether	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4-Nitroaniline	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4-Nitrophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Acenaphthene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Acenaphthylene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Acetophenone	ND		0.69	µg/L	1	6/1/2023 03:33 PM
Anthracene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Atrazine	ND		0.69	µg/L	1	6/1/2023 03:33 PM
Benzaldehyde	ND		0.69	µg/L	1	6/1/2023 03:33 PM
Benzo(a)anthracene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Benzo(a)pyrene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Benzo(b)fluoranthene	ND		3.5	µg/L	1	6/1/2023 03:33 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 23052445
Sample ID: MW-300 **Lab ID:** 23052445-01
Collection Date: 5/24/2023 02:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Benzo(k)fluoranthene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Bis(2-chloroethoxy)methane	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Bis(2-chloroethyl)ether	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Bis(2-chloroisopropyl)ether	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Bis(2-ethylhexyl)phthalate	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Butyl benzyl phthalate	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Caprolactam	ND		6.9	µg/L	1	6/1/2023 03:33 PM
Carbazole	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Chrysene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Dibenzo(a,h)anthracene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Dibenzofuran	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Diethyl phthalate	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Dimethyl phthalate	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Di-n-butyl phthalate	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Di-n-octyl phthalate	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Fluoranthene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Fluorene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Hexachlorobenzene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Hexachlorobutadiene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Hexachlorocyclopentadiene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Hexachloroethane	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Indeno(1,2,3-cd)pyrene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Isophorone	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Naphthalene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Nitrobenzene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
N-Nitrosodi-n-propylamine	ND		3.5	µg/L	1	6/1/2023 03:33 PM
N-Nitrosodiphenylamine	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Pentachlorophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Phenanthrene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Phenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Pyrene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Surr: 2,4,6-Tribromophenol	*72.1*		*38-103*	*%REC*	1	6/1/2023 03:33 PM
Surr: 2-Fluorobiphenyl	*68.3*		*36-96*	*%REC*	1	6/1/2023 03:33 PM
Surr: 2-Fluorophenol	*46.7*		*20-73*	*%REC*	1	6/1/2023 03:33 PM
Surr: 4-Terphenyl-d14	*114*		*44-114*	*%REC*	1	6/1/2023 03:33 PM
Surr: Nitrobenzene-d5	*77.5*		*33-100*	*%REC*	1	6/1/2023 03:33 PM
Surr: Phenol-d6	*30.7*		*10-48*	*%REC*	1	6/1/2023 03:33 PM

VOLATILE ORGANIC COMPOUNDS **SW8260D** Analyst: **NAD**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 23052445
Sample ID: MW-300 **Lab ID:** 23052445-01
Collection Date: 5/24/2023 02:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
2-Butanone	ND		5.0	µg/L	1	5/27/2023 09:59 AM
2-Hexanone	ND		5.0	µg/L	1	5/27/2023 09:59 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Acetone	ND		10	µg/L	1	5/27/2023 09:59 AM
Benzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Bromoform	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Bromomethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Carbon disulfide	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Chlorobenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Chloroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Chloroform	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Chloromethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Cyclohexane	ND		2.0	µg/L	1	5/27/2023 09:59 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Ethylbenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Methyl acetate	ND		2.0	µg/L	1	5/27/2023 09:59 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Methylene chloride	ND		5.0	µg/L	1	5/27/2023 09:59 AM
Styrene	ND		1.0	µg/L	1	5/27/2023 09:59 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 23052445
Sample ID: MW-300 **Lab ID:** 23052445-01
Collection Date: 5/24/2023 02:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Toluene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Trichloroethene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Vinyl chloride	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Xylenes, Total	ND		3.0	µg/L	1	5/27/2023 09:59 AM
Surr: 1,2-Dichloroethane-d4	*103*		*80-120*	*%REC*	1	5/27/2023 09:59 AM
Surr: 4-Bromofluorobenzene	*95.6*		*80-120*	*%REC*	1	5/27/2023 09:59 AM
Surr: Dibromofluoromethane	*98.4*		*80-120*	*%REC*	1	5/27/2023 09:59 AM
Surr: Toluene-d8	*98.9*		*80-120*	*%REC*	1	5/27/2023 09:59 AM
AMMONIA AS NITROGEN			**E350.1 R2.0**			Analyst: **JMT**
Ammonia as Nitrogen	**1.2**		**0.020**	**mg NH3-N/L**	1	5/31/2023 12:48 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 23052445
Sample ID: MW-300F **Lab ID:** 23052445-02
Collection Date: 5/24/2023 02:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/30/23 15:26	Analyst: **KRA**
Mercury	ND		0.00020	mg/L	1	5/30/2023 04:46 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3005A 5/30/23 11:01	Analyst: **STP**
Aluminum	ND		0.010	mg/L	1	5/30/2023 06:13 PM
Antimony	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Arsenic	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Barium	**0.023**		**0.0050**	**mg/L**	1	5/30/2023 06:13 PM
Beryllium	ND		0.0020	mg/L	1	5/30/2023 06:13 PM
Boron	**0.22**		**0.020**	**mg/L**	1	5/30/2023 06:13 PM
Cadmium	ND		0.0020	mg/L	1	5/30/2023 06:13 PM
Chromium	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Copper	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Lead	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Nickel	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Selenium	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Silver	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Thallium	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Zinc	ND		0.010	mg/L	1	5/30/2023 06:13 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 23052445
Sample ID: MW-300P **Lab ID:** 23052445-03
Collection Date: 5/24/2023 02:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/30/23 17:51	Analyst: **MNM**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorobutanesulfonic Acid (PFBS)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorobutanoic Acid (PFBA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorohexanoic Acid (PFHxA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		2.0	ng/L	1	5/31/2023 03:33 AM
Perfluorooctanoic Acid (PFOA)	ND		2.0	ng/L	1	5/31/2023 03:33 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/31/2023 03:33 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/31/2023 03:33 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Surr: 13C2-FtS 4:2	*112*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C2-FtS 6:2	*107*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C2-FtS 8:2	*96.3*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C2-PFDA	*96.7*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C2-PFDoA	*86.6*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C2-PFHxA	*100*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C2-PFTeA	*120*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C2-PFUnA	*82.5*		*50-150*	*%REC*	1	5/31/2023 03:33 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 23052445
Sample ID: MW-300P **Lab ID:** 23052445-03
Collection Date: 5/24/2023 02:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C3-HFPO-DA	*98.6*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C3-PFBS	*116*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C4-PFBA	*84.2*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C4-PFHpA	*105*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C4-PFOA	*102*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C4-PFOS	*100*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C5-PFNA	*94.3*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C5-PFPeA	*95.8*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 13C8-FOSA	*93.9*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: 18O2-PFHxS	*110*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: d5-N-EtFOSAA	*76.9*		*50-150*	*%REC*	1	5/31/2023 03:33 AM
Surr: d3-N-MeFOSAA	*79.2*		*50-150*	*%REC*	1	5/31/2023 03:33 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 23052445
Sample ID: Trip Blank **Lab ID:** 23052445-04
Collection Date: 5/24/2023 **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260D**			Analyst: **HJ**
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
2-Butanone	ND		5.0	µg/L	1	5/31/2023 01:16 AM
2-Hexanone	ND		5.0	µg/L	1	5/31/2023 01:16 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Acetone	ND		10	µg/L	1	5/31/2023 01:16 AM
Benzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Bromoform	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Bromomethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Carbon disulfide	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Chlorobenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Chloroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Chloroform	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Chloromethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Cyclohexane	ND		2.0	µg/L	1	5/31/2023 01:16 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Ethylbenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Methyl acetate	ND		2.0	µg/L	1	5/31/2023 01:16 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/31/2023 01:16 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 23052445
Sample ID: Trip Blank **Lab ID:** 23052445-04
Collection Date: 5/24/2023 **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Methylene chloride	ND		5.0	µg/L	1	5/31/2023 01:16 AM
Styrene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Tetrachloroethene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Toluene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Trichloroethene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Vinyl chloride	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Xylenes, Total	ND		3.0	µg/L	1	5/31/2023 01:16 AM
Surr: 1,2-Dichloroethane-d4	*98.3*		*80-120*	*%REC*	1	5/31/2023 01:16 AM
Surr: 4-Bromofluorobenzene	*100*		*80-120*	*%REC*	1	5/31/2023 01:16 AM
Surr: Dibromofluoromethane	*93.0*		*80-120*	*%REC*	1	5/31/2023 01:16 AM
Surr: Toluene-d8	*99.8*		*80-120*	*%REC*	1	5/31/2023 01:16 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 23052445
Sample ID: Field Blank **Lab ID:** 23052445-05
Collection Date: 5/24/2023 02:00 PM **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/30/23 17:51	Analyst: **MNM**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorobutanesulfonic Acid (PFBS)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorobutanoic Acid (PFBA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorohexanoic Acid (PFHxA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		2.0	ng/L	1	5/31/2023 04:28 AM
Perfluorooctanoic Acid (PFOA)	ND		2.0	ng/L	1	5/31/2023 04:28 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/31/2023 04:28 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/31/2023 04:28 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Surr: 13C2-FtS 4:2	*105*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C2-FtS 6:2	*118*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C2-FtS 8:2	*125*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C2-PFDA	*117*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C2-PFDoA	*99.6*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C2-PFHxA	*111*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C2-PFTeA	*136*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C2-PFUnA	*96.5*		*50-150*	*%REC*	1	5/31/2023 04:28 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 23052445
Sample ID: Field Blank **Lab ID:** 23052445-05
Collection Date: 5/24/2023 02:00 PM **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C3-HFPO-DA	*105*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C3-PFBS	*131*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C4-PFBA	*106*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C4-PFHpA	*125*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C4-PFOA	*118*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C4-PFOS	*122*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C5-PFNA	*111*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C5-PFPeA	*114*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 13C8-FOSA	*110*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: 18O2-PFHxS	*114*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: d5-N-EtFOSAA	*91.3*		*50-150*	*%REC*	1	5/31/2023 04:28 AM
Surr: d3-N-MeFOSAA	*85.2*		*50-150*	*%REC*	1	5/31/2023 04:28 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

QC BATCH REPORT

Batch ID: **217137** Instrument ID **GC14** Method: **SW8082A**

MBLK Sample ID: **PBLKW1-217137-217137** Units: **µg/L** Analysis Date: **5/30/2023 06:36 PM**

Client ID: Run ID: **GC14_230530B** SeqNo: **9608256** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	0.20								
Aroclor 1221	ND	0.20								
Aroclor 1232	ND	0.20								
Aroclor 1242	ND	0.20								
Aroclor 1248	ND	0.20								
Aroclor 1254	ND	0.20								
Aroclor 1260	ND	0.20								
Aroclor 1262	ND	0.20								
Aroclor 1268	ND	0.20								
PCBs, Total	ND	0.20								
Surr: Decachlorobiphenyl	*0.2434*	0	*0.25*	0	*97.4*	*45-143*	0			
Surr: Tetrachloro-m-xylene	*0.2284*	0	*0.25*	0	*91.4*	*64-125*	0			

LCS Sample ID: **PLCSW1-217137-217137** Units: **µg/L** Analysis Date: **5/30/2023 06:59 PM**

Client ID: Run ID: **GC14_230530B** SeqNo: **9608258** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	5.302	0.20	5	0	106	77-126	0			
Aroclor 1260	4.686	0.20	5	0	93.7	66-126	0			
Surr: Decachlorobiphenyl	*0.2646*	0	*0.25*	0	*106*	*45-143*	0			
Surr: Tetrachloro-m-xylene	*0.2716*	0	*0.25*	0	*109*	*64-125*	0			

MS Sample ID: **23052409-02B MS** Units: **µg/L** Analysis Date: **5/30/2023 07:11 PM**

Client ID: Run ID: **GC14_230530B** SeqNo: **9608259** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	5.414	0.20	5	0	108	77-126	0			
Aroclor 1260	5.049	0.20	5	0	101	66-126	0			
Surr: Decachlorobiphenyl	*0.2492*	0	*0.25*	0	*99.7*	*45-143*	0			
Surr: Tetrachloro-m-xylene	*0.462*	0	*0.25*	0	*185*	*64-125*	0			*S*

MSD Sample ID: **23052409-02B MSD** Units: **µg/L** Analysis Date: **5/30/2023 07:23 PM**

Client ID: Run ID: **GC14_230530B** SeqNo: **9608260** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	5.347	0.20	5	0	107	77-126	5.414	1.25	20	
Aroclor 1260	5.163	0.20	5	0	103	66-126	5.049	2.22	20	
Surr: Decachlorobiphenyl	*0.279*	0	*0.25*	0	*112*	*45-143*	0.2492	*11.3*	*20*	
Surr: Tetrachloro-m-xylene	*0.4802*	0	*0.25*	0	*192*	*64-125*	0.462	*3.86*	*20*	*S*

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217137** Instrument ID **GC14** Method: **SW8082A**

The following samples were analyzed in this batch:	23052445-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217154** Instrument ID **HG4** Method: **SW7470A**

MBLK Sample ID: **MBLK-217154-217154** Units: **mg/L** Analysis Date: **5/30/2023 03:54 PM**
Client ID: Run ID: **HG4_230530B** SeqNo: **9604039** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-217154-217154** Units: **mg/L** Analysis Date: **5/30/2023 03:56 PM**
Client ID: Run ID: **HG4_230530B** SeqNo: **9604040** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00213	0.00020	0.002	0	106	80-120	0			

MS Sample ID: **23052445-01FMS** Units: **mg/L** Analysis Date: **5/30/2023 04:42 PM**
Client ID: **MW-300** Run ID: **HG4_230530B** SeqNo: **9604066** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00192	0.00020	0.002	-0.0000255	97.3	75-125	0			

MSD Sample ID: **23052445-01FMSD** Units: **mg/L** Analysis Date: **5/30/2023 04:44 PM**
Client ID: **MW-300** Run ID: **HG4_230530B** SeqNo: **9604067** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.001905	0.00020	0.002	-0.0000255	96.5	75-125	0.00192	0.784	20	

The following samples were analyzed in this batch: 23052445-01F 23052445-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217123** Instrument ID **ICPMS3** Method: **SW6020B**

MBLK Sample ID: **MBLK-217123-217123** Units: **mg/L** Analysis Date: **5/30/2023 05:41 PM**
Client ID: Run ID: **ICPMS3_230530A** SeqNo: **9605010** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	ND	0.010								

LCS Sample ID: **LCS-217123-217123** Units: **mg/L** Analysis Date: **5/30/2023 05:43 PM**
Client ID: Run ID: **ICPMS3_230530A** SeqNo: **9605011** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1036	0.010	0.1	0	104	80-120	0			
Antimony	0.1014	0.0050	0.1	0	101	80-120	0			
Arsenic	0.1025	0.0050	0.1	0	103	80-120	0			
Barium	0.1004	0.0050	0.1	0	100	80-120	0			
Beryllium	0.09793	0.0020	0.1	0	97.9	80-120	0			
Boron	0.4615	0.020	0.5	0	92.3	80-120	0			
Cadmium	0.101	0.0020	0.1	0	101	80-120	0			
Chromium	0.1024	0.0050	0.1	0	102	80-120	0			
Copper	0.104	0.0050	0.1	0	104	80-120	0			
Lead	0.09949	0.0050	0.1	0	99.5	80-120	0			
Nickel	0.1023	0.0050	0.1	0	102	80-120	0			
Selenium	0.1064	0.0050	0.1	0	106	80-120	0			
Silver	0.1051	0.0050	0.1	0	105	80-120	0			
Thallium	0.09564	0.0050	0.1	0	95.6	80-120	0			
Zinc	0.1046	0.010	0.1	0	105	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217123** Instrument ID **ICPMS3** Method: **SW6020B**

MS Sample ID: **23051019-06BMS** Units: **mg/L** Analysis Date: **5/30/2023 05:46 PM**
Client ID: Run ID: **ICPMS3_230530A** SeqNo: **9605013** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	1.04	0.10	1	0.06449	97.5	80-120	0			
Barium	1.104	0.050	1	0.1147	98.9	80-120	0			
Beryllium	0.9896	0.020	1	0.0011	98.8	80-120	0			
Boron	4.71	0.20	5	0.1348	91.5	80-120	0			
Cadmium	1.026	0.020	1	0.05414	97.2	80-120	0			
Lead	1.22	0.050	1	0.2617	95.9	80-120	0			
Thallium	0.9206	0.050	1	0.01316	90.7	80-120	0			

MS Sample ID: **23051019-06BMS** Units: **mg/L** Analysis Date: **5/31/2023 12:06 PM**
Client ID: Run ID: **ICPMS3_230531A** SeqNo: **9607241** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.9957	0.050	1	0.00678	98.9	80-120	0			
Arsenic	1.019	0.050	1	0.00057	102	80-120	0			
Chromium	0.9945	0.050	1	0.00215	99.2	80-120	0			
Copper	0.9857	0.050	1	0.00635	97.9	80-120	0			
Nickel	0.9953	0.050	1	0.0109	98.4	80-120	0			
Selenium	1.056	0.050	1	0.00408	105	80-120	0			
Silver	0.9824	0.050	1	0.00009	98.2	80-120	0			
Zinc	2.761	0.10	1	1.761	100	80-120	0			

MSD Sample ID: **23051019-06BMSD** Units: **mg/L** Analysis Date: **5/30/2023 05:48 PM**
Client ID: Run ID: **ICPMS3_230530A** SeqNo: **9605014** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	1.069	0.10	1	0.06449	100	80-120	1.04	2.75	20	
Barium	1.136	0.050	1	0.1147	102	80-120	1.104	2.91	20	
Beryllium	1.011	0.020	1	0	101	80-120	0.9896	2.16	20	
Boron	4.845	0.20	5	0	96.9	80-120	4.71	2.81	20	
Cadmium	1.056	0.020	1	0.05414	100	80-120	1.026	2.91	20	
Lead	1.262	0.050	1	0.2617	100	80-120	1.22	3.33	20	
Thallium	0.9598	0.050	1	0.01316	94.7	80-120	0.9206	4.18	20	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217123** Instrument ID **ICPMS3** Method: **SW6020B**

MSD Sample ID: **23051019-06BMSD** Units: **mg/L** Analysis Date: **5/31/2023 12:08 PM**
Client ID: Run ID: **ICPMS3_230531A** SeqNo: **9607243** Prep Date: **5/30/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	1.009	0.050	1	0.00678	100	80-120	0.9957	1.29	20	
Arsenic	1.027	0.050	1	0.00057	103	80-120	1.019	0.762	20	
Chromium	0.9958	0.050	1	0.00215	99.4	80-120	0.9945	0.132	20	
Copper	0.9993	0.050	1	0.00635	99.3	80-120	0.9857	1.37	20	
Nickel	1.009	0.050	1	0.0109	99.8	80-120	0.9953	1.36	20	
Selenium	1.099	0.050	1	0.00408	109	80-120	1.056	3.93	20	
Silver	0.9848	0.050	1	0.00009	98.5	80-120	0.9824	0.244	20	
Zinc	2.787	0.10	1	1.761	103	80-120	2.761	0.922	20	

The following samples were analyzed in this batch: 23052445-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217388** Instrument ID **ICPMS3** Method: **SW6020B**

MBLK Sample ID: **MBLK-217388-217388** Units: **mg/L** Analysis Date: **6/1/2023 07:57 PM**
Client ID: Run ID: **ICPMS3_230601A** SeqNo: **9614350** Prep Date: **6/1/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	0.003465	0.010								J

LCS Sample ID: **LCS-217388-217388** Units: **mg/L** Analysis Date: **6/1/2023 07:59 PM**
Client ID: Run ID: **ICPMS3_230601A** SeqNo: **9614351** Prep Date: **6/1/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1148	0.010	0.1	0	115	80-120	0			
Antimony	0.09976	0.0050	0.1	0	99.8	80-120	0			
Arsenic	0.09613	0.0050	0.1	0	96.1	80-120	0			
Barium	0.1029	0.0050	0.1	0	103	80-120	0			
Beryllium	0.09966	0.0020	0.1	0	99.7	80-120	0			
Boron	0.4976	0.020	0.5	0	99.5	80-120	0			
Cadmium	0.09932	0.0020	0.1	0	99.3	80-120	0			
Chromium	0.09822	0.0050	0.1	0	98.2	80-120	0			
Copper	0.09724	0.0050	0.1	0	97.2	80-120	0			
Lead	0.09973	0.0050	0.1	0	99.7	80-120	0			
Nickel	0.09558	0.0050	0.1	0	95.6	80-120	0			
Selenium	0.09943	0.0050	0.1	0	99.4	80-120	0			
Silver	0.103	0.0050	0.1	0	103	80-120	0			
Thallium	0.09732	0.0050	0.1	0	97.3	80-120	0			
Zinc	0.1019	0.010	0.1	0	102	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217388** Instrument ID **ICPMS3** Method: **SW6020B**

MS Sample ID: **23052606-10AMS** Units: **mg/L** Analysis Date: **6/1/2023 08:18 PM**
Client ID: Run ID: **ICPMS3_230601A** SeqNo: **9614362** Prep Date: **6/1/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1024	0.010	0.1	0.001845	101	75-125	0			
Antimony	0.1016	0.0050	0.1	0.0000946	102	75-125	0			
Arsenic	0.0972	0.0050	0.1	0.0002376	97	75-125	0			
Barium	0.1936	0.0050	0.1	0.0919	102	75-125	0			
Beryllium	0.1021	0.0020	0.1	0.0000484	102	75-125	0			
Boron	0.5487	0.020	0.5	0.04667	100	75-125	0			
Cadmium	0.09889	0.0020	0.1	0.0000198	98.9	75-125	0			
Chromium	0.09799	0.0050	0.1	0.0001782	97.8	75-125	0			
Copper	0.09499	0.0050	0.1	0.0004675	94.5	75-125	0			
Lead	0.1007	0.0050	0.1	0.0000297	101	75-125	0			
Nickel	0.09494	0.0050	0.1	0.0002442	94.7	75-125	0			
Selenium	0.103	0.0050	0.1	-0.0002563	103	75-125	0			
Silver	0.1011	0.0050	0.1	0	101	75-125	0			
Thallium	0.09787	0.0050	0.1	0.000022	97.9	75-125	0			
Zinc	0.09927	0.010	0.1	0.003094	96.2	75-125	0			

MSD Sample ID: **23052606-10AMSD** Units: **mg/L** Analysis Date: **6/1/2023 08:20 PM**
Client ID: Run ID: **ICPMS3_230601A** SeqNo: **9614363** Prep Date: **6/1/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1019	0.010	0.1	0.001845	100	75-125	0.1024	0.429	20	
Antimony	0.1008	0.0050	0.1	0.0000946	101	75-125	0.1016	0.863	20	
Arsenic	0.09772	0.0050	0.1	0.0002376	97.5	75-125	0.0972	0.535	20	
Barium	0.1928	0.0050	0.1	0.0919	101	75-125	0.1936	0.438	20	
Beryllium	0.09983	0.0020	0.1	0.0000484	99.8	75-125	0.1021	2.28	20	
Boron	0.5423	0.020	0.5	0.04667	99.1	75-125	0.5487	1.17	20	
Cadmium	0.09845	0.0020	0.1	0.0000198	98.4	75-125	0.09889	0.449	20	
Chromium	0.09832	0.0050	0.1	0.0001782	98.1	75-125	0.09799	0.335	20	
Copper	0.09439	0.0050	0.1	0.0004675	93.9	75-125	0.09499	0.639	20	
Lead	0.09959	0.0050	0.1	0.0000297	99.6	75-125	0.1007	1.13	20	
Nickel	0.09443	0.0050	0.1	0.0002442	94.2	75-125	0.09494	0.538	20	
Selenium	0.09992	0.0050	0.1	-0.0002563	100	75-125	0.103	3.07	20	
Silver	0.09986	0.0050	0.1	0	99.9	75-125	0.1011	1.26	20	
Thallium	0.09864	0.0050	0.1	0.000022	98.6	75-125	0.09787	0.785	20	
Zinc	0.09875	0.010	0.1	0.003094	95.7	75-125	0.09927	0.524	20	

The following samples were analyzed in this batch: 23052445-01F

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217127** Instrument ID **LCMS1** Method: **E537 Mod**

MBLK	Sample ID: **MBLK-217127-217127**				Units: **ng/L**			Analysis Date: **5/30/2023 10:58 PM**		
Client ID:		Run ID: **LCMS1_230530A**			SeqNo: **9607201**		Prep Date: **5/30/2023**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	ND	5.0								
Fluorotelomer Sulphonic Acid 6:2 (FtS	ND	5.0								
Fluorotelomer Sulphonic Acid 8:2 (FtS	ND	5.0								
Perfluorobutanesulfonic Acid (PFBS)	ND	5.0								
Perfluorobutanoic Acid (PFBA)	ND	5.0								
Perfluorodecanesulfonic Acid (PFDS)	ND	5.0								
Perfluorodecanoic Acid (PFDA)	ND	5.0								
Perfluorododecanoic Acid (PFDoA)	ND	5.0								
Perfluoroheptanesulfonic Acid (PFHpS	ND	5.0								
Perfluoroheptanoic Acid (PFHpA)	ND	5.0								
Perfluorohexanesulfonic Acid (PFHxS)	ND	5.0								
Perfluorohexanoic Acid (PFHxA)	ND	5.0								
Perfluorononanesulfonic Acid (PFNS)	ND	5.0								
Perfluorononanoic Acid (PFNA)	ND	5.0								
Perfluorooctanesulfonamide (PFOSA)	ND	5.0								
Perfluorooctanesulfonic Acid (PFOS)	ND	2.0								
Perfluorooctanoic Acid (PFOA)	ND	2.0								
Perfluoropentanesulfonic Acid (PFPeS	ND	5.0								
Perfluoropentanoic Acid (PFPeA)	ND	5.0								
Perfluorotetradecanoic Acid (PFTeA)	ND	5.0								
Perfluorotridecanoic Acid (PFTriA)	ND	5.0								
Perfluoroundecanoic Acid (PFUnA)	ND	5.0								
N-Ethylperfluorooctanesulfonamidoace	ND	5.0								
N-Methylperfluorooctanesulfonamidoa	ND	5.0								
Hexafluoropropylene oxide dimer acid	ND	5.0								
4,8-Dioxa-3H-perfluorononanoic Acid (	ND	5.0								
11Cl-Pf3OUdS	ND	5.0								
9Cl-PF3ONS	ND	5.0								
Surr: 13C2-FtS 4:2	*119.5*	0	*149.4*	0	*79.9*	*50-150*	0			
Surr: 13C2-FtS 6:2	*134.5*	0	*152*	0	*88.5*	*50-150*	0			
Surr: 13C2-FtS 8:2	*144.7*	0	*153.3*	0	*94.4*	*50-150*	0			
Surr: 13C2-PFDA	*137.4*	0	*160*	0	*85.9*	*50-150*	0			
Surr: 13C2-PFDoA	*132.9*	0	*160*	0	*83.1*	*50-150*	0			
Surr: 13C2-PFHxA	*139.2*	0	*160*	0	*87*	*50-150*	0			
Surr: 13C2-PFTeA	*187.6*	0	*160*	0	*117*	*50-150*	0			
Surr: 13C2-PFUnA	*127*	0	*160*	0	*79.4*	*50-150*	0			
Surr: 13C3-HFPO-DA	*130.6*	0	*160*	0	*81.6*	*50-150*	0			
Surr: 13C3-PFBS	*148.7*	0	*148.8*	0	*99.9*	*50-150*	0			
Surr: 13C4-PFBA	*129.6*	0	*160*	0	*81*	*50-150*	0			
Surr: 13C4-PFHpA	*142.6*	0	*160*	0	*89.1*	*50-150*	0			
Surr: 13C4-PFOA	*145.7*	0	*160*	0	*91.1*	*50-150*	0			
Surr: 13C4-PFOS	*139*	0	*152.8*	0	*91*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **217127** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C5-PFNA	*139.3*	0	*160*	0	*87*	*50-150*	0
Surr: 13C5-PFPeA	*137.8*	0	*160*	0	*86.1*	*50-150*	0
Surr: 13C8-FOSA	*126.4*	0	*160*	0	*79*	*50-150*	0
Surr: 18O2-PFHxS	*137.8*	0	*151.2*	0	*91.1*	*50-150*	0
Surr: d5-N-EtFOSAA	*122*	0	*160*	0	*76.2*	*50-150*	0
Surr: d3-N-MeFOSAA	*119.9*	0	*160*	0	*75*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217127** Instrument ID **LCMS1** Method: **E537 Mod**

LCS	Sample ID: **LCS-217127-217127**				Units: **ng/L**			Analysis Date: **5/31/2023 08:38 PM**			
Client ID:		Run ID: **LCMS1_230531A**			SeqNo: **9611558**			Prep Date: **5/30/2023**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	28.86	5.0	29.9	0	96.5	63-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	29.21	5.0	30.3	0	96.4	63-162	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	27.5	5.0	30.7	0	89.6	61-165	0			
Perfluorobutanesulfonic Acid (PFBS)	24.97	5.0	28.3	0	88.2	72-130	0			
Perfluorobutanoic Acid (PFBA)	32.36	5.0	32	0	101	73-129	0			
Perfluorodecanesulfonic Acid (PFDS)	24.35	5.0	30.8	0	79.1	53-142	0			
Perfluorodecanoic Acid (PFDA)	26.27	5.0	32	0	82.1	71-129	0			
Perfluorododecanoic Acid (PFDoA)	27.39	5.0	32	0	85.6	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	25.35	5.0	30.5	0	83.1	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	28.8	5.0	32	0	90	72-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	21.76	5.0	29.1	0	74.8	68-131	0			
Perfluorohexanoic Acid (PFHxA)	27.38	5.0	32	0	85.6	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	26.06	5.0	30.7	0	84.9	69-127	0			
Perfluorononanoic Acid (PFNA)	25.93	5.0	32	0	81	69-130	0			
Perfluorooctanesulfonamide (PFOSA)	28.2	5.0	32	0	88.1	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	24.98	2.0	29.7	0	84.1	65-140	0			
Perfluorooctanoic Acid (PFOA)	27.46	2.0	32	0	85.8	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	24.17	5.0	30	0	80.6	71-127	0			
Perfluoropentanoic Acid (PFPeA)	28.09	5.0	32	0	87.8	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	27.76	5.0	32	0	86.7	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	29.08	5.0	32	0	90.9	65-144	0			
Perfluoroundecanoic Acid (PFUnA)	26.55	5.0	32	0	83	69-133	0			
N-Ethylperfluorooctanesulfonamidoace	31.16	5.0	32	0	97.4	61-135	0			
N-Methylperfluorooctanesulfonamidoa	29.46	5.0	32	0	92.1	65-136	0			
Hexafluoropropylene oxide dimer acid	31.58	5.0	32	0	98.7	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	23.78	5.0	30.1	0	79	70-130	0			
11Cl-Pf3OUdS	21.21	5.0	30.1	0	70.5	70-130	0			
9Cl-PF3ONS	24.32	5.0	29.8	0	81.6	70-130	0			
Surr: 13C2-FtS 4:2	*175.7*	0	*149.4*	0	*118*	*50-150*	0			
Surr: 13C2-FtS 6:2	*176.5*	0	*152*	0	*116*	*50-150*	0			
Surr: 13C2-FtS 8:2	*183.8*	0	*153.3*	0	*120*	*50-150*	0			
Surr: 13C2-PFDA	*199.6*	0	*160*	0	*125*	*50-150*	0			
Surr: 13C2-PFDoA	*185.8*	0	*160*	0	*116*	*50-150*	0			
Surr: 13C2-PFHxA	*190.7*	0	*160*	0	*119*	*50-150*	0			
Surr: 13C2-PFTeA	*186*	0	*160*	0	*116*	*50-150*	0			
Surr: 13C2-PFUnA	*193.4*	0	*160*	0	*121*	*50-150*	0			
Surr: 13C3-HFPO-DA	*182.5*	0	*160*	0	*114*	*50-150*	0			
Surr: 13C3-PFBS	*186.5*	0	*148.8*	0	*125*	*50-150*	0			
Surr: 13C4-PFBA	*160.1*	0	*160*	0	*100*	*50-150*	0			
Surr: 13C4-PFHpA	*189.9*	0	*160*	0	*119*	*50-150*	0			
Surr: 13C4-PFOA	*204.6*	0	*160*	0	*128*	*50-150*	0			
Surr: 13C4-PFOS	*201.8*	0	*152.8*	0	*132*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **217127** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C5-PFNA	*203.3*	0	*160*	0	*127*	*50-150*	0
Surr: 13C5-PFPeA	*180*	0	*160*	0	*112*	*50-150*	0
Surr: 13C8-FOSA	*168*	0	*160*	0	*105*	*50-150*	0
Surr: 18O2-PFHxS	*194.9*	0	*151.2*	0	*129*	*50-150*	0
Surr: d5-N-EtFOSAA	*165.9*	0	*160*	0	*104*	*50-150*	0
Surr: d3-N-MeFOSAA	*160.6*	0	*160*	0	*100*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217127** Instrument ID **LCMS1** Method: **E537 Mod**

MS	Sample ID: **23052527-05A MS**				Units: **ng/L**			Analysis Date: **5/31/2023 08:52 PM**		
Client ID:		Run ID: **LCMS1_230531A**			SeqNo: **9611568**		Prep Date: **5/30/2023**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	28.31	5.3	31.44	0	90	63-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	30.52	5.3	31.86	0	95.8	63-162	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	30.48	5.3	32.28	0	94.4	61-165	0			
Perfluorobutanesulfonic Acid (PFBS)	25.74	5.3	29.76	1.182	82.5	72-130	0			
Perfluorobutanoic Acid (PFBA)	32.09	5.3	33.65	4.022	83.4	73-129	0			
Perfluorodecanesulfonic Acid (PFDS)	25.15	5.3	32.38	0	77.7	53-142	0			
Perfluorodecanoic Acid (PFDA)	28.1	5.3	33.65	0	83.5	71-129	0			
Perfluorododecanoic Acid (PFDoA)	28.6	5.3	33.65	0	85	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	22.87	5.3	32.07	0	71.3	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	28.36	5.3	33.65	0	84.3	72-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	24.04	5.3	30.6	1.321	74.3	68-131	0			
Perfluorohexanoic Acid (PFHxA)	29.52	5.3	33.65	0	87.7	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	25.28	5.3	32.28	0	78.3	69-127	0			
Perfluorononanoic Acid (PFNA)	28.34	5.3	33.65	0	84.2	69-130	0			
Perfluorooctanesulfonamide (PFOSA)	28.13	5.3	33.65	0	83.6	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	24.38	2.1	31.23	0	78.1	65-140	0			
Perfluorooctanoic Acid (PFOA)	30.28	2.1	33.65	1.459	85.7	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	24.18	5.3	31.54	0	76.7	71-127	0			
Perfluoropentanoic Acid (PFPeA)	28.43	5.3	33.65	0	84.5	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	27	5.3	33.65	0	80.3	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	28.99	5.3	33.65	0	86.2	65-144	0			
Perfluoroundecanoic Acid (PFUnA)	28.84	5.3	33.65	0	85.7	69-133	0			
N-Ethylperfluorooctanesulfonamidoace	30.88	5.3	33.65	0	91.8	61-135	0			
N-Methylperfluorooctanesulfonamidoa	30.6	5.3	33.65	0	91	65-136	0			
Hexafluoropropylene oxide dimer acid	29.63	5.3	33.65	0	88	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	24.73	5.3	31.65	0	78.1	70-130	0			
11Cl-Pf3OUdS	24.02	5.3	31.65	0	75.9	70-130	0			
9Cl-PF3ONS	25.62	5.3	31.33	0	81.8	70-130	0			
Surr: 13C2-FtS 4:2	*160*	0	*157.1*	0	*102*	*50-150*	0			
Surr: 13C2-FtS 6:2	*156.1*	0	*159.8*	0	*97.7*	*50-150*	0			
Surr: 13C2-FtS 8:2	*151.4*	0	*161.2*	0	*93.9*	*50-150*	0			
Surr: 13C2-PFDA	*162.5*	0	*168.2*	0	*96.6*	*50-150*	0			
Surr: 13C2-PFDoA	*165.4*	0	*168.2*	0	*98.3*	*50-150*	0			
Surr: 13C2-PFHxA	*157.9*	0	*168.2*	0	*93.8*	*50-150*	0			
Surr: 13C2-PFTeA	*176.5*	0	*168.2*	0	*105*	*50-150*	0			
Surr: 13C2-PFUnA	*167.9*	0	*168.2*	0	*99.8*	*50-150*	0			
Surr: 13C3-HFPO-DA	*157.8*	0	*168.2*	0	*93.8*	*50-150*	0			
Surr: 13C3-PFBS	*162.3*	0	*156.5*	0	*104*	*50-150*	0			
Surr: 13C4-PFBA	*144.5*	0	*168.2*	0	*85.9*	*50-150*	0			
Surr: 13C4-PFHpA	*156.2*	0	*168.2*	0	*92.8*	*50-150*	0			
Surr: 13C4-PFOA	*166.6*	0	*168.2*	0	*99*	*50-150*	0			
Surr: 13C4-PFOS	*167.3*	0	*160.7*	0	*104*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **217127** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C5-PFNA	*169.3*	0	*168.2*	0	*101*	*50-150*	0
Surr: 13C5-PFPeA	*147.7*	0	*168.2*	0	*87.8*	*50-150*	0
Surr: 13C8-FOSA	*157.9*	0	*168.2*	0	*93.9*	*50-150*	0
Surr: 18O2-PFHxS	*174.7*	0	*159*	0	*110*	*50-150*	0
Surr: d5-N-EtFOSAA	*150.5*	0	*168.2*	0	*89.5*	*50-150*	0
Surr: d3-N-MeFOSAA	*147.8*	0	*168.2*	0	*87.9*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217127** Instrument ID **LCMS1** Method: **E537 Mod**

DUP	Sample ID: **23052527-03A DUP**				Units: **ng/L**			Analysis Date: **5/31/2023 09:05 PM**			
Client ID:		Run ID: **LCMS1_230531A**			SeqNo: **9611577**		Prep Date: **5/30/2023**		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	ND	5.1	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 6:2 (FtS	ND	5.1	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 8:2 (FtS	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (PFBS)	0.3852	5.1	0	0	0	0-0	0	0	30	J
Perfluorobutanoic Acid (PFBA)	ND	5.1	0	0	0	0-0	1.722	0	30	
Perfluorodecanesulfonic Acid (PFDS)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFDoA)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid (PFHpS	ND	5.1	0	0	0	0-0	0	0	30	
Perfluoroheptanoic Acid (PFHpA)	ND	5.1	0	0	0	0-0	1.174	0	30	
Perfluorohexanesulfonic Acid (PFHxS)	ND	5.1	0	0	0	0-0	0.6337	0	30	
Perfluorohexanoic Acid (PFHxA)	1.854	5.1	0	0	0	0-0	2.09	0	30	J
Perfluorononanesulfonic Acid (PFNS)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (PFOSA)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (PFOS)	ND	2.0	0	0	0	0-0	0.4844	0	30	
Perfluorooctanoic Acid (PFOA)	ND	2.0	0	0	0	0-0	0.345	0	30	
Perfluoropentanesulfonic Acid (PFPeS	ND	5.1	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPeA)	1.495	5.1	0	0	0	0-0	1.569	0	30	J
Perfluorotetradecanoic Acid (PFTeA)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFTriA)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFUnA)	ND	5.1	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfonamidoace	ND	5.1	0	0	0	0-0	0.4512	0	30	
N-Methylperfluorooctanesulfonamidoa	ND	5.1	0	0	0	0-0	0.355	0	30	
Hexafluoropropylene oxide dimer acid	ND	5.1	0	0	0	0-0	0	0	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	ND	5.1	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	ND	5.1	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	ND	5.1	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	*151.8*	0	*152.4*	0	*99.6*	*50-150*	156.4	*2.99*	*30*	
Surr: 13C2-FtS 6:2	*165.3*	0	*155.1*	0	*107*	*50-150*	172.9	*4.5*	*30*	
Surr: 13C2-FtS 8:2	*153.4*	0	*156.4*	0	*98.1*	*50-150*	165.9	*7.84*	*30*	
Surr: 13C2-PFDA	*167*	0	*163.2*	0	*102*	*50-150*	190	*12.9*	*30*	
Surr: 13C2-PFDoA	*158.3*	0	*163.2*	0	*97*	*50-150*	181.4	*13.6*	*30*	
Surr: 13C2-PFHxA	*165.1*	0	*163.2*	0	*101*	*50-150*	179.1	*8.15*	*30*	
Surr: 13C2-PFTeA	*176.7*	0	*163.2*	0	*108*	*50-150*	181.5	*2.68*	*30*	
Surr: 13C2-PFUnA	*162.3*	0	*163.2*	0	*99.4*	*50-150*	185.2	*13.2*	*30*	
Surr: 13C3-HFPO-DA	*157.2*	0	*163.2*	0	*96.3*	*50-150*	159.5	*1.45*	*30*	
Surr: 13C3-PFBS	*169.3*	0	*151.8*	0	*112*	*50-150*	175.6	*3.64*	*30*	
Surr: 13C4-PFBA	*152.8*	0	*163.2*	0	*93.6*	*50-150*	160.5	*4.95*	*30*	
Surr: 13C4-PFHpA	*165.4*	0	*163.2*	0	*101*	*50-150*	175.4	*5.89*	*30*	
Surr: 13C4-PFOA	*174.5*	0	*163.2*	0	*107*	*50-150*	180.6	*3.44*	*30*	
Surr: 13C4-PFOS	*166.8*	0	*155.9*	0	*107*	*50-150*	182.7	*9.05*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217127** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C5-PFNA	*172.1*	0	*163.2*	0	*105*	*50-150*	192.8	*11.3*	*30*
Surr: 13C5-PFPeA	*154.8*	0	*163.2*	0	*94.9*	*50-150*	158.9	*2.59*	*30*
Surr: 13C8-FOSA	*149.4*	0	*163.2*	0	*91.5*	*50-150*	157.6	*5.35*	*30*
Surr: 18O2-PFHxS	*165.3*	0	*154.2*	0	*107*	*50-150*	179.7	*8.37*	*30*
Surr: d5-N-EtFOSAA	*144.9*	0	*163.2*	0	*88.8*	*50-150*	142.4	*1.72*	*30*
Surr: d3-N-MeFOSAA	*139.8*	0	*163.2*	0	*85.6*	*50-150*	143.3	*2.49*	*30*

The following samples were analyzed in this batch: 23052445-01E 23052445-03A 23052445-05A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **217229** Instrument ID **SVMS8** Method: **SW8270E**

MBLK Sample ID: **SBLKW1-217229-217229** Units: **µg/L** Analysis Date: **6/1/2023 12:57 PM**

Client ID: Run ID: **SVMS8_230601A** SeqNo: **9617222** Prep Date: **5/31/2023** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Acetophenone	ND	1.0								
Anthracene	ND	5.0								
Atrazine	ND	1.0								
Benzaldehyde	ND	1.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Caprolactam	ND	10								
Carbazole	ND	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **217229** Instrument ID **SVMS8** Method: **SW8270E**

Chrysene	ND	5.0						
Dibenzo(a,h)anthracene	ND	5.0						
Dibenzofuran	ND	5.0						
Diethyl phthalate	ND	5.0						
Dimethyl phthalate	ND	5.0						
Di-n-butyl phthalate	ND	5.0						
Di-n-octyl phthalate	ND	5.0						
Fluoranthene	ND	5.0						
Fluorene	ND	5.0						
Hexachlorobenzene	ND	5.0						
Hexachlorobutadiene	ND	5.0						
Hexachlorocyclopentadiene	ND	5.0						
Hexachloroethane	ND	5.0						
Indeno(1,2,3-cd)pyrene	ND	5.0						
Isophorone	ND	5.0						
Naphthalene	ND	5.0						
Nitrobenzene	ND	5.0						
N-Nitrosodi-n-propylamine	ND	5.0						
N-Nitrosodiphenylamine	ND	5.0						
Pentachlorophenol	ND	5.0						
Phenanthrene	ND	5.0						
Phenol	ND	5.0						
Pyrene	ND	5.0						
Surr: 2,4,6-Tribromophenol	*38.83*	0	*50*	0	*77.7*	*38-103*	0	
Surr: 2-Fluorobiphenyl	*39.34*	0	*50*	0	*78.7*	*36-96*	0	
Surr: 2-Fluorophenol	*25.28*	0	*50*	0	*50.6*	*20-73*	0	
Surr: 4-Terphenyl-d14	*61.64*	0	*50*	0	*123*	*44-114*	0	*S*
Surr: Nitrobenzene-d5	*43.75*	0	*50*	0	*87.5*	*33-100*	0	
Surr: Phenol-d6	*16.74*	0	*50*	0	*33.5*	*10-48*	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217229** Instrument ID **SVMS8** Method: **SW8270E**

LCS	Sample ID: **SLCSW1-217229-217229**				Units: **µg/L**		Analysis Date: **6/1/2023 01:19 PM**			
Client ID:		Run ID: **SVMS8_230601A**			SeqNo: **9617223**		Prep Date: **5/31/2023**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	16.56	5.0	20	0	82.8	24-111	0			
2,4,5-Trichlorophenol	18.07	5.0	20	0	90.4	33-114	0			
2,4,6-Trichlorophenol	16.18	5.0	20	0	80.9	36-113	0			
2,4-Dichlorophenol	16.65	5.0	20	0	83.2	30-111	0			
2,4-Dimethylphenol	18.37	5.0	20	0	91.8	36-109	0			
2,4-Dinitrophenol	11.05	5.0	20	0	55.2	12-113	0			
2,4-Dinitrotoluene	18.78	5.0	20	0	93.9	51-107	0			
2,6-Dinitrotoluene	17.93	5.0	20	0	89.6	51-105	0			
2-Chloronaphthalene	16.4	5.0	20	0	82	22-112	0			
2-Chlorophenol	15.69	5.0	20	0	78.4	35-108	0			
2-Methylnaphthalene	16.38	5.0	20	0	81.9	12-119	0			
2-Methylphenol	14.55	5.0	20	0	72.8	31-100	0			
2-Nitroaniline	20.15	5.0	20	0	101	46-106	0			
2-Nitrophenol	16.92	5.0	20	0	84.6	26-111	0			
3&4-Methylphenol	13.88	5.0	20	0	69.4	24-95	0			
3,3´-Dichlorobenzidine	15.18	5.0	20	0	75.9	48-101	0			
3-Nitroaniline	17.55	5.0	20	0	87.8	52-105	0			
4,6-Dinitro-2-methylphenol	17.8	5.0	20	0	89	28-121	0			
4-Bromophenyl phenyl ether	16.55	5.0	20	0	82.8	49-107	0			
4-Chloro-3-methylphenol	17.42	5.0	20	0	87.1	35-105	0			
4-Chloroaniline	16.72	5.0	20	0	83.6	46-101	0			
4-Chlorophenyl phenyl ether	17.16	5.0	20	0	85.8	40-107	0			
4-Nitroaniline	17.5	5.0	20	0	87.5	49-110	0			
4-Nitrophenol	7.38	5.0	20	0	36.9	10-64	0			
Acenaphthene	16.58	5.0	20	0	82.9	32-108	0			
Acenaphthylene	15.93	5.0	20	0	79.6	34-107	0			
Acetophenone	16.85	1.0	20	0	84.2	41-102	0			
Anthracene	16.76	5.0	20	0	83.8	53-105	0			
Atrazine	17.96	1.0	20	0	89.8	53-112	0			
Benzaldehyde	18.35	1.0	20	0	91.8	32-111	0			
Benzo(a)anthracene	16.39	5.0	20	0	82	57-106	0			
Benzo(a)pyrene	15.21	5.0	20	0	76	54-107	0			
Benzo(b)fluoranthene	15.58	5.0	20	0	77.9	53-109	0			
Benzo(g,h,i)perylene	16.13	5.0	20	0	80.6	50-114	0			
Benzo(k)fluoranthene	17.91	5.0	20	0	89.6	53-110	0			
Bis(2-chloroethoxy)methane	18.1	5.0	20	0	90.5	42-101	0			
Bis(2-chloroethyl)ether	17.66	5.0	20	0	88.3	39-100	0			
Bis(2-chloroisopropyl)ether	14.5	5.0	20	0	72.5	31-104	0			
Bis(2-ethylhexyl)phthalate	16.74	5.0	20	0	83.7	53-116	0			
Butyl benzyl phthalate	16.03	5.0	20	0	80.2	45-112	0			
Carbazole	17.36	5.0	20	0	86.8	55-106	0			
Chrysene	17.2	5.0	20	0	86	57-108	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **217229** Instrument ID **SVMS8** Method: **SW8270E**

Dibenzo(a,h)anthracene	14.79	5.0	20	0	74	51-112	0
Dibenzofuran	16.8	5.0	20	0	84	37-107	0
Diethyl phthalate	17.66	5.0	20	0	88.3	44-114	0
Dimethyl phthalate	17.23	5.0	20	0	86.2	40-115	0
Di-n-butyl phthalate	17.3	5.0	20	0	86.5	49-112	0
Di-n-octyl phthalate	15.97	5.0	20	0	79.8	47-120	0
Fluoranthene	17.74	5.0	20	0	88.7	54-107	0
Fluorene	16.7	5.0	20	0	83.5	42-107	0
Hexachlorobenzene	16.2	5.0	20	0	81	50-105	0
Hexachlorobutadiene	17.68	5.0	20	0	88.4	10-112	0
Hexachlorocyclopentadiene	13.84	5.0	20	0	69.2	10-102	0
Hexachloroethane	16.71	5.0	20	0	83.6	10-115	0
Indeno(1,2,3-cd)pyrene	14.1	5.0	20	0	70.5	49-113	0
Isophorone	18.19	5.0	20	0	91	42-103	0
Naphthalene	15.78	5.0	20	0	78.9	18-109	0
Nitrobenzene	18.56	5.0	20	0	92.8	38-101	0
N-Nitrosodi-n-propylamine	17.99	5.0	20	0	90	40-104	0
N-Nitrosodiphenylamine	15.8	5.0	20	0	79	49-105	0
Pentachlorophenol	11.56	5.0	20	0	57.8	22-109	0
Phenanthrene	16.76	5.0	20	0	83.8	51-103	0
Phenol	7.79	5.0	20	0	39	10-63	0
Pyrene	16.07	5.0	20	0	80.4	50-105	0
Surr: 2,4,6-Tribromophenol	*41.86*	0	*50*	0	*83.7*	*38-103*	0
Surr: 2-Fluorobiphenyl	*40.77*	0	*50*	0	*81.5*	*36-96*	0
Surr: 2-Fluorophenol	*26.35*	0	*50*	0	*52.7*	*20-73*	0
Surr: 4-Terphenyl-d14	*55.49*	0	*50*	0	*111*	*44-114*	0
Surr: Nitrobenzene-d5	*46.19*	0	*50*	0	*92.4*	*33-100*	0
Surr: Phenol-d6	*18.05*	0	*50*	0	*36.1*	*10-48*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **217229** Instrument ID **SVMS8** Method: **SW8270E**

LCSD	Sample ID: **SLCSDW1-217229-217229**				Units: **µg/L**			Analysis Date: **6/1/2023 01:42 PM**			
Client ID:		Run ID: **SVMS8_230601A**			SeqNo: **9617224**			Prep Date: **5/31/2023**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	15.72	5.0	20	0	78.6	24-111	16.56	5.2	30	
2,4,5-Trichlorophenol	16.65	5.0	20	0	83.2	33-114	18.07	8.18	30	
2,4,6-Trichlorophenol	15.86	5.0	20	0	79.3	36-113	16.18	2	30	
2,4-Dichlorophenol	16.07	5.0	20	0	80.4	30-111	16.65	3.55	30	
2,4-Dimethylphenol	18.25	5.0	20	0	91.2	36-109	18.37	0.655	30	
2,4-Dinitrophenol	10.01	5.0	20	0	50	12-113	11.05	9.88	30	
2,4-Dinitrotoluene	17.75	5.0	20	0	88.8	51-107	18.78	5.64	30	
2,6-Dinitrotoluene	17.28	5.0	20	0	86.4	51-105	17.93	3.69	30	
2-Chloronaphthalene	15.27	5.0	20	0	76.4	22-112	16.4	7.14	30	
2-Chlorophenol	15.1	5.0	20	0	75.5	35-108	15.69	3.83	30	
2-Methylnaphthalene	15.16	5.0	20	0	75.8	12-119	16.38	7.74	30	
2-Methylphenol	14	5.0	20	0	70	31-100	14.55	3.85	30	
2-Nitroaniline	18.89	5.0	20	0	94.4	46-106	20.15	6.45	30	
2-Nitrophenol	16.48	5.0	20	0	82.4	26-111	16.92	2.63	30	
3&4-Methylphenol	13.02	5.0	20	0	65.1	24-95	13.88	6.39	30	
3,3´-Dichlorobenzidine	13.95	5.0	20	0	69.8	48-101	15.18	8.44	30	
3-Nitroaniline	16.93	5.0	20	0	84.6	52-105	17.55	3.6	30	
4,6-Dinitro-2-methylphenol	17.57	5.0	20	0	87.8	28-121	17.8	1.3	30	
4-Bromophenyl phenyl ether	16	5.0	20	0	80	49-107	16.55	3.38	30	
4-Chloro-3-methylphenol	16.51	5.0	20	0	82.6	35-105	17.42	5.36	30	
4-Chloroaniline	16.77	5.0	20	0	83.8	46-101	16.72	0.299	30	
4-Chlorophenyl phenyl ether	15.94	5.0	20	0	79.7	40-107	17.16	7.37	30	
4-Nitroaniline	15.7	5.0	20	0	78.5	49-110	17.5	10.8	30	
4-Nitrophenol	6.32	5.0	20	0	31.6	10-64	7.38	15.5	30	
Acenaphthene	15.88	5.0	20	0	79.4	32-108	16.58	4.31	30	
Acenaphthylene	14.82	5.0	20	0	74.1	34-107	15.93	7.22	30	
Acetophenone	15.67	1.0	20	0	78.4	41-102	16.85	7.26	30	
Anthracene	16.03	5.0	20	0	80.2	53-105	16.76	4.45	30	
Atrazine	17.36	1.0	20	0	86.8	53-112	17.96	3.4	30	
Benzaldehyde	15.83	1.0	20	0	79.2	32-111	18.35	14.7	30	
Benzo(a)anthracene	16.2	5.0	20	0	81	57-106	16.39	1.17	30	
Benzo(a)pyrene	15.07	5.0	20	0	75.4	54-107	15.21	0.925	30	
Benzo(b)fluoranthene	14.7	5.0	20	0	73.5	53-109	15.58	5.81	30	
Benzo(g,h,i)perylene	15.62	5.0	20	0	78.1	50-114	16.13	3.21	30	
Benzo(k)fluoranthene	18.23	5.0	20	0	91.2	53-110	17.91	1.77	30	
Bis(2-chloroethoxy)methane	17.15	5.0	20	0	85.8	42-101	18.1	5.39	30	
Bis(2-chloroethyl)ether	16.58	5.0	20	0	82.9	39-100	17.66	6.31	30	
Bis(2-chloroisopropyl)ether	13.76	5.0	20	0	68.8	31-104	14.5	5.24	30	
Bis(2-ethylhexyl)phthalate	16.71	5.0	20	0	83.6	53-116	16.74	0.179	30	
Butyl benzyl phthalate	16.51	5.0	20	0	82.6	45-112	16.03	2.95	30	
Carbazole	16.3	5.0	20	0	81.5	55-106	17.36	6.3	30	
Chrysene	16.71	5.0	20	0	83.6	57-108	17.2	2.89	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **217229** Instrument ID **SVMS8** Method: **SW8270E**

Dibenzo(a,h)anthracene	14.16	5.0	20	0	70.8	51-112	14.79	4.35	30	
Dibenzofuran	15.8	5.0	20	0	79	37-107	16.8	6.13	30	
Diethyl phthalate	17.25	5.0	20	0	86.2	44-114	17.66	2.35	30	
Dimethyl phthalate	16.77	5.0	20	0	83.8	40-115	17.23	2.71	30	
Di-n-butyl phthalate	17.21	5.0	20	0	86	49-112	17.3	0.522	30	
Di-n-octyl phthalate	15.54	5.0	20	0	77.7	47-120	15.97	2.73	30	
Fluoranthene	16.69	5.0	20	0	83.4	54-107	17.74	6.1	30	
Fluorene	15.9	5.0	20	0	79.5	42-107	16.7	4.91	30	
Hexachlorobenzene	15.71	5.0	20	0	78.6	50-105	16.2	3.07	30	
Hexachlorobutadiene	14.53	5.0	20	0	72.6	10-112	17.68	19.6	30	
Hexachlorocyclopentadiene	13.36	5.0	20	0	66.8	10-102	13.84	3.53	30	
Hexachloroethane	13.2	5.0	20	0	66	10-115	16.71	23.5	30	
Indeno(1,2,3-cd)pyrene	13.63	5.0	20	0	68.2	49-113	14.1	3.39	30	
Isophorone	17.58	5.0	20	0	87.9	42-103	18.19	3.41	30	
Naphthalene	14.2	5.0	20	0	71	18-109	15.78	10.5	30	
Nitrobenzene	17.22	5.0	20	0	86.1	38-101	18.56	7.49	30	
N-Nitrosodi-n-propylamine	17.34	5.0	20	0	86.7	40-104	17.99	3.68	30	
N-Nitrosodiphenylamine	15.25	5.0	20	0	76.2	49-105	15.8	3.54	30	
Pentachlorophenol	10.54	5.0	20	0	52.7	22-109	11.56	9.23	30	
Phenanthrene	16.18	5.0	20	0	80.9	51-103	16.76	3.52	30	
Phenol	7.25	5.0	20	0	36.2	10-63	7.79	7.18	30	
Pyrene	16.32	5.0	20	0	81.6	50-105	16.07	1.54	30	
Surr: 2,4,6-Tribromophenol	*40.54*	0	*50*	0	*81.1*	*38-103*	41.86	*3.2*	*40*	
Surr: 2-Fluorobiphenyl	*38.06*	0	*50*	0	*76.1*	*36-96*	40.77	*6.88*	*40*	
Surr: 2-Fluorophenol	*24.43*	0	*50*	0	*48.9*	*20-73*	26.35	*7.56*	*40*	
Surr: 4-Terphenyl-d14	*57.22*	0	*50*	0	*114*	*44-114*	55.49	*3.07*	*40*	*S*
Surr: Nitrobenzene-d5	*42.03*	0	*50*	0	*84.1*	*33-100*	46.19	*9.43*	*40*	
Surr: Phenol-d6	*16.69*	0	*50*	0	*33.4*	*10-48*	18.05	*7.83*	*40*	

The following samples were analyzed in this batch: 23052445-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **R372023a** Instrument ID **VMS11** Method: **SW8260D**

MBLK Sample ID: **11V-BLKW3-230526-R372023a** Units: **µg/L** Analysis Date: **5/27/2023 08:53 AM**

Client ID: Run ID: **VMS11_230526B** SeqNo: **9602645** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1,2-Trichlorotrifluoroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	1.0								
Acetone	ND	10								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
Methyl acetate	ND	2.0								
Methyl tert-butyl ether	ND	1.0								
Methylcyclohexane	ND	1.0								
Methylene chloride	ND	5.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	1.0								
Toluene	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R372023a** Instrument ID **VMS11** Method: **SW8260D**

trans-1,2-Dichloroethene	ND	1.0					
trans-1,3-Dichloropropene	ND	1.0					
Trichloroethene	ND	1.0					
Trichlorofluoromethane	ND	1.0					
Vinyl chloride	ND	1.0					
Xylenes, Total	ND	3.0					
Surr: 1,2-Dichloroethane-d4	*20.49*	0	*20*	0	*102*	*80-120*	0
Surr: 4-Bromofluorobenzene	*19.14*	0	*20*	0	*95.7*	*80-120*	0
Surr: Dibromofluoromethane	*19.13*	0	*20*	0	*95.6*	*80-120*	0
Surr: Toluene-d8	*19.39*	0	*20*	0	*97*	*80-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R372023a** Instrument ID **VMS11** Method: **SW8260D**

LCS	Sample ID: **11V-LCSW3-230526-R372023a**				Units: **µg/L**			Analysis Date: **5/27/2023 07:47 AM**			
Client ID:		Run ID: **VMS11_230526B**			SeqNo: **9602643**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	18.51	1.0	20	0	92.6	75-119	0			
1,1,2,2-Tetrachloroethane	20.11	1.0	20	0	101	80-123	0			
1,1,2-Trichloroethane	19.73	1.0	20	0	98.6	83-118	0			
1,1,2-Trichlorotrifluoroethane	19.58	1.0	20	0	97.9	64-133	0			
1,1-Dichloroethane	20.67	1.0	20	0	103	73-122	0			
1,1-Dichloroethene	22.48	1.0	20	0	112	66-131	0			
1,2,4-Trichlorobenzene	20.63	1.0	20	0	103	73-127	0			
1,2-Dibromo-3-chloropropane	18.07	1.0	20	0	90.4	52-141	0			
1,2-Dibromoethane	18.23	1.0	20	0	91.2	60-159	0			
1,2-Dichlorobenzene	19.18	1.0	20	0	95.9	80-119	0			
1,2-Dichloroethane	19.66	1.0	20	0	98.3	78-121	0			
1,2-Dichloropropane	19.34	1.0	20	0	96.7	78-120	0			
1,3-Dichlorobenzene	19.27	1.0	20	0	96.4	80-120	0			
1,4-Dichlorobenzene	19.73	1.0	20	0	98.6	81-119	0			
2-Butanone	15.47	5.0	20	0	77.4	69-147	0			
2-Hexanone	15.83	5.0	20	0	79.2	67-140	0			
4-Methyl-2-pentanone	20.33	1.0	20	0	102	68-199	0			
Acetone	16.76	10	20	0	83.8	70-166	0			
Benzene	19.68	1.0	20	0	98.4	78-120	0			
Bromodichloromethane	20.26	1.0	20	0	101	73-126	0			
Bromoform	18.19	1.0	20	0	91	60-124	0			
Bromomethane	23.99	1.0	20	0	120	20-183	0			
Carbon disulfide	22.15	1.0	20	0	111	67-159	0			
Carbon tetrachloride	19.51	1.0	20	0	97.6	69-124	0			
Chlorobenzene	18.85	1.0	20	0	94.2	80-118	0			
Chloroethane	18.71	1.0	20	0	93.6	35-136	0			
Chloroform	20.31	1.0	20	0	102	75-119	0			
Chloromethane	16.77	1.0	20	0	83.8	26-117	0			
cis-1,2-Dichloroethene	21.04	1.0	20	0	105	75-123	0			
cis-1,3-Dichloropropene	18.67	1.0	20	0	93.4	69-120	0			
Cyclohexane	20.31	2.0	20	0	102	66-128	0			
Dibromochloromethane	17.34	1.0	20	0	86.7	63-117	0			
Dichlorodifluoromethane	16.87	1.0	20	0	84.4	36-133	0			
Ethylbenzene	18.82	1.0	20	0	94.1	76-116	0			
Isopropylbenzene	20.09	1.0	20	0	100	77-118	0			
Methyl tert-butyl ether	20.44	1.0	20	0	102	77-137	0			
Methylcyclohexane	19.82	1.0	20	0	99.1	66-125	0			
Methylene chloride	19.92	5.0	20	0	99.6	68-125	0			
Styrene	20.09	1.0	20	0	100	76-123	0			
Tetrachloroethene	18.76	1.0	20	0	93.8	80-124	0			
Toluene	18.78	1.0	20	0	93.9	78-116	0			
trans-1,2-Dichloroethene	21.23	1.0	20	0	106	73-124	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R372023a** Instrument ID **VMS11** Method: **SW8260D**

trans-1,3-Dichloropropene	18.97	1.0	20	0	94.8	67-118	0
Trichloroethene	18.49	1.0	20	0	92.4	75-122	0
Trichlorofluoromethane	17.61	1.0	20	0	88	52-115	0
Vinyl chloride	16.97	1.0	20	0	84.8	49-122	0
Xylenes, Total	58.08	3.0	60	0	96.8	77-119	0
Surr: 1,2-Dichloroethane-d4	*19.82*	0	*20*	0	*99.1*	*80-120*	0
Surr: 4-Bromofluorobenzene	*20.13*	0	*20*	0	*101*	*80-120*	0
Surr: Dibromofluoromethane	*19.26*	0	*20*	0	*96.3*	*80-120*	0
Surr: Toluene-d8	*19.98*	0	*20*	0	*99.9*	*80-120*	0

The following samples were analyzed in this batch: 23052445-01A 23052445-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R372072c** Instrument ID **VMS12** Method: **SW8260D**

MBLK	Sample ID: **12V-BLKW1-230530-R372072c**			Units: **µg/L**		Analysis Date: **5/31/2023 12:26 AM**			
Client ID:	Run ID: **VMS12_230530A**			SeqNo: **9605590**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1,2-Trichlorotrifluoroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	1.0								
Acetone	ND	10								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
Methyl acetate	ND	2.0								
Methyl tert-butyl ether	ND	1.0								
Methylcyclohexane	ND	1.0								
Methylene chloride	ND	5.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	1.0								
Toluene	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R372072c** Instrument ID **VMS12** Method: **SW8260D**

trans-1,2-Dichloroethene	ND	1.0					
trans-1,3-Dichloropropene	ND	1.0					
Trichloroethene	ND	1.0					
Trichlorofluoromethane	ND	1.0					
Vinyl chloride	ND	1.0					
Xylenes, Total	ND	3.0					
Surr: 1,2-Dichloroethane-d4	*19.88*	0	*20*	0	*99.4*	*80-120*	0
Surr: 4-Bromofluorobenzene	*19.56*	0	*20*	0	*97.8*	*80-120*	0
Surr: Dibromofluoromethane	*19.1*	0	*20*	0	*95.5*	*80-120*	0
Surr: Toluene-d8	*20.06*	0	*20*	0	*100*	*80-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R372072c** Instrument ID **VMS12** Method: **SW8260D**

LCS	Sample ID: **12V-LCSW1-230530-R372072c**				Units: **µg/L**			Analysis Date: **5/30/2023 11:12 PM**			
Client ID:		Run ID: **VMS12_230530A**			SeqNo: **9605588**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.47	1.0	20	0	97.4	75-119	0			
1,1,2,2-Tetrachloroethane	18.82	1.0	20	0	94.1	80-123	0			
1,1,2-Trichloroethane	19.99	1.0	20	0	100	83-118	0			
1,1,2-Trichlorotrifluoroethane	20.22	1.0	20	0	101	64-133	0			
1,1-Dichloroethane	21.34	1.0	20	0	107	73-122	0			
1,1-Dichloroethene	20.99	1.0	20	0	105	66-131	0			
1,2,4-Trichlorobenzene	20.26	1.0	20	0	101	73-127	0			
1,2-Dibromo-3-chloropropane	18.16	1.0	20	0	90.8	52-141	0			
1,2-Dibromoethane	20.4	1.0	20	0	102	60-159	0			
1,2-Dichlorobenzene	20.19	1.0	20	0	101	80-119	0			
1,2-Dichloroethane	19.94	1.0	20	0	99.7	78-121	0			
1,2-Dichloropropane	20.41	1.0	20	0	102	78-120	0			
1,3-Dichlorobenzene	20.47	1.0	20	0	102	80-120	0			
1,4-Dichlorobenzene	20.77	1.0	20	0	104	81-119	0			
2-Butanone	20.28	5.0	20	0	101	69-147	0			
2-Hexanone	22.17	5.0	20	0	111	67-140	0			
4-Methyl-2-pentanone	26.19	1.0	20	0	131	68-199	0			
Acetone	20.95	10	20	0	105	70-166	0			
Benzene	21.37	1.0	20	0	107	78-120	0			
Bromodichloromethane	21.66	1.0	20	0	108	73-126	0			
Bromoform	18.28	1.0	20	0	91.4	60-124	0			
Bromomethane	25.33	1.0	20	0	127	20-183	0			
Carbon disulfide	22.72	1.0	20	0	114	67-159	0			
Carbon tetrachloride	19.15	1.0	20	0	95.8	69-124	0			
Chlorobenzene	20.61	1.0	20	0	103	80-118	0			
Chloroethane	20.59	1.0	20	0	103	35-136	0			
Chloroform	21.33	1.0	20	0	107	75-119	0			
Chloromethane	17.17	1.0	20	0	85.8	26-117	0			
cis-1,2-Dichloroethene	21.78	1.0	20	0	109	75-123	0			
cis-1,3-Dichloropropene	20.48	1.0	20	0	102	69-120	0			
Cyclohexane	19.29	2.0	20	0	96.4	66-128	0			
Dibromochloromethane	18.05	1.0	20	0	90.2	63-117	0			
Dichlorodifluoromethane	21.78	1.0	20	0	109	36-133	0			
Ethylbenzene	20.94	1.0	20	0	105	76-116	0			
Isopropylbenzene	20.02	1.0	20	0	100	77-118	0			
Methyl tert-butyl ether	23.17	1.0	20	0	116	77-137	0			
Methylcyclohexane	19.37	1.0	20	0	96.8	66-125	0			
Methylene chloride	22.16	5.0	20	0	111	68-125	0			
Styrene	20.11	1.0	20	0	101	76-123	0			
Tetrachloroethene	19.59	1.0	20	0	98	80-124	0			
Toluene	21.26	1.0	20	0	106	78-116	0			
trans-1,2-Dichloroethene	21.28	1.0	20	0	106	73-124	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R372072c** Instrument ID **VMS12** Method: **SW8260D**

trans-1,3-Dichloropropene	20.13	1.0	20	0	101	67-118	0
Trichloroethene	20.07	1.0	20	0	100	75-122	0
Trichlorofluoromethane	18.94	1.0	20	0	94.7	52-115	0
Vinyl chloride	19.54	1.0	20	0	97.7	49-122	0
Xylenes, Total	63.08	3.0	60	0	105	77-119	0
Surr: 1,2-Dichloroethane-d4	*20.18*	0	*20*	0	*101*	*80-120*	0
Surr: 4-Bromofluorobenzene	*20.25*	0	*20*	0	*101*	*80-120*	0
Surr: Dibromofluoromethane	*20.63*	0	*20*	0	*103*	*80-120*	0
Surr: Toluene-d8	*19.45*	0	*20*	0	*97.2*	*80-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R372072c** Instrument ID **VMS12** Method: **SW8260D**

MS	Sample ID: **23051974-23C MS**				Units: **µg/L**			Analysis Date: **5/31/2023 08:40 AM**		
Client ID:		Run ID: **VMS12_230530A**			SeqNo: **9605610**		Prep Date:		DF: **10**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	193.6	10	200	0	96.8	75-119	0			
1,1,2,2-Tetrachloroethane	170.5	10	200	0	85.2	80-123	0			
1,1,2-Trichloroethane	193.5	10	200	0	96.8	83-118	0			
1,1,2-Trichlorotrifluoroethane	198.6	10	200	0	99.3	64-133	0			
1,1-Dichloroethane	204.5	10	200	0	102	73-122	0			
1,1-Dichloroethene	217.8	10	200	0	109	66-131	0			
1,2,4-Trichlorobenzene	160	10	200	0	80	73-127	0			
1,2-Dibromo-3-chloropropane	145.2	10	200	0	72.6	52-141	0			
1,2-Dibromoethane	189.1	10	200	0	94.6	60-159	0			
1,2-Dichlorobenzene	191	10	200	0	95.5	80-119	0			
1,2-Dichloroethane	192	10	200	0	96	78-121	0			
1,2-Dichloropropane	198.6	10	200	0	99.3	78-120	0			
1,3-Dichlorobenzene	193.2	10	200	0	96.6	80-120	0			
1,4-Dichlorobenzene	195.5	10	200	0	97.8	81-119	0			
2-Butanone	183.6	50	200	0	91.8	69-147	0			
2-Hexanone	199.8	50	200	0	99.9	67-140	0			
4-Methyl-2-pentanone	248.5	10	200	0	124	68-199	0			
Acetone	203.9	100	200	6.8	98.6	70-166	0			
Benzene	214.2	10	200	8.8	103	78-120	0			
Bromodichloromethane	196.3	10	200	0	98.2	73-126	0			
Bromoform	153.8	10	200	0	76.9	60-124	0			
Bromomethane	157.8	10	200	0	78.9	20-183	0			
Carbon disulfide	210.9	10	200	0	105	67-159	0			
Carbon tetrachloride	187.8	10	200	0	93.9	69-124	0			
Chlorobenzene	201.7	10	200	0	101	80-118	0			
Chloroethane	200.5	10	200	0	100	35-136	0			
Chloroform	199.4	10	200	0	99.7	75-119	0			
Chloromethane	174.2	10	200	0	87.1	26-117	0			
cis-1,2-Dichloroethene	195.8	10	200	0	97.9	75-123	0			
cis-1,3-Dichloropropene	175.2	10	200	0	87.6	69-120	0			
Cyclohexane	216	20	200	0	108	66-128	0			
Dibromochloromethane	157.5	10	200	0	78.8	63-117	0			
Dichlorodifluoromethane	223	10	200	0	112	36-133	0			
Ethylbenzene	215.2	10	200	2.8	106	76-116	0			
Isopropylbenzene	213.1	10	200	5.2	104	77-118	0			
Methyl tert-butyl ether	217.1	10	200	6.7	105	77-137	0			
Methylcyclohexane	205.8	10	200	0	103	66-125	0			
Methylene chloride	208.7	50	200	0	104	68-125	0			
Styrene	198.9	10	200	0	99.4	76-123	0			
Tetrachloroethene	196.9	10	200	0	98.4	80-124	0			
Toluene	212.3	10	200	13.4	99.4	78-116	0			
trans-1,2-Dichloroethene	207.7	10	200	0	104	73-124	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **R372072c** Instrument ID **VMS12** Method: **SW8260D**

trans-1,3-Dichloropropene	168.1	10	200	0	84	67-118	0
Trichloroethene	196.9	10	200	0	98.4	75-122	0
Trichlorofluoromethane	192.1	10	200	0	96	52-115	0
Vinyl chloride	201.6	10	200	0	101	49-122	0
Xylenes, Total	639.4	30	600	0	107	77-119	0
Surr: 1,2-Dichloroethane-d4	*199.2*	0	*200*	0	*99.6*	*80-120*	0
Surr: 4-Bromofluorobenzene	*203.4*	0	*200*	0	*102*	*80-120*	0
Surr: Dibromofluoromethane	*197*	0	*200*	0	*98.5*	*80-120*	0
Surr: Toluene-d8	*196.5*	0	*200*	0	*98.2*	*80-120*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R372072c** Instrument ID **VMS12** Method: **SW8260D**

MSD	Sample ID: **23051974-23C MSD**				Units: **µg/L**			Analysis Date: **5/31/2023 09:04 AM**		
Client ID:		Run ID: **VMS12_230530A**			SeqNo: **9605611**		Prep Date:		DF: **10**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	193.6	10	200	0	96.8	75-119	193.6	0	30	
1,1,2,2-Tetrachloroethane	177	10	200	0	88.5	80-123	170.5	3.74	30	
1,1,2-Trichloroethane	195.8	10	200	0	97.9	83-118	193.5	1.18	30	
1,1,2-Trichlorotrifluoroethane	198.2	10	200	0	99.1	64-133	198.6	0.202	30	
1,1-Dichloroethane	200	10	200	0	100	73-122	204.5	2.22	30	
1,1-Dichloroethene	214.9	10	200	0	107	66-131	217.8	1.34	30	
1,2,4-Trichlorobenzene	161	10	200	0	80.5	73-127	160	0.623	30	
1,2-Dibromo-3-chloropropane	138.6	10	200	0	69.3	52-141	145.2	4.65	30	
1,2-Dibromoethane	190.8	10	200	0	95.4	60-159	189.1	0.895	30	
1,2-Dichlorobenzene	189.9	10	200	0	95	80-119	191	0.578	30	
1,2-Dichloroethane	191.9	10	200	0	96	78-121	192	0.0521	30	
1,2-Dichloropropane	200.1	10	200	0	100	78-120	198.6	0.752	30	
1,3-Dichlorobenzene	192.2	10	200	0	96.1	80-120	193.2	0.519	30	
1,4-Dichlorobenzene	192	10	200	0	96	81-119	195.5	1.81	30	
2-Butanone	179.9	50	200	0	90	69-147	183.6	2.04	30	
2-Hexanone	197.2	50	200	0	98.6	67-140	199.8	1.31	30	
4-Methyl-2-pentanone	252.4	10	200	0	126	68-199	248.5	1.56	30	
Acetone	201.9	100	200	6.8	97.6	70-166	203.9	0.986	30	
Benzene	210.2	10	200	8.8	101	78-120	214.2	1.89	30	
Bromodichloromethane	204	10	200	0	102	73-126	196.3	3.85	30	
Bromoform	160.2	10	200	0	80.1	60-124	153.8	4.08	30	
Bromomethane	202.8	10	200	0	101	20-183	157.8	25	30	
Carbon disulfide	218	10	200	0	109	67-159	210.9	3.31	30	
Carbon tetrachloride	189.7	10	200	0	94.8	69-124	187.8	1.01	30	
Chlorobenzene	202.3	10	200	0	101	80-118	201.7	0.297	30	
Chloroethane	205.2	10	200	0	103	35-136	200.5	2.32	30	
Chloroform	199.9	10	200	0	100	75-119	199.4	0.25	30	
Chloromethane	165.4	10	200	0	82.7	26-117	174.2	5.18	30	
cis-1,2-Dichloroethene	194.4	10	200	0	97.2	75-123	195.8	0.718	30	
cis-1,3-Dichloropropene	172.1	10	200	0	86	69-120	175.2	1.79	30	
Cyclohexane	211.7	20	200	0	106	66-128	216	2.01	30	
Dibromochloromethane	164.1	10	200	0	82	63-117	157.5	4.1	30	
Dichlorodifluoromethane	203.2	10	200	0	102	36-133	223	9.29	30	
Ethylbenzene	211.9	10	200	2.8	105	76-116	215.2	1.55	30	
Isopropylbenzene	211.4	10	200	5.2	103	77-118	213.1	0.801	30	
Methyl tert-butyl ether	219.4	10	200	6.7	106	77-137	217.1	1.05	30	
Methylcyclohexane	199.3	10	200	0	99.6	66-125	205.8	3.21	30	
Methylene chloride	208.1	50	200	0	104	68-125	208.7	0.288	30	
Styrene	199.2	10	200	0	99.6	76-123	198.9	0.151	30	
Tetrachloroethene	196.9	10	200	0	98.4	80-124	196.9	0	30	
Toluene	212.2	10	200	13.4	99.4	78-116	212.3	0.0471	30	
trans-1,2-Dichloroethene	209	10	200	0	104	73-124	207.7	0.624	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R372072c** Instrument ID **VMS12** Method: **SW8260D**

trans-1,3-Dichloropropene	172.2	10	200	0	86.1	67-118	168.1	2.41	30
Trichloroethene	194.5	10	200	0	97.2	75-122	196.9	1.23	30
Trichlorofluoromethane	191.7	10	200	0	95.8	52-115	192.1	0.208	30
Vinyl chloride	196.3	10	200	0	98.2	49-122	201.6	2.66	30
Xylenes, Total	632	30	600	0	105	77-119	639.4	1.16	30
Surr: 1,2-Dichloroethane-d4	*195.7*	0	*200*	0	*97.8*	*80-120*	199.2	*1.77*	*30*
Surr: 4-Bromofluorobenzene	*204.3*	0	*200*	0	*102*	*80-120*	203.4	*0.442*	*30*
Surr: Dibromofluoromethane	*195.7*	0	*200*	0	*97.8*	*80-120*	197	*0.662*	*30*
Surr: Toluene-d8	*198.7*	0	*200*	0	*99.4*	*80-120*	196.5	*1.11*	*30*

The following samples were analyzed in this batch: 23052445-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R372137** Instrument ID **LACHAT2** Method: **E350.1 R2.0**

MBLK Sample ID: **MBLK-R372137** Units: **mg NH3-N/L** Analysis Date: **5/31/2023 12:33 PM**
Client ID: Run ID: **LACHAT2_230531B** SeqNo: **9607778** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	ND	0.020								

LCS Sample ID: **LCS-R372137** Units: **mg NH3-N/L** Analysis Date: **5/31/2023 12:34 PM**
Client ID: Run ID: **LACHAT2_230531B** SeqNo: **9607779** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	1.08	0.020	1	0	108	90-110	0			

MS Sample ID: **23052359-02A MS** Units: **mg NH3-N/L** Analysis Date: **5/31/2023 12:44 PM**
Client ID: Run ID: **LACHAT2_230531B** SeqNo: **9607787** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	0.9666	0.020	1	0.02278	94.4	90-110	0			

MS Sample ID: **23052606-06A MS** Units: **mg NH3-N/L** Analysis Date: **5/31/2023 12:54 PM**
Client ID: Run ID: **LACHAT2_230531B** SeqNo: **9607795** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	0.8472	0.020	1	0.02706	82	90-110	0			S

MSD Sample ID: **23052359-02A MSD** Units: **mg NH3-N/L** Analysis Date: **5/31/2023 12:45 PM**
Client ID: Run ID: **LACHAT2_230531B** SeqNo: **9607788** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	0.9641	0.020	1	0.02278	94.1	90-110	0.9666	0.259	20	

MSD Sample ID: **23052606-06A MSD** Units: **mg NH3-N/L** Analysis Date: **5/31/2023 12:55 PM**
Client ID: Run ID: **LACHAT2_230531B** SeqNo: **9607796** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	0.8506	0.020	1	0.02706	82.4	90-110	0.8472	0.401	20	S

The following samples were analyzed in this batch: 23052445-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Chain of Custody Form

ALS Group USA, Corp

Work Order: _____

Company Name	The Mannik & Smith Group, Inc.	Purchase Order			Parameter/Method Request for Analysis
		Company Name	The Mannik & Smith Group, Inc.	A	VOCs
Send Report To	D. ADLER	Invoice Attn	Accounts Payable	B	SVOCs
Project Name	FORMER MT. PLEASANT LANDFILL	Project #	M34600004	C	PCBs
				D	DISSOLVED METALS - 10 Mich + AL, Sb, Be, B, Ni, TL
Address	2365 Haggerty Road South Suite 100	Address	2365 Haggerty Road South Suite 100 Suite 100	E	AMMONIA
				F	PFAS - SEE ATTACHED EGLE LIST FOR GROUNDWATER
City State Zip	Canton, MI 48188	City State Zip	Canton, MI 48188	G	TOTAL METALS - 10 Mi + AL, Sb, Be, B, Ni, TH
Phone	7343973100	Phone	7343973100	H	
e-Mail Address	DADLER@MANNIK-SMITH GROUP.COM	e-Mail Address		I	
				J	

#	Sample Description	Date	Time	Matrix	Preservative	# Bottles	A	B	C	D	E	F	G	H	I	J	Sample Notes
1	MW-300		1400	GROUND WATER		12	X	X	X		X	X	X				
2	~~[illegible]~~																
3	MW-300F					1				X							
4	MW-300P					3						X					
5	TRIP BLANK			WATER		2	X										
6	FIELD BLANK		1400	WATER		2						X					
7																	
8																	
9																	
10																	

23052445
MANNIK&SMITH: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill

Notes: / omitted to ALS Environmental.

Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C. 9-5035

Required Turnaround Time: STANDARD
X Std 10 Wk days ___ 5 Wk days ___ 2 Wk days ___ 24 hr

Results Due: STANDARD TURNAROUND

Relinquished by	Date	Time	Received by	Date	Time
[signature]	5-25-2023	08:20	[signature]	5/25/23	08:20
[signature]	5/25/23	1700	QS	5/25/23	1700
QS	5/25/23	2230	[signature]	5/25/23	2230

NOTES:

QC Reporting Level: (check box below):

- Level II: Standard QC
- Level III: Std QC + Raw data
- Level IV: SW846 CLP-Like

Other: DF 2, 4.0°C, pH 3-4

ALS Group USA, Corp | 3352 128th Ave | | Holland Michigan 49424 | TEL. (616) 399-6070

ALS Group, USA
Holland, Michigan

Sample Receipt Checklist

Client Name: **MANNIK&SMITH** Date/Time Received: **25-May-23 22:30**

Work Order: **23052445** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 26-May-23 (Date) Reviewed by: Bill Carey (eSignature) 26-May-23 (Date)

Matrices: Groundwater, Water
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0/4.0 c	DF2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/26/2023 10:00:26 AM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes: pH check <2.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

REPORT ON RESPONSE ACTIVITY PLAN IMPLEMENTATION

1301-1303 FRANKLIN STREET
MOUNT PLEASANT, MICHIGAN

SEPTEMBER 28, 2022

PREPARED FOR:

THE CITY OF MOUNT PLEASANT
DIVISION OF PUBLIC WORKS
MOUNT PLEASANT, MICHIGAN

320 WEST BROADWAY
MOUNT PLEASANT, MICHIGAN

Mannik Smith GROUP

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APPENDICES

1.0 INTRODUCTION

The Mannik & Smith Group, Inc. (MSG) was retained by the City of Mount Pleasant, Michigan to provide professional environmental consulting services for investigation of a former landfill area at City-owned property located north of the intersection of West Pickard and North Franklin Streets in Mount Pleasant. MSG has been assisting the City with regulatory compliance issues associated with the former landfill area since November 2020. An investigation of the former landfill was conducted by MSG in 2021 under an Agreement for Services with The City based on MSG's March 24, 2021 Proposal for Professional Services No. OP210419. The results of the investigation were documented in MSG's July 20, 2021 *Report on Investigation of Former Landfill*.

The investigation documented in the July 20, 2021 report focused primarily on delineation of the area of buried refuse, determining the suitability and engineering properties of the landfill's clay cap, and characterization of shallow groundwater conditions at the subject site. In addition, a Response Activity Plan for additional investigation of the former landfill was developed by MSG, as necessary and appropriate based on the findings contained in the above noted July 20, 2021 report and on regulatory requirements. The primarily objective of the additional investigation described in the September 8, 2021 Response Activity Plan (RAP) was characterization of site hydrogeologic conditions at depths below the base of the landfill.

The scope of work described in the September 8, 2021 RAP was implemented by MSG in 2022 under an Agreement for Services between the City of Mount Pleasant and MSG based on MSG's January 31, 2022 Proposal for RAP Implementation[1], as authorized by The City on February 14, 2022. This report presents the results of the RAP implementation activities.

1.1 Site Description

The subject site is located at 1301-1303 North Franklin Street in Mount Pleasant, Michigan, north of the intersection of North Franklin and West Pickard Streets. *Figure 1, Site Location*, depicts the location of the site as referenced to nearby roads and geographic features. The site is located north of and adjacent to the City's Wastewater Treatment Plant facility (1301 North Franklin) and facilities of the City's Street and Motor Pool Departments (1303 North Franklin), including a vehicle maintenance garage, a garage for storage of salt trucks, and other City-owned staging and storage areas. The site is located in a "SD-I (Industrial)" zoning district.

As shown on *Figure 2, Site Map*, the site is bordered by the Chippewa River on the west side. A golf course is located adjacent to the site on the north and northwest sides. A cemetery is located directly east of the site. Surrounding properties to the south and west of the site and north of West Pickard Street are primarily commercial/industrial. The area located south of West Pickard is primarily residential.

The central portion of the site is occupied by an area that was a formerly used as a landfill. There are low-lying wet areas located north and northeast of the former landfill area. A wooded area with numerous patches of wet ground is located east and northeast of the landfill area. Most of the western and northwestern portions of the site, including the area of the site located along the Chippewa River, are heavily wooded and vegetated. Access to most of the wooded/wet areas located to the north, west, and northeast of the former landfill area is very limited.

[1] MSG Proposal No.OP220226

1.2 Project Background

The landfill at the subject site reportedly operated from the 1950s until approximately 1975. For at least part of that time (in the 1960s), the landfill was licensed as a Solid Waste Disposal Area under former Michigan Public Act 87 (Garbage and Refuse Disposal Act). The landfill has a clay cap. The Chippewa River borders the site on the west, although it does not appear that the former landfill area extends laterally to the river.

In late 2018, a clay tile pipe located on the riverbank at the site was identified to be draining into the river. Further investigation by City personnel found four additional pipes near the former landfill area. Water being discharged by the clay pipes was sampled and analyzed. Subsequent investigation by the City and an environmental services provider contracted by the City found elevated levels of regulated substances in the discharge water, including elevated levels of per and polyfluoroalkyl substances (PFAS). Initial investigation of groundwater at the site conducted in 2019 indicated that PFAS concentrations in site-specific shallow groundwater samples exceeded regulatory levels (Michigan Public Act 451[2] Part 201 Generic Cleanup Criteria) for both the drinking water (DW) and groundwater surface water interface (GSI) exposure pathways.

Additional monitoring wells were installed at the site in 2019-2020 by others and additional groundwater samples were collected and analyzed. The groundwater sample analytical results indicated that PFAS concentrations and concentrations of other analytes (metals, volatile organic compounds, semivolatile organic compounds, and polychlorinated biphenyls) exceeded Part 201 residential and/or nonresidential Generic Cleanup Criteria (GCC). The site-specific shallow groundwater flow direction was not determined. Deeper groundwater underlying the site was not investigated.

The City of Mt. Pleasant has been working closely with the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Remediation and Redevelopment Division (RRD) since the discharge into the Chippewa River was first discovered. Seventeen groundwater monitoring wells were installed in and around the landfill area at the site in 2019-2020 by AKTPeerless (AKT) of Saginaw, Michigan. Groundwater samples have been collected from most of the wells and have been analyzed for an extensive parameter list. The clay pipes have reportedly been grouted and capped.

MSG conducted Ground Water Testing Project Number 3 for the City in November and December 2020 under the scope of work specified in the August 2020 Request for Proposals issued by the City. Nine additional shallow groundwater monitoring wells were installed by MSG in November 2020. Six of the nine monitoring wells installed by MSG are located in close proximity to the Chippewa River. Groundwater samples were collected in November 2020 from the nine new monitoring wells and from four of the previously installed monitoring wells. The November 2020 groundwater samples were analyzed for an extensive suite of analytes including PFAS compounds.

The results of Ground Water Testing Project Number 3 were documented in a report by MSG dated December 22, 2020. The results indicated that the shallow groundwater at some of the onsite monitoring well locations, including locations in close proximity to the Chippewa River, contained concentrations of PFAS compounds and dissolved phase metals (dissolved boron and dissolved arsenic) that exceeded Part 201 GCC for the DW and/or GSI exposure pathways. No PCBs were detected in the November 2020 groundwater samples. None of the samples contained volatile organic compounds or semi-volatile organics at concentrations that exceeded Part 201 GCC.

A meeting with City of Mount Pleasant, EGLE RRD, and MSG personnel was convened on February 22, 2021 to review the results of Ground Water Testing Project Number 3. During the meeting, EGLE RRD personnel outlined additional site characterization measures necessary for regulatory compliance under Part 201 of NREPA. As requested by the City of Mt. Pleasant, MSG developed a scope of work to complete the next phase

[2] The Natural Resources and Environmental Protection Act (NREPA), Michigan Public Act 451, 1994 as amended.

of site characterization required by EGLE (MSG Proposal No. OP 210419 dated March 2, 2021). Following a request by EGLE RRD personnel, the scope of work was revised to include a shallow groundwater monitoring event. The revised MSG proposal No. OP 210419 was reissued to the City on March 24, 2021 and was authorized by the City on April 14, 2021. The investigation conducted by MSG in 2021 included:

- Determining the exact locations, ground surface elevations, top of well casing elevations, total depths, and overall condition of the site monitoring wells. Seventeen monitoring wells were installed at the site by AKT in 2019-2020. Nine additional monitoring wells were installed at the site by MSG in 2020. In addition, 6 monitoring wells were reportedly installed at the site by Keck Consulting Services, Inc. (Keck) in 1977.
- Measuring and recording static groundwater levels in each of the site monitoring wells, referenced to the respective well top of casing elevations.
- Determining the site-specific groundwater flow direction for the shallow groundwater zone.
- Conducting a groundwater monitoring event utilizing existing groundwater monitoring wells located near the Chippewa River and the wet areas in the northern and northeast portions of the site.
- Investigating the lateral and vertical extent of buried refuse at the site and the composition of the refuse.
- Determining the thickness of the landfill cover (clay cap).
- Collecting samples of the landfill cover materials and testing selected samples for relevant engineering properties.
- Preparing a technical report documenting the investigative methods and findings.
- Developing a work plan (Response Action Plan) for additional investigation, as necessary and appropriate based on the available data and information and EGLE RRD regulatory requirements under Part 201 of NREPA.

The results of the 2021 investigation indicated that the site-specific shallow groundwater flows to the west/northwest towards the Chippewa River with a flow velocity of 3.2-7.8 feet/day (1168-2847 feet/year) and an average hydraulic conductivity of 0.033 cm/sec (93.5 feet/day). The area of buried refuse at the site is approximately 17 acres. The known maximum depth of buried refuse is on the order of approximately 26-30 feet below the ground surface (bgs). The observed buried refuse consists primarily of paper (including decomposing newspaper); metal (including aluminum cans); glass fragments; metal fragments; construction and demolition debris including wood, concrete debris, roofing materials, and bricks; cloth/fabric; and fibrous materials of uncertain origin. The buried refuse was most commonly mixed with soil including sand, clayey sand, and sandy clay. In general, there was more soil and wood than refuse present in the soil/refuse mixture.

The results of the May 2021 shallow groundwater monitoring event indicated that PCBs and SVOCs were not detected in the shallow groundwater samples. One VOC was detected in one shallow groundwater sample at a concentration below residential and nonresidential GCC. The reported dissolved arsenic, dissolved aluminum, and dissolved boron concentrations of some of the May 2021 shallow groundwater samples exceeded the respective GCC for the drinking water exposure pathway. The dissolved arsenic concentrations for two of the shallow groundwater samples exceeded the respective GSI GCC. The reported PFAS concentrations for the groundwater samples from 6 of the shallow groundwater monitoring wells were above the respective DW GCC. The reported PFOS[3] concentrations for the groundwater samples from 4 of the shallow monitoring wells were above the GSI GCC for PFOS.

The buried refuse at the site is covered by a clay cap that is at least two feet thick. The results of geotechnical engineering tests completed on samples of the clay cap materials indicate that the clay cap is generally suitable for landfill cover purposes.

[3] PFOS (Perfluorooctanesulfonic Acid) is a PFAS compound that is regulated under Part 201 of NREPA

The September 8, 2021 Response Action Plan was formally submitted to EGLE RRD on December 6, 2021 and was approved with conditions by EGLE via correspondence dated December 14, 2021.

2.0 PURPOSE AND SCOPE

The primary objective of the work described in the Response Activity Plan was to investigate and characterize site-specific hydrogeologic conditions at depths below the base of the former landfill and below the shallow groundwater zone at the site. Based on the information provided on the logs for existing AKT monitoring wells MW-3-19, MW-4-19, MW-5-19 and MW-6-19 and the ground surface elevations at those locations determined by MSG during the 2021 monitoring well survey, the base of the former landfill is at elevations generally on the order of 740-750 feet, assuming that buried refuse extends to a maximum depth of 26 feet bgs as noted on the AKT logs. Therefore, the RAP implementation activities included characterizing site-specific hydrogeologic conditions at depths below an approximate elevation of 745 feet.

The investigation of deep groundwater conditions at the site included five primary tasks:

1. Deep exploratory borings
2. Installation of deep groundwater monitoring wells
3. Soil laboratory testing
4. Deep monitoring well sampling and analysis
5. Shallow groundwater sampling and analysis
6. Data review, evaluation, and technical report preparation

The RAP implementation activities were directed and overseen by a Certified Professional Geologist (CPG) from MSG's Canton, Michigan office. The individual tasks are described below in more detail.

3.0 FIELD INVESTIGATION

The field portion of the RAP implementation activities was conducted by MSG personnel in April and May 2022 under the direct supervision of a Certified Professional Geologist (CPG) from MSG's Canton, Michigan office. Six deep exploratory borings were drilled and sampled during the period of April 11-13, 2022. Groundwater monitoring wells were installed in three of the exploratory borings. A shallow groundwater sampling event was conducted by MSG field personnel on May 16, 2022.

The six deep exploratory borings were drilled and sampled to depths of 40-50 feet below the ground surface, corresponding to elevations of approximately 704.2 feet to 719.5 feet. Low permeability cohesive soils (glacial till and hardpan-like till) were encountered at depth in each of the six exploratory borings. The glacial till/hardpan soils extended to the boring terminus depth at each of the deep exploratory boring locations. No deep water-bearing zones or lower aquifers were encountered in the April 2022 borings. Therefore, three new groundwater monitoring wells were installed at the base of the uppermost groundwater bearing zone, with two of the three new monitoring wells located upgrdadient of the landfill area and one at a downgradient location.

Photographs of the RAP implementation field activities are included in *Appendix A, Photo Log*.

3.1 Deep Exploratory Borings

Six deep exploratory borings, designated SB-19 through SB-21 and MW-200 through MW-202, were drilled and sampled at the approximate locations shown on Figure 2. The borings were drilled and sampled by Cascade Environmental of Flint, Michigan using a rubber track mounted Boart Longyear LS 250 Minisonic drill rig and rotosonic drilling methodology. A subsurface utility staking request was made through the MISS DIG utility locating system prior to commencement of drilling and sampling. The boring logs are included in *Appendix B, Boring and Monitoring Well Logs*.

The rotosonic drilling method uses high-frequency resonant energy to advance a core barrel into the subsurface formations. The resonant energy is transferred down the drill string to the drill bit face at various sonic frequencies. The subsurface materials are continuously cored and recovered using a 4-inch diameter steel coring barrel. The 4-inch diameter coring barrel is overridden by a six-inch diameter steel barrel that cases the borehole and prevents collapse. Water is used when necessary to reduce drilling friction and heat buildup.

As shown on Figure 2, borings SB-19 and SB-20 were located within the area of buried refuse. Each of these borings was drilled and sampled to a depth of 50 feet bgs (boring terminus elevations of 719.5 feet for each boring). Boring SB-21 was drilled to a depth of 40 feet bgs (terminus elevation of 706.5 feet) near the location of groundwater monitoring well MW-102 and approximately 60 feet from the Chippewa River. Borings MW-200 and MW-201 were each drilled to a depth of 50 feet (boring terminus elevations of 706 feet and 711.1 feet, respectively), near the eastern site boundary. Boring MW-202 was drilled to a depth of 40 feet bgs (terminus elevation of 704.2 feet) in relatively close proximity to the northwest corner of the area of buried refuse.

Four-inch diameter soil cores were collected at each boring location on a continuous basis from the ground surface to the respective boring terminus depths. Five foot long coring runs were used in the uppermost 10 feet of drilling, followed by 10-foot long runs from 10 feet bgs to the respective boring terminus depths. Sample recovery, as shown on the boring logs in Appendix B, was generally good, with 100% recovery in many cases. The recovered soils at each boring location were examined and logged in the field by an experienced MSG field geologist/CPG.

Upon completion of drilling and sampling, borings SB-19, SB-20, and SB-21 were backfilled with hydrated bentonite[4] suitable for borehole decommissioning in environmental applications. Borings MW-200, MW-201, and MW-202 were used for installation of new groundwater monitoring wells, as described below in Section 3.2.

The locations of the borings were surveyed by MSG field personnel using a hand-held global positioning system (GPS) instrument with sub centimeter accuracy capability. The ground surface elevations at the locations of borings SB-19, SB-20, and SB-21 were also surveyed by MSG field personnel using a sub centimeter accuracy capability GPS unit. The ground surface elevations at the locations of the borings used for installation of groundwater monitoring wells (borings MW-200, MW-201, and MW-202) were surveyed by a professional survey crew from MSG's Canton, Michigan office under the supervision of an MSG State of Michigan licensed Professional Surveyor.

3.2 Monitoring Well Installation

Groundwater monitoring wells were installed in borings MW-200, MW-201, and MW-202 upon completion of drilling and soil sampling. The locations of the monitoring wells, also designated MW-200, MW-201, and MW-202 are shown on Figure 2. The monitoring well construction details are included on the boring/monitoring wells logs in Appendix B. Additional monitoring well information, including the location coordinates and elevations, is provided on *Table 1, Monitoring Well Information*.

Each well assembly consists of a 2-inch diameter 10-slot[5] Schedule 40 PVC well screen flush threaded to 2-inch diameter Schedule 40 PVC riser pipe. As shown on the boring/monitoring well logs in Appendix B, the well screens for MW-200, MW-201 and MW-202 were set at the approximate base of the glacial lacustrine sand and gravel deposit that is the uppermost groundwater bearing geologic unit at the site. There were no

[4] Puregold Medium Chips (NSF/ANSI/Standard 60 certified) manufactured by Cetgo/Minerals Technologies Incorporated
[5] A 10-slot well screen has 0.010 inch openings

lower aquifers encountered in the deep exploratory borings. Each boring was terminated in low permeability cohesive glacial till material. Therefore, no deep monitoring wells were installed.

The well screens for MW-200 and MW-201 are 10 feet long and are set from 15-25 feet bgs. MW-202 has a five-foot long screen set from 4-9 feet bgs. Each well is equipped with an above ground riser and an above ground steel protective cover secured in a concrete pad at the ground surface.

The wells were developed by surging and pumping until the purge water became relatively clear. A professional survey crew from MSG's Canton, Michigan office surveyed the top of casing elevations of new monitoring wells MW-200, MW-201, and MW-202 to the nearest 0.01 foot. The survey crew's work was conducted under the supervision of a State of Michigan licensed Professional Surveyor from MSG's Canton office.

3.3 Groundwater Sampling and Analysis

A groundwater monitoring event was included as part of the RAP implementation activities. The following monitoring wells were sampled by MSG field personnel on May 16, 2022: MW-101 through MW-106, MW-108, MW-109, MW-9-20, MW-10-20, MW-14-20, MW-15-20, MW-200, MW-210, and MW-202.

The static groundwater level in each sampled well was measured by MSG personnel using an electronic water level meter prior to well purging and groundwater sampling. Static groundwater levels were also measured in monitoring wells MW-107, MW-1-19, MW-2-19, MW-7-20, MW-12-20, MW-16-20, MW-17-20, and MW-X. The water level meter has an accuracy of +/- 0.01 feet (approximately 1/8 inch). The static groundwater level measurements were recorded on field sampling forms that are included in *Appendix C*, *Field Sampling Forms*.

MSG personnel then purged and sampled the groundwater monitoring wells in general accordance with the United States Environmental Protection Agency (USEPA) *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures* guidance document (EPA/540/S-95/504, April 1996). Groundwater samples were collected using a peristaltic pump equipped with high-density polyethylene (HDPE) tubing. A new HDPE disposable bailer and nylon rope were used for sampling monitoring well MW-109. Groundwater samples for PFAS analysis were collected in general accordance with the October 16, 2018 EGLE guidance document entitled *General PFAS Sampling Guidance*.

Water quality field parameters including pH, specific conductance, temperature, oxidation-reduction potential, specific conductance, turbidity, and dissolved oxygen were monitored during purging and sampling activities using a Horiba U-52 Multiparameter Water Quality Meter and Flowcell. Samples collected for metals analysis were filtered at the time of sampling using 0.45-micron disposable filters specifically designed for environmental groundwater sampling. A blind duplicate groundwater sample designated DUP was collected from monitoring well MW-200. A PFAS field blank sample was also collected at the location of MW-200 while MW-200 was being purged and sampled.

As noted on the field sampling forms in Appendix C, Monitoring wells MW-108 and MW-9-20 purged dry on May 16, 2022 and did not recharge sufficiently to allow for collection of groundwater samples.

The groundwater samples, PFAS field blank sample, and a laboratory-supplied trip blank sample were submitted under standard chain of custody protocol to the ALS Environmental laboratory in Holland, Michigan (ALS) for analysis. The groundwater samples were analyzed for VOCs, SVOCs, PCBs, sixteen dissolved metals[6] and the PFAS compounds on the October 1, 2019 EGLE PFAS compound list, as specified in the RAP. PFAS analysis was conducted by Method EPA 537 Modified (537 Mod - isotope dilution method).

[6] The 10 Michigan metals (arsenic, barium, cadmium, chromium, copper, mercury, lead, selenium, silver, and zinc) and aluminum, antimony, beryllium, boron, nickel, and thallium.

The laboratory analytical data report provided by ALS is included in *Appendix D, Laboratory Analytical Report (Groundwater)*. The May 16, 2022 groundwater sample analytical results are tabulated on *Table 2*, *Groundwater Sample Analytical Data – Residential Criteria*, and *Table 3*, *Groundwater Sample Analytical Data – Nonresidential Criteria*.

3.4 Soil Sample Testing

Twelve soil samples from the 4-inch diameter rotosonic drilling cores were collected for analysis for hydrogeologic/geotechnical engineering properties. The twelve soil samples included one sample of the granular glacial lacustrine sand and gravel materials within the screened interval of each of the three new groundwater monitoring wells installed (MW-200, MW-201, and MW-202), and nine samples of the cohesive glacial till materials that were encountered underneath the lacustrine sand and gravel and underneath the buried refuse within the former landfill area. At least one glacial till sample was collected from each deep exploratory boring for analysis.

The three granular lacustrine sand and gravel deposit samples were analyzed by MSG's Canton, Michigan Soil Mechanics Laboratory for grain size distribution by sieve analysis (ASTM D6913). The following lacustrine sand and gravel deposit samples were analyzed:

- Boring MW-200, 17-20 feet bgs
- Boring MW-201, 20-24 feet bgs
- Boring MW-202, 5-7 feet bgs

The nine samples of the cohesive glacial till soils that underlie the glacial sand and gravel and buried refuse at the site were analyzed for grain size distribution by sieve and hydrometer (ASTM D7928) and Atterberg Limits (ASTM D4318). The following glacial till soil samples were analyzed:

- Boring MW-200, 25.5-30 feet bgs
- Boring MW-200, 37-39.5 feet bgs
- Boring MW-201, 29-30 feet bgs
- Boring MW-201, 39-40 feet bgs
- Boring MW-202, 8.5-10 feet bgs
- Boring SB-19, 34-35 feet bgs
- Boring SB-19, 47-49 feet bgs
- Boring SB-20, 45-50 feet bgs
- Boring SB-21, 23-25 feet bgs

The grain size distribution and Atterberg Limits test results are included in *Appendix E*, *Soil Sample Test Data*. The test results are discussed further in Section 4.2 of this report. Photographs of the analyzed soil samples are included on pages 14-18 of the Photo Log in Appendix A.

4.0 CONCEPTUAL SITE MODEL

The conceptual site model (CSM) presented below for the subject site is based on currently available data and information regarding site hydrogeologic conditions. Like any CSM, it can be modified and updated as additional information and data become available.

4.1 Regional Hydrogeology

The subject site is located in the Saginaw glacial lobe in the south-central portion of the Michigan Basin geomorphic province. The Michigan Basin is a bowl-shaped intracratonic crustal depression that contains several thousand feet of relatively flat-lying sedimentary rocks deposited during the Paleozoic geologic era. These sedimentary rocks overlie older Precambrian age crystalline basement rocks. The maximum thickness of accumulated sedimentary rocks in the Michigan Basin is approximately 15,000 feet in the Midland area of the Lower Peninsula. In general, the Michigan Basin rocks are predominately carbonate evaporates of marine origin (dolomite and limestone) with lesser amounts of shale and sandstone.

Pleistocene age glacial drift sediments overlie the bedrock throughout most of the Michigan Basin. The glacial features are the result of advancing and retreating continental glaciers during the Wisconsin glacial stage of the Pleistocene epoch (approximately 35,000 to 10,000 years before present). The glacial drift ranges in thickness from less than 10 feet to several hundred feet. Glacial drift greater than 1,000 feet thick has been documented in parts of the north central Lower Peninsula of Michigan (Western Michigan University, 1982). Bedrock exposures in the Lower Peninsula are rare. Bedrock is not exposed in the Mount Pleasant area.

The glacial drift deposits in Isabella County range generally from 150 to 600 feet in total thickness and include: granular outwash deposits, lacustrine deposits, and glacial till characteristic of morainal terranes (Apple and Reeves, 2007). The till deposits are generally medium to coarse textured material but can range from clay to boulder size. The tills are found in three prominent glacial moraines that occur in the western portion of Isabella County, including the Gladwin Moraine. The glacial outwash deposits are composed primarily of sand and gravel. The lacustrine deposits can consist of sand, gravel, silt and/or clay.

The regional geologic setting of the site is shown on *Figure 3, Regional Geologic Setting*. The site is located on the western fringe of the Saginaw Lowlands, an extensive, relatively flat-lying glacial lake plain that formed when glacial ice retreated northeast from the Gladwin Moraine to Saginaw Bay (Westjohn and Hoard, 2006). The Gladwin Moraine allowed ponding of glacial meltwater and subsequent deposition of glacial lacustrine sediments when the Saginaw Lobe glacial ice retreated to Saginaw Bay and formed the Port Huron Moraine.

As shown on Figure 3, the subject site is located in an area of glacial lacustrine sand and gravel. The Gladwin Moraine is located to the west, northwest and southeast of the site. The glacial drift in the region is reported to be on the order of 280-350 feet thick (Western Michigan University, 1981; Westjohn and Hoard, 2006; Newcombe, 1933). The regional bedrock formations underlying the glacial drift are the Jurassic Red Beds and the Pennsylvanian age Saginaw Formation, neither of which are exposed at the surface in the Mount Pleasant area. The Jurassic Red Beds bedrock formation has been described as red mudstone, red sandstone/siltstone, and gypsum (Westjohn and Hoard, 2006), and as sandstone and shale with minor limestone and gypsum beds (Dorr and Eschman, 1970). The Pennsylvanian age Saginaw Formation bedrock consists primarily of sandstone with some interlayered shale, limestone, and coal beds. The bedrock underlying the glacial drift deposits at the site has been identified as the Jurassic Red Beds (Westjohn and Hoard, 2006).

Groundwater occurs regionally in the Pleistocene glacial deposits and in the underlying bedrock formations. Groundwater in the glacial lacustrine sand and gravel and glacial outwash deposits has been used historically for domestic use. Freshwater is encountered in the glacial deposits of the region, although saline water has been observed near the base of the glacial deposits. Both freshwater and saline water have been encountered in the underlying bedrock formations.

Glacial sands and gravels form the principal aquifer for domestic water supply wells in the region (Westjohn and Hoard, 2006). Apple and Reeves (2007) note that “According to the February 2005 Wellogic database, approximately 99 percent of the wells in Isabella County are completed in the glacial deposits, and less than 1 percent in the bedrock units.“

Interpretation of well drillers' logs for water supply wells in the Wellogic database has identified a regional sand and gravel aquifer at depths ranging from approximately 60-130 feet bgs. These sands and gravels have been interpreted as glaciofluvial deposits from an outwash plain that form a regional glacial aquifer. Deeper aquifers in the 130-320 feet bgs depth interval within the glacial deposits of the region have also been identified.

In 2006, the United States Geological Survey published a report by D.B. Westjohn and C.J. Hoard titled *Hydrogeology and Groundwater Quality, Chippewa Township, Isabella County, Michigan, 2002-2005,* (U.S. Geological Survey Scientific Investigations Report 2006-5193). That report, which covered a study area that included the City of Mount Pleasant and contiguous townships, notes that logs of water supply wells in Chippewa Township (located directly east of Mount Pleasant) "indicate the presence of a near-surface clay-rich unit in almost all areas. This upper clay unit is probably basal-lodgment till that was deposited by the Saginaw Lobe of glacial ice when ice advanced to the position of the Gladwin Moraine." The upper clay rich lodgment till described by Westjohn and Hoard (2006) is likely represented at the subject site by the till clay and hardpan-like till encountered directly below the surficial glacial lacustrine sand and gravel in the six deep exploratory borings completed at the subject site for the RAP implementation activities. Additional discussion is provided below in Section 4.2 of this report.

Westjohn and Hoard (2006) constructed a potentiometric surface map of groundwater in the glacial deposits of the region, based on static water levels recorded on 1,559 regional water supply wells. As shown on *Figure 4*, *Regional Groundwater Flow Direction*, there is a prominent sense of groundwater flow potential to the east for the glacial groundwater.

The City of Mount Pleasant owns and operates a municipal water supply system that supplies potable water to the City. The Mount Pleasant municipal water supply is derived from municipal water supply wells. None of the City's water supply wells is located within one (1) mile of the site. The surrounding township, Charter Township of Union (Union Township) also provides municipal water. The Union Township water supply is derived from seven (7) groundwater wells configured in three (3) separate well fields. The Township's water supply wells are set in a glacial sand and gravel aquifer and are located more than one (1) mile from the site.

As noted in MSG's December 22, 2020 Report on Groundwater Testing Project Number 3, public records indicate that there are 18 domestic water supply wells located within a one mile radius of the site. These wells have reported depths ranging from 19-238 feet bgs and are set in the glacial drift materials. Eleven of the 18 wells are listed as household wells.

4.2 Site Hydrogeology

The locations of the deep exploratory borings completed in April 2022 (SB-19 through SB-21 and MW-200 through MW-202) are shown on Figure 2. The boring logs are included in Appendix B. The logs in Appendix B also include construction details for the groundwater monitoring wells that were installed in borings MW-200, MW-201, and MW-202. As noted on the boring logs, the deep exploratory borings were drilled and sampled to depths of 40-50 feet bgs. The corresponding boring terminus elevations range from 704.2 feet to 719.5 feet. Based on the subsurface information derived from borings SB-19 and SB-20, the elevation of the base of buried refuse at the site is at an approximate elevation of 739.5-740.3 feet.

The subsurface geologic units at the site include a surficial deposit of granular soils (glacial lacustrine sand and gravel) underlain by clay-rich glacial till. Subsurface profiles have been developed to illustrate the approximate configuration of the site geology relative to the area of buried refuse and the Chippewa River. The locations and orientations of the geologic profiles are shown on *Figure 5, Geologic Profile Location Map*. The profiles are shown on *Figure 6, Generalized Geologic Profile A-A'* and *Figure 7, Generalized Geologic Profile B-B'*.

As shown on Figures 6 and 7, the surficial lacustrine sand and gravel deposit extends vertically to approximately elevation 730-735 feet or approximately 5-10 feet below the base of the buried refuse. The underlying clay-rich glacial till was encountered in each of the six deep exploratory borings and extends vertically to elevation 705 feet or deeper. Each of the six deep exploratory borings completed for the RAP implementation was terminated in the till deposit. Numerous photographs of the lacustrine sand and gravel and the glacial till recovered from the rotosonic borings are included in the Photo Log in Appendix A.

As noted on the boring logs in Appendix B and the soil sample test results in Appendix E, the glacial lacustrine sand and gravel deposit at the subject site consists primarily of silty sand, gravelly sand, and sandy gravel, classified as SM, SP and GW, respectively under the Unified Soil Classification System (USCS). The underlying glacial till consists primarily of silty-sandy clay (USCS classification as CL), with lesser amounts of clayey sand (SC) and silty-clayey sand (SC-SM). Seven of the nine analyzed till samples consist of CL soil material (lean clay). One of the till samples consists of SC soil material (clayey sand). One of the analyzed till samples consists of SC-SM soil material (silty, clayey sand) under the USCS.

A sandy silt layer encountered in boring MW-200 in the 21-25.5 feet bgs depth interval represents a transition between the overlying lacustrine sand and the underlying glacial till. As shown on Figure 7, sandy fill soils were encountered from the ground surface to 14.5 feet bgs at the location of boring MW-200, which is located in the grassy area outside of the former office portion of the maintenance garage building. A number of subsurface utilities are located in this area.

The glacial till deposit encountered in the deep exploratory borings included hard to very hard till[7] and cemented hardpan-like till. These supplemental descriptions of the encountered till are noted on the boring logs. Very hard till was encountered from 8.5-40 feet bgs in boring MW-202, from 33.5-50 feet bgs in boring SB-19, from 40-44.5 feet bgs in boring SB-20, and from 12-25 feet bgs in boring SB-21. The cemented hardpan-like till was encountered in the borings at the following depth intervals:

- Boring MW-200 from 33-39.5 feet bgs and 47-50 feet bgs
- Boring MW-201 from 34.9-42 feet bgs
- Boring SB-20 from 44.5-50 feet bgs
- Boring SB-21 from 25-40 feet bgs

The hardpan-like till observed in the deep exploratory borings is analogous to the above noted near-surface upper clay-rich basal-lodgment till described by Westjohn and Hoard (2006).

Unconfined groundwater was encountered during drilling and soil sampling in April 2022 at depths ranging from 5-10 feet bgs. At the locations of borings MW-200 and MW-201, groundwater was encountered at 9 feet bgs in sandy fill soils and at 10 feet bgs in lacustrine silty sand, respectively. At the location of boring MW-202, groundwater was encountered at 5 feet bgs in lacustrine sandy gravel. At the location of boring SB-21, groundwater was encountered at 5 feet bgs in a silty clay layer located directly above a lacustrine sandy gravel layer at 7 feet bgs. Both MW-202 and SB-21 are located at lower elevations than borings MW-200 and MW-201.

Potable water was used during rotosonic drilling in the buried refuse at the locations of borings SB-19 and SB-20. The depth to encountered groundwater at those two boring locations could not be determined. The potable water from the City of Mount Pleasant municipal water supply system was obtained at the onsite maintenance garage (see Page 1 of the Photo Log in Appendix A).

[7] Hard corresponds to an estimated unconfined compressive strength of 8,000-16,000 pounds/square foot (PSF). Very hard corresponds to an estimated unconfined compressive strength of greater than 16,000 PSF.

The hydraulic conductivity of the shallow groundwater zone at the site can be approximated from grain size distribution data for the granular glacial lacustrine sand and gravel deposit using the empirical model developed by Hazen. The Hazen equation for soil hydraulic conductivity (K) can be expressed as K (in cm/sec) = $C(D_{10})^2$ where

C = Dimensionless constant equal to 1
D_{10} = Grain size (in millimeters) at which 10% of the soil sample mass (by dry weight) is comprised of less than this value

The available D_{10} values for the granular soil samples collected from the screened intervals of the onsite monitoring wells (MW-104, MW-105, MW-109, MW-200, MW-201 and MW-202) range from 0.075 to 0.443, with an average D_{10} value of 0.22. Using the average D_{10} value and the Hazen empirical equation, the estimated K value for the lacustrine sand and gravel at the subject site is 0.0484 cm/sec (137.2 feet/day). This K value is consistent with the range of K values for sand and gravelly sand soils found in the published literature.

Static groundwater levels were measured and recorded for each of the monitoring wells sampled on May 16, 2022 prior to purging and sampling. Static groundwater levels were also measured in monitoring wells MW-107, MW-1-19, MW-2-19, MW-7-20, MW-12-20, MW-16-20, MW-17-20, and MW-X on May 16, 2022. The static groundwater levels and corresponding piezometric surface elevations are provided on Table 1 and are shown graphically on *Figure 8, Groundwater Elevation Contour Map – May 16, 2022*.

The piezometric surface elevations shown on Figure 8 range from 738.04 feet at monitoring well MW-106 to 757.06 feet at monitoring well MW-7-20. The piezometric surface elevation for MW-7-20 is considered anomalously high for groundwater contouring. Monitoring well MW-7-20 was installed by AKT in February 2020 (prior to MSG's involvement with the subject site) and may be located within the area of buried refuse. The anomalously high peizometric surface elevation for MW-7-20 appears to be the result of groundwater mounding.

As shown on Figure 8, the sense of groundwater flow potential (primary groundwater flow direction) for the unconfined glacial lacustrine sand and gravel water-bearing zone at the site is to the west and northwest, generally towards the Chippewa River. It is noted that the Chippewa River bends generally eastward as it flows through the golf course property located directly north of the site beyond the view shown on Figure 8. As such, both the west and northwest shallow groundwater flow directions shown on Figure 8 indicate that the shallow groundwater flow towards the river.

Groundwater flow velocity at the site can be calculated using Darcy's Equation, $V = Ki/n_e$, where:

V = Groundwater flow velocity in feet per day
K = Hydraulic conductivity of the water-bearing unit in feet per day
i = Lateral hydraulic gradient in feet per foot (change in elevation ÷ change in lateral distance)
n_e = Effective porosity

Using the piezometric surface elevation data for May 16, 2022 shown on Figure 8, the site-specific shallow groundwater flow velocity for the site was calculated along the groundwater flow paths labeled as A, B, and C on Figure 8. The groundwater flow velocity calculations are provided on *Table 4, Groundwater Flow Velocity Calculations – May 16, 2022*. As shown on Table 4, the lateral hydraulic gradient was calculated to range from 0.0063 to 0.0068 ft/foot. Using the lateral gradients, an average hydraulic conductivity of 137.2 feet/day and an estimated effective porosity of 0.3, the calculated site-specific shallow groundwater flow velocity is 2.9-3.1 ft/day (1059-1132 ft/year).

5.0 GROUNDWATER SAMPLE ANALYTICAL RESULTS

The groundwater samples collected by MSG from monitoring wells MW-101 through MW-106, MW-109, MW-200, MW-201, MW-202, MW-10-20, MW-14-20, MW-15-20, and the blind duplicate sample collected from MW-200 on May 16, 2022 were analyzed by ALS for VOCs, SVOCs, PCBs, dissolved phase metals (10 Michigan metals plus aluminum, antimony, beryllium, boron, nickel, and thallium), and PFAS compounds (EGLE October 1, 2019 list). The field blank sample collected during groundwater sampling activities at the location of monitoring well MW-200 was analyzed for the above noted PFAS compounds. The laboratory analytical data report is included in Appendix D.

The May 2022 groundwater sample analytical data have been tabulated and compared to Part 201 Residential GCC on Table 2. The groundwater sample analytical results have also been compared to Part 201 Nonresidential GCC on Table 3. The data is discussed below in terms of parameter groupings. Exceedances of the GCC are depicted graphically on *Figure 9, Groundwater Sample Criteria Exceedances – May 16, 2022*.

PCBs - PCBs were not detected in any of the May 2022 groundwater samples.

SVOCs – SVOCs were not detected in any of the May 2022 groundwater samples.

VOCs – one VOC compound was detected in the groundwater sample from monitoring well MW-202. The reported chlorobenzene concentration of 6.1 micrograms/liter (ug/l) for the groundwater sample from MW-202 is below the residential and nonresidential DW GCC of 100 ug/l, and is also below the GSI GCC of 25 ug/l. No other VOCs were detected in the groundwater sample from MW-202. VOCs were not detected in any of the other May 2022 groundwater samples.

PFAS – as shown on Table 1 and Table 2, PFAS compounds were detected in each of the fourteen groundwater samples collected at the subject site on May 16, 2022. Exceedances of the DW GCC for PFAs compounds are observed for MW-101 (PFOS and PFOA[8]), MW-102 (PFOS and PFOA), MW-106 (PFOA), MW-109 (PFOA), MW-200 and the associated blind duplicate (PFOA), MW-201 (PFOA), MW-202 (PFOS, PFOA, PFHxS, and PFNA[9]), MW-10-20 (PFHxS, PFNA, PFOS and PFOA), MW-14-20 (PFOA), and MW-15-20 (PFOA). Exceedances of the GSI GCC for PFAS compounds are observed at MW-101 (PFOS), MW-102 (PFOS), MW-202 (PFOS), and MW-10-20 (PFOS).

The reported PFAS concentrations for the groundwater samples collected from monitoring wells MW-103, MW-104, and MW-105 are below the Residential and Nonresidential GCC for the drinking water exposure and GSI exposure pathways.

Metals – dissolved phase metals were detected in each of the groundwater samples collected at the site on May 16, 2022. Exceedances of the DW GCC are observed for the groundwater samples from monitoring wells MW-102 (dissolved boron), MW-103 (dissolved arsenic), MW-105 (dissolved arsenic), MW-109 (dissolved aluminum), and MW-202 (dissolved boron). Exceedances of the GSI GCC are observed for the groundwater samples from monitoring wells MW-103 (dissolved arsenic), and MW-105 (dissolved arsenic).

The reported dissolved metals concentrations for the groundwater samples collected on May 16, 2022 from monitoring wells MW-101, MW-104, MW-106, MW-200, MW-201, MW-10-20, MW-14-20, and MW-15-20 are below the Residential and Nonresidential GCC for the DW and GSI exposure pathways.

As shown on Figure 9, there are exceedances of the Part 201 Residential and Nonresidential GCC for the May 16, 2022 groundwater samples collected from monitoring wells located on the west, north and east sides of the landfill area. Most of the GCC exceedances for the GSI pathway occur west of the area of buried refuse at monitoring wells

[8] Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA), respectively
[9] Perfluorohexanesulfonic Acid (PFHxS) and Perfluorononanoic Acid (PFNA), respectively

MW-101, MW-102, MW-103, and MW-105 located along the Chippewa River, and at MW-202. Each of these monitoring wells is located hydraulically downgradient of the landfill area with respect to the shallow groundwater flow direction. The other monitoring well showing a GSI exceedance (MW-10-20) is located in close proximity to the northeast corner of the landfill area. It is likely that the extent of shallow groundwater with elevated concentrations of metals and/or PFAS extends downgraqdient from the landfill to the west and northwest to the Chippewa River, and to the north towards the river where it flows through the offsite golf course area.

The May 2022 groundwater samples collected from monitoring wells located east and southeast of the landfill (MW-200 and MW-201) show exceedances of the DW GCC for PFOA, but do not exhibit GSI exceedances. MW-201 is located hydraulically upgrqadient of the area of buried refuse. MW-200 appears to be in a cross-gradient location. Both MW-200 and MW-201 are located outside of the groundwater flow path of the area of buried refuse, indicating the possibility of an upgradient, offsite source or sources to the east or southeast of the site.

The Michigan PFAS Action Response Team (MPART) is a team of seven state government agencies[10] created in 2017 by executive order of the Governor to identify PFAS sources and address PFAS contamination in Michigan. MPART became an advisory body within EGLE in 2019. MPART maintains a List of PFAS Sites and Areas of Interest and an associated PFAS Geographic Information System (GIS). The MPART GIS shows three PFAS sites in the Mt. Pleasant area including:

1. The subject site
2. The Roosevelt Refinery site (600 W. Pickard Street)
3. The 104 North Kinney Avenue site (104 North Kinney Avenue)

The Roosevelt Refinery was a crude oil refinery that operated from the 1930s to the early 1970s. It is located at 600 W. Pickard Street on the west side of the Chippewa River opposite the subject site. The location of the Roosevelt Refinery on the west side of the Chippewa River makes it an unlikely source of groundwater impacts to the subject site.

The 104 North Kinney Avenue (NKA) site is an operating commercial dry cleaner that is reportedly associated with a plume of tetrachloroethylene-impacted groundwater. According to the EGLE MPART listing, concentrations of tetrachloroethylene (PCE) have been found several blocks downgradient of the NKA site. According to the EGLE MPART listing for the NKA site, nine of seventeen groundwater samples collected in November 2021 at locations surrounding the NKA site had PFOA concentrations above the DW GCC of 8 nanograms/liter (ng/l – equivalent to parts per trillion). The highest reported concentration was 160 ng/l.

The EGLE listing also notes that groundwater contamination associated with the NKA site is found in the 12-15 feet bgs depth range, and that groundwater flows to the northwest toward the Chippewa River. The NKA site is located approximately 0.8 miles southeast of the subject site. Based on its location relative to the location of the subject site and the northwest direction of shallow groundwater flow in the area, the NKA site could represent a possible upgradient offsite source of shallow groundwater contamination relative to the subject site.

6.0 PATHWAY EVALUATION

An exposure pathway is the link between a contaminant source and a receptor. An exposure pathway has five components:

1. A source of contamination
2. A transport mechanism
3. A point of exposure

[10] The seven state agencies are EGLE and the Departments of Health and Human Services, Natural Resources, Agriculture and Rural Development, Transportation, Military and Veteran Affairs, and Licensing and Regulatory Affairs.

4. A route of exposure
5. A receptor population

When the five components are present, the pathway is considered complete.

For the subject site, the contaminant source is the landfill area. For the GSI exposure pathway, the transport mechanism is leaching and groundwater transport. The point of exposure is the water of the Chippewa River. The route of exposure is the shallow groundwater zone within the near surface glacial lacustrine sand and gravel deposit at the site. Receptors include aquatic organisms in the river, other organisms that may ingest the river water (e.g., deer, birds, farm animals, etc.), and possible recreational users. Although the Chippewa River water is not used locally or regionally as a source of potable water supply, it is a tributary to the Tittabawassee River. The Tittabawassee is a tributary to the Saginaw River. The Saginaw River empties into Saginaw Bay near Bay City. The GSI exposure pathway is considered complete for the subject site.

The unconfined shallow groundwater in the near surface glacial lacustrine sand and gravel deposit is the uppermost aquifer at the site. The near surface glacial lacustrine deposit groundwater flows toward the Chippewa River and presumably vents into the river at an elevation of approximately 733 feet along the west side of the site. The cohesive glacial till deposit that underlies the glacial lacustrine sand and gravel deposit across the site extends vertically to elevation 700 or lower. The till deposit acts as an aquitard preventing vertical migration of shallow groundwater into deeper aquifers that may be present and that may be used locally or regionally as sources of potable water. Therefore, the groundwater ingestion as drinking water exposure pathway is considered to be incomplete for the subject site.

The area of buried refuse at the subject site has a compacted clay cap. The clay cap is covered by extensive native grasses and other vegetation. The clay cap and surface vegetation prevent direct contact with the underlying buried refuse. The clay cap also acts as a barrier to vertical migration of landfill gas into ambient air.

The available records provided by the City for the landfill at the subject site indicate that construction of the landfill did not include gas management components, side slope liners, or a perimeter dike. Therefore, lateral migration of subsurface landfill gas, including methane, could be possible. There have been no known occurrences of lateral migration of subsurface gas from the landfill area. Although there are no aboveground structures present within the footprint of the landfill area, there are buildings located in close proximity to the landfill that are used by City personnel for municipal activities.

7.0 CONCLUSIONS

Based on the results of the RAP implementation activities completed for the former Mount Pleasant landfill as described herein, the following conclusions are made:

- The site is underlain by a near surface granular glacial lacustrine deposit that is on the order of 10-25 feet thick, depending on location and elevation within the site. The granular lacustrine deposit is underlain by a relatively thick, low permeability cohesive glacial till deposit that is extensive both laterally and vertically. The till deposit was encountered at depth in each of the six deep exploratory borings completed for the RAP implementation activities. The base of the till deposit was not encountered in any of the deep exploratory borings.
- The uppermost groundwater occurs in the granular lacustrine deposit under unconfined conditions. The underlying till deposit acts as a lower confining layer preventing vertical migration of the shallow groundwater. No lower groundwater zones were encountered in the deep exploratory borings completed for the RAP implementation.
- The site-specific shallow groundwater flow direction is primarily to the west and northwest towards the Chippewa River. The average hydraulic conductivity of the shallow groundwater zone is 0.0484 cm/sec (137.2 feet/day). The shallow groundwater flow velocity is approximately 3 feet/day (1,095 feet/year).

- The results of the May 2022 shallow groundwater monitoring event indicate that PCBs and SVOCs were not detected. One VOC was detected in one shallow groundwater sample at a concentration below the residential and nonresidential GCC. The reported dissolved arsenic, dissolved aluminum, and dissolved boron concentrations of some of the May 2022 shallow groundwater samples exceed the respective GCC for the drinking water exposure pathway. The dissolved arsenic concentrations for two of the shallow groundwater samples exceed the respective GSI GCC. The reported PFAS compound concentrations for the groundwater samples from 10 of the shallow groundwater monitoring wells were above the respective DW GCC. The reported PFOS concentrations for the groundwater samples from 4 of the shallow monitoring wells were above the GSI GCC for PFOS.

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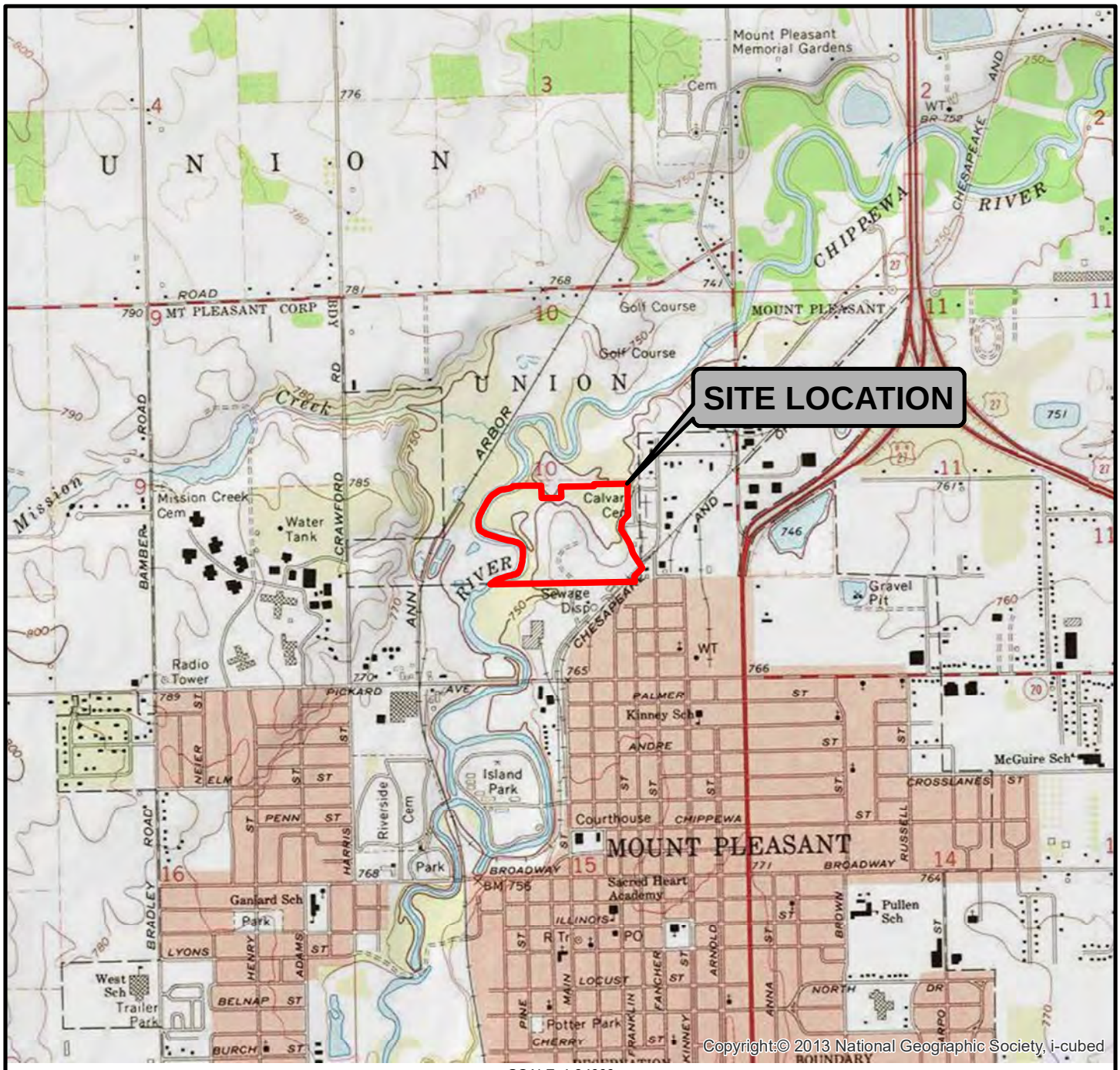
FIGURES



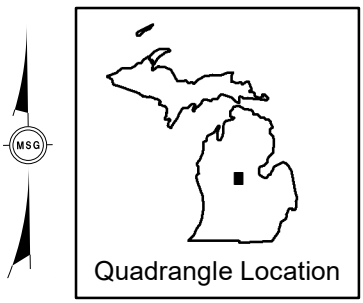
SCALE 1:24000

1 ½ 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

Contour Interval 10 Feet
National Geodetic Vertical Datum of 1929



NOTE: Map adapted from National Geographic TOPO! seamless, scanned images of USGS Topographic Maps, Rosebush and Mount Pleasant, MI (7.5 minute series).

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FIGURE 1

SITE LOCATION

1301-1303 North Franklin Street
Mount Pleasant, Isabella County, MI

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
12/10/2020	ZTR	CJB	M3460001

Date Saved: 11/17/2020 3:15:19 PM
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Legend

- Soil Boring Location - MSG (May 2021)
- Soil Boring Location - MSG (April 2022)
- PVC Monitoring Well - MSG (Nov. 2020)
- PVC Monitoring Well -- MSG (April 2022)
- PVC Monitoring Well - AKT (2019-2020)
- Steel Monitoring Well - Keck (1977)
- Monitoring Well - Undocumented Origin
- Approximate Extent of Buried Refuse
- Site Boundary (Approximate)

0 200 400

Feet

Notes:

1. Site boundary adapted from parcel boundaries provided on the Isabella County website and AKTPeerless "Site Map" dated July 26, 2020.
2. Aerial imagery collected on November 18, 2020.
3. 2-inch diameter steel monitoring wells are believed to be wells installed by Keck in 1977.
4. Monitoring well MW-11-20 could not be located in the field.

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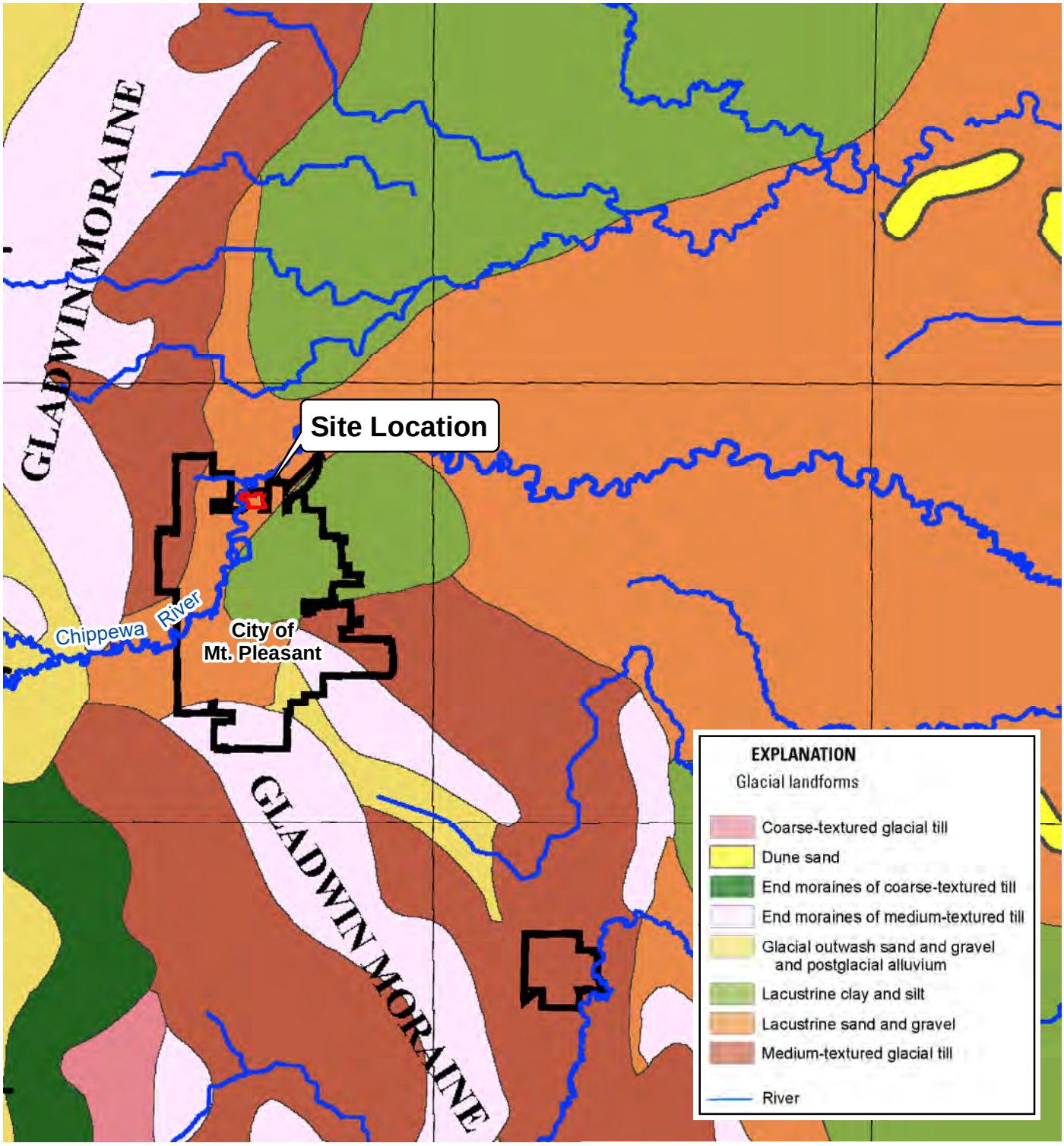
FIGURE 2

Site Map

1301-1303 North Franklin Street
Mount Pleasant, Isabella County, MI

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
4/20/22	CJB	DJA	M3460003

Date Saved: 4/25/2022 9:26:19 AM
Path: W:\Projects\Projects K-O\M3460003\ENGAPPS\M3460003_Fig2_Site Plan.mxd



0 1 2 4

Miles

MSG

Notes:
1. Modified from Westjohn and Hoard, 2006.

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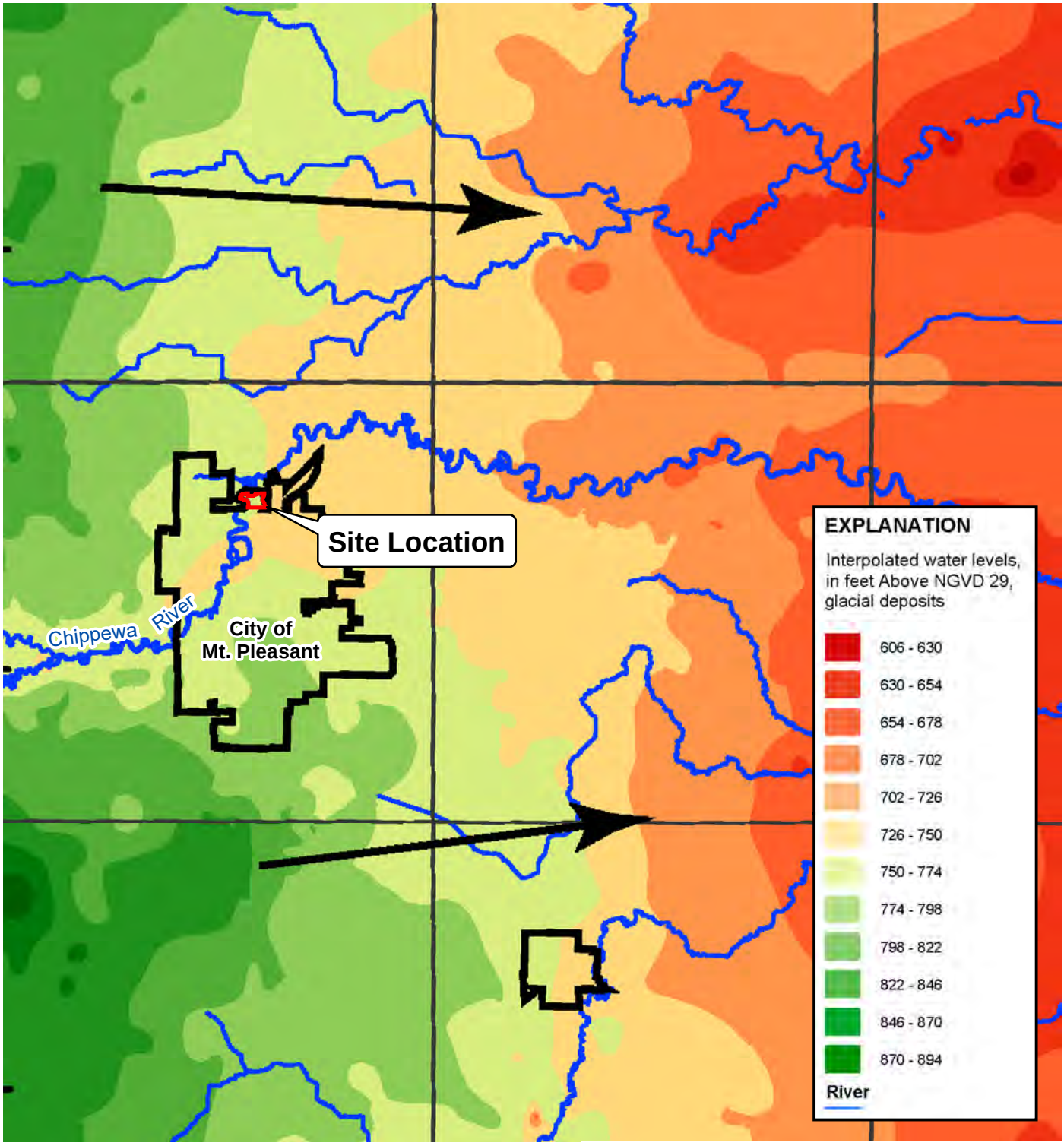
FIGURE 3

Regional Geologic Setting

1301-1303 North Franklin Street
Mount Pleasant, Isabella County, MI

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
11/30/2020	ZTR	ZTR	M3460001

Date Saved: 11/30/2020 4:53:10 PM
Path: C:\Users\ZRogers\Desktop\GIS M3460001\Map Files\Fig3_RegionalGeologicSettingMap.mxd



0 1 2 4

Miles

MSG

Notes:
1. Modified from Westjohn and Hoard, 2006.

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FIGURE 4

Regional Groundwater Flow Direction

1301-1303 North Franklin Street
Mount Pleasant, Isabella County, MI

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
11/30/2020	ZTR	ZTR	M3460001

Date Saved: 11/30/2020 4:54:08 PM
Path: C:\Users\ZRogers\Desktop\GIS M3460001\Map Files\Fig4_RegionalGWFlowMap.mxd

Notes:
1. Site boundary adapted from parcel boundaries provided on the Isabella County website and AKTPeerless "Site Map" dated July 26, 2020.
2. Aerial imagery collected on November 18, 2020.
3. 2-inch diameter steel monitoring wells are believed to be wells installed by Keck in 1977.
4. Monitoring well MW-11-20 could not be located in the field.

