REPORT

WASTE MANAGEMENT OF CANADA CORPORATION

WATFORD, ONTARIO

TWIN CREEKS ENVIRONMENTAL CENTRE: 2023 ANNUAL MONITORING REPORT VOLUME 4 OF 5: AIR QUALITY MONITORING PROGRAM

RWDI #2303459.02

February 26, 2024

SUBMITTED TO

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1 INTRODUCTION

RWDI AIR Inc. (RWDI) was retained by Waste Management of Canada Corporation (WM) to compile the air quality monitoring reports from the 2023 monitoring program at the Twin Creeks Environmental Centre (TCEC), located in Watford, Ontario. The air quality monitoring program consisted of the following three (3) main sampling campaigns:

1. Landfill Gas Surface Monitoring – Total Hydrocarbons (THC);
2. Ambient Fenceline Volatile Organic Compound (VOC) Monitoring; and
3. Ambient Particulate Monitoring (Total Suspended Particulate Matter (TSP) and metals).

This Ambient Air Quality Monitoring Program (AAQMP) was completed in order to satisfy Condition 13.8 of the Amended Environmental Compliance Approval (ECA) No. A032203, dated December 16, 2023. It is noted that during the 2023 calendar year, WM was required to conform to the Amended ECA dated December 19, 2020, then the Amended ECA dated February 4, 2023, and then the Amended ECA dated December 16, 2023 (Waste ECA). Completion of an AAQMP is required under this condition, on an annual basis. A copy of the December 16, 2023 version of the Waste ECA is attached in **Appendix A1** of the Annual Report and the Ambient Air Quality Monitoring Plan (AAQMP) is attached in **Appendix A2**.

In 2011, the AAQMP was amended to include the provision of sampling for particulate and metals at a reduced frequency during the months of October to May (12-day cycle) and the continuation of the same sampling frequency from June to September (6-day cycle). The frequency of metal analysis followed that the highest filter TSP concentration out of every <u>four samples</u> per location was to be analyzed to provide better agreement with the AAQMP's schedule for metal analysis. The approval letter from the Ministry of the Environment, Conservation and Parks (MECP) (MOE, dated October 26, 2011) is provided in **Appendix A3**.

Consistent with the Waste ECA amendment dated September 8, 2017 and the AAQMP dated May 18, 2017, the sampling schedule for particulate and metals was switched to be run on a 6-day schedule from January 1 to May 31 and October 1 to December 31 of each year and run on a 3-day cycle from June 1 to September 30 of each year commencing December 1st of 2019. A copy of the most recently amended AAQMP can be found in **Appendix A4.**

2 FACILITY DESCRIPTION

The TCEC is a waste disposal facility (NAICS Code 562210, Waste Disposal and Treatment). This facility receives municipal, industrial, commercial and institutional wastes. The landfill cells are currently being constructed and will include a network of gas collection pipes, to be installed in the waste during construction. As the waste decays, gas that is roughly 50% methane and 50% carbon dioxide is generated. The landfill gas is drawn from the network of vertical and horizontal collection pipes within the existing and expansion site and sent to a fully enclosed landfill gas flare(s).

The construction of the vertical landfill gas wells and collection system on the existing site was finished in November of 2009. The construction of the landfill gas flaring plant began in July of 2009 and was commissioned in 2010. The system currently flares the landfill gas from the existing landfill as well as from the expansion site Area 1 and will progressively expand as the expansion phases of the landfill are completed. The number of flares required for the site will increase to meet the gas production as the amount of landfill gas increases.

3 TOTAL HYDROCARBON "WALKOVER" SURVEY

3.1 Total Hydrocarbon Sampling Program

The surface monitoring consisted of walking over the entire capped landfill, including the poplar system area, in a grid formation while using a handheld total hydrocarbon (THC) analyzer. The THC analyzer used during this monitoring program was a Thermo TVA 2020 Toxic Gas Analyzer. The analyzer was calibrated against U.S. EPA protocol methane gas standard and zeroed using ultra zero pure air. The instrument used had the following characteristics:

- A response time of at most 15 seconds;
- An accuracy of 3 percent or better;
- A minimum detectable limit of 5 ppmv (or lower); and
- A flame-out indicator, audible and visual.

The survey gathered THC measurement data at 7.6 centimeters (3 inches) or lower above the ground across the surface of the landfill. Only readings of 500 ppm or greater were noted during the monitoring survey. The surveys were completed when the wind conditions were calm (<8 km/h). There was no precipitation within 72 hours prior to testing and ambient temperatures were between 0 and 50 degrees Celsius.

Visual observations of "hotspots" or "breakout points", that consisted of cracks, fissures, areas of bubbling surface water, and patches of dead (burned) vegetation on the mound, were also made. These areas were noted and sampled, if required.

Locations where the THC concentrations were 500 ppm or greater are marked by recording the UTM co-ordinates from a GPS and physically marked on the ground with a flag. WM is then notified of concentrations above 500 ppm. Ground repair work is coordinated by WM after notification. Once WM completes work on these locations, RWDI reexamines the site to verify that the leaks found during the survey have been repaired.

The grid spacing for the survey was agreed to by the MECP. A copy of the correspondence is provided in **Appendix B1**. The site plan is provided in **Appendix B2**, while the agreed-on grid spacing is available in **Appendix B3.**

3.2 Reporting Requirements

Two (2) "walkover" surveys were completed on areas of the landfill site that were covered with final cover in the Spring and Fall seasons. The surveys were completed on the following dates:

1. May 15, 2023; and
2. September 22, 2023.

In all of the surveys completed in 2023, the majority of the old landfill site was covered with vegetation including approximately half of the existing mound which has poplar trees. There was one (1) location identified as requiring repairs during the May 15, 2023 THC survey. The location was repaired on May 18, 2023, and the verification monitoring was also completed on May 18, 2023. The follow-up survey confirmed that the repair was successful and that the ground level THC reading observed was less than the 500ppm target level after repair.

There were eight (8) locations identified as requiring repairs during the September 22, 2023 THC survey. The locations were repaired on October 24, 2023, and the verification monitoring was completed on November 5, 2023 in order to verify the repairs in a close timeline to when they were completed. The results showed that all the repaired areas were below walkover exceedance criteria and no leaks persisted, however, verification monitoring conditions were not ideal on this date as rain had occurred 24 hours prior to monitoring. As a result, a follow-up survey was completed on November 14, 2023, with ideal weather conditions, to verify the repairs. The follow-up survey confirmed that the repairs were successful and that the ground level THC readings observed were less than the 500ppm target level after repair.

All THC concentrations measured are expressed as parts per million normalized to methane response. The surveys included the following information:

- Precise sampling locations shown on the site map;
- Identification of all data obtained in the field measurements; and
- Documentation of all remedial action.

Details regarding each of the sampling events are provided in **Appendix C1** for the May 15, 2023 walkover and **Appendix C2** for the September 22, 2023 walkover. The TVA calibration record is provided in **Appendix D**.

4 FENCE LINE AMBIENT VOLATILE ORGANIC COMPOUNDS SAMPLING

4.1 VOC Sampling Program

Volatile organic compounds (VOC's) sampling was completed through the months of July, August and September of 2023. A set of concurrent upwind and downwind samples were collected for each sampling date. No more than two (2) sets of samples were collected in any calendar month. Samples were only collected during operating hours. The samples were 24-hours in duration and were compared to Provincial Point of Impingement (POI) standards.

The VOC samples were collected in specially prepared pressure evacuated canisters, as specified in EPA Compendium Method TO-14/15. Mass flow controller units, approved for use by the MECP prior to testing, were used to maintain a constant flow rate. The canister pressure was slightly negative at the completion of each sample.

The samples were analyzed for the target list of compounds noted in the AAQMP. Compounds that are not typically found in the TO-14/15 scan, were assessed using an open scan and library search method. The VOC's examined are shown in the following table.

Table 4.1: Summary of Target List for VOCs

CAS No.	Compound	CAS No.	Compound
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	**620-14-4/622-96-8**	m/p-Ethyl Toluene
526-73-8	1,2,3-Trimethyl Benzene	**108-38-3/106-42-3**	m/p-Xylene
95-63-6	1,2,4 Trimethyl Benzene	**535-77-3**	m-Cymene
108-67-8	1,3,5-Trimethyl Benzene	**78-93-3**	MEK
591-76-4	2-Methyl Hexane	**108-87-2**	Methyl Cyclohexane
107-83-5	2-Methyl Pentane	**108-10-1**	MIBK
78-78-4	2-Methyl Butane	**75-45-6**	Chlorodifluoromethane
96-14-0	3-Methyl Pentane	**123-72-8**	n-Butanal
589-34-4	3-Methyl Hexane	**91-20-3**	Naphthalene
67-64-1	Acetone	**111-84-2**	Nonane
71-43-2	Benzene	**611-14-3**	o-Ethyl Toluene
123-86-4	Butyl Acetate	**95-47-6**	o-Xylene
124-18-5	Decane	**109-66-0**	Pentane
25915-78-0	Dichlorodifluoromethane	**64-17-5**	Ethanol
75-09-2	Dichloromethane	**103-65-1**	Propyl Benzene
100-41-4	Ethyl Benzene	**100-42-5**	Styrene
142-82-5	Heptane	**127-18-4**	Tetrachloroethylene
110-54-3	Hexane	**108-88-3**	Toluene
67-63-0	Isopropyl Alcohol	**75-69-4**	Trichlorofluoromethane
138-86-3	Limonene	**79-01-6**	Trichloroethylene
75-01-4	Vinyl Chloride	**141-78-6**	Ethyl Acetate
56-23-5	Carbon Tetrachloride	**71-55-6**	1,1,1-Trichloroethane
67-66-3	Chloroform	**75-35-4**	Vinylidene Chloride
106-93-4	Ethylene Dibromide	**540-59-0**	1,2-Dichloroethene
107-06-2	Ethylene Dichloride	**na**	Total VOCs
75-00-3	Chloroethane	**78-92-2**	2-Butanol
75-00-2	Methylene Chloride	**75-27-4**	Bromodichloromethane
156-59-2	1,2-Dichloroethylene (cis)	**111-65-9**	Octane
75-34-3	1,2-Dichloroethane	**79-34-5**	1,1,2,2-Tetrachloroethane
156-60-5	1,2-Dichloroethylene (trans)	**79-00-5**	1,1,2-Trichloroethane
108-90-7	Chlorobenzene	**25321-22-6**	Dichlorobenzene
74-87-3	Chloromethane	**75-43-4**	Dichlorofluoromethane

Note: na - no applicable CAS Number

The VOC samples were collected during periods of light wind conditions (less than 15 kilometers per hour) and during dry conditions (no measurable precipitation for 48 hours prior to sampling). The sample locations (upwind and downwind) were chosen based on the current meteorological conditions at the time of the sampling. The intent was to focus on downwind locations under poor atmospheric dispersion conditions where maximum fence line concentrations were likely.

As the MECP updates Point of Impingement Standards in the Province of Ontario, the measured values are compared to the most stringent limits applicable at the time of testing. For compounds that do not have a Point of Impingement Standard, the measured values are compared to the MECP's Jurisdictional Screening Levels (JSLs) or Ambient Air Quality Criteria (AAQCs). If no guidelines are available, the measured values are compared to the predicted concentrations approved under the latest ECA. In the event that a contaminant has a measurable concentration (above method detection limit) that is above a JSL or does not have a value listed in the above reference documents, WM will complete a Maximum Concentration Level (MCL) assessment using a qualified toxicologist to determine the appropriate criteria for comparison. The MCL assessment would also be provided to the MECP's Standards Development Branch (SDB), as well as the District Office, WPLC, WIFN and the Township, for review and comment. There were no measured contaminants that required an MCL assessment in 2023.

4.2 Reporting Requirements

Samples were collected on the following dates:

1. July 18, 2023;
2. August 1, 2023;
3. August 22, 2023;
4. September 3, 2023; and
5. September 15, 2023.

The VOC concentrations measured during this portion of the program were generally quite low. All concentrations measured were less than their respective air quality standards. The Q3 VOC monitoring report which includes sampling locations and meteorological conditions for each sampling period is summarized in **Appendix E1**. The VOC laboratory reports are included in **Appendix E2.** The VOC monitoring field notes are attached in **Appendix F**.

5 TOTAL SUSPENDED PARTICULATE SAMPLING

5.1 Total Suspend Particulate Sampling Program

Total Suspended Particulate (TSP) sampling was completed at three (3) fixed locations around the landfill footprint. Each sample location has two (2) High Volume Air samplers (Hi-Vols) which run from October to May on a 6-day cycle and from June to September on a 3-day cycle. Each sample period consists of a 24-hour (midnight to midnight) sample that operates in concurrence with the NAPS sampling schedule. The sampling for 2023 began on January 6, 2023 and concluded December 26, 2023. The locations are provided in **Appendix B2**. The samplers remain at the same locations approved by the MECP (Reference 43 and 44 Schedule "A" of ECA A032203).

High volume samplers (Hi-Vols) were installed at all sampling locations by the end of the 2009 program. Each location is equipped with two Hi-Vols. In 2011, the AAQMP was amended to allow for the Hi-Vols to be run at a twelve (12) day sample schedule for the remaining portion of the year. Consistent with the Waste ECA amendment dated September 8, 2017 and the AAQMP dated May 18, 2017, the sampling schedule was switched to be run on a 6-day schedule from January 1 to May 31 and October 1 to December 31 of each year and run on a 3-day cycle from June 1 to September 30 of each year commencing December 1, 2019.

A total of two hundred forty-three (243) samples were taken during the 2023 sampling program, with two hundred twenty-six (226) samples considered to be valid. Therefore 93% of the total samples taken were valid. Sample validity at the Southeast, Northeast and Western Stations were 93%, 90% and 96% respectively, and so the minimum 75% valid criteria was met. Lost samples during the 2023 monitoring program were due to minor equipment issues, wildlife issues or power related issues.

The individual results from the TSP sampling programs at three (3) fixed locations are provided in **Appendix G**. Field notes are attached in **Appendix H**. A summary of the calculated statistics for each of the locations is presented in **Table 5.1.1** below.

Table 5.1.1: Calculated Statistics for TCLS measured TSP Concentration (µg/m³)

Sample Locations	No. of Valid Samples	Measured TSP Concentration (µg/m³)								No. of Events Above 24-hour AAQC[1]
		Percentiles (%)						Max.	Arithmetic Mean	
		10	30	50	70	90	99			
Southeast	75	9	16	20	29	58	139	145	29	3
Northeast	73	11	17	22	39	112	211	236	43	6
Western	78	14	23	33	47	92	163	211	44	4

Notes: Summary of TSP results included data from January 6 to December 26, 2023
[1] O.Reg.419 Schedule 3 Standard for TSP is 120 µg/m³ (based on a 24-hour averaging period)

There were thirteen (13) 24-hour samples that exceeded the O. Reg. 419 Schedule 3, standard of 120 ug/m^3 for Total Suspended Particulate (TSP) during the 2023 sampling program. The exceedances occurred on April 12, May 12, May 18, May 24, June 2, June 8, June 20, July 11, and October 3, with maximum TSP concentrations of 201, 145, 200, 128, 148, 122, 170, 136, 130, 158, 211,130 and 236 ug/m^3 respectively. Copies of the exceedance notifications for these events are provided in **Appendix I**.

Due to a number entry error in the TSP Hi-vol sampler calibrations, sample volumes were initially reported as being slightly lower than the actual volume captured. The corrected sample volumes were greater than the initial sample volumes by less than 1%. This resulted in some TSP samples having their final concentration reduced by up to 1 µg/m^3.

Metal analysis was performed on the highest filter TSP concentration out of every four samples per location. Of the valid TSP samples available, fifty-nine (59) were analyzed for airborne metals. All measured concentrations of metals were below their respective air quality standards, as outlined in O. Reg. 419.

Based on the predominant wind conditions measured on site during the working days, most of these exceedances can be largely attributed to site construction activities such as excavation, soil hauling and drainage stone deliveries.

Watering activities for dust suppression were carried out on each of these days, as required, by WM, the Cell earthworks contractor, and the contractor working on the landfill gas collection system.

6 METEOROLOGICAL CONDITIONS

The meteorological station was located at the top of the existing landfill until the construction on the perimeter roads within the facility bounds was completed. The station was then moved to its permanent location on November 6, 2010, near the office building by the main entrance. In March 2011, the meteorological station was automated and connected to the Envision weather monitoring system. This system allows WM to monitor weather conditions in real time and provides automated alerts, such as wind speed, precipitation, etc. The station consists of a thirty (30) foot aluminum tower, a RM Young wind head to measure wind speed and direction and a Rimco 8020 heated tipping bucket to measure precipitation. The meteorological tower was calibrated on November 9, 2023 with all instruments meeting calibration criteria. Attached in **Appendix J** is a copy of the meteorological station calibration data sheet. Measurements are recorded using a Campbell Scientific CR300 datalogging system.

Wind measurements, gathered from the on-site meteorological station, were used to assess whether measured concentrations were upwind or downwind of the landfill operations during each event for THC surveys, VOC samples and particulate samples.

7 COMPLAINTS

Where complaints were received during the 2023 monitoring period, Waste Management completed the required steps in response, including notification to the MECP and other stakeholders, as required in compliance with Condition 11 of the Waste ECA. This included logging the complaint, completing the appropriate investigation into the potential source of the complaint, any required corrective action or mitigation and complainant follow up, as well as filing a formal complaint log (**Complaint Log**). The **Complaint Logs**, which detail the above-noted steps are summarized in **Appendix K**, as well as themselves included in **Appendix P of Volume 2** of the 2023 Annual Monitoring Report.

In 2023, WM received a total of 24 complaints. Of the complaints received, one (1) of the complaints addressed two (2) topics (trackout and odour), one (1) of the complaints addressed litter, while the remaining complaints were related to odour. Of the odour complaints received, they represented a total of 20 complaint driven events, which each occurred on separate days. Of these odour events, 11 were documented from discrete physical locations such as a residence or commercial building. The other 9 odour events represented transient (drive-by) occurrences in which the complainant observed an odour while in transit along a road near to the Site. A breakdown of the number of odour complaints received by WM on a quarterly basis during the 2023 operating period is presented in **Appendix K**. Additionally, **Appendix K** details the investigation steps taken, and where applicable any corrective measures implemented in response to the noted complaint.

As denoted in **Appendix K**, the greatest number of odour complaints received by WM in 2023 was during the second quarter operating period. WM reviewed the odour related complaints that were received during the 2023 operating period to assess for any trends and to identify corrective actions, as required.

8 QUALITY ASSURANCE

A number of quality assurance measures have been implemented for the THC, VOC and TSP monitoring programs.

Calibrations and/or bump tests of the TVA-2020 unit were completed prior to and following each THC walkover event to ensure that the instrument was measuring properly.

The stainless-steel VOC sampling canisters, provided by Bureau Veritas (BV), were used within 30 days of being received. The sampling inlets consisted of a stainless steel sintered in-line filter, followed by a stainless steel ¼" line to a stainless-steel vacuum gauge, before being attached to the stainless-steel canister. Prior to use, the inlet filter apparatuses were heated using a portable torch to ensure that they were clean. In addition to this, the vacuum gauge was monitored during each VOC sampling event to ensure that the canister remained at a slightly negative pressure (-10" to -5") to avoid any potential for contamination. The sample locations were chosen based on meteorological conditions at the time of sampling. The canisters were couriered to Bureau Veritas within a few days of sampling and sample Chain of Custody forms were submitted with the samples.

The Hi-Vol filters were retrieved from their sampling locations shortly after the samples were completed. The filters were removed, tagged and stored in RWDI's Watford office until the end of the month for submission to BV. Reference blank filters for TSP and metals were submitted to BV every submission. The Hi-Vol calibration setpoints were audited in the field once per quarter, with on and off pressures being recording before and after every sample.

9 CONCLUSIONS

The 2023 air quality monitoring program completed at the TCEC included two (2) Total Hydrocarbon "Walkover" Surveys, five (5) sets of ambient volatile organic compound fenceline samples and two hundred forty-three (243) total suspended particulate samples, collected from January 6 to December 26, 2023. Two hundred twenty-six (226) of these samples were deemed valid, and a total of fifty-nine (59) were analyzed for airborne metals content.

There was one (1) location identified as requiring repairs during the May 15, 2023 THC survey. The location was repaired on May 18, 2023, and the verification monitoring was also completed on May 18, 2023. The follow-up survey confirmed that the repair was successful and that the ground level THC reading observed was less than the 500ppm target level after repair. There were eight (8) locations identified as requiring repairs during the September 22, 2023 THC survey. The locations were repaired on October 24, 2023, and the verification monitoring was completed on November 5, 2023 in order to verify the repairs in a close timeline to when they were completed. The results showed that all the repaired areas were below walkover exceedance criteria and no leaks persisted, however, verification monitoring conditions were not ideal on this date as rain had occurred 24 hours prior to monitoring. As a result, a follow-up survey was completed on November 14, 2023, with ideal weather conditions, to verify the repairs. The follow-up survey confirmed that the repairs were successful and that the ground level THC readings observed were less than the 500ppm target level after repair.

All of the VOC concentrations measured in 2023 were less than their applicable Air Quality standards.

There were thirteen (13) 24-hour samples that exceeded the O. Reg. 419 Schedule 3, standard of 120 ug/m^3 for Total Suspended Particulate (TSP) during the 2023 sampling program. The exceedances occurred on April 12, May 12 , May 18, May 24 , June 2, June 8, June 20, July 11, and October 3, with maximum TSP concentrations of 201, 145, 200, 128, 148, 122, 170, 136, 130, 158, 211,130 and 236 ug/m^3 respectively. Notifications of the exceedances were submitted to the MECP within the allowable time after receiving results from the lab (BV). All concentrations of airborne metals were below their respective air quality standards, as outlined in Ontario Regulation 419 for the 2023 monitoring period.

WM has taken steps to improve the effectiveness of the dust management practices used at the TCEC by increasing watering activities with the approval of an amendment to their PTTW application in November 2021. Through close cooperation with RWDI and earthworks contractors, this will facilitate the implementation of best practices designed to minimize dust generation.

10 STATEMENT OF LIMITATIONS

This report entitled "Twin Creeks Environmental Centre: 2023 Annual Monitoring Report", dated February 26, 2024 was prepared by RWDI AIR Inc. ("RWDI") for Waste Management of Canada Corporation ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). This report was prepared using scientific principles, published methodologies and professional judgment in assessing available information and data. The findings presented within this document are based on available data within the limits of the existing information, budgeted scope of work, and schedule. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.

This report was prepared for the exclusive use of Waste Management of Canada Corporation and the MECP. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. RWDI accepts no responsibility for damages, if any, suffered by any third party as result of decisions made or actions based on this report.

APPENDIX A

APPENDIX A1

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A032203
Issue Date: December 16, 2023

Waste Management of Canada Corporation
5768 Nauvoo Rd
Warwick, Ontario
N0M 2S0

Site Location: Twin Creeks Environmental Centre
5768 Nauvoo Rd Watford
Warwick Township, County of Lambton
N0M 2S0

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

the use and operation of a 101.8 hectare waste disposal site (landfill) within a total site area of 301 hectares.

For the purpose of this environmental compliance approval, the following definitions apply:

"Agricultural Waste" for the purposes of this ECA, is defined as municipal yard waste, wood chips, food waste and minimal amounts of solid manure which would only be accepted or used for the purpose of seeding or operating an active aerobic compost pile and does not include liquid manure;

"AQMP " means an Air Quality Monitoring Program;

"Construction Phase " is defined as the period of time from the start of construction of Phase 1 of the expanded landfill to the date of first receipt of waste in Phase 1;

"Contaminating Lifespan" refers to the period of time, after closure until the site finally produces contaminants at concentrations below levels which have unacceptable health or environmental effects;

"Crown " means Her Majesty the Queen in the Right of Ontario;

"Director " means any Ministry employee appointed in writing by the Minister pursuant to section 5 of the EPA as a Director for the purposes of Part II.1 of the EPA;

“District Manager ” means the District Manager in the Ministry of the Environment, Conservation and Parks Sarnia District Office;

“District Office ” means the Ministry of the Environment, Conservation and Parks Sarnia District Office;

“EA” refers to the document titled “Warwick Landfill Expansion Environmental Assessment” , dated September 2005, which includes Discussion Papers 1 though 9 included in the Appendices A to F of the Environmental Assessment. EA also includes responses from the Owner dated:

1. March 10, 2006 “Waste Unit’s Final Comments Dated March 8, 2006”
2. February 14, 2006 “Leachate Recirculation”
3. February 14, 2006 “Response to February 1, 2006 Correspondence”
4. January 13, 2006 “Waste Management Response to Comments received from Warwick Landfill Expansion EA” including attachments entitled:

    i. Response to the Township of Warwick;
    ii. Response to Thomson Rogers;
    iii. Table of responses to various agencies, public and First Nations Submissions;
    iv. Landfill Gas Assessment, Warwick Landfill Baseline Conditions Report prepared by RWDI dated January 12, 2006;
    v. Memo dated March 10, 2006;
    vi. June 12, 2006 “Response to May 1, 2006 Ministry Review ”;

“EAA” refers to the Ontario Environmental Assessment Act, R.S.O. 1990, c.E.18, as amended;

"Environmental Compliance Approval" or "ECA" or "Approval" means this entire provisional Environmental Compliance Approval document, issued in accordance with Section 20.2 of the EPA , and includes any schedules to it, the application and the supporting documentation listed in schedule "A";

“Environmental Inspector” refers to the individual employed by the Ministry of the Environment, Conservation and Parks to inspect the Site;

"EPA " means Environmental Protection Act , R.S.O. 1990, c.E.19, as amended;

“EPB” refers to the Environmental Permissions Branch of the Ministry of the Environment, Conservation and Parks;

"Hydraulic Trap" indicates a situation where hydraulic gradients from the surrounding soil are inward toward the landfill waste and associated leachate collection system;

"Mini-Transfer Area" means the mini-transfer public convenience drop-off area as described and identified in the June 2009 Development & Operations Report that is identified in Item 59 of Schedule "A" and whose location is identified as "Expansion Mini-Transfer" in figure MT2 that is contained in the 2009 Development & Operations Report;

“MECP” or “Ministry” refers to the Ontario Ministry of the Environment, Conservation and Parks;

"Operation Phase" is defined as the period of time from the date that Phase 1 of the expanded landfill area first receives waste until the landfill site reaches final capacity;

“Operator ” has the same meaning as “operator” as defined in s.25 of the EPA;

“Owner ” means Waste Management of Canada Corporation and its successors and assigns;

"O. Reg. 101/94" means Ontario Regulation 101/94 as amended;

"OWRA" means the Ontario Water Resources Act, R.S.O. 1990, c. O.40, as amended;

“PA ” means the Pesticides Act , R.S.O. 1990, c.P.11, as amended;

"Preparation Report" refers to a report documenting that the subsequent stage of the landfill has been constructed in accordance with the approved design plans and specifications;

“Poplar System” is the irrigation area located on top of the cap of the Existing Site (old landfill) that is used for the phytoremediation of leachate that is generated at the Site per Items 63 through 65 of Schedule “A” and Figure 2 of Item 16 on Schedule "A";

“Poplar Plantation” is the irrigation area located on native soil to the south of the Site that is used for the phytoremediation of irrigation liquid that satisfies the Effluent Limit criteria per the OWRA Section Approval for the Site, Item 39 of Schedule “A”, and Appendix N11 of Item 30 on Schedule "A";

"Provincial Officer" means any person designated in writing by the Minister as a provincial officer pursuant to section 5 of the OWRA or section 5 of the EPA or section 17 of PA;

"PWQO" refers to the Provincial Water Quality Objectives;

"Recyclable Waste" means waste that are glass, plastic, aluminium or steel cans, gypsum wallboard, newspapers, cardboard and/or other materials for which there is a secured market;

“Regional Director” refers to the Director of the Ministry of the Environment’s Southwestern Regional Office;

"Regulation 232 " or "Reg. 232" or "O. Reg. 232/98" means Ontario Regulation 232/98 (Landfilling Sites) made under the EPA, as amended;

"Regulation 347 " or "Reg. 347 " or "O. Reg. 347" means Regulation 347, R.R.O. 1990, made under the EPA, as amended;

“Site” refers to the Twin Creeks Landfill Site and lands owned by the Owner described as:

Firstly, Part of Lots 19 and 20, Concession 3, S.E.R.,and Part of Lot 20, 21 and 22, Concession 4, S.E.R. and Part of the Road Allowance between Lots 21 and 22, Concession 4, S.E.R., shown as Parts 1, 2 and 3 on Plan 25R-9125 and Part 2 on Plan 25R-1903, Save and Except Part 1 on Plan 25R-6184, Township of Warwick, County of Lambton; and

Secondly, Part of Lot 20, Concession 3 S.E.R., shown as Part 1 on Plan 25R-6184, Township of Warwick, County of Lambton;

"Traditional agricultural crop production" means standard crop production, nursery and horticultural crops, agro-forestry, conservation uses but not greenhouses or any accessory agricultural buildings and structures;

“Undertaking” refers to the proposed undertaking as described in the Warwick Landfill Expansion Environmental Assessment;

“WIFN” refers to Walpole Island First Nation; and

“WPLC” refers to the Warwick Public Liaison Committee.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1.0 GENERAL

Compliance

1.1 This Approval revokes all previous Approvals and Notices of Amendment issued under Part V of the Environmental Protection Act for this Site. The approval given herein, including the terms and conditions set out, replaces all previously issued Approvals and related terms and conditions under Part V of the Act for this Site.

1.2 The Owner and Operator shall ensure compliance with all the conditions of this Approval and shall ensure that any person authorized to carry out work on or operate any aspect of the Site is notified of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

1.3 Any person authorized to carry out work on or operate any aspect of the Site shall comply with the conditions of this Approval.

In Accordance

1.4 Except as otherwise provided by this Approval, the Site shall be designed, developed, built, operated and maintained in accordance with the documentation listed in the attached Schedule “A”.

1.5 (a) Construction and installation of aspects described in Schedule "A" must be completed within 5 years of the later of:

1. the date this Approval is issued; or
2. if there is a hearing or other litigation in respect of the issuance of this Approval, the date that this hearing or litigation is disposed of, including all appeals.

(b) Notwithstanding Condition 1.5(a), ongoing constructed aspects that are pertinent to the Major Works identified in Conditions 4.1 to 4.7 including the landfill liner, landfill capping, landfill gas management infrastructure, leachate collection and recirculation infrastructure shall be constructed in accordance with the documentation in the attached Schedule "A" that pertain to the final design of the Site.

(c) This Approval ceases to apply in respect of the aspects of the Site that have not been constructed or installed before the later of the dates identified in Conditions 1.5(a).

Interpretation

1.6 Where there is a conflict between a provision of any document listed in Schedule "A" in this Approval, and the conditions of this Approval, the conditions in this Approval shall take precedence.

1.7 Where there is a conflict between the application and a provision in any document listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and the Ministry approved the amendment.

1.8 Where there is a conflict between any two documents listed in Schedule "A", the document bearing the most recent date shall take precedence.

1.9 The conditions of this Approval are severable. If any condition of this Approval, or the application of any condition of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

Other Legal Obligations

1.10 The issuance of, and compliance with, this Approval does not:

(a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; and

(b) limit in any way the authority of the Ministry to require certain steps be taken or to require the Owner and Operator to furnish any further information related to compliance with this Approval.

(c) The Owner shall ensure that:
   (i) all equipment discharging to atmosphere are approved under Section 9 of the ECA where applicable; and
   (ii) all effluent is discharged in accordance with the OWRA where applicable.

Adverse Effect

1.11 The Owner and Operator shall take steps to minimize and ameliorate any adverse effect on the natural environment or impairment of water quality resulting from the present, past and historical operations at the Site. Such steps may include accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

1.12 Despite an Owner, Operator, or any other person fulfilling any obligations imposed by this Approval, the person remains responsible for any contravention of any other condition of this Approval or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect to the natural environment or impairment of water quality.

1.13 At no time shall the Owner or Operator allow the discharge of a contaminant that causes or is likely to cause an adverse effect be permitted.

Change of Ownership

1.14 The Owner shall notify the Director, in writing, and forward a copy of the notification to the District Manager, within 30 days of the occurrence of any changes in the following information:
   (a) the ownership of the Site;
   (b) the Operator of the Site;
   (c) the address of the Owner or Operator; and
   (d) the partners, where the Owner or Operator is or at any time becomes a partnership and a copy of the most recent declaration filed under the Business Names Act, R. S. O. 1990, c. B.17, shall be included in the notification.

1.15 No portion of this Site shall be transferred or encumbered prior to or after closing of the Site unless the Director is notified in advance and sufficient financial assurance is deposited with the Ministry to ensure that these conditions will be carried out.

1.16 In the event of any change in ownership of the Site, other than change to a successor municipality, the Owner shall notify the successor of and provide the successor with a copy of this Approval, and the Owner shall provide a copy of the notification to the District Manager and the Director.

Registration on Title Requirement

1.17 Prior to dealing with the property in any way, the Owner shall provide a copy of this Approval and any amendments, to any person who acquires an interest in the property as a result of the dealing.

1.18 (a) If not already completed, within ninety (90) calendar days from the date of issuance of this

Approval, the Owner shall submit to the Director a completed Certificate of Requirement which shall include:

(i) a plan of survey prepared, signed and sealed by an Ontario Land Surveyor, which shows the area of the Site where waste has been and is to be deposited at the Site;
(ii) proof of ownership of the Site;
(iii) a letter signed by a member of the Law Society of Upper Canada or other qualified legal practitioner acceptable to the Director, verifying the legal description provided in the Certificate of Requirement;
(iv) the legal abstract of the property; and
(v) any supporting documents including a registerable description of the Site.

(b) If not already completed, within fifteen (15) calendar days of receiving a Certificate of Requirement authorized by the Director, the Owner shall:
(i) register the Certificate of Requirement in the appropriate Land Registry Office on the title to the property; and
(ii) submit to the Director and the District Manager, written verification that the Certificate of Requirement has been registered on title.

Registration on Title Requirement - Contaminant Attenuation Zone (CAZ)

1.19 If not already completed, or if required at any time, within thirty (30) calendar days from the date of establishing a contaminant attenuation zone (CAZ) (overburden and/or bedrock aquifers) in either fee simple or by way of a groundwater easement, the Owner shall submit to the Director a completed Certificate of Requirement which shall include:

(a) If rights are obtained in fee simple, the Owner shall provide:
(i) documentation evidencing ownership of the CAZ obtained in compliance with Regulation 232, as amended;
(ii) a completed Certificate of Requirement and supporting documents containing a registerable description of the CAZ; and
(iii) a letter signed by a member of the Law Society of Upper Canada; or other qualified legal practitioner acceptable to the Director, verifying the legal description of the CAZ.

(b) within fifteen (15) calendar days of receiving a Certificate of Requirement signed or authorized by the Director,the Owner shall:
(i) register the Certificate of Requirement in the appropriate Land Registry Office on the title to the property; and
(ii) submit to the Director and the District Manager, a written verification that the Certificate of Requirement has been registered on title.

(c) If rights are obtained by way of a groundwater easement, the Applicant shall:
(i) provide a copy of the agreement for the easement;
(ii) provide a plan of survey signed and sealed by an Ontario Land Surveyor for the CAZ; and
(iii) submit proof of registration on title of the groundwater easement to the Director and District Manager;

(d) The Owner shall not amend, or remove, or consent to the removal of the easement or CAZ from title without the prior written consent of the Director.

Certificate of Withdrawal of Requirement

1.20 If the Applicant wants to withdraw the Certificate of Requirement, the Applicant shall:

(a) submit to the Director, a request for a Certificate of Withdrawal of Requirement; and its supporting documents, outlining the reasons for the Withdrawal of the Requirement.
(b) submit to the Director:
  (i) a plan of survey of the area where waste was deposited signed and sealed by an Ontario Land Surveyor and for the Site or CAZ;
  (ii) the legal abstract of the Site or CAZ – or area where waste was deposited;
  (iii) completed Certificate of Withdrawal of Requirement containing a registerable description of the Site or CAZ or area where waste was deposited; and
  (iv) a letter signed by a member of the Law Society of Upper Canada or other qualified legal practitioner acceptable to the Director verifying the legal description of the Certificate of Withdrawal of Requirement.
(c) within fifteen (15) calendar days of receiving a Certificate of Withdrawal of Requirement authorized by the Director, the Applicant shall:
  (i) register the Certificate of Withdrawal of Requirement in the appropriate Land Registry Office on the title to the Site or CAZ or area where waste was deposited; and
  (ii) submit to the Director and District Manager a copy of the registered document together with a copy of the PIN Abstract confirming the registration.

Inspections by the Ministry

1.21 No person shall hinder or obstruct a Provincial Officer from carrying out any and all inspections authorized by the OWRA, the EPA, the PA, the SDWA or the NMA, of any place to which this Approval relates, and without limiting the foregoing:
(a) to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this Approval are kept;
(b) to have access to, inspect, and copy any records required to be kept by the conditions of this Approval;
(c) to inspect the Site, related equipment and appurtenances;
(d) to inspect the practices, procedures, or operations required by the conditions of this Approval; and
(e) to sample and monitor for the purposes of assessing compliance with the terms and conditions of this Approval or the EPA, the OWRA, the PA, the SDWA or the NMA.

Information and Record Retention

1.22 (a) Except as authorized in writing by the Director, all records required by this Approval shall be retained at the Site for a minimum of two (2) years from their date of creation.
(b) The Owner shall retain all documentation listed in Schedule "A" for as long as this Approval is valid.
(c) All information and logs required in Condition 9.1 shall be kept at the Site until they are included in the Annual Report.

(d) The Owner shall retain employee training records as long as the employee is working at the Site.
(e) The Owner shall make all of the above documents available for inspection upon request of Ministry staff.

1.23 The receipt of any information by the Ministry or the failure of the Ministry to prosecute any person or to require any person to take any action under this Approval or under any statute, regulation or other legal requirement, in relation to the information, shall not be construed as:
(a) an approval, waiver, or justification by the Ministry of any act or omission of any person that contravenes any term or condition of this Approval or any statute, regulation or other legal requirement; and
(b) acceptance by the Ministry of the information's completeness or accuracy.

1.24 The Owner shall ensure that a copy of this Approval, in its entirety and including all its Notices of Amendment, and documentation listed in Item #1 of Schedule "A", are retained at the Site or the Owner's office at all times.

1.25 Any information related to this Approval and contained in Ministry files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, RSO 1990, CF-31.

2.0 FINANCIAL ASSURANCE

2.1 a. The Financial Assurance shall be submitted as required to the Director, Financial Assurance as defined in Section 131 of the Environmental Protection Act. The Financial Assurance shall be in a form acceptable to the Director and shall provide sufficient funds for the analysis, closure, ongoing and long-term monitoring and reporting, post-closure maintenance and care of the Site.

1. On the following dates, the Owner shall ensure the maximum amount of financial assurance has been submitted to the Director in a form acceptable to the Director as follows:

Payment Date	Amount
By March 31, 2021	$32,459,985.00
By March 31, 2022	$35,256,829.00
By March 31, 2023	$37,164,501.00
By March 31, 2024	$39,434,722.00

b. Commencing on March 31, 2024 and on a four year basis thereafter, the Owner shall provide to the Director a re-evaluation of the amount of the Financial Assurance to facilitate the actions required under Condition 2.1.a. The re-evaluation shall include an assessment based on any new information relating to the environmental conditions of the Site and shall include the costs of additional monitoring and/or implementation of alternative measures required by the Director upon review of the annual reports. The Financial Assurance must be submitted to the Director within thirty (30) days of written acceptance of the re-evaluation by the Director; and

c. The amount of Financial Assurance is subject to review at any time by the Director and may be amended at his/her discretion. If any Financial Assurance is scheduled to expire or notice is

received, indicating Financial Assurance will not be renewed, and satisfactory methods have not been made to replace the Financial Assurance at least sixty (60) days before the Financial Assurance terminates, the Owner shall forthwith replace the Financial Assurance with cash.

3.0 WARWICK PUBLIC LIAISON COMMITTEE and FIRST NATIONS

WPLC

3.1 The Owner shall continue and maintain the WPLC. The WPLC shall serve as a focal point for dissemination, review and exchange of information and monitoring results relevant to the operation of the undertaking. In addition, the purpose of the WPLC will be to provide community review of the development, operation (current and proposed) and ongoing monitoring, closure and post-closure care related to the landfill Site.

3.2 The general mandate of the WPLC shall include:

a. Review operations and provide regular input to the Owner with respect to all matters pertaining to landfill Site operation, including issues pertaining to ongoing operations, monitoring, the need for contingency plans or remedial measures, response to community complaints, the need for changes to the ECA , post-closure monitoring and maintenance, and development of the proposed end use for the landfill Site;
b. Review operational and monitoring reports;
c. Consider and make recommendations to the Owner regarding outside consulting advice in respect of the landfill Site;
d. Facilitate ongoing dialogue between the Owner, the Environmental Inspector and the community, including residents and businesses in the immediate vicinity of the landfill Site;
e. Provide reports regularly to the community on the activities of the WPLC, the landfill operations and landfill related issues and seek public input on these activities and issues;
f. Monitor the Owner's complaint response program and make recommendations to the Owner with respect to this program; and
g. Provide recommendations to the Owner with respect to unresolved complaints.

3.3 The WPLC shall not exercise any supervisory, regulatory, approval, legal or other decision making role with respect to the operations (current and proposed) at the Site.

3.4 The Owner shall provide for the administrative costs of operating the WPLC, including the cost of meeting places and clerical services.

3.5 The WPLC shall operate under a Terms of Reference of the committee. Suggestions to revise the WPLC Terms of Reference may be made at any meeting that a quorum is present. No changes to the Terms of Reference can be made until the committee members mutually agree to changes. Any changes shall be provided to the Ministry for information purposes.

3.6 The Community members shall be appointed by the WPLC. The community member positions are intended to be available to individuals that are not members of groups already represented on the

WPLC and have an interest in the operation of the landfill. The WPLC shall encourage individuals who reside in close proximity to the landfill to participate. A community member is defined as a taxpayer and/or resident of Warwick Township.

3.7 The function of the Ministry member will be to provide advice, information and input to other members as required.

3.8 The WPLC shall determine the appropriate meeting frequency and review it on an annual basis.

3.9 Minutes and agendas of meetings shall be printed and distributed as per the mailing list on a timely basis.

3.10 The WPLC shall have reasonable access to the Site and its landfill related facilities for the purpose of carrying out its objective and mandate and the Owner's consultants' reports relating to Site operations shall be provided to the WPLC.

3.11 The Owner shall provide the WPLC with access to the Owner's consultants as required and consultants reports in accordance with protocols agreed to between the Owner and the WPLC.

3.12 Unless disclosure would be contrary to the Freedom of Information and Protection of Privacy Act ,the WPLC, the Township of Warwick and Walpole Island First Nation are to be provided all formal submissions and correspondence related to the site operations by the Owner at the same time as these items are submitted to the Ministry, the Township of Warwick Council or any other body.

3.13 The Owner shall allow access to the landfill site during normal operating hours, to enable any individual member of the WPLC and member of the public recommended by local representatives on the WPLC, to observe operations. An individual member of the WPLC must contact the operator to arrange for a Site pass, be accompanied by an operators representative at all times and follow all safety procedures.