Legend

- Geologic Profile Location and Orientation
- Soil Boring Location - MSG (May 2021)
- Soil Boring Location - MSG (April 2022)
- PVC Monitoring Well - MSG (Nov. 2020)
- PVC Monitoring Well -- MSG (April 2022)
- PVC Monitoring Well - AKT (2019-2020)
- Steel Monitoring Well - Keck (1977)
- Monitoring Well - Undocumented Origin
- Approximate Extent of Buried Refuse
- Site Boundary (Approximate)

0 200 400

Feet

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FIGURE 5

Geologic Profile Location Map

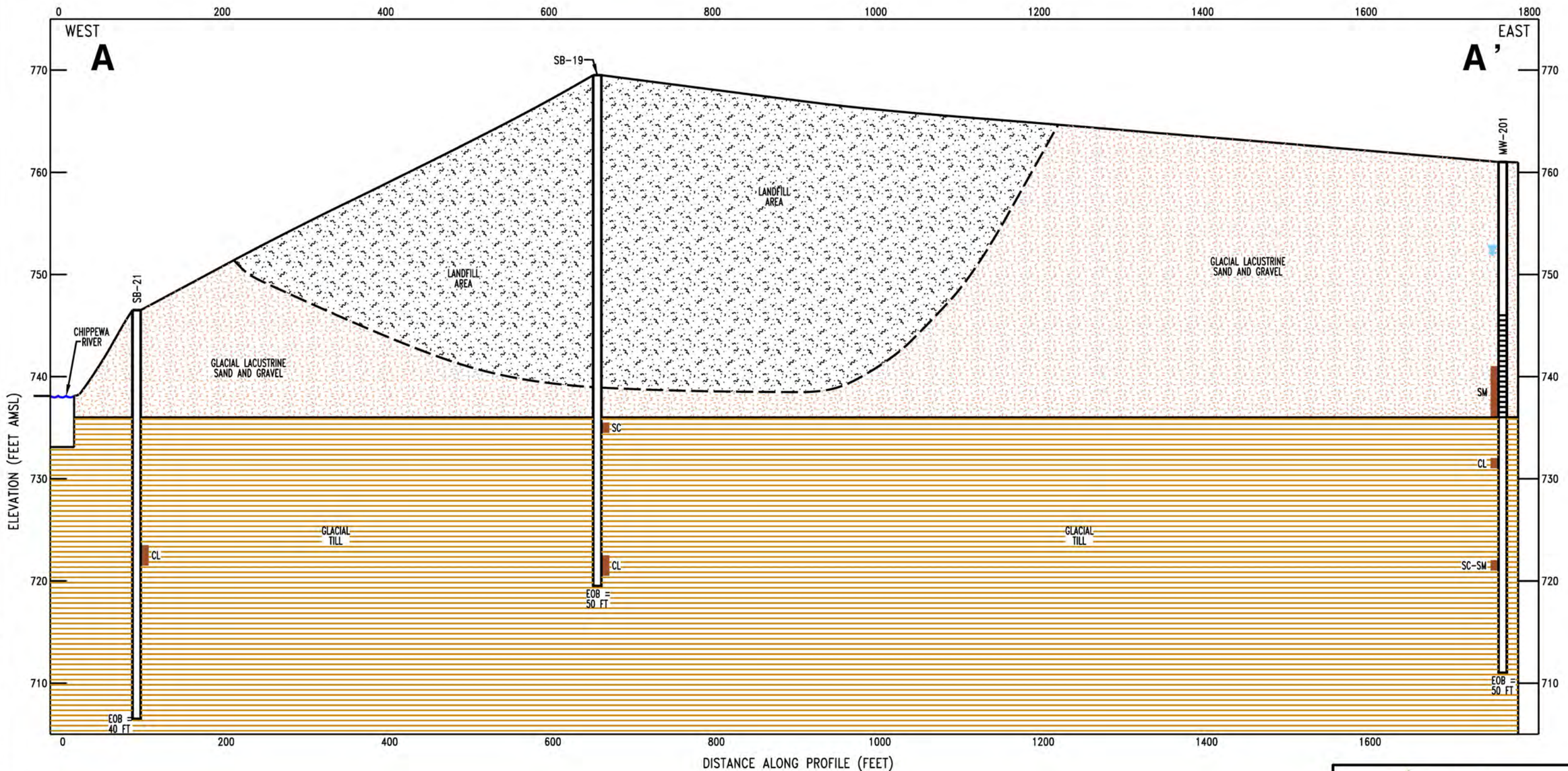
1301-1303 North Franklin Street
Mount Pleasant, Isabella County, MI

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
8/31/22	CJB	DJA	M3460003

Date Saved: 8/31/2022 10:30:21 AM
Path: W:\Projects\Projects K-O\M3460003\ENGAPPS\M3460003_Fig5_Geologic_Profile_Location_Map.mxd

LEGEND:

- LANDFILL AREA: Buried Refuse, Sand, Clay, Wood and Construction Debris
- GLACIAL LACUSTRINE SAND AND GRAVEL: Silty Sand, Gravelly Sand and Sandy Gravel
- GLACIAL TILL: Silty-Sandy Clay, Clayey Sand and Hardpan
- 2-inch Diameter PVC Monitoring Well Screen
- Static Groundwater Elevation - May 16, 2022
- CL Soil Sample For Geotechnical Analyses and USCS Classification Symbol



NOTES:
1. THIS PROFILE IS GENERALIZED. SOIL CONTACTS BETWEEN BORINGS ARE INFERRED. REFER TO THE ORIGINAL SOIL BORING LOGS FOR MORE DETAILED INFORMATION.
2. SURFACE ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL.
3. EOB = END OF BORING.
4. THE LANDFILL AREA HAS A 2-FOOT THICK COMPACTED CLAY CAP (NOT SHOWN).
5. USCS = UNIFIED SOIL CLASSIFICATION SYSTEM

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FIGURE 6

GENERALIZED GEOLOGIC PROFILE A-A'

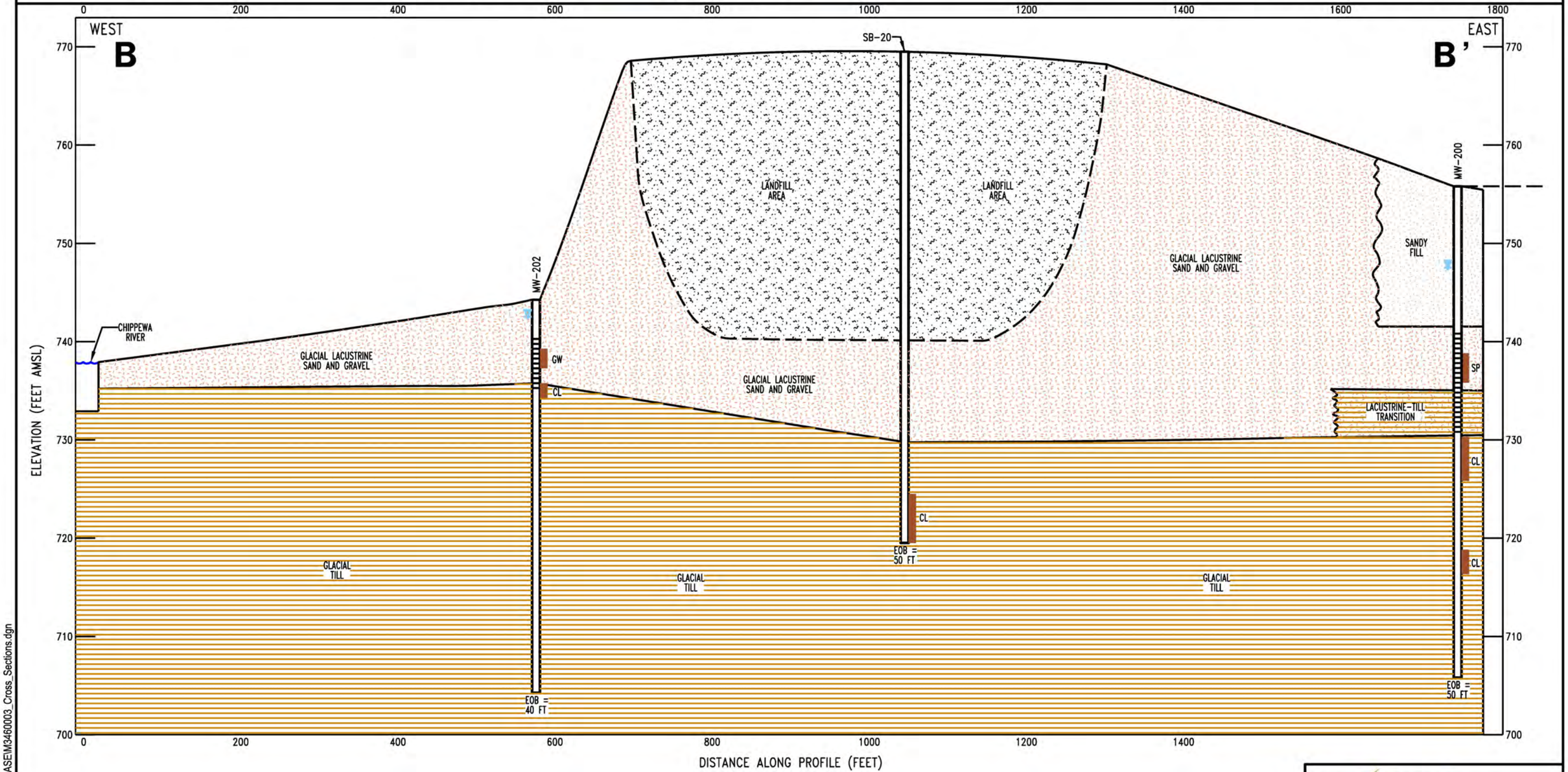
1301-1303 North Franklin Street
Mount Pleasant , Isabella County, Michigan

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
9/8/2022	CJB	DA	M3460003

9/8/2022 9:52:01 AM
W:\Projects\Projects K-O\M3460003\CAD\BASE\M3460003_Cross_Sections.dgn

LEGEND:

- LANDFILL AREA: Buried Refuse, Sand, Clay, Wood and Construction Debris
- GLACIAL LACUSTRINE SAND AND GRAVEL: Silty Sand, Gravelly Sand and Sandy Gravel
- GLACIAL TILL: Silty-Sandy Clay, Clayey Sand and Hardpan
- LACUSTRNE-TILL TRANSITION: Sandy Silt
- SANDY SILT
- 2-inch Diameter PVC Monitoring Well Screen
- Static Groundwater Elevation - May 16, 2022
- CL Soil Sample For Geotechnical Analyses and USCS Classification Symbol



NOTES:
1. THIS PROFILE IS GENERALIZED. SOIL CONTACTS BETWEEN BORINGS ARE INFERRED. REFER TO THE ORIGINAL SOIL BORING LOGS FOR MORE DETAILED INFORMATION.
2. SURFACE ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL.
3. EOB = END OF BORING.
4. THE LANDFILL AREA HAS A 2-FOOT THICK COMPACTED CLAY CAP (NOT SHOWN).
5. USCS = UNIFIED SOIL CLASSIFICATION SYSTEM

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FIGURE 7

GENERALIZED GEOLOGIC PROFILE B-B'

1301-1303 North Franklin Street
Mount Pleasant , Isabella County, Michigan

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
9/8/2022	CJB	DA	M3460003

9/8/2022 9:54:21 AM
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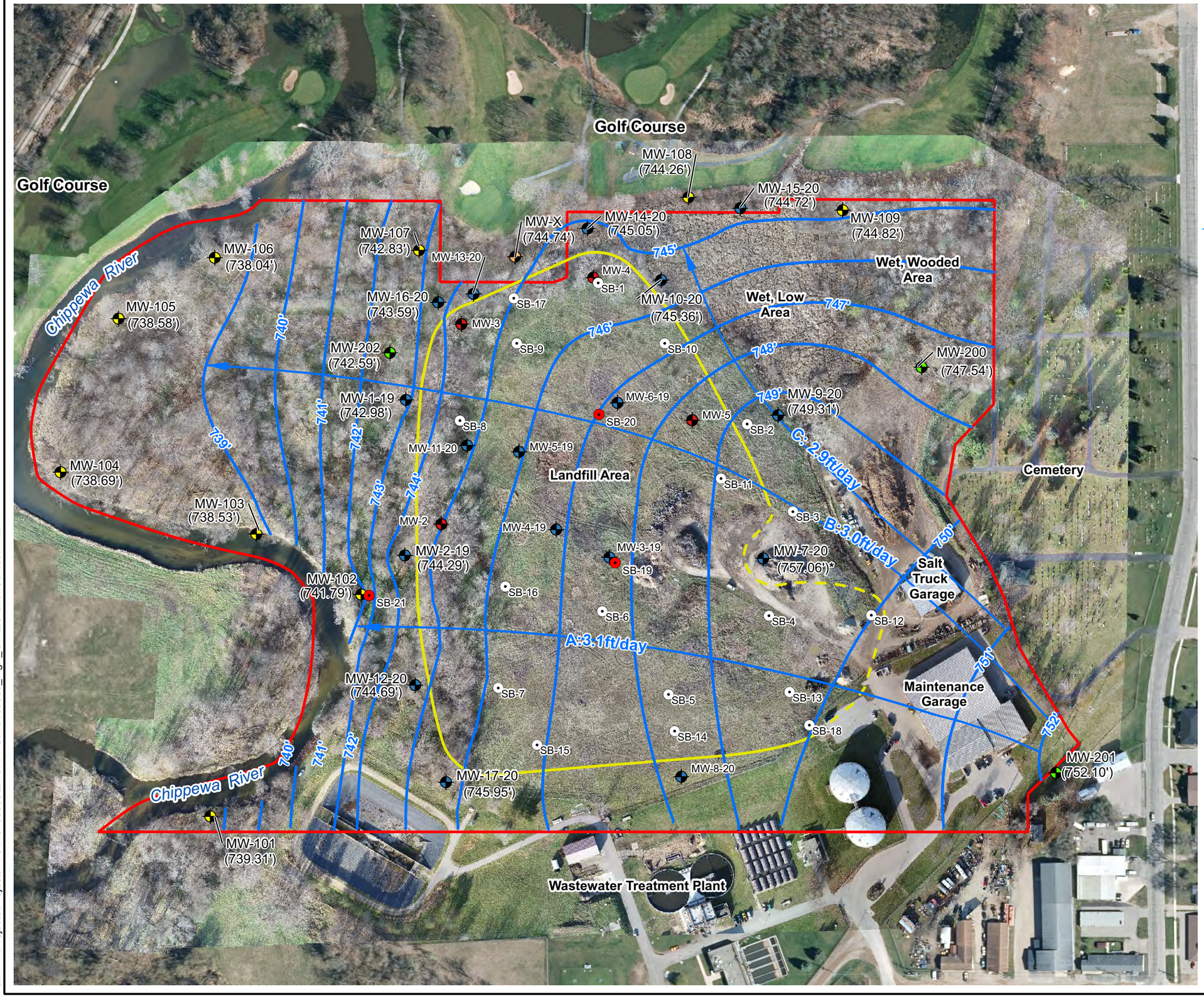

Legend

- Soil Boring Location - MSG (May 2021)
- Soil Boring Location - MSG (April 2022)
- PVC Monitoring Well - MSG (Nov. 2020)
- PVC Monitoring Well -- MSG (April 2022)
- PVC Monitoring Well - AKT (2019-2020)
- Steel Monitoring Well - Keck (1977)
- Monitoring Well - Undocumented Origin
- A: 2.1 ft/day — Groundwater Flow Path and Velocity
- Groundwater Elevation Contour (in feet)

* MW-7-20 not used for groundwater elevation contouring

- Approximate Extent of Buried Refuse
- Site Boundary (Approximate)

Notes:

1. Site boundary adapted from parcel boundaries provided on the Isabella County website and AKTPeerless "Site Map" dated July 26, 2020.

2. Site Aerial imagery collected on November 18, 2020 by the Mannik & Smith Group.

1 inch = 200 feet

0 200 400

Feet

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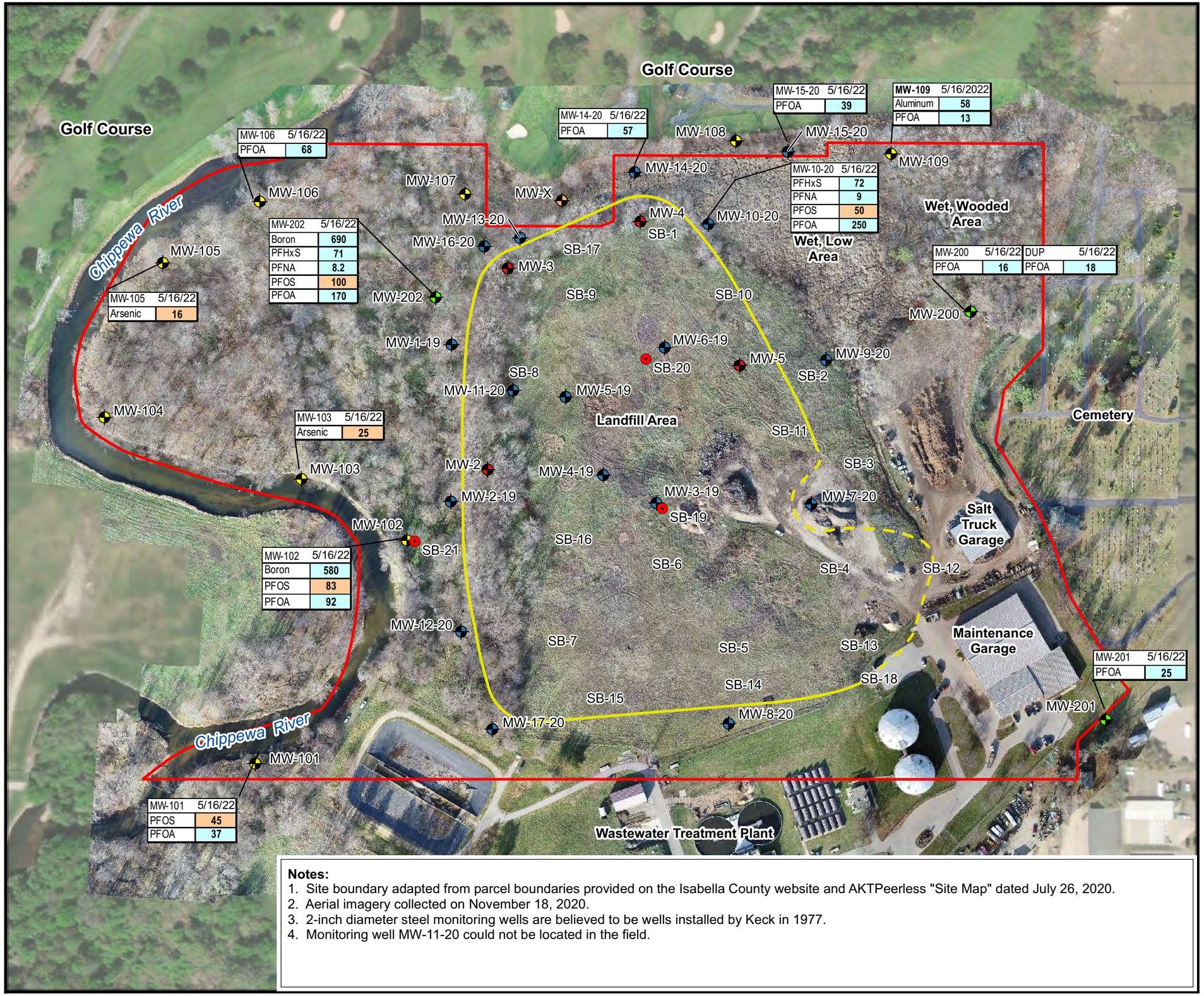
FIGURE 8

Groundwater Elevation Contour Map - May 16, 2022

1301-1303 North Franklin Street
Mount Pleasant, Isabella County, MI

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
9/6/2022	JRO	DJA	M3460003

Date Saved: 9/6/2022 10:45:07 AM
Path: W:\Projects\Projects K-O\M3460003\ENGAPPS\M3460003_FigX_GWElevationContour.mxd



Notes:
1. Site boundary adapted from parcel boundaries provided on the Isabella County website and AKTPeerless "Site Map" dated July 26, 2020.
2. Aerial imagery collected on November 18, 2020.
3. 2-inch diameter steel monitoring wells are believed to be wells installed by Keck in 1977.
4. Monitoring well MW-11-20 could not be located in the field.

MSG

Legend

- Soil Boring Location - MSG (April 2022)
- PVC Monitoring Well - MSG (Nov. 2020)
- PVC Monitoring Well -- MSG (April 2022)
- PVC Monitoring Well - AKT (2019-2020)
- Steel Monitoring Well - Keck (1977)
- Monitoring Well - Undocumented Origin
- Approximate Extent of Buried Refuse
- Site Boundary (Approximate)

Exceeds Generic Drinking Water Criteria (DWC)
Exceeds Generic DWC and GSIC
Aluminum, Arsenic and Boron results expressed in µg/L
PFHxS, PFOS, PFNA, and PFOA results expressed in ng/L

0 200 400
Feet

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FIGURE 9

Groundwater Sample Criteria Exceedances - May 16, 2022

1301-1303 North Franklin Street
Mount Pleasant, Isabella County, MI

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
9/6/2022	JRO	DJA	M3460003

Date Saved: 9/6/2022 2:03:15 PM
Path: W:\Projects\Projects K-O\M3460003\ENGAPPS\M3460003_Fig2_Site Plan.mxd

TABLES

Table 1
Monitoring Well Information
Former Mt. Pleasant Landfill
Mt. Pleasant, Michigan

Well ID	Northing (US State Plane - 1988)	Easting (US State Plane - 1988)	Top of Casing Elevation (feet above msl)	Ground Surface Elevation (feet above msl)	Screen Length (feet)	Total Depth of Well from Ground Surface (feet)	Date	Depth to Water (from TOC)	Groundwater Elevation (feet)	Comments
MW-101	771233.3	13013986.4	743.07	739.6	4.5	4.5	11/23/2020	5.19	737.88	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	5.40	737.67	
							5/7/2021	5.22	737.85	
							5/16/2022	3.76	739.31	
MW-102	771701.2	13014294.6	748.66	746.3	5	7.0	11/23/2020	8.50	740.16	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	7.95	740.71	
							5/7/2021	8.11	740.55	
							5/16/2022	6.87	741.79	
MW-103	771835.9	13014079.0	740.53	738.6	2	4.5	11/23/2020	2.20	738.33	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	3.32	737.21	
							5/7/2021	3.11	737.42	
							5/16/2022	2.00	738.53	
MW-104	771953.6	13013657.9	744.48	741.2	3	4.5	11/23/2020	7.06	737.42	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	7.36	737.12	
							5/7/2021	7.20	737.28	
							5/16/2022	5.79	738.69	
MW-105	772287.1	13013780.9	743.52	739.4	3	4.0	11/23/2020	6.34	737.18	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	6.57	736.95	
							5/7/2021	6.43	737.09	
							5/16/2022	4.94	738.58	
MW-106	772407.6	13013987.7	744.25	740.5	5	6.0	11/23/2020	7.46	736.79	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	7.73	736.52	
							5/7/2021	7.50	736.75	
							5/16/2022	6.21	738.04	
MW-107	772432.6	13014416.2	747.85	745.9	5	8.0	11/23/2020	7.39	740.46	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	5.51	742.34	
							5/16/2022	5.02	742.83	
MW-108	772535.6	13014982.4	751.96	750.8	5	8.5	11/23/2020	8.34	743.62	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	7.94	744.02	
							5/7/2021	8.00	743.96	
							5/16/2022	7.70	744.26	
MW-109	772508.7	13015306.9	749.04	746.1	3.5	5.0	11/23/2020	4.65	744.39	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	4.71	744.33	
							5/7/2021	4.63	744.41	
							5/16/2022	4.22	744.82	
MW-200	772179.7	13015473	759.04	756.0	10	25.0	5/16/2022	11.50	747.54	2-inch diameter PVC well installed by MSG in April 2022
MW-201	771328	13015755	764.12	761.1	10	25.0	5/16/2022	12.02	752.10	2-inch diameter PVC well installed by MSG in April 2022
MW-202	772211.3	13014355	746.85	744.2	5	9.0	5/16/2022	4.26	742.59	2-inch diameter PVC well installed by MSG in April 2022
MW-1-19	772110.0	13014388.0	749.74	745.4	10	7.0	4/27/2021	7.64	742.10	1-inch diameter PVC well installed by AKT in June 2019
							5/16/2022	6.76	742.98	
MW-2-19	771782.6	13014386.0	749.49	745.2	5	7.0	4/27/2021	6.34	743.15	1-inch diameter PVC well installed by AKT in June 2019
							5/16/2022	5.20	744.29	
MW-3-19	771778.7	13014817.0	773.77	771.5	5	12.4	4/27/2021	11.07	762.70	1-inch dimater PVC well installed by AKT in 2019 - no well log - well depth from field measurements
MW-4-19	771837.3	13014705.0	775.91	774.5	5	28.0	4/27/2021	16.60	759.31	1-inch diameter PVC well installed by AKT in June 2019
MW-5-19	772000.9	13014626.0	778.92	775.6	5	28.0	4/27/2021	22.40	756.52	1-inch diameter PVC well installed by AKT in December 2019
MW-6-19	772103.1	13014834.0	773.43	767.9	5	28.0	4/27/2021	14.00	759.43	1-inch diameter PVC well installed by AKT in December 2019
MW-7-20	771776.7	13015740.0	769.72	767.5	5	12.0	4/27/2021	13.51	756.21	1-inch diameter PVC well installed by AKT in February 2020
							5/16/2022	12.66	757.06	
MW-8-20	771318.1	13014967.0	770.60	765.4	5	28.0	4/27/2021	19.14	751.46	1-inch diameter PVC well installed by AKT in February 2020
MW-9-20	772077.1	13015171.0	755.90	753.9	5	12.0	4/27/2021	7.47	748.43	1-inch diameter PVC well installed by AKT in February 2020
							5/7/2021	7.88	748.02	
							5/16/2022	6.59	749.31	
MW-10-20	772361.2	13014925.0	750.65	746.7	5	12.0	4/27/2021	5.36	745.29	1-inch diameter PVC well installed by AKT in February 2020
							5/7/2021	5.38	745.27	
							5/16/2022	5.29	745.36	
MW-11-20	NF	NF	NF	NF	NF	NF	NF	NF	NF	1-inch diameter PVC well installed by AKT in February 2020. This well could not be located.
MW-12-20	771510.2	13014408.0	750.08	746.2	5	7.0	4/27/2021	6.50	6.50	1-inch diameter PVC well installed by AKT in February 2020
							5/16/2022	5.39	744.69	
MW-13-20	772332.5	13014531.0	749.32	745.6	5	7.0	11/23/2020	5.15	744.17	1-inch diameter PVC well installed by AKT in February 2020
							4/27/2021	6.09	743.23	
MW-14-20	772469.6	13014771.0	751.27	746.2	5	7.0	11/23/2020	7.00	744.27	PVC well installed by AKT in April 2020. 2-inch diameter PVC riser pipe visible at the ground surface
							4/27/2021	6.65	744.62	
							5/7/2021	6.67	744.60	
							5/16/2022	6.22	745.05	
MW-15-20	772512.5	13015091.0	749.73	745.5	5	7.0	11/23/2020	5.43	744.30	PVC well installed by AKT in April 2020. 2-inch diameter PVC riser pipe visible at the ground surface
							4/27/2021	5.22	744.51	
							5/7/2021	5.25	744.48	
							5/16/2022	5.01	744.72	
MW-16-20	772314.9	13014456.0	750.11	746.3	5	7.0	11/23/2020	7.22	742.89	1-inch diameter PVC well installed by AKT in April 2020
							4/27/2021	7.07	743.04	
							5/16/2022	6.52	743.59	
MW-17-20	771306.4	13014473.0	753.24	752.7	5	7.0	4/27/2021	8.99	744.25	1-inch diameter PVC well installed by AKT in April 2020
							5/16/2022	7.29	745.95	
MW-X	772410.2	13014619.0	749.48	746.1	ND	6.4	4/27/2021	4.87	744.61	1-inch diamater PVC well of undocumented origin - no well log - well depth from field measurements
							5/16/2022	4.74	744.74	

Notes:
NF = Well could not be located
TOC = Feet from Top of Casing.
msl = Mean Sea Level

Table 2
Groundwater Sample Analytical Data - Residential Criteria
1301-1303 North Franklin Street
Mount Pleasant, Isabella County, MI

GROUNDWATER: Part 201 Generic Residential Cleanup Criteria December 21, 2020 Units: micrograms/liter (µg/L)		Detected Volatile Organic Compounds (VOCs)		Detected Semi-Volatile Organic Compounds (SVOCs)	Detected Metals (Dissolved)					Detected PFAS Compounds (ng/L)											
		Acetone	Chlorobenzene (l)	Benzaldehyde	Aluminum	Arsenic	Barium	Boron	Copper (B)	Nickel (B)	Perfluorobutanesulfonic Acid (PFBS)	Perfluorobutanoic Acid (PFBA)	Perfluoroheptanesulfonic Acid (PFHpS)	Perfluoroheptanoic Acid (PFHpA)	Perfluorohexanesulfonic Acid (PFHxS)	Perfluorohexanoic Acid (PFHxA)	Perfluorononanoic Acid (PFNA)	Perfluorooctanesulfonic Acid (PFOS)	Perfluorooctanoic Acid (PFOA)	Perfluoropentanesulfonic Acid (PFPeS)	Perfluoropentanoic Acid (PFPeA)
CAS Number		67-64-1	108907	100-52-7	7429-90-5	7440-38-2	7440-39-3	7440-42-8	7440-50-8	7440020	375-73-5	375-22-4	375-92-8	375-85-9	355-46-4	307-24-4	375-95-1	1763-23-1	335-67-1	2706-91-4	2706-90-3
Drinking Water Criteria		730	100 (A)	NA	50(V)	10 (A)	2,000 (A)	500(F)	1,000 (E)	100 (A)	420	NA	NA	NA	51	400,000	6(A)	16(A)	8(A)	NA	NA
Groundwater Surface Water Interface Criteria (GSI)		1,700	25	NA	NA	10	670 (G)	7,200(X)	13 (G)	73	NA	NA	NA	NA	NA	NA	NA	12(X)	12,000(X)	NA	NA
Groundwater Volatilization to Indoor Air Inhalation Criteria		1.0E+09 (D,S)	2.10E+05	NA	NLV	NLV	NLV	NLV	NLV	NLV	NA	NA	NA	NA	NA	NA	NA	NLV	ID	NA	NA
Water Solubility		1.0E+09	4.7E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3100	9.50E+09	NA	NA
Flammability & Explosivity Screening Level		1.5E+07	1.6E+05	NA	ID	ID	ID	ID	ID	ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAMPLE ID	SAMPLE DATE																				
MW-101	11/23/2020	<10	<1.0	<1.0	<10	<5.0	75	240	<5.0	ND	<4.8	6.2	<4.8	7.2	45	5.2	<4.8	28	28	6.1	<4.8
MW-101	5/7/2021	<10	<1.0	<1.0	<10	<5.0	92	280	<5.0	ND	<4.8	<4.8	<4.8	<4.8	24	<4.8	<4.8	26	11	<4.8	<4.8
MW-101	5/16/2022	<10	<1.0	<4.0	15	<5.0	97	300	<5.0	ND	6.5	15	<4.8	8.6	51	8.2	<4.8	45	37	<4.8	5.8
MW-102	11/23/2020	<10	<1.0	<1.0	<10	<5.0	170	650	<5.0	ND	14	27	6.5	48	60	46	<5.1	56	120	31	25
MW-102	5/7/2021	25	<1.0	<1.0	11	<5.0	140	730	<5.0	ND	26	20	<4.9	22	35	29	<4.9	53	60	23	12
MW-102	5/16/2022	<20	<1.0	<4.0	<10	5.4	180	580	<5.0	ND	27	31	6.0	32	50	38	<4.8	83	92	31	15
MW-103	11/23/2020	<10	<1.0	<1.0	12	30	38	150	<5.0	ND	6.2	30	<4.5	6.4	<4.5	13	<4.5	<1.8	3.4	<4.5	4.9
MW-103	5/7/2021	<10	<1.0	<1.0	38	33	41	160	<5.0	ND	7.1	36	<4.7	6.6	<4.7	16	<4.7	<1.9	3.8	<4.7	5.0
MW-103	5/16/2022	<10	<1.0	<3.8	<10	25	57	160	<5.0	ND	7.3	40	<4.9	6.9	<4.9	19	<4.9	<1.9	4.8	<4.9	7.2
MW-104	11/23/2020	<10	<1.0	<1.0	<10	<5.0	70	22	<5.0	ND	<4.6	16	<4.6	<4.6	<4.6	<4.6	<4.6	2.5	3.4	<4.6	<4.6
DUP-1 (MW-104)	11/23/2020	<10	<1.0	<1.0	<10	<5.0	53	23	<5.0	ND	<4.6	12	<4.6	<4.6	<4.6	<4.6	<4.6	<1.9	2.3	<4.6	<4.6
MW-104	5/7/2021	<10	<1.0	<1.0	<10	<5.0	76	25	<5.0	ND	<5.1	5.4	<5.1	<5.1	<5.1	<5.1	<5.1	<2.0	<2.0	<5.1	<5.1
MW-104	5/16/2022	<10	<1.0	<4.1	29	<5.0	86	25	<5.0	ND	<4.9	13	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
MW-105	11/23/2020	11	<1.0	2.2	25	44	190	22	<5.0	ND	7.2	69	<5.0	5.6	<5.0	9.9	<5.0	<2.0	6.5	<5.0	17
MW-105	5/7/2021	<10	<1.0	<1.0	<10	47	160	<20	<5.0	ND	<5.5	27	<5.5	<5.5	<5.5	<5.5	<5.5	<2.2	2.8	<5.5	<5.5
MW-105	5/16/2022	<10	<1.0	<3.9	<10	16	140	28	<5	ND	11	65	<4.8	<4.8	<4.8	5.3	<4.8	<4.8	5.8	<4.8	11
MW-106	11/23/2020	<10	<1.0	<1.0	<10	<5.0	54	280	<5.0	ND	11	67	<4.8	13	13	14	<4.8	6.5	26	12	4.8
MW-106	5/7/2021	<10	<1.0	<1.0	38	<5.0	85	380	<5.0	ND	17	96	<4.6	18	26	14	<4.6	14	67	13	5.0
MW-106	5/16/2022	<10	<1.0	<3.7	11	<5	74	420	<5.0	ND	35	270	<5	25	29	28	<5	12	68	18	11.0
MW-107	11/23/2020	<10	<1.0	<1.0	<10	<5.0	79	220	<5.0	ND	11	11	<4.6	10	26	7.1	<4.6	13	31	16	<4.6
MW-108	11/23/2020	<10	<1.0	<1.0	13	<5.0	230	190	<5.0	ND	8.4	11	<4.7	7.4	25	8.4	<4.7	5.5	14	7.0	5.8
MW-108	5/7/2021	<10	<1.0	NS	NS	NS	NS	NS	NS	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-109	11/23/2020	<10	<1.0	<1.0	<10	<5.0	240	93	<5.0	ND	6.4	11	<4.5	<4.5	11	<4.5	<4.5	3.8	15	<4.5	<4.5
MW-109	5/7/2021	<10	<1.0	<1.0	19	<5.0	150	100	<5.0	ND	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	2.5	6	<5.1	<5.1
MW-109	5/16/2022	<10	<1.0	<3.6	58	<5.0	190	130	<5.0	<5.0	5.8	30	<4.9	<4.9	6.4	<4.9	<4.9	5.8	13	<4.9	<4.9
MW- 200	5/16/2022	<10	<1.0	<3.9	32	9.6	300	110	<5.0	ND	6.1	9	<4.6	5	15	<4.6	<4.6	3.2	16	<4.6	<4.6
DUP (MW- 200)	5/16/2022	<10	<1.0	<3.8	34	10	290	110	<5.0	<5.0	5.8	8.1	<4.7	<4.7	15	5.4	<4.7	<4.7	18	5.7	<4.7
MW- 201	5/16/2022	<10	<1.0	<3.8	<10	<5.0	120	88	<5.0	ND	17	10	<4.9	7.4	19	5.4	<4.9	<4.9	25	5.8	<4.9
MW- 202	5/16/2022	<10	6.1	<3.7	15	<5.0	380	690	<5.0	5.6	22	470	7.5	45	71	38	8.2	100	170	19	12
MW-9-20	5/7/2021	<10	<1.0	NS	NS	NS	NS	NS	NS	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-10-20	5/7/2021	<10	<1.0	<1.0	120	<5.0	340	580	<5.0	ND	15	25	<4.9	28	51	25	5.2	46	100	14	14
DUP-1 (MW-10-20)	5/7/2021	<10	<1.0	<1.0	240	<5.0	340	570	<5.0	ND	14	26	<4.6	29	59	25	5.2	45	99	15	13
MW-10-20	5/16/2022	<10	<1.0	<3.9	46	<5.0	270	460	<5.0	<5.0	13	44	7	51	72	37	9	50	250	20	22
MW-13-20	11/23/2020	NS	NS	<1.0	<10	<5.0	140	280	<5.0	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-14-20	11/23/2020	NS	NS	<1.0	12	<5.0	120	230	<5.0	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-14-20	5/7/2021	<10	<1.0	<1.0	160	<5.0	97	110	<5.0	ND	8.2	16	<5.2	9.5	26	13	<5.2	12	27	6.2	7.2
MW-14-20	5/16/2022	<10	<1.0	<4.2	29	<5.0	140	110	<5.0	<5.0	7.2	30	<5.2	16	28	13	<5.2	11	57	6.5	10
MW-15-20	11/23/2020	NS	NS	<1.0	<10	<5.0	250	160	5.2	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-15-20	5/7/2021	<10	<1.0	<1.0	210	<5.0	250	130	<5.0	ND	7.6	11	<4.9	6.7	18	8.9	<4.9	6.5	10	<4.9	5.8
MW-15-20	5/16/2022	<10	<1.0	<3.8	19	<5.0	180	94	<5.0	<5.0	9.3	40	<4.7	12	32	13	<4.9	7.1	39	5.5	17
MW-16-20	11/23/2020	NS	NS	<1.0	49	<5.0	540	800	<5.0	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
Bold indicates concentration reported at or above laboratory reporting limit.
Exceeds Generic Drinking Water Criteria (DW)
Exceeds Generic Groundwater Surface Water Interface Criteria (GSI)
Exceeds DW and GSI
ND = Not Detected at or above laboratory reporting limit
NS = Not Sampled or Not Analyzed
NA = No Criteria Established
ng/L= Nanograms per liter
ID= Insufficient data to develop criterion
NLV= Not likely to volatilize under most conditions
PCBs were not detected in the Nov. 2020, May 2021, or May 2022 groundwater samples analyzed for PCBs.
The GSI values for Barium, Copper, and Nickle were calculated using the EGLE spreadsheet for calculating GSI cleanup criteria. The values presented are for surface water bodies protected as a drinking water source. A water hardness value of 150 milligrams per liter as CaCo3 was used for the calculations.
Notes in parentheses and standard abbreviations from EGLE Part 201 Resource Materials Table 1. Groundwater: Residential and Non Residential Part 201 Generic Cleanup Criteria and Screening Levels (December 21, 2020) and R299.49. Footnotes for Generic Cleaup Criteria Tables (December 21, 2020)

Table 3
Groundwater Sample Analytical Data- Nonresidential Criteria
1301-1303 North Franklin Street
Mount Pleasant, Isabella County, MI

GROUNDWATER: Part 201 Generic Nonresidential Cleanup Criteria December 21, 2020 Units: micrograms/liter (µg/L)		Detected Volatile Organic Compounds (VOCs)		Detected Semi-Volatile Organic Compounds (SVOCs)	Detected Metals (Dissolved)						Detected PFAS Compounds (ng/L)										
		Acetone	Chlorobenzene (l)	Benzaldehyde	Aluminum	Arsenic	Barium	Boron	Copper (B)	Nickel (B)	Perfluorobutanesulfonic Acid (PFBS)	Perfluorobutanoic Acid (PFBA)	Perfluoroheptanesulfonic Acid (PFHpS)	Perfluoroheptanoic Acid (PFHpA)	Perfluorohexanesulfonic Acid (PFHxS)	Perfluorohexanoic Acid (PFHxA)	Perfluorononanoic Acid (PFNA)	Perfluorooctanesulfonic Acid (PFOS)	Perfluorooctanoic Acid (PFOA)	Perfluoropentanesulfonic Acid (PFPeS)	Perfluoropentanoic Acid (PFPeA)
CAS Number		67-64-1	108907	100-52-7	7429-90-5	7440-38-2	7440-39-3	7440-42-8	7440-50-8	7440020	375-73-5	375-22-4	375-92-8	375-85-9	355-46-4	307-24-4	375-95-1	1763-23-1	335-67-1	2706-91-4	2706-90-3
Drinking Water Criteria		2100	100 (A)	NA	50(V)	10 (A)	2,000 (A)	500(F)	1,000 (E)	100 (A)	420	NA	NA	NA	51	400,000	6(A)	16(A)	8(A)	NA	NA
Groundwater Surface Water Interface Criteria (GSI)		1,700	25	NA	NA	10	670 (G)	7,200(X)	13 (G)	73	NA	NA	NA	NA	NA	NA	NA	12(X)	12,000(X)	NA	NA
Groundwater Volatilization to Indoor Air Inhalation Criteria		1.0E+09 (D,S)	4.7E+5 (S)	NA	NLV	NLV	NLV	NLV	NLV	NLV	NA	NA	NA	NA	NA	NA	NA	NLV	ID	NA	NA
Water Solubility		1.0E+09	4.7E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3100	9.50E+09	NA	NA
Flammability & Explosivity Screening Level		1.5E+07	1.6E+05	NA	ID	ID	ID	ID	ID	ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAMPLE ID	SAMPLE DATE																				
MW-101	11/23/2020	<10	<1.0	<1.0	<10	<5.0	75	240	<5.0	ND	<4.8	6.2	<4.8	7.2	45	5.2	<4.8	28	28	6.1	<4.8
MW-101	5/7/2021	<10	<1.0	<1.0	<10	<5.0	92	280	<5.0	ND	<4.8	<4.8	<4.8	<4.8	24	<4.8	<4.8	26	11	<4.8	<4.8
MW-101	5/16/2022	<10	<1.0	<4.0	15	<5.0	97	300	<5.0	ND	6.5	15	<4.8	8.6	51	8.2	<4.8	45	37	<4.8	5.8
MW-102	11/23/2020	<10	<1.0	<1.0	<10	<5.0	170	650	<5.0	ND	14	27	6.5	48	60	46	<5.1	56	120	31	25
MW-102	5/7/2021	25	<1.0	<1.0	11	<5.0	140	730	<5.0	ND	26	20	<4.9	22	35	29	<4.9	53	60	23	12
MW-102	5/16/2022	<20	<1.0	<4.0	<10	5.4	180	580	<5.0	ND	27	31	6.0	32	50	38	<4.8	83	92	31	15
MW-103	11/23/2020	<10	<1.0	<1.0	12	30	38	150	<5.0	ND	6.2	30	<4.5	6.4	<4.5	13	<4.5	<1.8	3.4	<4.5	4.9
MW-103	5/7/2021	<10	<1.0	<1.0	38	33	41	160	<5.0	ND	7.1	36	<4.7	6.6	<4.7	16	<4.7	<1.9	3.8	<4.7	5.0
MW-103	5/16/2022	<10	<1.0	<3.8	<10	25	57	160	<5.0	ND	7.3	40	<4.9	6.9	<4.9	19	<4.9	<1.9	4.8	<4.9	7.2
MW-104	11/23/2020	<10	<1.0	<1.0	<10	<5.0	70	22	<5.0	ND	<4.6	16	<4.6	<4.6	<4.6	<4.6	<4.6	2.5	3.4	<4.6	<4.6
DUP-1 (MW-104)	11/23/2020	<10	<1.0	<1.0	<10	<5.0	53	23	<5.0	ND	<4.6	12	<4.6	<4.6	<4.6	<4.6	<4.6	<1.9	2.3	<4.6	<4.6
MW-104	5/7/2021	<10	<1.0	<1.0	<10	<5.0	76	25	<5.0	ND	<5.1	5.4	<5.1	<5.1	<5.1	<5.1	<5.1	<2.0	<2.0	<5.1	<5.1
MW-104	5/16/2022	<10	<1.0	<4.1	29	<5.0	86	25	<5.0	ND	<4.9	13.0	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
MW-105	11/23/2020	11	<1.0	2.2	25	44	190	22	<5.0	ND	7.2	69	<5.0	5.6	<5.0	9.9	<5.0	<2.0	6.5	<5.0	17
MW-105	5/7/2021	<10	<1.0	<1.0	<10	47	160	<20	<5.0	ND	<5.5	27	<5.5	<5.5	<5.5	<5.5	<5.5	<2.2	2.8	<5.5	<5.5
MW-105	5/16/2022	<10	<1.0	<3.9	<10	16	140	28	<5	ND	11	65	<4.8	<4.8	<4.8	5.3	<4.8	<4.8	5.8	<4.8	11
MW-106	11/23/2020	<10	<1.0	<1.0	<10	<5.0	54	280	<5.0	ND	11	67	<4.8	13	13	14	<4.8	6.5	26	12	4.8
MW-106	5/7/2021	<10	<1.0	<1.0	38	<5.0	85	380	<5.0	ND	17	96	<4.6	18	26	14	<4.6	14	67	13	5.0
MW-106	5/16/2022	<10	<1.0	<3.7	11	<5	74	420	<5.0	ND	35	270	<5	25	29	28	<5	12	68	18	11.0
MW-107	11/23/2020	<10	<1.0	<1.0	<10	<5.0	79	220	<5.0	ND	11	11	<4.6	10	26	7.1	<4.6	13	31	16	<4.6
MW-108	11/23/2020	<10	<1.0	<1.0	13	<5.0	230	190	<5.0	ND	8.4	11	<4.7	7.4	25	8.4	<4.7	5.5	14	7.0	5.8
MW-108	5/7/2021	<10	<1.0	NS	NS	NS	NS	NS	NS	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-109	11/23/2020	<10	<1.0	<1.0	<10	<5.0	240	93	<5.0	ND	6.4	11	<4.5	<4.5	11	<4.5	<4.5	3.8	15	<4.5	<4.5
MW-109	5/7/2021	<10	<1.0	<1.0	19	<5.0	150	100	<5.0	ND	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	2.5	6	<5.1	<5.1
MW-109	5/16/2022	<10	<1.0	<3.6	58	<5.0	190	130	<5.0	<5.0	5.8	30	<4.9	<4.9	6.4	<4.9	<4.9	5.8	13	<4.9	<4.9
MW- 200	5/16/2022	<10	<1.0	<3.9	32	9.6	300	110	<5.0	ND	6.1	9	<4.6	5	15	<4.6	<4.6	3.2	16	<4.6	<4.6
DUP (MW- 200)	5/16/2022	<10	<1.0	<3.8	34	9.8	290	110	<5.0	<5.0	5.8	8.1	<4.7	<4.7	15	5.4	<4.7	<4.7	18	5.7	<4.7
MW- 201	5/16/2022	<10	<1.0	<3.8	<10	<5.0	120	88	<5.0	ND	17	10	<4.9	7.4	19	5.4	<4.9	<4.9	25	5.8	<4.9
MW- 202	5/16/2022	<10	6.1	<3.7	15	<5.0	380	690	<5.0	5.6	22	470	7.5	45	71	38	8.2	100	170	19	12
MW-9-20	5/7/2021	<10	<1.0	NS	NS	NS	NS	NS	NS	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-10-20	5/7/2021	<10	<1.0	<1.0	120	<5.0	340	580	<5.0	ND	15	25	<4.9	28	51	25	5.2	46	100	14	14
DUP-1 (MW-10-20)	5/7/2021	<10	<1.0	<1.0	240	<5.0	340	570	<5.0	ND	14	26	<4.6	29	59	25	5.2	45	99	15	13
MW-10-20	5/16/2022	<10	<1.0	<3.9	46	<5.0	270	460	<5.0	<5.0	13	44	7	51	72	37	9	50	250	20	22
MW-13-20	11/23/2020	NS	NS	<1.0	<10	<5.0	140	280	<5.0	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-14-20	11/23/2020	NS	NS	<1.0	12	<5.0	120	230	<5.0	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-14-20	5/7/2021	<10	<1.0	<1.0	160	<5.0	97	110	<5.0	ND	8.2	16	<5.2	9.5	26	13	<5.2	12	27	6.2	7.2
MW-14-20	5/16/2022	<10	<1.0	<4.2	29	<5.0	140	110	<5.0	<5.0	7.2	30	<5.2	16	28	13	<5.2	11	57	6.5	10
MW-15-20	11/23/2020	NS	NS	<1.0	<10	<5.0	250	160	5.2	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-15-20	5/7/2021	<10	<1.0	<1.0	210	<5.0	250	130	<5.0	ND	7.6	11	<4.9	6.7	18	8.9	<4.9	6.5	10	<4.9	5.8
MW-15-20	5/16/2022	<10	<1.0	<3.8	19	<5.0	180	94	<5.0	<5.0	9.3	40	<4.7	12	32	13	<7.0	7.1	39	5.5	17
MW-16-20	11/23/2020	NS	NS	<1.0	49	<5.0	540	800	<5.0	<5.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
Bold indicates concentration reported at or above laboratory reporting limit.
Exceeds Generic Drinking Water Criteria (DW)
Exceeds Generic Groundwater Surface Water Interface Criteria (GSI)
Exceeds Applicable Groundwater Vapor Intrusion screening levels
Exceeds GSI Final Acute Value (FAV), also exceeds others
NS = Not Sampled or Not Analyzed
NA = No Criteria Established
ng/L= Nanograms per liter
ID= Insufficient data to develop criterion
NLV= Not likely to volatilize under most conditions
PCBs were not detected in the Nov. 2020, May 2021, or May 2022 groundwater samples analyzed for PCBs.
The GSI values for Barium, Copper and Nickle were calculated using the EGLE spreadsheet for calculating GSI cleanup criteria. The values presented are for surface water bodies protected as a drinking water source. A water hardness value of 150 milligrams per liter as CaCo3 was used for the calculations.
Notes in parentheses and standard abbreviations from EGLE Part 201 Resource Materials Table 1. Groundwater: Residential and Non Residential Part 201 Generic Cleanup Criteria and Screening Levels (December 21, 2020) and R299.49 Footnotes for Generic Cleaup Criteria Tables (December 21, 2020)
Dissolved Nickle was detected in the groundwater sample collected from MW-202 on May 16th 2022

Table 4
Groundwater Flow Velocity Calculations - May 16, 2022
Former Mt. Pleasant Landfill - Mt. Pleasant, Michigan

Date	Flow Path	Dh (ft)	Dl (ft)	Hydraulic Gradient Dh/ Dl	Average Conductivity, K (ft/day)	Estimated Effective Porosity, n	Calculated Groundwater Flow Velocity (ft/day)
May 16, 2022	A	10.0	1460	0.0068	137.2	0.3	3.1
May 16, 2022	B	13.0	1980	0.0066	137.2	0.3	3.0
May 16, 2022	C	7.0	1120	0.0063	137.2	0.3	2.9

Notes:

1. Hydraulic Conductivity (K) based on site-specific grain size distribution test data
2. Dh = Change in groundwater elevation (measured along the groundwater flow paths identified on Figure 8).
3. Dl = Lateral distance along flow path (measured along the flow groundwater paths identified on Figure 8).
4. Velocity = (Dh/Dl) K / n
5. Static groundwater levels measaured by MSG personnel on May 16, 2022

APPENDIX A
PHOTO LOG

Boart Longyear LS 250 Minisonic Drill Rig (4/11/2022).

Rotosonic drilling potable water supply at Mt. Pleasant vehicle maintenance garage (4/11/2022).

Rotosonic drilling at MW-201 (4/11/2022).

Contact of gravelly lacustrine sand (right) and fine grained lacustrine sand (left) at 8 feet bgs at MW-201 (4/11/2022).

Contact of gravelly lacustrine sand (left) and fine grained lacustrine sand (right) at 8 feet bgs at MW-201 (4/11/2022).

Drilling and retrieving soil core at MW-201 (4/11/2022).

Till clay from 25-30 feet bgs at MW-201 (4/11/2022).

Till clay from 25-30 feet bgs at MW-201 (4/11/2022).

Till clay from 25-30 feet bgs at MW-201 (4/11/2022).

Soil cores from 0-30 feet bgs at MW-201 (4/11/2022). Zero feet bgs is at top right. 30 feet bgs is at bottom left.

Hardpan-like till clay at 35 feet bgs at MW-201 (4/11/2022).

Hardpan-like till clay at 40 feet bgs at MW-201 (4/11/2022).

Hardpan-like till clay at 40 feet bgs at MW-201 (4/11/2022).

Hardpan-like till clay at 40 feet bgs at MW-201 (4/11/2022).

25-30 feet bgs (top) and 35-40 feet bgs (bottom) till clay soil cores from MW-201 (4/11/2022).

Till clay from 42-50 feet bgs at MW-201 (4/11/2022).

30-35 feet bgs (top) and 40-45 feet bgs (bottom) till clay soil cores from MW-201 (4/11/2022).

MW-200 location prior to drilling (4/12/2022).

Lacustrine sand from 15.5-20 feet bgs at MW-200 (4/12/2022).

Rotosonic drilling and soil core retrieval at MW-200 (4/12/2022).

Till clay from 25.5-30 feet bgs at MW-200 (4/12/2022).

Soil core retrieval at MW-200 (4/12/2022).

Hardpan-like till clay from 33-35 feet bgs at MW-200 (4/12/2022).

Hardpan-like till clay from 35-39.5 feet bgs at MW-200 (4/12/2022).

Hardpan-like till clay from 35-39.5 feet bgs at MW-200 (4/12/2022).

Hardpan-like till clay from 35-39.5 feet bgs at MW-200 (4/12/2022).

Till clay from 40-45 feet bgs at MW-200 (4/12/2022).

Hardpan-like till clay from 47-50 feet bgs at MW-200 (4/12/2022).

SB-20 boring location prior to drilling (4/12/2022).

Clay cap (right) and top of refuse (left) at 1.5-3 feet bgs at SB-20 (4/12/2022).

Refuse from 5-10 feet bgs at SB-20 (4/12/2022).

Base of refuse and top of lacustrine sand at 29-30 feet bgs at SB-20 (4/12/2022).

Lacustrine sand at 38 feet bgs at SB-20(4/12/2022).

Very hard till clay from 40-44.5 feet bgs at SB-20 (4/12/2022).

Hardpan-like till clay from 45-50 feet bgs at SB-20 (4/12/2022).

Hardpan-like till clay from 45-50 feet bgs at SB-20 (4/12/2022).

Setting up the rotosonic drill rig at the SB-19 boring location (4/12/2022).

Clay cap (right) and top of refuse (left) from 1.5-2.5 feet bgs at SB-19 (4/12/2022).

Refuse and wood from 5-10 feet bgs at SB-19 (4/12/2022).

Fill sand and underlying refuse from 17-20 feet bgs at SB-19 (4/12/2022).

Refuse from 10-15 feet bgs at SB-19 (4/12/2022).

Lacustrine gravelly sand from 30-32 feet bgs at SB-19 (4/12/2022).

Lacustrine gravelly sand/very hard till clay contact at 33.5 feet bgs at SB-19 (4/12/2022).

Very hard till clay from 35-40 feet bgs at SB-19 (4/12/2022).

Very hard till clayey sand-sandy clay from 35-40 feet bgs at SB-19 (4/12/2022).

Very hard till clay from 40-50 feet bgs at SB-19 (4/12/2022).

Very hard till clay from 40-50 feet bgs at SB-19 (4/12/2022).

Very hard till clay from 40-50 feet bgs at SB-19 (4/12/2022).

Very hard till clay from 40-50 feet bgs at SB-19 (4/12/2022).

Tracking through woods to MW-202 location (4/12/2022).

Tracking through woods to MW-202 location (4/12/2022).

Drilling at MW-202 location (4/12/2022).

Lacustrine sandy gravel from 5-7.7 feet bgs at MW-202 (4/12/2022).

Contact of lacustrine sandy gravel (left) and clayey silt (right) at 7.7 feet bgs at MW-202 (4/12/2022).

Very hard till clay from 8.5-10 feet bgs at MW-202 (4/12/2022).

Very hard till clay from 10-15 feet bgs at MW-202 (4/12/2022).

Very hard till clay at 10 feet bgs at MW-202 (4/12/2022).

MW-202 soil cores from 0-30 feet bgs (4/12/2022). Zero feet bgs at top left. 30 feet bgs at lower right.

Very hard till clay from 35-40 feet bgs at MW-202 (4/12/2022).

MW-202 soil cores from 20-40 feet bgs (4/12/2022). 20 feet bgs at top left. 40 feet bgs at lower right.

Wooded area around MW-202 (4/13/2022).

Wooded area around MW-202 (4/13/2022).

Wooded area around MW-202 (4/13/2022).

Tracking to SB-21 boring location (4/13/2022)

Drilling at SB-21 (4/13/2022).

Lacustrine sandy gravel at 10 feet bgs at SB-21 (4/13/2022).

Retrieving soil core at boring SB-21 (4/13/2022).

Very hard till clay from 15-20 feet bgs at SB-21 (4/13/2022).

Very hard till clay from 15-20 feet bgs at SB-21 (4/13/2022).

Very hard till clay from 15-20 feet bgs at SB-21 (4/13/2022).

Very hard till clay from 20-25 feet bgs at SB-21 (4/13/2022).

Hardpan-like till clay from 25-30 feet bgs at SB-21 (4/13/2022).

Very hard till clay from 20-25 feet bgs at SB-21 (4/13/2022).

Hardpan-like till clay from 25-30 feet bgs at SB-21 (4/13/2022).

Hardpan-like till clay from 30-35 feet bgs at SB-21 (4/13/2022).

Hardpan-like till clay from 30-35 feet bgs at SB-21 (4/13/2022).

Till clay from 35-40 feet bgs (bottom), 25-30 feet bgs (middle), and 15-20 feet bgs (top) at SB-21 (4/13/2022).

Containerized soil cores containing refuse from boring SB-20 (4/14/2022).

Containerized cores containing refuse from boring SB-19 (4/14/2022).

Monitoring well MW-202 (4/14/2022).

Monitoring well MW-200 (4/14/2022).

Monitoring well MW-201 (4/14/2022).

Lacustrine gravelly sand soil sample from 17-20 feet bgs at MW-200 (4/16/2022).

Lacustrine silty sand soil sample from 20-24 feet bgs at MW-201 (4/16/2022).

Lacustrine sandy gravel soil sample from 5-7 feet bgs at MW-202 (4/16/2022).

Lacustrine sandy gravel soil sample from 5-7 feet bgs at MW-202 (4/16/2022).

Till clay soil sample from 25.5-30 feet bgs at MW-200 (4/16/2022).

Till clay soil sample from 25.5-30 feet bgs at MW-200 (4/16/2022).

Till clay soil sample from 25.5-30 feet bgs at MW-200 (4/16/2022).

Till clay soil sample from 37-39.5 feet bgs at MW-200 (4/16/2022).

Till clay soil sample from 37-39.5 feet bgs at MW-200 (4/16/2022).

Till clay soil sample from 29-30 feet bgs at MW-201 (4/16/2022).

Hardpan-like till soil sample (silty-clayey sand) from 39-40 feet bgs at MW-201 (4/16/2022).

Till clay soil sample from 8.5-10 feet bgs at MW-202 (4/16/2022).

Till clay soil sample from 8.5-10 feet bgs at MW-202 (4/16/2022).

Till clay soil sample from 8.5-10 feet bgs at MW-202 (4/16/2022).

Very hard till soil sample (clayey sand) from 34-35 feet bgs at SB-19 (4/16/2022).

Very hard till soil sample (clayey sand) from 34-35 feet bgs at SB-19 (4/16/2022).

Till clay soil sample from 47-49 feet bgs at SB-19 (4/16/2022).

Till clay soil sample from 47-49 feet bgs at SB-19 (4/16/2022).

Till clay soil sample from 45-50 feet bgs at SB-20 (4/16/2022).

Till clay soil sample from 45-50 feet bgs at SB-20 (4/16/2022).

Till clay soil sample from 45-50 feet bgs at SB-20 (4/16/2022).

Till clay soil sample from 23-25 feet bgs at SB-21 (4/16/2022).

Till clay soil sample from 23-25 feet bgs at SB-21 (4/16/2022).

Till clay soil sample from 23-25 feet bgs at SB-21 (4/16/2022).

APPENDIX B
BORING AND MONITORING WELL LOGS

BORING / WELL ID: MW-200

The Mannik & Smith Group, Inc.
2365 Haggerty Road South, Canton, MI 48188
ph: (734) 397-3100 fax: (734) 397-3131
www.manniksmithgroup.com

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/12/22
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 772,179.7 N; 13,015,473.0 E (USSP MI South)
DRILLING METHOD Rotosonic
TOP OF CASING ELEV.: 759.04 feet NAD83
LOGGED BY DJA **CHECKED BY**
GROUND WATER ENCOUNTERED DURING DRILLING: 9 FEET BGS
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
0									Surface Elev. = 756 NAD83
	SC 1	5.0			Brown to Dark Brown SAND and Clayey Sand, trace-little Gravel and Wood, moist (FILL)				
5				5.5		750.5			
	SC 2	5.0			Brown to Dark Brown SAND and Clayey Sand, little-some Wood, little Gravel, moist (FILL)				
10					Wet Concrete Rubble From 9-9.5 Ft. bgs				
				14.5		741.5			
15	SC 3	7.5		15.0	Gray Silty fine SAND, trace Gravel, wet (Lacustrine Sand)	741.0			
					Gray Gravelly SAND, trace-little Silt, wet (Lacustrine Sand) Oxidized Orange-Brown From 15.5-16.7 Ft. bgs				Soil Sample MW-200, 17-20 (SP)
20				21.0		735.0			
					Gray Sandy SILT, trace Clay, wet (Lacustrine-Till transition)				
25	SC 4	9.5		25.5		730.5			
					Gray Silty CLAY, trace Sand, moist (Till Clay)				Soil Sample MW-200, 25.5-30 (CL)
30									

WELL DIAGRAM

- Above-Ground Protective Cover
- Concrete Pad
- Sand for Drainage
- Bentonite Chips
- 2" Diameter PVC Riser
- Filter Sand
- 2" Diameter 10-Slot PVC Screen
- Bentonite Chips

ENV BORING/WELL LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:54 - W:\PROJECTS\PROJECTS K-O\M3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV2.GPJ

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The Mannik & Smith Group, Inc.
2365 Haggerty Road South, Canton, MI 48188
ph: (734) 397-3100 fax: (734) 397-3131
www.manniksmithgroup.com

BORING / WELL ID: MW-200

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/12/22
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 772,179.7 N; 13,015,473.0 E (USSP MI South)
DRILLING METHOD Rotosonic
TOP OF CASING ELEV.: 759.04 feet NAD83
LOGGED BY DJA **CHECKED BY**
GROUND WATER ENCOUNTERED DURING DRILLING: 9 FEET BGS
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
30					Gray Silty CLAY, trace Sand, moist (Till Clay) *(continued)*					
				33.0		723.0				
					Gray Silty-Sandy CLAY, trace Gravel, dry-moist (Hardpan-like till)					
35	SC 5	9.0								
									Soil Sample MW-200, 37-39.5 (CL)	
40					Till Clay from 39.5-47 ft bgs					Bentonite Chips
45	SC 6	9.1								
					Hardpan-like till from 47-50 ft bgs					
50				50.0		706.0				
					Bottom of borehole at 50.0 feet.					

BORING / WELL ID: MW-201

The Mannik & Smith Group, Inc.
2365 Haggerty Road South, Canton, MI 48188
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CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/11/22 **COMPLETED** 4/12/22
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 771,328.0 N; 13,015,755.0 E (USSP MI South)
DRILLING METHOD Rotosonic
TOP OF CASING ELEV.: 764.12 feet NAD83
LOGGED BY DJA **CHECKED BY**
GROUND WATER ENCOUNTERED DURING DRILLING: 10 FEET BGS
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
0									Surface Elev. = 761.1 NAD83	Above-Ground Protective Cover
				1.5	TOPSOIL	759.6				Concrete Pad; Sand for Drainage
	SC 1	5.0			Brown Silty SAND, trace-little Gravel, moist (Lacustrine Sand)					
5										Bentonite Chips
	SC 2	5.0		8.0		753.1				
					Tan Silty Fine SAND, moist (Lacustrine Sand)					
10				10.0 ▽		751.1				2" Diameter PVC Riser
					Brown Silty SAND, occasional Gravelly pockets, wet (Lacustrine Sand)					
15	SC 3	10.0								Filter Sand
				18.0		743.1				
					Light Grayish-Brown Silty Fine SAND, trace Gravel, wet (Lacustrine Sand)					
20										2" Diameter 10-Slot PVC Screen
									Soil Sample MW-201, 20-24 (SM)	
				24.5		736.6				
25	SC 4	10.0			Gray Silty CLAY, trace Sand, trace Gravel, moist (Till Clay)					
									Soil Sample MW-201, 29-30 (CL)	
30										Bentonite Chips

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2365 Haggerty Road South, Canton, MI 48188
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www.manniksmithgroup.com

BORING / WELL ID: MW-201

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/11/22 **COMPLETED** 4/12/22
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 771,328.0 N; 13,015,755.0 E (USSP MI South)
DRILLING METHOD Rotosonic
TOP OF CASING ELEV.: 764.12 feet NAD83
LOGGED BY DJA **CHECKED BY**
GROUND WATER ENCOUNTERED DURING DRILLING: 10 FEET BGS
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
30					Gray Silty CLAY, trace Sand, trace Gravel, moist (Till Clay) *(continued)*					
35	SC 5	10.0			Hardpan-like till from 34.9-38.5 ft bgs					
				38.5		722.6				
40					Gray Silty-Clayey SAND, trace Gravel, dry (Hardpan-like till)			☒	Soil Sample MW-201, 39-40 (SC-SM)	Bentonite Chips
				42.0		719.1				
45	SC 6	10.0			Gray Silty CLAY, some Sand, trace-little Gravel, moist (Till Clay)					
50				50.0		711.1				
					Bottom of borehole at 50.0 feet.					

BORING / WELL ID: MW-202

The Mannik & Smith Group, Inc.
2365 Haggerty Road South, Canton, MI 48188
ph: (734) 397-3100 fax: (734) 397-3131
www.manniksmithgroup.com

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/13/22
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 772,211.3 N; 13,014,355.0 E (USSP MI South)
DRILLING METHOD Rotosonic
TOP OF CASING ELEV.: 746.85 feet NAD83
LOGGED BY DJA **CHECKED BY**
GROUND WATER ENCOUNTERED DURING DRILLING: 5 FEET BGS
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
0					Surface Elev. = 744.2 NAD83				
				1.0	TOPSOIL	743.2			
	SC 1	2.0			Dark Brown Organic Sandy CLAY, moist				
				4.0		740.2			
5				5.0	Brown Silty Fine SAND, trace Gravel, moist	739.2			
	SC 2	4.8		7.7	Gray Sandy GRAVEL, wet (Lacustrine Gravel)	736.5		X	Soil Sample MW-202, 5-7 (GW)
				8.5	Gray Clayey SILT, moist	735.7			
10					Gray Sandy CLAY, some Silt, trace-little Gravel, moist (Very Hard Till Clay)			X	Soil Sample MW-202, 8.5-10 (CL)
15	SC 3	8.0							
20									
25	SC 4	9.0							
30									

WELL DIAGRAM

- Above-Ground Protective Cover
- Concrete Pad
- Sand for Drainage
- 2" Diameter PVC Riser
- Bentonite Chips
- Filter Sand
- 2" Diameter 10-Slot PVC Screen
- Bentonite Chips

ENV BORING/WELL LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:54 - W:\PROJECTS\PROJECTS K-O\M3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV2.GPJ

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2365 Haggerty Road South, Canton, MI 48188
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BORING / WELL ID: MW-202

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/13/22
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 772,211.3 N; 13,014,355.0 E (USSP MI South)
DRILLING METHOD Rotosonic
TOP OF CASING ELEV.: 746.85 feet NAD83
LOGGED BY DJA **CHECKED BY**
GROUND WATER ENCOUNTERED DURING DRILLING: 5 FEET BGS
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
30					Gray Sandy CLAY, some Silt, trace-little Gravel, moist (Very Hard Till Clay) *(continued)*					
35	SC 5	10.0								Bentonite Chips
40				40.0		704.2				
					Bottom of borehole at 40.0 feet.					

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2365 Haggerty Road South, Canton, MI 48188
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BORING ID: SB-19

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/12/22
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 772,079.6 N; 13,014,794.0 E (USSP MI South)
DRILLING METHOD Rotosonic
GROUND SURFACE ELEV.: 769.5 feet NAD83
LOGGED BY DJA **CHECKED BY**
GROUND WATER ENCOUNTERED DURING DRILLING: Not Encountered
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
0				2.0	Brown Silty CLAY, trace-little Sand, trace Gravel, moist (Clay Cap)	767.5			
5	SC 1	3.0			Brown, Gray and Black SAND, Clay, Gravel, Wood, Refuse (FILL)				
10	SC 2	4.0							
15	SC 3	7.5							
20									
25	SC 4	5.0							
30				30.0		739.5			

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BORING ID: SB-19

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/12/22
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 772,079.6 N; 13,014,794.0 E (USSP MI South)
DRILLING METHOD Rotosonic
GROUND SURFACE ELEV.: 769.5 feet NAD83
LOGGED BY DJA **CHECKED BY**
GROUND WATER ENCOUNTERED DURING DRILLING: Not Encountered
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
30					Gray, Gravelly SAND, moist (Lacustrine Sand)				
				33.5		736.0			
35	SC 5	10.0			Gray Clayey Sand-Sandy Clay, some Silt, trace Gravel, moist (Very Hard Till Clay)			☒	Soil Sample SB-19, 34-35 (SC)
40									
45	SC 6	8.5						☒	Soil Sample SB-19, 47-49 (CL)
50				50.0		719.5			
					Bottom of borehole at 50.0 feet.				

ENV BORING LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:55 - W:\PROJECTS\PROJECTS K-O\M3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV2.GPJ

The Mannik & Smith Group, Inc.
2365 Haggerty Road South, Canton, MI 48188
ph: (734) 397-3100 fax: (734) 397-3131
www.manniksmithgroup.com

BORING ID: SB-20

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/12/22
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 771,767.6 N; 13,014,829.0 E (USSP MI South)
DRILLING METHOD Rotosonic
GROUND SURFACE ELEV.: 769.5 feet NAD83
LOGGED BY DJA **CHECKED BY**
GROUND WATER ENCOUNTERED DURING DRILLING: Not Encountered
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
0									
				2.0	Brown SIlty CLAY, tarce-little Sand, trace Gravel, moist (Clay Cap)	767.5			
	SC 1	2.8			Brown, Gray and Black SAND, Clay, Gravel, Wood, Refuse (FILL)				
5									
	SC 2	4.0							
10									
15	SC 3	8.3							
20									
25	SC 4	7.5							
				29.2		740.3			
30				30.0	Gray Gravelly SAND (Lacustrine Sand)	739.5			

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2365 Haggerty Road South, Canton, MI 48188
ph: (734) 397-3100 fax: (734) 397-3131
www.manniksmithgroup.com

BORING ID: SB-20

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/12/22
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 771,767.6 N; 13,014,829.0 E (USSP MI South)
DRILLING METHOD Rotosonic
GROUND SURFACE ELEV.: 769.5 feet NAD83
LOGGED BY DJA **CHECKED BY**
GROUND WATER ENCOUNTERED DURING DRILLING: Not Encountered
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
30									
35	SC 5	8.2		37.0	Brown Silty Fine SAND, moist (Lacustrine Sand)	732.5			
40				40.0	Brown Silty Fine SAND with Silt lenses, moist (Lacustrine Sand)	729.5			
45	SC 6	10.0		44.5	Gray Silty CLAY, some Sand, little Gravel, moist (Very Hard Till Clay)	725.0			
50				50.0	Gray Sandy CLAY, some Silt, trace Gravel, dry-moist (Hardpan-like Till)	719.5		X	Soil Sample SB-20, 45-50 (CL)
					Bottom of borehole at 50.0 feet.				

BORING ID: SB-21

The Mannik & Smith Group, Inc.
2365 Haggerty Road South, Canton, MI 48188
ph: (734) 397-3100 fax: (734) 397-3131
www.manniksmithgroup.com

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/13/22 **COMPLETED** 4/13/22
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 771,699.5 N; 13,014,311.0 E (USSP MI South)
DRILLING METHOD Rotosonic
GROUND SURFACE ELEV.: 746.5 feet NAD83
LOGGED BY DJA **CHECKED BY**
GROUND WATER ENCOUNTERED DURING DRILLING: 5 FEET BGS
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
0				0.5	TOPSOIL	746.0			
				1.0	Light Brown Clayey SILT, moist	745.5			
				1.7	Brown Silty SAND, moist	744.8			
	SC 1	3.0		3.0	Brown Clayey SAND, trace Gravel and Wood, moist	743.5			
					Light Brown Silty CLAY, trace Sand, moist				
5					▽ Becomes wet at 5 Ft. bgs				
	SC 2	3.0		7.0		739.5			
					Gray Sandy GRAVEL, wet (Lacustrine Gravel)				
10				12.0		734.5			
					Gray Sandy CLAY, some Silt, trace Gravel, moist (Very Hard Till Clay)				
15	SC 3	9.5							
20									
25	SC 4	10.0			Becomes Hardpan-like till at 25 Ft. bgs			X	Soil Sample SB-21, 23-25 (CL)
30				30.0		716.5			

(Continued Next Page)

The Mannik & Smith Group, Inc.
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BORING ID: SB-21

CLIENT City of Mt. Pleasant, MI
PROJECT NAME Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003
PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/13/22 **COMPLETED** 4/13/22
BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling
SURVEY COORDINATES: 771,699.5 N; 13,014,311.0 E (USSP MI South)
DRILLING METHOD Rotosonic
GROUND SURFACE ELEV.: 746.5 feet NAD83
LOGGED BY DJA **CHECKED BY**
GROUND WATER ENCOUNTERED DURING DRILLING: 5 FEET BGS
NOTES
WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
30									
35	SC 5	10.0			Gray Sandy CLAY, some Silt, trace Gravel, moist (Hardpan-like till)				
40				40.0		706.5			
					Bottom of borehole at 40.0 feet.				

APPENDIX C
FIELD SAMPLING FORMS

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

PERSONNEL: DA/PH

OBSERVERS: _____

SAMPLE LOCATION: MW-101

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

DEPTH TO WATER LEVEL: 3.76' TOC

WELL DIAMETER: _____

CASING TYPE: PVC

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1442	4.12	58.4	6.88	-21	1.47	86.1	9.46			
1445	4.14	55.6	6.92	-33	1.56	98.5	3.99			
1448	4.17	54.8	6.94	-38	1.59	3.3	3.17			
1451	4.20	54.7	6.92	-40	1.59	0.9	2.86			
1454	4.21	54.3	6.90	-41	1.59	0.0	2.76			
1457										
1500										

SAMPLE ID: MW-101

SAMPLE DATE: 5-16-22

SAMPLE TIME: 1500

Notes: _____

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

PERSONNEL: WLP, JOG

OBSERVERS: _____

SAMPLE LOCATION: MW-102

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

DEPTH TO WATER LEVEL: 6.87

WELL DIAMETER: 1"

CASING TYPE: PVC

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C) +/- 3%	Ph +/- 0.1	ORP (mV) +/- 10 mV	COND. (mS/cm) +/- 3%	TURB. (NTU)[2] +/- 10%	DO (mg/L)[1] +/- 10%	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
1431	6.87	53.2	7.39	75	2.07	516	9.22		200	
1434		50.4	7.24	34	2.33	89.3	5.42			
1437		49.7	7.24	-4	2.39	41.0	3.79			
1440		48.5	7.22	-31	2.43	33.1	2.69			
1443		48.1	7.21	-44	2.45	22.4	2.38			
1446		48.1	7.20	-48	2.46	18.3	2.24			
1449										
1452										
1455										
1458	↓									
1501										

SAMPLE ID: MW-102

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1446

Notes: Began Purging @ 1428

SWL obtained but couldn't fit tubing & WLM in PVC

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

PERSONNEL: UMR, JOG

OBSERVERS: _____

SAMPLE LOCATION: MW-103

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

DEPTH TO WATER LEVEL: ~~2.24~~ *2.00'

WELL DIAMETER: 1"

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1233	2.12'	62.0	7.14	-4	1.59	175	13.20		200	
1236	2.10'	57.1	7.28	-10	1.15	522	6.92			
1239	2.11'	56.4	7.42	-1	1.08	53.8	6.05			
1242	2.11'	54.4	7.35	-8	1.24	44.3	4.83			
1245	2.11'	54.3	7.31	-13	1.33	47.7	3.14			
1248	2.11'	54.2	7.28	-16	1.51	48.4	2.33			
1251										
1254										
1257										
1300										

SAMPLE ID: MW-103

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1249

Notes: Began Purging @ 12:30

H_2O meter interfering w/ tubing, so will leave WL constant after ~~initial~~ final pumping measurement

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

PERSONNEL: DA | PH

OBSERVERS: _____

SAMPLE LOCATION: MW-104

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

DEPTH TO WATER LEVEL: 5.791

WELL DIAMETER: _____

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C) +/- 3%	Ph +/- 0.1	ORP (mV) +/- 10 mV	COND. (mS/cm) +/- 3%	TURB. (NTU)[2] +/- 10%	DO (mg/L)[1] +/- 10%	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
1249	5.61	53.9	7.09	13	0.852	21.5	9.66			
1252	5.81	51.5	7.01	-26	0.841	0.0	4.49			
1255	5.82	50.6	6.99	-40	0.844	0.0	3.77			
1258	5.82	50.3	6.98	-45	0.846	0.0	3.56			
1301	5.82	50.5	6.97	-49	0.848	0.0	3.40			
1304										
1307										

SAMPLE ID: MW-104

SAMPLE DATE: 5-16-22

SAMPLE TIME: 1302

Notes: _____

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5-16-22

PERSONNEL: DA/PH

OBSERVERS: _____

SAMPLE LOCATION: MW-105

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

DEPTH TO WATER LEVEL: 4.94' TOC

WELL DIAMETER: _____

CASING TYPE: PVC

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C) +/- 3%	Ph +/- 0.1	ORP (mV) +/- 10 mV	COND. (mS/cm) +/- 3%	TURB. (NTU)[2] +/- 10%	DO (mg/L)[1] +/- 10%	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
1324	5.33	60.9	7.15	-49	0.837	51.7	4.38		≈200	
1327	5.38	62.3	7.07	-64	0.855	26.7	2.62			
1330	5.38	59.5	7.07	-77	1.19	15.0	2.70			
1333	5.36	58.5	7.05	-81	1.28	10.6	2.61			
1336	5.41	56.2	7.03	-84	1.33	9.0	2.51			
1339		58.2	7.03	-85	1.34	8.5	2.45			
1342										

SAMPLE ID: MW-105

SAMPLE DATE: 5-16-22

SAMPLE TIME: 1342

Notes: _____

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

PERSONNEL: UMP, JSG

OBSERVERS: _____

SAMPLE LOCATION: MW-106

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: 72°/sunny

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

DEPTH TO WATER LEVEL: ~~6.26'~~ *6.26'

WELL DIAMETER: 1"

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1338	6.26'	53.4	7.37	51	1.84	42.4	5.67		200	
1341	6.27	53.0	7.37	7	1.75	30.8	3.14			
1344	6.26'	52.7	7.36	-18	1.70	24.2	2.71			
1347	6.26'	52.8	7.35	-28	1.69	20.8	2.44			
1350	6.26'	52.8	7.34	-37	1.69	18.7	2.33			
1353										
1356										
1359										
1402										

SAMPLE ID: MW-106

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1410

Notes: Began Purging @ 1335

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

PERSONNEL: JOG, LMP

OBSERVERS: _____

SAMPLE LOCATION: MW-~~202~~ 108

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: 72°/ sunny

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

DEPTH TO WATER LEVEL: 7.70' TOC

WELL DIAMETER: _____

CASING TYPE: PVC

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1053	8.24	51.4	7.13	4	1.95	580	3.97	0.10		
1056	8.85	47.0	7.11	33	2.52	397	5.81	0.20		
1059	9.60	48.0	7.10	58	2.43	360	4.91	0.30		

SAMPLE ID: MW-~~202~~ 108

SAMPLE DATE: 5/16/22

SAMPLE TIME: - - -

Notes: Began Purging @ ~~10:50~~ 1050

Well purged dry @ 10:58

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

PERSONNEL: DA/PH

OBSERVERS: _____

SAMPLE LOCATION: MW-109

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

DEPTH TO WATER LEVEL: 4.22' BTOC

WELL DIAMETER: _____

CASING TYPE: _____

MONITORING EQUIPMENT: DISPOSABLE HDPE BAILER, NYLON ROPE, ULTRAMETER II WATER QUALITY METER

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
		16.4	6.04		7,700					
		15.3	6.42		1188					
		12.9	6.55		945					
		12.7	6.64		886					

SAMPLE ID: MW-109

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1139

Notes: SOMEWHAT CLOUDY WATER. POOR PRODUCTION.

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/2022

PERSONNEL: DA/PH

OBSERVERS: _____

SAMPLE LOCATION: MW-200

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

DEPTH TO WATER LEVEL: 11.50' TOC

WELL DIAMETER: 2"

CASING TYPE: PVC

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1536	11.70	59.6	8.13	-147	2.80	155	8.31		≈200	
1539	11.68	58.3	7.62	-159	2.16	143	3.30			
1542	11.69	57.6	7.29	-129	1.90	123	2.67			
1545	11.68	57.4	7.19	-117	1.84	123	2.47			
1548	11.68	57.3	7.14	-112	1.80	103	2.32			
1551	11.68	57.4	7.12	-110	1.78	81.3	2.23			

SAMPLE ID: MW-200

SAMPLE DATE: 5-16-2022

SAMPLE TIME: 1555

Notes: DUP + FIELD BLANK COLLECTED AT MW-200

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

SAMPLE LOCATION: MW-201

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

PERSONNEL: JNG PDH

SITE ADDRESS: 1303 N. FRANKLIN

OBSERVERS: _____

SITE CONDITIONS: _____

DEPTH OF WELL: _____

DEPTH TO WATER LEVEL: 12.02

SCREEN LENGTH: _____

WELL DIAMETER: 2"

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<0.3 feet once stabilized) 12.12	TEMP. (°F/°C) +/- 3%	Ph +/- 0.1	ORP (mV) +/- 10 mV	COND. (mS/cm) +/- 3%	TURB. (NTU)[2] +/- 10%	DO (mg/L)[1] +/- 10%	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
1621	~~57.6~~	57.6	7.19	-192	1.61	26.1	9.16	0.1		
1624	12.15	53.3	7.32	~~-288~~	1.46	9.2	3.36	0.5		
1627	12.15	52.7	7.24	-345	1.45	5.6	2.67	0.5		
1630	12.15	52.6	7.24	-360	1.45	3.3	2.55	0.6		
1633	12.15	52.5	7.30	-385	1.44	1.4	2.44	0.7		
1636	12.15	52.1	7.33	-400	1.44	1.2	2.39	0.8		
1639	12.15	52.1	7.36	-428	1.44	0.4	2.36	0.9		

SAMPLE ID: MW 201

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1645

Notes:

Sample @ 1645

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

PERSONNEL: LMP, JOG

OBSERVERS: _____

SAMPLE LOCATION: MW-202

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: 72°/Sunny

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

DEPTH TO WATER LEVEL: 4.26'

WELL DIAMETER: 2"

CASING TYPE: PVC

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1126	4.30	54.5	7.03	215	2.42	383	8.07		200	
1129	4.30	51.7	6.91	161	2.53	171	7.56			
1132	4.28	50.9	6.88	9	2.65	97.5	5.13			
1135	4.29	50.7	6.89	-29	2.68	73.6	3.65			
1138	4.29	50.7	6.89	-45	2.69	49.6	2.77			
1141	4.29	50.5	6.90	-51	2.71	39.7	2.89			
1144										
1147										
1150										

SAMPLE ID: MW-202

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1145

Notes: Began Purging @ 1723

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

PERSONNEL: LMP, JOG

OBSERVERS: _____

SAMPLE LOCATION: MW-9-20

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: 75°/sunny

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

DEPTH TO WATER LEVEL: 6.59'

WELL DIAMETER: 1"

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1512		52.6	7.27	-41	1.23	98.1	4.57		200	
1515		53.1	7.31	-40	1.24	88.5	5.08			
1518										
1521										
1524										
1527										
1530										
1533										
1536										
1539										

SAMPLE ID: MW-9-20

SAMPLE DATE: 5/16/22

SAMPLE TIME: [redacted]

Notes: Began Purging @ 15:10
Went dry @ ~~1515~~ 1516

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

PERSONNEL: UMP, JOG

OBSERVERS: _____

SAMPLE LOCATION: MW-10-20

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: 70°/Sunny

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

DEPTH TO WATER LEVEL: 5.29'

WELL DIAMETER: 1"

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C) +/- 3%	Ph +/- 0.1	ORP (mV) +/- 10 mV	COND. (mS/cm) +/- 3%	TURB. (NTU)[2] +/- 10%	DO (mg/L)[1] +/- 10%	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
1532	5.71'	54.5	7.30	-28	1.43	297	8.94		200	
1535	5.68'	51.1	7.31	-46	1.98	208	5.14			
1538	5.67'	50.1	7.35	-68	2.14	138	2.78			
1541	5.67'	49.7	7.34	-78	2.15	80.5	2.13			
1544	5.68'	49.5	7.33	-83	2.16	51.4	1.94			
1547	5.69'	49.1	7.32	-87	2.17	38.6	1.84			
1550	5.69'	48.9	7.32	-89	2.17	31.6	1.75			
1553	5.69'	48.8	7.31	-92	2.18	28.7	1.71			
1556										
1559										
1602										

SAMPLE ID: MW-10-26

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1553

Notes: Began Purging @ 1530

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

PERSONNEL: DA/HP

OBSERVERS: _____

SAMPLE LOCATION: MW-14-20

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

DEPTH TO WATER LEVEL: 6.22 6.22

WELL DIAMETER: _____

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C) +/- 3%	Ph +/- 0.1	ORP (mV) +/- 10 mV	COND. (mS/cm) +/- 3%	TURB. (NTU)[2] +/- 10%	DO (mg/L)[1] +/- 10%	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
1035	6.78	55.7	7.07	-99	1.82	196	2.66		~200	
1038	6.69	56.1	7.14	-94	1.80	180	7.01			
1041	6.69	55.3	7.15	-105	1.83	179	5.00			
1044	6.70	54.5	7.13	-108	1.84	195	4.04			
1047	6.70	54.6	7.13	-109	1.84	193	3.79			
1050										
1053										
1056										

SAMPLE ID: MW-14-20

SAMPLE DATE: 5-16-22

SAMPLE TIME: 1055

Notes: _____

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/22

PERSONNEL: JDG

OBSERVERS: _____

SAMPLE LOCATION: MW-15-20

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: HDPE

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

DEPTH TO WATER LEVEL: 5.01

WELL DIAMETER: _____

CASING TYPE: PVC

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
0957	5.36	51.5	7.69	178	1.59	200	6.21	0.10		
1004	5.34	52.0	7.04	27	1.58	279	4.46	0.20		
1003	~~5.34~~ 5.34	52.7	7.02	-17	1.57	239	3.48	0.30		
1006	5.34	53.3	7.02	-25	1.57	269	3.15	0.40		
1009	5.34	53.6	7.02	-28	1.59	184	2.98	0.50		
1012	5.35	53.8	7.02	-32	1.65	109	2.85	0.60		

SAMPLE ID: MW 15-20

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1025

Notes: Started purge @ 9:56

PFAS Sampled @ 1030

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/2022 A.M.

PERSONNEL: DA

OBSERVERS: _____

SAMPLE LOCATION: MW-107

PROJECT #: M3460003

SITE NAME: FORMER MT. PLEASANT LANDFILL

SITE ADDRESS: _____

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: _____

DEPTH TO WATER LEVEL: 5.02'

WELL DIAMETER: _____

CASING TYPE: _____

MONITORING EQUIPMENT: _____

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			

SAMPLE ID: —

SAMPLE DATE: —

SAMPLE TIME: —

Notes: STATIC WATER LEVEL ONLY – NO GROUNDWATER SAMPLE COLLECTED.

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/2022 A.M.

PERSONNEL: DA

OBSERVERS: _____

SAMPLE LOCATION: MW-1-19

PROJECT #: M3460003

SITE NAME: FORMER MT. PLEASANT LANDFILL

SITE ADDRESS: _____

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: _____

DEPTH TO WATER LEVEL: 6.76'

WELL DIAMETER: _____

CASING TYPE: _____

MONITORING EQUIPMENT: _____

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			

SAMPLE ID: —

SAMPLE DATE: —

SAMPLE TIME: —

Notes: STATIC WATER LEVEL ONLY – NO GROUNDWATER SAMPLE COLLECTED.

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/2022 A.M.

PERSONNEL: DA

OBSERVERS: _____

SAMPLE LOCATION: MW-2-19

PROJECT #: M3460003

SITE NAME: FORMER MT. PLEASANT LANDFILL

SITE ADDRESS: _____

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: _____

DEPTH TO WATER LEVEL: 5.20'

WELL DIAMETER: _____

CASING TYPE: _____

MONITORING EQUIPMENT: _____

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			

SAMPLE ID: —

SAMPLE DATE: —

SAMPLE TIME: —

Notes: STATIC WATER LEVEL ONLY – NO GROUNDWATER SAMPLE COLLECTED.

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/2022 A.M.

PERSONNEL: DA

OBSERVERS: _____

SAMPLE LOCATION: MW-7-20

PROJECT #: M3460003

SITE NAME: FORMER MT. PLEASANT LANDFILL

SITE ADDRESS: _____

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: _____

DEPTH TO WATER LEVEL: 12.66'

WELL DIAMETER: _____

CASING TYPE: _____

MONITORING EQUIPMENT: _____

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			

SAMPLE ID: —

SAMPLE DATE: —

SAMPLE TIME: —

Notes: STATIC WATER LEVEL ONLY – NO GROUNDWATER SAMPLE COLLECTED.

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/2022 A.M.

PERSONNEL: DA

OBSERVERS: _____

SAMPLE LOCATION: MW-12-20

PROJECT #: M3460003

SITE NAME: FORMER MT. PLEASANT LANDFILL

SITE ADDRESS: _____

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: _____

DEPTH TO WATER LEVEL: 5.39'

WELL DIAMETER: _____

CASING TYPE: _____

MONITORING EQUIPMENT: _____

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			

SAMPLE ID: —

SAMPLE DATE: —

SAMPLE TIME: —

Notes: STATIC WATER LEVEL ONLY – NO GROUNDWATER SAMPLE COLLECTED.

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/2022 A.M.

PERSONNEL: DA

OBSERVERS: _____

SAMPLE LOCATION: MW-16-20

PROJECT #: M3460003

SITE NAME: FORMER MT. PLEASANT LANDFILL

SITE ADDRESS: _____

SITE CONDITIONS: _____

DEPTH OF WELL: _____

DEPTH TO WATER LEVEL: 6.52'

SCREEN LENGTH: _____

WELL DIAMETER: _____

TUBING TYPE: _____

CASING TYPE: _____

MONITORING EQUIPMENT: _____

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			

SAMPLE ID: —

SAMPLE DATE: —

SAMPLE TIME: —

Notes: STATIC WATER LEVEL ONLY – NO GROUNDWATER SAMPLE COLLECTED.

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/2022 A.M.

PERSONNEL: DA

OBSERVERS: _____

SAMPLE LOCATION: MW-17-20

PROJECT #: M3460003

SITE NAME: FORMER MT. PLEASANT LANDFILL

SITE ADDRESS: _____

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: _____

DEPTH TO WATER LEVEL: 7.29'

WELL DIAMETER: _____

CASING TYPE: _____

MONITORING EQUIPMENT: _____

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			

SAMPLE ID: —

SAMPLE DATE: —

SAMPLE TIME: —

Notes: STATIC WATER LEVEL ONLY – NO GROUNDWATER SAMPLE COLLECTED.

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Mannik Smith GROUP — TECHNICAL SKILL. CREATIVE SPIRIT. — www.MannikSmithGroup.com

DATE: 5/16/2022 A.M.

PERSONNEL: DA

OBSERVERS: _____

SAMPLE LOCATION: MW-X

PROJECT #: M3460003

SITE NAME: FORMER MT. PLEASANT LANDFILL

SITE ADDRESS: _____

SITE CONDITIONS: _____

DEPTH OF WELL: _____

SCREEN LENGTH: _____

TUBING TYPE: _____

DEPTH TO WATER LEVEL: 4.74

WELL DIAMETER: _____

CASING TYPE: _____

MONITORING EQUIPMENT: _____

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU)[2]	DO (mg/L)[1]	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			

SAMPLE ID: —

SAMPLE DATE: —

SAMPLE TIME: —

Notes: STATIC WATER LEVEL ONLY – NO GROUNDWATER SAMPLE COLLECTED.

[1] - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

[2] - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

APPENDIX D
LABORATORY ANALYTICAL REPORT (GROUNDWATER)

01-Jun-2022

Dave Adler
The Mannik & Smith Group, Inc.
2365 Haggerty Road South
Suite 100
Canton, MI 48188

Re: **Former Mount Pleasant Landfill** Work Order: **22051511**

Dear Dave,

ALS Environmental received 16 samples on 17-May-2022 11:50 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 143.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Julienn C. Williams

Electronically approved by: Julienn Williams

Julienn Williams
Project Manager

Report of Laboratory Analysis

ALS Group, USA

Date: 01-Jun-22

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Work Order: **22051511**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
22051511-01	MW-101	Groundwater		5/16/2022 15:00	5/17/2022 23:50	☐
22051511-02	MW-102	Groundwater		5/16/2022 14:46	5/17/2022 23:50	☐
22051511-03	MW-103	Groundwater		5/16/2022 12:49	5/17/2022 23:50	☐
22051511-04	MW-104	Groundwater		5/16/2022 13:02	5/17/2022 23:50	☐
22051511-05	MW-105	Groundwater		5/16/2022 13:42	5/17/2022 23:50	☐
22051511-06	MW-106	Groundwater		5/16/2022 14:10	5/17/2022 23:50	☐
22051511-07	MW-200	Groundwater		5/16/2022 15:55	5/17/2022 23:50	☐
22051511-08	MW-201	Groundwater		5/16/2022 16:45	5/17/2022 23:50	☐
22051511-09	MW-202	Groundwater		5/16/2022 11:45	5/17/2022 23:50	☐
22051511-10	MW-10-20	Groundwater		5/16/2022 15:53	5/17/2022 23:50	☐
22051511-11	MW-14-20	Groundwater		5/16/2022 10:55	5/17/2022 23:50	☐
22051511-12	MW-15-20	Groundwater		5/16/2022 10:25	5/17/2022 23:50	☐
22051511-13	Field Blank	Groundwater		5/16/2022 15:45	5/17/2022 23:50	☐
22051511-14	DUP	Groundwater		5/16/2022	5/17/2022 23:50	☐
22051511-15	Trip Blank	Water		5/16/2022	5/17/2022 23:50	☐
22051511-16	MW-109	Groundwater		5/16/2022	5/17/2022 23:50	☐

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
WorkOrder: **22051511**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
ng/L	Nanograms per Liter

Client:	The Mannik & Smith Group, Inc.
Project:	Former Mount Pleasant Landfill
Work Order:	22051511

Case Narrative

The attached "Sample Receipt Checklist" documents the date of receipt, status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. A copy of the laboratory's scope of accreditation is available upon request.

Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

Any flags on MS/MSD samples not addressed in this narrative are unrelated to samples in this report.

With the following exceptions, all sample analyses achieved analytical criteria.

Batch 196707, Method E537 Mod, Sample MW-15-20 (22051511-12E): EIS01: 13C2-PFHxDA_IS failed low.

Batch 196606, Method E537 Mod, Sample MW-102 (22051511-02E): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS, 13C2-6_2-FTS_IS

Batch 196606, Method E537 Mod, Sample MW-105 (22051511-05E): One or more surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is needed. 13C2-FtS 4:2

Batch 196707, Method E537 Mod, Sample MW-201 (22051511-08E): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. d3-N-MeFOSAA_IS

Batch 196707, Method E537 Mod, Sample MW-201 (22051511-08E): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. d3-N-MeFOSAA

Batch 196707, Method E537 Mod, Sample MW-202 (22051511-09E): The extracted internal

standard response was outside recovery criteria with low bias; sample results may exhibit bias. d7-N-MeFOSE_IS

Batch 196707, Method E537 Mod, Sample MW-202 (22051511-09E): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS, 13C2-6_2-FTS_IS

Batch 196707, Method E537 Mod, Sample MW-10-20 (22051511-10E): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. d5-N-EtFOSAA_IS, 13C-FOSA_IS, d7-N-MeFOSE_IS

Batch 196707, Method E537 Mod, Sample MW-10-20 (22051511-10E): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS

Batch 196707, Method E537 Mod, Sample MW-14-20 (22051511-11E): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS

Batch 196707, Method E537 Mod, Sample MW-15-20 (22051511-12E): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: d3-N-MeFOSAA (target passes in CCV)

Batch 196707, Method E537 Mod, Sample MW-15-20 (22051511-12E): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. d3-N-MeFOSAA_IS, d5-N-EtFOSAA_IS, d5-NEtFOSA_IS, d9-EtFOSE_IS, d7-N-MeFOSE_IS, 13C-PFTeDA_IS

Batch 196707, Method E537 Mod, Sample Field Blank (22051511-13A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: d3-N-MeFOSAA (target passes in CCV)

Batch 196707, Method E537 Mod, Sample Field Blank (22051511-13A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. d5-N-EtFOSAA_IS, 13C-FOSA_IS, d7-N-MeFOSE_IS

Batch 196707, Method E537 Mod, Sample DUP (22051511-14E): The Continuing Calibration Verification did not meet acceptance criteria with high bias, however, the sample results were non-detect for the following analytes: 11Cl-Pf3OUdS, FTS 10:2

Batch 196707, Method E537 Mod, Sample DUP (22051511-14E): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit

bias. d3-N-MeFOSAA_IS, 13C-PFUnDA_IS, d5-N-EtFOSAA_IS, 13C-FOSA_IS, 13C-PFDoA_IS, d7-N-MeFOSE_IS

Batch 196707, Method E537 Mod, Sample DUP (22051511-14E): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. d3-N-MeFOSAA

Batch 196707, Method E537 Mod, Sample MW-109 (22051511-16E): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. d3-N-MeFOSAA_IS, d5-N-EtFOSAA_IS, 13C-FOSA_IS, 13C-PFDoA_IS, d7-N-MeFOSE_IS, 13C-PFTeDA_IS

Batch 196624, Method SW846 8270D, Sample SLCSDW1-196624: The RPD between the LCS and LCSD was outside of the control limit. The sample results should be considered estimated for this analyte: 2,4-Dinitrophenol

Batch 196747, Method SW6020B, Sample 22051511-01DMS: The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Al, Zn

Batch 196747, Method SW6020B, Sample 22051511-01DMSD: The RPD between the MS and MSD was outside of the control limit. The corresponding result should be considered estimated for this compound: Al, Zn

ALS Group, USA

Date: *01-Jun-2022*

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Work Order: 22051511
Sample ID: MW-101
Lab ID: 22051511-01
Collection Date: 5/16/2022 03:00 PM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 05:26 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Surr: Decachlorobiphenyl	*102*		*42-153*	*%REC*	1	5/21/2022 05:26 AM
Surr: Tetrachloro-m-xylene	*88.9*		*48-127*	*%REC*	1	5/21/2022 05:26 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:29 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	**0.015**		**0.010**	**mg/L**	1	5/23/2022 07:10 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Barium	**0.097**		**0.0050**	**mg/L**	1	5/23/2022 07:10 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:10 PM
Boron	**0.30**		**0.020**	**mg/L**	1	5/23/2022 07:10 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:10 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:10 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/20/22 18:04	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorobutanesulfonic Acid (PFBS)	**6.5**		**4.8**	**ng/L**	1	5/27/2022 03:30 PM
Perfluorobutanoic Acid (PFBA)	**15**		**4.8**	**ng/L**	1	5/27/2022 03:30 PM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.8	ng/L	1	5/27/2022 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-101 **Lab ID:** 22051511-01
Collection Date: 5/16/2022 03:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorododecanoic Acid (PFDoA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluoroheptanoic Acid (PFHpA)	**8.6**		**4.8**	**ng/L**	1	5/27/2022 03:30 PM
Perfluorohexanesulfonic Acid (PFHxS)	**51**		**4.8**	**ng/L**	1	5/27/2022 03:30 PM
Perfluorohexanoic Acid (PFHxA)	**8.2**		**4.8**	**ng/L**	1	5/27/2022 03:30 PM
Perfluorononanesulfonic Acid (PFNS)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorononanoic Acid (PFNA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorooctanesulfonamide (PFOSA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorooctanesulfonic Acid (PFOS)	**45**		**1.9**	**ng/L**	1	5/27/2022 03:30 PM
Perfluorooctanoic Acid (PFOA)	**37**		**1.9**	**ng/L**	1	5/27/2022 03:30 PM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluoropentanoic Acid (PFPeA)	**5.8**		**4.8**	**ng/L**	1	5/27/2022 03:30 PM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorotridecanoic Acid (PFTriA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluoroundecanoic Acid (PFUnA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.8	ng/L	1	5/27/2022 03:30 PM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
11Cl-Pf3OUdS	ND		4.8	ng/L	1	5/27/2022 03:30 PM
9Cl-PF3ONS	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Surr: 13C2-FtS 4:2	*108*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C2-FtS 6:2	*96.0*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C2-FtS 8:2	*74.6*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C2-PFDA	*62.9*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C2-PFDoA	*53.3*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C2-PFHxA	*82.2*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C2-PFTeA	*82.0*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C2-PFUnA	*67.2*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C3-HFPO-DA	*54.2*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C3-PFBS	*76.2*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C4-PFBA	*70.9*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C4-PFHpA	*58.1*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C4-PFOA	*66.5*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C4-PFOS	*71.9*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C5-PFNA	*73.6*		*50-150*	*%REC*	1	5/27/2022 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-101 **Lab ID:** 22051511-01
Collection Date: 5/16/2022 03:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*73.7*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 13C8-FOSA	*69.6*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: 18O2-PFHxS	*67.8*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: d5-N-EtFOSAA	*59.6*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
Surr: d3-N-MeFOSAA	*63.8*		*50-150*	*%REC*	1	5/27/2022 03:30 PM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		20	µg/L	1	5/20/2022 07:41 PM
2,4,5-Trichlorophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2,4,6-Trichlorophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2,4-Dichlorophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2,4-Dimethylphenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2,4-Dinitrophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2,4-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 07:41 PM
2,6-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 07:41 PM
2-Chloronaphthalene	ND		20	µg/L	1	5/20/2022 07:41 PM
2-Chlorophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2-Methylnaphthalene	ND		20	µg/L	1	5/20/2022 07:41 PM
2-Methylphenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2-Nitroaniline	ND		20	µg/L	1	5/20/2022 07:41 PM
2-Nitrophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
3&4-Methylphenol	ND		20	µg/L	1	5/20/2022 07:41 PM
3,3´-Dichlorobenzidine	ND		20	µg/L	1	5/20/2022 07:41 PM
3-Nitroaniline	ND		20	µg/L	1	5/20/2022 07:41 PM
4,6-Dinitro-2-methylphenol	ND		20	µg/L	1	5/20/2022 07:41 PM
4-Bromophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 07:41 PM
4-Chloro-3-methylphenol	ND		20	µg/L	1	5/20/2022 07:41 PM
4-Chloroaniline	ND		20	µg/L	1	5/20/2022 07:41 PM
4-Chlorophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 07:41 PM
4-Nitroaniline	ND		20	µg/L	1	5/20/2022 07:41 PM
4-Nitrophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
Acenaphthene	ND		20	µg/L	1	5/20/2022 07:41 PM
Acenaphthylene	ND		20	µg/L	1	5/20/2022 07:41 PM
Acetophenone	ND		4.0	µg/L	1	5/20/2022 07:41 PM
Anthracene	ND		20	µg/L	1	5/20/2022 07:41 PM
Atrazine	ND		4.0	µg/L	1	5/20/2022 07:41 PM
Benzaldehyde	ND		4.0	µg/L	1	5/20/2022 07:41 PM
Benzo(a)anthracene	ND		20	µg/L	1	5/20/2022 07:41 PM
Benzo(a)pyrene	ND		20	µg/L	1	5/20/2022 07:41 PM
Benzo(b)fluoranthene	ND		20	µg/L	1	5/20/2022 07:41 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-101 **Lab ID:** 22051511-01
Collection Date: 5/16/2022 03:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		20	µg/L	1	5/20/2022 07:41 PM
Benzo(k)fluoranthene	ND		20	µg/L	1	5/20/2022 07:41 PM
Bis(2-chloroethoxy)methane	ND		20	µg/L	1	5/20/2022 07:41 PM
Bis(2-chloroethyl)ether	ND		20	µg/L	1	5/20/2022 07:41 PM
Bis(2-chloroisopropyl)ether	ND		20	µg/L	1	5/20/2022 07:41 PM
Bis(2-ethylhexyl)phthalate	ND		20	µg/L	1	5/20/2022 07:41 PM
Butyl benzyl phthalate	ND		20	µg/L	1	5/20/2022 07:41 PM
Caprolactam	ND		40	µg/L	1	5/20/2022 07:41 PM
Carbazole	ND		20	µg/L	1	5/20/2022 07:41 PM
Chrysene	ND		20	µg/L	1	5/20/2022 07:41 PM
Dibenzo(a,h)anthracene	ND		20	µg/L	1	5/20/2022 07:41 PM
Dibenzofuran	ND		20	µg/L	1	5/20/2022 07:41 PM
Diethyl phthalate	ND		20	µg/L	1	5/20/2022 07:41 PM
Dimethyl phthalate	ND		20	µg/L	1	5/20/2022 07:41 PM
Di-n-butyl phthalate	ND		20	µg/L	1	5/20/2022 07:41 PM
Di-n-octyl phthalate	ND		20	µg/L	1	5/20/2022 07:41 PM
Fluoranthene	ND		20	µg/L	1	5/20/2022 07:41 PM
Fluorene	ND		20	µg/L	1	5/20/2022 07:41 PM
Hexachlorobenzene	ND		20	µg/L	1	5/20/2022 07:41 PM
Hexachlorobutadiene	ND		20	µg/L	1	5/20/2022 07:41 PM
Hexachlorocyclopentadiene	ND		20	µg/L	1	5/20/2022 07:41 PM
Hexachloroethane	ND		20	µg/L	1	5/20/2022 07:41 PM
Indeno(1,2,3-cd)pyrene	ND		20	µg/L	1	5/20/2022 07:41 PM
Isophorone	ND		20	µg/L	1	5/20/2022 07:41 PM
Naphthalene	ND		20	µg/L	1	5/20/2022 07:41 PM
Nitrobenzene	ND		20	µg/L	1	5/20/2022 07:41 PM
N-Nitrosodi-n-propylamine	ND		20	µg/L	1	5/20/2022 07:41 PM
N-Nitrosodiphenylamine	ND		20	µg/L	1	5/20/2022 07:41 PM
Pentachlorophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
Phenanthrene	ND		20	µg/L	1	5/20/2022 07:41 PM
Phenol	ND		20	µg/L	1	5/20/2022 07:41 PM
Pyrene	ND		20	µg/L	1	5/20/2022 07:41 PM
Surr: 2,4,6-Tribromophenol	*68.5*		*27-83*	*%REC*	1	5/20/2022 07:41 PM
Surr: 2-Fluorobiphenyl	*61.3*		*26-79*	*%REC*	1	5/20/2022 07:41 PM
Surr: 2-Fluorophenol	*41.4*		*13-56*	*%REC*	1	5/20/2022 07:41 PM
Surr: 4-Terphenyl-d14	*80.4*		*43-106*	*%REC*	1	5/20/2022 07:41 PM
Surr: Nitrobenzene-d5	*62.0*		*29-80*	*%REC*	1	5/20/2022 07:41 PM
Surr: Phenol-d6	*29.2*		*10-35*	*%REC*	1	5/20/2022 07:41 PM

VOLATILE ORGANIC COMPOUNDS **SW8260C** Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-101 **Lab ID:** 22051511-01
Collection Date: 5/16/2022 03:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 12:06 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 12:06 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Acetone	ND		10	µg/L	1	5/20/2022 12:06 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 12:06 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 12:06 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 12:06 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 12:06 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-101 **Lab ID:** 22051511-01
Collection Date: 5/16/2022 03:00 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 12:06 AM
Surr: 1,2-Dichloroethane-d4	*102*		*75-120*	*%REC*	1	5/20/2022 12:06 AM
Surr: 4-Bromofluorobenzene	*87.2*		*80-110*	*%REC*	1	5/20/2022 12:06 AM
Surr: Dibromofluoromethane	*107*		*85-115*	*%REC*	1	5/20/2022 12:06 AM
Surr: Toluene-d8	*100*		*85-110*	*%REC*	1	5/20/2022 12:06 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-102 **Lab ID:** 22051511-02
Collection Date: 5/16/2022 02:46 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 05:39 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Surr: Decachlorobiphenyl	*73.3*		*42-153*	*%REC*	1	5/21/2022 05:39 AM
Surr: Tetrachloro-m-xylene	*85.3*		*48-127*	*%REC*	1	5/21/2022 05:39 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:31 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	ND		0.010	mg/L	1	5/23/2022 07:15 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Arsenic	**0.0054**		**0.0050**	**mg/L**	1	5/23/2022 07:15 PM
Barium	**0.18**		**0.0050**	**mg/L**	1	5/23/2022 07:15 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:15 PM
Boron	**0.58**		**0.020**	**mg/L**	1	5/23/2022 07:15 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:15 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 04:55 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/20/22 18:04	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorobutanesulfonic Acid (PFBS)	**27**		**4.8**	**ng/L**	1	5/25/2022 04:56 AM
Perfluorobutanoic Acid (PFBA)	**31**		**4.8**	**ng/L**	1	5/25/2022 04:56 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.8	ng/L	1	5/25/2022 04:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-102 **Lab ID:** 22051511-02
Collection Date: 5/16/2022 02:46 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluoroheptanesulfonic Acid (PFHpS)	**6.0**		**4.8**	**ng/L**	1	5/25/2022 04:56 AM
Perfluoroheptanoic Acid (PFHpA)	**32**		**4.8**	**ng/L**	1	5/25/2022 04:56 AM
Perfluorohexanesulfonic Acid (PFHxS)	**50**		**4.8**	**ng/L**	1	5/25/2022 04:56 AM
Perfluorohexanoic Acid (PFHxA)	**38**		**4.8**	**ng/L**	1	5/25/2022 04:56 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorononanoic Acid (PFNA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorooctanesulfonic Acid (PFOS)	**83**		**1.9**	**ng/L**	1	5/25/2022 04:56 AM
Perfluorooctanoic Acid (PFOA)	**92**		**1.9**	**ng/L**	1	5/25/2022 04:56 AM
Perfluoropentanesulfonic Acid (PFPeS)	**31**		**4.8**	**ng/L**	1	5/25/2022 04:56 AM
Perfluoropentanoic Acid (PFPeA)	**15**		**4.8**	**ng/L**	1	5/25/2022 04:56 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.8	ng/L	1	5/25/2022 04:56 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
11Cl-Pf3OUdS	ND		4.8	ng/L	1	5/25/2022 04:56 AM
9Cl-PF3ONS	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Surr: 13C2-FtS 4:2	*284*	S	*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C2-FtS 6:2	*264*	S	*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C2-FtS 8:2	*139*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C2-PFDA	*77.8*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C2-PFDoA	*74.0*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C2-PFHxA	*76.1*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C2-PFTeA	*91.4*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C2-PFUnA	*68.3*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C3-HFPO-DA	*62.2*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C3-PFBS	*68.7*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C4-PFBA	*72.6*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C4-PFHpA	*75.5*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C4-PFOA	*86.1*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C4-PFOS	*70.8*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C5-PFNA	*77.1*		*50-150*	*%REC*	1	5/25/2022 04:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-102 **Lab ID:** 22051511-02
Collection Date: 5/16/2022 02:46 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*69.4*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 13C8-FOSA	*62.0*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: 18O2-PFHxS	*59.4*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: d5-N-EtFOSAA	*84.6*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
Surr: d3-N-MeFOSAA	*84.1*		*50-150*	*%REC*	1	5/25/2022 04:56 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		21	µg/L	1	5/20/2022 08:02 PM
2,4,5-Trichlorophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2,4,6-Trichlorophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2,4-Dichlorophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2,4-Dimethylphenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2,4-Dinitrophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2,4-Dinitrotoluene	ND		21	µg/L	1	5/20/2022 08:02 PM
2,6-Dinitrotoluene	ND		21	µg/L	1	5/20/2022 08:02 PM
2-Chloronaphthalene	ND		21	µg/L	1	5/20/2022 08:02 PM
2-Chlorophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2-Methylnaphthalene	ND		21	µg/L	1	5/20/2022 08:02 PM
2-Methylphenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2-Nitroaniline	ND		21	µg/L	1	5/20/2022 08:02 PM
2-Nitrophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
3&4-Methylphenol	ND		21	µg/L	1	5/20/2022 08:02 PM
3,3´-Dichlorobenzidine	ND		21	µg/L	1	5/20/2022 08:02 PM
3-Nitroaniline	ND		21	µg/L	1	5/20/2022 08:02 PM
4,6-Dinitro-2-methylphenol	ND		21	µg/L	1	5/20/2022 08:02 PM
4-Bromophenyl phenyl ether	ND		21	µg/L	1	5/20/2022 08:02 PM
4-Chloro-3-methylphenol	ND		21	µg/L	1	5/20/2022 08:02 PM
4-Chloroaniline	ND		21	µg/L	1	5/20/2022 08:02 PM
4-Chlorophenyl phenyl ether	ND		21	µg/L	1	5/20/2022 08:02 PM
4-Nitroaniline	ND		21	µg/L	1	5/20/2022 08:02 PM
4-Nitrophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
Acenaphthene	ND		21	µg/L	1	5/20/2022 08:02 PM
Acenaphthylene	ND		21	µg/L	1	5/20/2022 08:02 PM
Acetophenone	ND		4.1	µg/L	1	5/20/2022 08:02 PM
Anthracene	ND		21	µg/L	1	5/20/2022 08:02 PM
Atrazine	ND		4.1	µg/L	1	5/20/2022 08:02 PM
Benzaldehyde	ND		4.1	µg/L	1	5/20/2022 08:02 PM
Benzo(a)anthracene	ND		21	µg/L	1	5/20/2022 08:02 PM
Benzo(a)pyrene	ND		21	µg/L	1	5/20/2022 08:02 PM
Benzo(b)fluoranthene	ND		21	µg/L	1	5/20/2022 08:02 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-102 **Lab ID:** 22051511-02
Collection Date: 5/16/2022 02:46 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		21	µg/L	1	5/20/2022 08:02 PM
Benzo(k)fluoranthene	ND		21	µg/L	1	5/20/2022 08:02 PM
Bis(2-chloroethoxy)methane	ND		21	µg/L	1	5/20/2022 08:02 PM
Bis(2-chloroethyl)ether	ND		21	µg/L	1	5/20/2022 08:02 PM
Bis(2-chloroisopropyl)ether	ND		21	µg/L	1	5/20/2022 08:02 PM
Bis(2-ethylhexyl)phthalate	ND		21	µg/L	1	5/20/2022 08:02 PM
Butyl benzyl phthalate	ND		21	µg/L	1	5/20/2022 08:02 PM
Caprolactam	ND		41	µg/L	1	5/20/2022 08:02 PM
Carbazole	ND		21	µg/L	1	5/20/2022 08:02 PM
Chrysene	ND		21	µg/L	1	5/20/2022 08:02 PM
Dibenzo(a,h)anthracene	ND		21	µg/L	1	5/20/2022 08:02 PM
Dibenzofuran	ND		21	µg/L	1	5/20/2022 08:02 PM
Diethyl phthalate	ND		21	µg/L	1	5/20/2022 08:02 PM
Dimethyl phthalate	ND		21	µg/L	1	5/20/2022 08:02 PM
Di-n-butyl phthalate	ND		21	µg/L	1	5/20/2022 08:02 PM
Di-n-octyl phthalate	ND		21	µg/L	1	5/20/2022 08:02 PM
Fluoranthene	ND		21	µg/L	1	5/20/2022 08:02 PM
Fluorene	ND		21	µg/L	1	5/20/2022 08:02 PM
Hexachlorobenzene	ND		21	µg/L	1	5/20/2022 08:02 PM
Hexachlorobutadiene	ND		21	µg/L	1	5/20/2022 08:02 PM
Hexachlorocyclopentadiene	ND		21	µg/L	1	5/20/2022 08:02 PM
Hexachloroethane	ND		21	µg/L	1	5/20/2022 08:02 PM
Indeno(1,2,3-cd)pyrene	ND		21	µg/L	1	5/20/2022 08:02 PM
Isophorone	ND		21	µg/L	1	5/20/2022 08:02 PM
Naphthalene	ND		21	µg/L	1	5/20/2022 08:02 PM
Nitrobenzene	ND		21	µg/L	1	5/20/2022 08:02 PM
N-Nitrosodi-n-propylamine	ND		21	µg/L	1	5/20/2022 08:02 PM
N-Nitrosodiphenylamine	ND		21	µg/L	1	5/20/2022 08:02 PM
Pentachlorophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
Phenanthrene	ND		21	µg/L	1	5/20/2022 08:02 PM
Phenol	ND		21	µg/L	1	5/20/2022 08:02 PM
Pyrene	ND		21	µg/L	1	5/20/2022 08:02 PM
Surr: 2,4,6-Tribromophenol	*73.4*		*27-83*	*%REC*	1	5/20/2022 08:02 PM
Surr: 2-Fluorobiphenyl	*62.8*		*26-79*	*%REC*	1	5/20/2022 08:02 PM
Surr: 2-Fluorophenol	*41.7*		*13-56*	*%REC*	1	5/20/2022 08:02 PM
Surr: 4-Terphenyl-d14	*85.7*		*43-106*	*%REC*	1	5/20/2022 08:02 PM
Surr: Nitrobenzene-d5	*64.0*		*29-80*	*%REC*	1	5/20/2022 08:02 PM
Surr: Phenol-d6	*27.4*		*10-35*	*%REC*	1	5/20/2022 08:02 PM

VOLATILE ORGANIC COMPOUNDS **SW8260C** Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-102 **Lab ID:** 22051511-02
Collection Date: 5/16/2022 02:46 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 12:24 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 12:24 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Acetone	ND		10	µg/L	1	5/20/2022 12:24 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 12:24 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 12:24 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 12:24 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 12:24 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-102 **Lab ID:** 22051511-02
Collection Date: 5/16/2022 02:46 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 12:24 AM
Surr: 1,2-Dichloroethane-d4	*106*		*75-120*	*%REC*	1	5/20/2022 12:24 AM
Surr: 4-Bromofluorobenzene	*95.6*		*80-110*	*%REC*	1	5/20/2022 12:24 AM
Surr: Dibromofluoromethane	*101*		*85-115*	*%REC*	1	5/20/2022 12:24 AM
Surr: Toluene-d8	*103*		*85-110*	*%REC*	1	5/20/2022 12:24 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-103 **Lab ID:** 22051511-03
Collection Date: 5/16/2022 12:49 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 05:52 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Surr: Decachlorobiphenyl	*111*		*42-153*	*%REC*	1	5/21/2022 05:52 AM
Surr: Tetrachloro-m-xylene	*92.1*		*48-127*	*%REC*	1	5/21/2022 05:52 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:33 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	ND		0.010	mg/L	1	5/23/2022 07:20 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Arsenic	**0.025**		**0.0050**	**mg/L**	1	5/23/2022 07:20 PM
Barium	**0.057**		**0.0050**	**mg/L**	1	5/23/2022 07:20 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:20 PM
Boron	**0.16**		**0.020**	**mg/L**	1	5/23/2022 07:20 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:20 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:20 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/20/22 18:04	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorobutanesulfonic Acid (PFBS)	**7.3**		**4.9**	**ng/L**	1	5/25/2022 05:04 AM
Perfluorobutanoic Acid (PFBA)	**40**		**4.9**	**ng/L**	1	5/25/2022 05:04 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/25/2022 05:04 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-103 **Lab ID:** 22051511-03
Collection Date: 5/16/2022 12:49 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluoroheptanoic Acid (PFHpA)	**6.9**		**4.9**	**ng/L**	1	5/25/2022 05:04 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorohexanoic Acid (PFHxA)	**19**		**4.9**	**ng/L**	1	5/25/2022 05:04 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		1.9	ng/L	1	5/25/2022 05:04 AM
Perfluorooctanoic Acid (PFOA)	**4.8**		**1.9**	**ng/L**	1	5/25/2022 05:04 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluoropentanoic Acid (PFPeA)	**7.2**		**4.9**	**ng/L**	1	5/25/2022 05:04 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 05:04 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/25/2022 05:04 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Surr: 13C2-FtS 4:2	*124*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C2-FtS 6:2	*89.3*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C2-FtS 8:2	*115*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C2-PFDA	*71.3*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C2-PFDoA	*64.4*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C2-PFHxA	*65.5*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C2-PFTeA	*76.5*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C2-PFUnA	*95.3*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C3-HFPO-DA	*58.6*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C3-PFBS	*77.0*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C4-PFBA	*81.2*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C4-PFHpA	*102*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C4-PFOA	*98.0*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C4-PFOS	*70.1*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C5-PFNA	*96.2*		*50-150*	*%REC*	1	5/25/2022 05:04 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-103 **Lab ID:** 22051511-03
Collection Date: 5/16/2022 12:49 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*73.9*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 13C8-FOSA	*87.8*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: 18O2-PFHxS	*84.7*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: d5-N-EtFOSAA	*123*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
Surr: d3-N-MeFOSAA	*68.1*		*50-150*	*%REC*	1	5/25/2022 05:04 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		19	µg/L	1	5/20/2022 08:23 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 08:23 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 08:23 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 08:23 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 08:23 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 08:23 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 08:23 PM
3,3´-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 08:23 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 08:23 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 08:23 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 08:23 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 08:23 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 08:23 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 08:23 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 08:23 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 08:23 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 08:23 PM
Acetophenone	ND		3.8	µg/L	1	5/20/2022 08:23 PM
Anthracene	ND		19	µg/L	1	5/20/2022 08:23 PM
Atrazine	ND		3.8	µg/L	1	5/20/2022 08:23 PM
Benzaldehyde	ND		3.8	µg/L	1	5/20/2022 08:23 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 08:23 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 08:23 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 08:23 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-103 **Lab ID:** 22051511-03
Collection Date: 5/16/2022 12:49 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 08:23 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 08:23 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 08:23 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 08:23 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 08:23 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 08:23 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 08:23 PM
Caprolactam	ND		38	µg/L	1	5/20/2022 08:23 PM
Carbazole	ND		19	µg/L	1	5/20/2022 08:23 PM
Chrysene	ND		19	µg/L	1	5/20/2022 08:23 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 08:23 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 08:23 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 08:23 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 08:23 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 08:23 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 08:23 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 08:23 PM
Fluorene	ND		19	µg/L	1	5/20/2022 08:23 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 08:23 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 08:23 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 08:23 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 08:23 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 08:23 PM
Isophorone	ND		19	µg/L	1	5/20/2022 08:23 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 08:23 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 08:23 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 08:23 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 08:23 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 08:23 PM
Phenol	ND		19	µg/L	1	5/20/2022 08:23 PM
Pyrene	ND		19	µg/L	1	5/20/2022 08:23 PM
Surr: 2,4,6-Tribromophenol	*71.4*		*27-83*	*%REC*	1	5/20/2022 08:23 PM
Surr: 2-Fluorobiphenyl	*64.3*		*26-79*	*%REC*	1	5/20/2022 08:23 PM
Surr: 2-Fluorophenol	*42.6*		*13-56*	*%REC*	1	5/20/2022 08:23 PM
Surr: 4-Terphenyl-d14	*77.2*		*43-106*	*%REC*	1	5/20/2022 08:23 PM
Surr: Nitrobenzene-d5	*62.4*		*29-80*	*%REC*	1	5/20/2022 08:23 PM
Surr: Phenol-d6	*28.3*		*10-35*	*%REC*	1	5/20/2022 08:23 PM

VOLATILE ORGANIC COMPOUNDS **SW8260C** Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-103 **Lab ID:** 22051511-03
Collection Date: 5/16/2022 12:49 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 12:43 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 12:43 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Acetone	ND		10	µg/L	1	5/20/2022 12:43 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 12:43 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 12:43 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 12:43 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 12:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-103 **Lab ID:** 22051511-03
Collection Date: 5/16/2022 12:49 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 12:43 AM
Surr: 1,2-Dichloroethane-d4	*98.2*		*75-120*	*%REC*	1	5/20/2022 12:43 AM
Surr: 4-Bromofluorobenzene	*98.0*		*80-110*	*%REC*	1	5/20/2022 12:43 AM
Surr: Dibromofluoromethane	*105*		*85-115*	*%REC*	1	5/20/2022 12:43 AM
Surr: Toluene-d8	*107*		*85-110*	*%REC*	1	5/20/2022 12:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-104 **Lab ID:** 22051511-04
Collection Date: 5/16/2022 01:02 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 06:04 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Surr: Decachlorobiphenyl	*99.1*		*42-153*	*%REC*	1	5/21/2022 06:04 AM
Surr: Tetrachloro-m-xylene	*91.4*		*48-127*	*%REC*	1	5/21/2022 06:04 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:34 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	**0.029**		**0.010**	**mg/L**	1	5/23/2022 07:22 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Barium	**0.086**		**0.0050**	**mg/L**	1	5/23/2022 07:22 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:22 PM
Boron	**0.025**		**0.020**	**mg/L**	1	5/23/2022 07:22 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:22 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 04:57 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/20/22 18:04	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorobutanesulfonic Acid (PFBS)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorobutanoic Acid (PFBA)	**13**		**4.9**	**ng/L**	1	5/25/2022 05:13 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/25/2022 05:13 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-104 **Lab ID:** 22051511-04
Collection Date: 5/16/2022 01:02 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorohexanoic Acid (PFHxA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		2.0	ng/L	1	5/25/2022 05:13 AM
Perfluorooctanoic Acid (PFOA)	ND		2.0	ng/L	1	5/25/2022 05:13 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 05:13 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/25/2022 05:13 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Surr: 13C2-FtS 4:2	*112*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C2-FtS 6:2	*108*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C2-FtS 8:2	*115*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C2-PFDA	*86.9*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C2-PFDoA	*81.4*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C2-PFHxA	*87.9*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C2-PFTeA	*88.7*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C2-PFUnA	*96.5*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C3-HFPO-DA	*81.3*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C3-PFBS	*84.5*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C4-PFBA	*95.8*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C4-PFHpA	*94.4*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C4-PFOA	*96.6*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C4-PFOS	*85.8*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C5-PFNA	*117*		*50-150*	*%REC*	1	5/25/2022 05:13 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-104 **Lab ID:** 22051511-04
Collection Date: 5/16/2022 01:02 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*91.5*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 13C8-FOSA	*121*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: 18O2-PFHxS	*109*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: d5-N-EtFOSAA	*129*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
Surr: d3-N-MeFOSAA	*92.0*		*50-150*	*%REC*	1	5/25/2022 05:13 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		20	µg/L	1	5/20/2022 08:43 PM
2,4,5-Trichlorophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2,4,6-Trichlorophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2,4-Dichlorophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2,4-Dimethylphenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2,4-Dinitrophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2,4-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 08:43 PM
2,6-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 08:43 PM
2-Chloronaphthalene	ND		20	µg/L	1	5/20/2022 08:43 PM
2-Chlorophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2-Methylnaphthalene	ND		20	µg/L	1	5/20/2022 08:43 PM
2-Methylphenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2-Nitroaniline	ND		20	µg/L	1	5/20/2022 08:43 PM
2-Nitrophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
3&4-Methylphenol	ND		20	µg/L	1	5/20/2022 08:43 PM
3,3´-Dichlorobenzidine	ND		20	µg/L	1	5/20/2022 08:43 PM
3-Nitroaniline	ND		20	µg/L	1	5/20/2022 08:43 PM
4,6-Dinitro-2-methylphenol	ND		20	µg/L	1	5/20/2022 08:43 PM
4-Bromophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 08:43 PM
4-Chloro-3-methylphenol	ND		20	µg/L	1	5/20/2022 08:43 PM
4-Chloroaniline	ND		20	µg/L	1	5/20/2022 08:43 PM
4-Chlorophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 08:43 PM
4-Nitroaniline	ND		20	µg/L	1	5/20/2022 08:43 PM
4-Nitrophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
Acenaphthene	ND		20	µg/L	1	5/20/2022 08:43 PM
Acenaphthylene	ND		20	µg/L	1	5/20/2022 08:43 PM
Acetophenone	ND		4.1	µg/L	1	5/20/2022 08:43 PM
Anthracene	ND		20	µg/L	1	5/20/2022 08:43 PM
Atrazine	ND		4.1	µg/L	1	5/20/2022 08:43 PM
Benzaldehyde	ND		4.1	µg/L	1	5/20/2022 08:43 PM
Benzo(a)anthracene	ND		20	µg/L	1	5/20/2022 08:43 PM
Benzo(a)pyrene	ND		20	µg/L	1	5/20/2022 08:43 PM
Benzo(b)fluoranthene	ND		20	µg/L	1	5/20/2022 08:43 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-104 **Lab ID:** 22051511-04
Collection Date: 5/16/2022 01:02 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		20	µg/L	1	5/20/2022 08:43 PM
Benzo(k)fluoranthene	ND		20	µg/L	1	5/20/2022 08:43 PM
Bis(2-chloroethoxy)methane	ND		20	µg/L	1	5/20/2022 08:43 PM
Bis(2-chloroethyl)ether	ND		20	µg/L	1	5/20/2022 08:43 PM
Bis(2-chloroisopropyl)ether	ND		20	µg/L	1	5/20/2022 08:43 PM
Bis(2-ethylhexyl)phthalate	ND		20	µg/L	1	5/20/2022 08:43 PM
Butyl benzyl phthalate	ND		20	µg/L	1	5/20/2022 08:43 PM
Caprolactam	ND		41	µg/L	1	5/20/2022 08:43 PM
Carbazole	ND		20	µg/L	1	5/20/2022 08:43 PM
Chrysene	ND		20	µg/L	1	5/20/2022 08:43 PM
Dibenzo(a,h)anthracene	ND		20	µg/L	1	5/20/2022 08:43 PM
Dibenzofuran	ND		20	µg/L	1	5/20/2022 08:43 PM
Diethyl phthalate	ND		20	µg/L	1	5/20/2022 08:43 PM
Dimethyl phthalate	ND		20	µg/L	1	5/20/2022 08:43 PM
Di-n-butyl phthalate	ND		20	µg/L	1	5/20/2022 08:43 PM
Di-n-octyl phthalate	ND		20	µg/L	1	5/20/2022 08:43 PM
Fluoranthene	ND		20	µg/L	1	5/20/2022 08:43 PM
Fluorene	ND		20	µg/L	1	5/20/2022 08:43 PM
Hexachlorobenzene	ND		20	µg/L	1	5/20/2022 08:43 PM
Hexachlorobutadiene	ND		20	µg/L	1	5/20/2022 08:43 PM
Hexachlorocyclopentadiene	ND		20	µg/L	1	5/20/2022 08:43 PM
Hexachloroethane	ND		20	µg/L	1	5/20/2022 08:43 PM
Indeno(1,2,3-cd)pyrene	ND		20	µg/L	1	5/20/2022 08:43 PM
Isophorone	ND		20	µg/L	1	5/20/2022 08:43 PM
Naphthalene	ND		20	µg/L	1	5/20/2022 08:43 PM
Nitrobenzene	ND		20	µg/L	1	5/20/2022 08:43 PM
N-Nitrosodi-n-propylamine	ND		20	µg/L	1	5/20/2022 08:43 PM
N-Nitrosodiphenylamine	ND		20	µg/L	1	5/20/2022 08:43 PM
Pentachlorophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
Phenanthrene	ND		20	µg/L	1	5/20/2022 08:43 PM
Phenol	ND		20	µg/L	1	5/20/2022 08:43 PM
Pyrene	ND		20	µg/L	1	5/20/2022 08:43 PM
Surr: 2,4,6-Tribromophenol	*63.4*		*27-83*	*%REC*	1	5/20/2022 08:43 PM
Surr: 2-Fluorobiphenyl	*61.9*		*26-79*	*%REC*	1	5/20/2022 08:43 PM
Surr: 2-Fluorophenol	*38.7*		*13-56*	*%REC*	1	5/20/2022 08:43 PM
Surr: 4-Terphenyl-d14	*75.3*		*43-106*	*%REC*	1	5/20/2022 08:43 PM
Surr: Nitrobenzene-d5	*60.6*		*29-80*	*%REC*	1	5/20/2022 08:43 PM
Surr: Phenol-d6	*25.6*		*10-35*	*%REC*	1	5/20/2022 08:43 PM

VOLATILE ORGANIC COMPOUNDS **SW8260C** Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-104 **Lab ID:** 22051511-04
Collection Date: 5/16/2022 01:02 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 01:01 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 01:01 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Acetone	ND		10	µg/L	1	5/20/2022 01:01 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 01:01 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 01:01 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 01:01 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 01:01 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-104 **Lab ID:** 22051511-04
Collection Date: 5/16/2022 01:02 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 01:01 AM
Surr: 1,2-Dichloroethane-d4	*100*		*75-120*	*%REC*	1	5/20/2022 01:01 AM
Surr: 4-Bromofluorobenzene	*90.6*		*80-110*	*%REC*	1	5/20/2022 01:01 AM
Surr: Dibromofluoromethane	*102*		*85-115*	*%REC*	1	5/20/2022 01:01 AM
Surr: Toluene-d8	*97.2*		*85-110*	*%REC*	1	5/20/2022 01:01 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-105 **Lab ID:** 22051511-05
Collection Date: 5/16/2022 01:42 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 06:17 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Surr: Decachlorobiphenyl	*89.3*		*42-153*	*%REC*	1	5/21/2022 06:17 AM
Surr: Tetrachloro-m-xylene	*89.0*		*48-127*	*%REC*	1	5/21/2022 06:17 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:36 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	ND		0.010	mg/L	1	5/23/2022 07:23 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Arsenic	**0.016**		**0.0050**	**mg/L**	1	5/23/2022 07:23 PM
Barium	**0.14**		**0.0050**	**mg/L**	1	5/23/2022 07:23 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:23 PM
Boron	**0.028**		**0.020**	**mg/L**	1	5/23/2022 07:23 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:23 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:23 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/20/22 18:04	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorobutanesulfonic Acid (PFBS)	**11**		**4.8**	**ng/L**	1	5/25/2022 05:21 AM
Perfluorobutanoic Acid (PFBA)	**65**		**4.8**	**ng/L**	1	5/25/2022 05:21 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.8	ng/L	1	5/25/2022 05:21 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-105 **Lab ID:** 22051511-05
Collection Date: 5/16/2022 01:42 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorohexanoic Acid (PFHxA)	**5.3**		**4.8**	**ng/L**	1	5/25/2022 05:21 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorononanoic Acid (PFNA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		1.9	ng/L	1	5/25/2022 05:21 AM
Perfluorooctanoic Acid (PFOA)	**5.8**		**1.9**	**ng/L**	1	5/25/2022 05:21 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluoropentanoic Acid (PFPeA)	**11**		**4.8**	**ng/L**	1	5/25/2022 05:21 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.8	ng/L	1	5/25/2022 05:21 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
11Cl-Pf3OUdS	ND		4.8	ng/L	1	5/25/2022 05:21 AM
9Cl-PF3ONS	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Surr: 13C2-FtS 4:2	*171*	S	*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C2-FtS 6:2	*130*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C2-FtS 8:2	*113*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C2-PFDA	*90.1*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C2-PFDoA	*89.6*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C2-PFHxA	*104*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C2-PFTeA	*92.0*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C2-PFUnA	*91.1*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C3-HFPO-DA	*97.1*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C3-PFBS	*87.8*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C4-PFBA	*104*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C4-PFHpA	*87.6*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C4-PFOA	*92.6*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C4-PFOS	*91.3*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C5-PFNA	*110*		*50-150*	*%REC*	1	5/25/2022 05:21 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-105 **Lab ID:** 22051511-05
Collection Date: 5/16/2022 01:42 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*97.0*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 13C8-FOSA	*98.1*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: 18O2-PFHxS	*93.7*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: d5-N-EtFOSAA	*118*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
Surr: d3-N-MeFOSAA	*95.2*		*50-150*	*%REC*	1	5/25/2022 05:21 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		19	µg/L	1	5/20/2022 09:04 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 09:04 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 09:04 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 09:04 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 09:04 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 09:04 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 09:04 PM
3,3´-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 09:04 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 09:04 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 09:04 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 09:04 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 09:04 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 09:04 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 09:04 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 09:04 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 09:04 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 09:04 PM
Acetophenone	ND		3.9	µg/L	1	5/20/2022 09:04 PM
Anthracene	ND		19	µg/L	1	5/20/2022 09:04 PM
Atrazine	ND		3.9	µg/L	1	5/20/2022 09:04 PM
Benzaldehyde	ND		3.9	µg/L	1	5/20/2022 09:04 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 09:04 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 09:04 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 09:04 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-105 **Lab ID:** 22051511-05
Collection Date: 5/16/2022 01:42 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 09:04 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 09:04 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 09:04 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 09:04 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 09:04 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 09:04 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 09:04 PM
Caprolactam	ND		39	µg/L	1	5/20/2022 09:04 PM
Carbazole	ND		19	µg/L	1	5/20/2022 09:04 PM
Chrysene	ND		19	µg/L	1	5/20/2022 09:04 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 09:04 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 09:04 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 09:04 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 09:04 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 09:04 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 09:04 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 09:04 PM
Fluorene	ND		19	µg/L	1	5/20/2022 09:04 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 09:04 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 09:04 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 09:04 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 09:04 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 09:04 PM
Isophorone	ND		19	µg/L	1	5/20/2022 09:04 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 09:04 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 09:04 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 09:04 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 09:04 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 09:04 PM
Phenol	ND		19	µg/L	1	5/20/2022 09:04 PM
Pyrene	ND		19	µg/L	1	5/20/2022 09:04 PM
Surr: 2,4,6-Tribromophenol	*70.6*		*27-83*	*%REC*	1	5/20/2022 09:04 PM
Surr: 2-Fluorobiphenyl	*64.3*		*26-79*	*%REC*	1	5/20/2022 09:04 PM
Surr: 2-Fluorophenol	*39.6*		*13-56*	*%REC*	1	5/20/2022 09:04 PM
Surr: 4-Terphenyl-d14	*79.5*		*43-106*	*%REC*	1	5/20/2022 09:04 PM
Surr: Nitrobenzene-d5	*64.9*		*29-80*	*%REC*	1	5/20/2022 09:04 PM
Surr: Phenol-d6	*27.0*		*10-35*	*%REC*	1	5/20/2022 09:04 PM

VOLATILE ORGANIC COMPOUNDS **SW8260C** Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-105 **Lab ID:** 22051511-05
Collection Date: 5/16/2022 01:42 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 01:19 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 01:19 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Acetone	ND		10	µg/L	1	5/20/2022 01:19 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 01:19 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 01:19 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 01:19 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 01:19 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-105 **Lab ID:** 22051511-05
Collection Date: 5/16/2022 01:42 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 01:19 AM
Surr: 1,2-Dichloroethane-d4	*99.4*		*75-120*	*%REC*	1	5/20/2022 01:19 AM
Surr: 4-Bromofluorobenzene	*89.4*		*80-110*	*%REC*	1	5/20/2022 01:19 AM
Surr: Dibromofluoromethane	*98.6*		*85-115*	*%REC*	1	5/20/2022 01:19 AM
Surr: Toluene-d8	*104*		*85-110*	*%REC*	1	5/20/2022 01:19 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-106 **Lab ID:** 22051511-06
Collection Date: 5/16/2022 02:10 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 06:30 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Surr: Decachlorobiphenyl	*106*		*42-153*	*%REC*	1	5/21/2022 06:30 AM
Surr: Tetrachloro-m-xylene	*91.8*		*48-127*	*%REC*	1	5/21/2022 06:30 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:38 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	**0.011**		**0.010**	**mg/L**	1	5/23/2022 07:25 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Barium	**0.074**		**0.0050**	**mg/L**	1	5/23/2022 07:25 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:25 PM
Boron	**0.42**		**0.020**	**mg/L**	1	5/23/2022 07:25 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:25 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 04:58 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/20/22 18:04	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorobutanesulfonic Acid (PFBS)	**35**		**5.0**	**ng/L**	1	5/25/2022 05:29 AM
Perfluorobutanoic Acid (PFBA)	**270**		**5.0**	**ng/L**	1	5/25/2022 05:29 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		5.0	ng/L	1	5/25/2022 05:29 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-106 **Lab ID:** 22051511-06
Collection Date: 5/16/2022 02:10 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorododecanoic Acid (PFDoA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluoroheptanoic Acid (PFHpA)	**25**		**5.0**	**ng/L**	1	5/25/2022 05:29 AM
Perfluorohexanesulfonic Acid (PFHxS)	**29**		**5.0**	**ng/L**	1	5/25/2022 05:29 AM
Perfluorohexanoic Acid (PFHxA)	**28**		**5.0**	**ng/L**	1	5/25/2022 05:29 AM
Perfluorononanesulfonic Acid (PFNS)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorononanoic Acid (PFNA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorooctanesulfonamide (PFOSA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorooctanesulfonic Acid (PFOS)	**12**		**2.0**	**ng/L**	1	5/25/2022 05:29 AM
Perfluorooctanoic Acid (PFOA)	**68**		**2.0**	**ng/L**	1	5/25/2022 05:29 AM
Perfluoropentanesulfonic Acid (PFPeS)	**18**		**5.0**	**ng/L**	1	5/25/2022 05:29 AM
Perfluoropentanoic Acid (PFPeA)	**11**		**5.0**	**ng/L**	1	5/25/2022 05:29 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorotridecanoic Acid (PFTriA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluoroundecanoic Acid (PFUnA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		5.0	ng/L	1	5/25/2022 05:29 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
11Cl-Pf3OUdS	ND		5.0	ng/L	1	5/25/2022 05:29 AM
9Cl-PF3ONS	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Surr: 13C2-FtS 4:2	*181*	S	*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C2-FtS 6:2	*138*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C2-FtS 8:2	*121*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C2-PFDA	*88.3*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C2-PFDoA	*81.5*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C2-PFHxA	*97.4*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C2-PFTeA	*98.1*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C2-PFUnA	*90.5*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C3-HFPO-DA	*96.1*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C3-PFBS	*85.7*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C4-PFBA	*95.3*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C4-PFHpA	*83.5*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C4-PFOA	*85.8*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C4-PFOS	*87.4*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C5-PFNA	*102*		*50-150*	*%REC*	1	5/25/2022 05:29 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-106 **Lab ID:** 22051511-06
Collection Date: 5/16/2022 02:10 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*92.2*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 13C8-FOSA	*96.5*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: 18O2-PFHxS	*79.0*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: d5-N-EtFOSAA	*108*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
Surr: d3-N-MeFOSAA	*95.8*		*50-150*	*%REC*	1	5/25/2022 05:29 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		19	µg/L	1	5/20/2022 09:25 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 09:25 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 09:25 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 09:25 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 09:25 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 09:25 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 09:25 PM
3,3´-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 09:25 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 09:25 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 09:25 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 09:25 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 09:25 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 09:25 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 09:25 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 09:25 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 09:25 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 09:25 PM
Acetophenone	ND		3.7	µg/L	1	5/20/2022 09:25 PM
Anthracene	ND		19	µg/L	1	5/20/2022 09:25 PM
Atrazine	ND		3.7	µg/L	1	5/20/2022 09:25 PM
Benzaldehyde	ND		3.7	µg/L	1	5/20/2022 09:25 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 09:25 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 09:25 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 09:25 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-106 **Lab ID:** 22051511-06
Collection Date: 5/16/2022 02:10 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 09:25 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 09:25 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 09:25 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 09:25 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 09:25 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 09:25 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 09:25 PM
Caprolactam	ND		37	µg/L	1	5/20/2022 09:25 PM
Carbazole	ND		19	µg/L	1	5/20/2022 09:25 PM
Chrysene	ND		19	µg/L	1	5/20/2022 09:25 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 09:25 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 09:25 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 09:25 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 09:25 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 09:25 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 09:25 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 09:25 PM
Fluorene	ND		19	µg/L	1	5/20/2022 09:25 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 09:25 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 09:25 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 09:25 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 09:25 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 09:25 PM
Isophorone	ND		19	µg/L	1	5/20/2022 09:25 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 09:25 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 09:25 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 09:25 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 09:25 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 09:25 PM
Phenol	ND		19	µg/L	1	5/20/2022 09:25 PM
Pyrene	ND		19	µg/L	1	5/20/2022 09:25 PM
Surr: 2,4,6-Tribromophenol	*68.1*		*27-83*	*%REC*	1	5/20/2022 09:25 PM
Surr: 2-Fluorobiphenyl	*63.4*		*26-79*	*%REC*	1	5/20/2022 09:25 PM
Surr: 2-Fluorophenol	*42.2*		*13-56*	*%REC*	1	5/20/2022 09:25 PM
Surr: 4-Terphenyl-d14	*83.0*		*43-106*	*%REC*	1	5/20/2022 09:25 PM
Surr: Nitrobenzene-d5	*63.2*		*29-80*	*%REC*	1	5/20/2022 09:25 PM
Surr: Phenol-d6	*27.8*		*10-35*	*%REC*	1	5/20/2022 09:25 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260C**			Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-106 **Lab ID:** 22051511-06
Collection Date: 5/16/2022 02:10 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 01:38 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 01:38 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Acetone	ND		10	µg/L	1	5/20/2022 01:38 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 01:38 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 01:38 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 01:38 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 01:38 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-106 **Lab ID:** 22051511-06
Collection Date: 5/16/2022 02:10 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 01:38 AM
Surr: 1,2-Dichloroethane-d4	*95.1*		*75-120*	*%REC*	1	5/20/2022 01:38 AM
Surr: 4-Bromofluorobenzene	*90.6*		*80-110*	*%REC*	1	5/20/2022 01:38 AM
Surr: Dibromofluoromethane	*100*		*85-115*	*%REC*	1	5/20/2022 01:38 AM
Surr: Toluene-d8	*100*		*85-110*	*%REC*	1	5/20/2022 01:38 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-200 **Lab ID:** 22051511-07
Collection Date: 5/16/2022 03:55 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 06:43 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Surr: Decachlorobiphenyl	*93.1*		*42-153*	*%REC*	1	5/21/2022 06:43 AM
Surr: Tetrachloro-m-xylene	*90.1*		*48-127*	*%REC*	1	5/21/2022 06:43 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:40 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	**0.032**		**0.010**	**mg/L**	1	5/23/2022 07:27 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Arsenic	**0.0096**		**0.0050**	**mg/L**	1	5/23/2022 07:27 PM
Barium	**0.30**		**0.0050**	**mg/L**	1	5/23/2022 07:27 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:27 PM
Boron	**0.11**		**0.020**	**mg/L**	1	5/23/2022 07:27 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:27 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 05:00 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/20/22 18:04	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorobutanesulfonic Acid (PFBS)	**6.1**		**4.6**	**ng/L**	1	5/25/2022 05:37 AM
Perfluorobutanoic Acid (PFBA)	**9.0**		**4.6**	**ng/L**	1	5/25/2022 05:37 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.6	ng/L	1	5/25/2022 05:37 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-200 **Lab ID:** 22051511-07
Collection Date: 5/16/2022 03:55 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluoroheptanoic Acid (PFHpA)	**5.0**		**4.6**	**ng/L**	1	5/25/2022 05:37 AM
Perfluorohexanesulfonic Acid (PFHxS)	**15**		**4.6**	**ng/L**	1	5/25/2022 05:37 AM
Perfluorohexanoic Acid (PFHxA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorononanoic Acid (PFNA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorooctanesulfonic Acid (PFOS)	**3.2**		**1.9**	**ng/L**	1	5/25/2022 05:37 AM
Perfluorooctanoic Acid (PFOA)	**16**		**1.9**	**ng/L**	1	5/25/2022 05:37 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.6	ng/L	1	5/25/2022 05:37 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
11Cl-Pf3OUdS	ND		4.6	ng/L	1	5/25/2022 05:37 AM
9Cl-PF3ONS	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Surr: 13C2-FtS 4:2	*99.2*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C2-FtS 6:2	*109*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C2-FtS 8:2	*125*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C2-PFDA	*85.6*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C2-PFDoA	*73.5*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C2-PFHxA	*95.3*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C2-PFTeA	*88.7*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C2-PFUnA	*80.6*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C3-HFPO-DA	*95.1*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C3-PFBS	*84.5*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C4-PFBA	*92.3*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C4-PFHpA	*78.6*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C4-PFOA	*82.1*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C4-PFOS	*86.3*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C5-PFNA	*94.9*		*50-150*	*%REC*	1	5/25/2022 05:37 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-200 **Lab ID:** 22051511-07
Collection Date: 5/16/2022 03:55 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*86.5*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 13C8-FOSA	*76.6*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: 18O2-PFHxS	*81.2*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: d5-N-EtFOSAA	*99.8*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
Surr: d3-N-MeFOSAA	*87.6*		*50-150*	*%REC*	1	5/25/2022 05:37 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		20	µg/L	1	5/20/2022 09:45 PM
2,4,5-Trichlorophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2,4,6-Trichlorophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2,4-Dichlorophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2,4-Dimethylphenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2,4-Dinitrophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2,4-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 09:45 PM
2,6-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 09:45 PM
2-Chloronaphthalene	ND		20	µg/L	1	5/20/2022 09:45 PM
2-Chlorophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2-Methylnaphthalene	ND		20	µg/L	1	5/20/2022 09:45 PM
2-Methylphenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2-Nitroaniline	ND		20	µg/L	1	5/20/2022 09:45 PM
2-Nitrophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
3&4-Methylphenol	ND		20	µg/L	1	5/20/2022 09:45 PM
3,3´-Dichlorobenzidine	ND		20	µg/L	1	5/20/2022 09:45 PM
3-Nitroaniline	ND		20	µg/L	1	5/20/2022 09:45 PM
4,6-Dinitro-2-methylphenol	ND		20	µg/L	1	5/20/2022 09:45 PM
4-Bromophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 09:45 PM
4-Chloro-3-methylphenol	ND		20	µg/L	1	5/20/2022 09:45 PM
4-Chloroaniline	ND		20	µg/L	1	5/20/2022 09:45 PM
4-Chlorophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 09:45 PM
4-Nitroaniline	ND		20	µg/L	1	5/20/2022 09:45 PM
4-Nitrophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
Acenaphthene	ND		20	µg/L	1	5/20/2022 09:45 PM
Acenaphthylene	ND		20	µg/L	1	5/20/2022 09:45 PM
Acetophenone	ND		3.9	µg/L	1	5/20/2022 09:45 PM
Anthracene	ND		20	µg/L	1	5/20/2022 09:45 PM
Atrazine	ND		3.9	µg/L	1	5/20/2022 09:45 PM
Benzaldehyde	ND		3.9	µg/L	1	5/20/2022 09:45 PM
Benzo(a)anthracene	ND		20	µg/L	1	5/20/2022 09:45 PM
Benzo(a)pyrene	ND		20	µg/L	1	5/20/2022 09:45 PM
Benzo(b)fluoranthene	ND		20	µg/L	1	5/20/2022 09:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-200 **Lab ID:** 22051511-07
Collection Date: 5/16/2022 03:55 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		20	µg/L	1	5/20/2022 09:45 PM
Benzo(k)fluoranthene	ND		20	µg/L	1	5/20/2022 09:45 PM
Bis(2-chloroethoxy)methane	ND		20	µg/L	1	5/20/2022 09:45 PM
Bis(2-chloroethyl)ether	ND		20	µg/L	1	5/20/2022 09:45 PM
Bis(2-chloroisopropyl)ether	ND		20	µg/L	1	5/20/2022 09:45 PM
Bis(2-ethylhexyl)phthalate	ND		20	µg/L	1	5/20/2022 09:45 PM
Butyl benzyl phthalate	ND		20	µg/L	1	5/20/2022 09:45 PM
Caprolactam	ND		39	µg/L	1	5/20/2022 09:45 PM
Carbazole	ND		20	µg/L	1	5/20/2022 09:45 PM
Chrysene	ND		20	µg/L	1	5/20/2022 09:45 PM
Dibenzo(a,h)anthracene	ND		20	µg/L	1	5/20/2022 09:45 PM
Dibenzofuran	ND		20	µg/L	1	5/20/2022 09:45 PM
Diethyl phthalate	ND		20	µg/L	1	5/20/2022 09:45 PM
Dimethyl phthalate	ND		20	µg/L	1	5/20/2022 09:45 PM
Di-n-butyl phthalate	ND		20	µg/L	1	5/20/2022 09:45 PM
Di-n-octyl phthalate	ND		20	µg/L	1	5/20/2022 09:45 PM
Fluoranthene	ND		20	µg/L	1	5/20/2022 09:45 PM
Fluorene	ND		20	µg/L	1	5/20/2022 09:45 PM
Hexachlorobenzene	ND		20	µg/L	1	5/20/2022 09:45 PM
Hexachlorobutadiene	ND		20	µg/L	1	5/20/2022 09:45 PM
Hexachlorocyclopentadiene	ND		20	µg/L	1	5/20/2022 09:45 PM
Hexachloroethane	ND		20	µg/L	1	5/20/2022 09:45 PM
Indeno(1,2,3-cd)pyrene	ND		20	µg/L	1	5/20/2022 09:45 PM
Isophorone	ND		20	µg/L	1	5/20/2022 09:45 PM
Naphthalene	ND		20	µg/L	1	5/20/2022 09:45 PM
Nitrobenzene	ND		20	µg/L	1	5/20/2022 09:45 PM
N-Nitrosodi-n-propylamine	ND		20	µg/L	1	5/20/2022 09:45 PM
N-Nitrosodiphenylamine	ND		20	µg/L	1	5/20/2022 09:45 PM
Pentachlorophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
Phenanthrene	ND		20	µg/L	1	5/20/2022 09:45 PM
Phenol	ND		20	µg/L	1	5/20/2022 09:45 PM
Pyrene	ND		20	µg/L	1	5/20/2022 09:45 PM
Surr: 2,4,6-Tribromophenol	*62.8*		*27-83*	*%REC*	1	5/20/2022 09:45 PM
Surr: 2-Fluorobiphenyl	*61.1*		*26-79*	*%REC*	1	5/20/2022 09:45 PM
Surr: 2-Fluorophenol	*43.7*		*13-56*	*%REC*	1	5/20/2022 09:45 PM
Surr: 4-Terphenyl-d14	*71.8*		*43-106*	*%REC*	1	5/20/2022 09:45 PM
Surr: Nitrobenzene-d5	*61.4*		*29-80*	*%REC*	1	5/20/2022 09:45 PM
Surr: Phenol-d6	*28.7*		*10-35*	*%REC*	1	5/20/2022 09:45 PM