3.14 All recommendations made to the Owner with respect to ongoing landfill operations, monitoring and the implementation of contingency measures shall be discussed at joint meetings between representatives of the Owner and the WPLC. The purpose of these meetings will be to arrive at an agreement between the Owner and WPLC with respect to implementation of the recommendations.

3.15 The Owner will disclose all monitoring results to the WPLC and deliver to the WPLC all documents and information (except as may be privileged) relevant to the operation of the landfill.

First Nation and Township of Warwick Consultation

3.16 During the process of submission of an application to amend any approvals for the Site, the Owner shall:

a. discuss with WIFN and the Township of Warwick (Township) the proposed application prior to submission of the WIFN application to the Director;

b. provide the same documents to WIFN and Township that are provided to the Director in respect of the amendments; and
c. provide the Director, either prior to or at the same time of application submission, with a statement how WIFN and Township comments were considered by the Owner.

4.0 CONSTRUCTION, INSTALLATION and PLANNING

Major Works

4.1 For the purposes of this ECA the following are Major Works:

a. gas management system;
b. leachate collection system; and
c. liner.

4.2 a. A final detailed design shall be prepared for each Major Work to be constructed at the Site consistent with the conceptual design of the Site as presented in the Supporting Documentation, specifically Items 66, 67, and 68 of Schedule "A".

b. Geonet may substitute a component of the 0.3 metres of granular in the secondary drainage layer in accordance with Items 54 to 57 inclusive on Schedule "A". The Owner shall ensure that the Quality Assurance/Quality Control procedure detailed in Item 57 of Schedule "A" is followed during installation of the geonet material.

4.3 The final detailed design of each Major Work shall include the following:

a. design drawings and specifications;
b. a detailed quality assurance / quality control (QA/QC) program for construction of the major work, including necessary precautions to avoid disturbance to the underlying soils; and
c. details on the monitoring, maintenance, repair and replacement of the engineered components of the major work, if any.

4.4 Any design optimization or modification that is inconsistent with the conceptual design shall be clearly identified, along with an explanation of the reasons for the change.

4.5 The final detailed design of each Major Work shall be submitted to the Director and copied to the District Manager.

4.6 Each major work shall be constructed in accordance with the approved final detailed design and the QA/QC procedures shall be implemented as proposed by the Owner. Any significant variances from the conceptual design for the Site as detailed in Items 66, 67 and 68 of Schedule "A" shall be subject to approval by the Director.

4.7 As-built drawings for all Major Works shall be retained on Site and made available to Ministry staff for inspection.

Subsequent Stages

4.8 At least six (6) months prior to the anticipated completion of landfilling in each stage of the Site , a final detailed design for the subsequent stage shall be submitted to the Director. Any significant variances from the conceptual design for the Site as detailed in Items 66, 67 and 68 of Schedule "A" shall be subject to approval by the Director.

4.9 No person shall deposit any waste at the subsequent stage until a written Preparation Report in accordance with O. Reg. 232/98, Section 19 has been submitted to the Director and District Manager documenting that:

a. all construction;
b. QA/QC activities;
c. Site conditions; and,
d. all details of the construction of the Site;

are in accordance with the approved design plans and specifications.

4.10 Approval to proceed with landfilling or construction of each subsequent stage shall be dependent on groundwater, air quality and surface water monitoring results acceptable to the Director. If monitoring results are not acceptable to the Director then remedial action must be taken and completed before landfilling may proceed in the subsequent stage.

Geotechnical Engineer

4.11 A qualified professional geotechnical engineer shall inspect the excavation and construction underlying the Site and provide a report addressing whether the construction proceeded in accordance with approved detailed design plans, specifications and QA/QC procedures. The report shall be included in the Preparation Reports for each stage of the landfill.

Environmental Inspector

4.12 In accordance with conditions 18 and 19 of the EA approval dated January 15, 2007 known as Item 1 on Schedule “A”, the Owner shall provide funding to the Ministry for the provision of an Environmental Inspector to inspect the Site, at any reasonable time on such terms and conditions, as deemed appropriate by the District Manager of the District Office and outlined in a written agreement with the Owner. Within the agreement, the Owner shall commit to providing, as a minimum, the following:

a. Adequate office facilities, communication equipment, and means of transportation for the Environmental Inspector; and,
b. Reimbursement to the MECP semi-annually for the costs and associated expenses of the

Environmental Inspector.

4.13 The Owner shall provide funding for an Environmental Inspector on Site based on the following:

a. Construction Phase/Operations Phase- Full-time, on-Site inspector with the inspector being on Site a full day each day for five (5) days per calendar week for the first two years of the operation phase.

4.14 a. Every two (2) years commencing on February 1, 2012, the Owner shall prepare and submit a report to the District Manager detailing the status and need for a Environmental Inspector based on discussions with the Township of Warwick, WIFN and the WPLC regarding the inspection frequency for the Environmental Inspector. The inspection frequency of the Environmental Inspector shall remain as per the requirements outlined in Condition 4.13 during the operation phase until a decision is made by the District Manager on the appropriate inspection frequency.

b. Notwithstanding Conditions 4.12 to 4.14 (1) and 15.3, inclusive, the Environmental Inspector's duties may, in consultation with the Owner, be increased, reduced, suspended or terminated on such terms and conditions as deemed appropriate by the District Manager and, for greater certainty, the District Manager may require an Environmental Inspector to be on-Site for up to seven days per week in cases of apparent significant non-compliance with the conditions of the EA approval or any approval issued for the Site under the EPA until such non-compliance is resolved.

5.0 OTHER WORKS

Berm Construction

5.1 All berm slopes associated with this approval shall be no greater than 3:1.

Diversion Area

5.2 The diversion area will be located to the east of the treated leachate storage lagoons.

Cell 12

5.3 a. Cell 12 will be used as a monofil of contaminated soils until redeveloped and incorporated into the Expansion Site in accordance with Items 66 through 68 of Schedule "A".

b. The management of the Cell 12 monofill shall be in accordance with the procedures and practices consistent with other previous monofill operations at the Site.

Landscape

5.4 The Owner shall ensure the landscape plan is carried out in accordance with Item 72 and 80 of Schedule "A", as amended from time to time.

6.0 GENERAL OPERATIONS

Proper Operation

6.1 The Site shall be properly operated and maintained at all times. All waste shall be managed and disposed of in accordance with the EPA , Regulation 347 , Regulation 232 , and the requirements of this ECA. At no time shall the discharge of a contaminant that causes or is likely to cause an adverse effect be permitted.

6.2 The Owner shall ensure that the MECP's Guideline B-7, Reasonable Use Concept, is applied at the Site boundaries.

6.3 a. Landfilling operations shall be conducted in accordance with Items 66 through 71 of Schedule "A" attached to this ECA.

b. The Owner shall ensure the operations and procedures manual for the the Site includes discussions on the following items:

a. Health and safety;
b. Operation and maintenance of the Site;
c. Waste disposal area and development;
d. Nuisance management;
e. Leachate management;
f. Landfill gas management;
g. Surface water/Storm water management;
h. Inspections and monitoring;
i. Contingency plans and emergency procedures;
j. Complaints; and,
k. Reporting and record keeping.

c. The operations and procedures manual shall be:

a. retained at the Site;
b. reviewed on an annual basis and updated by the Owner as required; and
c. be available for inspection by Ministry staff.

Waste Type

6.4 Only the following types of waste shall be accepted at the Site:

a. municipal, industrial, commercial and institutional solid non-hazardous waste generated within the Province of Ontario, including non-hazardous contaminated soil.

Capacity

6.5 The Owner shall only accept and deposit waste at the Site as long as there is available capacity as defined by the final contours for the Site approved by this ECA . The approval permits disposal of waste at the Site to fill an air space of 26,508,000 cubic metres (including waste, daily and interim cover material). This capacity includes the capacity of the existing and expansion landfill areas.

Yearly Waste Limit

6.6 a. The Owner can receive up to a maximum of 1,400,000 tonnes per year of waste including contaminated soil for disposal at the Site.

b. The amount of tire shred that may be received to process is 7,160 tonnes/year.

c. Up to a maximum of 100 tonnes per day of solid non-hazardous waste, white goods and metals, recyclable waste, wood waste, and leaf and yard waste that are deposited by the public using small vehicles at the Mini-Transfer Area of the Site may be transferred from the Site by a waste hauler or waste haulers that has an ECA to another waste disposal site.

Service Area

6.7 Only waste that is generated in the Province of Ontario shall be accepted at the Site.

Landfilling of Sludge

6.8 A thickness of at least 2 metres of compacted waste and cover material shall be maintained between any landfilled sludge (solid non-hazardous as per Reg. 347) and the granular leachate collection layer.

Asbestos Waste

6.9 Any waste that is considered asbestos waste shall be handled in accordance with Section 17 of O. Reg. 347 as amended from time to time.

6.10 A suitable sized excavation for the asbestos waste shall be made by the Owner in a location away from the active landfilling face.

6.11 All asbestos waste shall be inspected to ensure that the asbestos waste is properly bagged or contained and free from puncture, tears or leaks.

6.12 The asbestos waste shall be placed in the excavation to avoid damage to the containers and to prevent dust and spillage.

6.13 Upon completion of the unloading and deposition of the asbestos in the excavation, at least 125 centimetres of cover or waste material shall be placed over the asbestos.

6.14 All asbestos waste shall be deposited to a level no higher that 1.25 metres below the general elevation of the disposal area to ensure that daily cover material removal in the future does not encounter the asbestos waste.

Waste Limits

6.15 No waste, including daily cover, intermediate cover or final cover layer, shall be landfilled outside the limits of the base and final cover contours presented in Items 66 through 71 of Schedule "A"**(**the Development and Operations Plan) attached to this ECA .

Site Use

6.16 The area inside the fencing indicated in Appendix N18 of Item 30 of Schedule "A" shall be used for waste disposal purposes only. The remainder of the Site outside the fenced area shall be used for traditional agricultural crop production only.

Waste Inspection

6.17 All loads of waste must be properly inspected by trained Site personnel prior to disposal at the Site and waste vehicles must be diverted to appropriate areas for waste disposal.

Waste Deposit

6.18 The Owner shall deposit waste in a manner that minimizes exposure area at the landfill working face and waste shall be compacted before cover is applied.

Burning Waste Prohibited

6.19 Burning of waste at the Site is prohibited.

Signage

6.20 A sign shall be maintained at the main entrance/exit to the Site on which is legibly displayed the following information:

a. the name of the Site and Owner;
b. the number of the ECA;
c. the name of the Operator;
d. the normal hours of operation;
e. the allowable and prohibited waste types;
f. a warning against unauthorized access;
g. the telephone number to which complaints may be directed;
h. a twenty-four (24) hour emergency telephone number (if different from above); and
i. a warning against dumping outside the Site.

6.21 The Owner shall install and maintain signs to direct vehicles to working face and recycling areas.

6.22 The Owner shall maintain signs at recycling depot informing users what materials are acceptable and directing users to appropriate storage area.

Hours of Operation

6.23 Waste shall only be accepted at the Site during the following time periods:

a. 7 AM to 7 PM - Monday to Saturday.

6.24 On-site equipment used for daily Site preparation and closing activities shall only be used during:

a. 6 AM to 8 PM - Monday to Saturday.

6.25 With prior written approval of the District Manager, the time periods may be extended to accommodate seasonal or unusual quantities of waste or such factors as determined to be reasonable to the District Manager.

6.26 The Owner may provide limited hours of operation provided that the hours are posted at the landfill gate and that suitable notice is provided to the public of any change in operating hours.

6.27 Upon reasonable notice to the District Manager, contingency actions may take place outside normal hours of operation. Emergency response may occur at any time as required.

Site Security

6.28 During non-operating hours, the Site entrance and exit gates shall be locked and the Site shall be secured against access by unauthorized persons.

Fencing

6.29 The entire area as shown in Figure 12 in Item 66 of Schedule "A" shall be fenced by the Owner with a 6 foot high wire woven highway-type paige fence.

Site Access

6.30 Access to and exit from the Site for the transportation of waste shall under normal circumstances be permitted from County Road 79.

Access Roads

6.31 a. On-Site roads shall be provided and maintained in a manner that vehicles hauling waste to and on the Site may travel readily and safely on any operating day. During winter months, when the Site is in operation, roads must be maintained to ensure safe access to the landfill working face.

b. Access roads must be clear of mud, ice and debris which may create hazardous conditions.

Vermin, Dust, Litter, Odour, Noise, Traffic

6.32 The Site shall be operated and maintained such that vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance.

Scavenging

6.33 The Owner shall ensure that there is no scavenging as defined in O. Reg. 347 at the Site.

Dust

6.34 The Owner shall control fugitive dust emissions from on Site sources including but not limited to on-Site roads, stockpiled cover material and, closed landfill area prior to seeding especially during times of dry weather conditions. If necessary, major sources of dust shall be treated with water and/or dust suppression materials to minimize the overall dust emissions from the Site.

6.35 Dust shall be managed as per the Best Management Practices Plan (Dust) prepared by RWDI listed as Item 83 in Schedule "A".

Litter Control

6.36 The Owner shall take all practical steps to prevent escape of litter from the Site. All loose, windblown litter shall be collected and disposed of at the landfill working face.

6.37 Litter pickup will occur at least weekly on the Owner's property during all weather conditions.

6.38 The Owner will respond to litter complaints within one (1) business day of the complaint being received.

6.39 Litter shall be managed in accordance with the Best Management Practices plan prepared by RWDI listed as Item 25 on Schedule "A".

Odour

6.40 Odour shall be managed in accordance with the Best Management Practices Plan (Odour) prepared by RWDI listed as Item 84 in Schedule "A".

Noise

6.41 The Owner shall comply with noise criteria in MECP Guideline entitled “Noise Guidelines for Landfill Sites" dated October 1998 as amended from time to time and the Site shall comply with the limits set in Publication NPC205. Bird bangers may be used at the Site for gull control provided that they produce

reference impulsive sound not exceeding 125 dBAI at 5 metres from the bird banger.

6.42 Noise monitoring at the Site shall be undertaken by the Owner as per the document entitled "Environmental Noise Monitoring Program for the Warwick Landfill", dated June 15, 2007 prepared by Aercoustics Engineering Limited listed as Item 73 on Schedule "A".

Alteration of Best Management Plans for Odour, Dust and Litter

6.43 The Owner shall use the Best Management Plans (BMP's) for dust, odour and litter at the Site in accordance with the applicable Conditions approved by this ECA. The Owner may submit changes in writing to the Director for approval to amend the BMP(s). At the same time any changes to the BMP's are submitted to the Director, the Owner shall provide the proposed changes to the BMP's to the Township of Warwick, WPLC and WIFN.

Surface Water

6.44 The Owner shall take all appropriate measures to minimize surface water from coming in contact with waste. Temporary berms and ditches shall be constructed around active waste disposal areas to prevent extraneous surface water from coming in contact with the active working face.

6.45 The Owner shall not discharge surface water to receiving water bodies without an approval under the EPA.

6.46 If surface water ponding occurs in any surface water ditches having a drainage slope less than 0.5%, the Owner shall regrade the ditches.

Application of Cover Material

6.47 Cover material shall be applied as follows:

a. Daily Cover - At the end of each working day, the entire working face shall be covered with a minimum thickness of 150 mm of soil cover or an approved alternative cover material;

b. Intermediate Cover - In areas where landfilling has been temporarily discontinued for six (6) months or more, a minimum thickness of 300 mm of soil cover or an approved alternative cover material shall be placed;

c. Final Cover - In areas where landfilling has been completed to final contours, a minimum 1.85 metre thick layer of final cover soil shall be placed. Fill areas shall be progressively completed and rehabilitated as landfill development reaches final contours; and

d. Topsoil - In areas where landfilling has been completed to final contours and where final cover has been placed, a minimum 0.15 metres thick layer of topsoil shall be placed.

Cover Materials Allowed

6.48 The following materials, in the corresponding thickness, may be used as an alternative to soil as a daily and intermediate cover:

a. Contaminated soil that satisfies the Schedule IV Toxicity Characteristic Leaching Procedure (TCLP) criteria as outlined in O. Reg. 347 as amended from time to time;
b. Wood chips (daily);
c. Automobile Shredder Residue (ASR) (daily); or
d. Tarps (daily).

6.49 The use of any other alternative materials as daily or intermediate cover material is subject to approval by the Director.

6.50 Use of alternative daily or intermediate cover materials shall be discontinued within two (2) working days of receipt of written notification from the District Manager, stating that the use of the alternative daily or intermediate cover materials at the Site has proven to be environmentally unsuitable.

Automobile Shredder Residue as Daily Cover

6.51 a. Automobile Shredder Residue (ASR) may be used as a daily cover at the Site on an on-going basis from the issuance of this Approval.

b. The Owner shall cease the use of ASR if written notification is received from the District Manager indicating that there are environmental concerns due to the use of ASR as daily cover based on the testing of the ASR required by Condition 6.52.

c. The Owner may re-commence the use of ASR upon the Owner submitting an action plan that is acceptable to the District Manager that can address the environmental concerns which were raised due to the the use of ASR as daily cover.

6.52 Automobile Shredder Residue samples of the daily cover material are to be taken on semi-annual basis (Spring and Fall) and submitted for analysis of O. Reg. 347 Schedule IV Inorganics, VOC's, and PAH's. Automobile Shredder Residue is to conform with the specifications of a non-hazardous waste under O. Reg. 347 as amended from time to time. Semi-Annually testing results are to be submitted to the District Manager upon receipt. The frequency of O. Reg. 347 testing of the daily cover material can be reduced subject to approval of the District Manager.

Contaminated Soil as Daily or Intermediate Cover

6.53 Contaminated soil equal to or below 10% of the TCLP value and/or 0.4 mg/L benzene may be landfilled in Cells 8, 10 and/or 12.

6.54 If confirmatory testing of the contaminated soil to be landfilled in Cells 8, 10 and/or 12 indicates an

exceedance of 10% of the TCLP value and/or 0.4 mg/L of benzene, but satisfies the TCLP criteria as in O.Reg. 347, the soil may be used as daily and/or intermediate cover, and or landfilled as waste.

6.55 If the contaminated soil received at the Site does not meet the TCLP value, the contaminated soil shall be classified as a hazardous waste and shall be disposed of at a site that is approved to receive and dispose of hazardous waste.

6.56 Contaminated soil that satisfies the TCLP criteria may be used as daily and/or intermediate cover in the Expansion Site of the landfill. Contaminated soils may not be used on outside slopes which drain into the surface water system.

6.57 Contaminated soil used for daily and/or intermediate cover shall be sampled on a quarterly basis and submitted for analysis of O.Reg. 347 Schedule IV Inorganics, VOCs, PAHs and PCBs. Quarterly testing results shall be included in the annual report. The frequency of O. Reg. 347 testing of the cover material may be reduced subject to agreement of the District Manager.

6.58 Contaminated soil for use as daily cover and/or intermediate cover shall be stockpiled in areas of the Site that have a leachate collection system installed below.

6.59 Surface water run off from the contaminated soils stockpile which exceeds the Provincial Water Quality Objectives shall not be discharged through the surface water management system.

6.60 The Owner must ensure that measures are in place for the on Site treatment and disposal of any contaminated run off from the contaminated soils stockpile.

6.61 Prior to receipt at the Site, each source of contaminated soils which are to be used as daily or intermediate cover shall be tested to determine if the soils meet the criteria in this ECA and a copy of the test results shall be kept in the daily records for the Site as required.

7.0 SITE OPERATIONS

Landfill Reclamation

7.1 The Owner shall restrict stockpiling of contaminated soil from Cells 8, 10 and 12 to sections of the landfill footprint that have a liner and leachate collection system.

Waste Processing and Composting

7.2 Waste Processing and composting is allowed at the location outlined in Item 49 on Schedule "A" subject to the following conditions:

a. Prior to the commencement of any waste processing or composting operations at the Site, the Owner shall ensure that air (Section 9 EPA) and noise approvals are obtained;
b. Prior to the start of composting operations at the Site, the Owner shall submit to the District

Manager a contingency plan for any odour problems that may occur;

c. The total combined amount of waste that may be received at the Site for processing and composting shall not exceed 36,000 tonnes per year and the maximum daily amount to be received at the Site shall not exceed 700 tonnes per day;
d. The amount of waste that may be received at the Site for composting shall not exceed 7,500 tonnes per year;
e. Material acceptable for processing and composting at the site shall include leaf, yard, agricultural waste, concrete, asphalt, wood and tires;
f. The bins for diversion shall be emptied on an as needed basis to prevent odours and operational problems. The Ministry may at any time instruct that a bin be emptied;
g. The Owner shall ensure that waste processing and composting is undertaken in a safe manner, and that all waste is properly handled, processed and contained so as not to pose any threat to the general public and site personnel;
h. All noise generating processing activities in the waste diversion area including concrete/asphalt/crushing, wood chipping and tire shredding shall only occur between 07:00 to 19:00; and
i. Any runoff that comes into contact with waste in the waste processing/composting area shall be managed in such a fashion to ensure compliance with Condition 8.5 of this ECA.

7.3 The Owner shall ensure that composting at the Site is undertaken in accordance with O.Reg 101/94 as amended from time to time and the Ministry document entitled "Interim Guidelines for the Production and Use of Aerobic Compost in Ontario " dated November 2004 as amended from time to time and the following requirements:

a. Only leaf and yard waste, Agricultural Waste as defined in Item 3 in Schedule "A" and wood (not including painted or treated wood or laminated wood) may be accepted at the compost area.
b. Leaf and yard waste is defined as waste consisting of natural Christmas trees and other plant materials but not tree limbs or other woody materials in excess of seven (7) centimetres in diameter.
c. The composting site shall only receive material for composting from May 1st to November 1st each year.
d. Leaf and yard waste, Agricultural Waste and wood may not be stored for more than four (4) days before it is composted.
e. During composting, the Owner shall provide the composting mass with adequate ventilation to ensure that aerobic conditions are maintained.
f. Cured compost must be analyzed for the parameters listed in Table 1 of O.Reg. 101/94 and shall not be removed from the Site unless it has been sampled and analyzed.
g. Cured compost is defined as meeting the specifications in Sections 7.2 to 7.5 inclusive of the Interim Guidelines for the Production and Use of Aerobic Compost in Ontario" dated November 2004 as amended from time to time and can be used on an unrestricted basis.
h. Compost is designated a waste if the compost contains a substance listed in Table 1 of O. Reg. 101/94 that has a concentration greater than the concentration listed in Column 2.
i. Controlled compost is defined as compost that is designated a waste under the previous condition but has concentrations less than the concentrations listed in Column 3 of Table 1

in O. Reg. 101/94.

j. Controlled compost may not be removed from the site except for direct shipment to the intended user.

k. Material from the composting process that fails to meet the "Interim Guidelines for the Production and Use of Aerobic Compost in Ontario" dated November 2004 shall be deemed to be a waste under O. Reg. 347 and shall be disposed of accordingly.

l. The person to whom controlled compost is shipped shall be given a copy of the chemical analysis of the compost and a notice that states that the compost is controlled compost and that sets out the terms and conditions of the compost's exemption from Part V of the EPA. A copy of this notice shall be kept on file at the Site.

m. The District Manager may at any time and at his absolute discretion instruct that any or all of the waste materials from the composting or processing operations or the processed waste from the composting or processing operations to be either landfilled or directed to be utilized for specific uses and in specific locations.

7.4 Record keeping for the composting operation shall be kept as follows:

a. Records about each composting mass shall be kept including temperatures of the mass, when the temperatures were measured, when the mass was turned, information about the curing process and details about significant problems that occurred during composting or curing. This information shall be kept at the Site for at least three years after the mass was cured;

b. Records shall be kept of the analyses of compost. Any laboratory records shall be kept as part of the record. A record of an analysis shall be kept for at least three years after the analysis is performed; and

c. A record shall be kept of the name, address and telephone number of each person to whom controlled compost is shipped. The record shall be kept for at least ten (10) years after the shipment.

Tire Shred

7.5 The management and placement of tire shreds at the Site shall be in accordance with the Fire Protection and Prevention Act as follows:

a. No individual tire shred pile shall be more than 3 metres in height and 100 square metres in area. Six (6) metres of space shall be provided between all piles. Fifteen (15) metres is to be provided from property lines and thirty (30) metres shall be provided from tree lines;

b. A buffer of 4.5 metres is to be provided for grass or weeds from the edge of the tire pile to the edge of the pad.

c. A firebreak of 22 metres shall be provided between the two areas of 16 piles each.

7.6 If the total stockpiled tire shreds exceeds 300 cubic metres, the storage period shall not exceed 90 (ninety) days.

7.7 The total amount of tire shreds stored on Site shall be recorded in a log book and made available to the Ministry for inspection.

Backup Power

7.8 The Owner shall maintain adequate backup power at the Site in order to ensure scale facility and landfill gas blower on site continue to operate and are not damaged due to an extended power outage. A power supply connection at each leachate collection pumping station shall be maintained by the Owner that will permit a portable generator to be connected during a power outage.

Landfill Gas

7.9 All buildings are to be free of any landfill gas accumulation. The Owner shall provide adequate ventilation systems to relieve landfill gas accumulations in buildings if necessary.

Landfill Gas Management

7.10 The Owner shall, manage landfill gas in accordance with Items 66 through 68, Items 75 through 77, and Item 81 of Schedule "A" and based on the landfill gas management system constructed under the authority of the EPA Approval issued which may be amended or replaced from time to time.

Cleaning of Leachate Collection System

7.11 The leachate collection system piping for each stage of the landfill shall be inspected annually for the first five years after waste placement and then as often as future inspections indicate to be necessary. Additionally, leachate collection pipes must be cleaned whenever an inspection indicates that cleaning is necessary.

7.12 In areas where leachate collection pipe slopes are less than 0.5%, the leachate collection pipes shall be inspected semi-annually for the first three (3) years after waste placement and then as often as future inspections indicate to be necessary. Additionally, leachate collection pipes must be cleaned whenever an inspection indicates that cleaning is necessary. After the three (3) year period, inspection and cleaning of the leachate collection pipes shall be in accordance with the previous condition.

Leachate Collection System

7.13 All leachate collection pipes for Cell 12 shall be sloped at a minimum of 0.5%.

7.14 The Owner shall install 250 mm diameter perforated leachate collection pipes with perforations located at the 10:30, 4:30, 1:30 and 7:30 positions.

7.15 The stone for the leachate collection system shall have the following specifications:

a. D85 shall be greater than 37 mm where D85 is described as the stone diameter such that,

when measured by weight, 85% of the stones in the layer have a smaller diameter;

b. D10 shall be greater than 19 mm where D10 is the stone diameter such that, when measured by weight, 10% of the stones in the layer have a smaller diameter;
c. D60/D10 shall be less than 2; and,
d. One per cent (1%) of the stones may pass a #200 sieve.

7.16 A minimum of 50 mm of stone shall be placed below the leachate collection pipes and a minimum of 250 mm of stone shall be placed above any leachate collection pipes.

7.17 The Owner shall ensure that the leachate collection system is constructed under the supervision of a qualified consultant.

Hydraulic Trap

7.18 The Owner shall ensure that a hydraulic trap is developed and maintained beneath the Expansion Area and shall ensure that a maximum leachate head of 300 mm on the landfill liner is not exceeded.

Renewable Natural Gas (RNG) Facility

7.19 The Renewable Natural Gas Facility shall be constructed and operated in accordance with Items 88 to 89 in Schedule A.

7.20 The Owner shall ensure that the flares of the RNG facility have adequate capacity to handle all the landfill gas collected, and the blowers shall be able to draw a vacuum of no less than 100 inches of water column.

7.21 The Owner shall ensure that the capacity of the landfill gas blower/flare facility and the RNG facility be assessed each time of the gas collection system expansion. The owner shall upgrade the landfill gas blower/flare facility or the RNG facility, if necessary, to ensure there is adequate capacity to handle the expected maximum landfill gas flow.

7.22 Prior to the operation of the RNG facility, the Owner shall ensure that the following documents are updated and training provided to employees involved in the RNG operation:

a. the Best Management Practices Plan for odour in accordance with Item 90 of Schedule A;
b. the Operation and Maintenance Manual for the RNG facility.

7.23 The Owner shall maintain daily operational record of the RNG facility at the site, and ensure the following information for the RNG facility are included in the annual report:

a. the total amount of landfill gas processed at the RNG facility;
b. the total amount of processed renewable natural gas sent to the off-site network;
c. the total amount of off-specification landfill gas that was flared;
d. a summary of the RNG facility operational disruptions and the response;
e. a summary of adverse effects such as odour, spills, fire emergency, etc., and the remediation

implemented; and

f. an assessment of the adequacy of the RNG facility treatment capacity and the need for system upgrade.

8.0 LEACHATE MANAGEMENT

Leachate Recirculation

8.1 Prior to implementing the leachate recirculation program , a report on the moisture content of the incoming waste and the actual field capacity of the waste in situ shall be submitted to the Director.

8.2 The Director may at any time, terminate leachate recirculation at the Site if, in the Ministry's opinion, adverse effects on the environment are observed.

8.3 Before starting leachate recirculation, the Owner shall provide to the Director a monitoring program to ascertain the effectiveness of the leachate recirculation process.

8.4 Leachate recirculation shall not occur in any above grade locations until final cover has been installed on exterior side slopes.

Leachate Management Plan

8.5 The Owner's leachate management plan shall not include any direct discharge of leachate or treated leachate from the Site, even as a contingency option, to surface waters, including Bear Creek. The Owner shall not discharge leachate or treated leachate to surface waters, including Bear Creek from the Site.

Leachate Treatment Plant

8.6 (1) (a) Within a minimum of three (3) years prior to closure of the landfill Site, the Owner shall ensure that a leachate treatment system is installed and operational at the Site.

(b) Leachate from the Site not sent to the operational drip irrigation area(s) approved under Condition 8.7 shall be disposed of off-Site at a location approved by the District Manager until the leachate treatment system required by Condition 8.6 (1)(a) is approved and operational.

(c) Any waste from the leachate treatment system that is to be disposed of in the landfill must be classified as a solid non-hazardous waste.

(d) The Owner shall implement all items within the document entitled Leachate Management Framework, listed as Item 86 in Schedule "A". These items include new and existing leachate monitor locations (wells, mini piezometers, and sump), leachate monitoring, leachate level reporting, Leachate Management Plan by March 31, 2020 and updated

every 3 years, and the Leachate Treatment Facility Study to be completed at least 7 years prior to closure of the landfill.

(2) As part of the financial assurance calculation in Section 2.0, the Owner shall provide to the Director for approval, a detailed financial assurance plan including the cost of leachate transportation and disposal for the landfill site during the period preceding the initiation of the leachate treatment system. In addition, the Owner shall provide to the Director for approval a financial assurance plan detailing the capital cost of the on-Site leachate treatment system.

Phytoremediation of Leachate - Existing and Proposed Poplar Plantations

8.7 On-Site phytoremediation may occur at the Poplar System and Poplar Plantation in accordance with the following conditions:

a. The Owner shall ensure that there is a 100 metre grassed buffer at all times from the Poplar Plantation to the Kersey drain.
b. Irrigation of leachate onto the either the Poplar Plantation or the Poplar System shall not occur in the following instances:

   i. Between the dates of October 16 to April 30;
   ii. On frozen or snow covered ground conditions;
   iii. Under conditions that will cause ponded water or runoff;
   iv. Conditions where surface water ponding within the area is occurring;
   v. Where no poplar trees are currently planted;
   vi. In areas within a drip irrigation area where trees have been harvested more than a frequency greater than every other tree;
   vii. In areas within a drip irrigation area that has been fully harvested clear of trees and the trees have not started to coppice.

c. If weather forecasts indicate a rainfall storm greater than 12.5 mm/hour will occur, the Owner shall within 1 hour before the storm, shut off all irrigation of the poplar forest.
d. Irrigation zones shall be individually assessed by the Owner for suitability of irrigation after rainfall events greater than 12.5 mm.
e. Records shall be kept for the Poplar System and Poplar Plantation areas as follows:

   i. quantities and dates of application of pesticides and herbicides;
   ii. inspection notes regarding tree growth rates and health;
   iii. inspection notes regarding condition and growth of underlying vegetative landfill cover (ie grass);
   iv. observed pooling and/or runoff of irrigated liquid;
   v. observations of any odours; and,
   vi. weather conditions records as may be obtained from the nearest Environment Canada Weather Office which may include daily high and low temperatures, wind velocity and direction, and precipitation quantities.

f. Irrigation onto either the Poplar System or the Poplar Plantation shall be as follows:

i. Detailed records shall be kept of the quantities of irrigation liquid that are applied, including the dates of application onto either drip irrigation area;
ii. Operations in a given drip irrigation area must immediately stop if contamination problems in surface water or groundwater, which are attributable to the operation of the noted drip irrigation area, are found to be occurring. Recommencement of operations may proceed only upon further written notification of the District Manager;
iii. Operations of a given drip irrigation area must be discontinued immediately if operation of the noted drip irrigation area causes surface runoff from the footprint area or if operations cause surface ponding within the drip irrigation area; operations cannot be restarted during that application day and can only be restarted after surface ponding has evaporated or infiltrated or conditions causing the runoff or ponding have been rectified;
iv. If there are any stoppages of operations under the requirements of items ii) or iii) above, then the District Manager shall be notified immediately; and,
v. If odours attributable to one of the drip irrigation areas become a problem at the site, then the District Manager shall be so informed in writing and the operation of the noted drip irrigation area shall be stopped pending further instructions from the District Manager;

g. (1) Monitoring of the drip irrigation Poplar System and the Poplar Plantation shall be in accordance with Items 63 through 65 of Schedule “A”.

(2) Monitoring frequencies and analyses for the following items shall be as follows:

i. Daily inspections for ponded water or saturated soil during irrigation;
ii. Monthly testing of irrigation liquid quality during the irrigation season;
iii. Soil samples should be taken annually from grade to a depth of 0.6 m minimum and 0.9 m maximum;
iv. Annual soil analyses shall be conducted annually per Section 3.1 of Item 63 of Schedule "A", in addition to pH, electrical conductivity, cation exchange capacity, and sodium absorption ratio;
v. Leaf Tissue analyses once per year in the fall; and
vi. Crop inspection once per year in the fall.

h. Reporting on the drip irrigation areas shall be part of the annual monitoring report for the Site and shall include but not be limited to the following:

i. results and an analysis of the results of the monitoring programs for the drip irrigation areas:
ii. assessment of the results of the vegetation as related to the stated objectives for the Poplar System and Poplar Plantation facilities construction and operations;

iii. assessment of the need to change the monitoring program for the drip irrigation areas and a recommendation of the required changes;
iv. tabulation and assessment of the volumes of leachate produced by the landfill, and those volumes which may be applied to the existing drip irrigation areas;
v. a report on operational problems identified during the operation of the drip irrigation areas and a discussion of each problem and details of what was done to rectify each problem;
vi. a Site plan which shows the location of the areas planted with both trees and grass cover and the vegetation used on those areas;
vii. an assessment of the monitoring results pertaining to the use of trees as vegetation on the final cover.

i. The Director retains the right to request that the Owner conduct additional studies, suspend operations or require the Owner to provide additional methods to handle leachate at the Site in addition to or as a replacement to the drip irrigation areas.

j. If the Director requests removal of the drip irrigation areas, the Owner shall:

i. remove the irrigation equipment and the trees from the noted drip irrigation area. For the Poplar System, removal of trees shall include removal of tree stumps and most roots, excavate the trench to the maximum depth of root depth penetration on each tree row, and then replace, remould and recompact the excavated material;
ii. the landfill cover shall be restored to the same condition as it was in prior to commencement of the Poplar System and a blend of suitable grasses shall be seeded as necessary; and,
iii. within 6 months of completion of the noted drip irrigation area closure activities, submit to the Director a report outlining the work that has been completed.

k. Electrical conductivity of the shallow soil (maximum depth of 0.15 m) beneath the drip irrigation areas shall be monitored on a weekly basis during irrigation.

l. If salt levels are building up in the soil or additional irrigation with leachate is found to be detrimental to the health of the poplars, the leachate application rate shall be reduced or terminated.

Wood Waste and Leaf Litter

m. Any wood waste or leaf litter that is produced in the Poplar System or Poplar Plantation shall managed in accordance with Item 63 of Schedule "A".

Other Items

n. (1) Drip irrigation rates for the Poplar Plantation shall be no greater that the rate specified

in the EPA approval for the Site.

(2) Drip irrigation rates for the Poplar System shall be no greater than the rates noted in Item 63 of Schedule "A".

o. No drip irrigation shall occur within fifty (50) metres of any surface watercourse or drain.

p. (1) Leachate to be used for drip irrigation on the Poplar Plantation shall not exceed the treated leachate effluent criteria specified in the EPAapproval for applicable industrial sewage works for the Site.

(2) Leachate to be used for drip irrigation on the Poplar System shall not exceed the treated leachate effluent criteria specified in the Item 63 through 65 in Schedule "A".

q. The use of the Poplar Plantation to manage irrigation leachate will not be permitted without first providing the District Manger with at least two (2) months written notice of the anticipated irrigation liquid application date. The use of surface water to encourage tree growth will be permitted and will not be considered as irrigation liquid.

r. Monitoring and the associated reporting for the Poplar Plantation will commence at least two (2) months prior to irrigation liquid application and continue until two (2) years after cessation of irrigation liquid application to the Poplar Plantation.

Leachate Storage Tanks

s. The leachate storage tanks shall be inspected by a licenced plumber on an annual basis.

t. The leachate storage tanks shall be cleaned and sediment removed at least once every two (2) years.

9.0 INSPECTIONS AND RECORDS

Inspections

9.1 The Owner shall inspect the Site monthly for the following items but not limited to these items:

a. Erosion rills;
b. General settlement areas or depressions;
c. Shear and tension cracks;
d. Condition of surface water drainage works;
e. Erosion and sedimentation in surface water drainage system;
f. Presence of any ponded water;
h. Adequacy of cover material;
i. Evidence of vegetative stress, distressed poplars or side slope plantings;
j. Condition of groundwater monitoring wells and gas wells;

k. Presence of insects, vermin, rodents and scavenging animals;
l. Condition of fence surrounding the Site; and
m. General Site appearance.

9.2 The Owner shall inspect the Site weekly for presence of leachate seeps.

Daily Inspections and Log Book

9.3 An inspection of the entire Site and all equipment on the Site shall be conducted each day the Site is in operation to ensure that the site is being operated in compliance with this ECA . Any deficiencies discovered as a result of the inspection shall be remedied immediately, including temporarily ceasing operations at the Site if needed.

9.4 A record of the inspections shall be kept in a daily log book or a dedicated electronic file that includes:

i. the name and signature of person that conducted the inspection;
ii. the date and time of the inspection;
iii. the list of any deficiencies discovered;
iv. the recommendations for remedial action; and
v. the date, time and description of actions taken.

9.5 A record shall be kept in a daily log book of all refusal of waste shipments, the reason(s) for refusal, and the origin of the waste, if known.

Monthly Records

9.6 Monthly Site inspection records in the form of a written log or a dedicated electronic file shall include but not be limited to the following:

a. the type, geographic source, date and time of arrival, hauler, and quantity (tonnes) of all waste received at the Site;
b. the area of the Site in which waste disposal operations are taking place;
c. a calculation of the total quantity (tonnes) of waste received at the Site during each operating day and each operating week;
d. Results of any test done to determine the acceptability of waste at the Site;
e. A reference for each load of solid non-hazardous industrial waste received, to the client and type of solid non-hazardous industrial waste;
f. the amount of any leachate removed, or treated and discharged from the Site;
g. a record of litter collection activities and the application of any dust suppressants;
h. a record of the daily inspections;
i. a description of any out-of-service period of any control, treatment, disposal or monitoring facilities, the reasons for the loss of service, and action taken to restore and maintain service;
j. type and amount of daily, intermediate and final cover used;
k. maintenance and repairs performed on equipment employed at the Site;

l. complaints received and actions taken to resolve them;
m. emergency situations and actions taken to resolve them; and
n. any other information required by the District Manager.

9.7 The Owner shall maintain on record at the Site for each client disposing of solid non-hazardous waste at the Site, a description of each type of solid non-hazardous waste received from the client and documentation to demonstrate that the Owner has taken reasonable care to ensure that waste classified as either hazardous or liquid industrial waste under O. Reg. 347 as amended from time to time, is not disposed of at the Site.

Record Retention

9.8 Except as authorized in writing by the Director, all records required by this ECA shall be retained at the Site for a minimum of two (2) years from their date of creation.

9.9 The Owner shall retain all documentation listed in Schedule "A" for as long as this ECA is valid.

9.10 All monthly Site inspection records are to be kept at the Site until they are included in the Annual Report.

9.11 The Owner shall retain employee training records as long as the employee is working at the Site.

9.12 The Owner shall make all of the above documents available for inspection upon request of Ministry staff.

9.13 The Owner shall retain, either on-Site or in another location and notify the District Manager of this location, copies of the annual reports referred to in the preceding condition and any associated documentation of compliance monitoring activities and shall continue to do so for a period of at least two (2) years after the closure of the Site.

10.0 TRAINING

Employees and Training

10.1 A training plan for all employees that operate any aspect of the Site shall be developed and implemented by the Operator . Only trained employees shall operate any aspect of the Site or carry out any activity required under this ECA . Employees must provide proof of training to the Ministry upon request. For the purpose of this ECA "trained" means knowledgeable either through instruction or practice in:

a. the relevant waste management legislation including EPA, O. Reg. 347 and O. Reg. 232/98 , regulations and guidelines;
b. major environmental and occupational health and safety concerns pertaining to the waste to be handled;

c. the proper handling of wastes;
d. the management procedures including the use and operation of equipment for the processes and wastes to be handled;
e. the emergency response procedures;
f. the specific written procedures for the control of nuisance conditions;
g. the terms, conditions and operating requirements of this ECA; and
h. proper inspection, receiving and recording procedures and the activities to be undertaken during and after a load rejection.

11.0 COMPLAINTS PROCEDURES

11.1 If at any time, the Owner receives complaints regarding the operation of the Site , the Owner shall respond to these complaints according to the following procedure:

a. The Owner shall record and number each complaint, either electronically or in a log book, and shall include the following information: the nature of the complaint, the name, address and the telephone number of the complainant if the complainant will provide this information, the time and date of the complaint, specific details of operations that were occurring, any changers from normal operations, types of waste loads (including source) and other on Site activities;
b. The Owner, upon notification of the complaint, shall initiate appropriate steps to determine all possible causes of the complaint, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and
c. The Owner shall complete and retain on-Site a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents.

11.2 The Owner shall designate a person to receive any complaints and to respond with a written notice of action as soon as possible. The Owner shall post the Site complaints procedure at the Site entrance. All complaints and the Owner's actions taken to remedy the complaints must be summarized in the Annual Report.

11.3 The Company shall notify the District Manager, Township of Warwick and WIFN, in writing, of each environmental complaint within two (2) business days of the complaint. The notification shall include:

1. this Approval number;

2. a description of the nature of the complaint;

3. the time and date of the incident to which the complaint relates.

11.4 The Company shall report all environmental complaints to the WPLC at the next WPLC meeting.

12.0 EMERGENCY SITUATIONS

12.1 In the event of a fire or discharge of a contaminant to the environment, Site staff shall contact the MECP Spills Action Centre (1-800-268-6060) and the District Office of the MECP forthwith.

12.2 The Owner shall submit to the District Manager a written report within three (3) days of the spill or incident, outlining the nature of the incident, remedial measures taken and measures taken to prevent future occurrences at the Site.

12.3 The Owner shall ensure that adequate fire fighting and contingency spill clean up equipment is available in accordance with Item 66 of Schedule "A" and that emergency response personnel are familiar with its use and location.

13.0 MONITORING

Groundwater Monitors

13.1 The Owner shall ensure all groundwater monitoring wells are properly capped, locked and protected from damage.

13.2 In areas where landfilling is to proceed around monitoring wells, the wells must be decommissioned in accordance with O. Reg. 903 as amended from time to time and then replaced when waste placement and capping is completed.

13.3 Any groundwater monitoring wells included in the monitoring program shall be assessed, repaired, replaced or decommissioned as required.

13.4 The Owner shall repair or replace any monitoring well which is destroyed or in any way made inoperable for sampling such that no more than one sampling event is missed.

13.5 All monitoring wells that are no longer required as part of the groundwater monitoring program shall be decommissioned in accordance with good standard practice that will prevent contamination through the abandoned well and in accordance with O. Reg. 903. A report on the decommissioning shall be provided in the annual monitoring report for the period during which the well was decommissioned.

Monitoring Program

13.6 Monitoring programs shall be carried out for groundwater, surface water, landfill gas in accordance with the Environmental Monitoring Plan, as amended from time to time listed as Item 39 and Appendix H of Item 68 of Schedule "A". Surface water will also be evaluated as per Item 91 of Schedule "A".

13.7 The Owner shall ensure that Biochemical Oxygen Demand, Total Suspended Solids, Total coliform, Fecal coliform and E. Coli are added to the parameter list to be sampled for surface water station SS19.

13.8 Air Quality, Dust, Hydrocarbon, and Volatile Organic Carbon monitoring shall be undertaken in accordance with Item 85 in Schedule "A".

13.9 Air quality monitoring shall be in accordance with the canister method (USEPA TO-14/15) .

13.10 Noise monitoring shall be undertaken by the Owner at the Site in accordance with Item 28 on Schedule "A" including any noise monitoring in response to noise complaints.

13.11 No alterations to the groundwater, air quality, noise or surface water monitoring programs shall be implemented prior to receiving written approval from the District Manager. The Owner shall give all requests to the Township of Warwick, the WPLC and WIFN at the same time or prior to the time that such request is made to the District Manager.

14.0 CONTINGENCY PLANS AND TRIGGER MECHANISMS

Hydraulic Containment

14.1 If the leachate level elevation in any of the pumping stations wells listed below rise above their respective trigger level, the Owner shall take additional groundwater levels within four (4) weeks as detailed in Figure 2 of Item 39 and Appendix H of Item 68 of Schedule "A".

Monitoring location	Trigger Leachate Elevation (mASL)
PS1	232.7
PS3	232.6
PS5	232.8
PS7	233.4

The assessment process for leachate levels is detailed in Figure 2 of Appendix H of Item 68 on Schedule “A”.

Groundwater Quality

14.2 The trigger concentration for groundwater quality shall be 80% of the Guideline B-7 values for parameters that have an Ontario Drinking Water Quality Standards value.

14.3 Groundwater chemical concentrations must be assessed with the trigger concentrations within six (6) weeks of sample collection.

14.4 The assessment process for groundwater quality is detailed in Figure 3 of Item 39 and Appendix H of of Item 68 of Schedule “A”.

Surface Water Quality

14.5 The trigger mechanisms for surface water quality shall be one of the following:

a. Where off Site surface water quality satisfies the Ministry's PWQO, the respective PWQO shall be used as a trigger concentration; or

b. Where the background surface water quality naturally exceeds the PWQO, the background concentration should be considered in evaluating and updating the trigger concentration.

14.6 Surface water quality results will be assessed in accordance with the requirements established under the Industrial Sewage Works component of the EPA approval for the Site.

14.7 The assessment process for surface water quality is detailed in Figure 4 of Appendix H of Item 68 in Schedule "A ".

Landfill Gas

14.8 If landfill gas concentrations exceed 10% LEL, the Owner shall undertake additional monitoring, assess the source and pathway of methane to determine if the elevated concentrations are landfill related.

14.9 If the elevated concentrations are landfill related, the Owner shall undertake contingency measures.

General Contingency Measures

14.10 In the event a result of a monitoring test exceeds the trigger mechanisms detailed above, the Owner shall:

a. notify the District Manager, the WPLC, WIFN and the Township of Warwick of any trigger level exceedances within twenty four (24) hours of receipt of the results;
b. conduct an investigation into the cause of the adverse result and submit a report to the District Manager that includes an assessment of whether contingency measures need to be carried out;
c. if contingency measures are needed, submit detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures, and a schedule as to when these measures will be implemented, to the Director and notify District Manager; and
d. implement the required contingency measures upon approval by the Director.

15.0 REPORTING

Semi Annual Volume Determination

15.1 The Owner shall undertake semi-annual air space surveys of the bottom and top waste contours to determine the estimated air space used for waste disposal in the prior six months. The air space survey shall include daily cover material and shall take into account settlement. The first air space survey shall be undertaken by no later than February 2012 with an air space survey being completed semi-annually

after the completion of the first air space survey, until landfill Site closure.

15.2 Wastes which the Owner has been ordered to dispose of at the Site by any ministry, department or agency of the federal or Provincial Crown shall be excluded from the air space survey calculations.

15.3 Each air space survey shall be conducted by an Ontario Land Surveyor or other qualified consultant and such air space survey shall be provided to the District Manager. The Owner shall keep a copy of each air space survey on-Site and make them available to MECP personnel upon request.

Quarterly Monitoring Reports

15.4 The Owner shall submit quarterly monitoring reports to the Township of Warwick, WIFN, District Manager and the WPLC within sixty (60) days of the end of the calendar quarterly reporting period starting September 30, 2012.

15.5 Each report will include the following:

a. a summary of monitoring activities and results;
b. a summary of any exceedences and related operator responses;
c. any complaints received and operator response;
d. a summary of mitigation activities for noise, dust, litter, air quality or other taken during the quarter in accordance with the Best Management Practices;
e. any proposed improvements to monitoring or operating procedures; and
f. any implemented improvements to monitoring or operating procedures that have been identified to address or reduce impacts.

Annual Report

15.6 A written report on the development, operation and monitoring of the Site , shall be completed annually (the "Annual Report"). The Annual Report shall be submitted to the Regional Director , the District Manager, the Township of Warwick, WIFN, and the WPLC, by March 31st of each year, and shall cover the 12 month period preceding December 31st.

15.7 The Annual Report shall include the following:

a. the results and an interpretive analysis of the results of all leachate, groundwater, surface water and landfill gas monitoring, including an assessment of the need to amend the monitoring programs;
b. an assessment of the operation and performance of all engineered facilities, the need to amend the design or operation of the Site, and the adequacy of and need to implement the contingency plans;
c. an assessment of the effectiveness of the Poplar Plantation and the Poplar System for leachate;
d. an assessment of the effectiveness of the on Site leachate treatment facility;
e. Site plans showing the existing contours of the Site;

f. areas of landfilling operation during the reporting period;
g. areas of intended operation during the next reporting period;
h. areas of excavation during the reporting period;
i. the progress of final cover, vegetative cover, and any intermediate cover application;
j. previously existing site facilities;
k. facilities installed during the reporting period;
l. Site preparations and facilities planned for installation during the next reporting period;
m. calculations of the volume of waste, daily and intermediate cover, and final cover deposited or placed at the Site during the reporting period and a calculation of the total volume of Site capacity used during the reporting period;
n. a calculation of the remaining capacity of the Site, an estimate of the remaining Site life and a comparison of actual capacity used to approved Site capacity;
o. a summary of the quantity of any leachate or pre-treated leachate removed from the Site or leachate treated and discharged from the Site;
p. a summary of the weekly, maximum daily and total annual quantity (tonnes) of waste received at the Site;
q. a summary of any complaints received and the responses made;
r. a discussion of any operational problems encountered at the Site and corrective action taken;
s. an update summary of the amount of financial assurance which has been provided to the Director;
t. a report on the status of all monitoring wells and a statement as to compliance with Ontario Regulation 903;
u. any other information with respect to the site which the District Manager or Regional Director may require from time to time;
v. a statement of compliance with all conditions of this ECA and other relevant Ministry requirements, guidelines and regulations;
w. summary of inspections undertaken at the Site;
x. a summary of recycling, processing and composting efforts undertaken including the amount of recyclable received, amount of processed material and composted material each year;
y. any changes in operations, equipment or procedures employed at the Site; and
z. recommendations regarding any proposed changes in operations of the Site.

16.0 SITE CLOSURE

Closure Plan

16.1 At least two (2) years prior to closure or when 90% of the site capacity is reached, whichever comes first, the Owner shall submit to the Director for approval, with copies to the District Manager, the Township of Warwick, WIFN and the WPLC, a detailed Site closure plan pertaining to the termination of landfilling operations at this Site , post-closure inspection, maintenance and monitoring, and end use. The plan shall include the following:

a. a plan showing Site appearance after closure;
b. a description of the proposed end use of the Site;
c. a description of the procedures for closure of the Site, including:

i.) advance notification of the public of the landfill closure;
ii) posting of a sign at the Site entrance indicating the landfill is closed and identifying any alternative waste disposal arrangements;
iii) completion, inspection and maintenance of the final cover and landscaping;
iv) site security;
v) removal of unnecessary landfill-related structures, buildings and facilities; and
vi) final construction of any control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;

d. a schedule indicating the time-period for implementing sub-conditions i) to vi) above.
e. descriptions of the procedures for post-closure care of the Site, including:

i.) operation, inspection and maintenance of the control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;
ii) record keeping and reporting; and
iii) complaint contact and response procedures;

f. an assessment of the adequacy of and need to implement the contingency plans for leachate and methane gas;
g. an updated estimate of the contaminating life span of the Site , based on the results of the monitoring programs to date; and
h. an update of the cost estimates for financial assurance and the amount which has been provided to the Director to date.

16.2 The Site shall be closed in accordance with the closure plan as approved by the Director.

End Use

16.3 The Owner shall consult with affected stakeholders on the proposed end uses as committed to in Item 35 of Schedule "A" prior to the submission of its closure report under the EPA. The proposed end use activities should be consistent with the types of activities consulted upon during the EA.

Closure of the Site

16.4 Upon closure of the Site, the following features will be inspected, recorded on a quarterly basis and maintained as required on a seasonal basis:

a. evidence of settlement;
b. possible leachate seeps and springs;
c. cover soil integrity;
d. vegetative cover;

e. surface water drainage works;
f. erosion and sediment in surface water drainage system; and
g. groundwater monitoring wells.

16.5 A vegetative cover consisting of vegetation that is suited to local conditions and that is capable with minimal care of providing vigorous, plentiful cover no later than its 3rd growing season shall be established over all completed areas to control erosion and maximize evaportranspiration. The Owner shall complete planting as soon as possible after reaching final contours.

16.6 If weather conditions do not allow timely placement of final and vegetative cover, silt curtains shall be employed to minimize silt loadings to surface water bodies.

SCHEDULE "A"

1. Document entitled "Environmental Assessment Act Section 9 Notice of Approval to Proceed with the Undertaking" , Re: An Environmental Assessment for Warwick Landfill Expansion, Waste Management of Canada Corporation, EA File Number: EA-02-08-02-03, dated January 15, 2007.

2. Application for a Provisional Certificate of Approval for the Warwick Landfill, dated March 27, 2006.

3. Document entitled "Development and Operations Plans Warwick Landfill Expansion Volume 1 of 2" dated March 2006 prepared by Henderson, Paddon and Associates Limited.

4. Document entitled "Development and Operations Plans Warwick Landfill Expansion Volume 2 of 2" dated March 2006 prepared by Henderson, Paddon and Associates Limited.

5. Document entitled "Assessment of Geotechnical Design Requirements New Landfill Facility Warwick, Ontario" prepared by Alston Associates Inc., dated July 31, 2006.

6. Document entitled "2006 Poplar System Monitoring Report Warwick Landfill Site Township of Warwick Ontario" prepared by Jagger Hims Limited, dated January 2007.

7. Document entitled "Warwick Landfill Expansion Contaminating Lifespan Review" prepared by Jagger Hims Limited, dated March 2006.

8. Drawing No. 105716-111 entitled " Proposed Final Contours and Stormwater Management Plan" prepared by Henderson Paddon and Associates Limited, dated February 24, 2006.

9. Drawing No. 105716-112 entitled " Landfill Bottom Contours (Top of Primary Gravel)" prepared by Henderson Paddon and Associates Limited, dated February 24, 2006.

10. Drawing No. 105716-113 entitled "Landfill Perimeter Sections" prepared by Henderson Paddon and Associates Limited, dated February 24, 2006.

11. Drawing No. 105716-114 entitled " Landfill Perimeter Sections" prepared by Henderson Paddon and Associates Limited, dated February 24, 2006.

12. Drawing No. 105716-115 entitled "Leachate Collection Sump Details" prepared by Henderson Paddon and Associates Limited, dated February 24, 2006.

13. Drawing No. 105716-116 entitled "Proposed Primary Leachate Collection System" prepared by Henderson Paddon and Associates Limited, dated February 24, 2006.

14. Drawing No. 105716-117 entitled "Proposed Secondary Leachate Collection System" prepared by Henderson Paddon and Associates Limited, dated February 24, 2006.

15. Drawing No. 105716-118 entitled "Landfill Sections" prepared by Henderson Paddon and Associates

Limited, dated February 24, 2006.

16. Drawing No. 105716-119 entitled “Landfill Perimeter Sections” prepared by Henderson Paddon and Associates Limited, dated February 24, 2006.

17. Drawing No. 105716-120 entitled “ Landfill Perimeter Sections” prepared by Henderson Paddon and Associates Limited, dated February 24, 2006.

18. Drawing No. 105716-125 entitled “Details and Sections” prepared by Henderson Paddon and Associates Limited, dated February 24, 2006.

19. Letter dated April 16, 2007 from Frank Ford, Henderson Paddon and Associated Limited to Wilf Ruland, Citizens Environmental Consulting.

20. Letter dated May 2, 2007 from Frank Ford, Henderson Paddon and Associated Limited to Wilf Ruland, Citizens Environmental Consulting.

21. Letter dated June 1, 2007 from Greg Washuta, P. Eng., M. Eng., Senior Waste Engineer, Ministry of the Environment to Reid Cleland, Waste Management of Canada Corporation.

22. Drawing No. 106716-127A entitled "Plough Furrow Surface Water Distribution Warwick Landfill" prepared by Henderson Paddon and Associates Limited, dated March 21, 2007.

23. Drawing No. 106716-F215 entitled "Proposed Mini-Transfer Area" prepared by Henderson Paddon and Associates Limited, dated March 29, 2007.

24. Report entitled "Best Management Practices Plan (Dust) Warwick Landfill Watford, Ontario " prepared by RWDI Air Inc., dated December 11, 2007.

25. Report entitled "Best Management Practices Plan (Litter) Warwick Landfill Watford, Ontario " prepared by RWDI Air Inc., dated December 11, 2007.

26. Report entitled "Best Management Practices Plan (Odour) Warwick Landfill Watford, Ontario " prepared by RWDI Air Inc., dated December 11, 2007.

27. Document entitled "Appendix F Air Quality Monitoring Plan and Letter", prepared by RWDI, dated November 29, 2007.

28. Document entitled "Environmental Noise Monitoring Program for the Warwick Landfill" , prepared by Aercoustics Engineering Limited, dated November 21, 2007.

29. Document entitled "Proposed Expansion of WM Warwick Landfill Predicted Noise Impact" , prepared by Aercoustics Engineering Limited, dated June 15, 2007.

30. Document entitled "Application for Approval of ECA of Approval A032203 Warwick Township

County of Lambton MOE. Reference No. 0539-6N7TRY Part 1 of 2" , dated July 13, 2007, prepared by Henderson Paddon and Associates Limited.

31. Document entitled "Application for Approval of ECA of Approval A032203 Warwick Township County of Lambton MOE. Reference No. 0539-6N7TRY Part 2 of 2- Financial Assurances" , dated August 22, 2007, prepared by Henderson Paddon and Associates Limited.

32. Letter dated July 27, 2007 from Dan Toner, Assistant Director, Laboratory Services Branch to Tesfaye Gebrezghi, Supervisor- Waste Unit, MOE.

33. Table 6.1 entitled "Phasing-Analysis for Leachate Quantities WM- Warwick Landfill Expansion" prepared by Henderson Paddon and Associates Ltd., dated August 17, 2007.

34. Letter dated August 20, 2007 from John DeYoe, RWDI to Frank Ford, Henderson Paddon and Associates Limited.

35. Discussion Paper 9 entitled "Impact Management Plan" and all Appendices dated October 2005 prepared by Waste Management of Canada Corporation.

36. Letter Report and attachments dated May 10, 2001 from Frank C. Ford of Henderson, Paddon Environmental to Mark Turner, Environmental Assessment and Approvals Branch.

37. Development and Operations Report - Canadian Waste Services Inc. - Warwick Landfill, Warwick Township - Revised, dated October 1997, prepared by Henderson Paddon Environmental Inc.

38. Consolidated Report Leachate Management Plan - Canadian Waste Services Inc. - Warwick Landfill - Warwick Township dated July 2001 prepared by Henderson Paddon Environmental Inc.

39. Environmental Monitoring Plan - Warwick Landfill - Township of Warwick, Ontario dated December 2007, prepared by Jagger Hims Limited.

40. Letter dated October 11, 2007 from Brad Bergeron, RWDI to Greg Washuta, Senior Waste Engineer, Ministry of the Environment.

41. Report entitled "Stormwater Management Plan Poplar Irrigation Area Warwick Landfill Expansion Watford, Ontario" dated December 2007, prepared by Henderson Paddon Environmental Inc.

42. Letter dated November 21, 2007 from Kevin Smith, Aercoustics Engineering Limited to Wayne Jenken, Waste Management of Canada Corporation.

43. E-mail and attachments dated February 12, 2008 from Brad Bergeron, RWDI Air Inc. to Greg Washuta, Senior Waste Engineer, EAAB, MOE.

44. E-mail and attachments dated January 29, 2008 from Brad Bergeron RWDI Air Inc. to Greg Washuta, Senior Waste Engineer, EAAB, MOE.

45. Letter dated March 3, 2008 from Wayne Jenken, Landfill Engineer, WMCC to Ian Parrott, Manager, ECA of Approval Review Section, EAAB, MOE.

46. Letter dated June 13, 2008 from Frank Ford, Senior Environmental Engineer, Henderson Paddon and Associates Limited to Greg Washuta, P. Eng., Senior Waste Engineer, Waste Unit, EAAB, MOE.

47. Application for a Provisional Certificate of Approval for a Waste Disposal Site for the Twin Creeks Landfill Site, signed and dated December 11, 2008.

48. Letter dated December 11, 2008 from Reid Cleland, District Landfill Manager, WMCC to Doris Dumais, Approvals Director, EAAB, MOE.

49. Report entitled "Cell 12 Project and Changes Affecting The Warwick Landfill Expansion" and attached appendices, created by Henderson Paddon & Associates Limited, dated August 2008.

50. Application for a Provisional Certificate of Approval for a Waste Disposal Site for the Twin Creeks Landfill Site, dated August 11, 2008.

51. Letter dated December 18, 2008 from Greg Washuta, Senior Waste Engineer, Waste Unit, EAAB, MOE to Reid Cleland, District Landfill Manager, WMCC.

52. Letter dated December 18, 2008 from Wayne Jenken, Landfill Engineer, WMCC to Greg Washuta, Senior Waste Engineer, Waste Unit, EAAB, MOE.

53. Letter dated December 18, 2008 from Jason Balsdon and Brent Langille, Jagger Hims Limited to Wayne Jenken, Landfill Engineer, WMCC.

54. Application for a Provisional Certificate of Approval for a Waste Disposal Site for Waste Management of Canada Corporation's Twin Creeks Landfill Site, signed and dated January 16, 2009.

55. Report and Appendix A entitled "Waste Management of Canada Corporation Twin Creeks Landfill Use of Geonet for Secondary Drainage Layer" prepared by Henderson Paddon and Associates, dated January 2009.

56 Letter dated March 18, 2009 from Greg Washuta Senior Waste Engineer, Waste Unit, EAAB, MOE to Reid Cleland, Landfill Manager, WMCC.

57. Letter report and appendices A, B and C dated April 9, 2009 from Jeff Armstrong, Genivar Consultants LP to Greg Washuta, Senior Waste Engineer, Waste Unit, EAAB, MOE.

58. Application for a Waste Disposal Site Certificate of Approval dated April 28, 2009 and signed by Reid Cleland, District Manager, Waste Management of Canada Corporation.

59. Report produced by Genivar Consultants LP entitled "Development & Operations Report for a Waste

Transfer Station Application" dated June 2009.

60. November 24, 2009 e-mail from Jeff Armstrong of Genivar Consultants LP to Jim Chisholm, Senior Review Engineer with the Ministry of Environment indicating that the application is for an existing mini transfer area but flexibility is being applied for to direct the waste collected at this area to alternate waste disposal sites.

61. November 24, 2009 e-mail from Jim Chisholm, Senior Review Engineer with the Ministry of Environment to Jeff Armstrong, Genivar Consultants LP, requesting information about how the Mini-Transfer Area already located at the landfill is covered by the existing Certificate of Approval and the December 21, 2009 e-mail response from Jeff Armstrong to Jim Chisholm to his November 24, 2009 e-mail, outlining that the Mini-Transfer Area is covered by the 1997 Design and Operation Report that is identified in Item 37 and attached page 7-4 of the report in which Section 7.8 dealt with the Mini-Transfer Area.

62. January 24, 2011, 12:11PM, e-mail from Wayne Jenken, Area Landfill Engineer, Waste Management of Canada Corporation to Jim Chisholm, Senior Review Engineer with the Ministry of Environment indicating that the original Mini Transfer Area moved to the new location on November 2009 and that the old location for the Mini Transfer Area has been removed. The e-mail also made suggested changes to a draft of the Notice.

63. Document entitled "Twin Creeks Landfill - Expansion of Poplar Cap Irrigation System for Existing Waste Disposal Area January 2010" prepared for Waste Management of Canada Corporation by Genivar Consultants LP dated January 2010.

64. Letter dated November 2, 2010 addressed to Mr. Reid Cleland, Waste Management of Canada Corporation from Mr. Greg Washuta, Ministry of the Environment providing comments and requesting additional information on MOE Reference File No. 1486-829MCN.

65. Document entitled "Twin Creeks Landfill, Watford, ON 091-13089-00 (91730R) - Application for Approval for Expansion of Poplar Plantation (South Fill Area) - Response to MOE Comments Letter dated November 2, 2010" prepared for Waste Management of Canada Corporation by Genivar Consultants LP dated December 2, 2010.

66. Report entitled "Development and Operations Plan - Warwick Landfill Expansion - Volume 1 of 3" prepared for WMCC by Henderson Paddon & Associates dated March 2008.

67. Report entitled "Development and Operations Plan - Warwick Landfill Expansion - Volume 2 of 3" prepared for WMCC by Henderson Paddon & Associates dated March 2008.

68. Report entitled "Development and Operations Plan - Warwick Landfill Expansion - Monitoring Plans - Volume 3 of 3" prepared for WMCC by Henderson Paddon & Associates dated March 2008.

69. Letter dated May 6, 2009 addressed to Mr. Reid Cleland, WMCC from Mr. Greg Washuta, Ministry of the Environment providing ministry review comments on the Development and Operations Plan

70. Letter dated August 19, 2009 addressed to Mr. Reid Cleland, WMCC from Mr. Greg Washuta, Ministry of the Environment providing comments from the Township of Warwick, Walpole Island First Nation and the Warwick Public Liaison Committee on the Development and Operations Plan

71. Letter dated November 12, 2009 addressed to Mr. Greg Washuta, Ministry of the Environment from Mr. Wayne Jenken, WMCC.

72. Drawing set entitled "Twin Creeks Landfill - Landscaping and Signage Detail Construction Drawings" prepared by Schollen & Company Inc. and dated July 4, 2008. The drawing set consists of the following:

    i. Cover page entitled "Twin Creeks Landfill - Landscaping and Signage Detail Construction Drawings" prepared by Schollen & Company Inc. and dated July 4, 2008;
    ii. Drawing No. L-1 entitled "Landscape Plan - Screening Berm";
    iii. Drawing No. L-1A entitled " Lanscape Detail at Intersections - Screening Berm"
    iv. Drawing No. L-2 entitled "Landscape Plan - Screening Berm";
    v. Drawing No. L-3 entitled "Landscape Plan - Screening Berm & Area F";
    vi. Drawing No. L-4 entitled "Landscape Plan - Screening Berm";
    vii. Drawing No. L-5 entitled "Landscape Plan - Screening Berm and Area G (North)";
    vii. Drawing No. L-6 entitled "Landscape Plan - Screen Planting Area G (South)";
    viii. Drawing No. L-7 entitled "Landscape Plan - Screen Planting and Creek Area A and Area B";
    ix. Drawing No. L-8 entitled "Landscape Plan - Screen Planting Areas C, D and E";
    x. Drawing No. L-9 entitled "Landscape Plan - Restoration Planting Area H";
    xi. Drawing No. LD-1 entitled "Landscape Detail Plan ";
    xii. Drawing No. LD-2 entitled "Landscape Notes and Master Plant List"; and
    xiii. Drawing No. LD-3 entitled "Signage Details";

73. Application for a Certificate of Approval for a Waste Disposal Site dated April 6, 2011 submitted by Waste Management of Canada Corporation for Provisional Certificate of Approval No. A032203 requesting approval for use of an alternative daily cover material and amended Best Management Practices for Odour.. The supporting documentation for the application included the following:

    i. Cover letter dated April 7, 2011 addressed to Mr. Tes Gebrezghi, Ministry of the Environment from Mr. Reid Cleland, Waste Management of Canada Corporation;
    ii. Report entitled "Best Management Practices Plan (Odour) Warwick Landfill" prepared for Waste Management of Canada Corporation by RWDI Air Inc. (Project No. 1100800) dated April 7, 2011;
    iii. Letter dated March 24, 2011 addressed to Mr. Wayne Jenken, Waste Management of Canada Corporation from Mr. Peter Pickfield, Garrod Pickfield; and
    iv. Email dated March 22, 2011 at 3:32 p.m. sent to Mr. Peter Pickfield, Garrod Pickfield from Mr. Wayne Jenken.

74. Letter dated October 4, 2011 addressed to Mr. Tesfaye Gebrezghi, Ministry of the Environment from

Mr. Reid Cleland, Waste Management of Canada requesting an amendment to Condition 167 (a). The supporting documentation attached to the letter included the following:

a. Application for a Certificate of Approval for a Waste Disposal Site dated October 4, 2011;
b. Provisional Certificate of Approval A032203 Notice No. 7 dated June 1, 2011;
c. Letter from Wayne Jenken, WMCC to Don Bruder, Township of Warwick dated February 23, 2011;
d. Letter from Wayne Jenken, WMCC to Don Bruder, Township of Warwick dated May 26, 2011;
e. Letter from Peter Pickfield, Garrod Pickfield LLP to Reid Cleland, WMCC dated September 14, 2011;
f. Letter from Wayne Jenken, WMCC to Dean Jacobs, Walpole Island First Nations dated July 14, 2011;
g. Email from Kent Hunter, Neegan Burnside to Wayne Jenken dated September 19, 2011 at 3:54 p.m.;
g. Email from Wayne Jenken, WMCC to Kent Hunter, Neegan Burnside dated September 20, 2011 at 1:52 p.m.;
h. Email from Kent Hunter, Neegan Burnside to Wayne Jenken dated September 27, 2011 at 10:23 a.m.;
i. WPLC meeting minutes dated September 15, 2011; and
j. WPLC meeting minutes dated April 7, 2011.

75. Letter dated May 22, 2012 addressed to Ms. Agatha Garcia Wright, Director, Ministry of the Environment from Mr. Wayne Jenken, Waste Management of Canada Corporation requesting amendment to Condition No. 7.10 (Landfill Gas Management). The letter included the following supporting documentation:

i. Letter report entitled "Early Vertical Gas Well Collection System" dated May 2012 and addressed to Mr. Reid Cleland, Waste Management of Canada Corporation from Mr. Frank Ford, GENIVAR Inc.;
ii. Drawings No. 102 and G111 - Landfill Gas Collection System;
iii. Landfill Gas Headers, Gas Building with Blowers and Landfill Gas Flaring System Design Drawings and Design and Operations Plan for Modifications;
iv. Description of Phase 1 of the Gas Collection System;
v. Revised Section 4.7 of the Design and Operations Plan;
vi. Application to Amend Environmental Compliance Approval No. A032203 and supporting documents;
vii. Consultation Summary and Records with Stakeholders; and
viii. Design Drawings for Amended Landfill Gas Management System.

76. Letter dated July 26, 2012 addressed to Mr. Reid Cleland, Waste Management of Canada Corporation from Mr. Dale Gable, Ministry of the Environment requesting additional information on the location of the proposed gas extraction wells.

77. Letter dated August 9, 2012 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Frank

Ford, GENIVAR Inc. providing details on the location of the gas wells.

78. Letter Report dated May 9, 2012 addressed to Ms. Agatha Garcia Wright, Director, Ministry of the Environment form Mr. Wayne Jenken, Waste Management of Canada requesting Conditions 6.48 to 6.61 be amended. The letter report included the following Sections:

    i. Environmental Compliance Approval application signed by Reid Cleland, WMCC and dated May 9, 2012;
    ii. Proof of legal name and zoning;
    iii. Record of consultation with Township of Warwick;
    iv. Record of consultation with Walpole First Island First Nation; and
    v. Record of consultation with WPLC.

79. Letter report dated September 26, 2012 addressed to Ms. Agatha Garcia-Wright. Director, Environmental Approvals Branch, Ministry of the Environment from Mr. Philip Janisse and Mr. Brent Langille, RWDI Inc. requesting the time frame for the use of ASR be extended and the sampling frequency for the ASR be reduced.

80. Letter dated October 15, 2012 and supporting drawings addresses to Ms. Agatha Garcia-Wright. Director, Environmental Approvals Branch, Ministry of the Environment from Mr. Wayne Jenken, Waste Management of Canada Corporation detailing the proposed changes to the landscape plan for the Site. The supporting drawings include the following drawing prepared by Schollen and Company Inc (Contract No. 27007) dated June 2012:

    i. Cover page entitled "Twin Creeks Landfill Expansion - Landscape and Details Drawings" dated June 29, 2012
    ii. Drawing No. L-1 entitled "Landscape Plan - Screening Berm";
    iii. Drawing L-1A entitled "Landscape Detail at Intersections - Screening Berms";
    iv. Drawing L-2 entitled "Landscape Plan - Screening Berm";
    v. Drawing L-3 entitled "Landscape Plan - Screening Berm and Area F";
    vi. Drawing L-4 entitled "Landscape Plan - Screening Berm";
    vii. Drawing L-5 entitled "Landscape Plan - Screening Berm and Area G";
    viii. Drawing L-6 entitled "Landscape Plan - Area G Planting Area";
    ix. Drawing L-7 entitled "Landscape Plan - Area A and Area B Screen Planting and Creek";
    x. Drawing L-8 entitled "Landscape Plan - Area C, D and E Screen Planting";
    xi. Drawing L-9 entitled "Landscape Plan - Area H Restoration Planting";
    xii. Drawing LD-1 entitled "Landscape Detail Plan";
    xiii. Drawing LD-2 entitled "Landscape Notes and Master Plant List";
    xiv. Drawing LD-3 entitled "Signage Details";
    xv. Drawing LD-4 entitled "Details"; and
    xvi. Drawing LD-5 entitled "Details".

81. Letter dated November 13, 2013 addressed to Agatha Garcia-Wright, Director, Ministry of the Environment from Wayne Jenken, Waste Management of Canada Corporation requesting amendment to Condition 8.6 (a). The following supporting documentation was attached to the memorandum.

i. Amended Environmental Compliance Approval Number A032203 issued December 13, 2011
ii. Amended Environmental Compliance Approval Number A032203 Notice No. 1 issued February 29, 2012
iii. Application to Amend Environmental Compliance Approval No. A032203 with Signature of Reid Cleland in Section 1.4
iv. Record of Consultations with Stakeholders

82. Application package dated May 4, 2016 and received on May 16, 2016 including all subsequently submitted supporting documentation and drawings, including the amendment to the D&O plan and associated drawings.

83. Report titled "Twin Creeks Landfill Site: Best Management Practices Plan (Dust) - Version 7" prepared by RWDI Air Inc., dated May 19, 2017.

84. Report titled "Twin Creeks Landfill Site: Best Management Practices Plan (Odour) - Version 8" prepared by RWDI Air Inc., dated May 19, 2017.

85. Report titled "Twin Creeks Landfill Site: Ambient Air Quality Monitoring Plan (Revision #3)" prepared by RWDI Air Inc., dated May 18, 2017.

86. "WM Twin Creeks Landfill Site, Leachate Management Framework" prepared by HDR, dated November 29, 2017.

87. Application for a an amendment to ECA No. A032203 to provide detailed design for the construction of Cell 4 in response to Condition 4.8. Signed by Reid Cleland and dated October 16, 2018. The supporting documentation for the application included the drawing set titled "Waste Management of Canada Corporation, Twin Creeks Landfill Expansion, Warwick Township, Landfill Base Preparation Cell 4." Prepared by WSP Group, October, 2018. The drawing set consists of the following:

i. Drawing No. 106716P-400 - "Title Sheet";
ii. Drawing No. 106716P-401 - "March 2018 Existing Conditions Plan;
iii. Drawing No. 106716P-402 - "Cell 4 - Bottom of Excavation - West";
iv. Drawing No. 106716P-403 - "Cell 4 - Bottom of Excavation - East";
v. Drawing No. 106716P-404 - "Cell 4 - Top of Primary Clay Liner - West";
vi. Drawing No. 106716P-405 - "Cell 4 - Top of Primary Clay Liner - East";
vii. Drawing No. 106716P-406 - "Cell 4 - Temporary Clay Seal - West";
vii. Drawing No. 106716P-407 - "Cell 4 - Temporary Clay Seal - East";
viii. Drawing No. 106716P-408 - "Cell 4 - Section and Details";
ix. Drawing No. 106716P-409 - "Cell 4 - Section and Details";
x. Drawing No. 106716P-410 - "Cell 4 - Section and Details";
xi. Drawing No. 106716P-411 - "Cell 4 - Pumping Station PS5/PS6 Plans and Sections";
xii. Drawing No. 106716P-412 - "Cell 4 - Pumping Station PS5/PS6 Plans and Sections";
xiii. Drawing No. 106716P-413 - "Cell 4 - Sections and Details"; and

xiv Drawing No. 106716P-414 - "Cell 4 - Sections and Details".

88. Environmental Compliance Approval Application signed by Wayne Jenken dated April 28, 2023, for establishment of a Renewable Natural Gas Facility at the Site.

89. Report entitled "Twin Creeks Environmental Centre Renewable Natural Gas Facility Design and Operations Report" dated April 28, 2023 prepared by WSP.

90. Report entitled "Twin Creeks Landfill: Best Management Practices Plan (Odour) - Version 9" dated November 17, 2023 prepared by RWDI.

91. Letter dated February 27, 2014 from Mike Moroney, District Manager of MECP to Angela McLachlan, Environmental Compliance Manager, Twin Creeks Landfill, WMCC.

The reasons for the imposition of these terms and conditions are as follows:

Conditions 1.1, 1.2, 1.3, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11, 1.12, 1.14, 1.15, 1.23, and 1.24 are to clarify the legal rights and responsibilities of the Owner and Operator under this Approval.

Conditions 1.4 and 1.5 are to ensure that the Site is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.

Condition 1.12 is to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.

Condition 1.14 is to restrict potential transfer or encumbrance of the Site without the approval of the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this Approval.

Conditions 1.15 and 1.16 are to ensure that the successor is aware of its legal responsibilities.

Conditions 1.17, 1.18, 1.19, and 1.20 clarify that the Part II.1 Director is an individual with authority pursuant to Section 197 of the Environmental Protection Act to require registration on title and provide any person with an interest in property before dealing with the property in any way to give a copy of the Approval to any person who will acquire an interest in the property as a result of the dealing.

Condition 1.21 is to ensure that appropriate Ministry staff has ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this Approval. This Condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the Act, the OWRA, the PA, the NMA and the SDWA.

Condition 1.25 clarifies what information may be subject to the Freedom of Information Act.

Condition 2.1 is to require Financial Assurance for this company to ensure that sufficient funds are available to the Ministry to clean up the Site in the event that the Owner is unable or unwilling to do so.

Conditions 3.1 to 3.15 inclusive are necessary in order to establish a forum for the exchange of information and public dialogue on activities to be carried out at the landfill site. Open communication with the public and local authorities is important in helping to maintain high standards for site operation and environmental protection.

Condition 3.16 has been included in order to ensure that consultation with First Nations is undertaken during the submission of any application to amend any approval required by the Ministry.

Conditions 4.1 to 4.6 inclusive, 4.8, and 4.9 is to ensure that the Site is designed, constructed and operated in an environmentally acceptable manner, based on the conceptual design and operations for the Site.

Condition 4.7 is to ensure the availability of as-built drawings for inspection and information purposes.

Condition 4.10 has been specifically included to allow for optimization of design for subsequent stages based on operating experience and monitoring results and to ensure that any necessary remedial action is undertaken before landfilling may proceed in the next stage.

Condition 4.11 has been included to ensure that the site has been constructed in accordance with the approved design plans, specifications and QA/QC procedures and to ensure that there is not an adverse impact on the environment.

Condition 4.12 is to ensure that there is a person, reporting directly to the Ministry, with associated costs reimbursed by the Owner, who is responsible for inspecting the Site, based on the requirements in this ECA of Approval to ensure that the Site is operated in an environmentally acceptable manner.

Conditions 4.13, 4.14, 15.1, 15.2 and 15.3 is to specify the amount of days the environmental inspector is required to be on site based on the conditions in this approval and in accordance with the previously approved EA for the site.

Condition 5.1 is to ensure safe side slopes of the berm.

The reason for Condition 5.2 is to approve the diversion area based on the information submitted. This is ensure the protection of the environment and the public.

Condition 5.3 is to approve the use of Cell 12 for contaminated soil.

Condition 5.4 is to ensure the Owner carries out the landscape plan based on the submitted information.

Conditions 6.1 and 6.18 are included in order to ensure that waste disposal at the site is undertaken in accordance with applicable Ministry of the Environment regulations and guidelines. Compliance with these regulations and guidelines will ensure that the site does not cause and adverse effect on the environment.

Conditions 6.4 and 6.7 is to specify the approved areas from which waste may be accepted at the Site and the

types and amounts of waste that may be accepted for disposal at the Site, based on the Owner's application and supporting documentation.

Condition 6.5 is to specify restrictions on the extent of landfilling at this Site based on the Owner's application and supporting documentation. These limits define the approved volumetric capacity of the site. Approval to landfill beyond these limits would require an application with supporting documentation submitted to the Director.

Condition 6.6 specifies the maximum amount of waste that may be received at the site based on the previously approved Environmental Assessment for the site.

Condition 6.8 has been inserted to minimize the potential for clogging of the drainage layer and to minimize temperature effects on the leachate collection system. Failure to maintain the specified minimum thickness of waste and cover material may result in a decrease in the service life of the drainage layer.

Conditions 6.9 to 6.14 inclusive have been included in order to ensure asbestos waste is handled and disposed of in accordance with O. Reg. 347 as amended from time to time. Proper handling and disposal of asbestos waste ensures that the asbestos waste does not cause an adverse impact on the environment and also does not affect human health.

Condition 6.16 is needed to make certain that uses at the site are for waste disposal purposes only and not any other uses which may cause an adverse impact on the environment and human health.

Condition 6.17 is necessary in order to ensure that all waste loads are inspected and waste that is disposed of at the site is in accordance with the terms and conditions in this ECA of Approval.

Condition 6.19 is to ensure that open burning of municipal waste is not permitted because of concerns with air emissions, smoke and other nuisance affects, and the potential fire hazard.

Conditions 6.20 through 6.22 inclusive are to ensure that users of the Site are fully aware of important information and restrictions related to Site operations under this ECA of Approval.

Conditions 6.23 to 6.27 inclusive are to specify the normal hours of operation for the landfill Site and a mechanism for amendment of the hours of operation.

Conditions 6.28 to 6.30 inclusive are to specify site access to/from the Site and to ensure the controlled access and integrity of the Site by preventing unauthorized access when the Site is closed and no site attendant is on duty.

Condition 6.31 is needed in order to make certain that the waste received at the site is in accordance with the ECA and O. Reg. 347.

Condition 6.32 has been included is to ensure that access roads are clear and do not pose a safety hazard to the general public.

Condition 6.33 is for the protection of public health and safety and minimization of the potential for damage to environmental control, monitoring and other works at the landfill Site. Scavenging is the uncontrolled removal of material from waste at a landfill site.

Conditions 6.34 to 6.40 inclusive are to ensure that the Site is operated, inspected and maintained in an environmentally acceptable manner and does not result in a hazard or nuisance to the natural environment or any person.

Condition 6.41 is to ensure that noise from or related to the operation of the landfill is kept to within Ministry limits and does not result in a hazard or nuisance to any person.

Condition 6.42 is included to ensure that noise monitoring is undertaken in accordance with the noise monitoring program prepared and to ensure that an independent acoustic audit is completed in accordance with the Ministry's requirements.

Condition 6.43 is to clarify when the Best Management Plans can be amended and the mechanism for amending the Best Management Plans.

Condition 6.44 is to ensure that appropriate measures are taken in order to prevent surface water from contacting waste so as not to cause an adverse effect on the environment.

Conditions 6.45 and 7.18 is to specify other approvals required for works and activities related to the operation of this Site as a landfill.

Condition 6.46 has been included is in order to prevent ponding in on site ditches and any adverse impact on the environment and human health.

Condition 6.47 is to ensure that landfilling operations are conducted in an environmentally acceptable manner. Daily and intermediate cover is used to control potential nuisance effects, to facilitate vehicle access on the site, and to ensure an acceptable site appearance is maintained. The proper closure of a landfill site requires the application of a final cover which is aesthetically pleasing, controls infiltration, and is suitable for the end use planned for the site.

Condition 6.48 to 6.61 inclusive is to specify the approval requirements for use of alternative cover material at the Site.

Condition 7.1 is necessary so that runoff from contaminated soils does not create and adverse impact on the environment.

Conditions 7.2 and 7.3 are included in order to ensure that the composting and processing operations at the site are conducted in a fashion in accordance with Ministry's regulations, guidelines and so as not to pose a threat to human health or the environment.

Conditions 7.4, 9.3, 9.4, 9.5, 9.6 and 9.7 are to provide for the proper assessment of effectiveness and efficiency of site design and operation, their effect or relationship to any nuisance or environmental impacts, and the

occurrence of any public complaints or concerns. Record keeping is necessary to determine compliance with this ECA of Approval, the EPA and its regulations.