VOLATILE ORGANIC COMPOUNDS **SW8260C** Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-200 **Lab ID:** 22051511-07
Collection Date: 5/16/2022 03:55 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 01:56 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 01:56 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Acetone	ND		10	µg/L	1	5/20/2022 01:56 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 01:56 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 01:56 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 01:56 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 01:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-200 **Lab ID:** 22051511-07
Collection Date: 5/16/2022 03:55 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 01:56 AM
Surr: 1,2-Dichloroethane-d4	*100*		*75-120*	*%REC*	1	5/20/2022 01:56 AM
Surr: 4-Bromofluorobenzene	*88.8*		*80-110*	*%REC*	1	5/20/2022 01:56 AM
Surr: Dibromofluoromethane	*104*		*85-115*	*%REC*	1	5/20/2022 01:56 AM
Surr: Toluene-d8	*97.2*		*85-110*	*%REC*	1	5/20/2022 01:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-201 **Lab ID:** 22051511-08
Collection Date: 5/16/2022 04:45 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 06:56 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Surr: Decachlorobiphenyl	*112*		*42-153*	*%REC*	1	5/21/2022 06:56 AM
Surr: Tetrachloro-m-xylene	*96.4*		*48-127*	*%REC*	1	5/21/2022 06:56 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:42 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	ND		0.010	mg/L	1	5/23/2022 07:28 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Barium	**0.12**		**0.0050**	**mg/L**	1	5/23/2022 07:28 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:28 PM
Boron	**0.088**		**0.020**	**mg/L**	1	5/23/2022 07:28 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:28 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:28 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/23/22 17:15	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorobutanesulfonic Acid (PFBS)	**17**		**4.9**	**ng/L**	1	5/25/2022 08:15 AM
Perfluorobutanoic Acid (PFBA)	**10**		**4.9**	**ng/L**	1	5/25/2022 08:15 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/25/2022 08:15 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-201 **Lab ID:** 22051511-08
Collection Date: 5/16/2022 04:45 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluoroheptanoic Acid (PFHpA)	**7.4**		**4.9**	**ng/L**	1	5/25/2022 08:15 AM
Perfluorohexanesulfonic Acid (PFHxS)	**19**		**4.9**	**ng/L**	1	5/25/2022 08:15 AM
Perfluorohexanoic Acid (PFHxA)	**5.4**		**4.9**	**ng/L**	1	5/25/2022 08:15 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		2.0	ng/L	1	5/25/2022 08:15 AM
Perfluorooctanoic Acid (PFOA)	**25**		**2.0**	**ng/L**	1	5/25/2022 08:15 AM
Perfluoropentanesulfonic Acid (PFPeS)	**5.8**		**4.9**	**ng/L**	1	5/25/2022 08:15 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 08:15 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/25/2022 08:15 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Surr: 13C2-FtS 4:2	*91.9*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C2-FtS 6:2	*83.2*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C2-FtS 8:2	*70.6*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C2-PFDA	*61.0*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C2-PFDoA	*55.6*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C2-PFHxA	*68.5*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C2-PFTeA	*73.8*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C2-PFUnA	*87.0*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C3-HFPO-DA	*71.3*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C3-PFBS	*93.8*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C4-PFBA	*91.1*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C4-PFHpA	*105*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C4-PFOA	*94.0*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C4-PFOS	*75.6*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C5-PFNA	*86.4*		*50-150*	*%REC*	1	5/25/2022 08:15 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-201 **Lab ID:** 22051511-08
Collection Date: 5/16/2022 04:45 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*83.3*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 13C8-FOSA	*80.6*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: 18O2-PFHxS	*93.5*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: d5-N-EtFOSAA	*81.1*		*50-150*	*%REC*	1	5/25/2022 08:15 AM
Surr: d3-N-MeFOSAA	*47.2*	S	*50-150*	*%REC*	1	5/25/2022 08:15 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		19	µg/L	1	5/20/2022 10:06 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 10:06 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 10:06 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 10:06 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 10:06 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 10:06 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 10:06 PM
3,3´-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 10:06 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 10:06 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 10:06 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 10:06 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 10:06 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 10:06 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 10:06 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 10:06 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 10:06 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 10:06 PM
Acetophenone	ND		3.8	µg/L	1	5/20/2022 10:06 PM
Anthracene	ND		19	µg/L	1	5/20/2022 10:06 PM
Atrazine	ND		3.8	µg/L	1	5/20/2022 10:06 PM
Benzaldehyde	ND		3.8	µg/L	1	5/20/2022 10:06 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 10:06 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 10:06 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 10:06 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-201 **Lab ID:** 22051511-08
Collection Date: 5/16/2022 04:45 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 10:06 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 10:06 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 10:06 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 10:06 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 10:06 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 10:06 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 10:06 PM
Caprolactam	ND		38	µg/L	1	5/20/2022 10:06 PM
Carbazole	ND		19	µg/L	1	5/20/2022 10:06 PM
Chrysene	ND		19	µg/L	1	5/20/2022 10:06 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 10:06 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 10:06 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 10:06 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 10:06 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 10:06 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 10:06 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 10:06 PM
Fluorene	ND		19	µg/L	1	5/20/2022 10:06 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 10:06 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 10:06 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 10:06 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 10:06 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 10:06 PM
Isophorone	ND		19	µg/L	1	5/20/2022 10:06 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 10:06 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 10:06 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 10:06 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 10:06 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 10:06 PM
Phenol	ND		19	µg/L	1	5/20/2022 10:06 PM
Pyrene	ND		19	µg/L	1	5/20/2022 10:06 PM
Surr: 2,4,6-Tribromophenol	*68.7*		*27-83*	*%REC*	1	5/20/2022 10:06 PM
Surr: 2-Fluorobiphenyl	*67.6*		*26-79*	*%REC*	1	5/20/2022 10:06 PM
Surr: 2-Fluorophenol	*46.8*		*13-56*	*%REC*	1	5/20/2022 10:06 PM
Surr: 4-Terphenyl-d14	*79.6*		*43-106*	*%REC*	1	5/20/2022 10:06 PM
Surr: Nitrobenzene-d5	*67.2*		*29-80*	*%REC*	1	5/20/2022 10:06 PM
Surr: Phenol-d6	*30.9*		*10-35*	*%REC*	1	5/20/2022 10:06 PM

VOLATILE ORGANIC COMPOUNDS **SW8260C** Analyst: **HJ**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-201 **Lab ID:** 22051511-08
Collection Date: 5/16/2022 04:45 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 02:41 PM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 02:41 PM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Acetone	ND		10	µg/L	1	5/20/2022 02:41 PM
Benzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Bromoform	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Chloroform	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 02:41 PM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 02:41 PM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 02:41 PM
Styrene	ND		1.0	µg/L	1	5/20/2022 02:41 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-201 **Lab ID:** 22051511-08
Collection Date: 5/16/2022 04:45 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Toluene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 02:41 PM
Surr: 1,2-Dichloroethane-d4	*104*		*75-120*	*%REC*	1	5/20/2022 02:41 PM
Surr: 4-Bromofluorobenzene	*93.2*		*80-110*	*%REC*	1	5/20/2022 02:41 PM
Surr: Dibromofluoromethane	*99.4*		*85-115*	*%REC*	1	5/20/2022 02:41 PM
Surr: Toluene-d8	*98.6*		*85-110*	*%REC*	1	5/20/2022 02:41 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-202 **Lab ID:** 22051511-09
Collection Date: 5/16/2022 11:45 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 07:08 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Surr: Decachlorobiphenyl	*59.0*		*42-153*	*%REC*	1	5/21/2022 07:08 AM
Surr: Tetrachloro-m-xylene	*84.5*		*48-127*	*%REC*	1	5/21/2022 07:08 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:43 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	**0.015**		**0.010**	**mg/L**	1	5/23/2022 07:30 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Barium	**0.38**		**0.0050**	**mg/L**	1	5/23/2022 07:30 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:30 PM
Boron	**0.69**		**0.020**	**mg/L**	1	5/23/2022 07:30 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:30 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Nickel	**0.0056**		**0.0050**	**mg/L**	1	5/23/2022 07:30 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:30 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/23/22 17:15	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorobutanesulfonic Acid (PFBS)	**22**		**5.1**	**ng/L**	1	5/25/2022 08:23 AM
Perfluorobutanoic Acid (PFBA)	**470**		**5.1**	**ng/L**	1	5/25/2022 08:23 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		5.1	ng/L	1	5/25/2022 08:23 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-202 **Lab ID:** 22051511-09
Collection Date: 5/16/2022 11:45 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorododecanoic Acid (PFDoA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluoroheptanesulfonic Acid (PFHpS)	**7.5**		**5.1**	**ng/L**	1	5/25/2022 08:23 AM
Perfluoroheptanoic Acid (PFHpA)	**45**		**5.1**	**ng/L**	1	5/25/2022 08:23 AM
Perfluorohexanesulfonic Acid (PFHxS)	**71**		**5.1**	**ng/L**	1	5/25/2022 08:23 AM
Perfluorohexanoic Acid (PFHxA)	**38**		**5.1**	**ng/L**	1	5/25/2022 08:23 AM
Perfluorononanesulfonic Acid (PFNS)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorononanoic Acid (PFNA)	**8.2**		**5.1**	**ng/L**	1	5/25/2022 08:23 AM
Perfluorooctanesulfonamide (PFOSA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorooctanesulfonic Acid (PFOS)	**100**		**2.0**	**ng/L**	1	5/25/2022 08:23 AM
Perfluorooctanoic Acid (PFOA)	**170**		**2.0**	**ng/L**	1	5/25/2022 08:23 AM
Perfluoropentanesulfonic Acid (PFPeS)	**19**		**5.1**	**ng/L**	1	5/25/2022 08:23 AM
Perfluoropentanoic Acid (PFPeA)	**12**		**5.1**	**ng/L**	1	5/25/2022 08:23 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorotridecanoic Acid (PFTriA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluoroundecanoic Acid (PFUnA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		5.1	ng/L	1	5/25/2022 08:23 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
11Cl-Pf3OUdS	ND		5.1	ng/L	1	5/25/2022 08:23 AM
9Cl-PF3ONS	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Surr: 13C2-FtS 4:2	*325*	S	*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C2-FtS 6:2	*357*	S	*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C2-FtS 8:2	*133*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C2-PFDA	*80.9*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C2-PFDoA	*74.2*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C2-PFHxA	*78.6*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C2-PFTeA	*86.0*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C2-PFUnA	*77.9*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C3-HFPO-DA	*72.6*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C3-PFBS	*71.7*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C4-PFBA	*83.3*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C4-PFHpA	*74.2*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C4-PFOA	*90.0*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C4-PFOS	*79.1*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C5-PFNA	*108*		*50-150*	*%REC*	1	5/25/2022 08:23 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-202 **Lab ID:** 22051511-09
Collection Date: 5/16/2022 11:45 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*74.1*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 13C8-FOSA	*72.6*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: 18O2-PFHxS	*78.7*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: d5-N-EtFOSAA	*71.1*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
Surr: d3-N-MeFOSAA	*63.0*		*50-150*	*%REC*	1	5/25/2022 08:23 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		19	µg/L	1	5/20/2022 10:26 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 10:26 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 10:26 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 10:26 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 10:26 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 10:26 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 10:26 PM
3,3´-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 10:26 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 10:26 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 10:26 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 10:26 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 10:26 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 10:26 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 10:26 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 10:26 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 10:26 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 10:26 PM
Acetophenone	ND		3.7	µg/L	1	5/20/2022 10:26 PM
Anthracene	ND		19	µg/L	1	5/20/2022 10:26 PM
Atrazine	ND		3.7	µg/L	1	5/20/2022 10:26 PM
Benzaldehyde	ND		3.7	µg/L	1	5/20/2022 10:26 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 10:26 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 10:26 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 10:26 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-202 **Lab ID:** 22051511-09
Collection Date: 5/16/2022 11:45 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 10:26 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 10:26 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 10:26 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 10:26 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 10:26 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 10:26 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 10:26 PM
Caprolactam	ND		37	µg/L	1	5/20/2022 10:26 PM
Carbazole	ND		19	µg/L	1	5/20/2022 10:26 PM
Chrysene	ND		19	µg/L	1	5/20/2022 10:26 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 10:26 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 10:26 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 10:26 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 10:26 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 10:26 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 10:26 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 10:26 PM
Fluorene	ND		19	µg/L	1	5/20/2022 10:26 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 10:26 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 10:26 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 10:26 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 10:26 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 10:26 PM
Isophorone	ND		19	µg/L	1	5/20/2022 10:26 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 10:26 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 10:26 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 10:26 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 10:26 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 10:26 PM
Phenol	ND		19	µg/L	1	5/20/2022 10:26 PM
Pyrene	ND		19	µg/L	1	5/20/2022 10:26 PM
Surr: 2,4,6-Tribromophenol	*71.7*		*27-83*	*%REC*	1	5/20/2022 10:26 PM
Surr: 2-Fluorobiphenyl	*61.4*		*26-79*	*%REC*	1	5/20/2022 10:26 PM
Surr: 2-Fluorophenol	*36.4*		*13-56*	*%REC*	1	5/20/2022 10:26 PM
Surr: 4-Terphenyl-d14	*82.1*		*43-106*	*%REC*	1	5/20/2022 10:26 PM
Surr: Nitrobenzene-d5	*57.4*		*29-80*	*%REC*	1	5/20/2022 10:26 PM
Surr: Phenol-d6	*24.2*		*10-35*	*%REC*	1	5/20/2022 10:26 PM

VOLATILE ORGANIC COMPOUNDS **SW8260C** Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-202 **Lab ID:** 22051511-09
Collection Date: 5/16/2022 11:45 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 02:33 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 02:33 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Acetone	ND		10	µg/L	1	5/20/2022 02:33 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Chlorobenzene	**6.1**		**1.0**	**µg/L**	1	5/20/2022 02:33 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 02:33 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 02:33 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 02:33 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 02:33 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-202 **Lab ID:** 22051511-09
Collection Date: 5/16/2022 11:45 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 02:33 AM
Surr: 1,2-Dichloroethane-d4	*99.0*		*75-120*	*%REC*	1	5/20/2022 02:33 AM
Surr: 4-Bromofluorobenzene	*89.5*		*80-110*	*%REC*	1	5/20/2022 02:33 AM
Surr: Dibromofluoromethane	*102*		*85-115*	*%REC*	1	5/20/2022 02:33 AM
Surr: Toluene-d8	*99.4*		*85-110*	*%REC*	1	5/20/2022 02:33 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-10-20 **Lab ID:** 22051511-10
Collection Date: 5/16/2022 03:53 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 07:47 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Surr: Decachlorobiphenyl	*68.1*		*42-153*	*%REC*	1	5/21/2022 07:47 AM
Surr: Tetrachloro-m-xylene	*86.5*		*48-127*	*%REC*	1	5/21/2022 07:47 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:45 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	**0.046**		**0.010**	**mg/L**	1	5/23/2022 07:32 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Barium	**0.27**		**0.0050**	**mg/L**	1	5/23/2022 07:32 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:32 PM
Boron	**0.46**		**0.020**	**mg/L**	1	5/23/2022 07:32 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:32 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 05:02 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/23/22 17:15	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorobutanesulfonic Acid (PFBS)	**13**		**5.1**	**ng/L**	1	5/25/2022 08:32 AM
Perfluorobutanoic Acid (PFBA)	**44**		**5.1**	**ng/L**	1	5/25/2022 08:32 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		5.1	ng/L	1	5/25/2022 08:32 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-10-20 **Lab ID:** 22051511-10
Collection Date: 5/16/2022 03:53 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorododecanoic Acid (PFDoA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluoroheptanesulfonic Acid (PFHpS)	**7.0**		**5.1**	**ng/L**	1	5/25/2022 08:32 AM
Perfluoroheptanoic Acid (PFHpA)	**51**		**5.1**	**ng/L**	1	5/25/2022 08:32 AM
Perfluorohexanesulfonic Acid (PFHxS)	**72**		**5.1**	**ng/L**	1	5/25/2022 08:32 AM
Perfluorohexanoic Acid (PFHxA)	**37**		**5.1**	**ng/L**	1	5/25/2022 08:32 AM
Perfluorononanesulfonic Acid (PFNS)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorononanoic Acid (PFNA)	**9.0**		**5.1**	**ng/L**	1	5/25/2022 08:32 AM
Perfluorooctanesulfonamide (PFOSA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorooctanesulfonic Acid (PFOS)	**50**		**2.0**	**ng/L**	1	5/25/2022 08:32 AM
Perfluorooctanoic Acid (PFOA)	**250**		**2.0**	**ng/L**	1	5/25/2022 08:32 AM
Perfluoropentanesulfonic Acid (PFPeS)	**20**		**5.1**	**ng/L**	1	5/25/2022 08:32 AM
Perfluoropentanoic Acid (PFPeA)	**22**		**5.1**	**ng/L**	1	5/25/2022 08:32 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorotridecanoic Acid (PFTriA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluoroundecanoic Acid (PFUnA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		5.1	ng/L	1	5/25/2022 08:32 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
11Cl-Pf3OUdS	ND		5.1	ng/L	1	5/25/2022 08:32 AM
9Cl-PF3ONS	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Surr: 13C2-FtS 4:2	*285*	S	*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C2-FtS 6:2	*198*	S	*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C2-FtS 8:2	*86.9*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C2-PFDA	*74.5*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C2-PFDoA	*74.3*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C2-PFHxA	*104*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C2-PFTeA	*78.9*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C2-PFUnA	*73.8*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C3-HFPO-DA	*97.6*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C3-PFBS	*90.0*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C4-PFBA	*103*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C4-PFHpA	*89.3*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C4-PFOA	*94.4*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C4-PFOS	*84.6*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C5-PFNA	*92.9*		*50-150*	*%REC*	1	5/25/2022 08:32 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-10-20 **Lab ID:** 22051511-10
Collection Date: 5/16/2022 03:53 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*92.9*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 13C8-FOSA	*74.0*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: 18O2-PFHxS	*87.9*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: d5-N-EtFOSAA	*63.8*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
Surr: d3-N-MeFOSAA	*60.0*		*50-150*	*%REC*	1	5/25/2022 08:32 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		20	µg/L	1	5/20/2022 10:47 PM
2,4,5-Trichlorophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2,4,6-Trichlorophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2,4-Dichlorophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2,4-Dimethylphenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2,4-Dinitrophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2,4-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 10:47 PM
2,6-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 10:47 PM
2-Chloronaphthalene	ND		20	µg/L	1	5/20/2022 10:47 PM
2-Chlorophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2-Methylnaphthalene	ND		20	µg/L	1	5/20/2022 10:47 PM
2-Methylphenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2-Nitroaniline	ND		20	µg/L	1	5/20/2022 10:47 PM
2-Nitrophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
3&4-Methylphenol	ND		20	µg/L	1	5/20/2022 10:47 PM
3,3´-Dichlorobenzidine	ND		20	µg/L	1	5/20/2022 10:47 PM
3-Nitroaniline	ND		20	µg/L	1	5/20/2022 10:47 PM
4,6-Dinitro-2-methylphenol	ND		20	µg/L	1	5/20/2022 10:47 PM
4-Bromophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 10:47 PM
4-Chloro-3-methylphenol	ND		20	µg/L	1	5/20/2022 10:47 PM
4-Chloroaniline	ND		20	µg/L	1	5/20/2022 10:47 PM
4-Chlorophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 10:47 PM
4-Nitroaniline	ND		20	µg/L	1	5/20/2022 10:47 PM
4-Nitrophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
Acenaphthene	ND		20	µg/L	1	5/20/2022 10:47 PM
Acenaphthylene	ND		20	µg/L	1	5/20/2022 10:47 PM
Acetophenone	ND		3.9	µg/L	1	5/20/2022 10:47 PM
Anthracene	ND		20	µg/L	1	5/20/2022 10:47 PM
Atrazine	ND		3.9	µg/L	1	5/20/2022 10:47 PM
Benzaldehyde	ND		3.9	µg/L	1	5/20/2022 10:47 PM
Benzo(a)anthracene	ND		20	µg/L	1	5/20/2022 10:47 PM
Benzo(a)pyrene	ND		20	µg/L	1	5/20/2022 10:47 PM
Benzo(b)fluoranthene	ND		20	µg/L	1	5/20/2022 10:47 PM

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Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-10-20 **Lab ID:** 22051511-10
Collection Date: 5/16/2022 03:53 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		20	µg/L	1	5/20/2022 10:47 PM
Benzo(k)fluoranthene	ND		20	µg/L	1	5/20/2022 10:47 PM
Bis(2-chloroethoxy)methane	ND		20	µg/L	1	5/20/2022 10:47 PM
Bis(2-chloroethyl)ether	ND		20	µg/L	1	5/20/2022 10:47 PM
Bis(2-chloroisopropyl)ether	ND		20	µg/L	1	5/20/2022 10:47 PM
Bis(2-ethylhexyl)phthalate	ND		20	µg/L	1	5/20/2022 10:47 PM
Butyl benzyl phthalate	ND		20	µg/L	1	5/20/2022 10:47 PM
Caprolactam	ND		39	µg/L	1	5/20/2022 10:47 PM
Carbazole	ND		20	µg/L	1	5/20/2022 10:47 PM
Chrysene	ND		20	µg/L	1	5/20/2022 10:47 PM
Dibenzo(a,h)anthracene	ND		20	µg/L	1	5/20/2022 10:47 PM
Dibenzofuran	ND		20	µg/L	1	5/20/2022 10:47 PM
Diethyl phthalate	ND		20	µg/L	1	5/20/2022 10:47 PM
Dimethyl phthalate	ND		20	µg/L	1	5/20/2022 10:47 PM
Di-n-butyl phthalate	ND		20	µg/L	1	5/20/2022 10:47 PM
Di-n-octyl phthalate	ND		20	µg/L	1	5/20/2022 10:47 PM
Fluoranthene	ND		20	µg/L	1	5/20/2022 10:47 PM
Fluorene	ND		20	µg/L	1	5/20/2022 10:47 PM
Hexachlorobenzene	ND		20	µg/L	1	5/20/2022 10:47 PM
Hexachlorobutadiene	ND		20	µg/L	1	5/20/2022 10:47 PM
Hexachlorocyclopentadiene	ND		20	µg/L	1	5/20/2022 10:47 PM
Hexachloroethane	ND		20	µg/L	1	5/20/2022 10:47 PM
Indeno(1,2,3-cd)pyrene	ND		20	µg/L	1	5/20/2022 10:47 PM
Isophorone	ND		20	µg/L	1	5/20/2022 10:47 PM
Naphthalene	ND		20	µg/L	1	5/20/2022 10:47 PM
Nitrobenzene	ND		20	µg/L	1	5/20/2022 10:47 PM
N-Nitrosodi-n-propylamine	ND		20	µg/L	1	5/20/2022 10:47 PM
N-Nitrosodiphenylamine	ND		20	µg/L	1	5/20/2022 10:47 PM
Pentachlorophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
Phenanthrene	ND		20	µg/L	1	5/20/2022 10:47 PM
Phenol	ND		20	µg/L	1	5/20/2022 10:47 PM
Pyrene	ND		20	µg/L	1	5/20/2022 10:47 PM
Surr: 2,4,6-Tribromophenol	*75.5*		*27-83*	*%REC*	1	5/20/2022 10:47 PM
Surr: 2-Fluorobiphenyl	*73.2*		*26-79*	*%REC*	1	5/20/2022 10:47 PM
Surr: 2-Fluorophenol	*46.2*		*13-56*	*%REC*	1	5/20/2022 10:47 PM
Surr: 4-Terphenyl-d14	*86.2*		*43-106*	*%REC*	1	5/20/2022 10:47 PM
Surr: Nitrobenzene-d5	*72.0*		*29-80*	*%REC*	1	5/20/2022 10:47 PM
Surr: Phenol-d6	*30.6*		*10-35*	*%REC*	1	5/20/2022 10:47 PM

VOLATILE ORGANIC COMPOUNDS **SW8260C** Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-10-20 **Lab ID:** 22051511-10
Collection Date: 5/16/2022 03:53 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 02:51 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 02:51 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Acetone	ND		10	µg/L	1	5/20/2022 02:51 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 02:51 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 02:51 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 02:51 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 02:51 AM

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Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-10-20 **Lab ID:** 22051511-10
Collection Date: 5/16/2022 03:53 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 02:51 AM
Surr: 1,2-Dichloroethane-d4	*98.4*		*75-120*	*%REC*	1	5/20/2022 02:51 AM
Surr: 4-Bromofluorobenzene	*87.4*		*80-110*	*%REC*	1	5/20/2022 02:51 AM
Surr: Dibromofluoromethane	*104*		*85-115*	*%REC*	1	5/20/2022 02:51 AM
Surr: Toluene-d8	*96.6*		*85-110*	*%REC*	1	5/20/2022 02:51 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-14-20 **Lab ID:** 22051511-11
Collection Date: 5/16/2022 10:55 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 08:00 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Surr: Decachlorobiphenyl	*83.1*		*42-153*	*%REC*	1	5/21/2022 08:00 AM
Surr: Tetrachloro-m-xylene	*83.6*		*48-127*	*%REC*	1	5/21/2022 08:00 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:52 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	**0.029**		**0.010**	**mg/L**	1	5/23/2022 07:34 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Barium	**0.14**		**0.0050**	**mg/L**	1	5/23/2022 07:34 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:34 PM
Boron	**0.11**		**0.020**	**mg/L**	1	5/23/2022 07:34 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:34 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 05:03 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/23/22 17:15	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorobutanesulfonic Acid (PFBS)	**7.2**		**5.2**	**ng/L**	1	5/25/2022 08:40 AM
Perfluorobutanoic Acid (PFBA)	**30**		**5.2**	**ng/L**	1	5/25/2022 08:40 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		5.2	ng/L	1	5/25/2022 08:40 AM

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Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-14-20 **Lab ID:** 22051511-11
Collection Date: 5/16/2022 10:55 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorododecanoic Acid (PFDoA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluoroheptanoic Acid (PFHpA)	**16**		**5.2**	**ng/L**	1	5/25/2022 08:40 AM
Perfluorohexanesulfonic Acid (PFHxS)	**28**		**5.2**	**ng/L**	1	5/25/2022 08:40 AM
Perfluorohexanoic Acid (PFHxA)	**13**		**5.2**	**ng/L**	1	5/25/2022 08:40 AM
Perfluorononanesulfonic Acid (PFNS)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorononanoic Acid (PFNA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorooctanesulfonamide (PFOSA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorooctanesulfonic Acid (PFOS)	**11**		**2.1**	**ng/L**	1	5/25/2022 08:40 AM
Perfluorooctanoic Acid (PFOA)	**57**		**2.1**	**ng/L**	1	5/25/2022 08:40 AM
Perfluoropentanesulfonic Acid (PFPeS)	**6.5**		**5.2**	**ng/L**	1	5/25/2022 08:40 AM
Perfluoropentanoic Acid (PFPeA)	**10**		**5.2**	**ng/L**	1	5/25/2022 08:40 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorotridecanoic Acid (PFTriA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluoroundecanoic Acid (PFUnA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		5.2	ng/L	1	5/25/2022 08:40 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
11Cl-Pf3OUdS	ND		5.2	ng/L	1	5/25/2022 08:40 AM
9Cl-PF3ONS	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Surr: 13C2-FtS 4:2	*325*	S	*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C2-FtS 6:2	*195*	S	*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C2-FtS 8:2	*98.9*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C2-PFDA	*88.6*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C2-PFDoA	*83.5*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C2-PFHxA	*119*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C2-PFTeA	*90.7*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C2-PFUnA	*90.6*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C3-HFPO-DA	*108*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C3-PFBS	*102*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C4-PFBA	*118*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C4-PFHpA	*101*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C4-PFOA	*102*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C4-PFOS	*99.8*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C5-PFNA	*111*		*50-150*	*%REC*	1	5/25/2022 08:40 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-14-20 **Lab ID:** 22051511-11
Collection Date: 5/16/2022 10:55 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*106*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 13C8-FOSA	*97.4*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: 18O2-PFHxS	*112*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: d5-N-EtFOSAA	*91.9*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
Surr: d3-N-MeFOSAA	*70.9*		*50-150*	*%REC*	1	5/25/2022 08:40 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		21	µg/L	1	5/20/2022 11:08 PM
2,4,5-Trichlorophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2,4,6-Trichlorophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2,4-Dichlorophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2,4-Dimethylphenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2,4-Dinitrophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2,4-Dinitrotoluene	ND		21	µg/L	1	5/20/2022 11:08 PM
2,6-Dinitrotoluene	ND		21	µg/L	1	5/20/2022 11:08 PM
2-Chloronaphthalene	ND		21	µg/L	1	5/20/2022 11:08 PM
2-Chlorophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2-Methylnaphthalene	ND		21	µg/L	1	5/20/2022 11:08 PM
2-Methylphenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2-Nitroaniline	ND		21	µg/L	1	5/20/2022 11:08 PM
2-Nitrophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
3&4-Methylphenol	ND		21	µg/L	1	5/20/2022 11:08 PM
3,3´-Dichlorobenzidine	ND		21	µg/L	1	5/20/2022 11:08 PM
3-Nitroaniline	ND		21	µg/L	1	5/20/2022 11:08 PM
4,6-Dinitro-2-methylphenol	ND		21	µg/L	1	5/20/2022 11:08 PM
4-Bromophenyl phenyl ether	ND		21	µg/L	1	5/20/2022 11:08 PM
4-Chloro-3-methylphenol	ND		21	µg/L	1	5/20/2022 11:08 PM
4-Chloroaniline	ND		21	µg/L	1	5/20/2022 11:08 PM
4-Chlorophenyl phenyl ether	ND		21	µg/L	1	5/20/2022 11:08 PM
4-Nitroaniline	ND		21	µg/L	1	5/20/2022 11:08 PM
4-Nitrophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
Acenaphthene	ND		21	µg/L	1	5/20/2022 11:08 PM
Acenaphthylene	ND		21	µg/L	1	5/20/2022 11:08 PM
Acetophenone	ND		4.2	µg/L	1	5/20/2022 11:08 PM
Anthracene	ND		21	µg/L	1	5/20/2022 11:08 PM
Atrazine	ND		4.2	µg/L	1	5/20/2022 11:08 PM
Benzaldehyde	ND		4.2	µg/L	1	5/20/2022 11:08 PM
Benzo(a)anthracene	ND		21	µg/L	1	5/20/2022 11:08 PM
Benzo(a)pyrene	ND		21	µg/L	1	5/20/2022 11:08 PM
Benzo(b)fluoranthene	ND		21	µg/L	1	5/20/2022 11:08 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-14-20 **Lab ID:** 22051511-11
Collection Date: 5/16/2022 10:55 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		21	µg/L	1	5/20/2022 11:08 PM
Benzo(k)fluoranthene	ND		21	µg/L	1	5/20/2022 11:08 PM
Bis(2-chloroethoxy)methane	ND		21	µg/L	1	5/20/2022 11:08 PM
Bis(2-chloroethyl)ether	ND		21	µg/L	1	5/20/2022 11:08 PM
Bis(2-chloroisopropyl)ether	ND		21	µg/L	1	5/20/2022 11:08 PM
Bis(2-ethylhexyl)phthalate	ND		21	µg/L	1	5/20/2022 11:08 PM
Butyl benzyl phthalate	ND		21	µg/L	1	5/20/2022 11:08 PM
Caprolactam	ND		42	µg/L	1	5/20/2022 11:08 PM
Carbazole	ND		21	µg/L	1	5/20/2022 11:08 PM
Chrysene	ND		21	µg/L	1	5/20/2022 11:08 PM
Dibenzo(a,h)anthracene	ND		21	µg/L	1	5/20/2022 11:08 PM
Dibenzofuran	ND		21	µg/L	1	5/20/2022 11:08 PM
Diethyl phthalate	ND		21	µg/L	1	5/20/2022 11:08 PM
Dimethyl phthalate	ND		21	µg/L	1	5/20/2022 11:08 PM
Di-n-butyl phthalate	ND		21	µg/L	1	5/20/2022 11:08 PM
Di-n-octyl phthalate	ND		21	µg/L	1	5/20/2022 11:08 PM
Fluoranthene	ND		21	µg/L	1	5/20/2022 11:08 PM
Fluorene	ND		21	µg/L	1	5/20/2022 11:08 PM
Hexachlorobenzene	ND		21	µg/L	1	5/20/2022 11:08 PM
Hexachlorobutadiene	ND		21	µg/L	1	5/20/2022 11:08 PM
Hexachlorocyclopentadiene	ND		21	µg/L	1	5/20/2022 11:08 PM
Hexachloroethane	ND		21	µg/L	1	5/20/2022 11:08 PM
Indeno(1,2,3-cd)pyrene	ND		21	µg/L	1	5/20/2022 11:08 PM
Isophorone	ND		21	µg/L	1	5/20/2022 11:08 PM
Naphthalene	ND		21	µg/L	1	5/20/2022 11:08 PM
Nitrobenzene	ND		21	µg/L	1	5/20/2022 11:08 PM
N-Nitrosodi-n-propylamine	ND		21	µg/L	1	5/20/2022 11:08 PM
N-Nitrosodiphenylamine	ND		21	µg/L	1	5/20/2022 11:08 PM
Pentachlorophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
Phenanthrene	ND		21	µg/L	1	5/20/2022 11:08 PM
Phenol	ND		21	µg/L	1	5/20/2022 11:08 PM
Pyrene	ND		21	µg/L	1	5/20/2022 11:08 PM
Surr: 2,4,6-Tribromophenol	*77.7*		*27-83*	*%REC*	1	5/20/2022 11:08 PM
Surr: 2-Fluorobiphenyl	*71.8*		*26-79*	*%REC*	1	5/20/2022 11:08 PM
Surr: 2-Fluorophenol	*42.7*		*13-56*	*%REC*	1	5/20/2022 11:08 PM
Surr: 4-Terphenyl-d14	*89.0*		*43-106*	*%REC*	1	5/20/2022 11:08 PM
Surr: Nitrobenzene-d5	*67.4*		*29-80*	*%REC*	1	5/20/2022 11:08 PM
Surr: Phenol-d6	*28.7*		*10-35*	*%REC*	1	5/20/2022 11:08 PM

VOLATILE ORGANIC COMPOUNDS **SW8260C** Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-14-20 **Lab ID:** 22051511-11
Collection Date: 5/16/2022 10:55 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 03:10 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 03:10 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Acetone	ND		10	µg/L	1	5/20/2022 03:10 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 03:10 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 03:10 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 03:10 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 03:10 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-14-20 **Lab ID:** 22051511-11
Collection Date: 5/16/2022 10:55 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 03:10 AM
Surr: 1,2-Dichloroethane-d4	*101*		*75-120*	*%REC*	1	5/20/2022 03:10 AM
Surr: 4-Bromofluorobenzene	*91.7*		*80-110*	*%REC*	1	5/20/2022 03:10 AM
Surr: Dibromofluoromethane	*105*		*85-115*	*%REC*	1	5/20/2022 03:10 AM
Surr: Toluene-d8	*100*		*85-110*	*%REC*	1	5/20/2022 03:10 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-15-20 **Lab ID:** 22051511-12
Collection Date: 5/16/2022 10:25 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 08:12 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Surr: Decachlorobiphenyl	*98.1*		*42-153*	*%REC*	1	5/21/2022 08:12 AM
Surr: Tetrachloro-m-xylene	*91.7*		*48-127*	*%REC*	1	5/21/2022 08:12 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:54 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	**0.019**		**0.010**	**mg/L**	1	5/23/2022 07:35 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Barium	**0.18**		**0.0050**	**mg/L**	1	5/23/2022 07:35 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:35 PM
Boron	**0.094**		**0.020**	**mg/L**	1	5/23/2022 07:35 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:35 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:35 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/23/22 17:15	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorobutanesulfonic Acid (PFBS)	**9.3**		**4.7**	**ng/L**	1	5/25/2022 08:48 AM
Perfluorobutanoic Acid (PFBA)	**40**		**4.7**	**ng/L**	1	5/25/2022 08:48 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.7	ng/L	1	5/25/2022 08:48 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-15-20 **Lab ID:** 22051511-12
Collection Date: 5/16/2022 10:25 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluoroheptanoic Acid (PFHpA)	**12**		**4.7**	**ng/L**	1	5/25/2022 08:48 AM
Perfluorohexanesulfonic Acid (PFHxS)	**32**		**4.7**	**ng/L**	1	5/25/2022 08:48 AM
Perfluorohexanoic Acid (PFHxA)	**13**		**4.7**	**ng/L**	1	5/25/2022 08:48 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorononanoic Acid (PFNA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorooctanesulfonic Acid (PFOS)	**7.1**		**1.9**	**ng/L**	1	5/25/2022 08:48 AM
Perfluorooctanoic Acid (PFOA)	**39**		**1.9**	**ng/L**	1	5/25/2022 08:48 AM
Perfluoropentanesulfonic Acid (PFPeS)	**5.5**		**4.7**	**ng/L**	1	5/25/2022 08:48 AM
Perfluoropentanoic Acid (PFPeA)	**17**		**4.7**	**ng/L**	1	5/25/2022 08:48 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.7	ng/L	1	5/25/2022 08:48 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
11Cl-Pf3OUdS	ND		4.7	ng/L	1	5/25/2022 08:48 AM
9Cl-PF3ONS	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Surr: 13C2-FtS 4:2	*206*	S	*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C2-FtS 6:2	*134*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C2-FtS 8:2	*86.0*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C2-PFDA	*84.3*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C2-PFDoA	*76.7*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C2-PFHxA	*114*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C2-PFTeA	*70.3*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C2-PFUnA	*91.2*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C3-HFPO-DA	*99.6*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C3-PFBS	*103*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C4-PFBA	*128*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C4-PFHpA	*103*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C4-PFOA	*106*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C4-PFOS	*97.2*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C5-PFNA	*126*		*50-150*	*%REC*	1	5/25/2022 08:48 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-15-20 **Lab ID:** 22051511-12
Collection Date: 5/16/2022 10:25 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*113*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 13C8-FOSA	*101*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: 18O2-PFHxS	*130*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: d5-N-EtFOSAA	*87.0*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
Surr: d3-N-MeFOSAA	*61.5*		*50-150*	*%REC*	1	5/25/2022 08:48 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		19	µg/L	1	5/20/2022 11:28 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 11:28 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 11:28 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 11:28 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 11:28 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 11:28 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 11:28 PM
3,3´-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 11:28 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 11:28 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 11:28 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 11:28 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 11:28 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 11:28 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 11:28 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 11:28 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 11:28 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 11:28 PM
Acetophenone	ND		3.8	µg/L	1	5/20/2022 11:28 PM
Anthracene	ND		19	µg/L	1	5/20/2022 11:28 PM
Atrazine	ND		3.8	µg/L	1	5/20/2022 11:28 PM
Benzaldehyde	ND		3.8	µg/L	1	5/20/2022 11:28 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 11:28 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 11:28 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 11:28 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-15-20 **Lab ID:** 22051511-12
Collection Date: 5/16/2022 10:25 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 11:28 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 11:28 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 11:28 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 11:28 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 11:28 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 11:28 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 11:28 PM
Caprolactam	ND		38	µg/L	1	5/20/2022 11:28 PM
Carbazole	ND		19	µg/L	1	5/20/2022 11:28 PM
Chrysene	ND		19	µg/L	1	5/20/2022 11:28 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 11:28 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 11:28 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 11:28 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 11:28 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 11:28 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 11:28 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 11:28 PM
Fluorene	ND		19	µg/L	1	5/20/2022 11:28 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 11:28 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 11:28 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 11:28 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 11:28 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 11:28 PM
Isophorone	ND		19	µg/L	1	5/20/2022 11:28 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 11:28 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 11:28 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 11:28 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 11:28 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 11:28 PM
Phenol	ND		19	µg/L	1	5/20/2022 11:28 PM
Pyrene	ND		19	µg/L	1	5/20/2022 11:28 PM
Surr: 2,4,6-Tribromophenol	*73.0*		*27-83*	*%REC*	1	5/20/2022 11:28 PM
Surr: 2-Fluorobiphenyl	*73.0*		*26-79*	*%REC*	1	5/20/2022 11:28 PM
Surr: 2-Fluorophenol	*45.2*		*13-56*	*%REC*	1	5/20/2022 11:28 PM
Surr: 4-Terphenyl-d14	*88.1*		*43-106*	*%REC*	1	5/20/2022 11:28 PM
Surr: Nitrobenzene-d5	*69.6*		*29-80*	*%REC*	1	5/20/2022 11:28 PM
Surr: Phenol-d6	*30.2*		*10-35*	*%REC*	1	5/20/2022 11:28 PM

VOLATILE ORGANIC COMPOUNDS **SW8260C** Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-15-20 **Lab ID:** 22051511-12
Collection Date: 5/16/2022 10:25 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 03:28 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 03:28 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Acetone	ND		10	µg/L	1	5/20/2022 03:28 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 03:28 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 03:28 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 03:28 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 03:28 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-15-20 **Lab ID:** 22051511-12
Collection Date: 5/16/2022 10:25 AM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 03:28 AM
Surr: 1,2-Dichloroethane-d4	*99.5*		*75-120*	*%REC*	1	5/20/2022 03:28 AM
Surr: 4-Bromofluorobenzene	*94.2*		*80-110*	*%REC*	1	5/20/2022 03:28 AM
Surr: Dibromofluoromethane	*103*		*85-115*	*%REC*	1	5/20/2022 03:28 AM
Surr: Toluene-d8	*101*		*85-110*	*%REC*	1	5/20/2022 03:28 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *01-Jun-2022*

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Work Order: 22051511
Sample ID: Field Blank
Lab ID: 22051511-13
Collection Date: 5/16/2022 03:45 PM
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/23/22 17:15	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorobutanesulfonic Acid (PFBS)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorobutanoic Acid (PFBA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorohexanoic Acid (PFHxA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		2.0	ng/L	1	5/25/2022 08:56 AM
Perfluorooctanoic Acid (PFOA)	ND		2.0	ng/L	1	5/25/2022 08:56 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 08:56 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/25/2022 08:56 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Surr: 13C2-FtS 4:2	*94.9*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C2-FtS 6:2	*96.8*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C2-FtS 8:2	*98.2*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C2-PFDA	*96.7*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C2-PFDoA	*95.8*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C2-PFHxA	*108*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C2-PFTeA	*99.3*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C2-PFUnA	*92.6*		*50-150*	*%REC*	1	5/25/2022 08:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: Field Blank **Lab ID:** 22051511-13
Collection Date: 5/16/2022 03:45 PM **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C3-HFPO-DA	*100*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C3-PFBS	*102*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C4-PFBA	*108*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C4-PFHpA	*89.5*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C4-PFOA	*93.7*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C4-PFOS	*103*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C5-PFNA	*89.0*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C5-PFPeA	*95.1*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 13C8-FOSA	*73.9*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: 18O2-PFHxS	*84.1*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: d5-N-EtFOSAA	*70.2*		*50-150*	*%REC*	1	5/25/2022 08:56 AM
Surr: d3-N-MeFOSAA	*74.4*		*50-150*	*%REC*	1	5/25/2022 08:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *01-Jun-2022*

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Work Order: 22051511
Sample ID: DUP
Lab ID: 22051511-14
Collection Date: 5/16/2022
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 08:25 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Surr: Decachlorobiphenyl	*97.0*		*42-153*	*%REC*	1	5/21/2022 08:25 AM
Surr: Tetrachloro-m-xylene	*92.2*		*48-127*	*%REC*	1	5/21/2022 08:25 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:56 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/23/22 17:14	Analyst: **STP**
Aluminum	**0.034**		**0.010**	**mg/L**	1	5/23/2022 07:40 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Arsenic	**0.0098**		**0.0050**	**mg/L**	1	5/23/2022 07:40 PM
Barium	**0.29**		**0.0050**	**mg/L**	1	5/23/2022 07:40 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:40 PM
Boron	**0.11**		**0.020**	**mg/L**	1	5/23/2022 07:40 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:40 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 05:05 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/23/22 17:15	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorobutanesulfonic Acid (PFBS)	**5.8**		**4.7**	**ng/L**	1	5/25/2022 09:05 AM
Perfluorobutanoic Acid (PFBA)	**8.1**		**4.7**	**ng/L**	1	5/25/2022 09:05 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.7	ng/L	1	5/25/2022 09:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *01-Jun-2022*

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Work Order: 22051511
Sample ID: DUP
Lab ID: 22051511-14
Collection Date: 5/16/2022
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorohexanesulfonic Acid (PFHxS)	**15**		**4.7**	**ng/L**	1	5/25/2022 09:05 AM
Perfluorohexanoic Acid (PFHxA)	**5.4**		**4.7**	**ng/L**	1	5/25/2022 09:05 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorononanoic Acid (PFNA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		1.9	ng/L	1	5/25/2022 09:05 AM
Perfluorooctanoic Acid (PFOA)	**18**		**1.9**	**ng/L**	1	5/25/2022 09:05 AM
Perfluoropentanesulfonic Acid (PFPeS)	**5.7**		**4.7**	**ng/L**	1	5/25/2022 09:05 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.7	ng/L	1	5/25/2022 09:05 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
11Cl-Pf3OUdS	ND		4.7	ng/L	1	5/25/2022 09:05 AM
9Cl-PF3ONS	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Surr: 13C2-FtS 4:2	*80.4*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C2-FtS 6:2	*73.5*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C2-FtS 8:2	*91.3*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C2-PFDA	*68.5*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C2-PFDoA	*55.2*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C2-PFHxA	*71.6*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C2-PFTeA	*74.7*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C2-PFUnA	*62.8*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C3-HFPO-DA	*73.6*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C3-PFBS	*90.7*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C4-PFBA	*82.9*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C4-PFHpA	*89.3*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C4-PFOA	*81.2*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C4-PFOS	*67.0*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C5-PFNA	*65.7*		*50-150*	*%REC*	1	5/25/2022 09:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: DUP **Lab ID:** 22051511-14
Collection Date: 5/16/2022 **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*85.1*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 13C8-FOSA	*56.5*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: 18O2-PFHxS	*68.1*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: d5-N-EtFOSAA	*53.6*		*50-150*	*%REC*	1	5/25/2022 09:05 AM
Surr: d3-N-MeFOSAA	*47.0*	S	*50-150*	*%REC*	1	5/25/2022 09:05 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		19	µg/L	1	5/20/2022 11:49 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 11:49 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 11:49 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 11:49 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 11:49 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 11:49 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 11:49 PM
3,3´-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 11:49 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 11:49 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 11:49 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 11:49 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 11:49 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 11:49 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 11:49 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 11:49 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 11:49 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 11:49 PM
Acetophenone	ND		3.8	µg/L	1	5/20/2022 11:49 PM
Anthracene	ND		19	µg/L	1	5/20/2022 11:49 PM
Atrazine	ND		3.8	µg/L	1	5/20/2022 11:49 PM
Benzaldehyde	ND		3.8	µg/L	1	5/20/2022 11:49 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 11:49 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 11:49 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 11:49 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: DUP **Lab ID:** 22051511-14
Collection Date: 5/16/2022 **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 11:49 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 11:49 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 11:49 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 11:49 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 11:49 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 11:49 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 11:49 PM
Caprolactam	ND		38	µg/L	1	5/20/2022 11:49 PM
Carbazole	ND		19	µg/L	1	5/20/2022 11:49 PM
Chrysene	ND		19	µg/L	1	5/20/2022 11:49 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 11:49 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 11:49 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 11:49 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 11:49 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 11:49 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 11:49 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 11:49 PM
Fluorene	ND		19	µg/L	1	5/20/2022 11:49 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 11:49 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 11:49 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 11:49 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 11:49 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 11:49 PM
Isophorone	ND		19	µg/L	1	5/20/2022 11:49 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 11:49 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 11:49 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 11:49 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 11:49 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 11:49 PM
Phenol	ND		19	µg/L	1	5/20/2022 11:49 PM
Pyrene	ND		19	µg/L	1	5/20/2022 11:49 PM
Surr: 2,4,6-Tribromophenol	*76.7*		*27-83*	*%REC*	1	5/20/2022 11:49 PM
Surr: 2-Fluorobiphenyl	*77.3*		*26-79*	*%REC*	1	5/20/2022 11:49 PM
Surr: 2-Fluorophenol	*47.1*		*13-56*	*%REC*	1	5/20/2022 11:49 PM
Surr: 4-Terphenyl-d14	*86.9*		*43-106*	*%REC*	1	5/20/2022 11:49 PM
Surr: Nitrobenzene-d5	*74.9*		*29-80*	*%REC*	1	5/20/2022 11:49 PM
Surr: Phenol-d6	*32.2*		*10-35*	*%REC*	1	5/20/2022 11:49 PM

VOLATILE ORGANIC COMPOUNDS **SW8260C** Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: DUP **Lab ID:** 22051511-14
Collection Date: 5/16/2022 **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 03:47 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 03:47 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Acetone	ND		10	µg/L	1	5/20/2022 03:47 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 03:47 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 03:47 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 03:47 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 03:47 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: DUP **Lab ID:** 22051511-14
Collection Date: 5/16/2022 **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 03:47 AM
Surr: 1,2-Dichloroethane-d4	*98.8*		*75-120*	*%REC*	1	5/20/2022 03:47 AM
Surr: 4-Bromofluorobenzene	*90.6*		*80-110*	*%REC*	1	5/20/2022 03:47 AM
Surr: Dibromofluoromethane	*101*		*85-115*	*%REC*	1	5/20/2022 03:47 AM
Surr: Toluene-d8	*101*		*85-110*	*%REC*	1	5/20/2022 03:47 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: Trip Blank **Lab ID:** 22051511-15
Collection Date: 5/16/2022 **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			**SW8260C**			Analyst: **MF**
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
2-Butanone	ND		5.0	µg/L	1	5/19/2022 11:47 PM
2-Hexanone	ND		5.0	µg/L	1	5/19/2022 11:47 PM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Acetone	ND		10	µg/L	1	5/19/2022 11:47 PM
Benzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Bromodichloromethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Bromoform	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Bromomethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Carbon disulfide	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Carbon tetrachloride	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Chlorobenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Chloroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Chloroform	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Chloromethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Cyclohexane	ND		2.0	µg/L	1	5/19/2022 11:47 PM
Dibromochloromethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Ethylbenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Isopropylbenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Methyl acetate	ND		2.0	µg/L	1	5/19/2022 11:47 PM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Methylcyclohexane	ND		1.0	µg/L	1	5/19/2022 11:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: Trip Blank **Lab ID:** 22051511-15
Collection Date: 5/16/2022 **Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Methylene chloride	ND		5.0	µg/L	1	5/19/2022 11:47 PM
Styrene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Tetrachloroethene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Toluene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Trichloroethene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Vinyl chloride	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Xylenes, Total	ND		3.0	µg/L	1	5/19/2022 11:47 PM
Surr: 1,2-Dichloroethane-d4	*98.1*		*75-120*	*%REC*	1	5/19/2022 11:47 PM
Surr: 4-Bromofluorobenzene	*89.2*		*80-110*	*%REC*	1	5/19/2022 11:47 PM
Surr: Dibromofluoromethane	*101*		*85-115*	*%REC*	1	5/19/2022 11:47 PM
Surr: Toluene-d8	*99.4*		*85-110*	*%REC*	1	5/19/2022 11:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-109 **Lab ID:** 22051511-16
Collection Date: 5/16/2022 **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			**SW8082A**		Prep: SW3511 5/20/22 16:59	Analyst: **RM**
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 03:31 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Surr: Decachlorobiphenyl	*71.1*		*42-153*	*%REC*	1	5/21/2022 03:31 AM
Surr: Tetrachloro-m-xylene	*86.7*		*48-127*	*%REC*	1	5/21/2022 03:31 AM
MERCURY BY CVAA (DISSOLVED)			**SW7470A**		Prep: SW7470 5/19/22 11:03	Analyst: **EJC**
Mercury	ND		0.00020	mg/L	1	5/19/2022 01:01 PM
METALS BY ICP-MS (DISSOLVED)			**SW6020B**		Prep: SW3015A 5/29/22 18:37	Analyst: **STP**
Aluminum	**0.058**		**0.010**	**mg/L**	1	5/31/2022 03:50 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Barium	**0.19**		**0.0050**	**mg/L**	1	5/23/2022 07:47 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:47 PM
Boron	**0.13**		**0.020**	**mg/L**	1	5/23/2022 07:47 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:47 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:47 PM
PFAS BY EPA 537 MODIFIED			**E537 MOD**		Prep: E537 Mod 5/23/22 17:15	Analyst: **ENS**
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorobutanesulfonic Acid (PFBS)	**5.8**		**4.9**	**ng/L**	1	5/25/2022 09:13 AM
Perfluorobutanoic Acid (PFBA)	**30**		**4.9**	**ng/L**	1	5/25/2022 09:13 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/25/2022 09:13 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: *01-Jun-2022*

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Work Order: 22051511
Sample ID: MW-109
Lab ID: 22051511-16
Collection Date: 5/16/2022
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorohexanesulfonic Acid (PFHxS)	**6.4**		**4.9**	**ng/L**	1	5/25/2022 09:13 AM
Perfluorohexanoic Acid (PFHxA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorooctanesulfonic Acid (PFOS)	**5.8**		**2.0**	**ng/L**	1	5/25/2022 09:13 AM
Perfluorooctanoic Acid (PFOA)	**13**		**2.0**	**ng/L**	1	5/25/2022 09:13 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 09:13 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/25/2022 09:13 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Surr: 13C2-FtS 4:2	*107*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C2-FtS 6:2	*92.7*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C2-FtS 8:2	*86.7*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C2-PFDA	*71.5*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C2-PFDoA	*54.9*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C2-PFHxA	*83.5*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C2-PFTeA	*67.3*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C2-PFUnA	*85.7*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C3-HFPO-DA	*72.0*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C3-PFBS	*102*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C4-PFBA	*112*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C4-PFHpA	*114*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C4-PFOA	*104*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C4-PFOS	*79.1*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C5-PFNA	*101*		*50-150*	*%REC*	1	5/25/2022 09:13 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-109 **Lab ID:** 22051511-16
Collection Date: 5/16/2022 **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	*101*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 13C8-FOSA	*62.5*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: 18O2-PFHxS	*105*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: d5-N-EtFOSAA	*72.4*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
Surr: d3-N-MeFOSAA	*51.1*		*50-150*	*%REC*	1	5/25/2022 09:13 AM
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**		Prep: SW3510 5/20/22 14:40	Analyst: **EE**
1,1`-Biphenyl	ND		18	µg/L	1	5/21/2022 12:09 AM
2,4,5-Trichlorophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2,4,6-Trichlorophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2,4-Dichlorophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2,4-Dimethylphenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2,4-Dinitrophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2,4-Dinitrotoluene	ND		18	µg/L	1	5/21/2022 12:09 AM
2,6-Dinitrotoluene	ND		18	µg/L	1	5/21/2022 12:09 AM
2-Chloronaphthalene	ND		18	µg/L	1	5/21/2022 12:09 AM
2-Chlorophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2-Methylnaphthalene	ND		18	µg/L	1	5/21/2022 12:09 AM
2-Methylphenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2-Nitroaniline	ND		18	µg/L	1	5/21/2022 12:09 AM
2-Nitrophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
3&4-Methylphenol	ND		18	µg/L	1	5/21/2022 12:09 AM
3,3´-Dichlorobenzidine	ND		18	µg/L	1	5/21/2022 12:09 AM
3-Nitroaniline	ND		18	µg/L	1	5/21/2022 12:09 AM
4,6-Dinitro-2-methylphenol	ND		18	µg/L	1	5/21/2022 12:09 AM
4-Bromophenyl phenyl ether	ND		18	µg/L	1	5/21/2022 12:09 AM
4-Chloro-3-methylphenol	ND		18	µg/L	1	5/21/2022 12:09 AM
4-Chloroaniline	ND		18	µg/L	1	5/21/2022 12:09 AM
4-Chlorophenyl phenyl ether	ND		18	µg/L	1	5/21/2022 12:09 AM
4-Nitroaniline	ND		18	µg/L	1	5/21/2022 12:09 AM
4-Nitrophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
Acenaphthene	ND		18	µg/L	1	5/21/2022 12:09 AM
Acenaphthylene	ND		18	µg/L	1	5/21/2022 12:09 AM
Acetophenone	ND		3.6	µg/L	1	5/21/2022 12:09 AM
Anthracene	ND		18	µg/L	1	5/21/2022 12:09 AM
Atrazine	ND		3.6	µg/L	1	5/21/2022 12:09 AM
Benzaldehyde	ND		3.6	µg/L	1	5/21/2022 12:09 AM
Benzo(a)anthracene	ND		18	µg/L	1	5/21/2022 12:09 AM
Benzo(a)pyrene	ND		18	µg/L	1	5/21/2022 12:09 AM
Benzo(b)fluoranthene	ND		18	µg/L	1	5/21/2022 12:09 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-109 **Lab ID:** 22051511-16
Collection Date: 5/16/2022 **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		18	µg/L	1	5/21/2022 12:09 AM
Benzo(k)fluoranthene	ND		18	µg/L	1	5/21/2022 12:09 AM
Bis(2-chloroethoxy)methane	ND		18	µg/L	1	5/21/2022 12:09 AM
Bis(2-chloroethyl)ether	ND		18	µg/L	1	5/21/2022 12:09 AM
Bis(2-chloroisopropyl)ether	ND		18	µg/L	1	5/21/2022 12:09 AM
Bis(2-ethylhexyl)phthalate	ND		18	µg/L	1	5/21/2022 12:09 AM
Butyl benzyl phthalate	ND		18	µg/L	1	5/21/2022 12:09 AM
Caprolactam	ND		36	µg/L	1	5/21/2022 12:09 AM
Carbazole	ND		18	µg/L	1	5/21/2022 12:09 AM
Chrysene	ND		18	µg/L	1	5/21/2022 12:09 AM
Dibenzo(a,h)anthracene	ND		18	µg/L	1	5/21/2022 12:09 AM
Dibenzofuran	ND		18	µg/L	1	5/21/2022 12:09 AM
Diethyl phthalate	ND		18	µg/L	1	5/21/2022 12:09 AM
Dimethyl phthalate	ND		18	µg/L	1	5/21/2022 12:09 AM
Di-n-butyl phthalate	ND		18	µg/L	1	5/21/2022 12:09 AM
Di-n-octyl phthalate	ND		18	µg/L	1	5/21/2022 12:09 AM
Fluoranthene	ND		18	µg/L	1	5/21/2022 12:09 AM
Fluorene	ND		18	µg/L	1	5/21/2022 12:09 AM
Hexachlorobenzene	ND		18	µg/L	1	5/21/2022 12:09 AM
Hexachlorobutadiene	ND		18	µg/L	1	5/21/2022 12:09 AM
Hexachlorocyclopentadiene	ND		18	µg/L	1	5/21/2022 12:09 AM
Hexachloroethane	ND		18	µg/L	1	5/21/2022 12:09 AM
Indeno(1,2,3-cd)pyrene	ND		18	µg/L	1	5/21/2022 12:09 AM
Isophorone	ND		18	µg/L	1	5/21/2022 12:09 AM
Naphthalene	ND		18	µg/L	1	5/21/2022 12:09 AM
Nitrobenzene	ND		18	µg/L	1	5/21/2022 12:09 AM
N-Nitrosodi-n-propylamine	ND		18	µg/L	1	5/21/2022 12:09 AM
N-Nitrosodiphenylamine	ND		18	µg/L	1	5/21/2022 12:09 AM
Pentachlorophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
Phenanthrene	ND		18	µg/L	1	5/21/2022 12:09 AM
Phenol	ND		18	µg/L	1	5/21/2022 12:09 AM
Pyrene	ND		18	µg/L	1	5/21/2022 12:09 AM
Surr: 2,4,6-Tribromophenol	*70.1*		*27-83*	*%REC*	1	5/21/2022 12:09 AM
Surr: 2-Fluorobiphenyl	*75.0*		*26-79*	*%REC*	1	5/21/2022 12:09 AM
Surr: 2-Fluorophenol	*41.8*		*13-56*	*%REC*	1	5/21/2022 12:09 AM
Surr: 4-Terphenyl-d14	*85.8*		*43-106*	*%REC*	1	5/21/2022 12:09 AM
Surr: Nitrobenzene-d5	*71.5*		*29-80*	*%REC*	1	5/21/2022 12:09 AM
Surr: Phenol-d6	*28.0*		*10-35*	*%REC*	1	5/21/2022 12:09 AM
VOLATILE ORGANIC COMPOUNDS			**SW8260C**			Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-109 **Lab ID:** 22051511-16
Collection Date: 5/16/2022 **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 04:05 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 04:05 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Acetone	ND		10	µg/L	1	5/20/2022 04:05 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 04:05 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 04:05 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 04:05 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 04:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill **Work Order:** 22051511
Sample ID: MW-109 **Lab ID:** 22051511-16
Collection Date: 5/16/2022 **Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 04:05 AM
Surr: 1,2-Dichloroethane-d4	*98.2*		*75-120*	*%REC*	1	5/20/2022 04:05 AM
Surr: 4-Bromofluorobenzene	*83.2*		*80-110*	*%REC*	1	5/20/2022 04:05 AM
Surr: Dibromofluoromethane	*102*		*85-115*	*%REC*	1	5/20/2022 04:05 AM
Surr: Toluene-d8	*95.4*		*85-110*	*%REC*	1	5/20/2022 04:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-22

Client: The Mannik & Smith Group, Inc.

Work Order: 22051511

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196634** Instrument ID **GC14** Method: **SW8082A**

MBLK Sample ID: **PBLKW1-196634-196634** Units: **µg/L** Analysis Date: **5/21/2022 02:40 AM**

Client ID: Run ID: **GC14_220520A** SeqNo: **8445303** Prep Date: **5/20/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	0.20								
Aroclor 1221	ND	0.20								
Aroclor 1232	ND	0.20								
Aroclor 1242	ND	0.20								
Aroclor 1248	ND	0.20								
Aroclor 1254	ND	0.20								
Aroclor 1260	ND	0.20								
Aroclor 1262	ND	0.20								
Aroclor 1268	ND	0.20								
PCBs, Total	ND	0.20								
Surr: Decachlorobiphenyl	*0.2057*	0	*0.208*	0	*98.9*	*42-153*	0			
Surr: Tetrachloro-m-xylene	*0.168*	0	*0.208*	0	*80.8*	*48-127*	0			

LCS Sample ID: **PLCSW1-196634-196634** Units: **µg/L** Analysis Date: **5/21/2022 03:05 AM**

Client ID: Run ID: **GC14_220520A** SeqNo: **8445305** Prep Date: **5/20/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	4.099	0.20	4.17	0	98.3	71-130	0			
Aroclor 1260	2.956	0.20	4.17	0	70.9	54-135	0			
Surr: Decachlorobiphenyl	*0.1543*	0	*0.208*	0	*74.2*	*42-153*	0			
Surr: Tetrachloro-m-xylene	*0.1947*	0	*0.208*	0	*93.6*	*48-127*	0			

LCSD Sample ID: **PLCSDW1-196634-196634** Units: **µg/L** Analysis Date: **5/21/2022 03:18 AM**

Client ID: Run ID: **GC14_220520A** SeqNo: **8445306** Prep Date: **5/20/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	4.11	0.20	4.17	0	98.6	71-130	4.099	0.282	20	
Aroclor 1260	3.132	0.20	4.17	0	75.1	54-135	2.956	5.79	20	
Surr: Decachlorobiphenyl	*0.1875*	0	*0.208*	0	*90.1*	*42-153*	0.1543	*19.4*	*20*	
Surr: Tetrachloro-m-xylene	*0.1895*	0	*0.208*	0	*91.1*	*48-127*	0.1947	*2.69*	*20*	

The following samples were analyzed in this batch:

22051511-01B	22051511-02B	22051511-03B
22051511-04B	22051511-05B	22051511-06B
22051511-07B	22051511-08B	22051511-09B
22051511-10B	22051511-11B	22051511-12B
22051511-14B	22051511-16B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196557** Instrument ID **HG4** Method: **SW7470A**

MBLK Sample ID: **MBLK-196557-196557** Units: **mg/L** Analysis Date: **5/19/2022 12:11 PM**
Client ID: Run ID: **HG4_220519A** SeqNo: **8435553** Prep Date: **5/19/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	ND	0.00020								

LCS Sample ID: **LCS-196557-196557** Units: **mg/L** Analysis Date: **5/19/2022 12:13 PM**
Client ID: Run ID: **HG4_220519A** SeqNo: **8435554** Prep Date: **5/19/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.002295	0.00020	0.002	0	115	80-120	0			

MS Sample ID: **22051511-14DMS** Units: **mg/L** Analysis Date: **5/19/2022 12:58 PM**
Client ID: **DUP** Run ID: **HG4_220519A** SeqNo: **8435579** Prep Date: **5/19/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00219	0.00020	0.002	0.0000465	107	75-125	0			

MSD Sample ID: **22051511-14DMSD** Units: **mg/L** Analysis Date: **5/19/2022 12:59 PM**
Client ID: **DUP** Run ID: **HG4_220519A** SeqNo: **8435580** Prep Date: **5/19/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00222	0.00020	0.002	0.0000465	109	75-125	0.00219	1.36	20	

The following samples were analyzed in this batch:

22051511-01D	22051511-02D	22051511-03D
22051511-04D	22051511-05D	22051511-06D
22051511-07D	22051511-08D	22051511-09D
22051511-10D	22051511-11D	22051511-12D
22051511-14D	22051511-16D	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **196747** Instrument ID **ICPMS3** Method: **SW6020B**

MBLK Sample ID: **MBLK-196747-196747** Units: **mg/L** Analysis Date: **5/23/2022 06:54 PM**
Client ID: Run ID: **ICPMS3_220523A** SeqNo: **8447286** Prep Date: **5/23/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	0.002204	0.0050								J
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	0.02586	0.010								

LCS Sample ID: **LCS-196747-196747** Units: **mg/L** Analysis Date: **5/23/2022 06:55 PM**
Client ID: Run ID: **ICPMS3_220523A** SeqNo: **8447288** Prep Date: **5/23/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1013	0.010	0.1	0	101	80-120	0			
Antimony	0.09687	0.0050	0.1	0	96.9	80-120	0			
Arsenic	0.09878	0.0050	0.1	0	98.8	80-120	0			
Barium	0.1001	0.0050	0.1	0	100	80-120	0			
Beryllium	0.09945	0.0020	0.1	0	99.4	80-120	0			
Boron	0.5116	0.020	0.5	0	102	80-120	0			
Cadmium	0.09773	0.0020	0.1	0	97.7	80-120	0			
Chromium	0.1026	0.0050	0.1	0	103	80-120	0			
Copper	0.1057	0.0050	0.1	0	106	80-120	0			
Lead	0.09594	0.0050	0.1	0	95.9	80-120	0			
Nickel	0.1042	0.0050	0.1	0	104	80-120	0			
Selenium	0.09634	0.0050	0.1	0	96.3	80-120	0			
Silver	0.08183	0.0050	0.1	0	81.8	80-120	0			
Thallium	0.097	0.0050	0.1	0	97	80-120	0			
Zinc	0.1176	0.010	0.1	0	118	80-120	0			B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196747** Instrument ID **ICPMS3** Method: **SW6020B**

MS Sample ID: **22051511-01DMS** Units: **mg/L** Analysis Date: **5/23/2022 07:12 PM**
Client ID: **MW-101** Run ID: **ICPMS3_220523A** SeqNo: **8447299** Prep Date: **5/23/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1496	0.010	0.1	0.01547	134	75-125	0			S
Antimony	0.09946	0.0050	0.1	0.0001936	99.3	75-125	0			
Arsenic	0.1054	0.0050	0.1	0.004369	101	75-125	0			
Barium	0.1957	0.0050	0.1	0.09689	98.9	75-125	0			
Beryllium	0.1026	0.0020	0.1	0.0000077	103	75-125	0			
Boron	0.8189	0.020	0.5	0.2965	104	75-125	0			
Cadmium	0.09819	0.0020	0.1	0	98.2	75-125	0			
Chromium	0.1045	0.0050	0.1	0.0008184	104	75-125	0			
Copper	0.1013	0.0050	0.1	0.0004356	101	75-125	0			
Lead	0.09861	0.0050	0.1	-0.001705	100	75-125	0			
Nickel	0.1016	0.0050	0.1	0.002687	98.9	75-125	0			
Selenium	0.09838	0.0050	0.1	0.0003124	98.1	75-125	0			
Silver	0.07876	0.0050	0.1	0.0000044	78.8	75-125	0			
Thallium	0.0994	0.0050	0.1	-0.0000099	99.4	75-125	0			
Zinc	0.3072	0.010	0.1	0.00695	300	75-125	0			BS

MSD Sample ID: **22051511-01DMSD** Units: **mg/L** Analysis Date: **5/23/2022 07:13 PM**
Client ID: **MW-101** Run ID: **ICPMS3_220523A** SeqNo: **8447300** Prep Date: **5/23/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1147	0.010	0.1	0.01547	99.2	75-125	0.1496	26.4	20	R
Antimony	0.0971	0.0050	0.1	0.0001936	96.9	75-125	0.09946	2.39	20	
Arsenic	0.1036	0.0050	0.1	0.004369	99.2	75-125	0.1054	1.77	20	
Barium	0.1949	0.0050	0.1	0.09689	98	75-125	0.1957	0.451	20	
Beryllium	0.1	0.0020	0.1	0.0000077	100	75-125	0.1026	2.51	20	
Boron	0.8104	0.020	0.5	0.2965	103	75-125	0.8189	1.05	20	
Cadmium	0.09753	0.0020	0.1	0	97.5	75-125	0.09819	0.67	20	
Chromium	0.1014	0.0050	0.1	0.0008184	101	75-125	0.1045	3.01	20	
Copper	0.1001	0.0050	0.1	0.0004356	99.6	75-125	0.1013	1.21	20	
Lead	0.09688	0.0050	0.1	-0.001705	98.6	75-125	0.09861	1.77	20	
Nickel	0.1003	0.0050	0.1	0.002687	97.6	75-125	0.1016	1.28	20	
Selenium	0.09595	0.0050	0.1	0.0003124	95.6	75-125	0.09838	2.5	20	
Silver	0.07698	0.0050	0.1	0.0000044	77	75-125	0.07876	2.29	20	
Thallium	0.09849	0.0050	0.1	-0.0000099	98.5	75-125	0.0994	0.926	20	
Zinc	0.1114	0.010	0.1	0.00695	104	75-125	0.3072	93.5	20	BR

The following samples were analyzed in this batch:

22051511-01D	22051511-02D	22051511-03D
22051511-04D	22051511-05D	22051511-06D
22051511-07D	22051511-08D	22051511-09D
22051511-10D	22051511-11D	22051511-12D
22051511-14D		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196748** Instrument ID **ICPMS3** Method: **SW6020B**

MBLK Sample ID: **MBLK-196748-196748** Units: **mg/L** Analysis Date: **5/23/2022 07:44 PM**
Client ID: Run ID: **ICPMS3_220523A** SeqNo: **8447320** Prep Date: **5/23/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	0.002898	0.0050								J
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	0.01099	0.010								

LCS Sample ID: **LCS-196748-196748** Units: **mg/L** Analysis Date: **5/23/2022 07:45 PM**
Client ID: Run ID: **ICPMS3_220523A** SeqNo: **8447321** Prep Date: **5/23/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09741	0.0050	0.1	0	97.4	80-120	0			
Arsenic	0.09556	0.0050	0.1	0	95.6	80-120	0			
Barium	0.103	0.0050	0.1	0	103	80-120	0			
Beryllium	0.0854	0.0020	0.1	0	85.4	80-120	0			
Boron	0.4301	0.020	0.5	0	86	80-120	0			
Cadmium	0.09751	0.0020	0.1	0	97.5	80-120	0			
Chromium	0.09906	0.0050	0.1	0	99.1	80-120	0			
Copper	0.09985	0.0050	0.1	0	99.8	80-120	0			
Lead	0.09759	0.0050	0.1	0	97.6	80-120	0			
Nickel	0.09808	0.0050	0.1	0	98.1	80-120	0			
Selenium	0.09474	0.0050	0.1	0	94.7	80-120	0			
Thallium	0.09862	0.0050	0.1	0	98.6	80-120	0			

LCS Sample ID: **LCS-196748-196748** Units: **mg/L** Analysis Date: **5/24/2022 01:30 PM**
Client ID: Run ID: **ICPMS3_220524A** SeqNo: **8450391** Prep Date: **5/23/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	0.08265	0.0050	0.1	0	82.7	80-120	0			
Zinc	0.1515	0.010	0.1	0	152	80-120	0			BS

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196748** Instrument ID **ICPMS3** Method: **SW6020B**

MS Sample ID: **22051619-01DMS** Units: **mg/L** Analysis Date: **5/23/2022 08:08 PM**
Client ID: Run ID: **ICPMS3_220523A** SeqNo: **8447337** Prep Date: **5/23/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09952	0.0050	0.1	0.0001243	99.4	75-125	0			
Arsenic	0.09918	0.0050	0.1	0.00022	99	75-125	0			
Barium	0.1071	0.0050	0.1	0.006629	100	75-125	0			
Beryllium	0.1028	0.0020	0.1	0.0000385	103	75-125	0			
Boron	0.5347	0.020	0.5	0.01715	104	75-125	0			
Cadmium	0.09892	0.0020	0.1	0.0000627	98.9	75-125	0			
Chromium	0.1012	0.0050	0.1	0.0006479	101	75-125	0			
Copper	0.105	0.0050	0.1	0.003431	102	75-125	0			
Lead	0.09815	0.0050	0.1	-0.001822	100	75-125	0			
Nickel	0.1013	0.0050	0.1	0.0006347	101	75-125	0			
Selenium	0.09717	0.0050	0.1	0.0002321	96.9	75-125	0			
Silver	0.08028	0.0050	0.1	0	80.3	75-125	0			
Thallium	0.09935	0.0050	0.1	-0.000011	99.4	75-125	0			
Zinc	0.1036	0.010	0.1	0.001426	102	75-125	0			B

MSD Sample ID: **22051619-01DMSD** Units: **mg/L** Analysis Date: **5/23/2022 08:10 PM**
Client ID: Run ID: **ICPMS3_220523A** SeqNo: **8447338** Prep Date: **5/23/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.1009	0.0050	0.1	0.0001243	101	75-125	0.09952	1.39	20	
Arsenic	0.1016	0.0050	0.1	0.00022	101	75-125	0.09918	2.45	20	
Barium	0.1094	0.0050	0.1	0.006629	103	75-125	0.1071	2.11	20	
Beryllium	0.1032	0.0020	0.1	0.0000385	103	75-125	0.1028	0.36	20	
Boron	0.5448	0.020	0.5	0.01715	106	75-125	0.5347	1.87	20	
Cadmium	0.09995	0.0020	0.1	0.0000627	99.9	75-125	0.09892	1.04	20	
Chromium	0.1036	0.0050	0.1	0.0006479	103	75-125	0.1012	2.28	20	
Copper	0.1073	0.0050	0.1	0.003431	104	75-125	0.105	2.09	20	
Lead	0.09979	0.0050	0.1	-0.001822	102	75-125	0.09815	1.66	20	
Nickel	0.1042	0.0050	0.1	0.0006347	104	75-125	0.1013	2.78	20	
Selenium	0.09535	0.0050	0.1	0.0002321	95.1	75-125	0.09717	1.89	20	
Silver	0.08128	0.0050	0.1	0	81.3	75-125	0.08028	1.24	20	
Thallium	0.1005	0.0050	0.1	-0.000011	100	75-125	0.09935	1.11	20	
Zinc	0.1055	0.010	0.1	0.001426	104	75-125	0.1036	1.75	20	B

The following samples were analyzed in this batch: 22051511-16D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196876** Instrument ID **ICPMS3** Method: **SW6020B**

MBLK Sample ID: **MBLK-196876-196876** Units: **mg/L** Analysis Date: **5/25/2022 03:22 PM**
Client ID: Run ID: **ICPMS3_220525A** SeqNo: **8455596** Prep Date: **5/25/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	ND	0.010								

LCS Sample ID: **LCS-196876-196876** Units: **mg/L** Analysis Date: **5/25/2022 03:24 PM**
Client ID: Run ID: **ICPMS3_220525A** SeqNo: **8455599** Prep Date: **5/25/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09965	0.010	0.1	0	99.6	80-120	0			
Antimony	0.1001	0.0050	0.1	0	100	80-120	0			
Arsenic	0.09536	0.0050	0.1	0	95.4	80-120	0			
Barium	0.09923	0.0050	0.1	0	99.2	80-120	0			
Beryllium	0.1008	0.0020	0.1	0	101	80-120	0			
Boron	0.5255	0.020	0.5	0	105	80-120	0			
Cadmium	0.09979	0.0020	0.1	0	99.8	80-120	0			
Chromium	0.101	0.0050	0.1	0	101	80-120	0			
Copper	0.1065	0.0050	0.1	0	107	80-120	0			
Lead	0.09802	0.0050	0.1	0	98	80-120	0			
Nickel	0.1035	0.0050	0.1	0	104	80-120	0			
Selenium	0.09328	0.0050	0.1	0	93.3	80-120	0			
Silver	0.09466	0.0050	0.1	0	94.7	80-120	0			
Thallium	0.09612	0.0050	0.1	0	96.1	80-120	0			
Zinc	0.1063	0.010	0.1	0	106	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196876** Instrument ID **ICPMS3** Method: **SW6020B**

MS Sample ID: **22051619-03DMS** Units: **mg/L** Analysis Date: **5/25/2022 05:16 PM**
Client ID: Run ID: **ICPMS3_220525A** SeqNo: **8458411** Prep Date: **5/25/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.3377	0.010	0.1	0.2359	102	75-125	0			
Antimony	0.1052	0.0050	0.1	0.0000891	105	75-125	0			
Arsenic	0.0944	0.0050	0.1	0.0002442	94.2	75-125	0			
Barium	0.1159	0.0050	0.1	0.0148	101	75-125	0			
Beryllium	0.1016	0.0020	0.1	0.0000363	102	75-125	0			
Boron	0.5462	0.020	0.5	0.01397	106	75-125	0			
Cadmium	0.1046	0.0020	0.1	0.0000682	105	75-125	0			
Chromium	0.09977	0.0050	0.1	0.001273	98.5	75-125	0			
Copper	0.1062	0.0050	0.1	0.00145	105	75-125	0			
Lead	0.09816	0.0050	0.1	0.0002233	97.9	75-125	0			
Nickel	0.1021	0.0050	0.1	0.0006545	101	75-125	0			
Selenium	0.09335	0.0050	0.1	0.0000979	93.3	75-125	0			
Silver	0.09725	0.0050	0.1	0.0000033	97.2	75-125	0			
Thallium	0.09541	0.0050	0.1	0.0000088	95.4	75-125	0			
Zinc	0.1045	0.010	0.1	0.001261	103	75-125	0			