Conditions 7.5 and 7.6 inclusive have been included are to ensure tire shred storage in accordance with the Fire Protection and Prevention Act and to protect the natural environment.

Condition 7.7 is to ensure that backup power is available so that all facilities remain operational during a power disruption thus preventing any adverse impacts on the environment.

Condition 7.8 has been inserted in order to ensure that concentrations of landfill gas do not pose a hazard to human health or the environment.

Condition 7.9 is to ensure that landfill gas is built and managed in accordance with the Ministry's requirement and regulation.

Condition 7.10 is needed in order to ensure that an adequate landfill gas management system is installed at the site in order to protect human health and the environment.

Conditions 7.11 and 7.12 are to minimize the potential for clogging of leachate collection pipes and to ensure effective operation of the leachate collection system components for as long as they are required. Failure to clean out these components on a regular basis may result in a decrease in their service lives. Regular cleaning of the leachate collection pipes is especially important during stages of landfilling when the level of both organic and inorganic constituents in the leachate is high and, consequently, the potential for clogging due to encrustation is greatest. As the landfill reaches the more stable methane producing stage, pipe cleaning may be required less frequently.

Condition 7.13 has been added to ensure adequate flow of leachate in the leachate collection pipes.

Conditions 7.14 to 7.17 are to ensure that the leachate collection system is designed and built in accordance with Regulations and the ministry's requirements.

Condition 7.18 is included is in order to prevent off site migration of leachate which may cause an adverse effect on the environment.

Condition 7.19 is to approve the proposed Renewable Natural Gas facility for processing of the landfill gas and converting into quality natural gas.

Conditions 7.20 and 21 are to ensure the RNG facility has adequate capacity and the operation of the landfill gas collection system is not impacted.

Condition 7.22 is to ensure the RNG facility is property operated and does not result in any unacceptable impacts to the environment.

Condition 7.23 is to ensure operational record of the RNG facility is maintained for evaluation of the system performance and identification of improvement measures.

Conditions 8.1 to 8.4 inclusive are needed to ensure leachate recirculation is undertaken in accordance with the ministry's requirements and leachate recirculation does not pose an adverse impact on the environment.

Condition 8.5 is in accordance with EA condition 22 and protects the natural environment from any impacts due to discharge of raw or treated leachate to adjacent creeks.

Condition 8.6 is to ensure that a fully functional leachate treatment system is in place on site prior to waste placement.

Condition 8.7 clarifies the responsibilities of the owner, the requirements of the ministry, the authority of the Ministry and protects the natural environment and human health.

Conditions 9.1 and 9.2 are needed to ensure regular inspections of the site are conducted in order to protect the natural environment.

Conditions 9.8 to 9.12 inclusive is to ensure that accurate waste records are maintained to ensure compliance with the conditions in this ECA of Approval (such as fill rate, site capacity, record keeping, annual reporting, and financial assurance requirements), the EPA and its regulations.

Conditions 9.13, 15.4, 15.5 and 15.6 are to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.

Condition 10.1 is to ensure that the Site is supervised and operated by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person.

Conditions 11.1, 11.2, 11.3 and 11.4 is to establish a forum for the exchange of information and public dialogue on activities carried out at the landfill Site. Open communication with the public and local authorities is important in helping to maintain high standards for site operation and environmental protection.

Conditions 12.1 and 12.2 are to ensure that the Ministry is informed of any spills or fires at the Site and to provide public health and safety and environmental protection.

Condition 12.3 is contained in the ECA to guarantee that appropriate measures are taken by the County to prevent future occurrences of spills or fires at the site and to protect public health and safety and the environment.

Conditions 13.1 to 13.5 inclusive are to ensure protection of the natural environment and the integrity of the groundwater monitoring network.

Conditions 13.6 through 13.11 inclusive are to demonstrate that the landfill site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency

action can be taken.

Conditions 14.1 through 14.10 inclusive are to ensure that the Owner follows a plan with an organized set of procedures for identifying and responding to unexpected but possible problems at the Site. A remedial action / contingency plan is necessary to ensure protection of the natural environment. A leachate contingency plan is a specific requirement of Reg. 232.

Conditions 16.1 and 16.2 are to ensure that final closure of the Site is completed in an aesthetically pleasing manner and to ensure the long-term protection of the natural environment.

Condition 16.3 ensures proper public consultation about the end use of the Site is undertaken and that the end use activities are consistent with those identified during the EA process.

Conditions 16.4 to 16.6 ensure that certain activities are undertaken upon closure of the site in order to ensure that the closed site does not affect the natural environment.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A032203 issued on February 4, 2023

In accordance with Section 139 of the *Environmental Protection Act,* you may by written notice served upon me, the Ontario Land Tribunal and in accordance with Section 47 of the *Environmental Bill of Rights,* 1993, the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 142 of the Environmental Protection Act provides that the notice requiring the hearing ("the Notice") shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the *Environmental Protection Act,* a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

Registrar*	The Minister of the Environment,	The Director appointed for the purposes of Part II.1 of the *Environmental Protection Act*

Ontario Land Tribunal 655 Bay Street, Suite 1500 Toronto, Ontario M5G 1E5 OLT.Registrar@ontario.ca	and	Conservation and Parks 777 Bay Street, 5th Floor Toronto, Ontario M7A 2J3	and	Ministry of the Environment, Conservation and Parks 135 St. Clair Avenue West, 1st Floor Toronto, Ontario M4V 1P5

*** Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or www.olt.gov.on.ca**

This instrument is subject to Section 38 of the *Environmental Bill of Rights,* 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at https://ero.ontario.ca/, you can determine when the leave to appeal period ends.

The above noted activity is approved under s.20.3 of Part II.1 of the *Environmental Protection Act.*

DATED AT TORONTO this 16th day of December, 2023

Mohsen Keyvani, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

RL/
c: District Manager, MECP Sarnia
Cristina Olarte, WSP

APPENDIX A2

REPORT

WASTE MANAGEMENT OF CANADA CORPORATION

WATFORD, ONTARIO

TWIN CREEKS LANDFILL SITE: AMBIENT AIR QUALITY MONITORING PLAN [REVISION #3]

RWDI #1600984

May 18, 2017

SUBMITTED TO

Wayne Jenken
Area Landfill Engineer
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1 TOTAL HYDROCARBON "WALKABOUT" SURVEY

The "Walkabout" survey will consist of a grid survey of the entire landfill mound using a handheld THC analyzer (FID). A portable FID will be used throughout the surveys. The FID will be calibrated using a methane gas standard and zeroed using ultra zero pure air. The instrument used will have the following characteristics:

- a response time of no greater than 15 seconds
- an accuracy of 3 percent or better
- a minimum detectable limit of 5 ppmv (or lower)
- a flame-out indicator, audible and visual

The "Walkabout" survey will be completed in a grid like formation gathering data at 7.6 cm or lower (3 inches or lower) above the ground. "Hotspots" of "breakout points" consisting of cracks, fissures, areas of bubbling surface water, or patches of dead (brunt) vegetation on the mound will be visually observed and notes for THC concentrations exceeding 500 ppm (methane). The "walkabout" surveys should be completed at winds less the 8 kilometers per hour (5 miles per hour) and during dry conditions (no measurable precipitation for the proceeding 72 hours prior to sampling). In addition, for the instantaneous readings, the surveys should be completed when the ambient temperatures are within 0 to 50 degrees Celsius.

THC concentrations 500 ppm or greater should be considered of concern during the instantaneous measurements. Therefore, THC concentrations less than 500 ppm will not be noted during the survey. Locations where the THC concentrations are 500 ppm or greater should assist WMI in determining all potential and existing landfill gas release points that require remedial action.

All THC concentrations measured will be expressed as methane on the calibration standard used. After the 'hotspot" or "breakout points" are fixed, documentation of the corrective actions taken as well as confirmation of adequate actions taken (THC concentrations less than 500 ppm) will be presented to the MOECC. The "walkabout" survey will include the following:

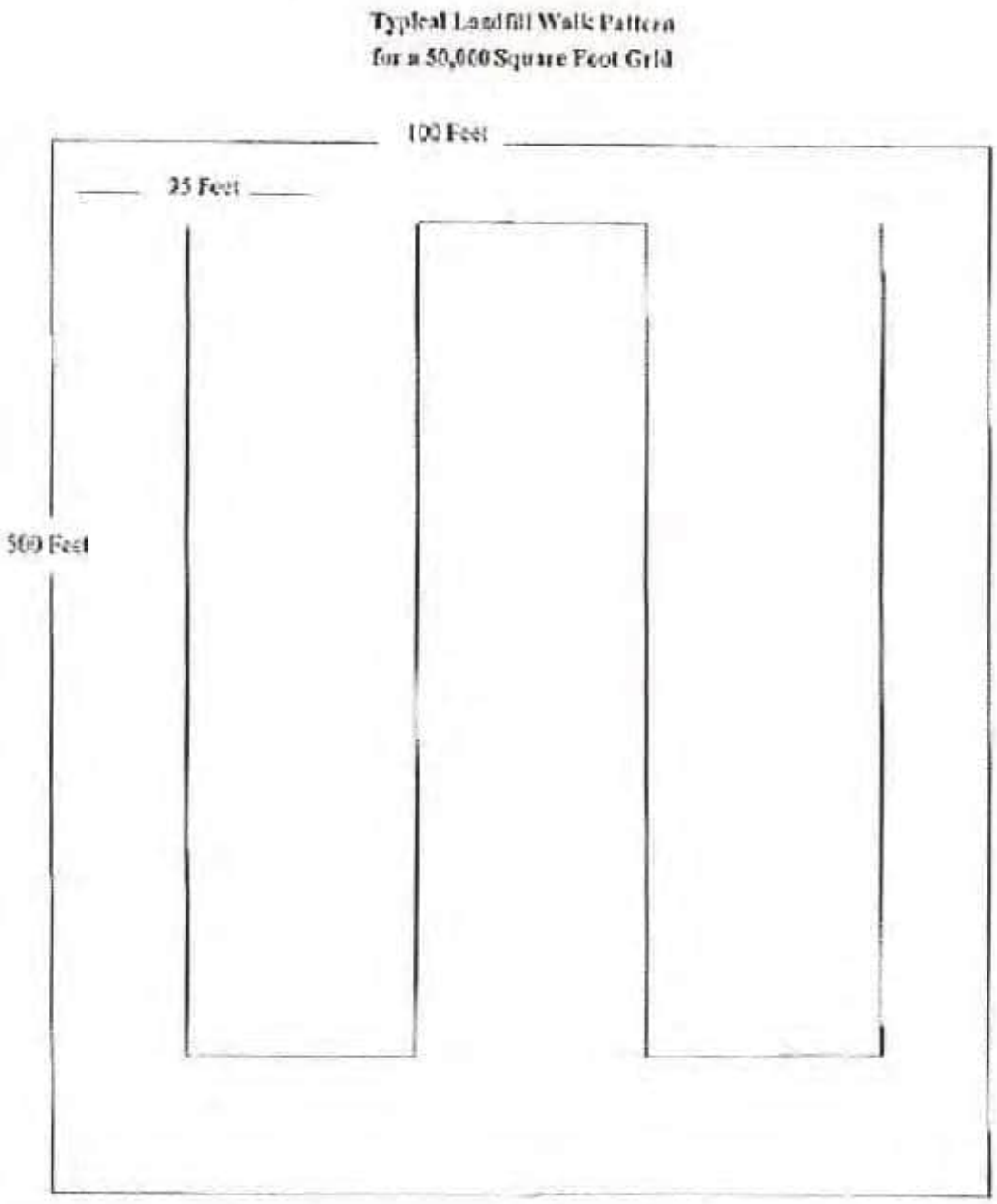
- precise locations of all sampling sites on the site map
- identification of all data obtained in the field measurements
- documentation of all remedial action

The "walkabout" survey should be done in the spring and the early fall. The measured areas should include areas where landfill cover is complete. Problem areas identified should be repaired within two (2) months of identification. Once repairs are completed, a follow-up survey on the specific locations will be completed to validate success of the remediation action(s). The process is important in minimizing odour and VOC emissions.

The "Walkabout" surveys will be performed twice per year or in response to otherwise unexplained odour events. As outlined in the Odour Best Management Practices Plan, routine visual inspections of the landfill cap integrity will also occur on a monthly basis to identify possible problem areas.

Figure 1 includes the walkabout pattern.

Figure 1: Walkabout Pattern



2 DUST MONITORING

The monitoring for Total Suspended Particulate (TSP) will be completed on an on-going basis at three locations around the landfill footprint. The TSP monitor locations are shown in **Figure 2.**

Total Suspended Particulate samples will be taken on a six-day interval during the months of October through May and samples will be taken on a three-day interval during the months of June through September. The sampling will be in concurrence with the U.S EPA National Air Pollutant Surveillance (NAPS) monitoring schedule. The sampling will include the entire year (sampling during 12 months per year). In addition, the analysis for airborne metals will be completed for 11 of the collected TSP samples per station (total of 33 metal samples per year). For each of the 11 sets of samples collected, the particulate analysis will be completed prior to the metal analysis and the highest particulate loaded filters from each station will undergo the analysis for airborne metals.

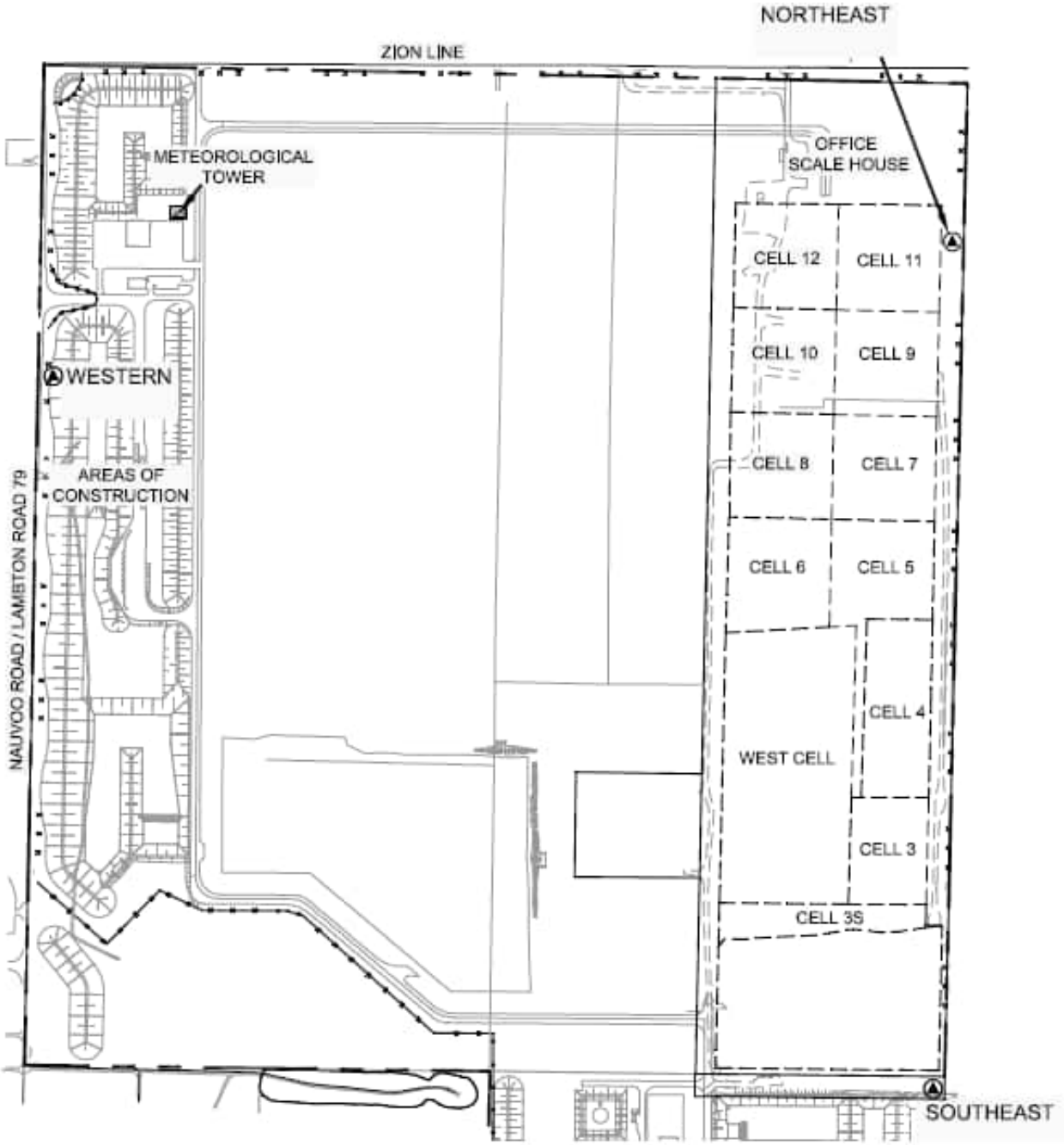
The monitoring method will comply with the metals specified by U.S. EPA Method I0-2. The 24-hour samples would be collected on standard hi-volume air samplers. The station siting requirements and sampling procedures will follow the most recent version of the U.S. EPA methods as well as the Ministry of the Environment's Operations Manual for Point Source Air Quality Monitoring as approved by the MOECC at the on-set on the monitoring. The U.S. EPA methods are referenced in the MOECC document as appropriate reference methods to follow for air quality monitoring programs.

The results will be presented in quarterly summary letters and an annual report. The report will include the data in tabular format with a description of the program, quality assurance documentation, details regarding data recovery, abnormal site conditions, etc. As well, any days when the ambient air quality criterion for TSP was exceeded would be reported to the District MOECC office within two (2) weeks of receiving results. In order to enhance the notification of elevated TSP Levels, WM will copy the Township of Warwick on any future elevated TSP level reporting provided to the MOECC.

As part of the dust control strategy, the shift supervisor will be responsible to see that a record of roadway sweeping and watering is maintained. The control measure will be initiated whenever a visible plume behind vehicles is longer than ¼ the length of the vehicle. These logs will be kept on-site for a period of not less than two (2) years and will be made available for inspection should the MOECC wish to see them.

When the facility receives a complaint, the shift supervisor will see that the relevant information is recorded, including any remedial action taken as a result of the complaint. A sample complaint log sheet is included in the Best Management Practices Plan (Dust).

Figure 2: Dust Monitor Locations



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As discussed with stakeholders during the consultation for the annual fill rate increase for the site, the following provisions were made for additional monitoring to be completed under specific conditions. The following notes the agreed to provisions for the additional monitoring. This provision will also be included in the Dust Best Management Practices Plan (BMPP). In the event that the provisions are triggered, WM will prepare an updated Air Quality Monitoring Plan to layout the specific agreed to monitoring at the time the additional monitoring provision is required.

As agreed to with stakeholders, in the event that 2 measured exceedances (trigger), that can be attributed to WM operations, in any quarter (excluding periods when on-site cell construction is occurring) occurs, WM is committing to reviewing the data with the Township of Warwick. Upon confirmation that the exceedances can be attributed to WM operations, and are not related to cell construction, WM will complete the installation of continuous dust monitors.

If continuous dust monitors are to be installed, WM will work with the Township of Warwick to update the following documents:

- Air Quality Monitoring Plan – updated for equipment change as well as trigger for shorter duration alerts to be issued to WM as warnings for higher dust levels; and

- Best Management Practices Plan (Dust) – to be updated to link dust alerts to dust control initiatives.

3 VOC MONITORING

It is proposed that monitoring for VOC's be conducted through the summer months, with samples to be taken in upwind and downwind pairs, during normal operating hours of the landfill. There would be a total of 5 sample pairs taken between June and September. No more than two (2) samples will be collected in any calendar month. The samples will be 24-hours in duration and compared to their respective Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List.

The samples will be collected and analyzed using methods defined in U.S. EPA Method TO-14/15. Vinyl chloride is of particular concern with these types of samples and vinyl chloride will be analyzed in selective ion mode (SIM). Sampling for VOC samples will be collected during periods of light wind conditions (less than 15 kilometers per hour) and during dry conditions (no measureable precipitation for the proceeding 48 hours prior to sampling).The list of VOC's monitored is presented in Table 1.

Table 1: List of Monitored VOCs

CAS No.	Compound	CAS No.	Compound
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	620-14-4/622-96-8	m/p-Ethyl Toluene
526-73-8	1,2,3-Trimethyl Benzene	108-38-3/106-42-3	m/p-Xylene
95-63-6	1,2,4 -Trimethyl Benzene	535-77-3	m-Cymene
108-67-8	1,3,5 -Trimethyl Benzene	78-93-3	MEK
591-76-4	2-Methyl Hexane	108-87-2	Methyl Cyclohexane
107-83-5	2-Methyl Pentane	108-10-1	MIBK
78-78-4	2-Methyl Butane	75-45-6	Chlorodifluoromethane
96-14-0	3-Methyl Pentane	123-72-8	n-Butanol
589-34-4	3-Methyl Hexane	91-20-3	Naphthalene
67-64-1	Acetone	111-84-2	Nonane
71-43-2	Benzene	611-14-3	o-Ethyl Toluene
123-86-4	Butyl Acetate	95-47-6	o-Xylene
124-18-5	Decane	109-66-0	Pentane
25915-78-0	Dichlorodifluoromethane	64-17-5	Ethanol
75-09-2	Dichloromethane	103-65-1	Propyl Benzene
100-41-4	Ethyl Benzene	100-42-5	Styrene
142-82-5	Heptane	127-18-4	Tetrachloroethylene
110-54-3	Hexane	108-88-3	Toluene
67-63-0	Isopropyl Alcohol	75-69-4	Trichlorofluoromethane
138-86-3	Limonene	79-01-6	Trichloroethylene
75-01-4	Vinyl Chloride	141-78-6	Ethyl Acetate
56-23-5	Carbon Tetrachloride	71-55-6	1,1,1-Trichloroethane
67-66-3	Chloroform	75-35-4	Vinylidene Chloride
106-93-4	Ethylene Dibromide	540-59-0	1,2-Dichloroethene
107-6-2	Ethylene Dichloride	Na	Total VOCs

As the MOECC updates Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List in the Province of Ontario, the measured values will be compared to the most stringent limits available at the time of testing. For compounds that do not have Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List, the measured values will be compared to the predicated concentrations provided and approved by the MOECC for the Section 9 EPA approval supporting documentation to demonstrate compliance. As all compounds identified without Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List are subject to review by the MOECC's Standard Development Branch, these levels should be considered acceptable.

4 COMPLAINT RECORDING PROCESS

Waste Management of Canada has outlined Best Practices Plans of Odour, Litter and Dust. Within each plan the procedures for outlining the responsibilities and recordkeeping. For further details, please refer to the most recent versions of the Best Management Practices Plan. [1,2,3]. Please note that like this air quality monitoring plan, the Best Management Plans are intended to be updates to endure continuous improvements are being documented at the site.

5 REFERENCES

1. RWDI AIR Inc. Best Management Practices Plan (Odour), Twin Creeks Landfill Site, Watford, ON – Revision 7, dated May 18, 2017.

2. RWDI AIR Inc. Best Management Practices Plan (Dust), Twin Creeks Landfill Site, Watford, ON – Revision 5, dated May 18, 2017.

3. RWDI AIR Inc. Best Management Practices Plan (Litter), Twin Creeks Landfill Site, Watford, ON – Revision 4, dated December 11, 2007.

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APPENDIX A3

Ministry of the Environment
Sarnia District Office
1094 London Road
Sarnia, ON N7S 1P1
Tel: 519 336-4030
Fax: 519-336-4280

Ministère de l'Environnement
Sarnia District Office
1094, chemin London
Sarnia, ON N7S 1P1
Tel: 519 336-4030
Fax: 519 336-4280

Ontario

October 26, 2011

To:

Michael Hirlehey, C.E.T.
District Manager, SW Ontario Landfills
Waste Management
5768 Nauvoo Rd., Watford, Ontario N0M 2S0

Dear Mr. Hirlehey

RE: Request to revise Air Quality Monitoring Plan – Twin Creeks Landfill

The Ministry of the Environment has reviewed the request, dated September 26, 2011, submitted by Wayne Jenken, Area Landfill Engineer on behalf of Waste Management of Canada Corporation for an amendment to the Ambient Air Quality Monitoring Plan, dated November 29, 2007, for monitoring of total suspended particulate matter (TSP) and metals during construction and operation of the Twin Creeks Landfill. This request was submitted in accordance with Condition 186 of Amended Provisional Certificate of Approval A032203, dated February 13, 2008. The proposed changes to Schedule A, Item 27 "Air Quality Monitoring Plan and Letter" are as follows:

> It is proposed that monitoring for Total Suspended Particulate (TSP) be done on an on-going basis at three locations around the landfill footprint. It is proposed that samples be taken on a twelve day interval during the months of October through May and that samples be taken on a six day interval during the months of June through September. No other changes are proposed to the AAQMP.

The proposed changes as outlined above have been determined to be acceptable, Waste Management of Canada Corporation is hereby approved to revise Schedule A, Item 27, to the document entitled " Ambient Air Quality Monitoring Plan Revision #1".

Should you have any questions, or concerns, please do not hesitate to contact Environmental Officer, Mike Close at (519) 383-3771 or via e-mail at Mike.Close@ontario.ca.

Yours truly,

Mark Dunn
District Manager
Sarnia/Windsor District Office

APPENDIX A4

REPORT

WASTE MANAGEMENT OF CANADA CORPORATION

WATFORD, ONTARIO

TWIN CREEKS LANDFILL SITE: AMBIENT AIR QUALITY MONITORING PLAN [REVISION #3]

RWDI #1600984

May 18, 2017

SUBMITTED TO

Wayne Jenken
Area Landfill Engineer
wjenken@wm.com

Waste Management of Canada Corporation | Twin Creeks Landfill
8039 Zion Line
Watford, Ontario N0M 2S0

T: 519.849.5810
C: 519.381.3017
F: 519.849.6816

SUBMITTED BY

Brad Bergeron, A.Sc.T., d.E.T.
Senior Project Manager | Principal
Brad.Bergeron@rwdi.com

RWDI AIR Inc.
Consulting Engineers & Scientists
600 Southgate Drive
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1 TOTAL HYDROCARBON "WALKABOUT" SURVEY

The "Walkabout" survey will consist of a grid survey of the entire landfill mound using a handheld THC analyzer (FID). A portable FID will be used throughout the surveys. The FID will be calibrated using a methane gas standard and zeroed using ultra zero pure air. The instrument used will have the following characteristics:

- a response time of no greater than 15 seconds
- an accuracy of 3 percent or better
- a minimum detectable limit of 5 ppmv (or lower)
- a flame-out indicator, audible and visual

The "Walkabout" survey will be completed in a grid like formation gathering data at 7.6 cm or lower (3 inches or lower) above the ground. "Hotspots" of "breakout points" consisting of cracks, fissures, areas of bubbling surface water, or patches of dead (brunt) vegetation on the mound will be visually observed and notes for THC concentrations exceeding 500 ppm (methane). The "walkabout" surveys should be completed at winds less the 8 kilometers per hour (5 miles per hour) and during dry conditions (no measurable precipitation for the proceeding 72 hours prior to sampling). In addition, for the instantaneous readings, the surveys should be completed when the ambient temperatures are within 0 to 50 degrees Celsius.

THC concentrations 500 ppm or greater should be considered of concern during the instantaneous measurements. Therefore, THC concentrations less than 500 ppm will not be noted during the survey. Locations where the THC concentrations are 500 ppm or greater should assist WMI in determining all potential and existing landfill gas release points that require remedial action.

All THC concentrations measured will be expressed as methane on the calibration standard used. After the 'hotspot" or "breakout points" are fixed, documentation of the corrective actions taken as well as confirmation of adequate actions taken (THC concentrations less than 500 ppm) will be presented to the MOECC. The "walkabout" survey will include the following:

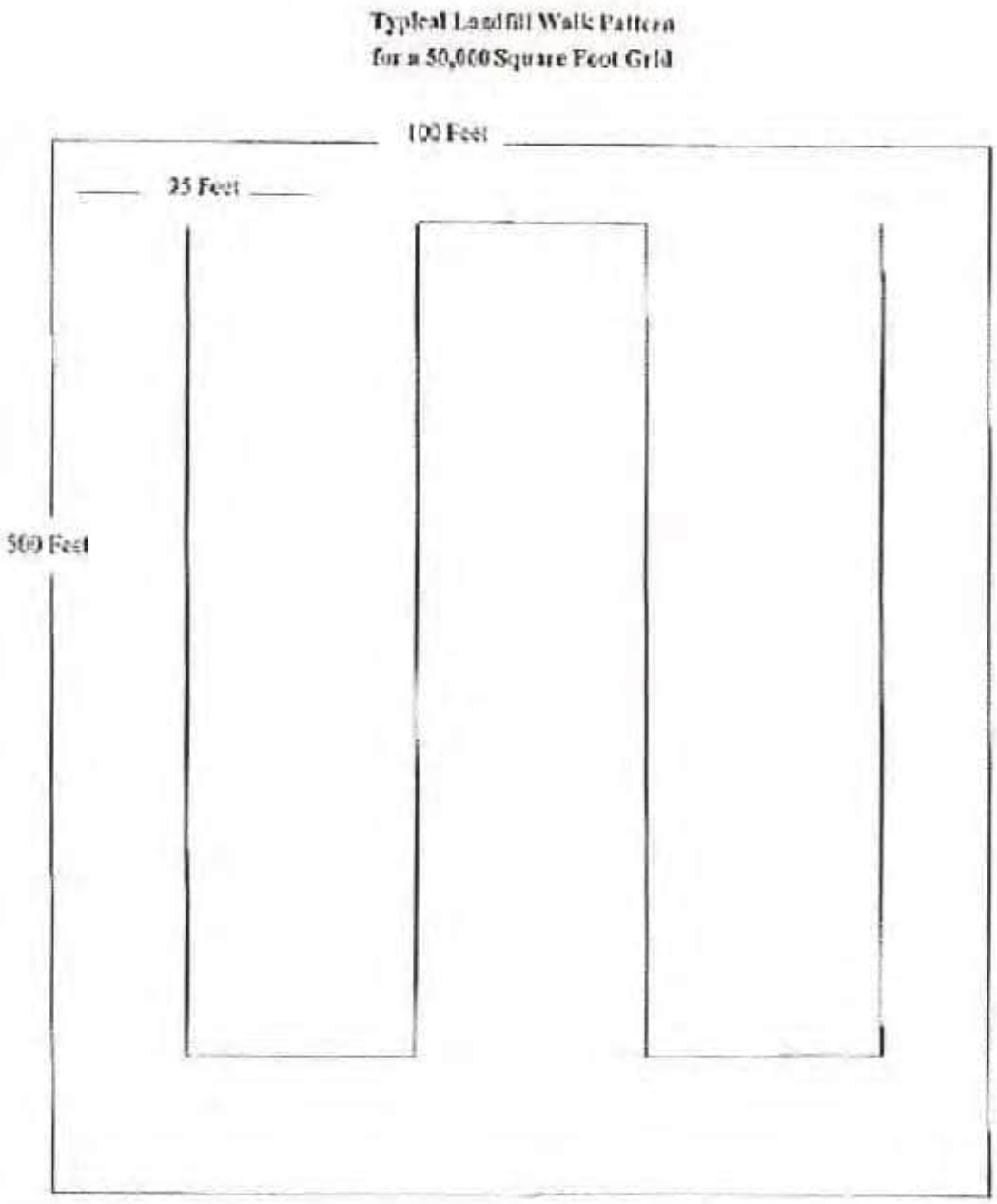
- precise locations of all sampling sites on the site map
- identification of all data obtained in the field measurements
- documentation of all remedial action

The "walkabout" survey should be done in the spring and the early fall. The measured areas should include areas where landfill cover is complete. Problem areas identified should be repaired within two (2) months of identification. Once repairs are completed, a follow-up survey on the specific locations will be completed to validate success of the remediation action(s). The process is important in minimizing odour and VOC emissions.

The "Walkabout" surveys will be performed twice per year or in response to otherwise unexplained odour events. As outlined in the Odour Best Management Practices Plan, routine visual inspections of the landfill cap integrity will also occur on a monthly basis to identify possible problem areas.

Figure 1 includes the walkabout pattern.

Figure 1: Walkabout Pattern



2 DUST MONITORING

The monitoring for Total Suspended Particulate (TSP) will be completed on an on-going basis at three locations around the landfill footprint. The TSP monitor locations are shown in **Figure 2.**

Total Suspended Particulate samples will be taken on a six-day interval during the months of October through May and samples will be taken on a three-day interval during the months of June through September. The sampling will be in concurrence with the U.S EPA National Air Pollutant Surveillance (NAPS) monitoring schedule. The sampling will include the entire year (sampling during 12 months per year). In addition, the analysis for airborne metals will be completed for 11 of the collected TSP samples per station (total of 33 metal samples per year). For each of the 11 sets of samples collected, the particulate analysis will be completed prior to the metal analysis and the highest particulate loaded filters from each station will undergo the analysis for airborne metals.

The monitoring method will comply with the metals specified by U.S. EPA Method I0-2. The 24-hour samples would be collected on standard hi-volume air samplers. The station siting requirements and sampling procedures will follow the most recent version of the U.S. EPA methods as well as the Ministry of the Environment's Operations Manual for Point Source Air Quality Monitoring as approved by the MOECC at the on-set on the monitoring. The U.S. EPA methods are referenced in the MOECC document as appropriate reference methods to follow for air quality monitoring programs.

The results will be presented in quarterly summary letters and an annual report. The report will include the data in tabular format with a description of the program, quality assurance documentation, details regarding data recovery, abnormal site conditions, etc. As well, any days when the ambient air quality criterion for TSP was exceeded would be reported to the District MOECC office within two (2) weeks of receiving results. In order to enhance the notification of elevated TSP Levels, WM will copy the Township of Warwick on any future elevated TSP level reporting provided to the MOECC.

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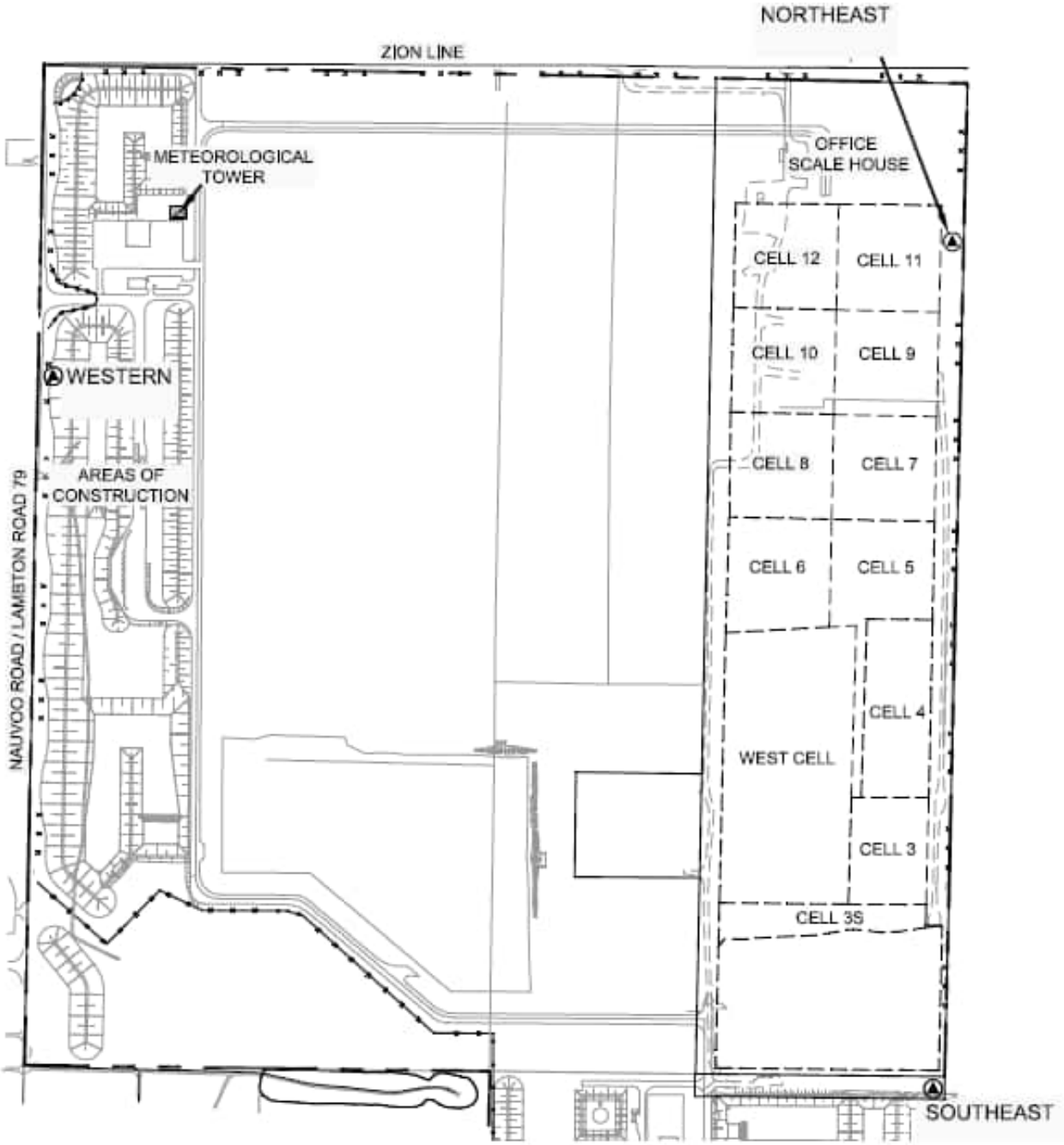
Figure 2: Dust Monitor Locations



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As discussed with stakeholders during the consultation for the annual fill rate increase for the site, the following provisions were made for additional monitoring to be completed under specific conditions. The following notes the agreed to provisions for the additional monitoring. This provision will also be included in the Dust Best Management Practices Plan (BMPP). In the event that the provisions are triggered, WM will prepare an updated Air Quality Monitoring Plan to layout the specific agreed to monitoring at the time the additional monitoring provision is required.

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- Best Management Practices Plan (Dust) – to be updated to link dust alerts to dust control initiatives.

3 VOC MONITORING

It is proposed that monitoring for VOC's be conducted through the summer months, with samples to be taken in upwind and downwind pairs, during normal operating hours of the landfill. There would be a total of 5 sample pairs taken between June and September. No more than two (2) samples will be collected in any calendar month. The samples will be 24-hours in duration and compared to their respective Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List.

The samples will be collected and analyzed using methods defined in U.S. EPA Method TO-14/15. Vinyl chloride is of particular concern with these types of samples and vinyl chloride will be analyzed in selective ion mode (SIM). Sampling for VOC samples will be collected during periods of light wind conditions (less than 15 kilometers per hour) and during dry conditions (no measureable precipitation for the proceeding 48 hours prior to sampling).The list of VOC's monitored is presented in Table 1.

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3. RWDI AIR Inc. Best Management Practices Plan (Litter), Twin Creeks Landfill Site, Watford, ON – Revision 4, dated December 11, 2007.

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APPENDIX B

APPENDIX B1

Brad Bergeron - Fwd: RE: Warwick Landfill Question

From: Brad Bergeron
Subject: Fwd: RE: Warwick Landfill Question

>>> Brad Bergeron 1/29/2008 9:43 AM >>>
Greg,

In response to your questions from Jan. 24, 2008, below is the additional information for clarification.

Q1) Additional clarification regarding the 50,000 square foot grid.

A1) As defined in the method the 50,000 square foot grid shall be used and a walk pattern shall be implemented. The figure for the grid spacing and typical walking pattern is outlined in Figure 2 attached. Basically, a 500 feet by 100 feet grid is defined. A walking pattern of approximately 25 feet is used along the 500 feet length and repeat over the width of 100 ft. (See attachment). During this walking pattern visual observations are made for distressed vegetation and cracks or seeps in the cover and if areas are identified the observer would complete measurements at these "hotspots".

Q2) Please provide further clarification and rationale for the particulate sampler locations.

A2) The attachment "sampler locations_windrose.pdf" outlines the proposed locations of the samplers and the windrose from London (Station 61444). The Northeast location was chosen to measure particulate from the site under the Southwest wind conditions and closest area to nearby residences, while the Northwest and Southwest locations were chosen to monitor particulate concentrations from the roadways under Westerly winds and from the site during easterly winds.

Please feel free to give me a call if you have any questions (519) 823-1311 ext 2428.

Thanks
Brad

Brad Bergeron, A.Sc.T.
Project Manager/Associate
RWDI AIR Inc.
Consulting Engineers & Scientists
Tel: (519) 974-7384 (Windsor)
Tel: (519) 823-1311 ext 2428 (Guelph)
Fax: (519) 823-1316
Email: brad.bergeron@rwdi.com
Website: http://www.rwdi.com

>>> "Washuta, Greg (ENE)" <Greg.Washuta@ontario.ca> 01/24/08 2:37 pm >>>
Brad

There are still some concerns from our air reviewer regarding the information provided. Please see below -thanks

Original comment - They not the survey will take place in a "grid" but do not give it's size. This should be specified and some rationale for their choice included

Response from air reviewer

not addressed - the document they sent makes reference to a figure which they did not provide

in his note he says "At a minimum, an individually identified 50,000 square foot grid"

what does this mean

I would take it to mean that the grid has a 50000 foot spacing (clearly ridiculous) or that each grid square is

50000 sq feet which is about 225 foot on a side (more probable). 225 feet between readings seems a bit much to me though I confess it is outside my area of expertise. Consider however, how strong would a leak have to be to give you a downwind reading of 500 ppm if it were 200 feet away ?

Dust

Original Comment - It is difficult to assess the placement of the particulate samplers without a map

Air reviewer response - partially addressed - windrose but no map and windrose. They do not offer any rationale for the locations - I would like to know how they were chosen.

Sincerely,

Greg Washuta, P. Eng.

Senior Waste Engineer

Waste Unit, Environmental Assessment & Approvals Branch

Ministry of the Environment

2 St. Clair Avenue West, Floor 12A

Toronto, Ontario

M4V 1L5

(416) 314-5138

(416) 314-8452

greg.washuta@ontario.ca

Sincerely,

Greg Washuta, P. Eng.

Senior Waste Engineer

Waste Unit, Environmental Assessment & Approvals Branch

Ministry of the Environment

2 St. Clair Avenue West, Floor 12A

Toronto, Ontario

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(416) 314-5138

(416) 314-8452

greg.washuta@ontario.ca

-----Original Message-----
From: Brad Bergeron [mailto:Brad.Bergeron@rwdi.com]
Sent: January 7, 2008 9:28 AM
To: Washuta, Greg (ENE)
Cc: Brad Bergeron; WJenken@wm.com
Subject: Fwd: Warwick Landfill Question

Hi Greg, please let me know that you have received it ok.

Brad

Brad Bergeron, A.Sc.T.

Project Manager/Associate

RWDI AIR Inc.

Consulting Engineers & Scientists

Tel: (519) 974-7384 (Windsor)

Tel: (519) 823-1311 ext 2428 (Guelph)

Fax: (519) 823-1316

Email: brad.bergeron@rwdi.com

Website: http://www.rwdi.com

>>> Brad Bergeron 12/20/07 2:43 pm >>>

Greg,

As per our discussion, please find the windrose and portion of the South Coast Air Quality Management District Rule 1150.1.