MSD Sample ID: **22051619-03DMSD** Units: **mg/L** Analysis Date: **5/25/2022 05:18 PM**
Client ID: Run ID: **ICPMS3_220525A** SeqNo: **8458412** Prep Date: **5/25/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.3542	0.010	0.1	0.2359	118	75-125	0.3377	4.78	20	
Antimony	0.104	0.0050	0.1	0.0000891	104	75-125	0.1052	1.14	20	
Arsenic	0.09267	0.0050	0.1	0.0002442	92.4	75-125	0.0944	1.85	20	
Barium	0.1149	0.0050	0.1	0.0148	100	75-125	0.1159	0.845	20	
Beryllium	0.1002	0.0020	0.1	0.0000363	100	75-125	0.1016	1.35	20	
Boron	0.5453	0.020	0.5	0.01397	106	75-125	0.5462	0.148	20	
Cadmium	0.1038	0.0020	0.1	0.0000682	104	75-125	0.1046	0.806	20	
Chromium	0.09907	0.0050	0.1	0.001273	97.8	75-125	0.09977	0.698	20	
Copper	0.1039	0.0050	0.1	0.00145	102	75-125	0.1062	2.13	20	
Lead	0.09721	0.0050	0.1	0.0002233	97	75-125	0.09816	0.966	20	
Nickel	0.1001	0.0050	0.1	0.0006545	99.4	75-125	0.1021	1.99	20	
Selenium	0.09347	0.0050	0.1	0.0000979	93.4	75-125	0.09335	0.13	20	
Silver	0.09611	0.0050	0.1	0.0000033	96.1	75-125	0.09725	1.18	20	
Thallium	0.09397	0.0050	0.1	0.0000088	94	75-125	0.09541	1.52	20	
Zinc	0.1089	0.010	0.1	0.001261	108	75-125	0.1045	4.11	20	

The following samples were analyzed in this batch:

22051511-02D	22051511-04D	22051511-06D
22051511-07D	22051511-10D	22051511-11D
22051511-14D		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **197094** Instrument ID **ICPMS3** Method: **SW6020B**

MBLK	Sample ID: **MBLK-197094-197094**				Units: **mg/L**			Analysis Date: **5/31/2022 03:47 PM**		
Client ID:	Run ID: **ICPMS3_220531A**				SeqNo: **8471604**			Prep Date: **5/29/2022**		DF: **1**
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	ND	0.010								

MBLK	Sample ID: **MBLK-197094-197094**				Units: **mg/L**			Analysis Date: **6/1/2022 12:20 PM**		
Client ID:	Run ID: **ICPMS3_220601A**				SeqNo: **8474214**			Prep Date: **5/29/2022**		DF: **1**
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	ND	0.020								

LCS	Sample ID: **LCS-197094-197094**				Units: **mg/L**			Analysis Date: **5/31/2022 03:48 PM**		
Client ID:	Run ID: **ICPMS3_220531A**				SeqNo: **8471605**			Prep Date: **5/29/2022**		DF: **1**
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1029	0.010	0.1	0	103	80-120	0			
Antimony	0.09689	0.0050	0.1	0	96.9	80-120	0			
Arsenic	0.09534	0.0050	0.1	0	95.3	80-120	0			
Barium	0.09894	0.0050	0.1	0	98.9	80-120	0			
Beryllium	0.09581	0.0020	0.1	0	95.8	80-120	0			
Cadmium	0.0992	0.0020	0.1	0	99.2	80-120	0			
Chromium	0.1019	0.0050	0.1	0	102	80-120	0			
Copper	0.1075	0.0050	0.1	0	108	80-120	0			
Lead	0.09724	0.0050	0.1	0	97.2	80-120	0			
Nickel	0.1026	0.0050	0.1	0	103	80-120	0			
Selenium	0.08974	0.0050	0.1	0	89.7	80-120	0			
Silver	0.09505	0.0050	0.1	0	95	80-120	0			
Thallium	0.09462	0.0050	0.1	0	94.6	80-120	0			
Zinc	0.1016	0.010	0.1	0	102	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **197094** Instrument ID **ICPMS3** Method: **SW6020B**

LCS Sample ID: **LCS-197094-197094** Units: **mg/L** Analysis Date: **6/1/2022 12:22 PM**
Client ID: Run ID: **ICPMS3_220601A** SeqNo: **8474215** Prep Date: **5/29/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5048	0.020	0.5	0	101	80-120	0			

MS Sample ID: **22051853-09DMS** Units: **mg/L** Analysis Date: **5/31/2022 05:38 PM**
Client ID: Run ID: **ICPMS3_220531A** SeqNo: **8472567** Prep Date: **5/29/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	3.168	0.010	0.1	2.153	1010	75-125	0			SEO
Antimony	0.09893	0.0050	0.1	0.0000319	98.9	75-125	0			
Arsenic	0.09945	0.0050	0.1	0.001066	98.4	75-125	0			
Barium	0.2846	0.0050	0.1	0.1854	99.2	75-125	0			
Beryllium	0.09961	0.0020	0.1	0.0001166	99.5	75-125	0			
Cadmium	0.09942	0.0020	0.1	0.000033	99.4	75-125	0			
Chromium	0.104	0.0050	0.1	0.003516	100	75-125	0			
Copper	0.1128	0.0050	0.1	0.008994	104	75-125	0			
Lead	0.101	0.0050	0.1	0.001884	99.2	75-125	0			
Nickel	0.104	0.0050	0.1	0.002879	101	75-125	0			
Selenium	0.09213	0.0050	0.1	0.0000924	92	75-125	0			
Silver	0.09291	0.0050	0.1	0.0000132	92.9	75-125	0			
Thallium	0.09726	0.0050	0.1	0.0000088	97.3	75-125	0			
Zinc	0.1137	0.010	0.1	0.01402	99.7	75-125	0			

MS Sample ID: **22051853-09DMS** Units: **mg/L** Analysis Date: **6/1/2022 12:25 PM**
Client ID: Run ID: **ICPMS3_220601A** SeqNo: **8474217** Prep Date: **5/29/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5844	0.020	0.5	0.07552	102	75-125	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **197094** Instrument ID **ICPMS3** Method: **SW6020B**

MSD	Sample ID: **22051853-09DMSD**				Units: **mg/L**			Analysis Date: **5/31/2022 05:40 PM**		
Client ID:	Run ID: **ICPMS3_220531A**				SeqNo: **8472568**		Prep Date: **5/29/2022**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	3.157	0.010	0.1	2.153	1000	75-125	3.168	0.352	20	SEO
Antimony	0.09732	0.0050	0.1	0.0000319	97.3	75-125	0.09893	1.64	20	
Arsenic	0.09934	0.0050	0.1	0.001066	98.3	75-125	0.09945	0.11	20	
Barium	0.2862	0.0050	0.1	0.1854	101	75-125	0.2846	0.555	20	
Beryllium	0.1012	0.0020	0.1	0.0001166	101	75-125	0.09961	1.61	20	
Cadmium	0.09833	0.0020	0.1	0.000033	98.3	75-125	0.09942	1.11	20	
Chromium	0.1047	0.0050	0.1	0.003516	101	75-125	0.104	0.656	20	
Copper	0.1123	0.0050	0.1	0.008994	103	75-125	0.1128	0.428	20	
Lead	0.0999	0.0050	0.1	0.001884	98	75-125	0.101	1.14	20	
Nickel	0.1027	0.0050	0.1	0.002879	99.9	75-125	0.104	1.18	20	
Selenium	0.09594	0.0050	0.1	0.0000924	95.9	75-125	0.09213	4.05	20	
Silver	0.09221	0.0050	0.1	0.0000132	92.2	75-125	0.09291	0.759	20	
Thallium	0.09764	0.0050	0.1	0.0000088	97.6	75-125	0.09726	0.389	20	
Zinc	0.1153	0.010	0.1	0.01402	101	75-125	0.1137	1.38	20	

MSD	Sample ID: **22051853-09DMSD**				Units: **mg/L**			Analysis Date: **6/1/2022 12:27 PM**		
Client ID:	Run ID: **ICPMS3_220601A**				SeqNo: **8474218**		Prep Date: **5/29/2022**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5812	0.020	0.5	0.07552	101	75-125	0.5844	0.549	20	

The following samples were analyzed in this batch: 22051511-16D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196606** Instrument ID **LCMS1** Method: **E537 Mod**

MBLK Sample ID: **MBLK-196606-196606** Units: **ng/L** Analysis Date: **5/24/2022 11:52 AM**
Client ID: Run ID: **LCMS1_220523C** SeqNo: **8450642** Prep Date: **5/20/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	ND	5.0								
Fluorotelomer Sulphonic Acid 6:2 (FtS	ND	5.0								
Fluorotelomer Sulphonic Acid 8:2 (FtS	ND	5.0								
Perfluorobutanesulfonic Acid (PFBS)	ND	5.0								
Perfluorobutanoic Acid (PFBA)	ND	5.0								
Perfluorodecanesulfonic Acid (PFDS)	ND	5.0								
Perfluorodecanoic Acid (PFDA)	ND	5.0								
Perfluorododecanoic Acid (PFDoA)	ND	5.0								
Perfluoroheptanesulfonic Acid (PFHpS	ND	5.0								
Perfluoroheptanoic Acid (PFHpA)	ND	5.0								
Perfluorohexanesulfonic Acid (PFHxS)	ND	5.0								
Perfluorohexanoic Acid (PFHxA)	ND	5.0								
Perfluorononanesulfonic Acid (PFNS)	ND	5.0								
Perfluorononanoic Acid (PFNA)	ND	5.0								
Perfluorooctanesulfonamide (PFOSA)	ND	5.0								
Perfluorooctanesulfonic Acid (PFOS)	ND	2.0								
Perfluorooctanoic Acid (PFOA)	ND	2.0								
Perfluoropentanesulfonic Acid (PFPeS	ND	5.0								
Perfluoropentanoic Acid (PFPeA)	ND	5.0								
Perfluorotetradecanoic Acid (PFTeA)	ND	5.0								
Perfluorotridecanoic Acid (PFTriA)	ND	5.0								
Perfluoroundecanoic Acid (PFUnA)	ND	5.0								
N-Ethylperfluorooctanesulfonamidoace	ND	5.0								
N-Methylperfluorooctanesulfonamidoa	0.6528	5.0								J
Hexafluoropropylene oxide dimer acid	ND	5.0								
4,8-Dioxa-3H-perfluorononanoic Acid (	ND	5.0								
11Cl-Pf3OUdS	ND	5.0								
9Cl-PF3ONS	ND	5.0								
Surr: 13C2-FtS 4:2	*123.3*	0	*149.4*	0	*82.5*	*50-150*	0			
Surr: 13C2-FtS 6:2	*150.7*	0	*152*	0	*99.2*	*50-150*	0			
Surr: 13C2-FtS 8:2	*144.3*	0	*153.3*	0	*94.2*	*50-150*	0			
Surr: 13C2-PFDA	*138.9*	0	*160*	0	*86.8*	*50-150*	0			
Surr: 13C2-PFDoA	*141.8*	0	*160*	0	*88.6*	*50-150*	0			
Surr: 13C2-PFHxA	*133.1*	0	*160*	0	*83.2*	*50-150*	0			
Surr: 13C2-PFTeA	*144.7*	0	*160*	0	*90.5*	*50-150*	0			
Surr: 13C2-PFUnA	*143.5*	0	*160*	0	*89.7*	*50-150*	0			
Surr: 13C3-HFPO-DA	*131.4*	0	*160*	0	*82.1*	*50-150*	0			
Surr: 13C3-PFBS	*136.1*	0	*148.8*	0	*91.4*	*50-150*	0			
Surr: 13C4-PFBA	*142.1*	0	*160*	0	*88.8*	*50-150*	0			
Surr: 13C4-PFHpA	*143.9*	0	*160*	0	*90*	*50-150*	0			
Surr: 13C4-PFOA	*134.9*	0	*160*	0	*84.3*	*50-150*	0			
Surr: 13C4-PFOS	*134.2*	0	*152.8*	0	*87.8*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **196606** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C5-PFNA	*156.2*	0	*160*	0	*97.6*	*50-150*	0
Surr: 13C5-PFPeA	*147.3*	0	*160*	0	*92.1*	*50-150*	0
Surr: 18O2-PFHxS	*156.1*	0	*151.2*	0	*103*	*50-150*	0
Surr: d5-N-EtFOSAA	*150.8*	0	*160*	0	*94.2*	*50-150*	0
Surr: d3-N-MeFOSAA	*140.4*	0	*160*	0	*87.8*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196606** Instrument ID **LCMS1** Method: **E537 Mod**

LCS	Sample ID: **LCS-196606-196606**				Units: **ng/L**			Analysis Date: **5/24/2022 07:17 AM**			
Client ID:		Run ID: **LCMS1_220523C**			SeqNo: **8450612**			Prep Date: **5/20/2022**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	37.6	5.0	29.9	0	126	63-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	40.82	5.0	30.3	0	135	63-162	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	28.09	5.0	30.7	0	91.5	61-165	0			
Perfluorobutanesulfonic Acid (PFBS)	36	5.0	28.3	0	127	72-130	0			
Perfluorobutanoic Acid (PFBA)	39.86	5.0	32	0	125	73-129	0			
Perfluorodecanesulfonic Acid (PFDS)	38.9	5.0	30.8	0	126	53-142	0			
Perfluorodecanoic Acid (PFDA)	37.05	5.0	32	0	116	71-129	0			
Perfluorododecanoic Acid (PFDoA)	32.35	5.0	32	0	101	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	36.48	5.0	30.5	0	120	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	40.93	5.0	32	0	128	72-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	35.38	5.0	29.1	0	122	68-131	0			
Perfluorohexanoic Acid (PFHxA)	34.2	5.0	32	0	107	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	32.62	5.0	30.7	0	106	69-127	0			
Perfluorononanoic Acid (PFNA)	29.36	5.0	32	0	91.8	69-130	0			
Perfluorooctanesulfonamide (PFOSA)	35.51	5.0	32	0	111	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	30.46	2.0	29.7	0	103	65-140	0			
Perfluorooctanoic Acid (PFOA)	34.79	2.0	32	0	109	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	37.51	5.0	30	0	125	71-127	0			
Perfluoropentanoic Acid (PFPeA)	38.23	5.0	32	0	119	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	37.75	5.0	32	0	118	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	40.34	5.0	32	0	126	65-144	0			
Perfluoroundecanoic Acid (PFUnA)	30.34	5.0	32	0	94.8	69-133	0			
N-Ethylperfluorooctanesulfonamidoace	42.07	5.0	32	0	131	61-135	0			
N-Methylperfluorooctanesulfonamidoa	36.06	5.0	32	0	113	65-136	0			
Hexafluoropropylene oxide dimer acid	38.55	5.0	32	0	120	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	29.44	5.0	30.1	0	97.8	70-130	0			
9Cl-PF3ONS	37.6	5.0	29.8	0	126	70-130	0			
Surr: 13C2-FtS 4:2	*107.6*	0	*149.4*	0	*72*	*50-150*	0			
Surr: 13C2-FtS 6:2	*103.6*	0	*152*	0	*68.2*	*50-150*	0			
Surr: 13C2-FtS 8:2	*131.8*	0	*153.3*	0	*86*	*50-150*	0			
Surr: 13C2-PFDA	*128.2*	0	*160*	0	*80.1*	*50-150*	0			
Surr: 13C2-PFDoA	*112.4*	0	*160*	0	*70.2*	*50-150*	0			
Surr: 13C2-PFHxA	*144.1*	0	*160*	0	*90.1*	*50-150*	0			
Surr: 13C2-PFTeA	*129.2*	0	*160*	0	*80.8*	*50-150*	0			
Surr: 13C2-PFUnA	*166.5*	0	*160*	0	*104*	*50-150*	0			
Surr: 13C3-HFPO-DA	*114.7*	0	*160*	0	*71.7*	*50-150*	0			
Surr: 13C3-PFBS	*119.9*	0	*148.8*	0	*80.6*	*50-150*	0			
Surr: 13C4-PFBA	*135.7*	0	*160*	0	*84.8*	*50-150*	0			
Surr: 13C4-PFHpA	*129.3*	0	*160*	0	*80.8*	*50-150*	0			
Surr: 13C4-PFOA	*156.3*	0	*160*	0	*97.7*	*50-150*	0			
Surr: 13C4-PFOS	*121.5*	0	*152.8*	0	*79.5*	*50-150*	0			
Surr: 13C5-PFNA	*140.2*	0	*160*	0	*87.6*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **196606**	Instrument ID **LCMS1**		Method: **E537 Mod**				
Surr: 13C5-PFPeA	*122.5*	0	*160*	0	*76.5*	*50-150*	0
Surr: 13C8-FOSA	*103.6*	0	*160*	0	*64.7*	*50-150*	0
Surr: 18O2-PFHxS	*114.6*	0	*151.2*	0	*75.8*	*50-150*	0
Surr: d5-N-EtFOSAA	*125.6*	0	*160*	0	*78.5*	*50-150*	0
Surr: d3-N-MeFOSAA	*100.9*	0	*160*	0	*63*	*50-150*	0

LCS Sample ID: **LCS-196606-196606** Units: **ng/L** Analysis Date: **5/25/2022 03:09 AM**

Client ID: Run ID: **LCMS1_220524B** SeqNo: **8454692** Prep Date: **5/20/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
11Cl-Pf3OUdS	30.76	5.0	30.1	0	102	70-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196606** Instrument ID **LCMS1** Method: **E537 Mod**

MS Sample ID: **22051501-01AMS** Units: **ng/L** Analysis Date: **5/24/2022 09:22 AM**
Client ID: Run ID: **LCMS1_220523C** SeqNo: **8450626** Prep Date: **5/20/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	32.99	5.1	30.46	0.03274	108	63-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS	36.59	5.1	30.87	1.201	115	63-162	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	46.77	5.1	31.28	1.483	145	61-165	0			
Perfluorobutanesulfonic Acid (PFBS)	38.49	5.1	28.83	2.252	126	72-130	0			
Perfluorobutanoic Acid (PFBA)	52.29	5.1	32.6	3.306	150	73-129	0			S
Perfluorodecanesulfonic Acid (PFDS)	34.52	5.1	31.38	0	110	53-142	0			
Perfluorodecanoic Acid (PFDA)	38.11	5.1	32.6	-0.7071	119	71-129	0			
Perfluorododecanoic Acid (PFDoA)	34.89	5.1	32.6	0.1015	107	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	42.26	5.1	31.07	1.526	131	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	42.68	5.1	32.6	3.509	120	72-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	35.8	5.1	29.65	1.192	117	68-131	0			
Perfluorohexanoic Acid (PFHxA)	41.19	5.1	32.6	5.798	109	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	32.11	5.1	31.28	0	103	69-127	0			
Perfluorononanoic Acid (PFNA)	35.21	5.1	32.6	0.5402	106	69-130	0			
Perfluorooctanesulfonamide (PFOSA)	39.33	5.1	32.6	0.3012	120	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	36.07	2.0	30.26	2.874	110	65-140	0			
Perfluorooctanoic Acid (PFOA)	48.6	2.0	32.6	8.112	124	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS	40.42	5.1	30.56	0.1899	132	71-127	0			S
Perfluoropentanoic Acid (PFPeA)	46.35	5.1	32.6	6.786	121	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	37.43	5.1	32.6	0.2259	114	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	31.08	5.1	32.6	0.1179	95	65-144	0			
Perfluoroundecanoic Acid (PFUnA)	38.26	5.1	32.6	-0.7399	120	69-133	0			
N-Ethylperfluorooctanesulfonamidoace	36.05	5.1	32.6	0.1244	110	61-135	0			
N-Methylperfluorooctanesulfonamidoa	42.81	5.1	32.6	0.6155	129	65-136	0			
Hexafluoropropylene oxide dimer acid	39.15	5.1	32.6	0.1637	120	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	37.69	5.1	30.66	0.03274	123	70-130	0			
11Cl-Pf3OUdS	31.12	5.1	30.66	0.02292	101	70-130	0			
9Cl-PF3ONS	31.12	5.1	30.36	0.03274	102	70-130	0			
Surr: 13C2-FtS 4:2	*145.3*	0	*152.2*	0	*95.4*	*50-150*	0			
Surr: 13C2-FtS 6:2	*150.8*	0	*154.8*	0	*97.4*	*50-150*	0			
Surr: 13C2-FtS 8:2	*183.3*	0	*156.2*	0	*117*	*50-150*	0			
Surr: 13C2-PFDA	*153.6*	0	*163*	0	*94.2*	*50-150*	0			
Surr: 13C2-PFDoA	*133.6*	0	*163*	0	*81.9*	*50-150*	0			
Surr: 13C2-PFHxA	*147.2*	0	*163*	0	*90.3*	*50-150*	0			
Surr: 13C2-PFTeA	*149*	0	*163*	0	*91.4*	*50-150*	0			
Surr: 13C2-PFUnA	*140.1*	0	*163*	0	*85.9*	*50-150*	0			
Surr: 13C3-HFPO-DA	*150.7*	0	*163*	0	*92.4*	*50-150*	0			
Surr: 13C3-PFBS	*124.9*	0	*151.6*	0	*82.4*	*50-150*	0			
Surr: 13C4-PFBA	*135.8*	0	*163*	0	*83.3*	*50-150*	0			
Surr: 13C4-PFHpA	*124.6*	0	*163*	0	*76.5*	*50-150*	0			
Surr: 13C4-PFOA	*132.7*	0	*163*	0	*81.4*	*50-150*	0			
Surr: 13C4-PFOS	*139*	0	*155.7*	0	*89.3*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **196606** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C5-PFNA	*132.9*	0	*163*	0	*81.5*	*50-150*	0
Surr: 13C5-PFPeA	*133.5*	0	*163*	0	*81.9*	*50-150*	0
Surr: 13C8-FOSA	*119.3*	0	*163*	0	*73.2*	*50-150*	0
Surr: 18O2-PFHxS	*117.2*	0	*154*	0	*76.1*	*50-150*	0
Surr: d5-N-EtFOSAA	*144.5*	0	*163*	0	*88.7*	*50-150*	0
Surr: d3-N-MeFOSAA	*151.4*	0	*163*	0	*92.9*	*50-150*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196606** Instrument ID **LCMS1** Method: **E537 Mod**

MSD	Sample ID: **22051501-01AMSD**				Units: **ng/L**		Analysis Date: **5/24/2022 09:30 AM**			
Client ID:		Run ID: **LCMS1_220523C**			SeqNo: **8450627**		Prep Date: **5/20/2022**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	35.93	5.1	30.32	0.03274	118	63-143	32.99	8.53	30	
Fluorotelomer Sulphonic Acid 6:2 (FtS	36.62	5.1	30.72	1.201	115	63-162	36.59	0.0751	30	
Fluorotelomer Sulphonic Acid 8:2 (FtS	41.04	5.1	31.13	1.483	127	61-165	46.77	13.1	30	
Perfluorobutanesulfonic Acid (PFBS)	34.97	5.1	28.69	2.252	114	72-130	38.49	9.59	30	
Perfluorobutanoic Acid (PFBA)	44.11	5.1	32.45	3.306	126	73-129	52.29	17	30	
Perfluorodecanesulfonic Acid (PFDS)	34.79	5.1	31.23	0	111	53-142	34.52	0.782	30	
Perfluorodecanoic Acid (PFDA)	37.16	5.1	32.45	-0.7071	117	71-129	38.11	2.52	30	
Perfluorododecanoic Acid (PFDoA)	31.39	5.1	32.45	0.1015	96.4	72-134	34.89	10.6	30	
Perfluoroheptanesulfonic Acid (PFHpS	33.96	5.1	30.92	1.526	105	69-134	42.26	21.8	30	
Perfluoroheptanoic Acid (PFHpA)	43.12	5.1	32.45	3.509	122	72-130	42.68	1.03	30	
Perfluorohexanesulfonic Acid (PFHxS)	35.29	5.1	29.5	1.192	116	68-131	35.8	1.44	30	
Perfluorohexanoic Acid (PFHxA)	38.79	5.1	32.45	5.798	102	72-129	41.19	6.01	30	
Perfluorononanesulfonic Acid (PFNS)	37.18	5.1	31.13	0	119	69-127	32.11	14.6	30	
Perfluorononanoic Acid (PFNA)	34.08	5.1	32.45	0.5402	103	69-130	35.21	3.27	30	
Perfluorooctanesulfonamide (PFOSA)	39.94	5.1	32.45	0.3012	122	67-137	39.33	1.53	30	
Perfluorooctanesulfonic Acid (PFOS)	34.06	2.0	30.11	2.874	104	65-140	36.07	5.74	30	
Perfluorooctanoic Acid (PFOA)	44.66	2.0	32.45	8.112	113	71-133	48.6	8.44	30	
Perfluoropentanesulfonic Acid (PFPeS	28.75	5.1	30.42	0.1899	93.9	71-127	40.42	33.7	30	R
Perfluoropentanoic Acid (PFPeA)	44.37	5.1	32.45	6.786	116	72-129	46.35	4.38	30	
Perfluorotetradecanoic Acid (PFTeA)	33.63	5.1	32.45	0.2259	103	71-132	37.43	10.7	30	
Perfluorotridecanoic Acid (PFTriA)	34.82	5.1	32.45	0.1179	107	65-144	31.08	11.3	30	
Perfluoroundecanoic Acid (PFUnA)	36.31	5.1	32.45	-0.7399	114	69-133	38.26	5.22	30	
N-Ethylperfluorooctanesulfonamidoace	37	5.1	32.45	0.1244	114	61-135	36.05	2.59	30	
N-Methylperfluorooctanesulfonamidoa	37.81	5.1	32.45	0.6155	115	65-136	42.81	12.4	30	
Hexafluoropropylene oxide dimer acid	35.54	5.1	32.45	0.1637	109	70-130	39.15	9.65	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	31.51	5.1	30.52	0.03274	103	70-130	37.69	17.9	30	
11Cl-Pf3OUdS	29.44	5.1	30.52	0.02292	96.4	70-130	31.12	5.57	30	
9Cl-PF3ONS	30.8	5.1	30.21	0.03274	102	70-130	31.12	1.03	30	
Surr: 13C2-FtS 4:2	*125.9*	0	*151.5*	0	*83.1*	*50-150*	145.3	*14.3*	*30*	
Surr: 13C2-FtS 6:2	*150.1*	0	*154.1*	0	*97.4*	*50-150*	150.8	*0.467*	*30*	
Surr: 13C2-FtS 8:2	*194.9*	0	*155.4*	0	*125*	*50-150*	183.3	*6.14*	*30*	
Surr: 13C2-PFDA	*139.8*	0	*162.2*	0	*86.2*	*50-150*	153.6	*9.39*	*30*	
Surr: 13C2-PFDoA	*124.7*	0	*162.2*	0	*76.9*	*50-150*	133.6	*6.85*	*30*	
Surr: 13C2-PFHxA	*118.4*	0	*162.2*	0	*73*	*50-150*	147.2	*21.7*	*30*	
Surr: 13C2-PFTeA	*124*	0	*162.2*	0	*76.5*	*50-150*	149	*18.3*	*30*	
Surr: 13C2-PFUnA	*132.1*	0	*162.2*	0	*81.4*	*50-150*	140.1	*5.84*	*30*	
Surr: 13C3-HFPO-DA	*122.6*	0	*162.2*	0	*75.6*	*50-150*	150.7	*20.6*	*30*	
Surr: 13C3-PFBS	*111.2*	0	*150.9*	0	*73.7*	*50-150*	124.9	*11.6*	*30*	
Surr: 13C4-PFBA	*124.6*	0	*162.2*	0	*76.8*	*50-150*	135.8	*8.65*	*30*	
Surr: 13C4-PFHpA	*110*	0	*162.2*	0	*67.8*	*50-150*	124.6	*12.5*	*30*	
Surr: 13C4-PFOA	*116.9*	0	*162.2*	0	*72.1*	*50-150*	132.7	*12.6*	*30*	
Surr: 13C4-PFOS	*123.5*	0	*154.9*	0	*79.7*	*50-150*	139	*11.8*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **196606** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C5-PFNA	*129.3*	0	*162.2*	0	*79.7*	*50-150*	132.9	*2.71*	*30*
Surr: 13C5-PFPeA	*126.7*	0	*162.2*	0	*78.1*	*50-150*	133.5	*5.17*	*30*
Surr: 13C8-FOSA	*110.2*	0	*162.2*	0	*67.9*	*50-150*	119.3	*7.92*	*30*
Surr: 18O2-PFHxS	*118.4*	0	*153.3*	0	*77.2*	*50-150*	117.2	*1*	*30*
Surr: d5-N-EtFOSAA	*133.1*	0	*162.2*	0	*82*	*50-150*	144.5	*8.25*	*30*
Surr: d3-N-MeFOSAA	*159.4*	0	*162.2*	0	*98.3*	*50-150*	151.4	*5.14*	*30*

The following samples were analyzed in this batch:

22051511-01E	22051511-02E	22051511-03E
22051511-04E	22051511-05E	22051511-06E
22051511-07E		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196707** Instrument ID **LCMS1** Method: **E537 Mod**

MS	Sample ID: **22051271-01B MS**				Units: **ng/L**			Analysis Date: **5/25/2022 06:19 AM**			
Client ID:		Run ID: **LCMS1_220524B**			SeqNo: **8454713**		Prep Date: **5/23/2022**		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	41.58	4.7	28.03	0	148	63-143	0			S
Fluorotelomer Sulphonic Acid 6:2 (FtS	38.96	4.7	28.4	4.299	122	63-162	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS	29.79	4.7	28.78	0	104	61-165	0			
Perfluorobutanesulfonic Acid (PFBS)	31.51	4.7	26.53	0	119	72-130	0			
Perfluorobutanoic Acid (PFBA)	39.95	4.7	30	0	133	73-129	0			S
Perfluorodecanesulfonic Acid (PFDS)	29.6	4.7	28.87	0	103	53-142	0			
Perfluorodecanoic Acid (PFDA)	36.36	4.7	30	0	121	71-129	0			
Perfluorododecanoic Acid (PFDoA)	32.82	4.7	30	0	109	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS	26.22	4.7	28.59	0	91.7	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	34.86	4.7	30	0	116	72-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	31.89	4.7	27.28	0	117	68-131	0			
Perfluorohexanoic Acid (PFHxA)	33.46	4.7	30	0	112	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	40.59	4.7	28.78	0	141	69-127	0			S
Perfluorononanoic Acid (PFNA)	31.84	4.7	30	0	106	69-130	0			
Perfluorooctanesulfonamide (PFOSA)	39.55	4.7	30	0	132	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	30.73	1.9	27.84	1.158	106	65-140	0			
Perfluorooctanoic Acid (PFOA)	40.78	1.9	30	0	136	71-133	0			S
Perfluoropentanesulfonic Acid (PFPeS	26.87	4.7	28.12	0	95.6	71-127	0			
Perfluoropentanoic Acid (PFPeA)	37.31	4.7	30	0	124	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	34.08	4.7	30	0	114	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	43.24	4.7	30	0	144	65-144	0			S
Perfluoroundecanoic Acid (PFUnA)	32.9	4.7	30	0	110	69-133	0			
N-Ethylperfluorooctanesulfonamidoace	32.4	4.7	30	1.66	102	61-135	0			
N-Methylperfluorooctanesulfonamidoa	46.48	4.7	30	0	155	65-136	0			S
Hexafluoropropylene oxide dimer acid	36.89	4.7	30	0	123	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	23.98	4.7	28.22	0	85	70-130	0			
11Cl-Pf3OUdS	28.31	4.7	28.22	0	100	70-130	0			
9Cl-PF3ONS	42.95	4.7	27.93	0	154	70-130	0			S
Surr: 13C2-FtS 4:2	*122.1*	0	*140.1*	0	*87.2*	*50-150*	0			
Surr: 13C2-FtS 6:2	*124.6*	0	*142.5*	0	*87.5*	*50-150*	0			
Surr: 13C2-FtS 8:2	*111.8*	0	*143.7*	0	*77.8*	*50-150*	0			
Surr: 13C2-PFDA	*107.5*	0	*150*	0	*71.7*	*50-150*	0			
Surr: 13C2-PFDoA	*95.53*	0	*150*	0	*63.7*	*50-150*	0			
Surr: 13C2-PFHxA	*124.2*	0	*150*	0	*82.8*	*50-150*	0			
Surr: 13C2-PFTeA	*57.36*	0	*150*	0	*38.2*	*50-150*	0			*S*
Surr: 13C2-PFUnA	*128.2*	0	*150*	0	*85.5*	*50-150*	0			
Surr: 13C3-HFPO-DA	*119.7*	0	*150*	0	*79.8*	*50-150*	0			
Surr: 13C3-PFBS	*119.6*	0	*139.5*	0	*85.7*	*50-150*	0			
Surr: 13C4-PFBA	*136.4*	0	*150*	0	*91*	*50-150*	0			
Surr: 13C4-PFHpA	*135.3*	0	*150*	0	*90.2*	*50-150*	0			
Surr: 13C4-PFOA	*137.3*	0	*150*	0	*91.5*	*50-150*	0			
Surr: 13C4-PFOS	*115.7*	0	*143.2*	0	*80.8*	*50-150*	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **196707** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C5-PFNA	*164.4*	0	*150*	0	*110*	*50-150*	0
Surr: 13C5-PFPeA	*129.5*	0	*150*	0	*86.4*	*50-150*	0
Surr: 13C8-FOSA	*169.8*	0	*150*	0	*113*	*50-150*	0
Surr: 18O2-PFHxS	*146.5*	0	*141.7*	0	*103*	*50-150*	0
Surr: d5-N-EtFOSAA	*157.4*	0	*150*	0	*105*	*50-150*	0
Surr: d3-N-MeFOSAA	*103.9*	0	*150*	0	*69.3*	*50-150*	0

MS Sample ID: **22051271-01B MS** Units: **ng/L** Analysis Date: **5/25/2022 12:40 PM**

Client ID: Run ID: **LCMS1_220524B** SeqNo: **8454756** Prep Date: **5/23/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid (PFHpS	23.96	4.7	28.59	0	83.8	69-134	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196707** Instrument ID **LCMS1** Method: **E537 Mod**

DUP	Sample ID: **22051087-02A DUP**				Units: **ng/L**			Analysis Date: **5/25/2022 06:27 AM**			
Client ID:		Run ID: **LCMS1_220524B**			SeqNo: **8454714**		Prep Date: **5/23/2022**		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS	ND	5.0	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 6:2 (FtS	2.3	5.0	0	0	0	0-0	0	0	30	J
Fluorotelomer Sulphonic Acid 8:2 (FtS	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (PFBS)	2.439	5.0	0	0	0	0-0	1.907	0	30	J
Perfluorobutanoic Acid (PFBA)	7.067	5.0	0	0	0	0-0	7.444	5.19	30	
Perfluorodecanesulfonic Acid (PFDS)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFDoA)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid (PFHpS	2.579	5.0	0	0	0	0-0	0	0	30	J
Perfluoroheptanoic Acid (PFHpA)	3.51	5.0	0	0	0	0-0	3.632	0	30	J
Perfluorohexanesulfonic Acid (PFHxS)	2.747	5.0	0	0	0	0-0	1.914	0	30	J
Perfluorohexanoic Acid (PFHxA)	7.041	5.0	0	0	0	0-0	7.469	5.89	30	
Perfluorononanesulfonic Acid (PFNS)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (PFOSA)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (PFOS)	1.21	2.0	0	0	0	0-0	2.006	0	30	J
Perfluorooctanoic Acid (PFOA)	12.23	2.0	0	0	0	0-0	11.28	8.03	30	
Perfluoropentanesulfonic Acid (PFPeS	ND	5.0	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPeA)	10.85	5.0	0	0	0	0-0	10.02	7.96	30	
Perfluorotetradecanoic Acid (PFTeA)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFTriA)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFUnA)	ND	5.0	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfonamidoace	ND	5.0	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfonamidoa	ND	5.0	0	0	0	0-0	0	0	30	
Hexafluoropropylene oxide dimer acid	ND	5.0	0	0	0	0-0	0	0	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	ND	5.0	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	ND	5.0	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	ND	5.0	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	*112.1*	0	*148.3*	0	*75.6*	*50-150*	150.8	*29.4*	*30*	
Surr: 13C2-FtS 6:2	*109.1*	0	*150.9*	0	*72.3*	*50-150*	141.3	*25.7*	*30*	
Surr: 13C2-FtS 8:2	*112.2*	0	*152.1*	0	*73.7*	*50-150*	229.4	*68.6*	*30*	*R*
Surr: 13C2-PFDA	*101.1*	0	*158.8*	0	*63.7*	*50-150*	115.7	*13.4*	*30*	
Surr: 13C2-PFDoA	*95.99*	0	*158.8*	0	*60.4*	*50-150*	94.53	*1.54*	*30*	
Surr: 13C2-PFHxA	*100.2*	0	*158.8*	0	*63.1*	*50-150*	95.01	*5.32*	*30*	
Surr: 13C2-PFTeA	*105*	0	*158.8*	0	*66.1*	*50-150*	122.4	*15.3*	*30*	
Surr: 13C2-PFUnA	*149.5*	0	*158.8*	0	*94.1*	*50-150*	118.7	*23*	*30*	
Surr: 13C3-HFPO-DA	*90.93*	0	*158.8*	0	*57.3*	*50-150*	97.28	*6.75*	*30*	
Surr: 13C3-PFBS	*109.6*	0	*147.7*	0	*74.2*	*50-150*	93.66	*15.7*	*30*	
Surr: 13C4-PFBA	*125.2*	0	*158.8*	0	*78.8*	*50-150*	99.01	*23.3*	*30*	
Surr: 13C4-PFHpA	*143.2*	0	*158.8*	0	*90.2*	*50-150*	103.3	*32.3*	*30*	*R*
Surr: 13C4-PFOA	*148.9*	0	*158.8*	0	*93.8*	*50-150*	97.45	*41.8*	*30*	*R*
Surr: 13C4-PFOS	*113.8*	0	*151.7*	0	*75*	*50-150*	91.73	*21.4*	*30*	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196707** Instrument ID **LCMS1** Method: **E537 Mod**

Surr: 13C5-PFNA	*132.5*	0	*158.8*	0	*83.5*	*50-150*	105.8	*22.4*	*30*	
Surr: 13C5-PFPeA	*108.4*	0	*158.8*	0	*68.2*	*50-150*	102.8	*5.26*	*30*	
Surr: 13C8-FOSA	*128.8*	0	*158.8*	0	*81.1*	*50-150*	99.84	*25.4*	*30*	
Surr: 18O2-PFHxS	*130.4*	0	*150.1*	0	*86.9*	*50-150*	80.01	*47.9*	*30*	*R*
Surr: d5-N-EtFOSAA	*152*	0	*158.8*	0	*95.7*	*50-150*	123.9	*20.4*	*30*	
Surr: d3-N-MeFOSAA	*84.71*	0	*158.8*	0	*53.3*	*50-150*	135.3	*46*	*30*	*R*

DUP Sample ID: **22051087-02A DUP** Units: **ng/L** Analysis Date: **5/25/2022 12:48 PM**

Client ID: Run ID: **LCMS1_220524B** SeqNo: **8454757** Prep Date: **5/23/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid (PFHpS	1.693	5.0	0	0	0	0-0	0	0	30	J

The following samples were analyzed in this batch:

22051511-08E	22051511-09E	22051511-10E
22051511-11E	22051511-12E	22051511-13A
22051511-14E	22051511-16E	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **196624** Instrument ID **SVMS8** Method: **SW846 8270D**

MBLK Sample ID: **SBLKW1-196624-196624** Units: **µg/L** Analysis Date: **5/20/2022 03:54 PM**

Client ID: Run ID: **SVMS8_220520A** SeqNo: **8444873** Prep Date: **5/20/2022** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3,3´-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Acetophenone	ND	1.0								
Anthracene	ND	5.0								
Atrazine	ND	1.0								
Benzaldehyde	ND	1.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Caprolactam	ND	10								
Carbazole	ND	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **196624** Instrument ID **SVMS8** Method: **SW846 8270D**

Chrysene	ND	5.0					
Dibenzo(a,h)anthracene	ND	5.0					
Dibenzofuran	ND	5.0					
Diethyl phthalate	ND	5.0					
Dimethyl phthalate	ND	5.0					
Di-n-butyl phthalate	ND	5.0					
Di-n-octyl phthalate	ND	5.0					
Fluoranthene	ND	5.0					
Fluorene	ND	5.0					
Hexachlorobenzene	ND	5.0					
Hexachlorobutadiene	ND	5.0					
Hexachlorocyclopentadiene	ND	5.0					
Hexachloroethane	ND	5.0					
Indeno(1,2,3-cd)pyrene	ND	5.0					
Isophorone	ND	5.0					
Naphthalene	ND	5.0					
Nitrobenzene	ND	5.0					
N-Nitrosodi-n-propylamine	ND	5.0					
N-Nitrosodiphenylamine	ND	5.0					
Pentachlorophenol	ND	5.0					
Phenanthrene	ND	5.0					
Phenol	ND	5.0					
Pyrene	ND	5.0					
Surr: 2,4,6-Tribromophenol	*34.59*	0	*50*	0	*69.2*	*27-83*	0
Surr: 2-Fluorobiphenyl	*36.13*	0	*50*	0	*72.3*	*26-79*	0
Surr: 2-Fluorophenol	*24.84*	0	*50*	0	*49.7*	*13-56*	0
Surr: 4-Terphenyl-d14	*43.12*	0	*50*	0	*86.2*	*43-106*	0
Surr: Nitrobenzene-d5	*35.35*	0	*50*	0	*70.7*	*29-80*	0
Surr: Phenol-d6	*17.35*	0	*50*	0	*34.7*	*10-35*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196624** Instrument ID **SVMS8** Method: **SW846 8270D**

LCS	Sample ID: **SLCSW1-196624-196624**				Units: **µg/L**		Analysis Date: **5/20/2022 04:15 PM**			
Client ID:	Run ID: **SVMS8_220520A**				SeqNo: **8444874**		Prep Date: **5/20/2022**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	14.05	5.0	20	0	70.2	40-85	0			
2,4,5-Trichlorophenol	14.72	5.0	20	0	73.6	47-84	0			
2,4,6-Trichlorophenol	14.77	5.0	20	0	73.8	45-83	0			
2,4-Dichlorophenol	14.3	5.0	20	0	71.5	39-84	0			
2,4-Dimethylphenol	13.88	5.0	20	0	69.4	34-79	0			
2,4-Dinitrophenol	11.64	5.0	20	0	58.2	11-117	0			
2,4-Dinitrotoluene	14.78	5.0	20	0	73.9	54-93	0			
2,6-Dinitrotoluene	15.05	5.0	20	0	75.2	51-90	0			
2-Chloronaphthalene	14.74	5.0	20	0	73.7	37-84	0			
2-Chlorophenol	14.12	5.0	20	0	70.6	38-83	0			
2-Methylnaphthalene	13.99	5.0	20	0	70	33-85	0			
2-Methylphenol	13.06	5.0	20	0	65.3	29-76	0			
2-Nitroaniline	15.25	5.0	20	0	76.2	45-94	0			
2-Nitrophenol	14.26	5.0	20	0	71.3	41-84	0			
3&4-Methylphenol	12.01	5.0	20	0	60	24-70	0			
3,3´-Dichlorobenzidine	14.34	5.0	20	0	71.7	39-96	0			
3-Nitroaniline	15.14	5.0	20	0	75.7	50-93	0			
4,6-Dinitro-2-methylphenol	14.31	5.0	20	0	71.6	23-116	0			
4-Bromophenyl phenyl ether	15.3	5.0	20	0	76.5	51-93	0			
4-Chloro-3-methylphenol	14.35	5.0	20	0	71.8	41-86	0			
4-Chloroaniline	14.69	5.0	20	0	73.4	44-92	0			
4-Chlorophenyl phenyl ether	14.48	5.0	20	0	72.4	49-89	0			
4-Nitroaniline	15.04	5.0	20	0	75.2	47-98	0			
4-Nitrophenol	7.85	5.0	20	0	39.2	10-43	0			
Acenaphthene	14.44	5.0	20	0	72.2	42-85	0			
Acenaphthylene	14.84	5.0	20	0	74.2	42-88	0			
Acetophenone	14.64	1.0	20	0	73.2	39-91	0			
Anthracene	15.15	5.0	20	0	75.8	55-93	0			
Atrazine	14.98	1.0	20	0	74.9	52-100	0			
Benzaldehyde	15.82	1.0	20	0	79.1	42-110	0			
Benzo(a)anthracene	15.9	5.0	20	0	79.5	56-91	0			
Benzo(a)pyrene	15.46	5.0	20	0	77.3	55-96	0			
Benzo(b)fluoranthene	15.82	5.0	20	0	79.1	55-99	0			
Benzo(g,h,i)perylene	15.29	5.0	20	0	76.4	44-102	0			
Benzo(k)fluoranthene	16.8	5.0	20	0	84	57-96	0			
Bis(2-chloroethoxy)methane	14.45	5.0	20	0	72.2	39-88	0			
Bis(2-chloroethyl)ether	14.43	5.0	20	0	72.2	36-91	0			
Bis(2-chloroisopropyl)ether	14.29	5.0	20	0	71.4	33-83	0			
Bis(2-ethylhexyl)phthalate	15.06	5.0	20	0	75.3	39-113	0			
Butyl benzyl phthalate	14.61	5.0	20	0	73	49-97	0			
Carbazole	15.15	5.0	20	0	75.8	59-92	0			
Chrysene	16.53	5.0	20	0	82.6	55-92	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **196624** Instrument ID **SVMS8** Method: **SW846 8270D**

Dibenzo(a,h)anthracene	14.81	5.0	20	0	74	47-100	0
Dibenzofuran	14.74	5.0	20	0	73.7	44-89	0
Diethyl phthalate	14.41	5.0	20	0	72	54-95	0
Dimethyl phthalate	14.81	5.0	20	0	74	51-92	0
Di-n-butyl phthalate	14.87	5.0	20	0	74.4	57-98	0
Di-n-octyl phthalate	14.31	5.0	20	0	71.6	36-117	0
Fluoranthene	15.06	5.0	20	0	75.3	59-93	0
Fluorene	14.64	5.0	20	0	73.2	47-91	0
Hexachlorobenzene	14.8	5.0	20	0	74	53-89	0
Hexachlorobutadiene	12.9	5.0	20	0	64.5	11-83	0
Hexachlorocyclopentadiene	8.98	5.0	20	0	44.9	14-75	0
Hexachloroethane	12.78	5.0	20	0	63.9	10-85	0
Indeno(1,2,3-cd)pyrene	13.97	5.0	20	0	69.8	46-102	0
Isophorone	14.72	5.0	20	0	73.6	42-90	0
Naphthalene	13.83	5.0	20	0	69.2	26-78	0
Nitrobenzene	15.01	5.0	20	0	75	38-86	0
N-Nitrosodi-n-propylamine	14.82	5.0	20	0	74.1	39-95	0
N-Nitrosodiphenylamine	15.2	5.0	20	0	76	47-94	0
Pentachlorophenol	14.21	5.0	20	0	71	37-94	0
Phenanthrene	15.27	5.0	20	0	76.4	51-90	0
Phenol	7.26	5.0	20	0	36.3	10-40	0
Pyrene	16.7	5.0	20	0	83.5	48-98	0
Surr: 2,4,6-Tribromophenol	*37.87*	0	*50*	0	*75.7*	*27-83*	0
Surr: 2-Fluorobiphenyl	*36.45*	0	*50*	0	*72.9*	*26-79*	0
Surr: 2-Fluorophenol	*23.49*	0	*50*	0	*47*	*13-56*	0
Surr: 4-Terphenyl-d14	*42.21*	0	*50*	0	*84.4*	*43-106*	0
Surr: Nitrobenzene-d5	*36.13*	0	*50*	0	*72.3*	*29-80*	0
Surr: Phenol-d6	*15.56*	0	*50*	0	*31.1*	*10-35*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196624** Instrument ID **SVMS8** Method: **SW846 8270D**

LCSD	Sample ID: **SLCSDW1-196624-196624**				Units: **µg/L**			Analysis Date: **5/20/2022 04:35 PM**			
Client ID:		Run ID: **SVMS8_220520A**			SeqNo: **8444875**			Prep Date: **5/20/2022**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1`-Biphenyl	11.55	5.0	20	0	57.8	40-85	14.05	19.5	30	
2,4,5-Trichlorophenol	12.55	5.0	20	0	62.8	47-84	14.72	15.9	30	
2,4,6-Trichlorophenol	12.04	5.0	20	0	60.2	45-83	14.77	20.4	30	
2,4-Dichlorophenol	11.36	5.0	20	0	56.8	39-84	14.3	22.9	30	
2,4-Dimethylphenol	11.63	5.0	20	0	58.2	34-79	13.88	17.6	30	
2,4-Dinitrophenol	7.65	5.0	20	0	38.2	11-117	11.64	41.4	30	R
2,4-Dinitrotoluene	13.3	5.0	20	0	66.5	54-93	14.78	10.5	30	
2,6-Dinitrotoluene	13.02	5.0	20	0	65.1	51-90	15.05	14.5	30	
2-Chloronaphthalene	11.74	5.0	20	0	58.7	37-84	14.74	22.7	30	
2-Chlorophenol	11.52	5.0	20	0	57.6	38-83	14.12	20.3	30	
2-Methylnaphthalene	11.17	5.0	20	0	55.8	33-85	13.99	22.4	30	
2-Methylphenol	11.38	5.0	20	0	56.9	29-76	13.06	13.7	30	
2-Nitroaniline	13.33	5.0	20	0	66.6	45-94	15.25	13.4	30	
2-Nitrophenol	10.9	5.0	20	0	54.5	41-84	14.26	26.7	30	
3&4-Methylphenol	10.45	5.0	20	0	52.2	24-70	12.01	13.9	30	
3,3´-Dichlorobenzidine	12.51	5.0	20	0	62.6	39-96	14.34	13.6	30	
3-Nitroaniline	14.27	5.0	20	0	71.4	50-93	15.14	5.92	30	
4,6-Dinitro-2-methylphenol	11.28	5.0	20	0	56.4	23-116	14.31	23.7	30	
4-Bromophenyl phenyl ether	13.39	5.0	20	0	67	51-93	15.3	13.3	30	
4-Chloro-3-methylphenol	12.37	5.0	20	0	61.8	41-86	14.35	14.8	30	
4-Chloroaniline	12.49	5.0	20	0	62.4	44-92	14.69	16.2	30	
4-Chlorophenyl phenyl ether	12.4	5.0	20	0	62	49-89	14.48	15.5	30	
4-Nitroaniline	13.44	5.0	20	0	67.2	47-98	15.04	11.2	30	
4-Nitrophenol	6.84	5.0	20	0	34.2	10-43	7.85	13.8	30	
Acenaphthene	11.96	5.0	20	0	59.8	42-85	14.44	18.8	30	
Acenaphthylene	12.35	5.0	20	0	61.8	42-88	14.84	18.3	30	
Acetophenone	11.91	1.0	20	0	59.6	39-91	14.64	20.6	30	
Anthracene	13.4	5.0	20	0	67	55-93	15.15	12.3	30	
Atrazine	13.43	1.0	20	0	67.2	52-100	14.98	10.9	30	
Benzaldehyde	12.57	1.0	20	0	62.8	42-110	15.82	22.9	30	
Benzo(a)anthracene	14.08	5.0	20	0	70.4	56-91	15.9	12.1	30	
Benzo(a)pyrene	13.46	5.0	20	0	67.3	55-96	15.46	13.8	30	
Benzo(b)fluoranthene	14.46	5.0	20	0	72.3	55-99	15.82	8.98	30	
Benzo(g,h,i)perylene	12.99	5.0	20	0	65	44-102	15.29	16.3	30	
Benzo(k)fluoranthene	14.4	5.0	20	0	72	57-96	16.8	15.4	30	
Bis(2-chloroethoxy)methane	11.71	5.0	20	0	58.6	39-88	14.45	20.9	30	
Bis(2-chloroethyl)ether	11.53	5.0	20	0	57.6	36-91	14.43	22.3	30	
Bis(2-chloroisopropyl)ether	11.39	5.0	20	0	57	33-83	14.29	22.6	30	
Bis(2-ethylhexyl)phthalate	13.33	5.0	20	0	66.6	39-113	15.06	12.2	30	
Butyl benzyl phthalate	13.17	5.0	20	0	65.8	49-97	14.61	10.4	30	
Carbazole	13.54	5.0	20	0	67.7	59-92	15.15	11.2	30	
Chrysene	14.3	5.0	20	0	71.5	55-92	16.53	14.5	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **196624** Instrument ID **SVMS8** Method: **SW846 8270D**

Dibenzo(a,h)anthracene	12.56	5.0	20	0	62.8	47-100	14.81	16.4	30
Dibenzofuran	12.4	5.0	20	0	62	44-89	14.74	17.2	30
Diethyl phthalate	12.96	5.0	20	0	64.8	54-95	14.41	10.6	30
Dimethyl phthalate	12.87	5.0	20	0	64.4	51-92	14.81	14	30
Di-n-butyl phthalate	13.05	5.0	20	0	65.2	57-98	14.87	13	30
Di-n-octyl phthalate	12.64	5.0	20	0	63.2	36-117	14.31	12.4	30
Fluoranthene	13.29	5.0	20	0	66.4	59-93	15.06	12.5	30
Fluorene	12.45	5.0	20	0	62.2	47-91	14.64	16.2	30
Hexachlorobenzene	13.21	5.0	20	0	66	53-89	14.8	11.4	30
Hexachlorobutadiene	10.6	5.0	20	0	53	11-83	12.9	19.6	30
Hexachlorocyclopentadiene	7.62	5.0	20	0	38.1	14-75	8.98	16.4	30
Hexachloroethane	10.66	5.0	20	0	53.3	10-85	12.78	18.1	30
Indeno(1,2,3-cd)pyrene	11.91	5.0	20	0	59.6	46-102	13.97	15.9	30
Isophorone	12.2	5.0	20	0	61	42-90	14.72	18.7	30
Naphthalene	11.07	5.0	20	0	55.4	26-78	13.83	22.2	30
Nitrobenzene	12	5.0	20	0	60	38-86	15.01	22.3	30
N-Nitrosodi-n-propylamine	11.94	5.0	20	0	59.7	39-95	14.82	21.5	30
N-Nitrosodiphenylamine	13.36	5.0	20	0	66.8	47-94	15.2	12.9	30
Pentachlorophenol	12.5	5.0	20	0	62.5	37-94	14.21	12.8	30
Phenanthrene	13.62	5.0	20	0	68.1	51-90	15.27	11.4	30
Phenol	6.32	5.0	20	0	31.6	10-40	7.26	13.8	30
Pyrene	15.07	5.0	20	0	75.4	48-98	16.7	10.3	30
Surr: 2,4,6-Tribromophenol	*32.26*	0	*50*	0	*64.5*	*27-83*	37.87	*16*	*40*
Surr: 2-Fluorobiphenyl	*28.54*	0	*50*	0	*57.1*	*26-79*	36.45	*24.3*	*40*
Surr: 2-Fluorophenol	*20.12*	0	*50*	0	*40.2*	*13-56*	23.49	*15.5*	*40*
Surr: 4-Terphenyl-d14	*38.32*	0	*50*	0	*76.6*	*43-106*	42.21	*9.66*	*40*
Surr: Nitrobenzene-d5	*28.61*	0	*50*	0	*57.2*	*29-80*	36.13	*23.2*	*40*
Surr: Phenol-d6	*14.12*	0	*50*	0	*28.2*	*10-35*	15.56	*9.7*	*40*

The following samples were analyzed in this batch:

22051511-01C	22051511-02C	22051511-03C
22051511-04C	22051511-05C	22051511-06C
22051511-07C	22051511-08C	22051511-09C
22051511-10C	22051511-11C	22051511-12C
22051511-14C	22051511-16C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R344771a** Instrument ID **VMS8** Method: **SW8260C**

MBLK Sample ID: **8V-BLKW2-220519-R344771a** Units: **µg/L** Analysis Date: **5/19/2022 11:11 PM**

Client ID: Run ID: **VMS8_220519B** SeqNo: **8439351** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1,2-Trichlorotrifluoroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	1.0								
Acetone	ND	10								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
Methyl acetate	ND	2.0								
Methyl tert-butyl ether	ND	1.0								
Methylcyclohexane	ND	1.0								
Methylene chloride	ND	5.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	1.0								
Toluene	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Batch ID: **R344771a** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	ND	1.0					
trans-1,3-Dichloropropene	ND	1.0					
Trichloroethene	ND	1.0					
Trichlorofluoromethane	ND	1.0					
Vinyl chloride	ND	1.0					
Xylenes, Total	ND	3.0					
Surr: 1,2-Dichloroethane-d4	*19.56*	0	*20*	0	*97.8*	*75-120*	0
Surr: 4-Bromofluorobenzene	*18.58*	0	*20*	0	*92.9*	*80-110*	0
Surr: Dibromofluoromethane	*20.29*	0	*20*	0	*101*	*85-115*	0
Surr: Toluene-d8	*20.95*	0	*20*	0	*105*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344771a** Instrument ID **VMS8** Method: **SW8260C**

LCS	Sample ID: **8V-LCSW2-220519-R344771a**				Units: **µg/L**		Analysis Date: **5/19/2022 10:15 PM**			
Client ID:		Run ID: **VMS8_220519B**			SeqNo: **8439349**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.39	1.0	20	0	102	75-130	0			
1,1,2,2-Tetrachloroethane	22.92	1.0	20	0	115	75-130	0			
1,1,2-Trichloroethane	20.76	1.0	20	0	104	75-125	0			
1,1,2-Trichlorotrifluoroethane	20.9	1.0	20	0	104	50-150	0			
1,1-Dichloroethane	19.55	1.0	20	0	97.8	68-142	0			
1,1-Dichloroethene	20.24	1.0	20	0	101	70-145	0			
1,2,4-Trichlorobenzene	20.69	1.0	20	0	103	70-135	0			
1,2-Dibromo-3-chloropropane	22.84	1.0	20	0	114	60-130	0			
1,2-Dibromoethane	21.99	1.0	20	0	110	67-155	0			
1,2-Dichlorobenzene	20.84	1.0	20	0	104	70-130	0			
1,2-Dichloroethane	19.66	1.0	20	0	98.3	78-125	0			
1,2-Dichloropropane	19.17	1.0	20	0	95.8	75-125	0			
1,3-Dichlorobenzene	20.15	1.0	20	0	101	75-130	0			
1,4-Dichlorobenzene	19.93	1.0	20	0	99.6	75-130	0			
2-Butanone	23.81	5.0	20	0	119	55-150	0			
2-Hexanone	24.62	5.0	20	0	123	60-135	0			
4-Methyl-2-pentanone	32.06	1.0	20	0	160	77-178	0			
Acetone	23.16	10	20	0	116	60-160	0			
Benzene	19.64	1.0	20	0	98.2	70-130	0			
Bromodichloromethane	19.08	1.0	20	0	95.4	75-125	0			
Bromoform	18.04	1.0	20	0	90.2	60-125	0			
Bromomethane	20.42	1.0	20	0	102	30-185	0			
Carbon disulfide	21.36	1.0	20	0	107	60-165	0			
Carbon tetrachloride	19.03	1.0	20	0	95.2	65-140	0			
Chlorobenzene	20.87	1.0	20	0	104	80-120	0			
Chloroethane	14.58	1.0	20	0	72.9	31-172	0			
Chloroform	19.48	1.0	20	0	97.4	66-135	0			
Chloromethane	14.92	1.0	20	0	74.6	46-148	0			
cis-1,2-Dichloroethene	19.9	1.0	20	0	99.5	75-134	0			
cis-1,3-Dichloropropene	17.34	1.0	20	0	86.7	70-130	0			
Cyclohexane	19.97	2.0	20	0	99.8	50-150	0			
Dibromochloromethane	19.26	1.0	20	0	96.3	60-115	0			
Dichlorodifluoromethane	20.55	1.0	20	0	103	10-180	0			
Ethylbenzene	20.85	1.0	20	0	104	76-123	0			
Isopropylbenzene	21.3	1.0	20	0	106	80-127	0			
Methyl tert-butyl ether	22.28	1.0	20	0	111	68-129	0			
Methylcyclohexane	20.35	1.0	20	0	102	50-150	0			
Methylene chloride	20.24	5.0	20	0	101	72-125	0			
Styrene	21.55	1.0	20	0	108	79-117	0			
Tetrachloroethene	20.08	1.0	20	0	100	68-166	0			
Toluene	19.66	1.0	20	0	98.3	76-125	0			
trans-1,2-Dichloroethene	21.4	1.0	20	0	107	80-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R344771a** Instrument ID **VMS8** Method: **SW8260C**

trans-1,3-Dichloropropene	17.52	1.0	20	0	87.6	56-132	0
Trichloroethene	18.47	1.0	20	0	92.4	77-125	0
Trichlorofluoromethane	17.56	1.0	20	0	87.8	60-140	0
Vinyl chloride	19.92	1.0	20	0	99.6	50-136	0
Xylenes, Total	64.29	3.0	60	0	107	76-127	0
Surr: 1,2-Dichloroethane-d4	*20.15*	0	*20*	0	*101*	*75-120*	0
Surr: 4-Bromofluorobenzene	*20.46*	0	*20*	0	*102*	*80-110*	0
Surr: Dibromofluoromethane	*20.28*	0	*20*	0	*101*	*85-115*	0
Surr: Toluene-d8	*19.1*	0	*20*	0	*95.5*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344771a** Instrument ID **VMS8** Method: **SW8260C**

MS	Sample ID: **22051511-01A MS**				Units: **µg/L**			Analysis Date: **5/20/2022 06:51 AM**			
Client ID: **MW-101**		Run ID: **VMS8_220519B**			SeqNo: **8439376**		Prep Date:		DF: **1**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.84	1.0	20	0	104	75-130	0			
1,1,2,2-Tetrachloroethane	21.69	1.0	20	0	108	75-130	0			
1,1,2-Trichloroethane	21.48	1.0	20	0	107	75-125	0			
1,1,2-Trichlorotrifluoroethane	19.37	1.0	20	0	96.8	50-150	0			
1,1-Dichloroethane	20.02	1.0	20	0	100	68-142	0			
1,1-Dichloroethene	19.78	1.0	20	0	98.9	70-145	0			
1,2,4-Trichlorobenzene	18.93	1.0	20	0	94.6	70-135	0			
1,2-Dibromo-3-chloropropane	20.49	1.0	20	0	102	60-130	0			
1,2-Dibromoethane	22.31	1.0	20	0	112	67-155	0			
1,2-Dichlorobenzene	20.26	1.0	20	0	101	70-130	0			
1,2-Dichloroethane	20.05	1.0	20	0	100	78-125	0			
1,2-Dichloropropane	19.11	1.0	20	0	95.6	75-125	0			
1,3-Dichlorobenzene	18.68	1.0	20	0	93.4	75-130	0			
1,4-Dichlorobenzene	19.02	1.0	20	0	95.1	75-130	0			
2-Butanone	24.15	5.0	20	0	121	55-150	0			
2-Hexanone	22.98	5.0	20	0	115	60-135	0			
4-Methyl-2-pentanone	32.74	1.0	20	0	164	77-178	0			
Acetone	25.83	10	20	1.76	120	60-160	0			
Benzene	19.33	1.0	20	0	96.6	70-130	0			
Bromodichloromethane	18.89	1.0	20	0	94.4	75-125	0			
Bromoform	17.14	1.0	20	0	85.7	60-125	0			
Bromomethane	29.53	1.0	20	0	148	30-185	0			
Carbon disulfide	20.82	1.0	20	0	104	60-165	0			
Carbon tetrachloride	19.08	1.0	20	0	95.4	65-140	0			
Chlorobenzene	19.62	1.0	20	0	98.1	80-120	0			
Chloroethane	22.89	1.0	20	0	114	31-172	0			
Chloroform	19.97	1.0	20	0	99.8	66-135	0			
Chloromethane	13.97	1.0	20	0	69.8	46-148	0			
cis-1,2-Dichloroethene	19.37	1.0	20	0	96.8	75-134	0			
cis-1,3-Dichloropropene	15.21	1.0	20	0	76	70-130	0			
Cyclohexane	20.09	2.0	20	0	100	50-150	0			
Dibromochloromethane	18.89	1.0	20	0	94.4	60-115	0			
Dichlorodifluoromethane	20.09	1.0	20	0	100	10-180	0			
Ethylbenzene	20.1	1.0	20	0	100	76-123	0			
Isopropylbenzene	20.6	1.0	20	0	103	80-127	0			
Methyl tert-butyl ether	21.98	1.0	20	0	110	68-129	0			
Methylcyclohexane	18.76	1.0	20	0	93.8	50-150	0			
Methylene chloride	19.87	5.0	20	0	99.4	72-125	0			
Styrene	20.14	1.0	20	0	101	79-117	0			
Tetrachloroethene	21.39	1.0	20	0	107	68-166	0			
Toluene	19.58	1.0	20	0	97.9	76-125	0			
trans-1,2-Dichloroethene	21.43	1.0	20	0	107	80-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R344771a** Instrument ID **VMS8** Method: **SW8260C**

trans-1,3-Dichloropropene	15.33	1.0	20	0	76.6	56-132	0
Trichloroethene	18.53	1.0	20	0	92.6	77-125	0
Trichlorofluoromethane	18.29	1.0	20	0	91.4	60-140	0
Vinyl chloride	21.87	1.0	20	0	109	50-136	0
Xylenes, Total	61.63	3.0	60	0	103	76-127	0
Surr: 1,2-Dichloroethane-d4	*20.45*	0	*20*	0	*102*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.81*	0	*20*	0	*99*	*80-110*	0
Surr: Dibromofluoromethane	*20.46*	0	*20*	0	*102*	*85-115*	0
Surr: Toluene-d8	*20.03*	0	*20*	0	*100*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344771a** Instrument ID **VMS8** Method: **SW8260C**

DUP	Sample ID: **22051511-02A DUP**				Units: **µg/L**			Analysis Date: **5/20/2022 06:32 AM**		
Client ID: **MW-102**	Run ID: **VMS8_220519B**				SeqNo: **8439375**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0	0	0	0		0	0	30	
1,1,2,2-Tetrachloroethane	ND	1.0	0	0	0		0	0	30	
1,1,2-Trichloroethane	ND	1.0	0	0	0		0	0	30	
1,1,2-Trichlorotrifluoroethane	ND	1.0	0	0	0		0	0	30	
1,1-Dichloroethane	ND	1.0	0	0	0		0	0	30	
1,1-Dichloroethene	ND	1.0	0	0	0		0	0	30	
1,2,4-Trichlorobenzene	ND	1.0	0	0	0		0	0	30	
1,2-Dibromo-3-chloropropane	ND	1.0	0	0	0		0	0	30	
1,2-Dibromoethane	ND	1.0	0	0	0		0	0	30	
1,2-Dichlorobenzene	ND	1.0	0	0	0		0	0	30	
1,2-Dichloroethane	ND	1.0	0	0	0		0	0	30	
1,2-Dichloropropane	ND	1.0	0	0	0		0	0	30	
1,3-Dichlorobenzene	ND	1.0	0	0	0		0	0	30	
1,4-Dichlorobenzene	ND	1.0	0	0	0		0	0	30	
2-Butanone	ND	5.0	0	0	0		0	0	30	
2-Hexanone	ND	5.0	0	0	0		0	0	30	
4-Methyl-2-pentanone	ND	1.0	0	0	0		0	0	30	
Acetone	ND	10	0	0	0		1.29	0	30	
Benzene	ND	1.0	0	0	0		0	0	30	
Bromodichloromethane	ND	1.0	0	0	0		0	0	30	
Bromoform	ND	1.0	0	0	0		0	0	30	
Bromomethane	ND	1.0	0	0	0		0	0	30	
Carbon disulfide	ND	1.0	0	0	0		0	0	30	
Carbon tetrachloride	ND	1.0	0	0	0		0	0	30	
Chlorobenzene	0.79	1.0	0	0	0		0.63	0	30	J
Chloroethane	ND	1.0	0	0	0		0	0	30	
Chloroform	ND	1.0	0	0	0		0	0	30	
Chloromethane	ND	1.0	0	0	0		0	0	30	
cis-1,2-Dichloroethene	ND	1.0	0	0	0		0	0	30	
cis-1,3-Dichloropropene	ND	1.0	0	0	0		0	0	30	
Cyclohexane	ND	2.0	0	0	0		0	0	30	
Dibromochloromethane	ND	1.0	0	0	0		0	0	30	
Dichlorodifluoromethane	ND	1.0	0	0	0		0	0	30	
Ethylbenzene	ND	1.0	0	0	0		0	0	30	
Isopropylbenzene	ND	1.0	0	0	0		0	0	30	
Methyl acetate	ND	2.0	0	0	0		0	0	30	
Methyl tert-butyl ether	ND	1.0	0	0	0		0	0	30	
Methylcyclohexane	ND	1.0	0	0	0		0	0	30	
Methylene chloride	ND	5.0	0	0	0		0	0	30	
Styrene	ND	1.0	0	0	0		0	0	30	
Tetrachloroethene	ND	1.0	0	0	0		0	0	30	
Toluene	ND	1.0	0	0	0		0	0	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R344771a** Instrument ID **VMS8** Method: **SW8260C**

trans-1,2-Dichloroethene	ND	1.0	0	0	0		0	0	30
trans-1,3-Dichloropropene	ND	1.0	0	0	0		0	0	30
Trichloroethene	ND	1.0	0	0	0		0	0	30
Trichlorofluoromethane	ND	1.0	0	0	0		0	0	30
Vinyl chloride	ND	1.0	0	0	0		0	0	30
Xylenes, Total	ND	3.0	0	0	0		0	0	30
Surr: 1,2-Dichloroethane-d4	*19.48*	0	*20*	0	*97.4*	*75-120*	21.21	*8.5*	*30*
Surr: 4-Bromofluorobenzene	*18.1*	0	*20*	0	*90.5*	*80-110*	19.11	*5.43*	*30*
Surr: Dibromofluoromethane	*20.15*	0	*20*	0	*101*	*85-115*	20.27	*0.594*	*30*
Surr: Toluene-d8	*19.52*	0	*20*	0	*97.6*	*85-110*	20.6	*5.38*	*30*

The following samples were analyzed in this batch:

22051511-01A	22051511-02A	22051511-03A
22051511-04A	22051511-05A	22051511-06A
22051511-07A	22051511-08A	22051511-09A
22051511-10A	22051511-11A	22051511-12A
22051511-14A	22051511-15A	22051511-16A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

MBLK	Sample ID: **10V-BLKW1-220520-R344778a**			Units: **µg/L**		Analysis Date: **5/20/2022 12:09 PM**			
Client ID:	Run ID: **VMS10_220520A**			SeqNo: **8440296**		Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1,2-Trichlorotrifluoroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	1.0								
Acetone	ND	10								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
Methyl acetate	ND	2.0								
Methyl tert-butyl ether	ND	1.0								
Methylcyclohexane	ND	1.0								
Methylene chloride	ND	5.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	1.0								
Toluene	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

trans-1,2-Dichloroethene	ND	1.0					
trans-1,3-Dichloropropene	ND	1.0					
Trichloroethene	ND	1.0					
Trichlorofluoromethane	ND	1.0					
Vinyl chloride	ND	1.0					
Xylenes, Total	ND	3.0					
Surr: 1,2-Dichloroethane-d4	*21.1*	0	*20*	0	*106*	*75-120*	0
Surr: 4-Bromofluorobenzene	*18.91*	0	*20*	0	*94.6*	*80-110*	0
Surr: Dibromofluoromethane	*19.7*	0	*20*	0	*98.5*	*85-115*	0
Surr: Toluene-d8	*20.06*	0	*20*	0	*100*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

LCS	Sample ID: **10V-LCSW1-220520-R344778a**				Units: **µg/L**			Analysis Date: **5/20/2022 12:26 PM**			
Client ID:		Run ID: **VMS10_220520A**			SeqNo: **8440297**			Prep Date:		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.9	1.0	20	0	104	75-130	0			
1,1,2,2-Tetrachloroethane	24.93	1.0	20	0	125	75-130	0			
1,1,2-Trichloroethane	21.44	1.0	20	0	107	75-125	0			
1,1,2-Trichlorotrifluoroethane	21.92	1.0	20	0	110	50-150	0			
1,1-Dichloroethane	22.83	1.0	20	0	114	68-142	0			
1,1-Dichloroethene	24.22	1.0	20	0	121	70-145	0			
1,2,4-Trichlorobenzene	21.16	1.0	20	0	106	70-135	0			
1,2-Dibromo-3-chloropropane	20.31	1.0	20	0	102	60-130	0			
1,2-Dibromoethane	23.58	1.0	20	0	118	67-155	0			
1,2-Dichlorobenzene	21.57	1.0	20	0	108	70-130	0			
1,2-Dichloroethane	22.96	1.0	20	0	115	78-125	0			
1,2-Dichloropropane	21.43	1.0	20	0	107	75-125	0			
1,3-Dichlorobenzene	21.77	1.0	20	0	109	75-130	0			
1,4-Dichlorobenzene	21.76	1.0	20	0	109	75-130	0			
2-Butanone	23.95	5.0	20	0	120	55-150	0			
2-Hexanone	24.39	5.0	20	0	122	60-135	0			
4-Methyl-2-pentanone	31.87	1.0	20	0	159	77-178	0			
Acetone	30.15	10	20	0	151	60-160	0			
Benzene	22.07	1.0	20	0	110	70-130	0			
Bromodichloromethane	20.87	1.0	20	0	104	75-125	0			
Bromoform	18.43	1.0	20	0	92.2	60-125	0			
Bromomethane	23.71	1.0	20	0	119	30-185	0			
Carbon disulfide	22.17	1.0	20	0	111	60-165	0			
Carbon tetrachloride	19.75	1.0	20	0	98.8	65-140	0			
Chlorobenzene	21.34	1.0	20	0	107	80-120	0			
Chloroethane	21.18	1.0	20	0	106	31-172	0			
Chloroform	22.16	1.0	20	0	111	66-135	0			
Chloromethane	14.85	1.0	20	0	74.2	46-148	0			
cis-1,2-Dichloroethene	22.56	1.0	20	0	113	75-134	0			
cis-1,3-Dichloropropene	21.96	1.0	20	0	110	70-130	0			
Cyclohexane	20.08	2.0	20	0	100	50-150	0			
Dibromochloromethane	18.93	1.0	20	0	94.6	60-115	0			
Dichlorodifluoromethane	19.32	1.0	20	0	96.6	10-180	0			
Ethylbenzene	21.21	1.0	20	0	106	76-123	0			
Isopropylbenzene	21.72	1.0	20	0	109	80-127	0			
Methyl tert-butyl ether	23.26	1.0	20	0	116	68-129	0			
Methylcyclohexane	19.52	1.0	20	0	97.6	50-150	0			
Methylene chloride	22.02	5.0	20	0	110	72-125	0			
Styrene	21.22	1.0	20	0	106	79-117	0			
Tetrachloroethene	21.38	1.0	20	0	107	68-166	0			
Toluene	21.24	1.0	20	0	106	76-125	0			
trans-1,2-Dichloroethene	22.87	1.0	20	0	114	80-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

trans-1,3-Dichloropropene	17.91	1.0	20	0	89.6	56-132	0
Trichloroethene	20.47	1.0	20	0	102	77-125	0
Trichlorofluoromethane	19.68	1.0	20	0	98.4	60-140	0
Vinyl chloride	19.51	1.0	20	0	97.6	50-136	0
Xylenes, Total	64.75	3.0	60	0	108	76-127	0
Surr: 1,2-Dichloroethane-d4	*21.03*	0	*20*	0	*105*	*75-120*	0
Surr: 4-Bromofluorobenzene	*19.66*	0	*20*	0	*98.3*	*80-110*	0
Surr: Dibromofluoromethane	*20.67*	0	*20*	0	*103*	*85-115*	0
Surr: Toluene-d8	*19.95*	0	*20*	0	*99.8*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