The meteorological data set is from the MOE Regional set from 1996 to 2000.

As for the THC Survey, attached is a blurb from the South Coast Rule 1150.1 that outlines the concentration and sampling grid. A copy of the relevant sections of the method are attached as well.

A limit of 500 ppm for instantaneous measurements is specified in Rule 1150.1. At a minimum, an individually identified 50,000 square foot grid

shall be used and a walk pattern shall be implemented including areas where visual observations elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover.

Any questions, please feel free to contact me at 519-823-1311 ext 2428.

Brad

Brad Bergeron, A.Sc.T.

Project Manager/Associate

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Tel: (519) 974-7384 (Windsor)

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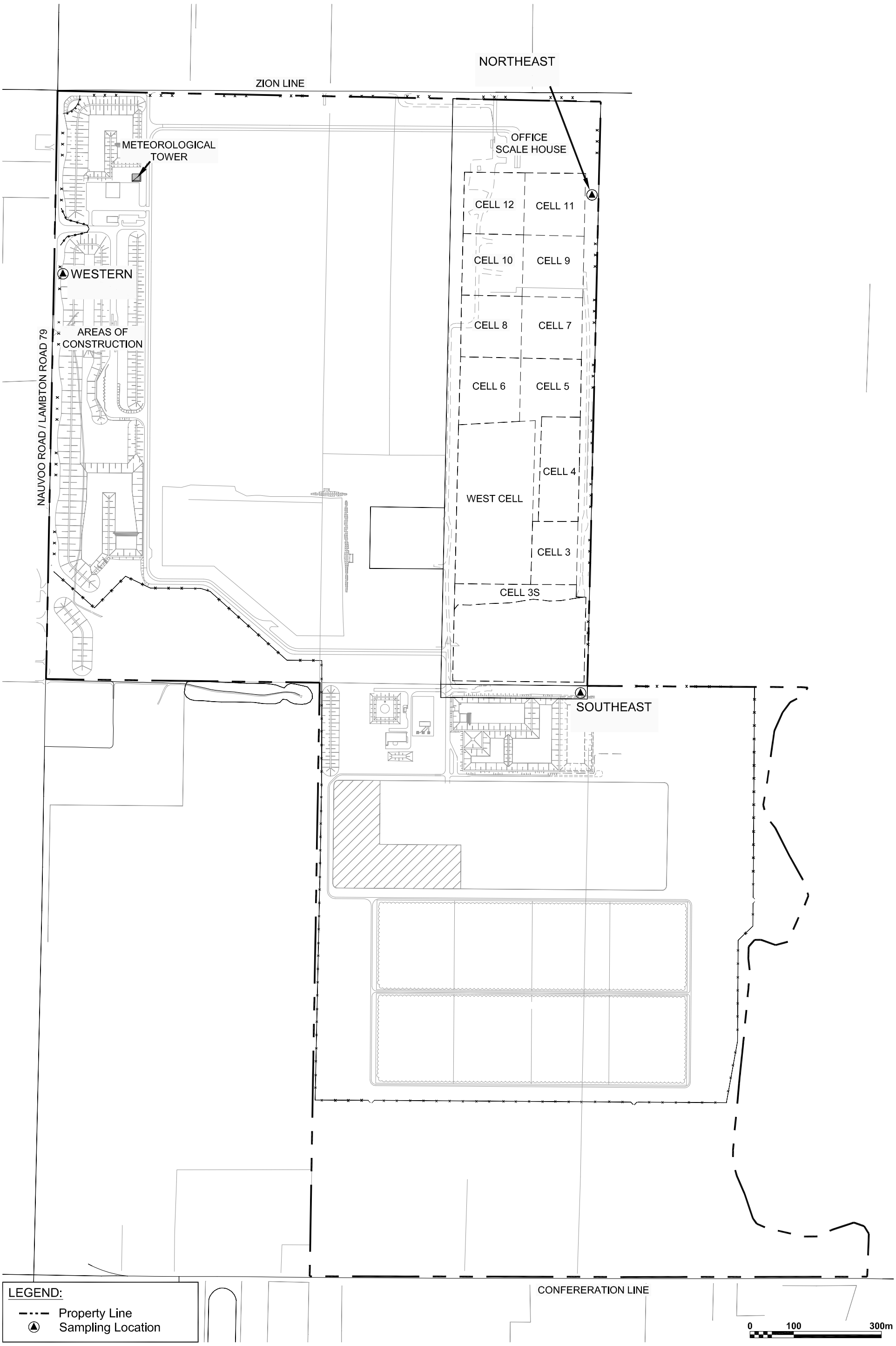
APPENDIX B2



Site Plan Showing Sampling Locations

True North

Drawn by: NTN | Figure: 1

Approx. Scale: 1:8000

Date Revised: Sept 27, 2011

RWDI

Waste Management Twin Creeks Landfill - Watford, Ontario

Project #0941087

APPENDIX B3

Typical Landfill Walk Pattern
for a 50,000 Square Foot Grid

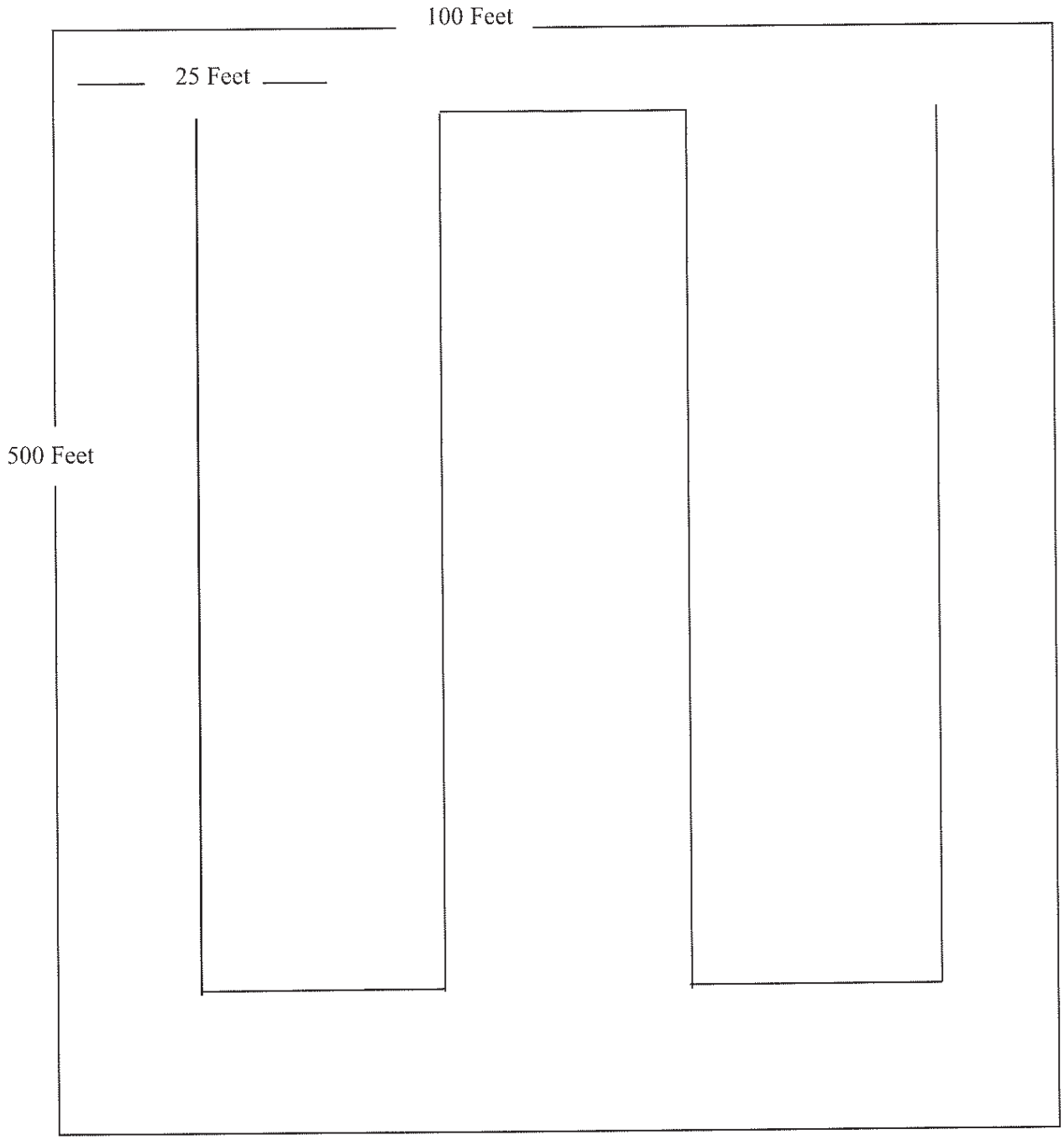


Figure 2

APPENDIX C

APPENDIX C1

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June 5, 2023

Ms. Angela McLachlan
Environmental Compliance Manager
Waste Management of Canada Corporation
Twin Creeks Environmental Centre
5768 Nauvoo Road (Watford)
Warwick Township, County of Lambton N0M 2S0
E: amclachl@wm.com

Re: Second Quarter Total Hydrocarbon Surface Monitoring | Spring Sampling
Twin Creeks Environmental Centre – Watford, Ontario
RWDI Reference No. 2303459.02

Dear Ms. McLachlan,

RWDI AIR Inc. (RWDI) was retained by the Waste Management of Canada Corporation (WM) to conduct the Total Hydrocarbon (THC) surface monitoring program for the Twin Creeks Environmental Centre (TCEC). The monitoring program consists of two walkovers: one in the spring and one in the fall. The TCEC is located at 5768 Nauvoo Road, Watford, Ontario. The fall survey was completed as approved by the Ontario Ministry of the Environment, Conservation and Parks (MECP), under Amended Environmental Compliance Approval Number A032203, dated December 19, 2020 (Waste ECA), under Terms and Conditions 13.8 and 13.9. On-site monitoring activities for the fall walk-over took place on May 15, 2023.

SAMPLING METHODOLOGY

The sampling program consisted of a walk-over survey of the entire final capped landfill area. The monitoring was completed using a handheld Total Hydrocarbon (THC) analyzer. The purpose of this monitoring was to determine if there were areas of elevated THC concentrations. Elevated THC concentrations are indicators of areas where landfill gas may be escaping. The THC analyzer used was a Thermo TVA 2020 Toxic Gas Analyzer. The analyzer response was calibrated against U.S. EPA protocol methane gas. An instrument baseline was established (zeroed) using ultra zero-pure air. The monitoring was completed in a 25-foot grid formation. The analyzer measured the THC levels at approximately 5 cm above the ground. This is the protocol agreed to by the Ministry of Environment during the review of the Ambient Air Quality Monitoring Plan (AAQMP). Measurements were taken along the grid pattern, unless “hotspots” were identified. “Hotspots” are identified as areas of visual stress (dead or no vegetation, or cracks in the cap surface). These “hotspots” were measured in addition to the points along the grid pattern.

Any areas or points exhibiting THC readings higher than 500 ppm were noted and marked. These points were marked by recording the UTM co-ordinates from a GPS and physically marked with a flag placed on the landfill.

CANADA'S BEST MANAGED COMPANIES Platinum member

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RESULTS

RWDI representatives walked over the entire capped portion of the Existing Site waste mound. During the survey the wind conditions were light from the NE. The meteorological conditions from the on-site meteorological station for the 72 hours preceding the survey and during the survey are presented in **Attachment A**. There was no significant rainfall for the preceding 72 hours before the May 15, 2023, sampling date. These conditions are considered to be ideal for the monitoring.

Most of the Existing Site landfill cap is well covered with vegetation, including approximately half of the area, which was planted with poplar trees. WM completed the installation of the vertical gas collection system for the Existing Site in 2009. The collection system has been tied into the landfill gas flare system that is now in operation.

Findings from the inspection indicated that the final landfill cap coupled with the landfill gas extraction system for the Existing Site is generally effective at preventing landfill gas from escaping the waste mound at unacceptable levels. There was one (1) detected 500 ppm exceedance during this survey. Further details of the exceedance location and concentration can be found in the attached table.

DISCUSSION

The results indicate that the cover maintenance program is very effective and should be continued. Over the entire capped area of the Existing Site, one (1) area was identified as requiring repairs. The location was repaired on May 18, 2023, and the verification monitoring was completed on May 18, 2023.

Please feel free to contact us with any questions or comments that you may have with respect to this submission.

Yours very truly,

RWDI AIR Inc.

Khalid Hussein, P.Eng.
Project Manager

KAMH/kta

Attach.

STATEMENT OF LIMITATIONS

This report entitled Second Quarter Total Hydrocarbon Surface Monitoring| Spring Sampling: Twin Creeks Environmental Centre – Watford, ON: RWDI Project #2303459.02 dated June 5, 2023 was prepared by RWDI AIR Inc. ("RWDI") for Waste Management of Canada Corporation ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). This report was prepared using scientific principles, published methodologies and professional judgment in assessing available information and data. The findings presented within this document are based on available data within the limits of the existing information, budgeted scope of work, and schedule. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.

This report was prepared for the exclusive use of Waste Management of Canada Corporation and the MECP. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. RWDI accepts no responsibility for damages, if any, suffered by any third party as result of decisions made or actions based on this report.

TABLES

RWDI AIR Inc. Field Data Sheet

Surface Monitoring Survey
Location: Twin Creeks
Job #: 2303459
Date: May 15, 2023
Time: 10:00 AM

	UTM - Zone 17T			
Grid ID	Easting	Northing	THC (ppm)	Comments
1	429469	4758296	5117	Small browned patch of soil

Verification Monitoring Survey
Location: Twin Creeks
Job #: 2303459
Date: May 18, 2023
Time: 2:20 PM

	UTM - Zone 17T			
Grid ID	Easting	Northing	THC (ppm)	Comments
1	429469	4758296	1.6	Cap repaired with bentonite patch

ATTACHMENT A

Twin Creeks Landfill Meteorological Data - Spring Walkover

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
5/12/2023 10:00	22	9	16	WSW (255)	41	0
5/12/2023 11:00	23.9	5	12	SSE (159)	40	0
5/12/2023 12:00	25.7	4	11	SSW (204)	38	0
5/12/2023 13:00	26.6	7	18	SW (223)	30	0
5/12/2023 14:00	26.6	8	18	SSE (157)	33	0
5/12/2023 15:00	27	7	17	SSW (197)	33	0
5/12/2023 16:00	27	6	14	SW (216)	33	0
5/12/2023 17:00	25.7	10	16	NNE (28)	34	0
5/12/2023 18:00	24.6	6	14	NNE (16)	36	0
5/12/2023 19:00	24.2	4	7	N (354)	38	0
5/12/2023 20:00	22.4	5	9	N (349)	48	0
5/12/2023 21:00	20	5	9	NNE (30)	56	0
5/12/2023 22:00	19	5	7	NNE (27)	55	0
5/12/2023 23:00	18.5	5	8	NE (37)	54	0
5/13/2023 0:00	17.9	5	8	E (96)	60	0
5/13/2023 1:00	17.2	3	5	E (85)	63	0
5/13/2023 2:00	16.3	7	13	NE (54)	68	0
5/13/2023 3:00	16.2	7	14	ENE (78)	63	0
5/13/2023 4:00	16.3	10	14	ENE (60)	67	0
5/13/2023 5:00	16.1	12	15	ENE (70)	66	0
5/13/2023 6:00	16.4	10	13	ENE (71)	66	0
5/13/2023 7:00	16.8	10	16	ENE (78)	65	0
5/13/2023 8:00	18.2	13	19	E (85)	63	0
5/13/2023 9:00	18.8	14	21	E (87)	56	0
5/13/2023 10:00	19.7	14	18	ENE (74)	55	0
5/13/2023 11:00	22	12	24	ENE (57)	48	0
5/13/2023 12:00	23.7	9	19	E (96)	41	0
5/13/2023 13:00	24.3	10	22	ENE (72)	40	0
5/13/2023 14:00	24.2	15	28	NNW (341)	44	0
5/13/2023 15:00	21.6	18	32	NNW (335)	50	0
5/13/2023 16:00	21.6	18	31	SW (226)	46	0
5/13/2023 17:00	21.4	19	32	N (354)	44	0
5/13/2023 18:00	21.2	18	29	N (0)	43	0
5/13/2023 19:00	19.9	16	28	NW (323)	40	0
5/13/2023 20:00	17.7	16	27	NNE (13)	46	0
5/13/2023 21:00	15.3	14	23	NE (36)	54	0
5/13/2023 22:00	13.7	9	16	NE (45)	62	0
5/13/2023 23:00	13.2	7	13	NE (49)	57	0
5/14/2023 0:00	11.8	6	10	NNE (15)	58	0

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
5/14/2023 1:00	10.3	6	10	NNE (33)	62	0
5/14/2023 2:00	10	6	12	NE (41)	62	0
5/14/2023 3:00	9.9	7	11	ENE (66)	60	0
5/14/2023 4:00	9.5	8	15	NE (42)	61	0
5/14/2023 5:00	9.8	11	16	ENE (59)	53	0
5/14/2023 6:00	9.2	9	15	NNE (33)	55	0
5/14/2023 7:00	10.6	14	21	ENE (70)	53	0
5/14/2023 8:00	12.4	16	24	ENE (67)	44	0
5/14/2023 9:00	13.5	16	23	NE (48)	43	0
5/14/2023 10:00	14.5	14	21	ENE (75)	39	0
5/14/2023 11:00	15.8	13	27	NNE (15)	38	0
5/14/2023 12:00	16	16	26	NW (326)	41	0
5/14/2023 13:00	15.2	18	28	N (353)	42	0
5/14/2023 14:00	14	21	34	ENE (62)	48	0
5/14/2023 15:00	13.6	19	33	N (2)	49	0
5/14/2023 16:00	13.1	19	30	NNW (328)	48	0
5/14/2023 17:00	12.1	16	29	NNW (329)	55	0
5/14/2023 18:00	11.1	16	27	NNW (335)	57	0
5/14/2023 19:00	10.5	14	23	NW (320)	60	0
5/14/2023 20:00	9.8	10	20	N (2)	65	0
5/14/2023 21:00	9	9	18	NNW (343)	68	0
5/14/2023 22:00	8.3	7	12	NNE (16)	74	0
5/14/2023 23:00	7.8	4	8	NNW (336)	76	0
5/15/2023 0:00	7.6	6	11	N (0)	76	0
5/15/2023 1:00	7	6	11	NNE (27)	77	0
5/15/2023 2:00	6.3	5	8	NNE (18)	79	0
5/15/2023 3:00	5.6	6	10	N (11)	78	0
5/15/2023 4:00	5.1	2	4	NE (34)	82	0
5/15/2023 5:00	4.7	7	10	NNE (18)	82	0
5/15/2023 6:00	5.1	5	9	N (0)	78	0
5/15/2023 7:00	6.7	3	6	N (5)	68	0
5/15/2023 8:00	9.8	4	8	NNW (344)	57	0
5/15/2023 9:00	12.8	7	13	NNE (15)	47	0
5/15/2023 10:00	15.1	5	13	WSW (245)	37	0
5/15/2023 11:00	16.4	4	12	WNW (296)	30	0
5/15/2023 12:00	17.4	6	17	NW (320)	30	0

APPENDIX C2

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November 23, 2023

Ms. Angela McLachlan
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Twin Creeks Environmental Centre
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Warwick Township, County of Lambton N0M 2S0
E: amclachl@wm.com

Re: Third Quarter Total Hydrocarbon Surface Monitoring | Fall Sampling
Twin Creeks Environmental Centre – Watford, Ontario
RWDI Reference No. 2303459.02

Dear Ms. McLachlan,

RWDI AIR Inc. (RWDI) was retained by the Waste Management of Canada Corporation (WM) to conduct the Total Hydrocarbon (THC) surface monitoring program for the Twin Creeks Environmental Centre (TCEC). The monitoring program consists of two walkovers: one in the spring and one in the fall. The TCEC is located at 5768 Nauvoo Road, Watford, Ontario. The fall survey was completed as approved by the Ontario Ministry of the Environment, Conservation and Parks (MECP), under Amended Environmental Compliance Approval Number A032203, dated December 19, 2020 (Waste ECA), under Terms and Conditions 13.8 and 13.9. On-site monitoring activities for the fall walk-over took place on September 22, 2023.

SAMPLING METHODOLOGY

The sampling program consisted of a walk-over survey of the entire final capped landfill area. The monitoring was completed using a handheld Total Hydrocarbon (THC) analyzer. The purpose of this monitoring was to determine if there were areas of elevated THC concentrations. Elevated THC concentrations are indicators of areas where landfill gas may be escaping. The THC analyzer used was a Thermo TVA 2020 Toxic Gas Analyzer. The analyzer response was calibrated against U.S. EPA protocol methane gas. An instrument baseline was established (zeroed) using ultra zero-pure air. The monitoring was completed in a 25-foot grid formation. The analyzer measured the THC levels at approximately 5 cm above the ground. This is the protocol agreed to by the Ministry of Environment during the review of the Ambient Air Quality Monitoring Plan (AAQMP). Measurements were taken along the grid pattern, unless "hotspots" were identified. "Hotspots" are identified as areas of visual stress (dead or no vegetation, or cracks in the cap surface). These "hotspots" were measured in addition to the points along the grid pattern.

BEST MANAGED COMPANIES Platinum member

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Any areas or points exhibiting THC readings higher than 500 ppm were noted and marked. These points were marked by recording the UTM co-ordinates from a GPS and physically marked with a flag placed on the landfill.

RESULTS

RWDI representatives walked over the entire capped portion of the Existing Landfill waste mound. During the survey the wind conditions were moderate from the SE. The meteorological conditions from the on-site meteorological station for the 72 hours preceding the survey and during the survey are presented in **Attachment A**. There was no significant rainfall for the preceding 72 hours before the September 22, 2023, sampling date. These conditions are acceptable for the monitoring.

Most of the Existing Landfill cap is well covered with vegetation, including approximately half of the area, which was planted with poplar trees. WM completed the installation of the vertical gas collection system for the Existing Landfill in 2009. The collection system has been tied into the landfill gas flare system that is now in operation.

Findings from the inspection indicated that the final cap coupled with the landfill gas extraction system for the Existing Landfill is generally effective at preventing landfill gas from escaping the waste mound at unacceptable levels. There were eight (8) detected 500 ppm exceedances during this survey. Further details of the exceedance locations and concentrations can be found in the attached summary.

DISCUSSION

On September 22, 2023 the THC walkover monitoring program was successful in identifying eight (8) areas, over the entire capped area of the Existing Landfill, which required repair. RWDI provided oversight of the repair work on October 24, 2023, and completed verification monitoring on November 5, 2023 in order to verify the repairs in a close timeline to when they were completed. The results showed that all the repaired areas were below walkover exceedance criteria and no leaks persisted, however, verification monitoring conditions were not ideal on this date as rain had occurred 24 hours prior to monitoring. As a result, a follow-up survey was completed on November 14, 2023, with ideal weather conditions, to verify the repairs. On November 14, 2023, the results showed that all the repaired areas were below walkover exceedance criteria and no leaks persisted. It is noted that based on historical annual walkover surveys, repairs to small areas of the final cap are periodically required. The results indicate that the cover maintenance program is effective and should be continued.

Please feel free to contact us with any questions or comments that you may have with respect to this submission.

Yours very truly,

RWDI

Khalid Hussein, P.Eng.
Project Manager

KAMH/kta

Attach.

STATEMENT OF LIMITATIONS

This report entitled Second Quarter Total Hydrocarbon Surface Monitoring| Fall Sampling: Twin Creeks Environmental Centre – Watford, ON: RWDI Project #2303459.02 dated November 23, 2023 was prepared by RWDI AIR Inc. ("RWDI") for Waste Management of Canada Corporation ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). This report was prepared using scientific principles, published methodologies and professional judgment in assessing available information and data. The findings presented within this document are based on available data within the limits of the existing information, budgeted scope of work, and schedule. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.

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TABLES

RWDI AIR Inc. Field Data Sheet

Surface Monitoring Survey

Location: Twin Creeks
Job #: 2303459
Date: September 22, 2023
Time: 11:00 AM

	UTM - Zone 17T			
Grid ID	Easting	Northing	THC (ppm)	Comments
1	429445	4757831	1333	Cracks in side slope
2	429431	4758072	1381	Cracks along Poplar Rd
3	429439	4758086	631	Cracks in side slope
4	429458	4758131	8318	Brown patch of vegetation
5	429461	4758262	750	Cracks in side slope
6	429470	4758471	2040	Cracks in side slope
7	429467	4758603	3584	Cracks in side slope
8	429468	4750639	8058	Cracks in side slope

Verification Monitoring Survey

Location: Twin Creeks
Job #: 2303459
Date: November 14, 2023
Time: 12:45 PM

	UTM - Zone 17T			
Grid ID	Easting	Northing	THC (ppm)	Comments
1	429445	4757831	203	Repair Successful
2	429431	4758072	71	Repair Successful
3	429439	4758086	221	Repair Successful
4	429458	4758131	2	Repair Successful
5	429461	4758262	9	Repair Successful
6	429470	4758471	4	Repair Successful
7	429467	4758603	13	Repair Successful
8	429468	4750639	6	Repair Successful

ATTACHMENT A

Twin Creeks Landfill Meteorological Data - Fall Walkover

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
9/19/2023 11:00	16.6	11	18	NW (306)	71	0
9/19/2023 12:00	16.8	12	24	NW (308)	64	0
9/19/2023 13:00	17.6	13	20	NNW (333)	60	0
9/19/2023 14:00	18.3	9	20	NNW (332)	57	0
9/19/2023 15:00	18.6	10	20	NNW (333)	57	0
9/19/2023 16:00	19.1	8	17	N (1)	55	0
9/19/2023 17:00	18.8	7	13	NW (307)	57	0
9/19/2023 18:00	18.6	6	11	N (1)	60	0
9/19/2023 19:00	16.2	5	7	ENE (70)	72	0
9/19/2023 20:00	14.7	4	6	E (97)	83	0
9/19/2023 21:00	13.5	1	4	E (96)	89	0
9/19/2023 22:00	12.4	2	4	NE (49)	100	0
9/19/2023 23:00	11.6	3	7	ESE (114)	100	0
9/20/2023 0:00	11.9	4	7	E (96)	100	0
9/20/2023 1:00	11.1	6	9	E (89)	100	0
9/20/2023 2:00	11	6	8	ESE (111)	100	0
9/20/2023 3:00	10.9	7	9	E (98)	92	0
9/20/2023 4:00	10.6	6	10	ENE (58)	86	0
9/20/2023 5:00	11	3	11	ENE (66)	84	0
9/20/2023 6:00	11.5	6	12	ESE (122)	86	0
9/20/2023 7:00	12.2	10	15	SE (129)	81	0
9/20/2023 8:00	12.8	11	19	E (92)	80	0
9/20/2023 9:00	14.7	12	16	SE (133)	79	0
9/20/2023 10:00	17.4	12	18	SSE (155)	74	0
9/20/2023 11:00	19.6	14	22	SSE (163)	70	0
9/20/2023 12:00	20.8	13	21	S (176)	64	0
9/20/2023 13:00	21.8	12	20	WSW (252)	63	0
9/20/2023 14:00	22	11	17	SSE (168)	63	0
9/20/2023 15:00	21.8	14	21	SSE (167)	67	0
9/20/2023 16:00	22	17	25	SE (130)	65	0
9/20/2023 17:00	21.8	17	24	SE (132)	63	0
9/20/2023 18:00	20.2	16	24	SE (141)	67	0
9/20/2023 19:00	18.4	15	19	SE (126)	75	0
9/20/2023 20:00	17.9	15	20	SE (133)	82	0
9/20/2023 21:00	17.8	13	19	SE (126)	82	0
9/20/2023 22:00	17.2	13	17	SE (125)	95	0
9/20/2023 23:00	17	16	20	SE (134)	90	0.2
9/21/2023 0:00	16.9	15	21	SE (134)	94	0
9/21/2023 1:00	17.3	14	19	SE (142)	88	0
9/21/2023 2:00	17.1	13	16	SE (132)	93	0

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
9/21/2023 3:00	16.8	15	17	SE (126)	96	0
9/21/2023 4:00	16.8	13	17	SE (127)	100	0
9/21/2023 5:00	16.2	14	17	ESE (119)	100	0
9/21/2023 6:00	15.8	14	17	SE (125)	100	0
9/21/2023 7:00	16.4	14	19	SE (129)	100	0
9/21/2023 8:00	17	14	17	SE (142)	100	0
9/21/2023 9:00	18.7	14	18	SSE (153)	100	0
9/21/2023 10:00	20.6	11	16	SSE (167)	93	0
9/21/2023 11:00	22.5	9	17	S (178)	74	0
9/21/2023 12:00	23.9	8	15	SW (233)	62	0
9/21/2023 13:00	24.9	8	16	SW (226)	57	0
9/21/2023 14:00	25.7	7	14	SSW (209)	54	0
9/21/2023 15:00	26	6	17	W (279)	54	0
9/21/2023 16:00	25.9	5	12	SSE (153)	49	0
9/21/2023 17:00	25.3	9	16	S (170)	63	0
9/21/2023 18:00	23.4	15	23	SSE (147)	67	0
9/21/2023 19:00	21.4	14	21	SE (143)	75	0
9/21/2023 20:00	19.6	14	17	ESE (117)	84	0
9/21/2023 21:00	18.5	15	19	SE (137)	91	0
9/21/2023 22:00	17.9	16	19	SE (128)	100	0
9/21/2023 23:00	17.7	15	19	SE (124)	100	0
9/22/2023 0:00	17.3	14	18	ESE (122)	100	0
9/22/2023 1:00	17	14	19	ESE (114)	100	0
9/22/2023 2:00	16.6	13	17	ESE (110)	100	0
9/22/2023 3:00	16.3	12	16	ESE (109)	100	0
9/22/2023 4:00	15.9	11	14	ESE (105)	100	0
9/22/2023 5:00	16	13	18	ESE (110)	100	0
9/22/2023 6:00	16.3	14	17	ESE (114)	100	0
9/22/2023 7:00	16	12	16	ESE (102)	100	0
9/22/2023 8:00	16.7	11	15	ESE (123)	100	0
9/22/2023 9:00	18.6	15	21	SE (133)	98	0
9/22/2023 10:00	19.8	14	22	SE (126)	77	0
9/22/2023 11:00	21.4	12	20	SE (133)	71	0
9/22/2023 12:00	22.7	16	22	ESE (108)	59	0
9/22/2023 13:00	23.2	16	25	SE (132)	57	0

APPENDIX D

Thermo
SCIENTIFIC

Model TVA2020 Customer Quality Assurance Data	
Calibration Technician	PK
Date	4/4/2023
Model	FID
Serial Number	202023036567
Battery Date Code	3822006
Firmware Ver	58S
Hydrogen Pressure Setting (PSI)	10

Calibration & Linearity Performed using Methane (FID) and Isobutylene (PID)
All Methane Sample Gas Concentrations are +/-1% Max Tolerance, NIST Traceable All Isobutylene Sample Gas Concentrations are +/-2% Max Tolerance, NIST Traceable

Performance Test	Sample Gas Conc	Meas Units	Allowable Tolerance	Instrument Reading
Pressure Gauge Zero Offset	N/A	PSI	0/+1	0
FID Detector				
FID Zero Lin Chk (Zero Cal)	<0.1 THC	PPM	+/- 1PPM	-0.1
500 PPM Me Linearity (FID Span Cal)	500	PPM	+/- 10%	501.0
10 PPM Me Linearity (FID)	10.01	PPM	+/- 10%	9.8
10KPPM Me Linearity (FID)	9997	PPM	+/- 10%	9680.0
PID Detector (Option)				
PID Zero Lin Chk (Zero Cal)	<0.1 THC	PPM	+/- 1PPM	N/A
100 PPM Iso Linearity (PID Span Cal)	100.3	PPM	+/- 20%	N/A
5 PPM Iso Linearity (PID)	5	PPM	+/- 20%	N/A
500 PPM Iso Linearity (PID)	500.2	PPM	+/- 20%	N/A

Test Operator Signature: _____

ALL MEASUREMENT STANDARDS ARE CALIBRATED AT SCHEDULED INTERVALS BY THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) OR AGAINST CERTIFIED STANDARDS WHICH ARE TRACEABLE TO NIST.

APPENDIX E

600 Southgate Drive
Guelph, ON N1G 4P6
Canada

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Fax: +1.519.823.1316
E-mail: solutions@rwdi.com

November 6, 2023

Ms. Angela McLachlan | Environmental Compliance Manager
Waste Management of Canada Corporation
Twin Creeks Environmental Centre
8039 Zion Line
Watford, ON N0M 2S0
E: amclachl@wm.com

Re: Third Quarter (Q3) TCLF Ambient Volatile Organic Compound Sampling Report
Twin Creeks Environmental Centre | Watford, ON
RWDI Reference No. 2303459.02

Dear Ms. McLachlan,

RWDI AIR Inc. (RWDI) was retained by Waste Management of Canada Corporation (WM) to conduct an ambient air monitoring program (AAQMP) at the Twin Creeks Environmental Centre, located in Watford, Ontario. This report outlines the fence line Volatile Organic Compound (VOCs) samples collected during July to September 2023 as outlined in the Ambient Air Quality Monitoring Plan dated May 18, 2017. Results from the Particulate Matter sampling is provided under separate cover. VOC sampling is part of the requirements under Amended Environmental Compliance Approval Number A032203, dated February 4, 2023 (Waste ECA), under Terms and Conditions 13.8 and 13.9.

SAMPLING METHODOLOGY

The VOC samples were collected in specially prepared canisters as specified in EPA Compendium Method TO-14/15. Mass flow controller units approved for use by the MECP were used to maintain a constant flow rate. The samples were collected over a 24-hour duration. The mass flow controllers are equipped with stainless steel sintered filters and stainless-steel pressure gauges to ensure that the canisters remained under slightly negative pressure at the completion of each testing period. The target list of compounds noted in the Air Quality Monitoring Plan was analyzed. Compounds that are not typically found in the TO-14/15 scan were assessed using an open scan and library search method for compound identification. Only compounds that were identified were included in the laboratory report; otherwise, all parameters not found are referenced in the note section of the laboratory reports.

A set of upwind and downwind samples were collected on July 18, August 1, August 22, September 3 and September 15, 2023. The sample locations for this event are presented in **Figure 1**. Samples were collected under light wind conditions. A windrose that displays the wind speed and direction during the sampling event is also provided in **Figure 1**.

BEST MANAGED COMPANIES Platinum member

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Light winds are generally associated with higher ambient concentration due to reduced atmospheric dispersion of pollutants. The samples were analyzed using the method defined in the U.S. EPA Method TO-14/15 for Summa Canisters. Vinyl Chloride is of particular concern in this type of monitoring program and was analyzed in selective ion mode (SIM). A list of the target VOCs can be found in **Attachment A**. Samples were submitted to Bureau Veritas located in Mississauga, Ontario and ALS Environmental located in Waterloo, Ontario for analysis. Meteorological conditions for wind speed and direction, temperature, and rain fall were collected from the on-site meteorological station. Please refer to the figure for the meteorological station location. A summary of weather data from the sampling date and two (2) days prior are provided in **Attachment B**.

RESULTS

All measured concentrations of the five (5) sample sets taken in the third quarter were below their respective air quality standards. The following compounds were detected in the upwind samples.

- 1,2-Dichloroethane
- 2-Propanone
- Benzene
- Carbon Tetrachloride
- Chloromethane
- Dichlorodifluoromethane
- Ethanol
- Hexane
- Methyl Ethyl Ketone
- Methylene Chloride
- Naphthalene
- Styrene
- Toluene
- Trichlorofluoromethane
- Vinyl Chloride
- Pentane

The following compounds were detected in the downwind samples.

- 1,2-Dichloroethane
- 2-Propanol
- 2-Propanone
- Benzene
- Carbon Tetrachloride
- Chloromethane
- Cyclohexane
- Dichlorodifluoromethane
- Ethanol
- Ethyl Acetate
- Ethylbenzene
- Heptane
- Hexane
- Methyl Ethyl Ketone
- Methyl Isobutyl Ketone
- Methylene Chloride
- o-Xylene
- p+m-Xylene
- Styrene
- Tetrachloroethylene
- Tetrahydrofuran
- Toluene
- Total Xylenes
- Trichloroethylene
- Trichlorofluoromethane
- Trichlorotrifluoroethane
- Vinyl Chloride
- 2-Methyl-Hexane
- 2-Methyl-Butane
- Limonene
- Pentane

The highest downwind concentration, when compared to its respective air quality standard is Carbon Tetrachloride with a value of 0.88 $\mu g/m^3$ or 36.67% of its standard. The highest upwind concentration, when compared to its respective air quality standard is also Carbon Tetrachloride with a value of 0.75 $\mu g/m^3$ or 31.43% of its standard. Please refer to **Table 1** for all applicable values and standards.

Some of the contaminants of interest are not found within the laboratory analysis for TO-14/15. As such, all samples are screened using a library search for the remaining contaminants of interest. In these sampling events, no detectable levels were found for the following compounds: 1,2,3-Trimethylbenzene, 2-Methylpentane, 3-Methylpentane, 3-Methylhexane, Butyl Acetate, Decane, m/p ethyl toluene, m-cymene, methyl cyclohexane, chlorodifluoromethane, n-butanal, nonane, o-ethyl toluene, propylbenzene, 2-butanol and octane. All laboratory reports will be provided in the Annual Report.

CLOSING

We trust that this 2023 third quarter ambient VOC monitoring report for the Twin Creeks Environmental Centre is satisfactory for your current requirements. Please feel free to contact us with any questions or comments that you may have with respect to this submission.

Yours very truly,

RWDI AIR Inc.

Khalid Hussein, P.Eng.
Project Manager

KAMH/kta

Attach.

GENERAL STATEMENT OF LIMITATIONS

This report entitled "Third Quarter (Q3) TCLF Ambient Volatile Organic Compound Sampling Report", dated November 6, 2023 was prepared by RWDI AIR Inc. ("RWDI") for Waste Management of Canada Corporation ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). This report was prepared using scientific principles, published methodologies and professional judgment in assessing available information and data. The findings presented within this document are based on available data within the limits of the existing information, budgeted scope of work, and schedule. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.

This report was prepared for the exclusive use of Waste Management of Canada Corporation and the MECP. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. RWDI accepts no responsibility for damages, if any, suffered by any third party as result of decisions made or actions based on this report.

TABLES

Table 1: TWIN CREEKS LANDFILL SITE - 24 HOUR VOLATILE ORGANIC COMPOUNDS SAMPLING RESULTS

Sample Date			July 18, 2023				August 1, 2023				August 22, 2023			
Sample ID			1A		1B		2A		2B		3A		3B	
Sample Location (Upwind/Downwind)			Upwind		Downwind		Upwind		Downwind		Upwind		Downwind	
Sample Duration (min)			1410		1440		1440		1440		1440		1440	
Initial Canister Pressure ("Hg)			-29		-30		-30		-29		-30		-30	
Final Canister Pressure ("Hg)			-2.0		-3.7		-3.7		-3.9		-3.6		-3.6	
Parameter	CAS Number	Reportable Detection Limit	Concentration		Concentration		Concentration		Concentration		Concentration		Concentration	
		(ug/m^3)	(ppb)	(ug/m^3)	(ppb)	(ug/m^3)	(ppb)	(ug/m^3)	(ppb)	(ug/m^3)	(ppb)	(ug/m^3)	(ppb)	(ug/m^3)
1,1,1,2-Tetrachloroethane	630-20-6	0.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	71-55-6	0.55	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	79-00-5	0.55	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	75-34-3	0.40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	75-35-4	0.40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	120-82-1	3.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	95-63-6	2.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	95-50-1	0.60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	107-06-2	0.40	ND	ND	ND	ND	ND	ND	0.12	0.49	ND	ND	ND	ND
1,2-Dichloropropane	78-87-5	0.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorotetrafluoroethane	76-14-2	1.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	108-67-8	2.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Butadiene	106-99-0	1.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	541-73-1	2.40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	106-46-7	0.60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	123-91-1	3.60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,2,4-Trimethylpentane	540-84-1	0.93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Propanol	67-63-0	2.46	ND	ND	ND	ND	ND	ND	6.3	15.47	ND	ND	ND	ND
2-Propanone	67-64-1	1.42	6.79	16.12	2.47	5.86	2.93	6.95	9.1	21.60	2.99	7.10	5.26	12.48
4-Ethyltoluene	622-96-8	2.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	71-43-2	0.32	0.16	0.51	0.12	0.38	0.16	0.51	0.14	0.45	0.15	0.48	0.17	0.54
Benzyl chloride	100-44-7	2.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	75-27-4	1.34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	75-25-2	2.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	74-83-9	0.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	75-15-0	1.56	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	56-23-5	0.63	0.12	0.75	0.14	0.88	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	108-90-7	0.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	75-00-3	0.79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	67-66-3	0.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	74-87-3	0.62	0.48	0.99	0.50	1.03	0.64	1.32	0.70	1.44	0.44	0.91	0.45	0.93
cis-1,2-Dichloroethylene	156-59-2	0.40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	10061-01-5	0.45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	110-82-7	0.69	ND	ND	ND	ND	ND	ND	0.34	1.17	ND	ND	ND	ND
Dibromochloromethane	124-48-1	1.70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane (FREON 12)	75-71-8	0.98	0.55	2.70	0.47	2.31	0.52	2.55	0.98	4.81	0.50	2.46	0.65	3.19
Ethanol (ethyl alcohol)	64-17-5	1.88	10.7	20.15	4.5	8.47	4.1	7.72	133	250.40	1.7	3.20	28.3	53.28
Ethyl Acetate	141-78-6	3.60	ND	ND	ND	ND	ND	ND	6.4	23.05	ND	ND	ND	ND
Ethylbenzene	100-41-4	0.43	ND	ND	ND	ND	ND	ND	0.79	3.43	ND	ND	ND	ND
Ethylene Dibromide	106-93-4	0.77	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptane	142-82-5	1.23	ND	ND	ND	ND	ND	ND	1.10	4.50	ND	ND	ND	ND
Hexachlorobutadiene	87-68-3	5.33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexane	110-54-3	0.70	1.15	4.05	ND	ND	0.38	1.34	0.71	2.50	ND	ND	0.33	1.16
Methyl Butyl Ketone (2-Hexanone)	591-78-6	4.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	78-93-3	0.59	2.11	6.22	0.55	1.62	0.40	1.18	11.8	34.77	0.40	1.18	1.83	5.39
Methyl Isobutyl Ketone	108-10-1	0.82	ND	ND	ND	ND	ND	ND	0.21	0.86	ND	ND	ND	ND
Methyl t-butyl ether (MTBE)	1634-04-4	0.72	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride(Dichloromethane)	75-09-2	2.08	1.21	4.20	ND	ND	ND	ND	0.91	3.16	ND	ND	ND	ND
Naphthalene	91-20-3	1.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	95-47-6	0.43	ND	ND	ND	ND	ND	ND	0.84	3.64	ND	ND	ND	ND
p+m-Xylene	106-42-3/108-38-3	0.87	ND	ND	ND	ND	ND	ND	2.54	11.02	ND	ND	0.30	1.30
Propene	115-07-1	1.63	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100-42-5	0.43	ND	ND	ND	ND	ND	ND	0.63	2.68	ND	ND	ND	ND
Tetrachloroethylene	127-18-4	0.68	ND	ND	ND	ND	ND	ND	0.31	2.10	ND	ND	ND	ND
Tetrahydrofuran	109-99-9	1.18	ND	ND	ND	ND	ND	ND	0.76	2.24	ND	ND	ND	ND
Toluene	108-88-3	0.38	0.51	1.92	0.12	0.45	0.15	0.56	2.91	10.96	0.15	0.56	0.52	1.96
Total Xylenes	1330-20-7	1.30	ND	ND	ND	ND	ND	ND	3.37	14.62	ND	ND	0.30	1.30
trans-1,2-Dichloroethylene	156-60-5	0.40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	10061-02-6	0.45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	79-01-6	0.54	ND	ND	ND	ND	ND	ND	0.18	0.97	ND	ND	ND	ND
Trichlorofluoromethane (FREON 11)	75-69-4	1.12	0.46	2.58	0.35	1.96	0.30	1.68	1.24	6.96	0.22	1.24	0.34	1.91
Trichlorotrifluoroethane	76-13-1	1.15	ND	ND	ND	ND	ND	ND	0.26	1.99	ND	ND	ND	ND
Vinyl Acetate	108-05-4	0.70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Bromide	593-60-2	0.87	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	75-01-4	0.05	0.03	0.08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methyl Hexane	591-76-4	2.95	ND	ND	ND	ND	ND	ND	1.1	4.50	ND	ND	ND	ND
2-Methyl Butane	78-78-4	2.95	ND	ND	ND	ND	ND	ND	7.7	22.70	ND	ND	1.5	4.42
Limonene	138-86-3	2.95	ND	ND	ND	ND	ND	ND	5.7	31.73	ND	ND	ND	ND
Pentane	109-66-0	2.95	2.60	7.67	ND	ND	ND	ND	16.6	48.95	ND	ND	1.4	4.13

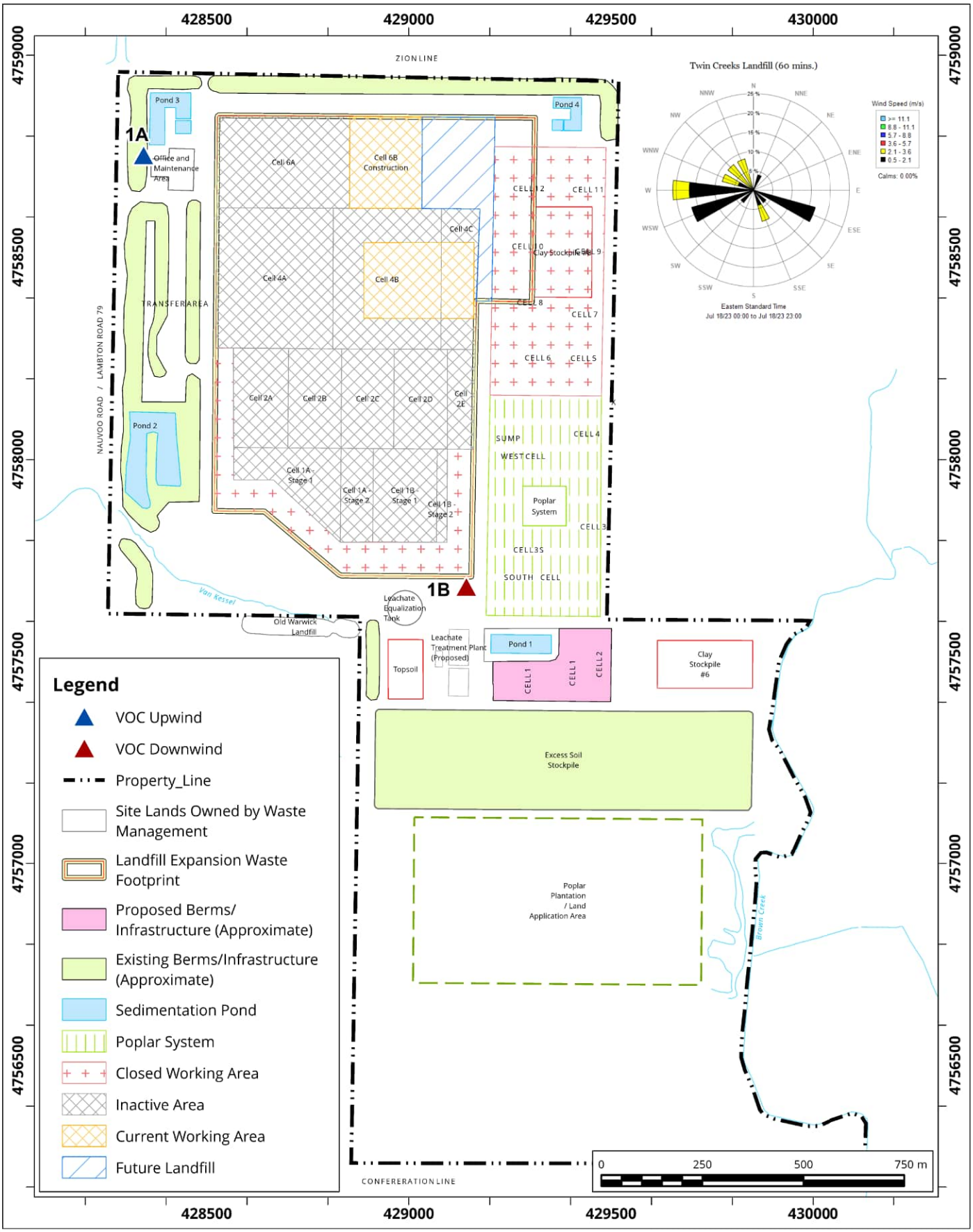
Notes: ND - not detected, below method detection limit
MAV - Monitoring Assessment Values
JSL - Jurisdictional Screening Levels
[1] O. Reg. 419/05
[2] Target List VOC item found using library search

Table 1: TWIN CREEKS LANDFILL SITE - 24 HOUR VOLATILE ORGANIC COM

Sample Date			September 3, 2023				September 15, 2023							
Sample ID			3-Sept-23-W		3-Sept-23-NE		4B		4A					
Sample Location (Upwind/Downwind)			Upwind		Downwind		Upwind		Downwind					
Sample Duration (min)			1440		1440		1435		1440					
Initial Canister Pressure ("Hg)			-29		-29		-28		-27					
Final Canister Pressure ("Hg)			-7.6		-5.3		-2.4		-2.9					
Parameter	**CAS Number**	**Reportable Detection Limit**	**Concentration**		**Concentration**		**Concentration**		**Concentration**		**Maximum Concentration Upwind**	**Maximum Concentration Downwind**	**Air Quality Standard [1]**	**Percent of Standard (Downwind)**
		(ug/m^3)	**(ppb)**	**(ug/m^3)**	**(ppb)**	**(ug/m^3)**	**(ppb)**	**(ug/m^3)**	**(ppb)**	**(ug/m^3)**	**(ug/m^3)**	**(ug/m^3)**	**(ug/m^3)**	**(%)**
1,1,1,2-Tetrachloroethane	630-20-6	0.69	ND	ND	ND	ND	ND	ND	ND	ND	-	-	0.5 (JSL)	-
1,1,1-Trichloroethane	71-55-6	0.55	ND	ND	ND	ND	ND	ND	ND	ND	-	-	115,000	-
1,1,2,2-Tetrachloroethane	79-34-5	0.69	ND	ND	ND	ND	ND	ND	ND	ND	-	-	0.1 (JSL)	-
1,1,2-Trichloroethane	79-00-5	0.55	ND	ND	ND	ND	ND	ND	ND	ND	-	-	0.3 (JSL)	-
1,1-Dichloroethane	75-34-3	0.40	ND	ND	ND	ND	ND	ND	ND	ND	-	-	165	-
1,1-Dichloroethylene	75-35-4	0.40	ND	ND	ND	ND	ND	ND	ND	ND	-	-	10	-
1,2,4-Trichlorobenzene	120-82-1	3.71	ND	ND	ND	ND	ND	ND	ND	ND	-	-	400	-
1,2,4-Trimethylbenzene	95-63-6	2.46	ND	ND	ND	ND	ND	ND	ND	ND	-	-	220	-
1,2-Dichlorobenzene	95-50-1	0.60	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-
1,2-Dichloroethane	107-06-2	0.40	0.02	0.09	ND	ND	ND	ND	ND	ND	0.09	0.49	2	24.26%
1,2-Dichloropropane	78-87-5	0.46	ND	ND	ND	ND	ND	ND	ND	ND	-	-	2400	-
1,2-Dichlorotetrafluoroethane	76-14-2	1.19	ND	ND	ND	ND	ND	ND	ND	ND	-	-	700000	-
1,3,5-Trimethylbenzene	108-67-8	2.46	ND	ND	ND	ND	ND	ND	ND	ND	-	-	220	-
1,3-Butadiene	106-99-0	1.11	ND	ND	ND	ND	ND	ND	ND	ND	-	-	10 (MAV)	-
1,3-Dichlorobenzene	541-73-1	2.40	ND	ND	ND	ND	ND	ND	ND	ND	-	-	50 (JSL)	-
1,4-Dichlorobenzene	106-46-7	0.60	ND	ND	ND	ND	ND	ND	ND	ND	-	-	95	-
1,4-Dioxane	123-91-1	3.60	ND	ND	ND	ND	ND	ND	ND	ND	-	-	3500	-
2,2,4-Trimethylpentane	540-84-1	0.93	ND	ND	ND	ND	ND	ND	ND	ND	-	-	1750 (JSL)	-
2-Propanol	67-63-0	2.46	ND	ND	ND	ND	ND	ND	ND	ND	-	15.47	7300	0.21%
2-Propanone	67-64-1	1.42	3.9	9.26	4.8	11.39	1.49	3.54	2.21	5.25	16.12	21.60	11880	0.18%
4-Ethyltoluene	622-96-8	2.46	ND	ND	ND	ND	ND	ND	ND	ND	-	-	625 (JSL)	-
Benzene	71-43-2	0.32	ND	ND	ND	ND	0.11	0.35	0.13	0.41	0.51	0.54	2.25 (MAV)	24.12%
Benzyl chloride	100-44-7	2.59	ND	ND	ND	ND	ND	ND	ND	ND	-	-	0.1 (JSL)	-
Bromodichloromethane	75-27-4	1.34	ND	ND	ND	ND	ND	ND	ND	ND	-	-	350 (JSL)	-
Bromoform	75-25-2	2.07	ND	ND	ND	ND	ND	ND	ND	ND	-	-	55	-
Bromomethane	74-83-9	0.39	ND	ND	ND	ND	ND	ND	ND	ND	-	-	1350	-
Carbon Disulfide	75-15-0	1.56	ND	ND	ND	ND	ND	ND	ND	ND	-	-	330	-
Carbon Tetrachloride	56-23-5	0.63	ND	ND	ND	ND	ND	ND	ND	ND	0.75	0.88	2.4	36.67%
Chlorobenzene	108-90-7	0.46	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-
Chloroethane	75-00-3	0.79	ND	ND	ND	ND	ND	ND	ND	ND	-	-	5600	-
Chloroform	67-66-3	0.49	ND	ND	ND	ND	ND	ND	ND	ND	-	-	1	-
Chloromethane	74-87-3	0.62	0.28	0.58	0.39	0.80	0.42	0.87	0.45	0.93	1.32	1.44	320	0.45%
cis-1,2-Dichloroethylene	156-59-2	0.40	ND	ND	ND	ND	ND	ND	ND	ND	-	-	105	-
cis-1,3-Dichloropropene	10061-01-5	0.45	ND	ND	ND	ND	ND	ND	ND	ND	-	-	2.25 (JSL)	-
Cyclohexane	110-82-7	0.69	ND	ND	ND	ND	ND	ND	ND	ND	-	1.17	6100	0.02%
Dibromochloromethane	124-48-1	1.70	ND	ND	ND	ND	ND	ND	ND	ND	-	-	0.2 (JSL)	-
Dichlorodifluoromethane (FREON 12)	75-71-8	0.98	0.38	1.87	0.4	1.96	0.52	2.55	0.54	2.65	2.70	4.81	500000	0.00%
Ethanol (ethyl alcohol)	64-17-5	1.88	ND	ND	ND	ND	3.8	7.15	12.7	23.91	20.15	250.40	-	-
Ethyl Acetate	141-78-6	3.60	ND	ND	ND	ND	ND	ND	ND	ND	-	23.05	-	-
Ethylbenzene	100-41-4	0.43	ND	ND	ND	ND	ND	ND	ND	ND	-	3.43	1000	0.34%
Ethylene Dibromide	106-93-4	0.77	ND	ND	ND	ND	ND	ND	ND	ND	-	-	3	-
Heptane	142-82-5	1.23	ND	ND	ND	ND	ND	ND	ND	ND	-	4.50	11000	0.04%
Hexachlorobutadiene	87-68-3	5.33	ND	ND	ND	ND	ND	ND	ND	ND	-	-	0.225 (JSL)	-
Hexane	110-54-3	0.70	ND	ND	ND	ND	ND	ND	ND	ND	4.05	2.50	7500	0.03%
Methyl Butyl Ketone (2-Hexanone)	591-78-6	4.09	ND	ND	ND	ND	ND	ND	ND	ND	-	-	150 (JSL)	-
Methyl Ethyl Ketone (2-Butanone)	78-93-3	0.59	0.33	0.97	0.56	1.65	ND	ND	ND	ND	6.22	34.77	1000	3.48%
Methyl Isobutyl Ketone	108-10-1	0.82	ND	ND	ND	ND	ND	ND	ND	ND	-	0.86	1200	0.07%
Methyl t-butyl ether (MTBE)	1634-04-4	0.72	ND	ND	ND	ND	ND	ND	ND	ND	-	-	7000	-
Methylene Chloride(Dichloromethane)	75-09-2	2.08	ND	ND	ND	ND	ND	ND	ND	ND	4.20	3.16	220	1.44%
Naphthalene	91-20-3	1.05	0.10	0.52	ND	ND	ND	ND	ND	ND	0.52	-	22.5	-
o-Xylene	95-47-6	0.43	ND	ND	ND	ND	ND	ND	ND	ND	-	3.64	-	-
p+m-Xylene	106-42-3/108-38-3	0.87	ND	ND	ND	ND	ND	ND	ND	ND	-	11.02	-	-
Propene	115-07-1	1.63	ND	ND	ND	ND	ND	ND	ND	ND	-	-	4000	-
Styrene	100-42-5	0.43	0.55	2.34	ND	ND	ND	ND	ND	ND	2.34	2.68	400	0.67%
Tetrachloroethylene	127-18-4	0.68	ND	ND	ND	ND	ND	ND	ND	ND	-	2.10	360	0.58%
Tetrahydrofuran	109-99-9	1.18	ND	ND	ND	ND	ND	ND	ND	ND	-	2.24	93000	0.00%
Toluene	108-88-3	0.38	ND	ND	0.15	0.56	0.12	0.45	0.21	0.79	1.92	10.96	2000	0.55%
Total Xylenes	1330-20-7	1.30	ND	ND	ND	ND	ND	ND	ND	ND	-	14.62	730	2.00%
trans-1,2-Dichloroethylene	156-60-5	0.40	ND	ND	ND	ND	ND	ND	ND	ND	-	-	105	-
trans-1,3-Dichloropropene	10061-02-6	0.45	ND	ND	ND	ND	ND	ND	ND	ND	-	-	2.25 (JSL)	-
Trichloroethylene	79-01-6	0.54	ND	ND	ND	ND	ND	ND	ND	ND	-	0.97	12	8.05%
Trichlorofluoromethane (FREON 11)	75-69-4	1.12	ND	ND	ND	ND	0.24	1.35	0.26	1.46	2.58	6.96	6000	0.12%
Trichlorotrifluoroethane	76-13-1	1.15	ND	ND	ND	ND	ND	ND	ND	ND	-	1.99	800000	0.00%
Vinyl Acetate	108-05-4	0.70	ND	ND	ND	ND	ND	ND	ND	ND	-	-	1000 (JSL)	-
Vinyl Bromide	593-60-2	0.87	ND	ND	ND	ND	ND	ND	ND	ND	-	-	15 (JSL)	-
Vinyl Chloride	75-01-4	0.05	ND	ND	ND	ND	ND	ND	0.02	0.05	0.08	0.05	1	5.11%
2-Methyl Hexane	591-76-4	2.95	ND	ND	ND	ND	ND	ND	ND	ND				
2-Methyl Butane	78-78-4	2.95	ND	ND	ND	ND	ND	ND	ND	ND				
Limonene	138-86-3	2.95	ND	ND	ND	ND	ND	ND	ND	ND				
Pentane	109-66-0	2.95	ND	ND	ND	ND	ND	ND	ND	ND				

Notes: ND - not detected, below method detection limit
MAV - Monitoring Assessment Values
JSL - Jurisdictional Screening Levels
[1] O. Reg. 419/05
[2] Target List VOC item found using library search

FIGURES



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 18, 2023

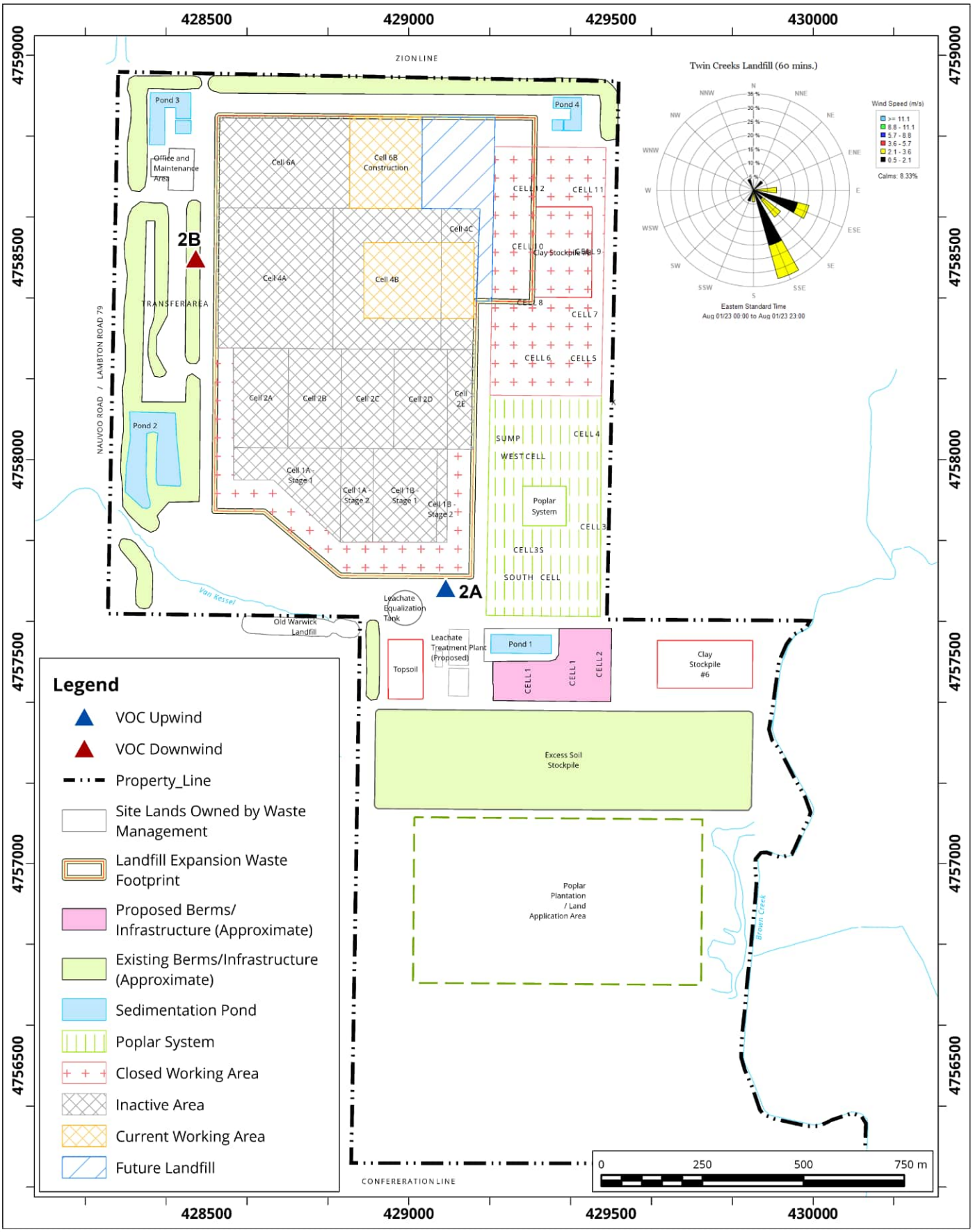
Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure:	1	
Approx. Scale:		1:13,000	
Date Revised:		Nov 1, 2023	



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 1, 2023

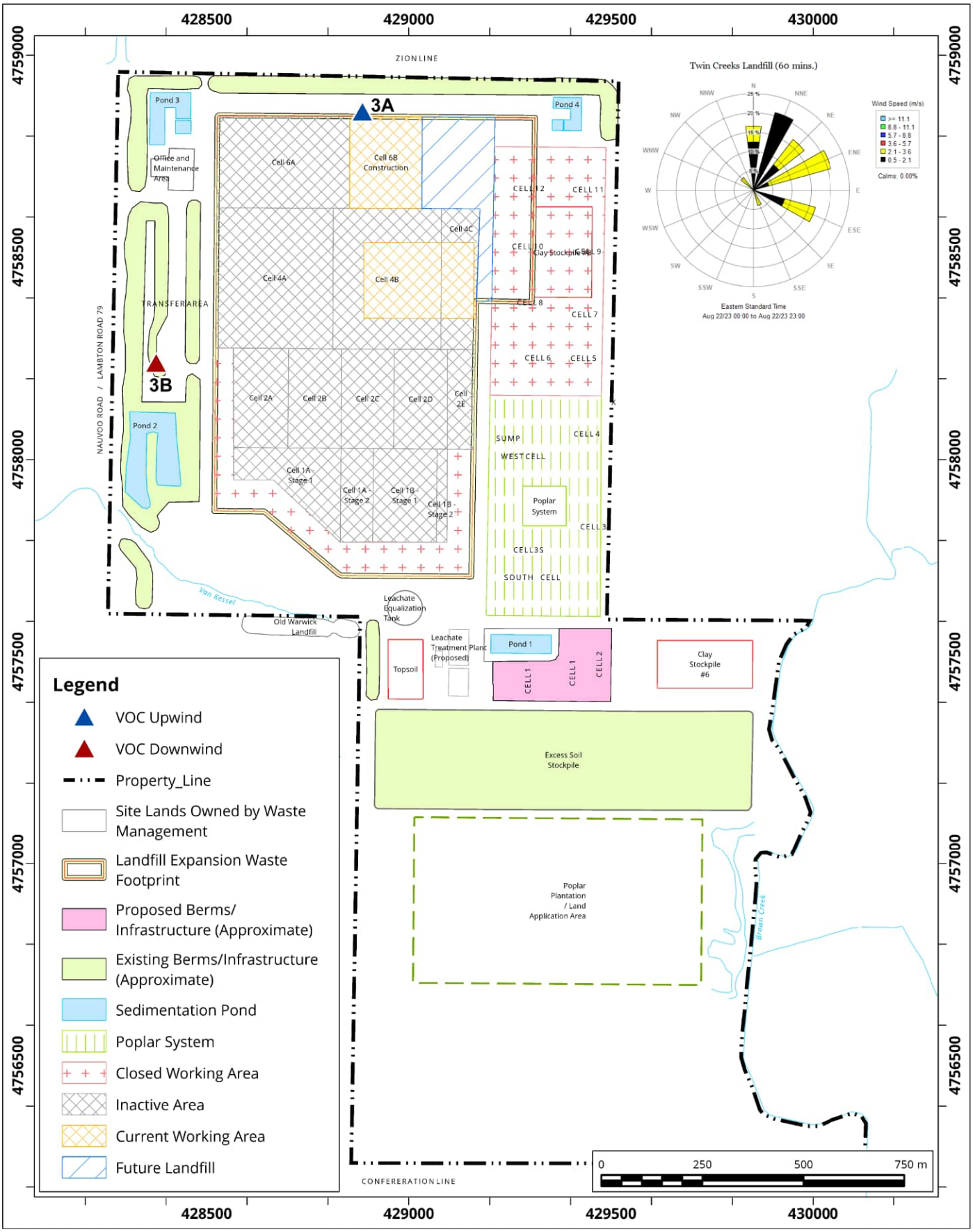
Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure:	2
Approx. Scale:		1:13,000
Date Revised:		Nov 1, 2023



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 22, 2023

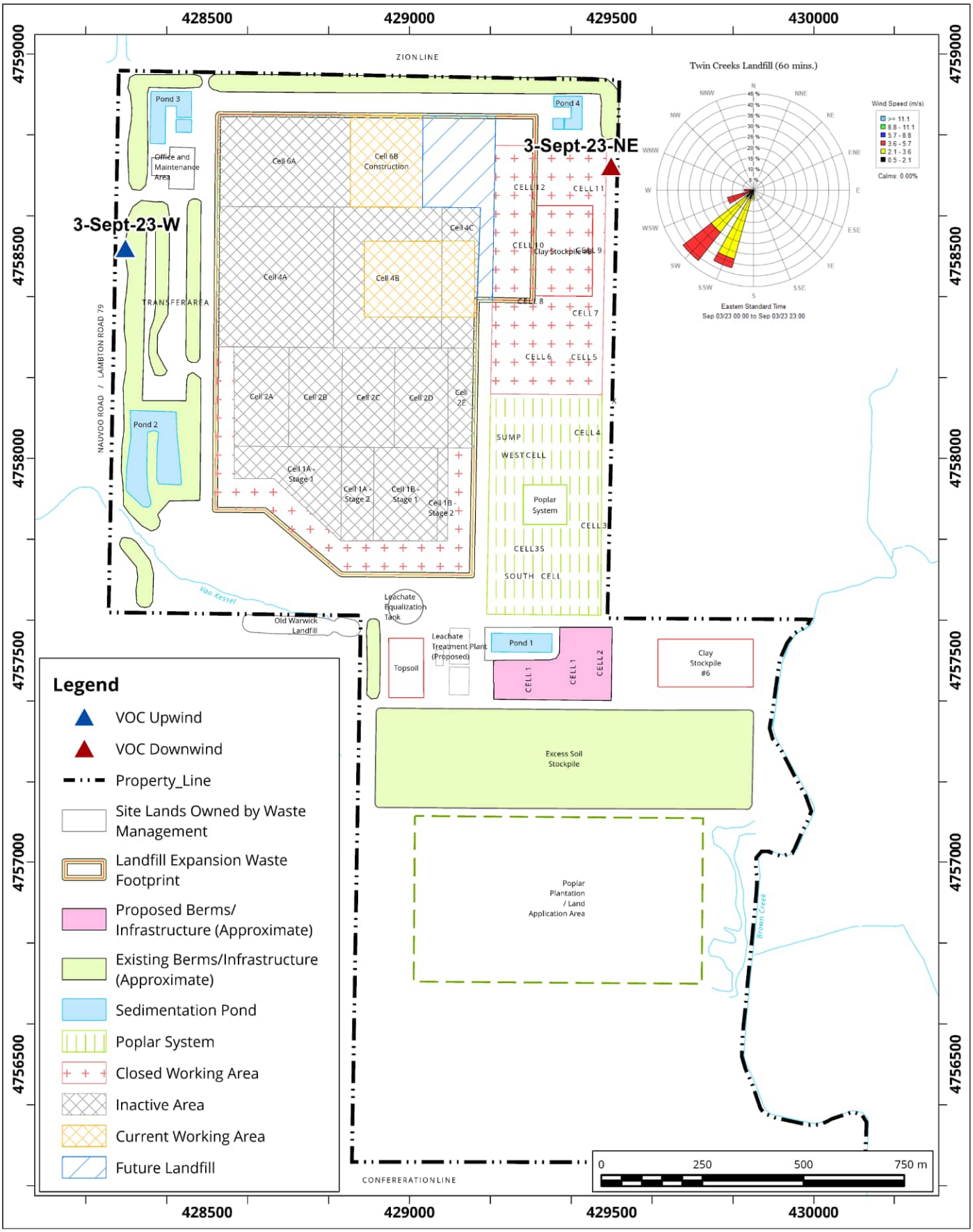
Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure:	3	
Approx. Scale:	1:13,000		
Date Revised:	Nov 1, 2023		



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 3, 2023

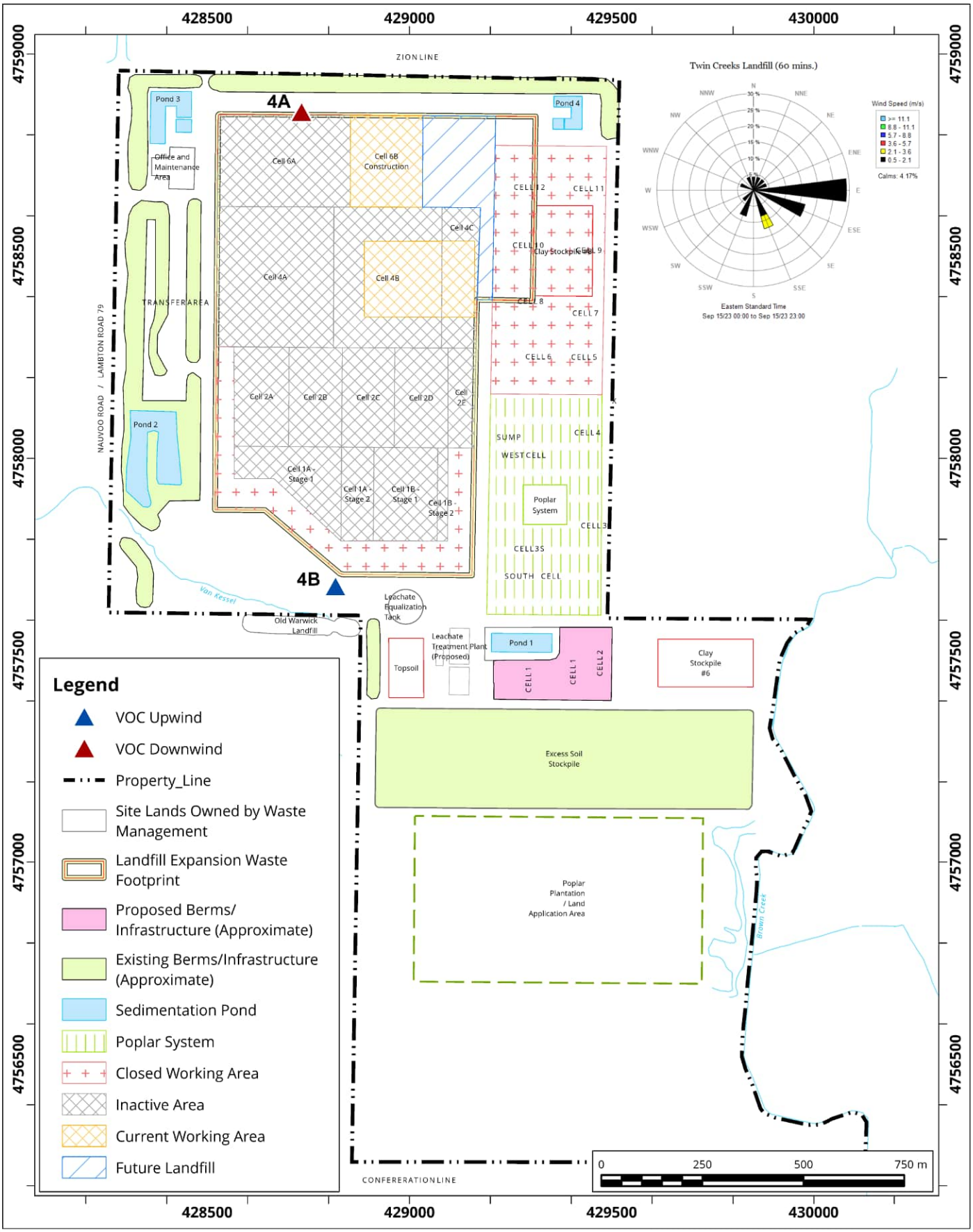
Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure:	4
Approx. Scale:		1:13,000
Date Revised:		Nov 2, 2023



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 15, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure:	5	
Approx. Scale:	1:13,000		
Date Revised:	Nov 2, 2023		

ATTACHMENT A

Summary of Target List for VOCs

CAS No.	Compound	CAS No.	Compound
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	620-14-4/622-96-8	m/p-Ethyl Toluene
526-73-8	1,2,3-Trimethyl Benzene	108-38-3/106-42-3	m/p-Xylene
95-63-6	1,2,4 Trimethyl Benzene	535-77-3	m-Cymene
108-67-8	1,3,5-Trimethyl Benzene	78-93-3	MEK
591-76-4	2-Methyl Hexane	108-87-2	Methyl Cyclohexane
107-83-5	2-Methyl Pentane	108-10-1	MIBK
78-78-4	2-Methyl Butane	75-45-6	Chlorodifluoromethane
96-14-0	3-Methyl Pentane	123-72-8	n-Butanal
589-34-4	3-Methyl Hexane	91-20-3	Naphthalene
67-64-1	Acetone	111-84-2	Nonane
71-43-2	Benzene	611-14-3	o-Ethyl Toluene
123-86-4	Butyl Acetate	95-47-6	o-Xylene
124-18-5	Decane	109-66-0	Pentane
25915-78-0	Dichlorodifluoromethane	64-17-5	Ethanol
75-09-2	Dichloromethane	103-65-1	Propyl Benzene
100-41-4	Ethyl Benzene	100-42-5	Styrene
142-82-5	Heptane	127-18-4	Tetrachloroethylene
110-54-3	Hexane	108-88-3	Toluene
67-63-0	Isopropyl Alcohol	75-69-4	Trichlorofluoromethane
138-86-3	Limonene	79-01-6	Trichloroethylene
75-01-4	Vinyl Chloride	141-78-6	Ethyl Acetate
56-23-5	Carbon Tetrachloride	71-55-6	1,1,1-Trichloroethane
67-66-3	Chloroform	75-35-4	Vinylidene Chloride
106-93-4	Ethylene Dibromide	540-59-0	1,2-Dichloroethene
107-06-2	Ethylene Dichloride	na	Total VOCs
75-00-3	Chloroethane	78-92-2	2-Butanol
75-00-2	Methylene Chloride	75-27-4	Bromodichloromethane
156-59-2	1,2-Dichloroethylene (cis)	111-65-9	Octane
75-34-3	1,1-Dichloroethane	79-34-5	1,1,2,2-Tetrachloroethane
156-60-5	1,2-Dichloroethylene (trans)	79-00-5	1,1,2-Trichloroethane
108-90-7	Chlorobenzene	25321-22-6	Dichlorobenzene
74-87-3	Chloromethane	75-43-4	Dichlorofluoromethane

Note: na - no applicable CAS Number.

ATTACHMENT B

Twin Creeks Landfill Meteorological Conditions - July 16 to July 18, 2023

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
7/16/2023 0:00	-41	9	14	S (174)	100	0
7/16/2023 1:00	-12.5	9	15	S (178)	100	0
7/16/2023 2:00	18.7	8	17	SSW (202)	100	0
7/16/2023 3:00	18.3	6	12	SW (219)	100	0
7/16/2023 4:00	18.7	9	17	SSW (212)	100	0
7/16/2023 5:00	-66.5	9	15	SW (232)	100	0
7/16/2023 6:00	-79.3	9	15	SW (220)	1	0
7/16/2023 7:00	-67.5	9	15	WSW (242)	100	0
7/16/2023 8:00	20.2	10	17	SW (236)	100	0
7/16/2023 9:00	21.4	13	20	SW (235)	100	0
7/16/2023 10:00	22.6	11	19	W (267)	99	0
7/16/2023 11:00	23.8	10	20	SW (228)	89	0
7/16/2023 12:00	24.7	12	20	SSW (205)	77	0
7/16/2023 13:00	25.7	13	22	S (186)	67	0
7/16/2023 14:00	26.3	15	28	SW (228)	62	0
7/16/2023 15:00	26.5	18	33	SSW (212)	62	0
7/16/2023 16:00	26.2	22	34	SW (232)	63	0
7/16/2023 17:00	26.4	22	37	WSW (247)	55	0
7/16/2023 18:00	25.7	20	32	W (272)	53	0
7/16/2023 19:00	24.8	15	26	W (264)	57	0
7/16/2023 20:00	23.2	10	16	WSW (250)	64	0
7/16/2023 21:00	21.3	10	15	W (272)	69	0
7/16/2023 22:00	19.8	8	15	W (263)	74	0
7/16/2023 23:00	18.5	9	13	SW (218)	74	0
7/17/2023 0:00	17.9	9	12	SW (218)	74	0
7/17/2023 1:00	17.4	7	13	SSW (209)	75	0
7/17/2023 2:00	17.2	11	14	SSW (203)	72	0
7/17/2023 3:00	16.2	6	13	SW (220)	80	0
7/17/2023 4:00	16.5	7	11	SSW (194)	76	0
7/17/2023 5:00	17	11	18	W (271)	81	0
7/17/2023 6:00	15.6	7	10	SW (222)	85	0
7/17/2023 7:00	16.6	7	12	SSE (163)	82	0
7/17/2023 8:00	18.1	11	17	S (184)	80	0
7/17/2023 9:00	20.1	9	14	SW (214)	71	0
7/17/2023 10:00	21.8	12	21	SW (231)	67	0
7/17/2023 11:00	22.5	12	25	NW (310)	64	0
7/17/2023 12:00	23.7	11	20	SSW (210)	64	0
7/17/2023 13:00	24.4	11	25	WSW (258)	60	0
7/17/2023 14:00	24.8	11	21	W (266)	57	0
7/17/2023 15:00	25.6	12	22	SW (221)	54	0
7/17/2023 16:00	25.2	14	24	WNW (283)	55	0
7/17/2023 17:00	24.8	9	18	NW (315)	55	0
7/17/2023 18:00	24.7	9	16	NW (307)	54	0
7/17/2023 19:00	24.5	7	14	NNW (338)	55	0
7/17/2023 20:00	23.3	4	7	NE (50)	64	0
7/17/2023 21:00	21.3	4	7	NNE (33)	72	0
7/17/2023 22:00	20.3	2	4	NNE (22)	76	0
7/17/2023 23:00	19.4	3	7	W (263)	84	0
7/18/2023 0:00	18.7	5	6	W (267)	83	0
7/18/2023 1:00	18.3	4	5	W (272)	81	0
7/18/2023 2:00	17.5	4	6	WSW (257)	85	0
7/18/2023 3:00	17.2	4	6	W (260)	85	0
7/18/2023 4:00	16.2	4	6	W (269)	100	0
7/18/2023 5:00	15.5	4	5	WSW (256)	100	0
7/18/2023 6:00	15.4	5	7	WSW (239)	100	0
7/18/2023 7:00	15.9	4	7	WSW (250)	100	0
7/18/2023 8:00	18.3	9	17	NW (307)	100	0
7/18/2023 9:00	19.9	12	18	NNW (331)	97	0

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
7/18/2023 10:00	20.7	11	19	W (261)	71	0
7/18/2023 11:00	21.5	9	17	NW (326)	63	0
7/18/2023 12:00	22	10	20	NNW (328)	57	0
7/18/2023 13:00	22.6	9	18	SSE (164)	55	0
7/18/2023 14:00	23	8	17	WNW (286)	54	0
7/18/2023 15:00	23.1	5	11	SW (229)	54	0
7/18/2023 16:00	23.1	3	7	WNW (289)	53	0
7/18/2023 17:00	23	3	5	SSE (147)	56	0
7/18/2023 18:00	23.1	3	8	ESE (107)	54	0
7/18/2023 19:00	23.2	5	8	ESE (104)	53	0
7/18/2023 20:00	22.6	4	7	SE (131)	67	0
7/18/2023 21:00	20.8	2	7	ESE (113)	71	0
7/18/2023 22:00	19.3	3	6	NNE (14)	86	0
7/18/2023 23:00	17.8	3	8	ESE (110)	90	0

Twin Creeks Landfill Meteorological Conditions - July 30 to August 1, 2023

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
7/30/2023 0:00	16.6	5	7	WNW (285)	90	0
7/30/2023 1:00	16.4	2	4	E (100)	100	0
7/30/2023 2:00	16.6	4	7	NE (46)	100	0
7/30/2023 3:00	16.2	2	6	ENE (58)	100	0
7/30/2023 4:00	16.3	3	7	WNW (285)	100	0
7/30/2023 5:00	16.2	3	9	ENE (61)	100	0
7/30/2023 6:00	16	4	7	SW (215)	100	0
7/30/2023 7:00	16.6	5	8	SW (236)	100	0
7/30/2023 8:00	18.1	6	9	WSW (244)	97	0
7/30/2023 9:00	19.4	6	11	NNW (327)	93	0
7/30/2023 10:00	20.3	9	17	NW (306)	77	0
7/30/2023 11:00	21	13	21	NNW (327)	69	0
7/30/2023 12:00	21.1	16	28	WNW (299)	66	0
7/30/2023 13:00	21.4	17	27	WNW (294)	60	0
7/30/2023 14:00	21.7	19	28	NW (314)	54	0
7/30/2023 15:00	21.9	16	25	WNW (296)	53	0
7/30/2023 16:00	22	15	27	NNW (339)	52	0
7/30/2023 17:00	21.9	14	23	NNE (21)	55	0
7/30/2023 18:00	21	12	19	NNW (327)	62	0
7/30/2023 19:00	20.6	9	15	NNW (340)	64	0
7/30/2023 20:00	19.7	5	10	NW (319)	75	0
7/30/2023 21:00	18.1	4	6	W (281)	80	0
7/30/2023 22:00	16.9	4	7	WSW (237)	82	0
7/30/2023 23:00	17	3	6	SSW (192)	81	0
7/31/2023 0:00	16.6	3	5	S (178)	83	0
7/31/2023 1:00	15.7	4	6	SW (222)	90	0
7/31/2023 2:00	14.6	5	7	SW (223)	100	0
7/31/2023 3:00	14.2	6	8	WSW (250)	100	0
7/31/2023 4:00	13.9	5	8	SW (226)	100	0
7/31/2023 5:00	13.9	8	10	WSW (247)	100	0
7/31/2023 6:00	13.7	5	7	WSW (251)	100	0
7/31/2023 7:00	14.4	6	8	WSW (246)	100	0
7/31/2023 8:00	17.7	8	16	WNW (302)	100	0
7/31/2023 9:00	19.6	15	21	NW (315)	91	0
7/31/2023 10:00	20.3	17	27	N (351)	71	0
7/31/2023 11:00	20.6	16	25	WNW (296)	70	0
7/31/2023 12:00	20.9	19	29	NW (309)	70	0
7/31/2023 13:00	21.2	19	30	NW (306)	67	0
7/31/2023 14:00	21.8	17	31	WNW (295)	62	0
7/31/2023 15:00	22.1	17	30	NNW (329)	62	0
7/31/2023 16:00	22.2	14	24	NW (325)	63	0
7/31/2023 17:00	22	12	21	N (1)	62	0
7/31/2023 18:00	21.6	10	17	NNW (333)	62	0
7/31/2023 19:00	20.7	7	13	N (2)	69	0
7/31/2023 20:00	19.2	4	10	NW (314)	77	0
7/31/2023 21:00	17.9	3	5	NNE (13)	83	0
7/31/2023 22:00	17.1	2	5	NNW (340)	89	0
7/31/2023 23:00	16.7	2	4	NW (320)	97	0
8/1/2023 0:00	16	2	5	NNW (338)	100	0
8/1/2023 1:00	15.8	2	5	NE (47)	100	0
8/1/2023 2:00	15.5	3	7	ESE (119)	100	0
8/1/2023 3:00	15.1	1	2	NNE (26)	100	0
8/1/2023 4:00	14.4	1	4	E (100)	100	0
8/1/2023 5:00	13.8	3	5	SSE (156)	100	0
8/1/2023 6:00	13.7	2	6	ESE (107)	100	0
8/1/2023 7:00	14.2	5	8	ESE (113)	100	0
8/1/2023 8:00	15.6	6	10	ESE (110)	94	0
8/1/2023 9:00	17.4	10	14	SE (134)	75	0