MS Sample ID: **22051315-04A MS** Units: **µg/L** Analysis Date: **5/20/2022 06:53 PM**
Client ID: Run ID: **VMS10_220520A** SeqNo: **8442341** Prep Date: DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	216.2	10	200	0	108	75-130	0			
1,1,2,2-Tetrachloroethane	225.3	10	200	0	113	75-130	0			
1,1,2-Trichloroethane	202.8	10	200	0	101	75-125	0			
1,1,2-Trichlorotrifluoroethane	247.8	10	200	0	124	50-150	0			
1,1-Dichloroethane	219.8	10	200	0	110	68-142	0			
1,1-Dichloroethene	259.7	10	200	0	130	70-145	0			
1,2,4-Trichlorobenzene	187.2	10	200	0	93.6	70-135	0			
1,2-Dibromo-3-chloropropane	191.6	10	200	0	95.8	60-130	0			
1,2-Dibromoethane	218.7	10	200	0	109	67-155	0			
1,2-Dichlorobenzene	198	10	200	0	99	70-130	0			
1,2-Dichloroethane	211.1	10	200	0	106	78-125	0			
1,2-Dichloropropane	200.2	10	200	0	100	75-125	0			
1,3-Dichlorobenzene	204.8	10	200	0	102	75-130	0			
1,4-Dichlorobenzene	202.3	10	200	0	101	75-130	0			
2-Butanone	225.6	50	200	0	113	55-150	0			
2-Hexanone	229.2	50	200	0	115	60-135	0			
4-Methyl-2-pentanone	302.4	10	200	0	151	77-178	0			
Acetone	285.8	100	200	32.9	126	60-160	0			
Benzene	211.5	10	200	0	106	70-130	0			
Bromodichloromethane	198.2	10	200	0	99.1	75-125	0			
Bromoform	185.4	10	200	0	92.7	60-125	0			
Bromomethane	429.2	10	200	0	215	30-185	0			S
Carbon disulfide	238.3	10	200	0	119	60-165	0			
Carbon tetrachloride	206.5	10	200	0	103	65-140	0			
Chlorobenzene	206.5	10	200	0	103	80-120	0			
Chloroethane	254.7	10	200	0	127	31-172	0			
Chloroform	208.3	10	200	0	104	66-135	0			
Chloromethane	287.4	10	200	6.3	141	46-148	0			
cis-1,2-Dichloroethene	222.5	10	200	0	111	75-134	0			
cis-1,3-Dichloropropene	209.8	10	200	0	105	70-130	0			
Cyclohexane	218	20	200	0	109	50-150	0			
Dibromochloromethane	185	10	200	0	92.5	60-115	0			
Dichlorodifluoromethane	225.9	10	200	0	113	10-180	0			
Ethylbenzene	211.4	10	200	1.4	105	76-123	0			
Isopropylbenzene	216.3	10	200	0	108	80-127	0			
Methyl tert-butyl ether	222.4	10	200	0	111	68-129	0			
Methylcyclohexane	208.4	10	200	0	104	50-150	0			
Methylene chloride	213.7	50	200	0	107	72-125	0			
Styrene	202.3	10	200	0	101	79-117	0			
Tetrachloroethene	221.9	10	200	0	111	68-166	0			
Toluene	207.7	10	200	0	104	76-125	0			
trans-1,2-Dichloroethene	219.7	10	200	0	110	80-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

trans-1,3-Dichloropropene	173.5	10	200	0	86.8	56-132	0
Trichloroethene	199.9	10	200	0	100	77-125	0
Trichlorofluoromethane	225.8	10	200	0	113	60-140	0
Vinyl chloride	235.1	10	200	0	118	50-136	0
Xylenes, Total	641.8	30	600	0	107	76-127	0
Surr: 1,2-Dichloroethane-d4	*203.5*	0	*200*	0	*102*	*75-120*	0
Surr: 4-Bromofluorobenzene	*203.6*	0	*200*	0	*102*	*80-110*	0
Surr: Dibromofluoromethane	*199.4*	0	*200*	0	*99.7*	*85-115*	0
Surr: Toluene-d8	*203.1*	0	*200*	0	*102*	*85-110*	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

MSD	Sample ID: **22051315-04A MSD**				Units: **µg/L**			Analysis Date: **5/20/2022 07:10 PM**			
Client ID:		Run ID: **VMS10_220520A**			SeqNo: **8442342**		Prep Date:		DF: **10**		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	204.8	10	200	0	102	75-130	216.2	5.42	30	
1,1,2,2-Tetrachloroethane	218.9	10	200	0	109	75-130	225.3	2.88	30	
1,1,2-Trichloroethane	191.6	10	200	0	95.8	75-125	202.8	5.68	30	
1,1,2-Trichlorotrifluoroethane	226.7	10	200	0	113	50-150	247.8	8.89	30	
1,1-Dichloroethane	207.5	10	200	0	104	68-142	219.8	5.76	30	
1,1-Dichloroethene	242.3	10	200	0	121	70-145	259.7	6.93	30	
1,2,4-Trichlorobenzene	183.5	10	200	0	91.8	70-135	187.2	2	30	
1,2-Dibromo-3-chloropropane	183.9	10	200	0	92	60-130	191.6	4.1	30	
1,2-Dibromoethane	207.9	10	200	0	104	67-155	218.7	5.06	30	
1,2-Dichlorobenzene	194.7	10	200	0	97.4	70-130	198	1.68	30	
1,2-Dichloroethane	201.9	10	200	0	101	78-125	211.1	4.46	30	
1,2-Dichloropropane	189.1	10	200	0	94.6	75-125	200.2	5.7	30	
1,3-Dichlorobenzene	198.1	10	200	0	99	75-130	204.8	3.33	30	
1,4-Dichlorobenzene	192.8	10	200	0	96.4	75-130	202.3	4.81	30	
2-Butanone	215.5	50	200	0	108	55-150	225.6	4.58	30	
2-Hexanone	218.2	50	200	0	109	60-135	229.2	4.92	30	
4-Methyl-2-pentanone	291.4	10	200	0	146	77-178	302.4	3.7	30	
Acetone	278.5	100	200	32.9	123	60-160	285.8	2.59	30	
Benzene	201.7	10	200	0	101	70-130	211.5	4.74	30	
Bromodichloromethane	191.7	10	200	0	95.8	75-125	198.2	3.33	30	
Bromoform	174.2	10	200	0	87.1	60-125	185.4	6.23	30	
Bromomethane	483.3	10	200	0	242	30-185	429.2	11.9	30	S
Carbon disulfide	275	10	200	0	138	60-165	238.3	14.3	30	
Carbon tetrachloride	204.4	10	200	0	102	65-140	206.5	1.02	30	
Chlorobenzene	193.4	10	200	0	96.7	80-120	206.5	6.55	30	
Chloroethane	241.2	10	200	0	121	31-172	254.7	5.44	30	
Chloroform	197.8	10	200	0	98.9	66-135	208.3	5.17	30	
Chloromethane	278.1	10	200	6.3	136	46-148	287.4	3.29	30	
cis-1,2-Dichloroethene	210.7	10	200	0	105	75-134	222.5	5.45	30	
cis-1,3-Dichloropropene	199.6	10	200	0	99.8	70-130	209.8	4.98	30	
Cyclohexane	209.4	20	200	0	105	50-150	218	4.02	30	
Dibromochloromethane	185.4	10	200	0	92.7	60-115	185	0.216	30	
Dichlorodifluoromethane	216.2	10	200	0	108	10-180	225.9	4.39	30	
Ethylbenzene	197.3	10	200	1.4	98	76-123	211.4	6.9	30	
Isopropylbenzene	203.1	10	200	0	102	80-127	216.3	6.29	30	
Methyl tert-butyl ether	210.4	10	200	0	105	68-129	222.4	5.55	30	
Methylcyclohexane	200.5	10	200	0	100	50-150	208.4	3.86	30	
Methylene chloride	203.1	50	200	0	102	72-125	213.7	5.09	30	
Styrene	190.5	10	200	0	95.2	79-117	202.3	6.01	30	
Tetrachloroethene	206.5	10	200	0	103	68-166	221.9	7.19	30	
Toluene	196	10	200	0	98	76-125	207.7	5.8	30	
trans-1,2-Dichloroethene	209.4	10	200	0	105	80-140	219.7	4.8	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

trans-1,3-Dichloropropene	167.3	10	200	0	83.6	56-132	173.5	3.64	30
Trichloroethene	186.8	10	200	0	93.4	77-125	199.9	6.78	30
Trichlorofluoromethane	207.4	10	200	0	104	60-140	225.8	8.49	30
Vinyl chloride	213.8	10	200	0	107	50-136	235.1	9.49	30
Xylenes, Total	598.9	30	600	0	99.8	76-127	641.8	6.92	30
Surr: 1,2-Dichloroethane-d4	*201.3*	0	*200*	0	*101*	*75-120*	203.5	*1.09*	*30*
Surr: 4-Bromofluorobenzene	*197.3*	0	*200*	0	*98.6*	*80-110*	203.6	*3.14*	*30*
Surr: Dibromofluoromethane	*196.9*	0	*200*	0	*98.4*	*85-115*	199.4	*1.26*	*30*
Surr: Toluene-d8	*198.2*	0	*200*	0	*99.1*	*85-110*	203.1	*2.44*	*30*

The following samples were analyzed in this batch: 22051511-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Cincinnati, OH | Fort Collins, CO 970 490 1511 | land, MI 616 399 6070

Chain of Custody Form

Houston, TX +1 281 530 5656 | Spring City, PA +1 610 948 4903 | South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541 | Salt Lake City, UT +1 801 266 7700 | York, PA +1 717 505 5280

Page 1 of 2

COC ID: 057206

22051511

MANNIK&SMITH: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill

ALS Project Manager: | ALS Work Order #:

Project Information				Parameter/Method Request for Analysis	
		oject Name	MT. PLEASANT LANDFILL	A	PCBs
Work Order		roject Number	M346 0003	B	VOCs
Company Name	MANNIK+SMITH (CANTON)	Bill To Company	MANNIK+SMITH	C	SVOCs
Send Report To	D. ADLER	Invoice Attn	D. ADLER	D	METALS- 10 MICH METALS + AL, Sb, Be, B, Ni, Th,
Address	2365 HAGGERTY RD. SOUTH CANTON, MI 48188	Address		E	PFAS - ISTOPE DILUTION- SEE ATTACHED LIST - EGLE 10/1/2019
City/State/Zip		City/State/Zip		G	
Phone	7347905164	Phone		H	
Fax		Fax		I	
e-Mail Address	DADLER@MANNIKSMITHGROUP.COM	e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-101	5-16-22	1500	GROUND WATER		10	X	X	X	X	X						
2	MW-102		1446														
3	MW-103		1249														
4	MW-104		1302														
5	MW-105		1342														
6	MW-106		1410														
7	MW-200		1555														
8	MW-201		1645														
9	MW-202		1145														
10	~~MW-10-20~~ MW-10-20	5-16-22	1553	GROUND WATER		10	X	X	X	X	X						

Sampler(s) Please Print & Sign: D. ADLER

Shipment Method:

Turnaround Time in Business Days (BD): ☐ 10 BD ☐ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD — STANDARD

Results Due Date:

Relinquished by:	Date: 5/17/22	Time: 1447	Received by:	
Relinquished by:	Date: 5/17/22	Time: 2350	Received by (Laboratory):	
Logged by (Laboratory):	Date: 5/18/22	Time: 0957	Checked by (Laboratory):	

Notes:

Cooler ID	Cooler Temp.
IR1	3.0
	3.2
pH32	4.6

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Date ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Cincinnati, OH
Fort Collins, CO +1 970 490 1511
MI 99 6070
Houston, TX +1 281 530 5656
Spring City, PA +1 610 948 4903
South Charleston, WV +1 304 356 3168
Middletown, PA +1 717 944 5541
Salt Lake City, UT +1 801 266 7700
York, PA +1 717 505 5280

Chain of Custody Form

22051511

MANNIK&SMITH: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill

Page 2 of 2

COC ID: 057205

ALS Project Manager: | ALS Work Order #:

				Project Information		Parameter/Method Request for Analysis
Purcl			Name		A	PCBs
Work Order			umber	MT. PLEASANT LANDFILL	B	VOCs
Company Name	MANNIK+SMITH-CANTON		Bill To Company	M3460003	C	SVOCs
Send Report To	D. ADLER		Invoice Attn	MANNIK+SMITH-D. ADLER	D	METALS - 10 MICH + AL, Sb, Be, B, Ni, Tl
Address			Address		E	PFAS - ISOTOPE DILUTION - SEE ATTACHED
					F	LIST - EGLE 10/1/2019
City/State/Zip			City/State/Zip		G	
Phone	7347905164		Phone		H	
Fax			Fax		I	
e-Mail Address	DADLER@M		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-14-20	5-16-22	1055	GROUND WATER		10											
2	MW-15-20	5-16-22	1025	GROUND WATER		10											
3	FIELD BLANK	5-16-22	1545	LAB WATER		2											
4	DUP	5-16-22		GROUND WATER		10											
5	TRIP BLANK																
6	MW-109	5/16/22		GW		10	X	X	X	X	X						
7																	
8																	
9																	
10																	

Sampler(s) Please Print & Sign: D. ADLER

Shipment Method:

Turnaround Time in Business Days (BD): ☐ 10 BD ☐ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD — STANDARD

Results Due Date:

Relinquished by:		Date: 5/17/22	Time: 1447	Received by:
Relinquished by:	QS	Date: 5/17/22	Time: 2250	Received by (Laboratory):
Logged by (Laboratory):		Date: 5/18/22	Time: 0957	Checked by (Laboratory):

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Notes:

Cooler ID	Cooler Temp.
IR1	3.0
	3.2
pH 32	4.6

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Date ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Group, USA

Sample Receipt Checklist

Client Name: **MANNIK&SMITH** Date/Time Received: **17-May-22 23:50**

Work Order: **22051511** Received by: **LYS**

Checklist completed by Lydia Sweet (eSignature) 18-May-22 (Date) Reviewed by: (eSignature) (Date)

Matrices: Water
Carrier name: Courier

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.0/3.0, 3.2/3.2, 4.6/4.6c	IR1	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	5/18/2022 10:56:15 AM		
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐
pH adjusted?	Yes ☐	No ☑	N/A ☐
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

PERFLUOROALKYL AND POLYFLUOROALKYL SUBSTANCES (PFAS) MINIMUM LABORATORY ANALYTE LIST

Below is the minimum laboratory PFAS analyte list for analysis of deer, drinking water, groundwater, surface water, soil, wastewater effluent, and landfill leachate samples collected by Michigan's Departments of Environment, Great Lakes, and Energy, Health and Human Services, Agriculture and Rural Development, and Natural Resources.

This minimum analyte list was developed based on the potential for these chemicals to be found in Michigan, the availability of the chemical standards used for testing, and the ability of available laboratories to test for these PFAS. This list includes PFAS that can be tested for in drinking water using United States Environmental Protection Agency (USEPA) Methods 537 Rev.1.1 or 537.1, which are the only methods that should be used when analyzing drinking water samples. Other testing methodology may be used to test for PFAS in other media (not drinking water). This list is not exhaustive of PFAS in Michigan's environment.

A fish icon (🐟) precedes those compounds that are also currently being tested for in fish tissue.

Analyte Name	Acronym	Fluorinated Carbon Chain Length	Molecular Formula	CAS Number	USEPA Method 537 Rev. 1.1	USEPA Method 537.1
🐟 Perfluorotetradecanoic acid	PFTeA	C_{14}	$C_{13}F_{27}COOH$	376-06-7	X	X
🐟 Perfluorotridecanoic acid	PFTriA	C_{13}	$C_{12}F_{25}COOH$	72629-94-8	X	X
🐟 Perfluorododecanoic acid	PFDoA	C_{12}	$C_{11}F_{23}COOH$	307-55-1	X	X
🐟 Perfluoroundecanoic acid	PFUnA	C_{11}	$C_{10}F_{21}COOH$	2058-94-8	X	X
🐟 Perfluorodecanoic acid	PFDA	C_{10}	$C_9F_{19}COOH$	335-76-2	X	X
🐟 Perfluorononanoic acid	PFNA	C_9	$C_8F_{17}COOH$	375-95-1	X	X
🐟 Perfluorooctanoic acid	PFOA	C_8	$C_7F_{15}COOH$	335-67-1	X	X
🐟 Perfluoroheptanoic acid	PFHpA	C_7	$C_6F_{13}COOH$	375-85-9	X	X
🐟 Perfluorohexanoic acid	PFHxA	C_6	$C_5F_{11}COOH$	307-24-4	X	X
🐟 Perfluoropentanoic acid	PFPeA	C_5	C_4F_9COOH	2706-90-3		
🐟 Perfluorobutanoic acid	PFBA	C_4	C_3F_7COOH	375-22-4		
🐟 Perfluorodecanesulfonic acid	PFDS	C_{10}	$C_{10}F_{21}SO_3H$	335-77-3		

EGLE Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Minimum Laboratory Analyte List

Analyte Name	Acronym	Fluorinated Carbon Chain Length	Molecular Formula	CAS Number	USEPA Method 537 Rev. 1.1	USEPA Method 537.1
Perfluorononanesulfonic acid	PFNS	C_9	$C_9F_{19}SO_3H$	68259-12-1		
Perfluorooctanesulfonic acid	PFOS	C_8	$C_8F_{17}SO_3H$	1763-23-1	X	X
Perfluoroheptanesulfonic acid	PFHpS	C_7	$C_7F_{15}SO_3H$	375-92-8		
Perfluorohexanesulfonic acid	PFHxS	C_6	$C_6F_{13}SO_3H$	355-46-4	X	X
Perfluoropentanesulfonic acid	PFPeS	C_5	$C_5F_{11}SO_3H$	2706-91-4		
Perfluorobutanesulfonic acid	PFBS	C_4	$C_4F_9SO_3H$	375-73-5	X	X
Perfluorooctanesulfonamide	PFOSA	C_8	$C_8F_{17}SO_2NH_2$	754-91-6		
Fluorotelomer sulphonic acid 8:2	FtS 8:2	C_8	$C_8F_{17}CH_2CH_2SO_3$	39108-34-4		
Fluorotelomer sulphonic acid 6:2	FtS 6:2	C_6	$C_6F_{13}CH_2CH_2SO_3$	27619-97-2		
Fluorotelomer sulphonic acid 4:2	FtS 4:2	C_4	$C_4F_9CH_2CH_2SO_3$	757124-72-4		
2-(N-Ethylperfluorooctanesulfonamido) acetic acid	N-EtFOSAA	C_8	$C_8F_{17}SO_2N(C_2H_5)CH_2COOH$	2991-50-6	X	X
2-(N-Methylperfluorooctanesulfonamido) acetic acid	N-MeFOSAA	C_8	$C_8F_{17}SO_2N(CH_3)CHCOOH$	2355-31-9	X	X
Hexafluoropropylene oxide dimer acid	HFPO-DA	C_6	$C_6HF_{11}O_3$	13252-13-6		X
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	C_{10}	$C_{10}HF_{20}ClSO_4$	763051-92-9		X
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS	C_8	$C_8HF_{16}ClSO_4$	756426-58-1		X
4,8-dioxa-3H-perfluorononanoic acid	ADONA	C_7	$C_7H_2F_{12}O_4$	919005-14-4		X

APPENDIX E
SOIL SAMPLE TEST DATA

The Mannik & Smith Group, Inc.
2365 Haggerty Road South, Canton, MI 48188
ph: (734) 397-3100 fax: (734) 397-3131
www.manniksmithgroup.com

SUMMARY OF LABORATORY RESULTS

AASHTO R18

CLIENT City of Mt. Pleasant, MI **PROJECT NAME** Former Mt Pleasant Landfill

PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI

Boring No. / Sample No.	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	Class-ification	Water Content (%)	Bulk Density (pcf)	Satur-ation (%)	Specific Gravity
MW-200 / 17-20	17.0	NP	NP	NP	25	4	SP				
MW-200 / 25.5-30	25.5	31	14	17	4.75	95	CL				
MW-200 / 37-39.5	37.0	23	11	12	9.525	63	CL				
MW-201 / 20-24	20.0	NP	NP	NP	19	16	SM				
MW-201 / 29-30	29.0	33	16	17	4.75	99	CL				
MW-201 / 39-40	39.0	17	10	7	9.525	49	SC-SM				
MW-202 / 5-7	5.0	NP	NP	NP	25	2	GW				
MW-202 / 8.5-10	8.5	20	10	10	4.75	55	CL				
SB-19 / 34-35	34.0	17	9	8	4.75	49	SC				
SB-19 / 47-49	47.0	19	10	9	9.525	56	CL				
SB-20 / 45-50	45.0	19	10	9	9.525	55	CL				
SB-21 / 23-25	23.0	20	10	10	19	55	CL				

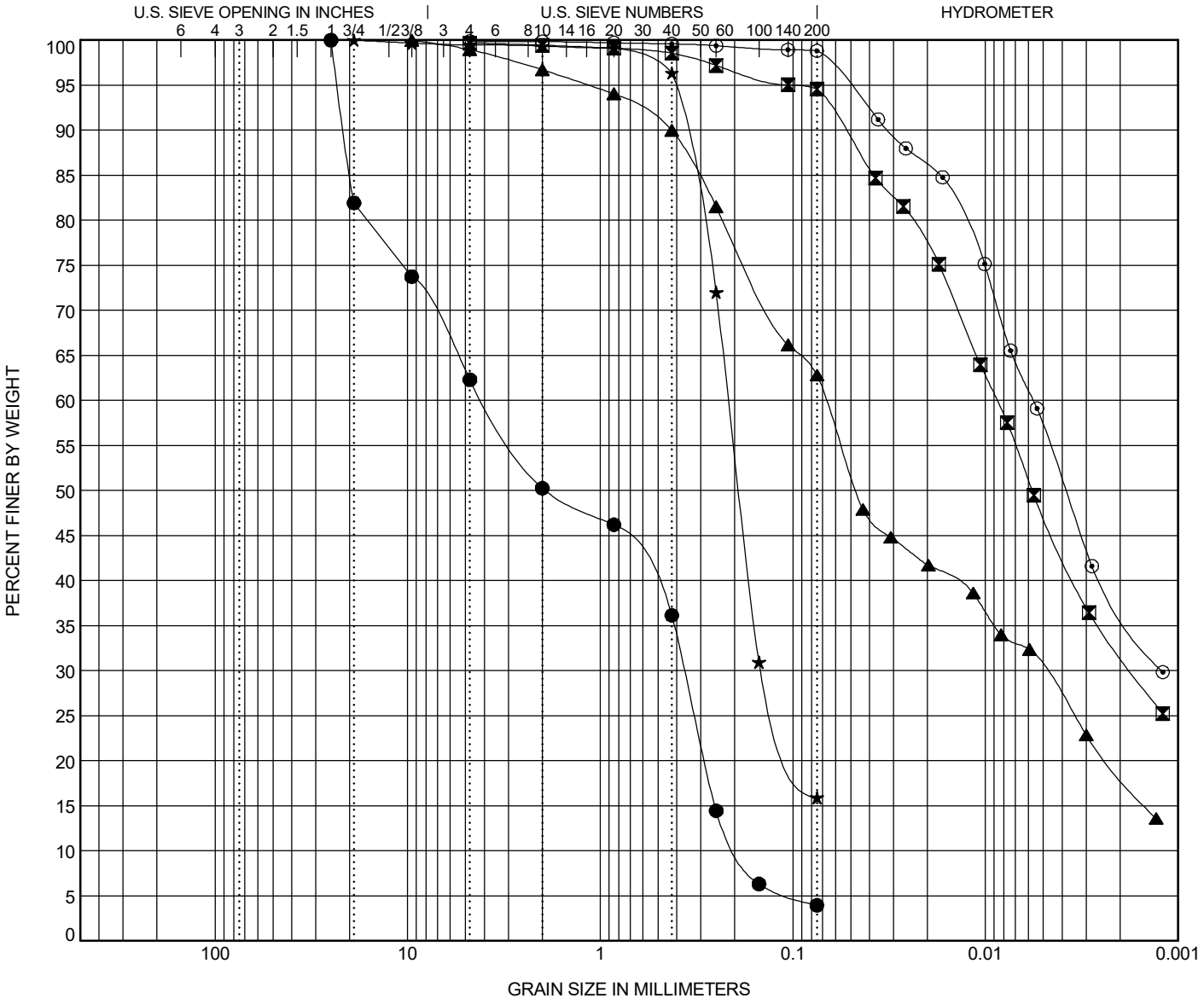
GRAIN SIZE DISTRIBUTION

The Mannik & Smith Group, Inc.
2365 Haggerty Road South, Canton, MI 48188
ph: (734) 397-3100 fax: (734) 397-3131
www.manniksmithgroup.com

AASHTO R18

CLIENT City of Mt. Pleasant, MI **PROJECT NAME** Former Mt Pleasant Landfill

PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification			Classification	LL	PL	PI	Cc	Cu
●	MW-200 / 17-20	17.0	POORLY GRADED SAND with GRAVEL (SP)	NP	NP	NP	0.18	21.30
⊠	MW-200 / 25.5-30	25.5	LEAN CLAY (CL)	31	14	17		
▲	MW-200 / 37-39.5	37.0	SANDY LEAN CLAY (CL)	23	11	12		
★	MW-201 / 20-24	20.0	SILTY SAND (SM)	NP	NP	NP		
⊙	MW-201 / 29-30	29.0	LEAN CLAY (CL)	33	16	17		

Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	MW-200 / 17-20	17.0	25	4.026	0.366	0.189	37.7	58.3	4.0	
⊠	MW-200 / 25.5-30	25.5	4.75	0.009	0.002			5.1	62.8	31.7
▲	MW-200 / 37-39.5	37.0	9.525	0.068	0.005		1.1	36.1	44.4	18.4
★	MW-201 / 20-24	20.0	19	0.215	0.144		0.5	83.6	15.9	
⊙	MW-201 / 29-30	29.0	4.75	0.006	0.001			1.1	61.9	36.9

GRAIN SIZE DISTRIBUTION

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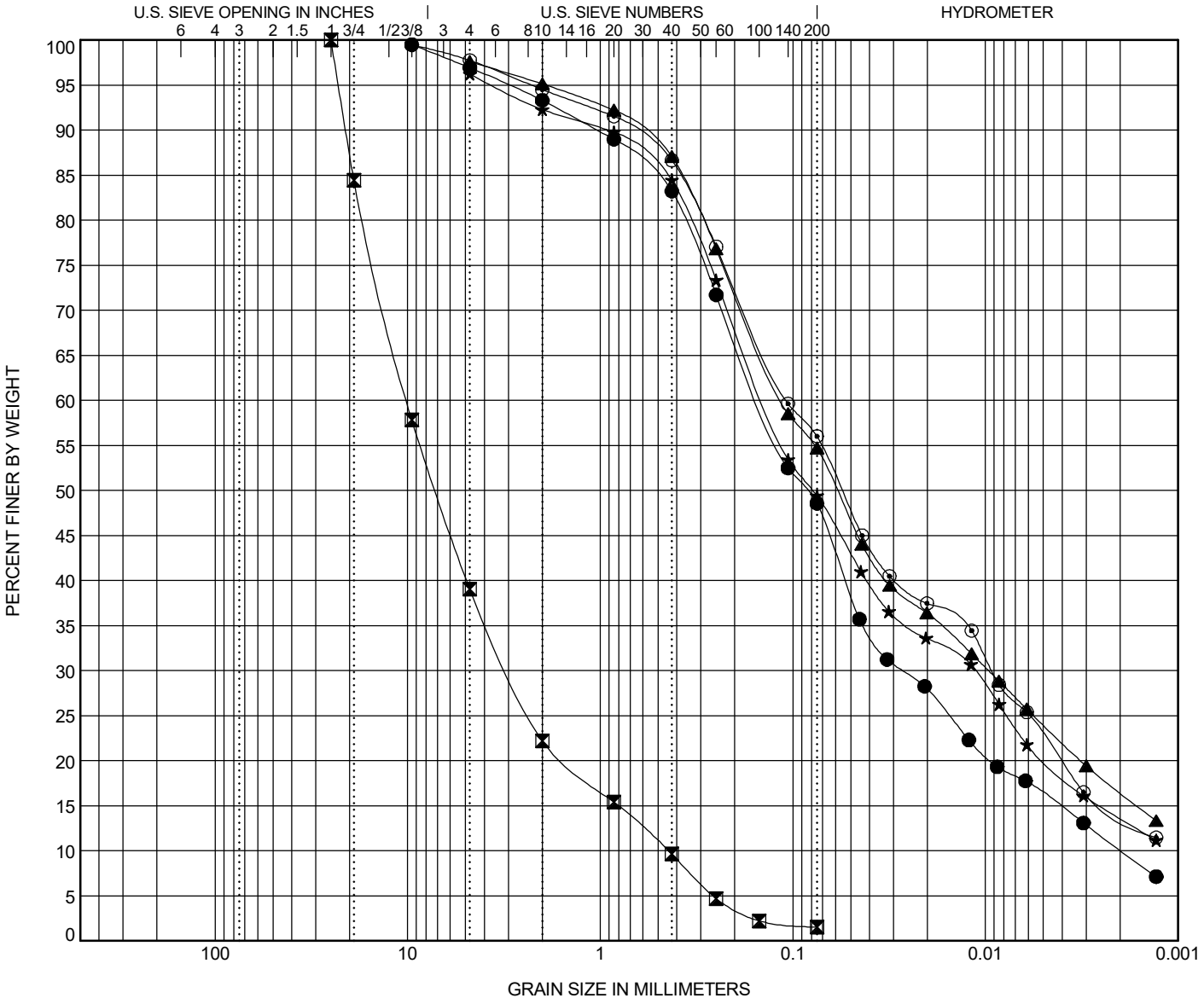
2365 Haggerty Road South, Canton, MI 48188
ph: (734) 397-3100 fax: (734) 397-3131
www.manniksmithgroup.com

AASHTO R18

CLIENT City of Mt. Pleasant, MI **PROJECT NAME** Former Mt Pleasant Landfill

PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● MW-201 / 39-40	39.0	SILTY, CLAYEY SAND (SC-SM)	17	10	7	2.47	75.13
⊠ MW-202 / 5-7	5.0	WELL-GRADED GRAVEL with SAND (GW)	NP	NP	NP	1.99	22.71
▲ MW-202 / 8.5-10	8.5	SANDY LEAN CLAY (CL)	20	10	10		
★ SB-19 / 34-35	34.0	CLAYEY SAND (SC)	17	9	8		
⊙ SB-19 / 47-49	47.0	SANDY LEAN CLAY (CL)	19	10	9		

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● MW-201 / 39-40	39.0	9.525	0.148	0.027	0.002	2.6	48.4	38.5	10.1
⊠ MW-202 / 5-7	5.0	25	10.07	2.984	0.443	61.0	37.5	1.5	
▲ MW-202 / 8.5-10	8.5	4.75	0.114	0.01			42.9	38.2	16.5
★ SB-19 / 34-35	34.0	4.75	0.14	0.011			46.8	35.8	13.6
⊙ SB-19 / 47-49	47.0	9.525	0.108	0.009		1.7	41.7	42.1	14.0

GRAIN SIZE DISTRIBUTION

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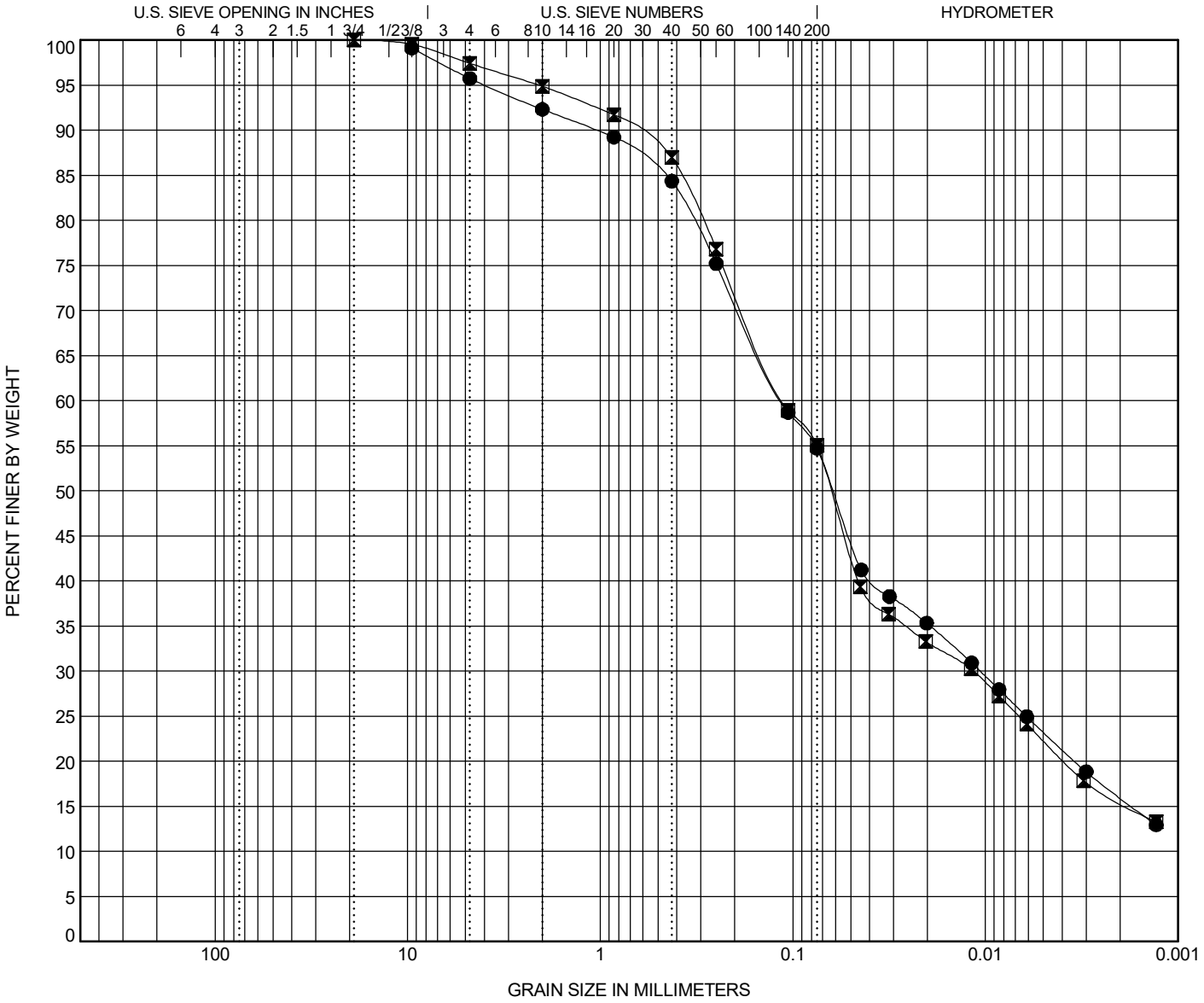
ph: (734) 397-3100 fax: (734) 397-3131
www.manniksmithgroup.com

AASHTO R18

CLIENT City of Mt. Pleasant, MI **PROJECT NAME** Former Mt Pleasant Landfill

PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● SB-20 / 45-50	45.0	SANDY LEAN CLAY (CL)	19	10	9		
⊠ SB-21 / 23-25	23.0	SANDY LEAN CLAY (CL)	20	10	10		

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SB-20 / 45-50	45.0	9.525	0.113	0.011		3.4	41.0	38.7	16.0
⊠ SB-21 / 23-25	23.0	19	0.111	0.012		2.6	42.4	39.5	15.6

ATTERBERG LIMITS RESULTS

The Mannik & Smith Group, Inc.
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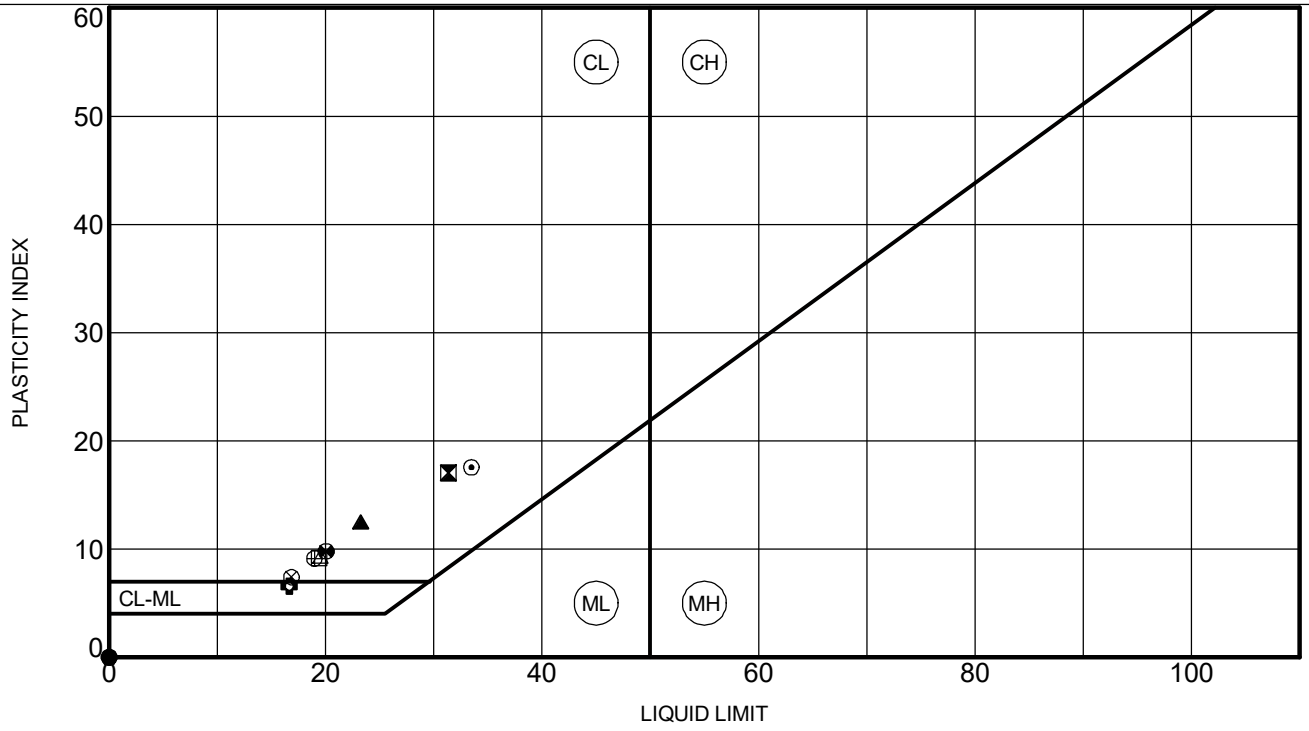
www.manniksmithgroup.com

AASHTO R18

CLIENT City of Mt. Pleasant, MI **PROJECT NAME** Former Mt Pleasant Landfill

PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI



	Specimen Identification		LL	PL	PI	Fines	Classification
●	MW-200 / 17-20	17.0	NP	NP	NP	4	POORLY GRADED SAND with GRAVEL (SP)
⊠	MW-200 / 25.5-30	25.5	31	14	17	95	LEAN CLAY (CL)
▲	MW-200 / 37-39.5	37.0	23	11	12	63	SANDY LEAN CLAY (CL)
★	MW-201 / 20-24	20.0	NP	NP	NP	16	SILTY SAND (SM)
⊙	MW-201 / 29-30	29.0	33	16	17	99	LEAN CLAY (CL)
✿	MW-201 / 39-40	39.0	17	10	7	49	SILTY, CLAYEY SAND (SC-SM)
○	MW-202 / 5-7	5.0	NP	NP	NP	2	WELL-GRADED GRAVEL with SAND (GW)
△	MW-202 / 8.5-10	8.5	20	10	10	55	SANDY LEAN CLAY (CL)
⊗	SB-19 / 34-35	34.0	17	9	8	49	CLAYEY SAND (SC)
⊕	SB-19 / 47-49	47.0	19	10	9	56	SANDY LEAN CLAY (CL)
□	SB-20 / 45-50	45.0	19	10	9	55	SANDY LEAN CLAY (CL)
⊛	SB-21 / 23-25	23.0	20	10	10	55	SANDY LEAN CLAY (CL)

Overview

Project Name
City Hall Retaining Wall - Broadway Street Sidewalk Replacement

Total Requested
$70,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
Medium

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
jmoore@mt-pleasant.org

Applicant Email
Jason Moore

Organization
City of MtPleasant

Address
320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number
9897795405

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Infrastructure

Project Description

The retaining walls along the front side of the Borden Building/City Hall are part of the original construction and were deemed as having historic significance during the redevelopment by the State Historic Preservation Office. As a result, the walls were repaired and underpinned during the project rather than being replaced. The walls, which have been patched and repainted on a semiannual basis, continue to show signs of severe cracking.

In late 2021, staff contracted with SME, who provided the recommendation/engineering work for the original restoration, to evaluate movement evident along the west side of the site along the public sidewalk. Staff received SME's finding in early 2021 that outlined a number of options to improve the condition and overall appearance of the walls with updated drainage and coatings, along with a cost estimate to replace the wall/s in their entirety. The retaining walls that run along the west side of the site with a height of 2-4 feet above

grade are leaning and were determined that they need to be replaced along with the sidewalk that is failing.

The funding request is to cover the replacement of the public sidewalk along Broadway Street.

Benefit Description

The retaining walls are more than 100 years old and have been showing signs of cracking, spalling and areas where the wall is leaning causing the sidewalk to fail. This project will replace the sidewalk and protect the street and streetscape from potential damage.

Funding Requirements

Not Entered

Project Timeline

Summer of 2024

Budget Items

Name	Cost	Quantity	Total	Category
Sidewalk Replacement	$70,000.00	1	$70,000.00	Infrastructure
AmountRequested	**$70,000.00**			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	**$0.00**		

Budget Summary

Amount Requested

$70,000.00

Amount Matched

$0.00

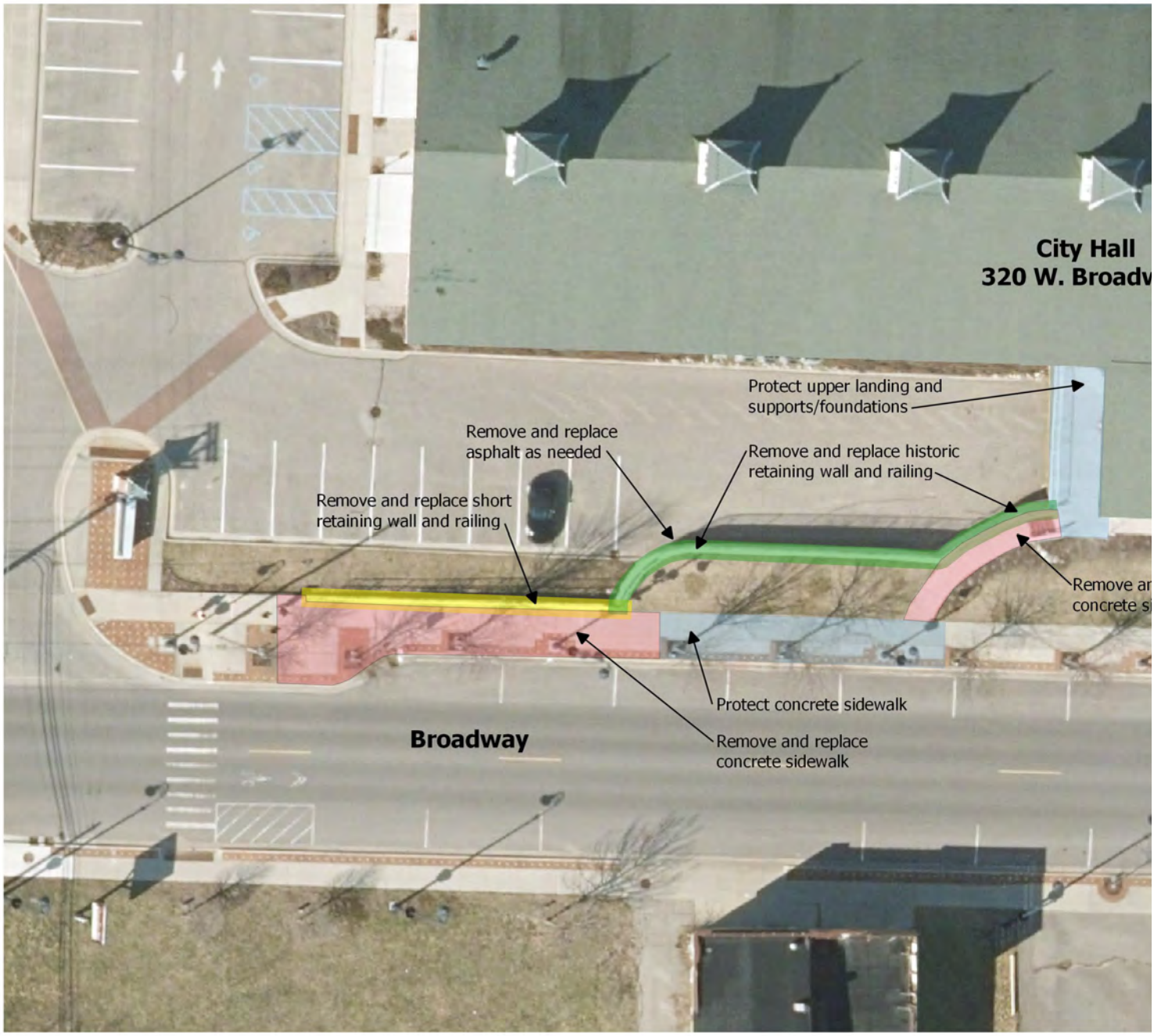
Total Amount

$70,000.00

Uploaded Files

Name
RetainingWallImage20230306_2023-09-06.jpg
FinalGeotechReport20230306_2023-09-06.pdf

There are no comments to display.


City Hall
320 W. Broadv
Protect upper landing and supports/foundations
Remove and replace asphalt as needed
Remove and replace historic retaining wall and railing
Remove and replace short retaining wall and railing
Remove ar
concrete si
Protect concrete sidewalk
Broadway
Remove and replace concrete sidewalk

856 E. Eighth Street, Suite 1
Traverse City, MI 49686-2784

T (231) 941-5200

www.sme-usa.com

February 2, 2023

Mr. Christopher Dombrowski, PE
Williams & Works, Inc.
549 Ottawa Avenue NW, Suite 310
Grand Rapids, Michigan 49503

Via E-mail: Dombrowski@williams-works.com

RE: Geotechnical Evaluation – Revised
Mt. Pleasant City Hall Retaining Walls
320 West Broadway Street
Mt. Pleasant, Michigan 48858
SME Project No. 091171.00

Dear Mr. Dombrowski:

We have completed the geotechnical evaluation for the proposed retaining wall replacement at Mt. Pleasant City Hall. This report presents the results of our observations and analyses, our geotechnical recommendations, and a discussion on general construction considerations based on the information disclosed by the borings.

This evaluation was conducted in general accordance with the scope of services outlined in SME Proposal No. P03459.22 dated December 21, 2022. We revised our report dated December 22, 2022 based on our conversations with Mr. Christopher Dombrowski, PE with Williams & Works. Williams & Works (W&W) authorized our services.

As input into this evaluation W&W provided SME with the following documents.

- A preliminary drawing titled “Existing Conditions” (Sheet No. 2) for the “City Hall Retaining Wall Replacement” project, prepared by W&W.
- A document titled “Request for Proposals” prepared by the City of Mt. Pleasant.
- Historic plan sheets nos. A2.1, A2.4, A2.5, A2.6, A6.1, A8.2, and S2.1 prepared by J.E. Johnson Design Group, LLC.
- A document titled “Discloser Statement” dated November 2006 and prepared by AKT Peerless Environmental Services.

SME previously prepared a Geotechnical Evaluation Report dated January 7, 2022 (SME Project No. 088030.00).

SITE CONDITONS AND PROJECT DESCRIPTION

The site is located at Mt. Pleasant City Hall at 320 West Broadway Street. The site location is depicted on the Location Map on the attached Boring Location Diagram (Figure No. 1).

Existing retaining walls extend in a generally east-west direction across the site. The retaining walls provide grade separation between the City Hall parking area and the sidewalk and West Broadway Street. The project includes replacement of the existing walls that extend from the west end of the site to the existing City Hall building (i.e. the retraining walls east of the building are not included in this project). The subject retaining walls are about 1-foot high at the west end and about 12 feet high on east end at the existing building. The eastern retaining wall was underpinned and refurbished in 2008 when the building was remodeled and converted into City Hall.

The new cast-in-place concrete retaining walls will be located approximately along the same alignment and will be about the same height as the existing retaining walls. We understand the new retaining wall footings will have a design bearing elevation of 749 feet. Temporary and new permanent footings could be required to support the existing upper landing at the building entrance.

EVALUATION PROCEDURES

FIELD EXPLORATION

SME completed two borings (B101 and B102) on October 21, 2022. One boring extended 15 feet beneath the existing ground surface and one boring extended 25 feet beneath the existing ground surface. The approximate locations of the borings are shown on Figure No. 1. Figure No. 1 also depicts the approximate locations of previous borings B1 and B2.

The planned number, locations, and depths of the borings were determined by SME. SME located the borings in the field by referencing existing site features and estimated the existing ground surface elevations at the borings based on the referenced Existing Conditions drawing.

The borings were performed with a truck-mounted rotary drill rig and were advanced to the sampling depths using continuous-flight, hollow-stem augers. The borings included soil sampling based upon the Split-barrel Sampling Procedure. Recovered split-barrel samples were sealed in glass jars by the driller.

Groundwater observations were recorded during and upon completion of drilling at each boring. After completion of drilling and collection of groundwater observations, the boreholes were backfilled with auger cuttings and capped with similar material in paved areas.

Soil samples recovered from the field exploration were returned to the SME laboratory for further observation and testing.

LABORATORY TESTING

The laboratory testing program consisted of performing visual soil classification on recovered samples in general accordance with ASTM D2488. SME also performed moisture content and hand penetrometer tests on portions of recovered cohesive soil samples and moisture content tests on portions of organic soil samples. The attached Laboratory Testing Procedures provides descriptions of these laboratory tests. Based on the laboratory testing, we assigned a Unified Soil Classification System (USCS) group symbol to each of the various soil strata encountered.

Upon completion of the laboratory testing, boring logs were prepared that include information on materials encountered, penetration resistances, pertinent field observations made during the drilling operations, existing ground surface elevations as estimated by SME, and the results of the laboratory tests. The boring logs are attached to this report. Explanations of symbols and terms used on the boring logs are provided on the attached Boring Log Terminology sheet.

Soil samples retained over a long time, even sealed in jars, are subject to moisture loss and are no longer representative of the conditions initially encountered in the field. Therefore, we normally retain soil samples in our laboratory for 60 days and then dispose of them, unless instructed otherwise.

SUBSURFACE CONDITIONS

SOIL CONDITIONS

The soil conditions encountered at borings B101, B102, and B1 (western retaining wall borings) generally consist of surficial topsoil or pavement overlaying existing sand fill over organic soils, e.g., peat. The peat was underlain by natural sands overlying natural clay (at boring B102), that extended to the explored depths of the borings; however, natural soils were not encountered at boring B1 which terminated in organic soils.

The existing sand fill extended about 3.5 to 9 feet beneath the existing ground surface. The existing sand fill was encountered in a very loose to medium dense condition. Portions of the existing sand fill contained construction debris. Near boring B1 performed for our previous evaluation, potential buried pavement was encountered about 6 inches beneath the existing ground surface. Refer to the referenced Geotechnical Evaluation Report for additional information.

In borings B101 and B202, the peat extended to about 6 to 11 feet below the existing ground surface. In boring B1, organic soil, mostly silt, extended to the termination depth, 9.5 feet, of the boring; therefore, the organic soils may extend deeper in this area. The peat had moisture contents of about 122 to 141 percent.

The natural sands were encountered in a very loose to dense condition, and the natural clays encountered at boring B102 exhibited very stiff consistency.

The soil profile described above and included on the attached draft boring logs is a generalized description of the conditions encountered. The stratification depths described above and shown on the boring logs indicate a zone of transition from one soil type to another and do not show exact depths of change from one soil type to another. Soil conditions may vary between or away from the boring locations from those conditions noted on the logs. Please refer to the boring logs for the specific soil conditions at the boring locations.

Thickness measurements of surficial materials reported on the boring logs should be considered approximate since mixing of these materials with the underlying subgrade can occur while advancing the augers, and it is difficult to measure the thickness of surface materials in small-diameter boreholes. Shallow hand augers or test pits in topsoil areas and pavement cores in pavement areas should be performed if more accurate topsoil thicknesses are required.

GROUNDWATER CONDITIONS

In borings B101 and B102 groundwater was encountered about 7 to 8.5 feet beneath the existing ground surface during drilling, corresponding to approximate elevations 747 to 751.5 feet. Groundwater was not encountered above the borehole cave-in depth upon completion of drilling in borings B101 and B102. Groundwater was not encountered in boring B1 which terminated at a depth of 9.5 feet.

In organic soils and clays a long time may be required for the groundwater level in the borehole to reach an equilibrium position. Therefore, the use of groundwater observation wells (piezometers) is necessary to accurately determine the hydrostatic groundwater level within cohesive and organic soils.

Hydrostatic groundwater levels, perched groundwater conditions, and the rate of infiltration into excavations should be expected to fluctuate throughout the year, based on variations in precipitation, evaporation, run-off, and other factors. The groundwater observations recorded on the boring logs represent conditions at the time the readings were taken. The groundwater depths/elevations at the time of construction may vary from those conditions noted on the logs.

ANALYSIS AND RECOMMENDATIONS

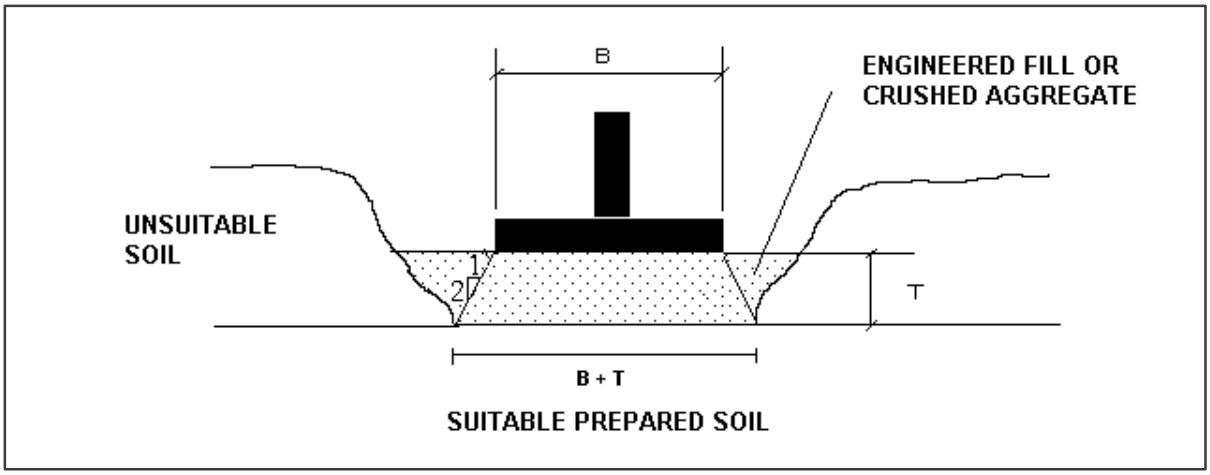
RETAINING WALLS AND DRAINAGE

WALL FOUNDATIONS

The new cast-in-place concrete retaining walls will vary from about 2 to 12 feet high. The existing fill and organic soils are not suitable for foundation support and must be removed beneath shallow foundations. Shallow foundations should bear on engineered fill overlying suitable natural soils or on suitable natural soils. Suitable bearing soils were encountered below the existing fill and organic soils between 6 and 11 feet beneath the existing ground surface, corresponding to approximate elevations 748 to 749 feet; however, the organic soils may extend deeper in the area of B1 that terminated in organic soils. Retaining wall foundations should be designed with a maximum net allowable soil bearing pressure of 3,000 pounds per square-foot (psf) bearing on suitable soils described above, except that retaining wall foundations with a non-uniform pressure distribution at their base may be designed using a maximum edge pressure of 3,500 psf, provided the average pressure below the foundation does not exceed 3,000 psf. The design maximum net allowable soil bearing pressure is based on a global safety factor of three or more (for general shear failure).

SME should evaluate foundation subgrades during construction to verify that the design soil bearing pressure is achieved. New footings must not bear on or above existing fill and organic soils. Where existing fills and organic soils are encountered, they must be undercut to expose suitable natural sands. Since groundwater was encountered as high as elevation 751.5 feet at the borings, we anticipate groundwater will be encountered in the undercuts to remove the existing fills and organic soils, and the contractor should be prepared to dewater the undercuts and footing excavations, as necessary. After undercutting unsuitable soils, the design bearing elevation can be reestablished using coarse-crushed aggregate consisting of a well graded crushed natural aggregate or crushed concrete ranging from one to three inches in size with no more than seven percent by weight passing the No. 200 sieve. The aggregate should be “tamped” into the subgrade using the excavator bucket until the subgrade is stable.

The foundation undercuts should be oversized laterally and backfilled with granular engineered fill or crushed aggregate as shown on the Typical Foundation Undercutting Diagram below.



The foundation subgrade soils at this site are susceptible to disturbance, especially where groundwater is encountered. To reduce the incidence and severity of subgrade disturbance, the contractor should prepare to place the coarse-crushed aggregate as soon the undercutting is performed.

The retaining wall foundations must be situated a minimum of 42 inches below final site grades for protection against frost action during normal winters.

We estimate total settlement for retaining wall foundations using the recommended maximum net allowable bearing pressures and bearing on suitable soils as described above and as verified in the field at the time of construction by SME should be 1 inch or less. Differential settlements are estimated to be about one-half the total settlement. The settlement estimates provided are based on the available boring information, recommended bearing pressure, our experience with similar structures and soil conditions, and field verification of suitable bearing soils by SME.

WALL BACKFILL

We recommend the retaining walls be backfilled with MDOT Class II granular material extending a minimum of two feet horizontally from the backside of the walls. Retaining wall backfill should be compacted to a minimum of 95 percent of the maximum dry density as determined by the Modified Proctor test. Care should be exercised during compaction of the wall backfill to avoid overstressing the walls. The retaining wall recommendations below are based on properly placed and compacted backfill that meets the gradational requirements of MDOT Class II granular material. For purposes of design, we recommend using a unit weight of 115 pounds per cubic-foot (pcf) and a friction angle of 30 degrees for the compacted backfill.

LATERAL EARTH PRESSURES AND SLIDING RESISTANCE

For the purpose of designing the retaining walls, we recommend a design groundwater elevation of 751.5 feet. For a drained granular backfill situated above the design groundwater level, and a level surface behind the walls, an active equivalent fluid pressure of 40 pcf should be used for the design of flexible walls. For below-grade walls below the design groundwater level, we recommended a combined lateral earth and hydrostatic (water) of 80 pcf for the active pressure condition. Additional lateral pressures due to surcharge loading, such as stored materials, sloping ground, or traffic loads, should be added to the above lateral earth pressures for design. We recommend using a horizontal coefficient of 0.33 for an active condition, to calculate loads on walls due to surcharges. Use of this value requires a granular wall backfill. Surcharge loads should be modeled as a uniform pressure distribution applied to the entire wall height. An outward movement away from the backfill equal to approximately 0.001 times the height of the wall is generally required to achieve the active earth pressure condition for granular backfill.

We recommend using an allowable passive equivalent fluid pressure to model the passive resistance of the soil wedge adjacent to retaining walls to resist sliding or overturning. To account for the full passive resistance, a horizontal surface is required for the soil mass extending at least 10 feet from the face of the wall foundation, or three times the height of the surface generating the passive pressure, whichever is greater. An allowable equivalent passive fluid pressure of 180 pcf can be considered for properly compacted MDOT Class II engineered fill, or natural soils, above the design groundwater level based on the ultimate equivalent passive fluid pressure divided by a factor of safety of about two. The allowable equivalent passive fluid pressure should be reduced to 100 pcf below the design groundwater level. The upper 12 inches of soil in areas not protected by pavement or other erosion resistant material should not be included in the design for passive resistance to lateral loads.

To evaluate the sliding of the wall, the sliding resistance at the base, and the passive (resisting) and active (driving) earth forces must be computed. The sliding resistance may be determined by using a recommended ultimate sliding coefficient of 0.35 for concrete footings cast directly on coarse-crushed aggregate or natural sands. Typically, a factor of safety of 1.5 is applied for sliding, and a factor of safety of 2.0 is often applied to overturning.

DRAINAGE

The earth pressures presented above are for a drained backfill. To reduce the potential for the build-up of hydrostatic pressure behind the retaining walls during construction and post construction we recommend drains be installed along the base of the retained soil side of the retaining walls. The drains should consist of a minimum six-inch-diameter perforated plastic drainpipe, wrapped with a filter fabric and surrounded by six inches of a filter material, such as pea gravel (MDOT 34G or MDOT 34R), wrapped with a filter fabric. The drains should be discharged to a gravity drainage outlet, if feasible. We recommend the design include provisions for access to the drains for cleaning and maintenance. Typically, annual checking and maintenance of the drains should be planned for.

EXTERNAL STABILITY

Based on the soil conditions, the retaining wall heights, and provided the recommendations above are followed, and considering final grades will approximately match existing grades, we do not expect external stability to control the wall design. Therefore, we do not judge a formal global stability analysis to be required.

DESIGN AND CONSTRUCTION CONSIDERATIONS

As indicated above, groundwater should be anticipated in undercuts to remove the existing fills and organic soils. Provided undercuts are performed in relatively small areas at a time, a coarse-crushed aggregate in placed as organic soils are removed, we anticipate conventional sump pit and pumping techniques will generally be suitable to control groundwater seepage in the foundation undercuts. Excavations that extend below the groundwater level in sands will require high capacity dewatering techniques.

Temporary footings to support the existing landing area can bear in the existing sand fill provided a maximum net allowable soil bearing pressure of 1,500 psf is used for design. New permanent footings should bear below the existing sand fill and organic soils using a maximum net allowable soil bearing pressure of 3,000 psf.

The contractor must provide a safely sloped excavation or an adequately constructed and braced shoring system in accordance with federal, state, and local safety regulations for individuals working in an excavation that may expose them to the danger of moving ground. If material is stored or heavy equipment is operated near an excavation, use appropriate shoring to resist the extra pressure due to the superimposed loads.

We understand the existing sidewalk will be removed during construction of the new retaining wall. Based on the proposed wall alignment and the required undercut depth to remove organic soils, we anticipate temporary earth retention may be required to protect the adjacent roadway along a portion of the retaining wall alignment. Excavations cannot extend below existing foundations without first properly underpinning or shoring the existing foundations. Based on the site conditions and anticipated excavation depths, we anticipate temporary earth retention (if required) will need to retain about 3 feet adjacent to the existing roadway. Therefore, we do not anticipate the temporary earth retention will need to consist of heavy steel sheeting or other similar system. Rather, we anticipate steel sheets that are pushed into the subgrade or precast blocks may be provide sufficient temporary earth retention. However, underpinning, shoring and earth retention systems should be designed by a qualified professional engineer, and installed by a contractor experienced with construction of these systems.

The contractor must protect adjacent existing buildings, utilities and roadways during demolition of the existing retaining walls and during construction of the proposed retaining walls. During the excavating and compacting operations, excessive vibrations should not cause settlement of the existing buildings, utilities and roadways, and the contractor should avoid undermining existing building, utilities, and roadways.

Handling, transportation, and disposal of excavated materials and groundwater should be performed in accordance with applicable regulations. Refer to the referenced Disclosure Document for information regarding environmentally impacted soils at this site.

We appreciate the opportunity to be of service. If you have questions regarding this report, or if you require additional information, please contact us.

Very truly yours,

SME

PREPARED BY:

Paul Anderson
Feb 2 2023 2:11 PM

Paul E. Anderson, PE
Senior Project Engineer

REVIEWED BY:

Andrew T. Bolton
Feb 2 2023 10:40 AM

Andrew T. Bolton, PE
Senior Consultant

Attachments: Boring Location Diagram (Figure No. 1)
Boring Log Terminology
Boring Logs (B101 and B102)
Previous Boring Logs (B1 and B2) – SME Project No. 088030.00
Important Information About This Geotechnical-Engineering Report
General Comments
Laboratory Testing Procedures

LOCATION MAP

NOT TO SCALE

LEGEND

- APPROXIMATE LOCATION OF 2021 BORING SME PROJECT NO. 088030.00
- APPROXIMATE CURRENT BORING LOCATION

NOTE:
BASE DRAWING INFORMATION TAKEN FROM GOOGLE EARTH PRO WITH IMAGE DATE 9/21/2015.

0' 40' 80'

GRAPHIC SCALE: 1" = 40'

SME
www.sme-usa.com

Project

MT. PLEASANT CITY HALL RETAINING WALLS

Project Location

MT. PLEASANT, MICHIGAN

Sheet Name

BORING LOCATION DIAGRAM

No.	Revision Date

Date 12-20-2022
CADD JAB
Designer PEA
Scale AS NOTED
Project 091171.00
Figure No. 1

PLOT DATE: Dec 21, 2022 - 12:00pm - julie.blake
\\sme-inc\pz\WIP\091171.00\CAD\Design Files\BLD\Rev0\091171.00-BLD.dwg

BORING LOG TERMINOLOGY

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOIL (more than 50% of material is larger than No. 200 sieve size.)			
GRAVEL More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravel (Less than 5% fines)	GW	Well-graded gravel; gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravel; gravel-sand mixtures, little or no fines
	Gravel with fines (More than 12% fines)	GM	Silty gravel; gravel-sand-silt mixtures
		GC	Clayey gravel; gravel-sand-clay mixtures
SAND 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sand (Less than 5% fines)	SW	Well-graded sand; sand-gravel mixtures, little or no fines
		SP	Poorly graded sand; sand-gravel mixtures, little or no fines
	Sand with fines (More than 12% fines)	SM	Silty sand; sand-silt-gravel mixtures
		SC	Clayey sand; sand–clay-gravel mixtures
FINE-GRAINED SOIL (50% or more of material is smaller than No. 200 sieve size)			
SILT AND CLAY Liquid limit less than 50%		ML	Inorganic silt; sandy silt or gravelly silt with slight plasticity
		CL	Inorganic clay of low plasticity; lean clay, sandy clay, gravelly clay
		OL	Organic silt and organic clay of low plasticity
SILT AND CLAY Liquid limit 50% or greater		MH	Inorganic silt of high plasticity, elastic silt
		CH	Inorganic clay of high plasticity, fat clay
		OH	Organic silt and organic clay of high plasticity
HIGHLY ORGANIC SOIL		PT	Peat and other highly organic soil

OTHER MATERIAL SYMBOLS

Topsoil, Void, Sandstone, Asphalt Concrete, Glacial Till, Siltstone, Aggregate Base, Coal, Limestone, Portland Cement Concrete, Shale, Fill

LABORATORY CLASSIFICATION CRITERIA

GW	$C_U = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}^2}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line with PI greater than 7	
SW	$C_U = \frac{D_{60}}{D_{10}}$ greater than 6; $C_C = \frac{D_{30}^2}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for SW	
SM	Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
SC	Atterberg limits above "A" line with PI greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent……GW, GP, SW, SP
More than 12 percent……GM, GC, SM, SC
5 to 12 percent……Cases requiring dual symbols

- SP-SM or SW-SM (SAND with Silt or SAND with Silt and Gravel)
- SP-SC or SW-SC (SAND with Clay or SAND with Clay and Gravel)
- GP-GM or GW-GM (GRAVEL with Silt or GRAVEL with Silt and Sand)
- GP-GC or GW-GC (GRAVEL with Clay or GRAVEL with Clay and Sand)

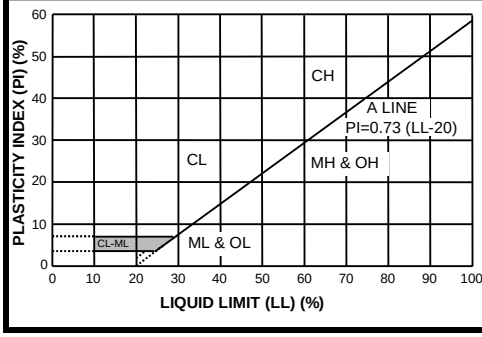
If the fines are CL-ML:

- SC-SM (SILTY CLAYEY SAND or SILTY CLAYEY SAND with Gravel)
- SM-SC (CLAYEY SILTY SAND or CLAYEY SILTY SAND with Gravel)
- GC-GM (SILTY CLAYEY GRAVEL or SILTY CLAYEY GRAVEL with Sand)

PARTICLE SIZES

Boulders	-	Greater than 12 inches
Cobbles	-	3 inches to 12 inches
Gravel- Coarse	-	3/4 inches to 3 inches
Fine	-	No. 4 to 3/4 inches
Sand- Coarse	-	No. 10 to No. 4
Medium	-	No. 40 to No. 10
Fine	-	No. 200 to No. 40
Silt and Clay	-	Less than (0.074 mm)

PLASTICITY CHART



VISUAL MANUAL PROCEDURE

When laboratory tests are not performed to confirm the classification of soils exhibiting borderline classifications, the two possible classifications would be separated with a slash, as follows:

For soils where it is difficult to distinguish if it is a coarse or fine-grained soil:

- SC/CL (CLAYEY SAND to Sandy LEAN CLAY)
- SM/ML (SILTY SAND to SANDY SILT)
- GC/CL (CLAYEY GRAVEL to Gravelly LEAN CLAY)
- GM/ML (SILTY GRAVEL to Gravelly SILT)

For soils where it is difficult to distinguish if it is sand or gravel, poorly or well-graded sand or gravel; silt or clay; or plastic or non-plastic silt or clay:

- SP/GP or SW/GW (SAND with Gravel to GRAVEL with Sand)
- SC/GC (CLAYEY SAND with Gravel to CLAYEY GRAVEL with Sand)
- SM/GM (SILTY SAND with Gravel to SILTY GRAVEL with Sand)
- SW/SP (SAND or SAND with Gravel)
- GP/GW (GRAVEL or GRAVEL with Sand)
- SC/SM (CLAYEY to SILTY SAND)
- GM/GC (SILTY to CLAYEY GRAVEL)
- CL/ML (SILTY CLAY)
- ML/CL (CLAYEY SILT)
- CH/MH (FAT CLAY to ELASTIC SILT)
- CL/CH (LEAN to FAT CLAY)
- MH/ML (ELASTIC SILT to SILT)

DRILLING AND SAMPLING ABBREVIATIONS

2ST	–	Shelby Tube – 2" O.D.
3ST	–	Shelby Tube – 3" O.D.
AS	–	Auger Sample
GS	–	Grab Sample
LS	–	Liner Sample
NR	–	No Recovery
PM	–	Pressuremeter
RC	–	Rock Core diamond bit. NX size, except where noted
SB	–	Split Barrel Sample 1-3/8" I.D., 2" O.D., except where noted
VS	–	Vane Shear
WS	–	Wash Sample

OTHER ABBREVIATIONS

WOH	–	Weight of Hammer
WOR	–	Weight of Rods
SP	–	Soil Probe
PID	–	Photo Ionization Device
FID	–	Flame Ionization Device

DEPOSITIONAL FEATURES

Parting	–	as much as 1/16 inch thick
Seam	–	1/16 inch to 1/2 inch thick
Layer	–	1/2 inch to 12 inches thick
Stratum	–	greater than 12 inches thick
Pocket	–	deposit of limited lateral extent
Lens	–	lenticular deposit
Hardpan/Till	–	an unstratified, consolidated or cemented mixture of clay, silt, sand and/or gravel, the size/shape of the constituents vary widely
Lacustrine	–	soil deposited by lake water
Mottled	–	soil irregularly marked with spots of different colors that vary in number and size
Varved	–	alternating partings or seams of silt and/or clay
Occasional	–	one or less per foot of thickness
Frequent	–	more than one per foot of thickness
Interbedded	–	strata of soil or beds of rock lying between or alternating with other strata of a different nature

DESCRIPTION OF RELATIVE QUANTITIES

The visual-manual procedure uses the following terms to describe the relative quantities of notable foreign materials, gravel, sand or fines:

Trace	–	particles are present but estimated to be less than 5%
Few	–	5 to 10%
Little	–	15 to 25%
Some	–	30 to 45%
Mostly	–	50 to 100%

CLASSIFICATION TERMINOLOGY AND CORRELATIONS

Cohesionless Soils

Relative Density	N_{60} (N-Value) (Blows per foot)
Very Loose	0 to 4
Loose	5 to 10
Medium Dense	11 to 30
Dense	31 to 50
Very Dense	51 to 80
Extremely Dense	Over 81

Cohesive Soils

Consistency	N_{60} (N-Value) (Blows per foot)	Undrained Shear Strength (kips/ft^2)
Very Soft	<2	0.25 or less
Soft	2 - 4	> 0.25 to 0.50
Medium	5 - 8	> 0.50 to 1.0
Stiff	9 - 15	> 1.0 to 2.0
Very Stiff	16 - 30	> 2.0 to 4.0
Hard	> 30	> 4.0 or greater

Standard Penetration 'N-Value' = Blows per foot of a 140-pound hammer falling 30 inches on a 2-inch O.D. split barrel sampler, except where noted. N60 values as reported on boring logs represent raw N-values corrected for hammer efficiency only.