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
8/1/2023 10:00	19.2	10	14	E (100)	65	0
8/1/2023 11:00	20.5	10	15	E (93)	56	0
8/1/2023 12:00	21.3	8	14	ESE (122)	48	0
8/1/2023 13:00	22.3	7	14	SSE (157)	46	0
8/1/2023 14:00	22.8	7	16	SSE (164)	44	0
8/1/2023 15:00	23.2	6	14	SSW (210)	51	0
8/1/2023 16:00	23.3	5	11	SSE (162)	50	0
8/1/2023 17:00	23.2	6	13	SSE (152)	51	0
8/1/2023 18:00	23	7	11	SE (138)	51	0
8/1/2023 19:00	22.2	9	13	SSE (159)	62	0
8/1/2023 20:00	20.4	11	16	SSE (161)	66	0
8/1/2023 21:00	19.2	10	14	SSE (164)	66	0
8/1/2023 22:00	18.6	10	15	S (169)	63	0
8/1/2023 23:00	18.4	12	16	SE (146)	64	0

Twin Creeks Landfill Meteorological Conditions - August 20 to August 22, 2023

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
8/20/2023 0:00	16.4	10	14	SSW (200)	81	0
8/20/2023 1:00	16.4	11	15	S (176)	86	0
8/20/2023 2:00	16.2	9	15	SSE (153)	92	0
8/20/2023 3:00	16.4	9	15	SSE (151)	100	0
8/20/2023 4:00	16.6	11	17	SSE (152)	100	0
8/20/2023 5:00	16.3	11	15	SSE (168)	100	0
8/20/2023 6:00	16.3	10	12	SSE (154)	100	0
8/20/2023 7:00	17.2	11	16	S (172)	100	0
8/20/2023 8:00	19.4	11	20	SW (222)	94	0
8/20/2023 9:00	21.2	12	21	SW (227)	80	0
8/20/2023 10:00	23	11	18	SSW (211)	75	0
8/20/2023 11:00	24.5	9	14	W (265)	72	0
8/20/2023 12:00	25.6	9	19	SW (231)	70	0
8/20/2023 13:00	26.6	12	21	SW (222)	68	0
8/20/2023 14:00	27.4	15	23	SSW (211)	64	0
8/20/2023 15:00	27.9	15	26	SW (234)	61	0
8/20/2023 16:00	28.1	14	22	SW (231)	61	0
8/20/2023 17:00	27.6	11	20	SW (220)	66	0
8/20/2023 18:00	27.2	7	12	SSW (212)	70	0
8/20/2023 19:00	26.3	7	11	WSW (256)	75	0
8/20/2023 20:00	25	6	10	SW (236)	82	0
8/20/2023 21:00	24	5	8	WSW (251)	87	0
8/20/2023 22:00	23.6	6	8	WSW (254)	87	0
8/20/2023 23:00	23.3	5	10	SW (229)	92	0
8/21/2023 0:00	23	8	26	N (350)	100	0
8/21/2023 1:00	21.8	14	24	NNE (12)	94	0
8/21/2023 2:00	20.6	9	18	WNW (302)	84	0
8/21/2023 3:00	19.4	6	12	WNW (296)	100	0
8/21/2023 4:00	18.8	5	12	NW (311)	100	0
8/21/2023 5:00	18.2	5	10	NW (323)	100	0
8/21/2023 6:00	19	7	19	NNE (20)	100	0
8/21/2023 7:00	19.2	10	19	NW (314)	100	0
8/21/2023 8:00	18.8	14	24	NNW (348)	100	0
8/21/2023 9:00	18.9	12	18	NNE (33)	100	0
8/21/2023 10:00	20	12	21	N (3)	100	0
8/21/2023 11:00	22.2	13	21	NNW (344)	92	0
8/21/2023 12:00	22.8	11	21	NW (319)	84	0
8/21/2023 13:00	22.7	16	28	NNW (338)	71	0
8/21/2023 14:00	22.2	16	28	NW (322)	71	0
8/21/2023 15:00	21.5	18	27	NW (317)	71	0
8/21/2023 16:00	20.9	18	27	NNW (344)	70	0
8/21/2023 17:00	20.1	17	24	NNW (342)	73	0
8/21/2023 18:00	19.9	16	26	N (351)	74	0
8/21/2023 19:00	19.1	12	24	N (350)	76	0
8/21/2023 20:00	17.9	9	16	N (5)	85	0
8/21/2023 21:00	17.2	9	19	N (6)	88	0
8/21/2023 22:00	16	9	14	NNE (13)	83	0
8/21/2023 23:00	14.7	6	11	N (1)	86	0
8/22/2023 0:00	14.9	6	11	N (8)	87	0
8/22/2023 1:00	14.1	9	12	NE (47)	91	0
8/22/2023 2:00	13.6	6	11	NNE (21)	93	0
8/22/2023 3:00	13.3	7	12	NE (39)	98	0
8/22/2023 4:00	13.1	6	11	NNE (16)	100	0
8/22/2023 5:00	12.9	5	10	NNE (19)	100	0
8/22/2023 6:00	12.8	5	10	ENE (62)	100	0
8/22/2023 7:00	13.3	6	10	NNE (30)	100	0
8/22/2023 8:00	15.6	10	19	ENE (64)	97	0
8/22/2023 9:00	17.2	13	20	ENE (59)	80	0

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
8/22/2023 10:00	17.9	12	19	ENE (62)	74	0
8/22/2023 11:00	19	12	19	NE (44)	69	0
8/22/2023 12:00	20.3	10	19	N (4)	62	0
8/22/2023 13:00	21.2	9	17	ESE (103)	62	0
8/22/2023 14:00	21.7	10	20	ESE (102)	54	0
8/22/2023 15:00	22.4	10	20	ENE (78)	52	0
8/22/2023 16:00	22.9	8	15	SSE (153)	52	0
8/22/2023 17:00	23.2	7	15	NE (46)	51	0
8/22/2023 18:00	22.6	7	15	N (6)	66	0
8/22/2023 19:00	20.4	8	16	NW (326)	72	0
8/22/2023 20:00	18.4	5	11	N (10)	82	0
8/22/2023 21:00	17.5	3	6	NNE (19)	87	0
8/22/2023 22:00	16.9	3	6	ESE (105)	100	0
8/22/2023 23:00	16.9	4	7	ESE (123)	99	0

Twin Creeks Landfill Meteorological Conditions - September 1 to September 3, 2023

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
9/1/2023 0:00	13.2	7	11	E (101)	87	0
9/1/2023 1:00	13	10	12	ESE (113)	89	0
9/1/2023 2:00	12.5	10	12	ESE (105)	90	0
9/1/2023 3:00	12.5	11	14	E (99)	88	0
9/1/2023 4:00	12.3	12	14	ESE (116)	92	0
9/1/2023 5:00	12.4	11	14	ESE (113)	89	0
9/1/2023 6:00	12.1	11	13	ESE (117)	92	0
9/1/2023 7:00	13.1	11	14	E (101)	84	0
9/1/2023 8:00	14.9	11	15	ESE (115)	82	0
9/1/2023 9:00	17.3	12	17	ESE (110)	75	0
9/1/2023 10:00	19.9	11	18	SE (136)	74	0
9/1/2023 11:00	21.2	14	21	SSE (163)	67	0
9/1/2023 12:00	22	12	26	SE (142)	60	0
9/1/2023 13:00	22.4	14	22	SE (142)	59	0
9/1/2023 14:00	22.8	14	26	SE (144)	53	0
9/1/2023 15:00	22.8	14	24	SE (134)	55	0
9/1/2023 16:00	22.7	14	29	SE (133)	52	0
9/1/2023 17:00	22.4	14	21	S (172)	53	0
9/1/2023 18:00	21.8	13	18	ESE (121)	56	0
9/1/2023 19:00	19.9	14	21	SE (131)	62	0
9/1/2023 20:00	17.7	10	14	SSE (163)	68	0
9/1/2023 21:00	16.2	9	13	S (186)	72	0
9/1/2023 22:00	15.5	8	16	SSE (151)	78	0
9/1/2023 23:00	15.2	10	18	S (171)	83	0
9/2/2023 0:00	14.5	7	12	S (172)	100	0
9/2/2023 1:00	14.4	7	13	SSE (162)	100	0
9/2/2023 2:00	14.5	6	13	SSE (149)	100	0
9/2/2023 3:00	14.9	6	13	SSE (162)	100	0
9/2/2023 4:00	15	6	13	SSE (167)	100	0
9/2/2023 5:00	15.4	6	11	S (189)	100	0
9/2/2023 6:00	15.5	6	11	SSW (213)	100	0
9/2/2023 7:00	15.5	7	12	SW (222)	100	0
9/2/2023 8:00	16.3	8	19	SSW (200)	100	0
9/2/2023 9:00	18.3	15	30	SW (230)	100	0
9/2/2023 10:00	19.5	11	20	WSW (241)	100	0
9/2/2023 11:00	21.5	13	22	WSW (237)	89	0
9/2/2023 12:00	23.5	11	19	WSW (242)	71	0
9/2/2023 13:00	24.2	11	20	SW (230)	64	0
9/2/2023 14:00	24.3	13	24	SSW (198)	64	0
9/2/2023 15:00	24	12	22	SSW (209)	67	0
9/2/2023 16:00	23.7	13	26	SW (222)	69	0
9/2/2023 17:00	23.4	15	28	SSW (207)	72	0
9/2/2023 18:00	23.1	13	25	S (191)	75	0
9/2/2023 19:00	22.3	12	20	SSE (168)	76	0
9/2/2023 20:00	20.9	7	16	SW (219)	83	0
9/2/2023 21:00	19.7	5	9	S (183)	86	0
9/2/2023 22:00	19.4	6	12	SW (221)	86	0
9/2/2023 23:00	19.1	8	12	SW (224)	92	0
9/3/2023 0:00	18.6	6	12	SSW (196)	99	0
9/3/2023 1:00	18.9	9	14	SSW (202)	96	0
9/3/2023 2:00	19	10	16	SSW (202)	90	0
9/3/2023 3:00	18.7	9	15	SSW (205)	92	0
9/3/2023 4:00	18.1	8	13	SW (232)	100	0
9/3/2023 5:00	17.9	9	13	SSW (210)	100	0
9/3/2023 6:00	17.6	9	13	SSW (208)	100	0
9/3/2023 7:00	17.8	9	16	SW (216)	100	0
9/3/2023 8:00	19.7	14	22	SW (225)	100	0
9/3/2023 9:00	21.8	15	23	WSW (245)	94	0

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
9/3/2023 10:00	23.8	16	24	WSW (249)	74	0
9/3/2023 11:00	25.2	16	26	WSW (258)	68	0
9/3/2023 12:00	26.4	14	25	W (264)	63	0
9/3/2023 13:00	27.5	13	22	SSW (196)	60	0
9/3/2023 14:00	27.4	14	23	SW (218)	59	0
9/3/2023 15:00	27.6	14	26	SW (221)	59	0
9/3/2023 16:00	27.6	17	29	SSW (194)	63	0
9/3/2023 17:00	26.9	13	24	SW (226)	66	0
9/3/2023 18:00	25.8	11	18	SSW (195)	72	0
9/3/2023 19:00	25.4	8	15	S (185)	72	0
9/3/2023 20:00	24.7	6	10	SW (215)	74	0
9/3/2023 21:00	23.7	8	15	SW (218)	77	0
9/3/2023 22:00	23.3	11	17	SW (220)	81	0
9/3/2023 23:00	22.5	11	16	SW (221)	83	0

Twin Creeks Landfill Meteorological Conditions - September 13 to September 15, 2022

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
9/13/2023 0:00	14.5	5	7	W (279)	100	0
9/13/2023 1:00	14.4	4	8	SW (235)	100	0
9/13/2023 2:00	14.1	5	9	WSW (247)	100	0
9/13/2023 3:00	14.1	6	11	WNW (297)	100	0
9/13/2023 4:00	13	5	9	W (276)	100	0
9/13/2023 5:00	12.9	10	18	WNW (300)	100	0
9/13/2023 6:00	12.6	9	16	NW (305)	100	0
9/13/2023 7:00	12.5	7	14	WSW (256)	100	0
9/13/2023 8:00	12.8	7	14	WNW (299)	100	0.2
9/13/2023 9:00	14.1	11	23	WNW (296)	96	0
9/13/2023 10:00	15	14	24	NW (314)	82	0
9/13/2023 11:00	15.3	16	24	NW (316)	73	0
9/13/2023 12:00	15.8	15	25	WNW (302)	72	0
9/13/2023 13:00	16	15	22	WNW (290)	71	0
9/13/2023 14:00	16.2	17	26	NW (324)	70	0
9/13/2023 15:00	16.2	15	25	NW (325)	70	0
9/13/2023 16:00	15.9	14	21	WNW (291)	68	0
9/13/2023 17:00	16	11	19	NNW (334)	68	0
9/13/2023 18:00	15.6	11	19	NNW (337)	69	0.2
9/13/2023 19:00	14.3	6	14	ENE (72)	81	0
9/13/2023 20:00	13.1	2	5	NW (305)	86	0
9/13/2023 21:00	12	0	2	WNW (285)	100	0
9/13/2023 22:00	11.3	0	0	WNW (285)	100	0
9/13/2023 23:00	11	3	8	WSW (247)	100	0
9/14/2023 0:00	11.1	3	7	SSW (208)	100	0
9/14/2023 1:00	10.3	6	8	SW (220)	100	0
9/14/2023 2:00	10.5	6	9	SW (219)	100	0
9/14/2023 3:00	10.4	4	8	SW (219)	100	0
9/14/2023 4:00	10.5	5	8	SSW (212)	100	0
9/14/2023 5:00	10.8	6	8	SSW (206)	100	0
9/14/2023 6:00	10.3	1	6	SSW (212)	100	0
9/14/2023 7:00	10.7	1	4	NE (49)	100	0.2
9/14/2023 8:00	12.8	2	5	ENE (76)	100	0
9/14/2023 9:00	14.9	4	7	E (100)	90	0
9/14/2023 10:00	16.2	3	11	WSW (243)	71	0
9/14/2023 11:00	16.6	6	13	NW (304)	68	0
9/14/2023 12:00	17.2	7	16	WNW (295)	62	0
9/14/2023 13:00	17.7	8	19	N (3)	58	0
9/14/2023 14:00	18	10	20	W (267)	55	0
9/14/2023 15:00	18.4	12	23	WNW (291)	54	0
9/14/2023 16:00	18.2	12	20	NW (322)	49	0
9/14/2023 17:00	18.2	9	16	N (3)	51	0.2
9/14/2023 18:00	17.4	6	12	NNE (27)	63	0
9/14/2023 19:00	15.5	5	8	NE (43)	72	0
9/14/2023 20:00	14	6	8	ENE (67)	78	0
9/14/2023 21:00	12.9	5	8	ENE (62)	82	0
9/14/2023 22:00	12.2	4	7	ESE (103)	84	0
9/14/2023 23:00	11.6	4	6	ENE (75)	93	0
9/15/2023 0:00	10.8	6	9	E (83)	90	0
9/15/2023 1:00	10.7	5	10	SSW (200)	85	0
9/15/2023 2:00	10.2	3	8	SSW (196)	88	0
9/15/2023 3:00	9.7	1	4	SW (222)	100	0
9/15/2023 4:00	9	3	10	E (94)	100	0
9/15/2023 5:00	8.5	5	7	ESE (102)	100	0
9/15/2023 6:00	8.4	5	8	ESE (103)	100	0
9/15/2023 7:00	8.9	7	10	E (96)	100	0
9/15/2023 8:00	11.5	6	8	ESE (107)	84	0
9/15/2023 9:00	14.5	7	11	ESE (102)	76	0.2

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
9/15/2023 10:00	16.8	5	11	E (90)	68	0
9/15/2023 11:00	18.1	5	11	ENE (65)	56	0
9/15/2023 12:00	19	4	10	NNW (345)	57	0
9/15/2023 13:00	19.3	4	12	WNW (287)	54	0
9/15/2023 14:00	19.8	5	14	N (349)	53	0
9/15/2023 15:00	20	4	9	E (96)	51	0
9/15/2023 16:00	20.1	2	8	SW (218)	50	0
9/15/2023 17:00	20.2	3	7	NNE (15)	54	0
9/15/2023 18:00	18.9	5	9	E (94)	62	0
9/15/2023 19:00	16.8	5	8	NE (43)	72	0
9/15/2023 20:00	15.1	5	9	E (94)	76	0
9/15/2023 21:00	15	8	18	SSE (167)	76	0
9/15/2023 22:00	13.7	3	6	SSE (164)	82	0
9/15/2023 23:00	13.7	5	7	SE (146)	81	0

APPENDIX E1

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Canada

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November 6, 2023

Ms. Angela McLachlan | Environmental Compliance Manager
Waste Management of Canada Corporation
Twin Creeks Environmental Centre
8039 Zion Line
Watford, ON N0M 2S0
E: amclachl@wm.com

Re: Third Quarter (Q3) TCLF Ambient Volatile Organic Compound Sampling Report
Twin Creeks Environmental Centre | Watford, ON
RWDI Reference No. 2303459.02

Dear Ms. McLachlan,

RWDI AIR Inc. (RWDI) was retained by Waste Management of Canada Corporation (WM) to conduct an ambient air monitoring program (AAQMP) at the Twin Creeks Environmental Centre, located in Watford, Ontario. This report outlines the fence line Volatile Organic Compound (VOCs) samples collected during July to September 2023 as outlined in the Ambient Air Quality Monitoring Plan dated May 18, 2017. Results from the Particulate Matter sampling is provided under separate cover. VOC sampling is part of the requirements under Amended Environmental Compliance Approval Number A032203, dated February 4, 2023 (Waste ECA), under Terms and Conditions 13.8 and 13.9.

SAMPLING METHODOLOGY

The VOC samples were collected in specially prepared canisters as specified in EPA Compendium Method TO-14/15. Mass flow controller units approved for use by the MECP were used to maintain a constant flow rate. The samples were collected over a 24-hour duration. The mass flow controllers are equipped with stainless steel sintered filters and stainless-steel pressure gauges to ensure that the canisters remained under slightly negative pressure at the completion of each testing period. The target list of compounds noted in the Air Quality Monitoring Plan was analyzed. Compounds that are not typically found in the TO-14/15 scan were assessed using an open scan and library search method for compound identification. Only compounds that were identified were included in the laboratory report; otherwise, all parameters not found are referenced in the note section of the laboratory reports.

A set of upwind and downwind samples were collected on July 18, August 1, August 22, September 3 and September 15, 2023. The sample locations for this event are presented in **Figure 1**. Samples were collected under light wind conditions. A windrose that displays the wind speed and direction during the sampling event is also provided in **Figure 1**.

BEST MANAGED COMPANIES Platinum member

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Light winds are generally associated with higher ambient concentration due to reduced atmospheric dispersion of pollutants. The samples were analyzed using the method defined in the U.S. EPA Method TO-14/15 for Summa Canisters. Vinyl Chloride is of particular concern in this type of monitoring program and was analyzed in selective ion mode (SIM). A list of the target VOCs can be found in **Attachment A**. Samples were submitted to Bureau Veritas located in Mississauga, Ontario and ALS Environmental located in Waterloo, Ontario for analysis. Meteorological conditions for wind speed and direction, temperature, and rain fall were collected from the on-site meteorological station. Please refer to the figure for the meteorological station location. A summary of weather data from the sampling date and two (2) days prior are provided in **Attachment B**.

RESULTS

All measured concentrations of the five (5) sample sets taken in the third quarter were below their respective air quality standards. The following compounds were detected in the upwind samples.

- 1,2-Dichloroethane
- 2-Propanone
- Benzene
- Carbon Tetrachloride
- Chloromethane
- Dichlorodifluoromethane
- Ethanol
- Hexane
- Methyl Ethyl Ketone
- Methylene Chloride
- Naphthalene
- Styrene
- Toluene
- Trichlorofluoromethane
- Vinyl Chloride
- Pentane

The following compounds were detected in the downwind samples.

- 1,2-Dichloroethane
- 2-Propanol
- 2-Propanone
- Benzene
- Carbon Tetrachloride
- Chloromethane
- Cyclohexane
- Dichlorodifluoromethane
- Ethanol
- Ethyl Acetate
- Ethylbenzene
- Heptane
- Hexane
- Methyl Ethyl Ketone
- Methyl Isobutyl Ketone
- Methylene Chloride
- o-Xylene
- p+m-Xylene
- Styrene
- Tetrachloroethylene
- Tetrahydrofuran
- Toluene
- Total Xylenes
- Trichloroethylene
- Trichlorofluoromethane
- Trichlorotrifluoroethane
- Vinyl Chloride
- 2-Methyl-Hexane
- 2-Methyl-Butane
- Limonene
- Pentane

The highest downwind concentration, when compared to its respective air quality standard is Carbon Tetrachloride with a value of 0.88 $\mu g/m^3$ or 36.67% of its standard. The highest upwind concentration, when compared to its respective air quality standard is also Carbon Tetrachloride with a value of 0.75 $\mu g/m^3$ or 31.43% of its standard. Please refer to **Table 1** for all applicable values and standards.

Some of the contaminants of interest are not found within the laboratory analysis for TO-14/15. As such, all samples are screened using a library search for the remaining contaminants of interest. In these sampling events, no detectable levels were found for the following compounds: 1,2,3-Trimethylbenzene, 2-Methylpentane, 3-Methylpentane, 3-Methylhexane, Butyl Acetate, Decane, m/p ethyl toluene, m-cymene, methyl cyclohexane, chlorodifluoromethane, n-butanal, nonane, o-ethyl toluene, propylbenzene, 2-butanol and octane. All laboratory reports will be provided in the Annual Report.

CLOSING

We trust that this 2023 third quarter ambient VOC monitoring report for the Twin Creeks Environmental Centre is satisfactory for your current requirements. Please feel free to contact us with any questions or comments that you may have with respect to this submission.

Yours very truly,

RWDI AIR Inc.

Khalid Hussein, P.Eng.
Project Manager

KAMH/kta

Attach.

GENERAL STATEMENT OF LIMITATIONS

This report entitled "Third Quarter (Q3) TCLF Ambient Volatile Organic Compound Sampling Report", dated November 6, 2023 was prepared by RWDI AIR Inc. ("RWDI") for Waste Management of Canada Corporation ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). This report was prepared using scientific principles, published methodologies and professional judgment in assessing available information and data. The findings presented within this document are based on available data within the limits of the existing information, budgeted scope of work, and schedule. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.

This report was prepared for the exclusive use of Waste Management of Canada Corporation and the MECP. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. RWDI accepts no responsibility for damages, if any, suffered by any third party as result of decisions made or actions based on this report.

TABLES

Table 1: TWIN CREEKS LANDFILL SITE - 24 HOUR VOLATILE ORGANIC COMPOUNDS SAMPLING RESULTS

Sample Date			July 18, 2023				August 1, 2023				August 22, 2023			
Sample ID			1A		1B		2A		2B		3A		3B	
Sample Location (Upwind/Downwind)			Upwind		Downwind		Upwind		Downwind		Upwind		Downwind	
Sample Duration (min)			1410		1440		1440		1440		1440		1440	
Initial Canister Pressure ("Hg)			-29		-30		-30		-29		-30		-30	
Final Canister Pressure ("Hg)			-2.0		-3.7		-3.7		-3.9		-3.6		-3.6	
Parameter	CAS Number	Reportable Detection Limit	Concentration		Concentration		Concentration		Concentration		Concentration		Concentration	
		(ug/m^3)	(ppb)	(ug/m^3)	(ppb)	(ug/m^3)	(ppb)	(ug/m^3)	(ppb)	(ug/m^3)	(ppb)	(ug/m^3)	(ppb)	(ug/m^3)
1,1,1,2-Tetrachloroethane	630-20-6	0.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	71-55-6	0.55	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	79-34-5	0.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	79-00-5	0.55	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	75-34-3	0.40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	75-35-4	0.40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	120-82-1	3.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	95-63-6	2.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	95-50-1	0.60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	107-06-2	0.40	ND	ND	ND	ND	ND	ND	0.12	0.49	ND	ND	ND	ND
1,2-Dichloropropane	78-87-5	0.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorotetrafluoroethane	76-14-2	1.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	108-67-8	2.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Butadiene	106-99-0	1.11	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	541-73-1	2.40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	106-46-7	0.60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	123-91-1	3.60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,2,4-Trimethylpentane	540-84-1	0.93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Propanol	67-63-0	2.46	ND	ND	ND	ND	ND	ND	6.3	15.47	ND	ND	ND	ND
2-Propanone	67-64-1	1.42	6.79	16.12	2.47	5.86	2.93	6.95	9.1	21.60	2.99	7.10	5.26	12.48
4-Ethyltoluene	622-96-8	2.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	71-43-2	0.32	0.16	0.51	0.12	0.38	0.16	0.51	0.14	0.45	0.15	0.48	0.17	0.54
Benzyl chloride	100-44-7	2.59	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	75-27-4	1.34	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	75-25-2	2.07	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	74-83-9	0.39	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	75-15-0	1.56	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	56-23-5	0.63	0.12	0.75	0.14	0.88	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	108-90-7	0.46	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	75-00-3	0.79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	67-66-3	0.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	74-87-3	0.62	0.48	0.99	0.50	1.03	0.64	1.32	0.70	1.44	0.44	0.91	0.45	0.93
cis-1,2-Dichloroethylene	156-59-2	0.40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	10061-01-5	0.45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	110-82-7	0.69	ND	ND	ND	ND	ND	ND	0.34	1.17	ND	ND	ND	ND
Dibromochloromethane	124-48-1	1.70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane (FREON 12)	75-71-8	0.98	0.55	2.70	0.47	2.31	0.52	2.55	0.98	4.81	0.50	2.46	0.65	3.19
Ethanol (ethyl alcohol)	64-17-5	1.88	10.7	20.15	4.5	8.47	4.1	7.72	133	250.40	1.7	3.20	28.3	53.28
Ethyl Acetate	141-78-6	3.60	ND	ND	ND	ND	ND	ND	6.4	23.05	ND	ND	ND	ND
Ethylbenzene	100-41-4	0.43	ND	ND	ND	ND	ND	ND	0.79	3.43	ND	ND	ND	ND
Ethylene Dibromide	106-93-4	0.77	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptane	142-82-5	1.23	ND	ND	ND	ND	ND	ND	1.10	4.50	ND	ND	ND	ND
Hexachlorobutadiene	87-68-3	5.33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexane	110-54-3	0.70	1.15	4.05	ND	ND	0.38	1.34	0.71	2.50	ND	ND	0.33	1.16
Methyl Butyl Ketone (2-Hexanone)	591-78-6	4.09	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone (2-Butanone)	78-93-3	0.59	2.11	6.22	0.55	1.62	0.40	1.18	11.8	34.77	0.40	1.18	1.83	5.39
Methyl Isobutyl Ketone	108-10-1	0.82	ND	ND	ND	ND	ND	ND	0.21	0.86	ND	ND	ND	ND
Methyl t-butyl ether (MTBE)	1634-04-4	0.72	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride(Dichloromethane)	75-09-2	2.08	1.21	4.20	ND	ND	ND	ND	0.91	3.16	ND	ND	ND	ND
Naphthalene	91-20-3	1.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	95-47-6	0.43	ND	ND	ND	ND	ND	ND	0.84	3.64	ND	ND	ND	ND
p+m-Xylene	106-42-3/108-38-3	0.87	ND	ND	ND	ND	ND	ND	2.54	11.02	ND	ND	0.30	1.30
Propene	115-07-1	1.63	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	100-42-5	0.43	ND	ND	ND	ND	ND	ND	0.63	2.68	ND	ND	ND	ND
Tetrachloroethylene	127-18-4	0.68	ND	ND	ND	ND	ND	ND	0.31	2.10	ND	ND	ND	ND
Tetrahydrofuran	109-99-9	1.18	ND	ND	ND	ND	ND	ND	0.76	2.24	ND	ND	ND	ND
Toluene	108-88-3	0.38	0.51	1.92	0.12	0.45	0.15	0.56	2.91	10.96	0.15	0.56	0.52	1.96
Total Xylenes	1330-20-7	1.30	ND	ND	ND	ND	ND	ND	3.37	14.62	ND	ND	0.30	1.30
trans-1,2-Dichloroethylene	156-60-5	0.40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	10061-02-6	0.45	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	79-01-6	0.54	ND	ND	ND	ND	ND	ND	0.18	0.97	ND	ND	ND	ND
Trichlorofluoromethane (FREON 11)	75-69-4	1.12	0.46	2.58	0.35	1.96	0.30	1.68	1.24	6.96	0.22	1.24	0.34	1.91
Trichlorotrifluoroethane	76-13-1	1.15	ND	ND	ND	ND	ND	ND	0.26	1.99	ND	ND	ND	ND
Vinyl Acetate	108-05-4	0.70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Bromide	593-60-2	0.87	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	75-01-4	0.05	0.03	0.08	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methyl Hexane	591-76-4	2.95	ND	ND	ND	ND	ND	ND	1.1	4.50	ND	ND	ND	ND
2-Methyl Butane	78-78-4	2.95	ND	ND	ND	ND	ND	ND	7.7	22.70	ND	ND	1.5	4.42
Limonene	138-86-3	2.95	ND	ND	ND	ND	ND	ND	5.7	31.73	ND	ND	ND	ND
Pentane	109-66-0	2.95	2.60	7.67	ND	ND	ND	ND	16.6	48.95	ND	ND	1.4	4.13

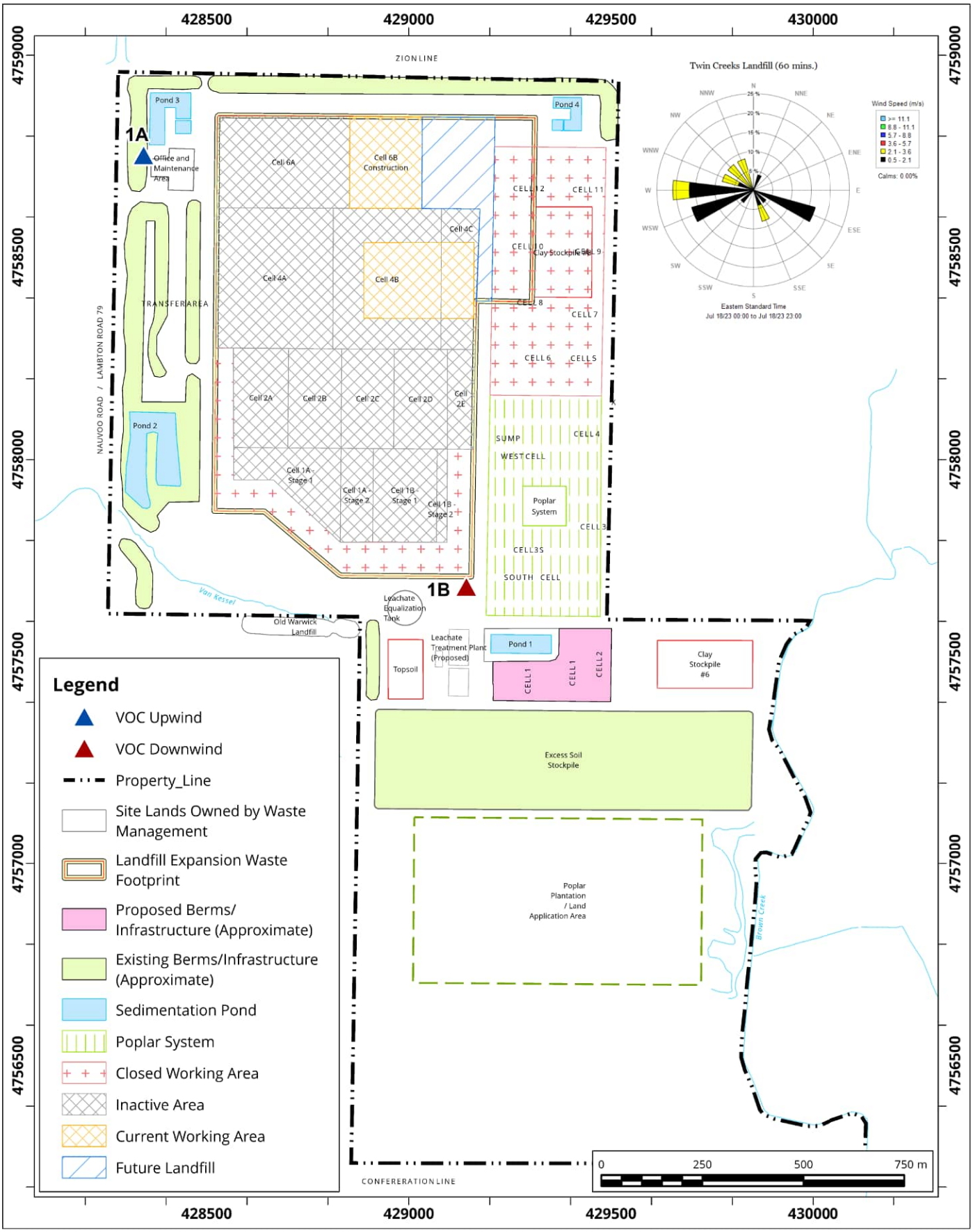
Notes: ND - not detected, below method detection limit
MAV - Monitoring Assessment Values
JSL - Jurisdictional Screening Levels
[1] O. Reg. 419/05
[2] Target List VOC item found using library search

Table 1: TWIN CREEKS LANDFILL SITE - 24 HOUR VOLATILE ORGANIC COM

Sample Date			September 3, 2023				September 15, 2023							
Sample ID			3-Sept-23-W		3-Sept-23-NE		4B		4A					
Sample Location (Upwind/Downwind)			Upwind		Downwind		Upwind		Downwind					
Sample Duration (min)			1440		1440		1435		1440					
Initial Canister Pressure ("Hg)			-29		-29		-28		-27					
Final Canister Pressure ("Hg)			-7.6		-5.3		-2.4		-2.9					
Parameter	**CAS Number**	**Reportable Detection Limit**	**Concentration**		**Concentration**		**Concentration**		**Concentration**		**Maximum Concentration Upwind**	**Maximum Concentration Downwind**	**Air Quality Standard [1]**	**Percent of Standard (Downwind)**
		(ug/m^3)	**(ppb)**	**(ug/m^3)**	**(ppb)**	**(ug/m^3)**	**(ppb)**	**(ug/m^3)**	**(ppb)**	**(ug/m^3)**	**(ug/m^3)**	**(ug/m^3)**	**(ug/m^3)**	**(%)**
1,1,1,2-Tetrachloroethane	630-20-6	0.69	ND	ND	ND	ND	ND	ND	ND	ND	-	-	0.5 (JSL)	-
1,1,1-Trichloroethane	71-55-6	0.55	ND	ND	ND	ND	ND	ND	ND	ND	-	-	115,000	-
1,1,2,2-Tetrachloroethane	79-34-5	0.69	ND	ND	ND	ND	ND	ND	ND	ND	-	-	0.1 (JSL)	-
1,1,2-Trichloroethane	79-00-5	0.55	ND	ND	ND	ND	ND	ND	ND	ND	-	-	0.3 (JSL)	-
1,1-Dichloroethane	75-34-3	0.40	ND	ND	ND	ND	ND	ND	ND	ND	-	-	165	-
1,1-Dichloroethylene	75-35-4	0.40	ND	ND	ND	ND	ND	ND	ND	ND	-	-	10	-
1,2,4-Trichlorobenzene	120-82-1	3.71	ND	ND	ND	ND	ND	ND	ND	ND	-	-	400	-
1,2,4-Trimethylbenzene	95-63-6	2.46	ND	ND	ND	ND	ND	ND	ND	ND	-	-	220	-
1,2-Dichlorobenzene	95-50-1	0.60	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-
1,2-Dichloroethane	107-06-2	0.40	0.02	0.09	ND	ND	ND	ND	ND	ND	0.09	0.49	2	24.26%
1,2-Dichloropropane	78-87-5	0.46	ND	ND	ND	ND	ND	ND	ND	ND	-	-	2400	-
1,2-Dichlorotetrafluoroethane	76-14-2	1.19	ND	ND	ND	ND	ND	ND	ND	ND	-	-	700000	-
1,3,5-Trimethylbenzene	108-67-8	2.46	ND	ND	ND	ND	ND	ND	ND	ND	-	-	220	-
1,3-Butadiene	106-99-0	1.11	ND	ND	ND	ND	ND	ND	ND	ND	-	-	10 (MAV)	-
1,3-Dichlorobenzene	541-73-1	2.40	ND	ND	ND	ND	ND	ND	ND	ND	-	-	50 (JSL)	-
1,4-Dichlorobenzene	106-46-7	0.60	ND	ND	ND	ND	ND	ND	ND	ND	-	-	95	-
1,4-Dioxane	123-91-1	3.60	ND	ND	ND	ND	ND	ND	ND	ND	-	-	3500	-
2,2,4-Trimethylpentane	540-84-1	0.93	ND	ND	ND	ND	ND	ND	ND	ND	-	-	1750 (JSL)	-
2-Propanol	67-63-0	2.46	ND	ND	ND	ND	ND	ND	ND	ND	-	15.47	7300	0.21%
2-Propanone	67-64-1	1.42	3.9	9.26	4.8	11.39	1.49	3.54	2.21	5.25	16.12	21.60	11880	0.18%
4-Ethyltoluene	622-96-8	2.46	ND	ND	ND	ND	ND	ND	ND	ND	-	-	625 (JSL)	-
Benzene	71-43-2	0.32	ND	ND	ND	ND	0.11	0.35	0.13	0.41	0.51	0.54	2.25 (MAV)	24.12%
Benzyl chloride	100-44-7	2.59	ND	ND	ND	ND	ND	ND	ND	ND	-	-	0.1 (JSL)	-
Bromodichloromethane	75-27-4	1.34	ND	ND	ND	ND	ND	ND	ND	ND	-	-	350 (JSL)	-
Bromoform	75-25-2	2.07	ND	ND	ND	ND	ND	ND	ND	ND	-	-	55	-
Bromomethane	74-83-9	0.39	ND	ND	ND	ND	ND	ND	ND	ND	-	-	1350	-
Carbon Disulfide	75-15-0	1.56	ND	ND	ND	ND	ND	ND	ND	ND	-	-	330	-
Carbon Tetrachloride	56-23-5	0.63	ND	ND	ND	ND	ND	ND	ND	ND	0.75	0.88	2.4	36.67%
Chlorobenzene	108-90-7	0.46	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-
Chloroethane	75-00-3	0.79	ND	ND	ND	ND	ND	ND	ND	ND	-	-	5600	-
Chloroform	67-66-3	0.49	ND	ND	ND	ND	ND	ND	ND	ND	-	-	1	-
Chloromethane	74-87-3	0.62	0.28	0.58	0.39	0.80	0.42	0.87	0.45	0.93	1.32	1.44	320	0.45%
cis-1,2-Dichloroethylene	156-59-2	0.40	ND	ND	ND	ND	ND	ND	ND	ND	-	-	105	-
cis-1,3-Dichloropropene	10061-01-5	0.45	ND	ND	ND	ND	ND	ND	ND	ND	-	-	2.25 (JSL)	-
Cyclohexane	110-82-7	0.69	ND	ND	ND	ND	ND	ND	ND	ND	-	1.17	6100	0.02%
Dibromochloromethane	124-48-1	1.70	ND	ND	ND	ND	ND	ND	ND	ND	-	-	0.2 (JSL)	-
Dichlorodifluoromethane (FREON 12)	75-71-8	0.98	0.38	1.87	0.4	1.96	0.52	2.55	0.54	2.65	2.70	4.81	500000	0.00%
Ethanol (ethyl alcohol)	64-17-5	1.88	ND	ND	ND	ND	3.8	7.15	12.7	23.91	20.15	250.40	-	-
Ethyl Acetate	141-78-6	3.60	ND	ND	ND	ND	ND	ND	ND	ND	-	23.05	-	-
Ethylbenzene	100-41-4	0.43	ND	ND	ND	ND	ND	ND	ND	ND	-	3.43	1000	0.34%
Ethylene Dibromide	106-93-4	0.77	ND	ND	ND	ND	ND	ND	ND	ND	-	-	3	-
Heptane	142-82-5	1.23	ND	ND	ND	ND	ND	ND	ND	ND	-	4.50	11000	0.04%
Hexachlorobutadiene	87-68-3	5.33	ND	ND	ND	ND	ND	ND	ND	ND	-	-	0.225 (JSL)	-
Hexane	110-54-3	0.70	ND	ND	ND	ND	ND	ND	ND	ND	4.05	2.50	7500	0.03%
Methyl Butyl Ketone (2-Hexanone)	591-78-6	4.09	ND	ND	ND	ND	ND	ND	ND	ND	-	-	150 (JSL)	-
Methyl Ethyl Ketone (2-Butanone)	78-93-3	0.59	0.33	0.97	0.56	1.65	ND	ND	ND	ND	6.22	34.77	1000	3.48%
Methyl Isobutyl Ketone	108-10-1	0.82	ND	ND	ND	ND	ND	ND	ND	ND	-	0.86	1200	0.07%
Methyl t-butyl ether (MTBE)	1634-04-4	0.72	ND	ND	ND	ND	ND	ND	ND	ND	-	-	7000	-
Methylene Chloride(Dichloromethane)	75-09-2	2.08	ND	ND	ND	ND	ND	ND	ND	ND	4.20	3.16	220	1.44%
Naphthalene	91-20-3	1.05	0.10	0.52	ND	ND	ND	ND	ND	ND	0.52	-	22.5	-
o-Xylene	95-47-6	0.43	ND	ND	ND	ND	ND	ND	ND	ND	-	3.64	-	-
p+m-Xylene	106-42-3/108-38-3	0.87	ND	ND	ND	ND	ND	ND	ND	ND	-	11.02	-	-
Propene	115-07-1	1.63	ND	ND	ND	ND	ND	ND	ND	ND	-	-	4000	-
Styrene	100-42-5	0.43	0.55	2.34	ND	ND	ND	ND	ND	ND	2.34	2.68	400	0.67%
Tetrachloroethylene	127-18-4	0.68	ND	ND	ND	ND	ND	ND	ND	ND	-	2.10	360	0.58%
Tetrahydrofuran	109-99-9	1.18	ND	ND	ND	ND	ND	ND	ND	ND	-	2.24	93000	0.00%
Toluene	108-88-3	0.38	ND	ND	0.15	0.56	0.12	0.45	0.21	0.79	1.92	10.96	2000	0.55%
Total Xylenes	1330-20-7	1.30	ND	ND	ND	ND	ND	ND	ND	ND	-	14.62	730	2.00%
trans-1,2-Dichloroethylene	156-60-5	0.40	ND	ND	ND	ND	ND	ND	ND	ND	-	-	105	-
trans-1,3-Dichloropropene	10061-02-6	0.45	ND	ND	ND	ND	ND	ND	ND	ND	-	-	2.25 (JSL)	-
Trichloroethylene	79-01-6	0.54	ND	ND	ND	ND	ND	ND	ND	ND	-	0.97	12	8.05%
Trichlorofluoromethane (FREON 11)	75-69-4	1.12	ND	ND	ND	ND	0.24	1.35	0.26	1.46	2.58	6.96	6000	0.12%
Trichlorotrifluoroethane	76-13-1	1.15	ND	ND	ND	ND	ND	ND	ND	ND	-	1.99	800000	0.00%
Vinyl Acetate	108-05-4	0.70	ND	ND	ND	ND	ND	ND	ND	ND	-	-	1000 (JSL)	-
Vinyl Bromide	593-60-2	0.87	ND	ND	ND	ND	ND	ND	ND	ND	-	-	15 (JSL)	-
Vinyl Chloride	75-01-4	0.05	ND	ND	ND	ND	ND	ND	0.02	0.05	0.08	0.05	1	5.11%
2-Methyl Hexane	591-76-4	2.95	ND	ND	ND	ND	ND	ND	ND	ND				
2-Methyl Butane	78-78-4	2.95	ND	ND	ND	ND	ND	ND	ND	ND				
Limonene	138-86-3	2.95	ND	ND	ND	ND	ND	ND	ND	ND				
Pentane	109-66-0	2.95	ND	ND	ND	ND	ND	ND	ND	ND				