12/22/22 10:20:15 AM

BORING B101

BORING DEPTH: 15 FEET

PROJECT NAME: Mt. Pleasant Retaining Walls
PROJECT NUMBER: 091171.00
CLIENT: Williams and Works LLC
PROJECT LOCATION: Mt. Pleasant, Michigan

DATE STARTED: 10/21/22 **COMPLETED:** 10/21/22 **BORING METHOD:** Hollow-stem Augers
DRILLER: AR (Brax Drilling) **RIG NO.:** CME - Truck **LOGGED BY:** MGJ **CHECKED BY:** JLN

ELEV (FT)	DEPTH (FT)	PROFILE DESCRIPTION	SAMPLE	SPT BLOWS PER SIX INCHES
	0	ELEVATION: 754± FT		
	0.5	5 Inches of ASPHALT		
753.5		FILL- Fine to Coarse SAND with Gravel- Frequent Coal Fragments- Dark Brown- Moist- Medium Dense (SP/GP)	SB1	4 6 6
	3.5			
750.5		Amorphous PEAT- Black (PT)	SB2	1 1 1
750	5			
	6.0			
748.0		Fine SILTY SAND- Trace Roots and Gravel- Gray to Brown- Moist to Wet- Medium Dense (SM)	SB3	1 3 6
	8.5			
745.5		Fine to Medium SAND- Occasional Shell Fragments- Brown- Wet- Loose (SP)	SB4	3 3 4
745	10			
	13.5			
740.5		Fine to Coarse SAND with Gravel- Brown- Wet- Medium Dense (SP/GP)	SB5	4 5 7
740	15			
	15.0	END OF BORING AT 15.0 FEET.		
739.0				
735	20			
730	25			
725	30			

HAMMER EFFICIENCY: 79%
DATE: 11/17/2021
N_{60} -- ○

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

HAND PENE. ▽
TORVANE SHEAR ⊠
UNC. COMP. ●
VANE SHEAR (PK) ⊡
VANE SHEAR (REM) ×
TRIAXIAL (UU) ⊕
SHEAR STRENGTH (KSF)
1 2 3 4

REMARKS

GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ **DURING BORING:**	7.0	747.0
CAVE-IN OF BOREHOLE AT:	7.8	746.2

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

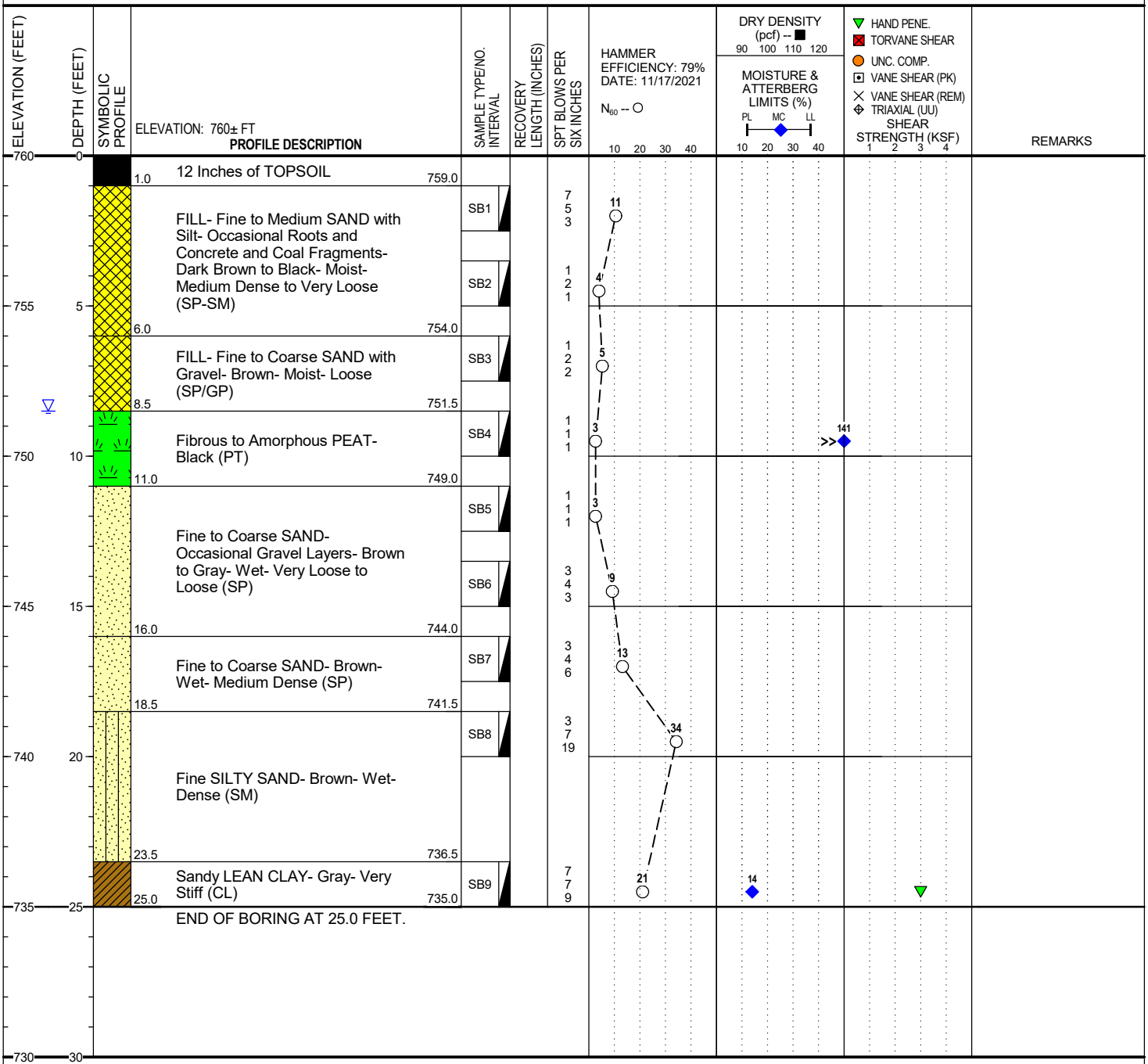
12/22/22 10:20:16 AM

BORING B102

BORING DEPTH: 25 FEET

PROJECT NAME: Mt. Pleasant Retaining Walls
PROJECT NUMBER: 091171.00
CLIENT: Williams and Works LLC
PROJECT LOCATION: Mt. Pleasant, Michigan

DATE STARTED: 10/21/22 **COMPLETED:** 10/21/22 **BORING METHOD:** Hollow-stem Augers
DRILLER: AR (Brax Drilling) **RIG NO.:** CME - Truck **LOGGED BY:** MGJ **CHECKED BY:** JLN



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ **DURING BORING:**	8.5	751.5
CAVE-IN OF BOREHOLE AT:	12.1	747.9

BACKFILL METHOD: Auger Cuttings

NOTES:
1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

1/7/22 3:56:15 PM

BORING B 1

BORING DEPTH: 9.5 FEET

PROJECT NAME: Mt. Pleasant City Hall Retaining Walls
PROJECT NUMBER: 088030.00
CLIENT: City of Mt. Pleasant
PROJECT LOCATION: Mount Pleasant, Michigan
DATE STARTED: 11/5/21 **COMPLETED:** 11/5/21
BORING METHOD: Hand Auger
FIELD REPRESENTATIVE: NBS **EQUIPMENT:** Hand Auger
LOGGED BY: NBS **CHECKED BY:** ATB

DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO.	BLOWS PER SIX INCHES
0.0	TOPSOIL- Fine to Medium SILTY SAND- Frequent Roots- Dark Brown- Moist- Loose (SM)	AS1	10
1.0	FILL- Fine to Medium SILTY SAND- Few Gravel- Occasional Roots and Slag Fragments- Brown and Dark Brown- Moist- Medium Dense (SM)	AS2	23
1.7	FILL- Fine to Coarse SAND- Few Gravel- Frequent Brick and Slag Pieces- Dark Gray- Moist- Medium Dense (SP)	AS3	19
2.5	FILL- Fine to Medium SILTY SAND- Few Gravel- Frequent Brick and Slag Fragments- Occasional Roots- Dark Brown- Moist- Loose (SM)	AS4	29
5.0	FILL- Fine to Coarse SAND with Gravel- Frequent Slag Fragments- Brown- Moist- Loose to Medium Dense (SP)	AS5	15
6.0	FILL- Fine to Medium SILTY SAND- Few Gravel- Frequent Slag and Brick Fragments- Dark Brown- Moist- Medium Dense (SM)	AS6	9
6.8	FILL- Fine to Medium SAND with Silt- Few Gravel- Frequent Slag Fragments- Brown- Moist- Medium Dense (SP-SM)	AS7	5
7.5	FILL- Fine SAND- Occasional Slag Fragments- Brown- Moist- Medium Dense (SP)	AS8	9
8.5	FILL- Fine to Medium SAND with Clay- Few Gravel- Frequent Peat Layers and Seams- Brown- Moist- Loose (SP-SC)	AS9	10
9.0	ORGANIC SOIL- Mostly Silt- Black (OL/OH)	AS10	6
9.5	END OF BORING AT 9.5 FEET.		10
10.0			18
			19
			28
			26
			23
			11
			12

DYNAMIC CONE PENETROMETER (DCP) -- O
10 20 30 40

DRY DENSITY (pcf) -- ■
90 100 110 120

MOISTURE & ATTERBERG LIMITS (%)
PL MC LL
10 20 30 40

SHEAR STRENGTH (KSF)
▽ HAND PENE.
⊠ TORVANE SHEAR
● UNC. COMP.
⊡ VANE SHEAR (PK)
× VANE SHEAR (REM)
⊕ TRIAXIAL (UU)
1 2 3 4

REMARKS

GROUNDWATER & BACKFILL INFORMATION

GROUNDWATER WAS NOT ENCOUNTERED

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

1/7/22 3:56:16 PM

BORING B 2

PAGE 1 OF 1

BORING DEPTH: 10 FEET

PROJECT NAME: Mt. Pleasant City Hall Retaining Walls

PROJECT NUMBER: 088030.00

CLIENT: City of Mt. Pleasant

PROJECT LOCATION: Mount Pleasant, Michigan

DATE STARTED: 11/5/21 **COMPLETED:** 11/5/21

BORING METHOD: Hand Auger

FIELD REPRESENTATIVE: NBS **EQUIPMENT:** Hand Auger

LOGGED BY: NBS **CHECKED BY:** ATB

DEPTH (FEET)	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	BLOWS PER SIX INCHES
0.0	TOPSOIL- Fine SILTY SAND- Frequent Roots- Dark Brown- Moist- Loose (SM)	AS1	10
0.5	FILL- Fine to Medium SAND- Brown- Moist- Medium Dense (SP)	AS2	33
1.0	FILL- Fine to Medium SILTY SAND- Few Gravel- Occasional Brick Fragments- Brown- Moist- Medium Dense (SM)	AS3	35
2.3	FILL- Fine to Medium SILTY SAND- Frequent Brick Fragments- Dark Brown- Moist- Medium Dense (SM)	AS4	26
2.5			25
3.5	Fine to Medium SAND with Silt- Few Gravel- Brown- Moist- Medium Dense to Loose (SP-SM)	AS5	27
5.0			45
7.5		AS6	31
10.0		AS7	12
	END OF BORING AT 10.0 FEET.		9
			8
			6
			3
			5
			6
			3
			6
			9

DYNAMIC CONE PENETROMETER (DCP) -- O

DRY DENSITY (pcf) -- ■ 90 100 110 120

MOISTURE & ATTERBERG LIMITS (%) PL MC LL 10 20 30 40

HAND PENE. ▽
TORVANE SHEAR ⊠
UNC. COMP. ●
VANE SHEAR (PK) ⊡
VANE SHEAR (REM) ×
TRIAXIAL (UU) ⊕
SHEAR STRENGTH (KSF) 1 2 3 4

REMARKS

GROUNDWATER & BACKFILL INFORMATION

GROUNDWATER WAS NOT ENCOUNTERED

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

GENERAL COMMENTS

BASIS OF GEOTECHNICAL REPORT

This report has been prepared in accordance with generally accepted geotechnical engineering practices to assist in the design and/or evaluation of this project. If the project plans, design criteria, and other project information referenced in this report and utilized by SME to prepare our recommendations are changed, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed, and the conclusions and recommendations of this report are modified or approved in writing by our office.

The discussions and recommendations submitted in this report are based on the available project information, described in this report, and the geotechnical data obtained from the field exploration at the locations indicated in the report. Variations in the soil and groundwater conditions commonly occur between or away from sampling locations. The nature and extent of the variations may not become evident until the time of construction. If significant variations are observed during construction, SME should be contacted to reevaluate the recommendations of this report. SME should be retained to continue our services through construction to observe and evaluate the actual subsurface conditions relative to the recommendations made in this report.

In the process of obtaining and testing samples and preparing this report, procedures are followed that represent reasonable and accepted practice in the field of soil and foundation engineering. Specifically, field logs are prepared during the field exploration that describe field occurrences, sampling locations, and other information. Samples obtained in the field are frequently subjected to additional testing and reclassification in the laboratory and differences may exist between the field logs and the report logs. The engineer preparing the report reviews the field logs, laboratory classifications, and test data and then prepares the report logs. Our recommendations are based on the contents of the report logs and the information contained therein.

REVIEW OF DESIGN DETAILS, PLANS, AND SPECIFICATIONS

SME should be retained to review the design details, project plans, and specifications to verify those documents are consistent with the recommendations contained in this report.

REVIEW OF REPORT INFORMATION WITH PROJECT TEAM

Implementation of our recommendations may affect the design, construction, and performance of the proposed improvements, along with the potential inherent risks involved with the proposed construction. The client and key members of the design team, including SME, should discuss the issues covered in this report so that the issues are understood and applied in a manner consistent with the owner's budget, tolerance of risk, and expectations for performance and maintenance.

FIELD VERIFICATION OF GEOTECHNICAL CONDITIONS

SME should be retained to verify the recommendations of this report are properly implemented during construction. This may avoid misinterpretation of our recommendations by other parties and will allow us to review and modify our recommendations if variations in the site subsurface conditions are encountered.

PROJECT INFORMATION FOR CONTRACTOR

This report and any future addenda or other reports regarding this site should be made available to prospective contractors prior to submitting their proposals for their information only and to supply them with facts relative to the subsurface evaluation and laboratory test results. If the selected contractor encounters subsurface conditions during construction, which differ from those presented in this report, the contractor should promptly describe the nature and extent of the differing conditions in writing and SME should be notified so that we can verify those conditions. The construction contract should include provisions for dealing with differing conditions and contingency funds should be reserved for potential problems during earthwork and foundation construction. We would be pleased to assist you in developing the contract provisions based on our experience.

The contractor should be prepared to handle environmental conditions encountered at this site, which may affect the excavation, removal, or disposal of soil; dewatering of excavations; and health and safety of workers. Any Environmental Assessment reports prepared for this site should be made available for review by bidders and the successful contractor.

THIRD PARTY RELIANCE/REUSE OF THIS REPORT

This report has been prepared solely for the use of our Client for the project specifically described in this report. This report cannot be relied upon by other parties not involved in the project, unless specifically allowed by SME in writing. SME also is not responsible for the interpretation by other parties of the geotechnical data and the recommendations provided herein.

LABORATORY TESTING PROCEDURES

VISUAL ENGINEERING CLASSIFICATION

Visual classification was performed on recovered samples. The appended General Notes and Unified Soil Classification System (USCS) sheets include a brief summary of the general method used visually classify the soil and assign an appropriate USCS group symbol. The estimated group symbol, according to the USCS, is shown in parentheses following the textural description of the various strata on the boring logs appended to this report. The soil descriptions developed from visual classifications are sometimes modified to reflect the results of laboratory testing.

MOISTURE CONTENT

Moisture content tests were performed by weighing samples from the field at their in-situ moisture condition. These samples were then dried at a constant temperature (approximately 110º C) overnight in an oven. After drying, the samples were weighed to determine the dry weight of the sample and the weight of the water that was expelled during drying. The moisture content of the specimen is expressed as a percent and is the weight of the water compared to the dry weight of the specimen.

HAND PENETROMETER TESTS

In the hand penetrometer test, the unconfined compressive strength of a cohesive soil sample is estimated by measuring the resistance of the sample to the penetration of a small calibrated, spring-loaded cylinder. The maximum capacity of the penetrometer is 4.5 tons per square-foot (tsf). Theoretically, the undrained shear strength of the cohesive sample is one-half the unconfined compressive strength. The undrained shear strength (based on the hand penetrometer test) presented on the boring logs is reported in units of kips per square-foot (ksf).

TORVANE SHEAR TESTS

In the Torvane test, the shear strength of a low strength, cohesive soil sample is estimated by measuring the resistance of the sample to a torque applied through vanes inserted into the sample. The undrained shear strength of the samples is measured from the maximum torque required to shear the sample and is reported in units of kips per square-foot (ksf).

LOSS-ON-IGNITION (ORGANIC CONTENT) TESTS

Loss-on-ignition (LOI) tests are conducted by first weighing the sample and then heating the sample to dry the moisture from the sample (in the same manner as determining the moisture content of the soil). The sample is then re-weighed to determine the dry weight and then heated for 4 hours in a muffle furnace at a high temperature (approximately 440º C). After cooling, the sample is re-weighed to calculate the amount of ash remaining, which in turn is used to determine the amount of organic matter burned from the original dry sample. The organic matter content of the specimen is expressed as a percent compared to the dry weight of the sample.

ATTERBERG LIMITS TESTS

Atterberg limits tests consist of two components. The plastic limit of a cohesive sample is determined by rolling the sample into a thread and the plastic limit is the moisture content where a 1/8-inch thread begins to crumble. The liquid limit is determined by placing a ½-inch thick soil pat into the liquid limits cup and using a grooving tool to divide the soil pat in half. The cup is then tapped on the base of the liquid limits device using a crank handle. The number of drops of the cup to close the gap formed by the grooving tool ½ inch is recorded along with the corresponding moisture content of the sample. This procedure is repeated several times at different moisture contents and a graph of moisture content and the corresponding number of blows is plotted. The liquid limit is defined as the moisture content at a nominal 25 drops of the cup. From this test, the plasticity index can be determined by subtracting the plastic limit from the liquid limit.

Overview

Project Name
Sidewalk Replacement

Total Requested
$150,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
Medium

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
jmoore@mt-pleasant.org

Applicant Email
Jason Moore

Organization
City of MtPleasant

Address
320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number
9897795405

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Infrastructure

Project Description

Each year the City invests in maintenance of the sidewalk system. Focus is generally placed on identifiable hazards such as large obstacles and trees blocking sidewalk paths, small lips and cracks, pocketing water and spalling. Replacement sidewalks are built to coincide with planned street and water main replacement projects.

This project would replace sidewalk in various locations within the city.

Benefit Description

Since 1996, sidewalk has been replaced each year throughout the City. The Division of Public Works has created a sidewalk rating system so that the sidewalk replacement list can be prioritized and this project would address the worst sidewalk within the city.

Funding Requirements

Sidewalk replacement is an ongoing expense.

Project Timeline

Summer - 2024

Budget Items

Name	Cost	Quantity	Total	Category
Sidewalk Replacement - Various Locations	$150,000.00	1	$150,000.00	Infrastructure
AmountRequested	**$150,000.00**			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	**$0.00**		

Budget Summary

Amount Requested

$150,000.00

Amount Matched

$0.00

Total Amount

$150,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name
Mid-Michigan/GKB Pathway North Connection

Total Requested
$200,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
High

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
pbiscorner@mt-pleasant.org

Applicant Email
Phil Biscorner

Organization
City of Mt. Pleasant

Address
320 West Broadway
Mt. Pleasant , 48858

Phone Number
989-779-5328

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Project Partners

Partnered With
Union Township

Authorizers
Mark Stuhldreher mstuhldreher@uniontownshipmi.com

Status
Review

Address
2010 S Lincoln Road
Mount Pleasant, Michigan 48858

Phone
989-772-4600

Fax

989-773-1988

Categories

- Infrastructure
- Park Improvements
- Transportation

Project Description

The Project request is for funds to secure Design, Engineering, Bidding, and Construction services for the 2024 Mid-Michigan Pathway and GKB Riverwalk North Connection

Benefit Description

This pathway would add additional community-wide pedestrian access to the GKB Riverwalk Trail, connect Mission Creek Park to the GKB Riverwalk Trail and connect the City of Mt. Pleasant dog park to the pathway system. The dog park is a partnership between the City, Union Township, and the Friends of the Dog Park citizen's group. The trail addition would also create a northerly connection point for the Mid-Michigan Community Pathway to connect to Clare in the future. Connection points to regional pathway systems have been shown to increase the ability to obtain grant funding for pathway projects and increase the number of visitors to a community having positive economic benefits. Pathway projects also contribute to a reduction in obesity and provide an overall positive health benefit to the community. This project also supports the philosophy and many of the recommendations contained in the Greater Mt. Pleasant Area Non-Motorized Plan.

Funding Requirements

Partnerships with area agencies will be a focus along with pursuit and leveraging of available grant resources to design the trail in 2024 and construct in 2025.

Project Timeline

Not Entered

Budget Items

Name	Cost	Quantity	Total	Category
2% Request	$200,000.00	1	$200,000.00	Transportation
AmountRequested	**$200,000.00**			

Matching Funds

Name	Cost	Quantity	Total
City of Mt. Pleasant	$400,000.00	1	$400,000.00
Union Township	$300,000.00	1	$300,000.00
MDOT TAP Grant	$400,000.00	1	$400,000.00
AmountMatched	**$1,100,000.00**		

Budget Summary

Amount Requested

$200,000.00

Amount Matched

$1,100,000.00

Total Amount

$1,300,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name
Aerial Fire Apparatus

Total Requested
$250,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
Critical

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
dlobsinger@mt-pleasant.org

Applicant Email
Doug Lobsinger

Organization
Mt. Pleasant Fire Dept.

Address
804 E. High St.
Mount Pleasant , 48858

Phone Number
9897795152

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Safety/Security

Project Description

In 1997 The City of Mt Pleasant along with funding from the Saginaw Chippewa Indian Tribe purchased a 102-foot Aerial Fire Apparatus more commonly known as a ladder truck. Our current Aerial Apparatus is 27+ years old and in need of replacement. The Aerial apparatus allows firefighters to reach tall buildings, such as high-rise buildings, large commercial buildings, multi-story buildings in our downtown area and on CMU campus and on Tribal properties when requested. They can provide a high vantage point for supplying water to elevated master streams, utilized for ventilation, providing an access route for firefighters and an escape route for firefighters and people they have rescued.

Benefit Description

Currently the Mt. Pleasant Fire Department is available to assist the Tribal community in any fire or rescue situation. The purchase of this new Aerial Apparatus would enable us to maintain a level of response for fire suppression and enhance our ability to provide mutual aid to the Tribal community assisting in protecting its infrastructure such as the Soaring Eagle Casino, Hotel and Water Park while increasing our capabilities. Also, our department has mutual aid agreements with all other department within the county, as well as Clare and Alma. The purchase of this Aerial Apparatus would enable us to maintain that level of service to the citizens of Mt. Pleasant and Union Township, as well as providing mutual aid to the other communities in the surrounding area.

Funding Requirements

The Estimated cost from our research that we have completed to purchase a comparable Aerial Apparatus is $2,250,000. Anticipated funds for the purchase of this Aerial Fire Apparatus are from the following sources:

1. Resale of our current Aerial Fire Apparatus
2. Funding from The City of Mt Pleasant
3. Possible two percent allocations from The Saginaw Chippewa Indian Tribe

The maintenance and operation of this Aerial Apparatus would be maintained by Mt. Pleasant Fire Department.

Project Timeline

Not Entered

Budget Items

Name	Cost	Quantity	Total	Category
Aerial Fire Apparatus	$250,000.00	1	$250,000.00	Safety/Security
AmountRequested	**$250,000.00**			

Matching Funds

Name	Cost	Quantity	Total
Aerial Fire Apparatus	$250,000.00	1	$250,000.00
AmountMatched	**$250,000.00**		

Budget Summary

Amount Requested

$250,000.00

Amount Matched

$250,000.00

Total Amount

$500,000.00

Uploaded Files

Name
2Request2023_2023-09-07.doc

There are no comments to display.

City of Mount Pleasant, Michigan
DEPARTMENT OF PUBLIC SAFETY

A. Please give a brief description of the project, providing as much detail as possible.
In 1997 The City of Mt Pleasant along with funding from the Saginaw Chippewa Indian Tribe purchased a 102-foot Aerial Fire Apparatus more commonly known as a ladder truck**.** Our current Aerial Apparatus is 27 years old and in need of replacement. The Aerial apparatus allows firefighters to reach tall buildings, such as high-rise buildings, large commercial buildings, multi-story buildings in our downtown area and on CMU campus and on Tribal properties when requested. They can provide a high vantage point for supplying water to elevated master streams, utilized for ventilation, providing an access route for firefighters and an escape route for firefighters and people they have rescued.

B. Please give a brief description of the project benefits to the Tribe, Community, and governmental service area. Currently the Mt. Pleasant Fire Department is available to assist the Tribal community in any fire or rescue situation. The purchase of this new Aerial Apparatus would enable us to maintain a level of response for fire suppression and enhance our ability to provide mutual aid to the Tribal community assisting in protecting its infrastructure such as the Soaring Eagle Casino, Hotel and Water Park while increasing our capabilities. Also, our department has mutual aid agreements with all other department within the county, as well as Clare and Alma. The purchase of this Aerial Apparatus would enable us to maintain that level of service to the citizens of Mt. Pleasant and Union Township, as well as providing mutual aid to the other communities in the surrounding area.

C. Please state the long-term projection of funding requirements (if applicable). The maintenance and operation of this Aerial Apparatus would be maintained by Mt. Pleasant Fire Department.

D. Cost Estimate:
The Estimated cost from our research that we have completed to purchase a comparable Aerial Apparatus is $2,250,000. Anticipated funds for the purchase of this Aerial Fire Apparatus are from the following sources:

1. Resale of our current Aerial Fire Apparatus
2. Funding from The City of Mt Pleasant
3. Possible two percent allocations from The Saginaw Chippewa Indian Tribe

Overview

Project Name
Mt. Pleasant Police Vehicle and Body Camera Project

Total Requested
$406,620.00
(amount based on the Itemized Budget total)

Applicant Project Priority
Critical

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
plauria@mt-pleasant.org

Applicant Email
Paul Lauria

Organization
Mt. Pleasant Police and Fire Department

Address
804 E. High St
Mount Pleasant , 48858

Phone Number
9893304378

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Safety/Security

Project Description

This project is for the replacement of 9 patrol vehicle camera systems and 30 police body worn cameras.
Our current vehicle camera system, L3 Mobile Vision was installed in 2014 and is past its service life. Many of the components are broken and are no longer available. In addition, this system cannot be upgraded to include body worn cameras that are used by police officers.
Having a totally integrated vehicle and body worn camera system is the most effective and seamless way to implement a comprehensive system. For this reason, Axon Inc was chosen as the system to meets this need. This project will be completed in its entirety in one phase. Axon Inc is a leading manufacturer of a comprehensive vehicle and body worn camera system. The Axon vehicle cameras come with the latest technology of LPR (license plate readers), body microphone for audio recordings and tamperproof automatic downloading of video evidence. The recorded events are stored in the "cloud" and access is only given to authorized personnel. This video evidence in then used in court proceedings and other matters such as citizens' complaints to verify what did or did not occur.

This project now includes the immediate implementation of 30 body worn cameras. Previous concerns pertaining to Freedom of Information Requests will be addressed if the need arises. While we expect the number of requests is going to increase significantly, we feel that ongoing reviews of workloads will address these concerns.

Benefit Description

The benefits of this project are vast. Having up-to-date high quality video equipment and software provides the community with the transparency it demands. Video evidence is the first aspect that is requested when a police officers' actions are being questioned. This video evidence provides an unbiased look at what took place during a specific incident. It eliminates the bias of the facts given by the officer and the other party involved. It allows the viewer to make their own assessment of the events that took place. The video of an incident can then be used by the police department for training officers, officer accountability, policy development and changes, civil and criminal court proceedings, as well as to build confidence and credibility with the entire community.

Funding Requirements

Maintenance of the vehicle and body cameras will be covered within the annual police department's budget.

Project Timeline

The implementation of police body and vehicle cameras will be started as soon as funding is secured. Once ordered the delivery date of the equipment and software will be provided.

Budget Items

Name	Cost	Quantity	Total	Category
Axon Patrol Vehicle Cameras	$18,000.00	9	$162,000.00	Safety/Security
Axon Police Body Camera, Software and Storage	$8,154.00	30	$244,620.00	Safety/Security
AmountRequested	**$406,620.00**			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	**$0.00**		

Budget Summary

Amount Requested

$406,620.00

Amount Matched

$0.00

Total Amount

$406,620.00

Uploaded Files

Name
Q426041448318 13KUNew_2023-09-07.pdf

There are no comments to display.

Axon Enterprise, Inc.
17800 N 85th St.
Scottsdale, Arizona 85255
United States
VAT: 86-0741227
Domestic: (800) 978-2737
International: +1.800.978.2737

Q-426041-44831.813KU
Issued: 09/27/2022
Quote Expiration: 11/15/2022
EST Contract Start Date: 12/01/2022
Account Number: 323132
Payment Terms: N30
Delivery Method:

SHIP TO	BILL TO
Business;Delivery;Invoice-804 E High St 804 E High St Mount Pleasant, MI 48858-3595 USA	Mount Pleasant Police Dept. - MI 804 E High St Mount Pleasant, MI 48858-3595 USA Email:

SALES REPRESENTATIVE	PRIMARY CONTACT
Keith Utter Phone: Email: kutter@axon.com Fax:	Paul Lauria Phone: (989) 779-5108 Email: plauria@mt-pleasant.org Fax: (989) 773-4020

Program Length	60 Months
TOTAL COST	$406,620.72
ESTIMATED TOTAL W/ TAX	$418,091.07

Bundle Savings	$113,584.38
Additional Savings	$10,802.30
TOTAL SAVINGS	$124,386.68

PAYMENT PLAN

PLAN NAME	INVOICE DATE	AMOUNT DUE
Year 1	Nov, 2022	$62,280.00
Year 1	Jun, 2023	$17,683.36
True Up	Jun, 2023	$6,804.00
Year 2	Nov, 2023	$62,280.00
Year 2	Nov, 2023	$17,683.34
Year 3	Nov, 2024	$62,280.00
Year 3	Nov, 2024	$17,683.34
Year 4	Nov, 2025	$62,280.00

Year 4	Nov, 2025	$17,683.34
Year 5	Nov, 2026	$62,280.00
Year 5	Nov, 2026	$17,683.34

BILLED ON FULFILLMENT		
PLAN NAME	INVOICE DATE	AMOUNT DUE
None	As Fulfilled	$0.00

Quote Details

Bundle Summary

Item	Description	QTY
Core+	2021 Core+	30
Fleet3A	Fleet 3 Advanced	9
DynamicBundle	Dynamic Bundle	1
DynamicBundle	Dynamic Bundle	1

Bundle: 2021 Core+ Quantity: 30 Start: 12/1/2022 End: 11/30/2027 Total: 286200 USD

Category	Item	Description	QTY
Bundle Scaler	999999	BUNDLE SCALER	1
Bundle Scaler	999999	BUNDLE SCALER	1
Signal Sidearm Kit	75015	SIGNAL SIDEARM KIT	30
Warranty	80465	EXT WARRANTY, MULTI-BAY DOCK (TAP)	4
Camera Warranty	80464	EXT WARRANTY, CAMERA (TAP)	30
E.com License	73746	PROFESSIONAL EVIDENCE.COM LICENSE	30
Respond License	73449	RESPOND DEVICE LICENSE	30
Multi-bay Dock Refresh 1	73689	MULTI-BAY BWC DOCK 1ST REFRESH	4
Device Storage	73686	EVIDENCE.COM UNLIMITED AXON DEVICE STORAGE	30
Auto Tagging	73682	AUTO TAGGING LICENSE	30
Camera Refresh 1 with Spares	73309	AXON CAMERA REFRESH ONE	31
Camera Refresh 2 with Spares	73310	AXON CAMERA REFRESH TWO	31
Multi-bay Dock Refresh 2	73688	MULTI-BAY BWC DOCK 2ND REFRESH	4

A La Carte Storage	73683	10 GB EVIDENCE.COM A-LA-CART STORAGE-	90
Spare Camera Warranty	80464	EXT WARRANTY, CAMERA (TAP)	1
Signal Sidearm Batteries	71044	BATTERY, SIGNAL SIDEARM, CR2430 SINGLE PACK	60
Dock Mount	70033	WALL MOUNT BRACKET, ASSY, EVIDENCE.COM DOCK	1
Dock Power Cord	71019	NORTH AMER POWER CORD FOR AB3 8-BAY, AB2 1-BAY / 6-BAY DOCK	1
Camera	73202	AXON BODY 3 - NA10 - US - BLK - RAPIDLOCK	30
Spare Camera	73202	AXON BODY 3 - NA10 - US - BLK - RAPIDLOCK	1
Camera Mount	74028	WING CLIP MOUNT, AXON RAPIDLOCK	33
USB	11534	USB-C to USB-A CABLE FOR AB3 OR FLEX 2	33
Dock	74210	AXON BODY 3 - 8 BAY DOCK	4
Power Cord	71019	NORTH AMER POWER CORD FOR AB3 8-BAY, AB2 1-BAY / 6-BAY DOCK	4

Other	80395	EXT WARRANTY, TASER 7 HANDLE	30
Other	80395	EXT WARRANTY, TASER 7 HANDLE	1
Other	80374	EXT WARRANTY, TASER 7 BATTERY PACK	36
Other	80396	EXT WARRANTY, TASER 7 SIX BAY DOCK	1

Bundle: Fleet 3 Advanced Quantity: 9 Start: 7/1/2023 End: 11/30/2027 Total: 88416.72 USD

Category	Item	Description	QTY
Bundle Scaler	999999	BUNDLE SCALER	1
Storage	80410	FLEET, UNLIMITED STORAGE, 1 CAMERA	18
E.com License	80400	FLEET, VEHICLE LICENSE	9
ALPR License	80401	FLEET 3, ALPR LICENSE, 1 CAMERA	9
Respond License	80402	RESPOND DEVICE LICENSE - FLEET 3	9
Camera Kit & Warranty	72036	FLEET 3 STANDARD 2 CAMERA KIT	9
Vehicle Installation	73391	FLEET 3 NEW INSTALLATION (PER VEHICLE)	9
Camera Refresh	72040	FLEET REFRESH, 2 CAMERA KIT	9
Axon Signal Unit	70112	AXON SIGNAL UNIT	9
Other	80495	EXT WARRANTY, FLEET 3, 2 CAMERA KIT	9
Other	80379	EXT WARRANTY, AXON SIGNAL UNIT	9

Bundle: Dynamic Bundle Quantity: 1 Start: 12/1/2022 End: 6/30/2023 Total: 6804 USD

Category	Item	Description	QTY
Other	80462	FLEET 3 ADVANCED BUNDLE WITH TAP TRUE UP	9

Individual Items USD

Category	Item	Description	QTY
Other	73447	RESPOND DEVICE TO RESPOND DEVICE PLUS UPGRADE LICENSE	30

Tax is estimated based on rates applicable at date of quote and subject to change at time of invoicing. If a tax exemption certificate should be applied, please submit prior to invoicing.

Standard Terms and Conditions

Axon Enterprise Inc. Sales Terms and Conditions

Axon Master Services and Purchasing Agreement:

This Quote is limited to and conditional upon your acceptance of the provisions set forth herein and Axon's Master Services and Purchasing Agreement (posted at www.axon.com/legal/sales-terms-and-conditions), as well as the attached Statement of Work (SOW) for Axon Fleet and/or Axon Interview Room purchase, if applicable. In the event you and Axon have entered into a prior agreement to govern all future purchases, that agreement shall govern to the extent it includes the products and services being purchased and does not conflict with the Axon Customer Experience Improvement Program Appendix as described below.

ACEIP:

The Axon Customer Experience Improvement Program Appendix, which includes the sharing of de-identified segments of Agency Content with Axon to develop new products and improve your product experience (posted at www.axon.com/legal/sales-terms-and-conditions), is incorporated herein by reference. By signing below, you agree to the terms of the Axon Customer Experience Improvement Program.

Acceptance of Terms:

Any purchase order issued in response to this Quote is subject solely to the above referenced terms and conditions. By signing below, you represent that you are lawfully able to enter into contracts. If you are signing on behalf of an entity (including but not limited to the company, municipality, or government agency for whom you work), you represent to Axon that you have legal authority to bind that entity. If you do not have this authority, please do not sign this Quote.

Signature

Date Signed

9/27/2022

FLEET STATEMENT OF WORK BETWEEN AXON ENTERPRISE AND AGENCY

Introduction

This Statement of Work ("SOW") has been made and entered into by and between Axon Enterprise, Inc. ("AXON"), and Mount Pleasant Police Dept. - MI the ("AGENCY") for the purchase of the Axon Fleet in-car video solution ("FLEET") and its supporting information, services and training. (AXON Technical Project Manager/The AXON installer)

Purpose and Intent

AGENCY states, and AXON understands and agrees, that Agency's purpose and intent for entering into this SOW is for the AGENCY to obtain from AXON deliverables, which used solely in conjunction with AGENCY's existing systems and equipment, which AGENCY specifically agrees to purchase or provide pursuant to the terms of this SOW.

This SOW contains the entire agreement between the parties. There are no promises, agreements, conditions, inducements, warranties or understandings, written or oral, expressed or implied, between the parties, other than as set forth or referenced in the SOW.

Acceptance

Upon completion of the services outlined in this SOW, AGENCY will be provided a professional services acceptance form ("Acceptance Form"). AGENCY will sign the Acceptance Form acknowledging that services have been completed in substantial conformance with this SOW and the Agreement. If AGENCY reasonably believes AXON did not complete the professional services in conformance with this SOW, AGENCY must notify AXON in writing of the specific reasons within seven (7) calendar days from delivery of the Acceptance Form. AXON will remedy the issues to conform with this SOW and re-present the Acceptance Form for signature. If AXON does not receive the signed Acceptance Form or written notification of the reasons for rejection within 7 calendar days of the delivery of the Acceptance Form, AGENCY will be deemed to have accepted the services in accordance to this SOW.

Force Majeure

Neither party hereto shall be liable for delays or failure to perform with respect to this SOW due to causes beyond the party's reasonable control and not avoidable by diligence.

Schedule Change

Each party shall notify the other as soon as possible regarding any changes to agreed upon dates and times of Axon Fleet in-car Solution installation to be performed pursuant of this Statement of Work.

Axon Fleet Deliverables

Typically, within (30) days of receiving this fully executed SOW, an AXON Technical Project Manager will deliver to AGENCY's primary point of contact via electronic media, controlled documentation, guides, instructions and videos followed by available dates for the initial project review and customer readiness validation. Unless otherwise agreed upon by AXON, AGENCY may print and reproduce said documents for use by its employees only.

Security Clearance and Access

Upon AGENCY's request, AXON will provide the AGENCY a list of AXON employees, agents, installers or representatives which require access to the AGENCY's facilities in order to perform Work pursuant of this Statement of Work. AXON will ensure that each employee, agent or representative has been informed or and consented to a criminal background investigation by AGENCY for the purposes of being allowed access to AGENCY's facilities. AGENCY is responsible for providing AXON with all required instructions and documentation accompanying the security background check's requirements.

Training

AXON will provide training applicable to Axon Evidence, Cradlepoint NetCloud Manager and Axon Fleet application in a train-the-trainer style method unless otherwise agreed upon between the AGENCY and AXON.

Local Computer

AGNECY is responsible for providing a mobile data computer (MDC) with the same software, hardware, and configuration that AGENCY personnel will use with the AXON system being installed. AGENCY is responsible for making certain that any and all security settings (port openings, firewall settings, antivirus software, virtual private network, routing, etc.) are made prior to the installation, configuration and testing of the aforementioned deliverables.

Network

AGENCY is responsible for making certain that any and all network(s) route traffic to appropriate endpoints and AXON is not liable for network breach, data interception, or loss of data due to misconfigured firewall settings or virus infection, except to the extent that such virus or infection is caused, in whole or in part, by defects in the deliverables.

Cradlepoint Router

When applicable, AGENCY must provide AXON Installers with temporary administrative access to Cradlepoint's NetCloud Manager to the extent necessary to perform Work pursuant of this Statement of Work.

Evidence.com

AGENCY must provide AXON Installers with temporary administrative access to Axon Evidence.com to the extent necessary to perform Work pursuant of this SOW.

Wireless Upload System

If purchased by the AGENCY, on such dates and times mutually agreed upon by the parties, AXON will install and configure into AGENCY's existing network a wireless network infrastructure as identified in the AGENCY's binding quote based on conditions of the sale.

VEHICLE INSTALLATION

Preparedness

On such dates and times mutually agreed upon by the parties, the AGENCY will deliver all vehicles to an AXON Installer less weapons and items of evidence. Vehicle(s) will be deemed 'out of service' to the extent necessary to perform Work pursuant of this SOW.

Existing Mobile Video Camera System Removal

On such dates and times mutually agreed upon by the parties, the AGENCY will deliver all vehicles to an AXON Installer which will remove from said vehicles all components of the existing mobile video camera system unless otherwise agreed upon by the AGENCY.

Major components will be salvaged by the AXON Installer for auction by the AGENCY. Wires and cables are ~~not~~ considered expendable and will not be salvaged. Salvaged components will be placed in a designated area by the AGENCY within close proximity of the vehicle in an accessible work space.

Prior to removing the existing mobile video camera systems, it is both the responsibility of the AGENCY and the AXON Installer to test the vehicle's systems' operation to identify and operate, documenting any existing component or system failures and in detail, identify which components of the existing mobile video camera system will be removed by the AXON Installer.

In-Car Hardware/Software Delivery and Installation

On such dates and times mutually agreed upon by the parties, the AGENCY will deliver all vehicles to an AXON Installer, who will install and configure in each vehicle in accordance with the specifications detailed in the system's installation manual and its relevant addendum(s). Applicable in-car hardware will be installed and configured as defined and validated by the AGENCY during the pre-deployment discovery process.

If a specified vehicle is unavailable on the date and time agreed upon by the parties, AGENCY will provide a similar vehicle for the installation process. Delays due to a vehicle, or substitute vehicle, not being available at agreed upon dates and times may results in additional fees to the AGENCY. If the AXON Installer determines that a vehicle is not properly prepared for installation ("Not Fleet Ready"), such as a battery not being properly charged or properly up-fit for in-service, field operations, the issue shall be reported immediately to the AGENCY for resolution and a date and time for the future installation shall be agreed upon by the parties.

Upon completion of installation and configuration, AXON will systematically test all installed and configured in-car hardware and software to ensure that ALL functions of the hardware and software are fully operational and that any deficiencies are corrected unless otherwise agreed upon by the AGENCY, installation, configuration, test and the correct of any deficiencies will be completed in each vehicle accepted for installation.

Prior to installing the Axon Fleet camera systems, it is both the responsibility of the AGENCY and the AXON Installer to test the vehicle's existing systems' operation to identify, document any existing component or vehicle systems' failures. Prior to any vehicle up-fitting the AXON Installer will introduce the system's components, basic functions, integrations and systems overview along with reference to AXON approved, AGENCY manuals, guides, portals and videos. It is both the responsibility of the AGENCY and the AXON Installer to agree on placement of each components, the antenna(s), integration recording trigger sources and customer preferred power, ground and ignition sources prior to permanent or temporary installation of an Axon Fleet camera solution in each vehicle type. Agreed placement will be documented by the AXON Installer.

AXON welcomes up to 5 persons per system operation training session per day, and unless otherwise agreed upon by the AGENCY, the first vehicle will be used for an installation training demonstration. The second vehicle will be used for an assisted installation training demonstration. The installation training session is customary to any AXON Fleet installation service regardless of who performs the continued Axon Fleet system installations.

The customary training session does not ‘certify’ a non-AXON Installer, customer-employed Installer or customer 3rd party Installer, since the AXON Fleet products does not offer an Installer certification program. Any work performed by non-AXON Installer, customer-employed Installer or customer 3rd party Installer is not warrantied by AXON, and AXON is not liable for any damage to the vehicle and its existing systems and AXON Fleet hardware.

Overview

Project Name
Pickard and Bradley Traffic Signal

Total Requested
$84,100.00
(amount based on the Itemized Budget total)

Applicant Project Priority
High

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
jmoore@mt-pleasant.org

Applicant Email
Jason Moore

Organization
City of MtPleasant

Address
320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number
9897795405

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Safety/Security

Project Description

This project will install a new traffic signal at the intersection of Bradley and Pickard Streets.

Benefit Description

Early in 2022 the Isabella County Road Commission received notice of grant funding available to install a traffic signal at the intersection of Pickard and Bradley Streets. The county engineer has determined that the intersection meets warrants and that a signal would be an appropriate upgrade for the intersection.

The grant will cover just over half the project cost. Since the intersection includes two city street segments, the City will be covering 50% of the excess costs. This expense was not in the City's Capital Improvement Plan, so it is challenging to incorporate this cost share into our budget. Funding through a Tribal 2% grant will ensure that our portion of the project is covered.

Funding Requirements

Routine maintenance will be covered by the operations budget.

Project Timeline

Fall 2023

Budget Items

Name	Cost	Quantity	Total	Category
Pickard and Bradley Traffic Signal	$84,100.00	1	$84,100.00	Safety/Security
AmountRequested	**$84,100.00**			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	**$0.00**		

Budget Summary

Amount Requested

$84,100.00

Amount Matched

$0.00

Total Amount

$84,100.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name
Asphalt Overlays and Street Resurfacing

Total Requested
$976,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
Medium

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
jmoore@mt-pleasant.org

Applicant Email
Jason Moore

Organization
City of MtPleasant

Address
320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number
9897795405

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Infrastructure
- Transportation

Project Description

The city’s engineering department utilizes an in-depth process to develop our capital plan for the maintenance of our street network. It involves regular evaluation of the street surface to determine the right “mix of fixes” to maintain the system as effectively as possible. Generally, our mix of fixes includes crack sealing, thin overlays, mill and overlays, and full reconstructs. We strive to schedule these projects at the most effective point in a street segment's maintenance curve to get the highest return on investment in terms of service life that we can.

Our streets spend most of their useful life in a cycle of mill/overlays and thin overlays since these are far more effective treatments on a

dollar/year basis than full reconstructs. Reconstruction is around 50x more expensive than overlays. With a 2% contribution by the Saginaw Chippewa Indian Tribe, the City's overlay program can continue into the future and ensure that we avoid costly reconstructs unnecessarily.

Benefit Description

The City's overlay program allows us to stay on top of maintenance in our street system. Thin overlays are one of the most cost-effective treatments in the "mix of fixes" that we use and being able to fund the program fully means that we can incorporate full reconstructs into our capital improvement plan as the need arises. Any funding provided helps ensure that our street maintenance program continues at a sustainable pace.
With the reduction in population accounted for in the 2020 census the city’s road maintenance funding has decreased significantly. Overlays will be even more important to accomplish with this decrease in funding.

Funding Requirements

The City's overlay program is ongoing with projects of various size and location happening normally every year.

Project Timeline

Summer of 2024

Budget Items

Name	Cost	Quantity	Total	Category
Major Street Overlays	$427,000.00	1	$427,000.00	Transportation
Local Street Overlays	$537,000.00	1	$537,000.00	Transportation
Parking Lot 1 Overlay	$12,000.00	1	$12,000.00	Transportation
AmountRequested	**$976,000.00**			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	**$0.00**		

Budget Summary

Amount Requested

$976,000.00

Amount Matched

$0.00

Total Amount

$976,000.00

Uploaded Files

Name
Listofstreetstobeoverlayedin2024_2023-09-06.docx

There are no comments to display.

List of streets to be overlayed in 2024

Locals

Adams: Broadway to Pickard
Arnold: Illinois to Broadway
Elm: Bradley to Henry
Edgewood: Broomfield to Deming
Deming: Broomfield to Edgewood
May: Watson to Sansote

Majors

Brown: Broadway to Pickard
Broadway Bridge Deck

Overview

Project Name
Broadway Street Storm Sewer Upgrade

Total Requested
$215,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
Medium

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
jmoore@mt-pleasant.org

Applicant Email
Jason Moore

Organization
City of MtPleasant

Address
320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number
9897795405

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Infrastructure
- Transportation

Project Description

This request is for funding to upsize storm sewer mains and structures on Broadway Street from Fancher to Mission. Based on the analysis provided by the Multi-Jurisdictional Stormwater Master Plan that was accomplished with a previous two-percent grant, this sewer will need upgrading to provide adequate service to the upstream areas.

Benefit Description

With the recent, significant, decrease in funding for our street network from the state of Michigan, storm sewer upgrades will need to be funded through other means. If funded, this project will be able to be done along side the road work meaning less disruption for residents and more effect use of public funds.

Funding Requirements

Future funding requirements for operations and maintenance of the stormwater infrastructure are roughly equal to that of the current infrastructure.

Project Timeline

Summer of 2024

Budget Items

Name	Cost	Quantity	Total	Category
Broadway Storm Sewer Upgrade	$215,000.00	1	$215,000.00	Infrastructure
AmountRequested	**$215,000.00**			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	**$0.00**		

Budget Summary

Amount Requested

$215,000.00

Amount Matched

$0.00

Total Amount

$215,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name
Close Crawford Rd Sidewalk Gap

Total Requested
$23,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
Medium

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
jmoore@mt-pleasant.org

Applicant Email
Jason Moore

Organization
City of MtPleasant

Address
320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number
9897795405

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Infrastructure
- Safety/Security
- Transportation

Project Description

This project is intended to close a gap in the existing sidewalk network to create a continuous sidewalk in various highly traveled pathways. The gaps in the sidewalk were the result of past developments that were not required to install sidewalks, or developments that are disconnected from existing sidewalks.

1) Crawford Road south of Broomfield Road - There is a gap in the sidewalk from the WestPoint Village apartments to Broomfield Road. This apartment development is disconnected from existing sidewalk.

A 2% Tribal contribution of $23,000 will allow us to fill in this gap and complete this sidewalk in a highly traveled pedestrian area.

Benefit Description

Crawford Road sidewalk section will benefit the community along with Central Michigan University, as this sidewalk is a direct connection from the WestPoint Village apartments and Central Michigan University. Crawford Road is a highly traveled roadway that also sees higher speeds, the addition of a sidewalk in this location would help to provide safety to the pedestrian traveling this stretch of road.

Funding Requirements

None.

Project Timeline

Summer 2024

Budget Items

Name	Cost	Quantity	Total	Category
Work Items	$23,000.00	1	$23,000.00	Safety/Security
AmountRequested	**$23,000.00**			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	**$0.00**		

Budget Summary

Amount Requested

$23,000.00

Amount Matched

$0.00

Total Amount

$23,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name
Kinney Street Mill and Overlay

Total Requested
$290,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
Medium

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
jmoore@mt-pleasant.org

Applicant Email
Jason Moore

Organization
City of MtPleasant

Address
320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number
9897795405

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Infrastructure
- Transportation

Project Description

The city’s engineering department utilizes an in-depth process to develop our capital plan for the maintenance of our street network. It involves regular evaluation of the street surface to determine the right “mix of fixes” to maintain the system as effectively as possible. Generally, our mix of fixes includes crack sealing, thin overlays, mill and overlays, and full reconstructs. We strive to schedule these projects at the most effective point in a street segment's maintenance curve to get the highest return on investment in terms of service life that we can.
Our streets spend most of their useful life in a cycle of mill/overlays and thin overlays since these are far more effective treatments on a dollar/year basis than full reconstructs. Reconstruction is around 50x more expensive than overlays. However, we have streets in the city that have had their curb pans overlayed causing issues with being able to stay in the overlay cycle.
In the past contractors have been unwilling to mill streets that have overlayed curb pans due to constructability issues. They have been

concerned about damaging the milling machine by striking the concrete curb or having drainage issues after leaving asphalt in the curb. Recently our engineering team worked with our local asphalt contractor to produce a set of specifications that we think will allow us to do a mill and overlay project on these street segments. This project, if funded, would be a proof of concept and allow us to program our capital improvement plan more effectively in the future utilizing this new “fix”.

Benefit Description

With the recent, significant, decrease in funding for our street network from the state of Michigan, we must find more cost-effective treatments to maintain our streets. This project would help us greatly in that effort.

Funding Requirements

The City's overlay program is ongoing with projects of various size and location happening normally every year.

Project Timeline

Summer of 2024

Budget Items

Name	Cost	Quantity	Total	Category
Mill and Overlay of Kinney from Michigan to Broadway	$290,000.00	1	$290,000.00	Infrastructure
AmountRequested	**$290,000.00**			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	**$0.00**		

Budget Summary

Amount Requested

$290,000.00

Amount Matched

$0.00

Total Amount

$290,000.00

Uploaded Files

Name
KinneyEstimate_2023-09-06.pdf

There are no comments to display.

City of MtPleasant

Estimate Breakdown Report

Project Number: 268
Estimate Number: 1
Project Type: Resurfacing
Location: Kinney
Kinney: Michigan to Pickard

Description:

Project Engineer: Stacie Tewari
Date Created: 8/28/2023
Date Edited: 8/28/2023
Fed/State #:
Fed Item:
Control Section:

Line	Pay Item	Description	Quantity	Units	Unit Price	Total
Breakdown ID:						
0001	2040020	Curb and Gutter, Rem	160.000	Ft	$17.00	$2,720.00
0002	2040050	Pavt, Rem	45.000	Syd	$17.00	$765.00
0003	2040055	Sidewalk, Rem	168.000	Syd	$13.75	$2,310.00
0004	2080014	Erosion Control, Filter Bag	4.000	Ea	$115.00	$460.00
0005	3010002	Subbase, CIP	19.000	Cyd	$11.50	$218.50
0006	4037050	_ Dr Structure Cover, STM, Modified	1.000	Ea	$1,525.00	$1,525.00
0007	5010002	Cold Milling HMA Surface	13,380.000	Syd	$3.25	$43,485.00
0008	5010025	Hand Patching	9.000	Ton	$340.00	$3,060.00
0009	5010033	HMA, 13A	1,545.000	Ton	$102.00	$157,590.00
0010	8030010	Detectable Warning Surface	80.000	Ft	$85.00	$6,800.00
0011	8030030	Curb Ramp Opening, Conc	160.000	Ft	$34.00	$5,440.00
0012	8030044	Sidewalk, Conc, 4 inch	400.000	Sft	$5.00	$2,000.00
0013	8032002	Curb Ramp, Conc, 6 inch	1,365.000	Sft	$9.75	$13,308.75
0014	8167001	_ Restoration, Modified	215.000	Ft	$325.00	$69,875.00

Breakdown ID Total: $309,557.25

Estimate Total: $309,557.25

Overview

Project Name
Pickard Storm Sewer

Total Requested
$247,780.00
(amount based on the Itemized Budget total)

Applicant Project Priority
High

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
jmoore@mt-pleasant.org

Applicant Email
Jason Moore

Organization
City of MtPleasant

Address
320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number
9897795405

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Infrastructure

Project Description

This request is for funding to upsize large-diameter storm sewer structures at the Pickard and Brown Street intersection. A large trunk line storm sewer that serves much of the east side of the City of Mt. Pleasant runs down Brown Street and crosses Pickard Street. Based on the analysis provided by the Multi-Jurisdictional Stormwater Master Plan that was accomplished with a previous two-percent grant, this trunk line sewer will need upgrading to provide adequate service to the upstream areas.

MDOT will be reconstructing Pickard Street in 2023-2024 and incorporating storm work into the project at that time will save significant costs associated with traffic control and contractor mobilization. The engineering consultant has incorporated the upsizing into the plans and MDOT is prepared to do the work if provided funding from the City.

Benefit Description

This project will allow for future upgrades to the stormwater collection system in order to meet the demands of future storm events.

Funding Requirements

Future funding requirements for operations and maintenance of the stormwater infrastructure are roughly equal to that of the current infrastructure.

Project Timeline

Not Entered

Budget Items

Name	Cost	Quantity	Total	Category
Work Items	$222,780.00	1	$222,780.00	Infrastructure
Mobilization	$20,000.00	1	$20,000.00	Infrastructure
Traffic Control	$5,000.00	1	$5,000.00	Infrastructure
AmountRequested	**$247,780.00**			

Matching Funds

Name	Cost	Quantity	Total
Work Items	$242,780.00	1	$242,780.00
Mobilization	$20,000.00	1	$20,000.00
Traffic Control	$5,000.00	1	$5,000.00
Previous 2% Funding	$20,000.00	1	$20,000.00
AmountMatched	**$287,780.00**		

Budget Summary

Amount Requested

$247,780.00

Amount Matched

$287,780.00

Total Amount

$535,560.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name
Automatic Water Meters

Total Requested
$59,940.00
(amount based on the Itemized Budget total)

Applicant Project Priority
Medium

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
jmoore@mt-pleasant.org

Applicant Email
Jason Moore

Organization
City of MtPleasant

Address
320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number
9897795405

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Infrastructure

Project Description

Under our water meter replacement program that began in 1998, water meters that meet usage (total gallons registered) and age (years of service) criteria are replaced to ensure accuracy and proper operation.
The Water Distribution Team is currently replacing existing water meters as they fail or are due for replacement with an Advanced Metering Infrastructure (AMI) enabled meters. Due to new technology that promises more cost-effectiveness and better industry standardization, the AMI system is an obvious choice. Installation of these AMI meters will help ensure correct and timely billing and will reduce time spent reading meters. Locations that greatly benefit from these meters include buildings with security systems designed to limit access to the public and large complexes with spread-out buildings. AMI allows utility billing to directly access the data from meters through wireless networks.

Funding of this project will allow the city to double the number of installations that we are able to do with current funding, allowing for efficiency benefits to be realized sooner for the water system.

Benefit Description

Savings will come from the attrition of the part time meter reader positions, elimination of touch pads, fewer final reads, along with real time data.

Funding Requirements

Meter replacement is a continuous and required process and will require perpetual funding that will be incorporated into users rates.

Project Timeline

2023-2024

Budget Items

Name	Cost	Quantity	Total	Category
Automatic Water Meters (5/8 Residential Meters)	$370.00	162	$59,940.00	Infrastructure
AmountRequested	**$59,940.00**			

Matching Funds

Name	Cost	Quantity	Total
Normal Meter Replacements (Various Sizes)	$60,000.00	1	$60,000.00
AmountMatched	**$60,000.00**		

Budget Summary

Amount Requested

$59,940.00

Amount Matched

$60,000.00

Total Amount

$119,940.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name
Lime Disposal

Total Requested
$215,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
High

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
jmoore@mt-pleasant.org

Applicant Email
Jason Moore

Organization
City of MtPleasant

Address
320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number
9897795405

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Environmental
- Infrastructure

Project Description

The water treatment plant softens water using a chemical precipitation process. Lime residual is produced as part of this treatment process. This is a required and ongoing project.

Benefit Description

This is a project that must be completed to ensure continued ability to produce softened drinking water. Lime residual removal is required every 3-5 years depending on the amount produced per year. Additional funding would allow us to remove an amount in 2024 to make up for the lack of removal caused by increased costs realized since 2019.

Funding Requirements

This project is a part of an ongoing Asset Management Program that is funded by the Capitol Improvement Planning process. The city was previously awarded a 2% grant in 2021 for lime residual removal.

Project Timeline

Summer 2024

Budget Items

Name	Cost	Quantity	Total	Category
Lime Disposal	$215,000.00	1	$215,000.00	Environmental
AmountRequested	**$215,000.00**			

Matching Funds

Name	Cost	Quantity	Total
Lime Disposal	$429,000.00	1	$429,000.00
AmountMatched	**$429,000.00**		

Budget Summary

Amount Requested

$215,000.00

Amount Matched

$429,000.00

Total Amount

$644,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name
Food Waste/ Organics Receiving

Total Requested
$300,000.00
(amount based on the Itemized Budget total)

Applicant Project Priority
Medium

Reocurring Need?
Not Reocurring

Applicant Information

Applicant Name
jmoore@mt-pleasant.org

Applicant Email
Jason Moore

Organization
City of MtPleasant

Address
320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number
9897795405

Organization Information

Primary Organization
City of Mt. Pleasant

Authorizers
adesentz@mt-pleasant.org

Status
Review

Address
320 W. Broadway
Mount Pleasant, Michigan 48858

Phone
(989) 779-5300

Fax

Categories

- Environmental
- Infrastructure

Project Description

The City of Mt. Pleasant, Water Resource Recovery Team, worked with professors and a senior design team from CMU to pilot receiving food waste into our anaerobic digesters to study the effects of increased organics on gas production. Based on this data and other research, the City of Mt Pleasant envisions constructing a food/organic waste receiving station to accept food waste from CMU and other establishments in the community. The food waste receiving station will properly prepare the food waste and pump it into our anaerobic digester for treatment.
In 2022, the WRRF team participated in a Next Cycle I2P3 challenge track through which $500,000 in funding from EGLE was pledged to move forward with the project. Our engineering firm's probable opinion was a total package price of $800,000 for which we are seeking additional funding.

Benefit Description

This project will benefit the tribe and community by providing a local area for disposal of food and organic waste while contributing to a circular economy. Diverting food waste away from landfills and repurposing it as feedstock for our existing digesters reduces methane production from landfills, lowers natural gas usage, our carbon footprint, and produces a beneficially reusable bio-solid that can be directly applied to fields as a soil amendment.

Funding Requirements

None.

Project Timeline

Anticipated start date on this project is 3rd or 4th quarter of 2024.

Budget Items

Name	Cost	Quantity	Total	Category
Food Waste Receiving Equipment	$300,000.00	1	$300,000.00	Infrastructure
AmountRequested	**$300,000.00**			

Matching Funds

Name	Cost	Quantity	Total
Food Waste Receiving Equipment (NextCycle Grant)	$500,000.00	1	$500,000.00
AmountMatched	**$500,000.00**		

Budget Summary

Amount Requested

$300,000.00

Amount Matched

$500,000.00

Total Amount

$800,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Memorandum

TO: Aaron Desentz, City Manager

FROM: Chris Saladine, Finance Director

DATE: 09/11/2023

SUBJECT: 2023 Amended Budget

Attached is the resolution for the City Commission to consider amending the 2023 Operating Budget. As has been past practice, the budget is amended at the same time the next year's annual budget is presented and at the last meeting of the year. The mid-year amendment is based on additional information obtained since the budget was originally developed last summer. This also incorporates the budget amendments that have been adopted by the City Commission since the original budget was adopted.

All funds have been updated to reflect the actual beginning of the year balances based on the audited financial statements for December 31, 2022. The following highlights significant changes from the original budget:

General Fund

Revenue Increase $1,363,350

- Increase in Property Tax Revenue of $636,860, to reflect property tax revenue growth
- Increase in Marijuana Tax Revenue to projected distribution from state $120,000
- Increase in State Revenue Sharing to reflect projected receipts $97,980
- Increase in Interest Investments to projected activity $282,000
- Increase in Donations for Mount Pleasant Area Community Foundation Grant $46,960
- Increase in 2% Tribal Donations for grants received in May $132,830
- Increase in Contribution from Major Streets to reflect sidewalk activity $17,640
- Increase in Reimbursements for MMRMA net asset distribution $33,960

Expenditures Decrease ($265,000)

- Increase in Finance Compensation due to retirement payout $9,170
- Increase in City Treasurer Compensation due to reallocation of Finance full time staff $29,160
- Decrease in Cashier Compensation due to filling full time position with part time staff ($14,930)
- Decrease in City Hall Building & Grounds Contracted Services due to changing Borden Building Retaining Wall project ($212,300)
- Increase in Police Patrol Compensation due to updated actuarial allocations for pension and retiree health $125,860
- Increase in Police Patrol Investigations due to required overtime, double time and actuarily determined contributions to retiree health and ACT 345 retirement $50,430
- Increase in Police Records Contracted Services for new Records Management System $50,060
- Decrease in Police Administration Capital Acquisitions due to keeping one of the buy back vehicles ($28,400)
- Decrease in Police Community Services due to vacancy savings ($39,410)
- Increase in Fire Suppression Compensation due to retirement $33,070
- Increase in Fire Suppression Contracted Services for study $49,760
- Decrease in Fire Administration due to delay in decision on replacing Assistant Fire Chief ($113,880)
- Decrease in Public Works Contribution to Local Street Fund for CIP and Special Assessment portion of commercial alley reconstruction delay ($113,250)

- Increase in Public Works Streetlights for repairs $13,400
- Increase in New Sidewalk Construction Contracted Services due to higher bid prices than anticipated $17,640
- Increase in Central Business District Capital Outlay for design/engineering on Town Center Project $241,400
- Increase in Central Business District Maintenance for new parking signage $47,080
- Decrease in Community & Economic Development due to retirement ($48,640)
- Decrease in Parks Land Improvements for projects delayed to 2024 ($366,370)

Fund Balance:

- Due to higher than expected revenues and lower than anticipated expenditures in 2022, actual Unassigned Fund balance at 12/31/2022 is $2,059,004 higher than original budget approved in 2022.

- Originally projected to use $383,620 of Unassigned Fund Balance in 2023, the 2023 amended budget now shows an Unassigned Fund Balance increase of $1,138,280. Projected year end Unassigned Fund Balance is 38.6% of expenditures and in compliance with the policy adopted by the City Commission. The majority of the increase in Unassigned Fund Balance is due to additional Property Tax Revenue, State Shared Revenue, Marijuana Tax Revenue and Interest Investments

<u>Other Funds</u>

- Major Street- Decrease in overall expenditures due to postponing a portion of sidewalk replacement as part of Borden Building retaining wall replacement

- Local Street –Decrease in revenue & corresponding expenditures from Capital Improvement millage and Special Assessment due to delay of portion of alleyway reconstruction project

- Storm Drain – Increase in expenditures for City's portion of Pickard storm drain replacement

- Recreation – Overall revenues and expenditures relatively flat in Recreation programs other than PEAK. PEAK revenue and expenditures increased because of Child Care Stabilization grant received

- Airport – Revenue and expense reflects timing of federal/state grant for Taxiway A design. Increase in Tribal 2% grants $80,000

- Water Resource Recovery Facility – Increase septage receiving revenue and investment income$150,000. Increase in WRRF plant and lift station Supplies due to vehicle replacement $34,500 Increase in plant and lift station Chemicals due to price increases $23,000. Increase in WRRF Upgrade for completion of Phase I and start of Phase II $3,698,310

- Water – Increase in investment income $41,270. Increase in Contracted Services for DWSRF engineering $68,000. Increase in Distribution Supplies & Contracted Services for Distribution System Materials Inventory grant work. Net decrease in Plant Capital Acquisitions for postponement of Roof Replacement and Sludge Pump replacement ($208,000)

- Solid Waste – Revenues & expenditures close to anticipated activity for year to date

- Self-Insurance – updated to reflect claims trends and expected stop-loss insurance payments

- Motor Pool – Decrease in Sale of Fixed Assets and Capital Acquisitions due to elimination of Krapohl buyback program

WHEREAS, Article VII, Section 10 authorizes the City Commission to amend the annual operating budget by resolution, and

WHEREAS, the 2023 operating budget was originally adopted by resolution on November 21, 2022 and

WHEREAS, the activities of the City since the budget was adopted have been such as to necessitate an amendment at this time,
during the year beginning January 1, 2023 and ending December 31, 2023;
NOW THEREFORE, BE IT RESOLVED, that the following revenue and expenditure appropriations be approved and the 2023 operating budget be amended, effective immediately.

	Fund Balance January 1	2023 Revenue	2023 Expenditures	Fund Balance December 31
GOVERNMENTAL FUNDS				
GENERAL FUND				
Unassigned	$4,861,913	$15,323,740		
Legislative Division			1,283,880	
Finance Division			1,821,580	
Public Safety Division			7,729,020	
Community Services Division			2,913,520	
Public Works Division			890,110	
Amount from Fund Balance			(383,620)	
Total Unassigned	4,861,913	$15,323,740	$14,254,490	$5,931,163
Assigned for Next Year's Budget	383,620	69,030	383,620	69,030
Assigned for Economic Initiatives	736,088	0	15,000	721,088
Assigned for Projects/Programs	3,447,588	251,950	404,130	3,295,408
Restricted	483,210	12,500	12,750	482,960
Committed for Special Assessments	337,101	0	0	337,101
Committed for Neighborhoods	222,670	40,400	80,000	183,070
Committed for Capital Projects	1,824,700	776,430	404,720	2,196,410
Non-spendable	446,775	0	0	446,775
Total General Fund	$12,743,665	$16,474,050	$15,554,710	$13,663,005
SPECIAL REVENUE FUNDS				
MAJOR STREET FUND				
Restricted	$1,609,783	$1,979,880	$2,617,420	$972,243
Restricted for Donation	15,400	0	0	15,400
Total Major Street Fund	1,625,183	1,979,880	2,617,420	987,643
LOCAL STREET FUND				
Restricted	883,423	$1,200,830	$1,778,910	$305,343
Restricted for Donation	15,209	0	0	15,209
Total Local Street Fund	898,632	1,200,830	1,778,910	320,552
STORM SEWER FUND				
Restricted	0	946,500	946,500	0
DOWNTOWN SPECIAL ASSESSMENT				
Restricted from Special Assessment	141,619	109,400	125,860	125,159
Total Governmental Funds Appropriated Budget	**$15,409,099**	**$19,764,160**	**$20,076,900**	**$15,096,359**

		Sources of Working Capital	Uses of Working Capital	Working Capital December 31
Component Units				
MISSION STREET DDA FUND				
Assigned	$1,209,916	$374,000	$141,600	$1,442,316

TAX INCREMENT FIN AUTH FUND				
Central Busines District Assigned	121,222	300	121,522	0
Central Busines District Restricted	42,437	0	42,437	0
Ind Park North Assigned	90,000	0	0	90,000
Ind Park North Unassigned	6,181	0	4,000	2,181
Total TIFA	259,840	0	4,000	92,181
BROWNFIELD REDEVELOPMENT FUND				
Assigned	14,252	53,520	53,660	14,112
Unassigned	1,021	300	0	1,321
Total Brownfield	15,273	53,820	53,660	15,433
Total Component Unit Funds Informational Summaries	**$1,485,029**	**$427,820**	**$199,260**	**$1,549,930**

		Sources of Working Capital	Uses of Working Capital	Working Capital December 31
PROPRIETARY FUNDS				
Enterprise Funds				
RECREATION FUND				
Restricted for PEAK	0	498,660	498,660	0
Assigned for PEAK	1,197,040	351,350	457,730	1,090,660
Restricted for Recreation	10,000	0	10,000	0
Assigned for Recreation	99,804	615,340	682,890	32,254
Total Recreation Fund	1,306,844	1,465,350	1,649,280	1,122,914
LAND DEVELOPMENT FUND				
Restricted	$50,000	0	0	$50,000
Unassigned	9,031	96,380	92,380	13,031
Total Land Development	54,187	96,380	92,380	63,031
AIRPORT FUND				
Restricted	162,527	80,000	80,000	162,527
Assigned	82,519	0	0	82,519
Unassigned	303,383	608,210	717,620	193,973
Total Airport	548,429	688,210	797,620	439,019
WATER RESOURCE RECOVERY FUND				
Assigned	2,634,436	150,000	184,180	2,600,256
Restricted	7,135,301	27,120,000	9,161,910	25,093,391
Unassigned	1,596,961	3,112,210	2,906,920	1,802,251
Total Water Resource Recovery Fund	11,366,698	30,382,210	12,253,010	29,495,898
WATER FUND				
Assigned	1,255,154	689,000	865,000	1,079,154
Unassigned	2,172,721	3,318,480	3,361,000	2,130,201
Total Water	3,427,875	4,007,480	4,226,000	3,209,355
SOLID WASTE FUND				
Restricted	200,000	0	0	200,000
Unassigned	882,141	665,970	780,090	768,021
Total Solid Waste	1,082,141	665,970	780,090	968,021
Internal Service Funds				
MOTOR POOL FUND				
Assigned	14,000		14,000	0
Unassigned	899,323	973,930	1,245,540	627,713
Total Motor Pool	913,323	973,930	1,259,540	627,713
SELF INSURANCE FUND	1,188,210	2,579,100	3,238,580	528,730
Total Proprietary Funds Informational Summaries	**$19,873,707**	**$40,858,630**	**$24,282,500**	**$36,454,681**

CHECK REGISTER FOR CITY OF MT PLEASANT
CHECK DATE FROM 09/07/2023 - 09/07/2023

Check Date	Vendor Name	Description	Amount
Bank COMM COMMON CASH			
09/07/2023	AGILE SAFETY	SUPPLIES - FIRE	459.77
09/07/2023	ALMA TIRE SERVICE INC	SUPPLIES/VEHICLE MAINT	1,960.98
09/07/2023	ASSMANN'S INC	CONTRACT SVCS	8,604.65
09/07/2023	AVFUEL CORPORATION	EQUIPMENT	20.00
09/07/2023	BRUCE SCHROCK	REFUND OF ZBA-23-01	500.00
09/07/2023	C & I BUILDING MAINTENANCE, INC.	CAPITAL ACQUISITIONS	41,110.00
09/07/2023	CAR WASH PARTNERS, INC.	SUPPLIES/VEHICLE MAINT	156.00
09/07/2023	CDW GOVERNMENT, INC	SUPPLIES	521.18
09/07/2023	CENTRAL ASPHALT, INC	CONTRACT SVCS	27,771.71
09/07/2023	CENTRAL PLUMBING, INC.	CONTRACT SVCS	155.00
09/07/2023	CLARK HILL P.L.C.	CONTRACT SVCS	1,009.00
09/07/2023	CMS INTERNET LLC	CONTRACT SVCS	2,142.50
09/07/2023	COYNE OIL CORPORATION	POLICE FUEL	1,608.82
09/07/2023	DICKINSON WRIGHT PLLC	CONTRACT SVCS	42,500.00
09/07/2023	F & K TREE SERVICE & STUMP REMOVAL	CONTRACT SVCS	4,200.00
09/07/2023	FOSTER, SWIFT, COLLINS & SMITH, P.C	CONTRACT SVCS	7,378.75
09/07/2023	GALLOUP/FORBERG SMITH/MERLO	SUPPLIES	2,448.29
09/07/2023	GALLS, LLC	UNIFORMS	229.49
09/07/2023	GRAYMONT WESTERN LIME INC.	CHEMICALS WATER	8,639.70
09/07/2023	GREEN SCENE LANDSCAPING, INC.	CONTRACT SVCS	137.20
09/07/2023	HAUCK MASONRY AND CONCRETE, LLC	REFUND OF PERMIT FEE	25.00
09/07/2023	HOFFMAN CONSTRUCTION	CONTRACT SVCS	17,250.00
09/07/2023	KRAPOHL FORD LINCOLN MERC	SUPPLIES/VEHICLE MAINT	377.97
09/07/2023	KUSTOM SIGNALS, INC.	SUPPLIES	161.09
09/07/2023	LISE WHITE	METER READER MILEAGE	3.53
09/07/2023	M & M PAVEMENT MARKING INC	CONTRACT SVCS	26,446.72
09/07/2023	MARY ALSAGER	REIMBURSEMENT	229.74
09/07/2023	MID-MICHIGAN EQUIPMENT CORP	SUPPLIES FIRE	238.35
09/07/2023	MID-MICHIGAN INDUSTRIES	CONTRACT SVCS	59.80
09/07/2023	MOREY'S LOGO	SUPPLIES/VEHICLE MAINT	207.00
09/07/2023	MWEA	TRAINING WRRF	440.00
09/07/2023	MWEA	TRAINING WRRF	850.00
09/07/2023	NORTHERN INDUSTRIAL SUPPLY	SUPPLIES WATER	4,202.24
09/07/2023	ON DUTY GEAR, LLC	POLICE	1,089.99
09/07/2023	STATE OF MICHIGAN	CONTRACT SVCS	165.00
09/07/2023	SUSANNE GANDY	REIMBURSEMENT	325.00
09/07/2023	TERRY'S CYCLE & SPORTS	SUPPLIES POLICE	1,733.48
09/07/2023	TOPCON SOLUTIONS INC	SUPPLIIES	815.00
09/07/2023	TRACE ANALYTICAL LABORATORIES, INC.	CONTRACT SVCS	1,569.50
09/07/2023	UNIFIRST CORPORATION	CONTRACT SVCS	90.41
09/07/2023	VILLAGE OF ROSEBUSH	REFUND	235.89

09/07/2023	WOMEN'S AID SERVICES	CONTRACT SVCS	6,674.40

COMM TOTALS:

Total of 42 Checks:	$214,743.15
Less 0 Void Checks:	0.00
Total of 42 Disbursements:	$214,743.15

To: City Commission

From: Appointments Committee (Alsager, Assmann, Eke)

Date: September 6, 2023

Re: Recommended appointments to the Local Officers Compensation Commission

The Appointments Committee recommends the following appointments to the Local Officers Compensation Commission:

Brian Hansen	Partial Term ending: December 31, 2023
Jim Kridler	Partial Term ending: December 31, 2026
Gary Mark	Partial Term ending: December 31, 2029

Memorandum

Mt. Pleasant [meet here]

TO: Aaron Desentz, City Manager

FROM: Tim Middleton, Deputy DPW Director

DATE: August 31, 2023

SUBJECT: Approve Sole Source Purchase of Peristaltic Lime Pumps

Request
The City Commission is requested to approve the sole source purchase of three Netzsch Peristaltic Pumps from Kerr Pump & Supply for $41,690.

Reason
The existing peristaltic lime pumps are 28 years old, have been rebuilt on several occasions, and must be replaced to continue providing reliable service for the lime softening process. The peristaltic-style pump has been a reliable and low maintenance choice for lime dosing and there is no reason to move away from this style of pump.

Staff evaluated a number of pumps based on price, warranty, local availability, robustness of the system as a whole, pump design, and experience and service history of the vendors with the City of Mt Pleasant. The overall choice was the Netzsch PeriPro Peristaltic pump, sold by Kerr Pump & Supply, the Michigan Netzch dealer. This pump model has a non-close coupled gear box that allows it to be changed or maintained independent of the pump shaft, which has its own bearing support. These particular gear boxes can be sourced locally and have proven to be extremely reliable pieces of equipment for the plant. This model also incorporates leak detection and includes an optional chemical resistant coating, which is included in the quote.

An out-of-state vendor offered a similar product and price. However, staff were unfamiliar with or had previous poor performance experience with their product's motor and gear box combination.

Recommendation
I recommend the City Commission approve the purchase of three Netzsch Peripro peristaltic pumps and one set of replacement parts from Kerr Pump & Supply for $41,690. The pumps are in the current CIP budget and are within budget. Funds are available in the Water Plant Capital Budget.