Notes: ND - not detected, below method detection limit
MAV - Monitoring Assessment Values
JSL - Jurisdictional Screening Levels
[1] O. Reg. 419/05
[2] Target List VOC item found using library search

FIGURES



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 18, 2023

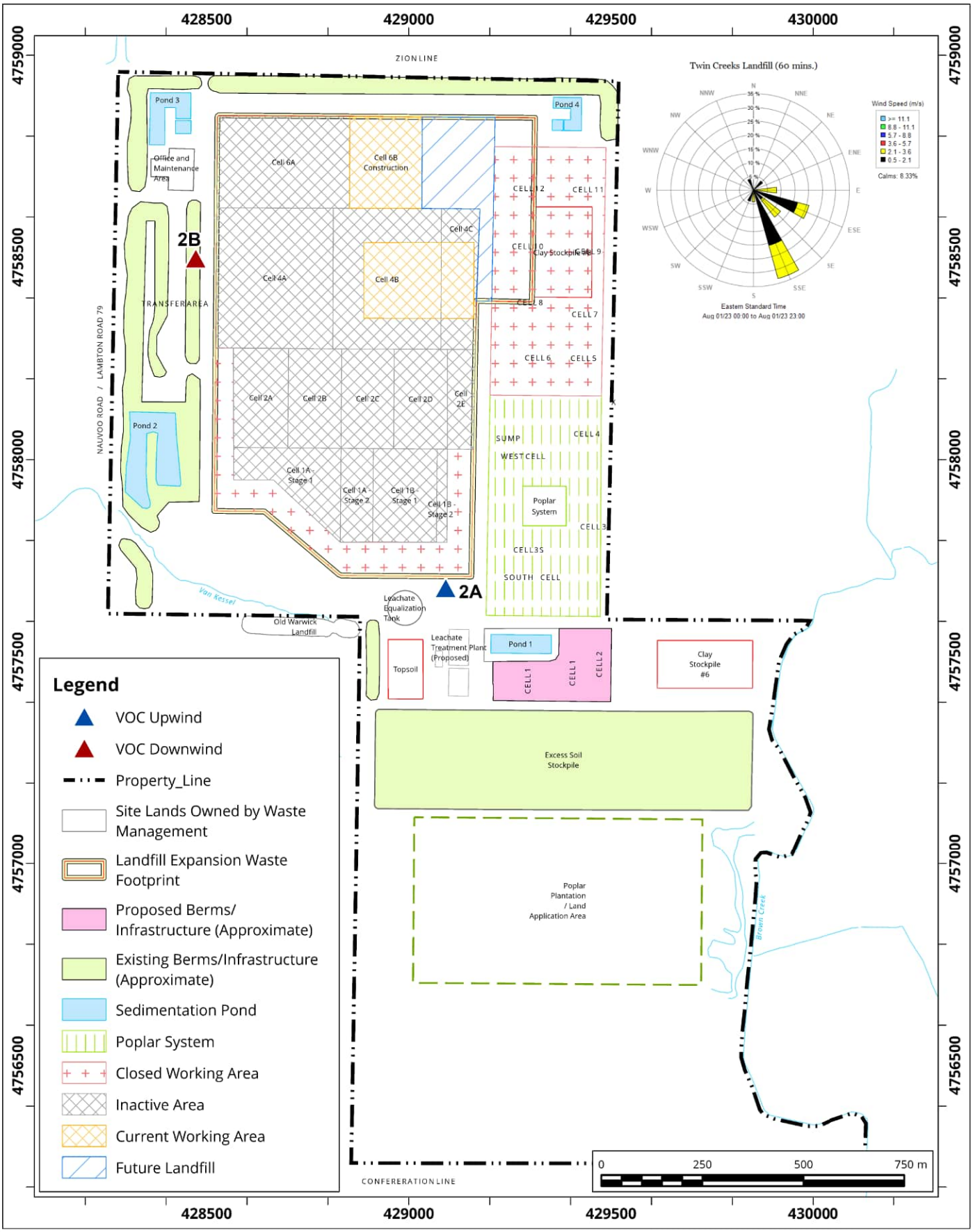
Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure:	1	
Approx. Scale:		1:13,000	
Date Revised:		Nov 1, 2023	



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 1, 2023

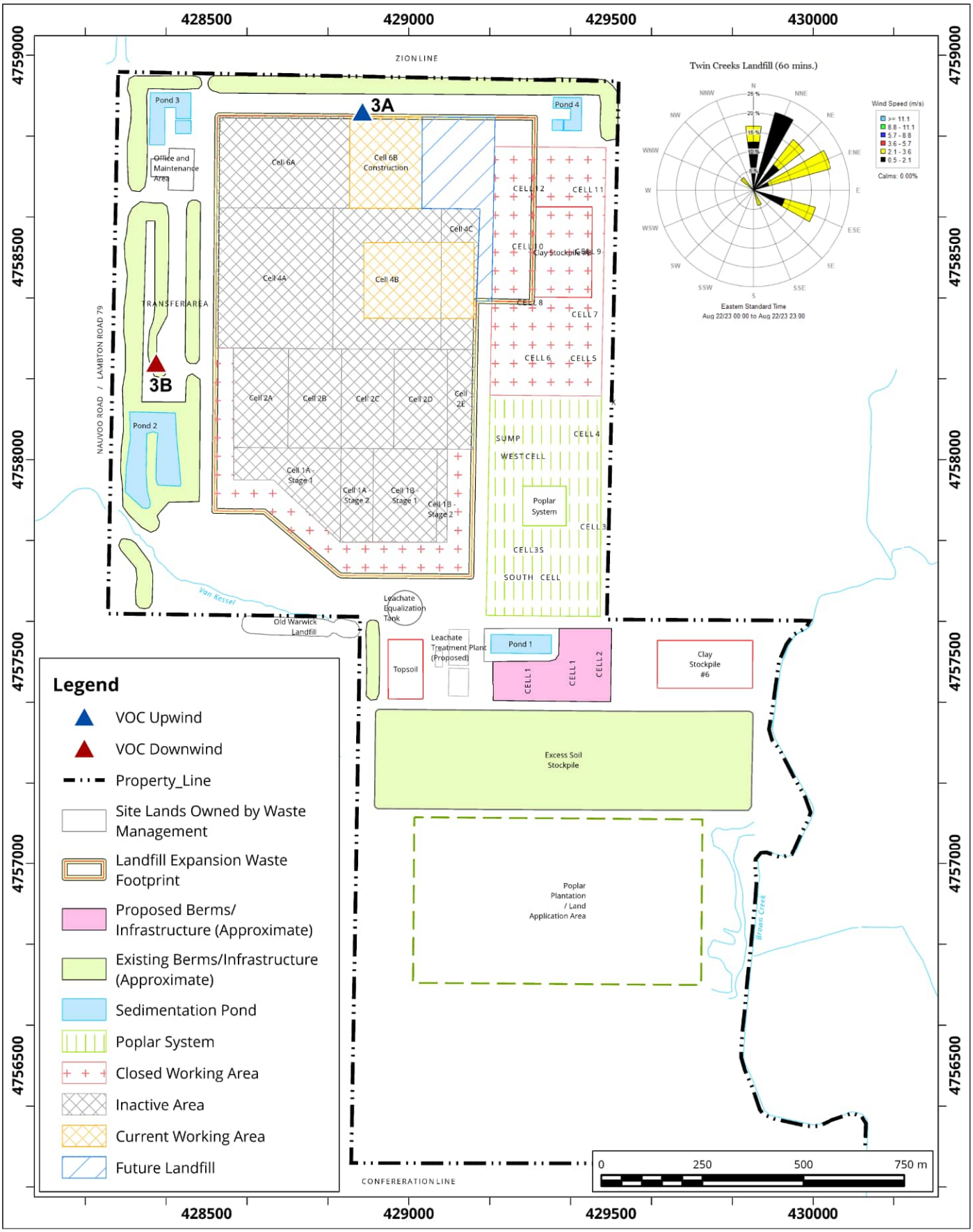
Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure:	2
Approx. Scale:		1:13,000
Date Revised:		Nov 1, 2023



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 22, 2023

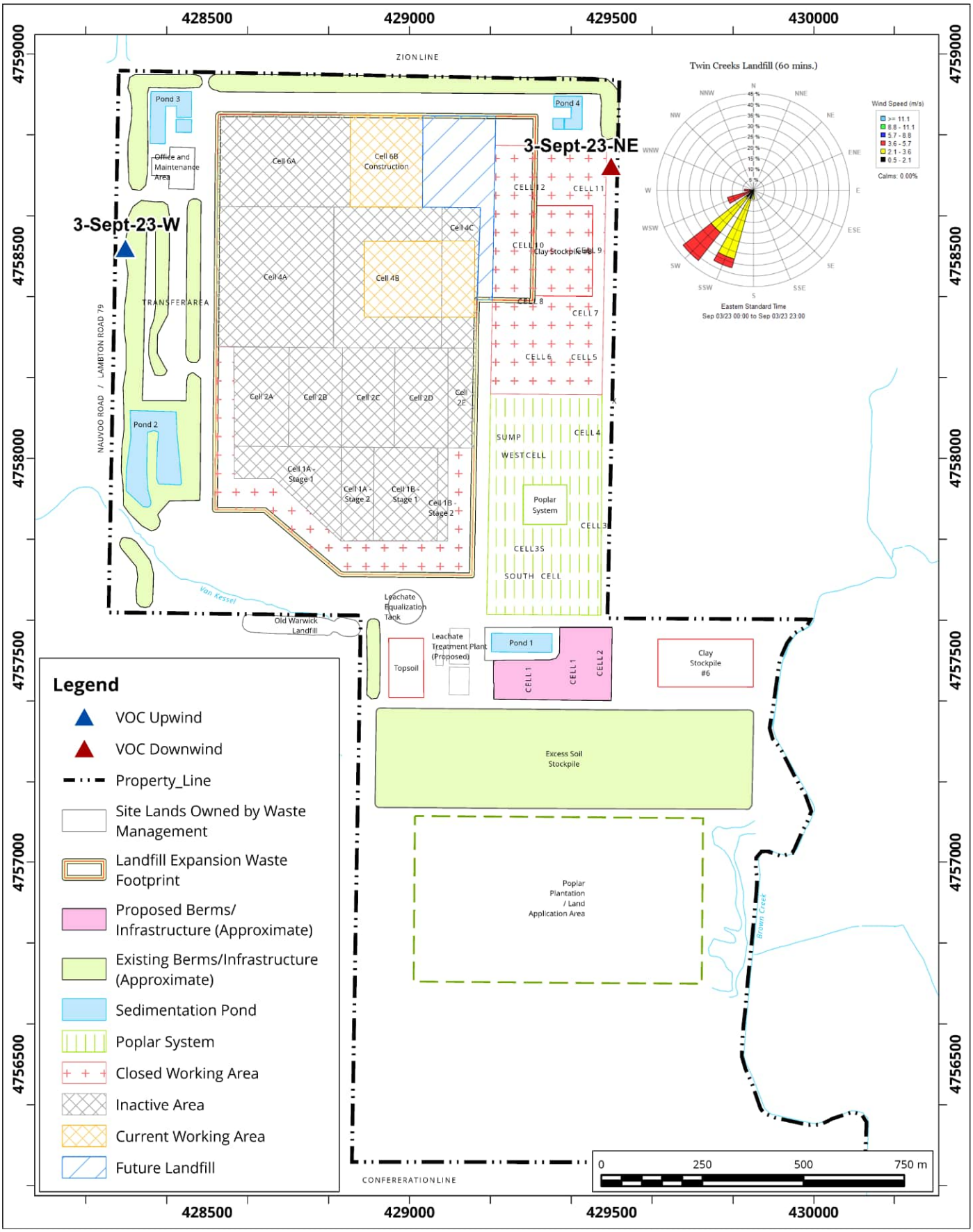
Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure:	3	
Approx. Scale:	1:13,000		
Date Revised:	Nov 1, 2023		



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 3, 2023

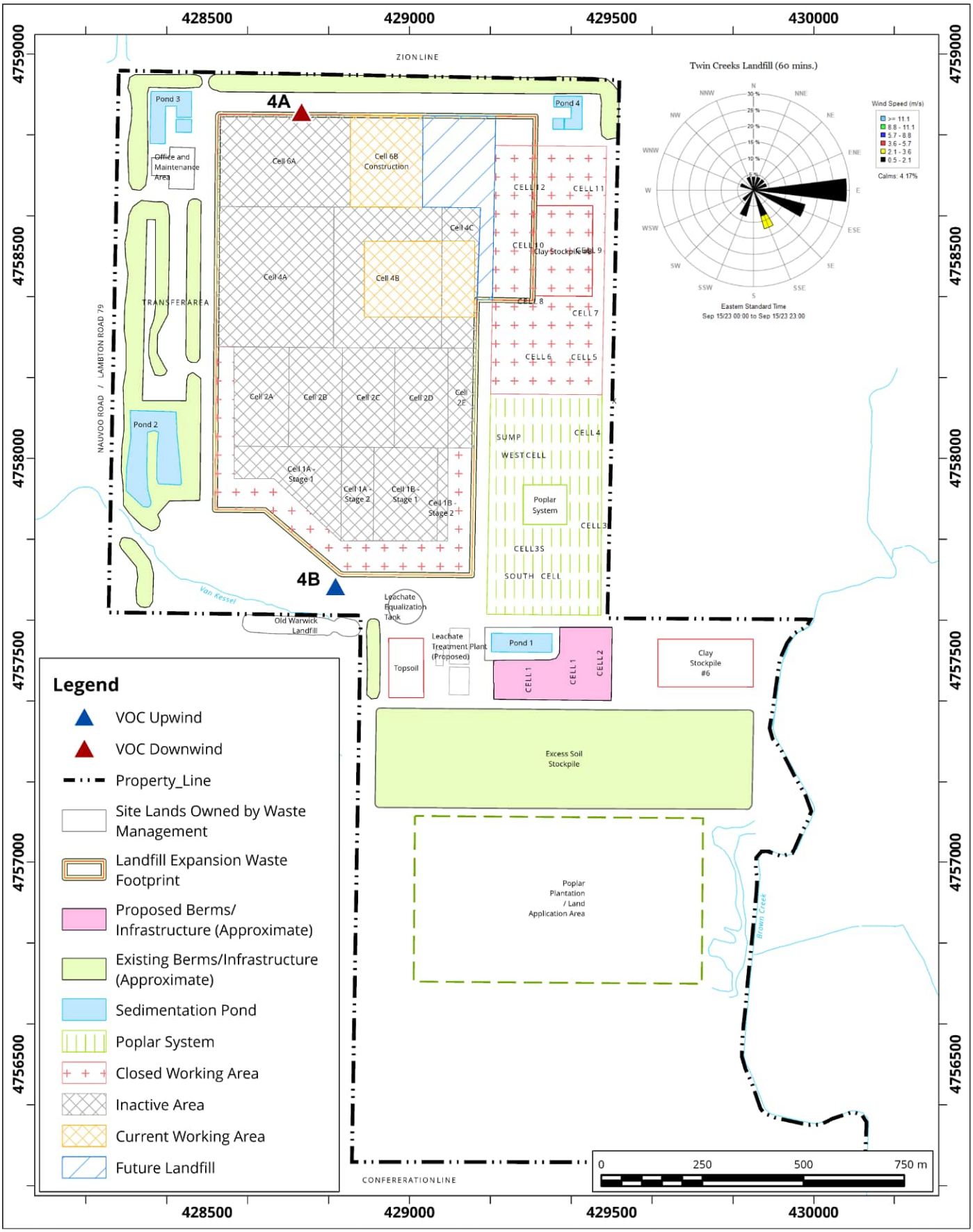
Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure:	4
Approx. Scale:		1:13,000
Date Revised:		Nov 2, 2023



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 15, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure:	5	
Approx. Scale:	1:13,000		
Date Revised:	Nov 2, 2023		

ATTACHMENT A

Summary of Target List for VOCs

CAS No.	Compound	CAS No.	Compound
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	620-14-4/622-96-8	m/p-Ethyl Toluene
526-73-8	1,2,3-Trimethyl Benzene	108-38-3/106-42-3	m/p-Xylene
95-63-6	1,2,4 Trimethyl Benzene	535-77-3	m-Cymene
108-67-8	1,3,5-Trimethyl Benzene	78-93-3	MEK
591-76-4	2-Methyl Hexane	108-87-2	Methyl Cyclohexane
107-83-5	2-Methyl Pentane	108-10-1	MIBK
78-78-4	2-Methyl Butane	75-45-6	Chlorodifluoromethane
96-14-0	3-Methyl Pentane	123-72-8	n-Butanal
589-34-4	3-Methyl Hexane	91-20-3	Naphthalene
67-64-1	Acetone	111-84-2	Nonane
71-43-2	Benzene	611-14-3	o-Ethyl Toluene
123-86-4	Butyl Acetate	95-47-6	o-Xylene
124-18-5	Decane	109-66-0	Pentane
25915-78-0	Dichlorodifluoromethane	64-17-5	Ethanol
75-09-2	Dichloromethane	103-65-1	Propyl Benzene
100-41-4	Ethyl Benzene	100-42-5	Styrene
142-82-5	Heptane	127-18-4	Tetrachloroethylene
110-54-3	Hexane	108-88-3	Toluene
67-63-0	Isopropyl Alcohol	75-69-4	Trichlorofluoromethane
138-86-3	Limonene	79-01-6	Trichloroethylene
75-01-4	Vinyl Chloride	141-78-6	Ethyl Acetate
56-23-5	Carbon Tetrachloride	71-55-6	1,1,1-Trichloroethane
67-66-3	Chloroform	75-35-4	Vinylidene Chloride
106-93-4	Ethylene Dibromide	540-59-0	1,2-Dichloroethene
107-06-2	Ethylene Dichloride	na	Total VOCs
75-00-3	Chloroethane	78-92-2	2-Butanol
75-00-2	Methylene Chloride	75-27-4	Bromodichloromethane
156-59-2	1,2-Dichloroethylene (cis)	111-65-9	Octane
75-34-3	1,1-Dichloroethane	79-34-5	1,1,2,2-Tetrachloroethane
156-60-5	1,2-Dichloroethylene (trans)	79-00-5	1,1,2-Trichloroethane
108-90-7	Chlorobenzene	25321-22-6	Dichlorobenzene
74-87-3	Chloromethane	75-43-4	Dichlorofluoromethane

Note: na - no applicable CAS Number.

ATTACHMENT B

Twin Creeks Landfill Meteorological Conditions - July 16 to July 18, 2023

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
7/16/2023 0:00	-41	9	14	S (174)	100	0
7/16/2023 1:00	-12.5	9	15	S (178)	100	0
7/16/2023 2:00	18.7	8	17	SSW (202)	100	0
7/16/2023 3:00	18.3	6	12	SW (219)	100	0
7/16/2023 4:00	18.7	9	17	SSW (212)	100	0
7/16/2023 5:00	-66.5	9	15	SW (232)	100	0
7/16/2023 6:00	-79.3	9	15	SW (220)	1	0
7/16/2023 7:00	-67.5	9	15	WSW (242)	100	0
7/16/2023 8:00	20.2	10	17	SW (236)	100	0
7/16/2023 9:00	21.4	13	20	SW (235)	100	0
7/16/2023 10:00	22.6	11	19	W (267)	99	0
7/16/2023 11:00	23.8	10	20	SW (228)	89	0
7/16/2023 12:00	24.7	12	20	SSW (205)	77	0
7/16/2023 13:00	25.7	13	22	S (186)	67	0
7/16/2023 14:00	26.3	15	28	SW (228)	62	0
7/16/2023 15:00	26.5	18	33	SSW (212)	62	0
7/16/2023 16:00	26.2	22	34	SW (232)	63	0
7/16/2023 17:00	26.4	22	37	WSW (247)	55	0
7/16/2023 18:00	25.7	20	32	W (272)	53	0
7/16/2023 19:00	24.8	15	26	W (264)	57	0
7/16/2023 20:00	23.2	10	16	WSW (250)	64	0
7/16/2023 21:00	21.3	10	15	W (272)	69	0
7/16/2023 22:00	19.8	8	15	W (263)	74	0
7/16/2023 23:00	18.5	9	13	SW (218)	74	0
7/17/2023 0:00	17.9	9	12	SW (218)	74	0
7/17/2023 1:00	17.4	7	13	SSW (209)	75	0
7/17/2023 2:00	17.2	11	14	SSW (203)	72	0
7/17/2023 3:00	16.2	6	13	SW (220)	80	0
7/17/2023 4:00	16.5	7	11	SSW (194)	76	0
7/17/2023 5:00	17	11	18	W (271)	81	0
7/17/2023 6:00	15.6	7	10	SW (222)	85	0
7/17/2023 7:00	16.6	7	12	SSE (163)	82	0
7/17/2023 8:00	18.1	11	17	S (184)	80	0
7/17/2023 9:00	20.1	9	14	SW (214)	71	0
7/17/2023 10:00	21.8	12	21	SW (231)	67	0
7/17/2023 11:00	22.5	12	25	NW (310)	64	0
7/17/2023 12:00	23.7	11	20	SSW (210)	64	0
7/17/2023 13:00	24.4	11	25	WSW (258)	60	0
7/17/2023 14:00	24.8	11	21	W (266)	57	0
7/17/2023 15:00	25.6	12	22	SW (221)	54	0
7/17/2023 16:00	25.2	14	24	WNW (283)	55	0
7/17/2023 17:00	24.8	9	18	NW (315)	55	0
7/17/2023 18:00	24.7	9	16	NW (307)	54	0
7/17/2023 19:00	24.5	7	14	NNW (338)	55	0
7/17/2023 20:00	23.3	4	7	NE (50)	64	0
7/17/2023 21:00	21.3	4	7	NNE (33)	72	0
7/17/2023 22:00	20.3	2	4	NNE (22)	76	0
7/17/2023 23:00	19.4	3	7	W (263)	84	0
7/18/2023 0:00	18.7	5	6	W (267)	83	0
7/18/2023 1:00	18.3	4	5	W (272)	81	0
7/18/2023 2:00	17.5	4	6	WSW (257)	85	0
7/18/2023 3:00	17.2	4	6	W (260)	85	0
7/18/2023 4:00	16.2	4	6	W (269)	100	0
7/18/2023 5:00	15.5	4	5	WSW (256)	100	0
7/18/2023 6:00	15.4	5	7	WSW (239)	100	0
7/18/2023 7:00	15.9	4	7	WSW (250)	100	0
7/18/2023 8:00	18.3	9	17	NW (307)	100	0
7/18/2023 9:00	19.9	12	18	NNW (331)	97	0

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
7/18/2023 10:00	20.7	11	19	W (261)	71	0
7/18/2023 11:00	21.5	9	17	NW (326)	63	0
7/18/2023 12:00	22	10	20	NNW (328)	57	0
7/18/2023 13:00	22.6	9	18	SSE (164)	55	0
7/18/2023 14:00	23	8	17	WNW (286)	54	0
7/18/2023 15:00	23.1	5	11	SW (229)	54	0
7/18/2023 16:00	23.1	3	7	WNW (289)	53	0
7/18/2023 17:00	23	3	5	SSE (147)	56	0
7/18/2023 18:00	23.1	3	8	ESE (107)	54	0
7/18/2023 19:00	23.2	5	8	ESE (104)	53	0
7/18/2023 20:00	22.6	4	7	SE (131)	67	0
7/18/2023 21:00	20.8	2	7	ESE (113)	71	0
7/18/2023 22:00	19.3	3	6	NNE (14)	86	0
7/18/2023 23:00	17.8	3	8	ESE (110)	90	0

Twin Creeks Landfill Meteorological Conditions - July 30 to August 1, 2023

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
7/30/2023 0:00	16.6	5	7	WNW (285)	90	0
7/30/2023 1:00	16.4	2	4	E (100)	100	0
7/30/2023 2:00	16.6	4	7	NE (46)	100	0
7/30/2023 3:00	16.2	2	6	ENE (58)	100	0
7/30/2023 4:00	16.3	3	7	WNW (285)	100	0
7/30/2023 5:00	16.2	3	9	ENE (61)	100	0
7/30/2023 6:00	16	4	7	SW (215)	100	0
7/30/2023 7:00	16.6	5	8	SW (236)	100	0
7/30/2023 8:00	18.1	6	9	WSW (244)	97	0
7/30/2023 9:00	19.4	6	11	NNW (327)	93	0
7/30/2023 10:00	20.3	9	17	NW (306)	77	0
7/30/2023 11:00	21	13	21	NNW (327)	69	0
7/30/2023 12:00	21.1	16	28	WNW (299)	66	0
7/30/2023 13:00	21.4	17	27	WNW (294)	60	0
7/30/2023 14:00	21.7	19	28	NW (314)	54	0
7/30/2023 15:00	21.9	16	25	WNW (296)	53	0
7/30/2023 16:00	22	15	27	NNW (339)	52	0
7/30/2023 17:00	21.9	14	23	NNE (21)	55	0
7/30/2023 18:00	21	12	19	NNW (327)	62	0
7/30/2023 19:00	20.6	9	15	NNW (340)	64	0
7/30/2023 20:00	19.7	5	10	NW (319)	75	0
7/30/2023 21:00	18.1	4	6	W (281)	80	0
7/30/2023 22:00	16.9	4	7	WSW (237)	82	0
7/30/2023 23:00	17	3	6	SSW (192)	81	0
7/31/2023 0:00	16.6	3	5	S (178)	83	0
7/31/2023 1:00	15.7	4	6	SW (222)	90	0
7/31/2023 2:00	14.6	5	7	SW (223)	100	0
7/31/2023 3:00	14.2	6	8	WSW (250)	100	0
7/31/2023 4:00	13.9	5	8	SW (226)	100	0
7/31/2023 5:00	13.9	8	10	WSW (247)	100	0
7/31/2023 6:00	13.7	5	7	WSW (251)	100	0
7/31/2023 7:00	14.4	6	8	WSW (246)	100	0
7/31/2023 8:00	17.7	8	16	WNW (302)	100	0
7/31/2023 9:00	19.6	15	21	NW (315)	91	0
7/31/2023 10:00	20.3	17	27	N (351)	71	0
7/31/2023 11:00	20.6	16	25	WNW (296)	70	0
7/31/2023 12:00	20.9	19	29	NW (309)	70	0
7/31/2023 13:00	21.2	19	30	NW (306)	67	0
7/31/2023 14:00	21.8	17	31	WNW (295)	62	0
7/31/2023 15:00	22.1	17	30	NNW (329)	62	0
7/31/2023 16:00	22.2	14	24	NW (325)	63	0
7/31/2023 17:00	22	12	21	N (1)	62	0
7/31/2023 18:00	21.6	10	17	NNW (333)	62	0
7/31/2023 19:00	20.7	7	13	N (2)	69	0
7/31/2023 20:00	19.2	4	10	NW (314)	77	0
7/31/2023 21:00	17.9	3	5	NNE (13)	83	0
7/31/2023 22:00	17.1	2	5	NNW (340)	89	0
7/31/2023 23:00	16.7	2	4	NW (320)	97	0
8/1/2023 0:00	16	2	5	NNW (338)	100	0
8/1/2023 1:00	15.8	2	5	NE (47)	100	0
8/1/2023 2:00	15.5	3	7	ESE (119)	100	0
8/1/2023 3:00	15.1	1	2	NNE (26)	100	0
8/1/2023 4:00	14.4	1	4	E (100)	100	0
8/1/2023 5:00	13.8	3	5	SSE (156)	100	0
8/1/2023 6:00	13.7	2	6	ESE (107)	100	0
8/1/2023 7:00	14.2	5	8	ESE (113)	100	0
8/1/2023 8:00	15.6	6	10	ESE (110)	94	0
8/1/2023 9:00	17.4	10	14	SE (134)	75	0

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
8/1/2023 10:00	19.2	10	14	E (100)	65	0
8/1/2023 11:00	20.5	10	15	E (93)	56	0
8/1/2023 12:00	21.3	8	14	ESE (122)	48	0
8/1/2023 13:00	22.3	7	14	SSE (157)	46	0
8/1/2023 14:00	22.8	7	16	SSE (164)	44	0
8/1/2023 15:00	23.2	6	14	SSW (210)	51	0
8/1/2023 16:00	23.3	5	11	SSE (162)	50	0
8/1/2023 17:00	23.2	6	13	SSE (152)	51	0
8/1/2023 18:00	23	7	11	SE (138)	51	0
8/1/2023 19:00	22.2	9	13	SSE (159)	62	0
8/1/2023 20:00	20.4	11	16	SSE (161)	66	0
8/1/2023 21:00	19.2	10	14	SSE (164)	66	0
8/1/2023 22:00	18.6	10	15	S (169)	63	0
8/1/2023 23:00	18.4	12	16	SE (146)	64	0

Twin Creeks Landfill Meteorological Conditions - August 20 to August 22, 2023

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
8/20/2023 0:00	16.4	10	14	SSW (200)	81	0
8/20/2023 1:00	16.4	11	15	S (176)	86	0
8/20/2023 2:00	16.2	9	15	SSE (153)	92	0
8/20/2023 3:00	16.4	9	15	SSE (151)	100	0
8/20/2023 4:00	16.6	11	17	SSE (152)	100	0
8/20/2023 5:00	16.3	11	15	SSE (168)	100	0
8/20/2023 6:00	16.3	10	12	SSE (154)	100	0
8/20/2023 7:00	17.2	11	16	S (172)	100	0
8/20/2023 8:00	19.4	11	20	SW (222)	94	0
8/20/2023 9:00	21.2	12	21	SW (227)	80	0
8/20/2023 10:00	23	11	18	SSW (211)	75	0
8/20/2023 11:00	24.5	9	14	W (265)	72	0
8/20/2023 12:00	25.6	9	19	SW (231)	70	0
8/20/2023 13:00	26.6	12	21	SW (222)	68	0
8/20/2023 14:00	27.4	15	23	SSW (211)	64	0
8/20/2023 15:00	27.9	15	26	SW (234)	61	0
8/20/2023 16:00	28.1	14	22	SW (231)	61	0
8/20/2023 17:00	27.6	11	20	SW (220)	66	0
8/20/2023 18:00	27.2	7	12	SSW (212)	70	0
8/20/2023 19:00	26.3	7	11	WSW (256)	75	0
8/20/2023 20:00	25	6	10	SW (236)	82	0
8/20/2023 21:00	24	5	8	WSW (251)	87	0
8/20/2023 22:00	23.6	6	8	WSW (254)	87	0
8/20/2023 23:00	23.3	5	10	SW (229)	92	0
8/21/2023 0:00	23	8	26	N (350)	100	0
8/21/2023 1:00	21.8	14	24	NNE (12)	94	0
8/21/2023 2:00	20.6	9	18	WNW (302)	84	0
8/21/2023 3:00	19.4	6	12	WNW (296)	100	0
8/21/2023 4:00	18.8	5	12	NW (311)	100	0
8/21/2023 5:00	18.2	5	10	NW (323)	100	0
8/21/2023 6:00	19	7	19	NNE (20)	100	0
8/21/2023 7:00	19.2	10	19	NW (314)	100	0
8/21/2023 8:00	18.8	14	24	NNW (348)	100	0
8/21/2023 9:00	18.9	12	18	NNE (33)	100	0
8/21/2023 10:00	20	12	21	N (3)	100	0
8/21/2023 11:00	22.2	13	21	NNW (344)	92	0
8/21/2023 12:00	22.8	11	21	NW (319)	84	0
8/21/2023 13:00	22.7	16	28	NNW (338)	71	0
8/21/2023 14:00	22.2	16	28	NW (322)	71	0
8/21/2023 15:00	21.5	18	27	NW (317)	71	0
8/21/2023 16:00	20.9	18	27	NNW (344)	70	0
8/21/2023 17:00	20.1	17	24	NNW (342)	73	0
8/21/2023 18:00	19.9	16	26	N (351)	74	0
8/21/2023 19:00	19.1	12	24	N (350)	76	0
8/21/2023 20:00	17.9	9	16	N (5)	85	0
8/21/2023 21:00	17.2	9	19	N (6)	88	0
8/21/2023 22:00	16	9	14	NNE (13)	83	0
8/21/2023 23:00	14.7	6	11	N (1)	86	0
8/22/2023 0:00	14.9	6	11	N (8)	87	0
8/22/2023 1:00	14.1	9	12	NE (47)	91	0
8/22/2023 2:00	13.6	6	11	NNE (21)	93	0
8/22/2023 3:00	13.3	7	12	NE (39)	98	0
8/22/2023 4:00	13.1	6	11	NNE (16)	100	0
8/22/2023 5:00	12.9	5	10	NNE (19)	100	0
8/22/2023 6:00	12.8	5	10	ENE (62)	100	0
8/22/2023 7:00	13.3	6	10	NNE (30)	100	0
8/22/2023 8:00	15.6	10	19	ENE (64)	97	0
8/22/2023 9:00	17.2	13	20	ENE (59)	80	0

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
8/22/2023 10:00	17.9	12	19	ENE (62)	74	0
8/22/2023 11:00	19	12	19	NE (44)	69	0
8/22/2023 12:00	20.3	10	19	N (4)	62	0
8/22/2023 13:00	21.2	9	17	ESE (103)	62	0
8/22/2023 14:00	21.7	10	20	ESE (102)	54	0
8/22/2023 15:00	22.4	10	20	ENE (78)	52	0
8/22/2023 16:00	22.9	8	15	SSE (153)	52	0
8/22/2023 17:00	23.2	7	15	NE (46)	51	0
8/22/2023 18:00	22.6	7	15	N (6)	66	0
8/22/2023 19:00	20.4	8	16	NW (326)	72	0
8/22/2023 20:00	18.4	5	11	N (10)	82	0
8/22/2023 21:00	17.5	3	6	NNE (19)	87	0
8/22/2023 22:00	16.9	3	6	ESE (105)	100	0
8/22/2023 23:00	16.9	4	7	ESE (123)	99	0

Twin Creeks Landfill Meteorological Conditions - September 1 to September 3, 2023

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
9/1/2023 0:00	13.2	7	11	E (101)	87	0
9/1/2023 1:00	13	10	12	ESE (113)	89	0
9/1/2023 2:00	12.5	10	12	ESE (105)	90	0
9/1/2023 3:00	12.5	11	14	E (99)	88	0
9/1/2023 4:00	12.3	12	14	ESE (116)	92	0
9/1/2023 5:00	12.4	11	14	ESE (113)	89	0
9/1/2023 6:00	12.1	11	13	ESE (117)	92	0
9/1/2023 7:00	13.1	11	14	E (101)	84	0
9/1/2023 8:00	14.9	11	15	ESE (115)	82	0
9/1/2023 9:00	17.3	12	17	ESE (110)	75	0
9/1/2023 10:00	19.9	11	18	SE (136)	74	0
9/1/2023 11:00	21.2	14	21	SSE (163)	67	0
9/1/2023 12:00	22	12	26	SE (142)	60	0
9/1/2023 13:00	22.4	14	22	SE (142)	59	0
9/1/2023 14:00	22.8	14	26	SE (144)	53	0
9/1/2023 15:00	22.8	14	24	SE (134)	55	0
9/1/2023 16:00	22.7	14	29	SE (133)	52	0
9/1/2023 17:00	22.4	14	21	S (172)	53	0
9/1/2023 18:00	21.8	13	18	ESE (121)	56	0
9/1/2023 19:00	19.9	14	21	SE (131)	62	0
9/1/2023 20:00	17.7	10	14	SSE (163)	68	0
9/1/2023 21:00	16.2	9	13	S (186)	72	0
9/1/2023 22:00	15.5	8	16	SSE (151)	78	0
9/1/2023 23:00	15.2	10	18	S (171)	83	0
9/2/2023 0:00	14.5	7	12	S (172)	100	0
9/2/2023 1:00	14.4	7	13	SSE (162)	100	0
9/2/2023 2:00	14.5	6	13	SSE (149)	100	0
9/2/2023 3:00	14.9	6	13	SSE (162)	100	0
9/2/2023 4:00	15	6	13	SSE (167)	100	0
9/2/2023 5:00	15.4	6	11	S (189)	100	0
9/2/2023 6:00	15.5	6	11	SSW (213)	100	0
9/2/2023 7:00	15.5	7	12	SW (222)	100	0
9/2/2023 8:00	16.3	8	19	SSW (200)	100	0
9/2/2023 9:00	18.3	15	30	SW (230)	100	0
9/2/2023 10:00	19.5	11	20	WSW (241)	100	0
9/2/2023 11:00	21.5	13	22	WSW (237)	89	0
9/2/2023 12:00	23.5	11	19	WSW (242)	71	0
9/2/2023 13:00	24.2	11	20	SW (230)	64	0
9/2/2023 14:00	24.3	13	24	SSW (198)	64	0
9/2/2023 15:00	24	12	22	SSW (209)	67	0
9/2/2023 16:00	23.7	13	26	SW (222)	69	0
9/2/2023 17:00	23.4	15	28	SSW (207)	72	0
9/2/2023 18:00	23.1	13	25	S (191)	75	0
9/2/2023 19:00	22.3	12	20	SSE (168)	76	0
9/2/2023 20:00	20.9	7	16	SW (219)	83	0
9/2/2023 21:00	19.7	5	9	S (183)	86	0
9/2/2023 22:00	19.4	6	12	SW (221)	86	0
9/2/2023 23:00	19.1	8	12	SW (224)	92	0
9/3/2023 0:00	18.6	6	12	SSW (196)	99	0
9/3/2023 1:00	18.9	9	14	SSW (202)	96	0
9/3/2023 2:00	19	10	16	SSW (202)	90	0
9/3/2023 3:00	18.7	9	15	SSW (205)	92	0
9/3/2023 4:00	18.1	8	13	SW (232)	100	0
9/3/2023 5:00	17.9	9	13	SSW (210)	100	0
9/3/2023 6:00	17.6	9	13	SSW (208)	100	0
9/3/2023 7:00	17.8	9	16	SW (216)	100	0
9/3/2023 8:00	19.7	14	22	SW (225)	100	0
9/3/2023 9:00	21.8	15	23	WSW (245)	94	0

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
9/3/2023 10:00	23.8	16	24	WSW (249)	74	0
9/3/2023 11:00	25.2	16	26	WSW (258)	68	0
9/3/2023 12:00	26.4	14	25	W (264)	63	0
9/3/2023 13:00	27.5	13	22	SSW (196)	60	0
9/3/2023 14:00	27.4	14	23	SW (218)	59	0
9/3/2023 15:00	27.6	14	26	SW (221)	59	0
9/3/2023 16:00	27.6	17	29	SSW (194)	63	0
9/3/2023 17:00	26.9	13	24	SW (226)	66	0
9/3/2023 18:00	25.8	11	18	SSW (195)	72	0
9/3/2023 19:00	25.4	8	15	S (185)	72	0
9/3/2023 20:00	24.7	6	10	SW (215)	74	0
9/3/2023 21:00	23.7	8	15	SW (218)	77	0
9/3/2023 22:00	23.3	11	17	SW (220)	81	0
9/3/2023 23:00	22.5	11	16	SW (221)	83	0

Twin Creeks Landfill Meteorological Conditions - September 13 to September 15, 2022

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
9/13/2023 0:00	14.5	5	7	W (279)	100	0
9/13/2023 1:00	14.4	4	8	SW (235)	100	0
9/13/2023 2:00	14.1	5	9	WSW (247)	100	0
9/13/2023 3:00	14.1	6	11	WNW (297)	100	0
9/13/2023 4:00	13	5	9	W (276)	100	0
9/13/2023 5:00	12.9	10	18	WNW (300)	100	0
9/13/2023 6:00	12.6	9	16	NW (305)	100	0
9/13/2023 7:00	12.5	7	14	WSW (256)	100	0
9/13/2023 8:00	12.8	7	14	WNW (299)	100	0.2
9/13/2023 9:00	14.1	11	23	WNW (296)	96	0
9/13/2023 10:00	15	14	24	NW (314)	82	0
9/13/2023 11:00	15.3	16	24	NW (316)	73	0
9/13/2023 12:00	15.8	15	25	WNW (302)	72	0
9/13/2023 13:00	16	15	22	WNW (290)	71	0
9/13/2023 14:00	16.2	17	26	NW (324)	70	0
9/13/2023 15:00	16.2	15	25	NW (325)	70	0
9/13/2023 16:00	15.9	14	21	WNW (291)	68	0
9/13/2023 17:00	16	11	19	NNW (334)	68	0
9/13/2023 18:00	15.6	11	19	NNW (337)	69	0.2
9/13/2023 19:00	14.3	6	14	ENE (72)	81	0
9/13/2023 20:00	13.1	2	5	NW (305)	86	0
9/13/2023 21:00	12	0	2	WNW (285)	100	0
9/13/2023 22:00	11.3	0	0	WNW (285)	100	0
9/13/2023 23:00	11	3	8	WSW (247)	100	0
9/14/2023 0:00	11.1	3	7	SSW (208)	100	0
9/14/2023 1:00	10.3	6	8	SW (220)	100	0
9/14/2023 2:00	10.5	6	9	SW (219)	100	0
9/14/2023 3:00	10.4	4	8	SW (219)	100	0
9/14/2023 4:00	10.5	5	8	SSW (212)	100	0
9/14/2023 5:00	10.8	6	8	SSW (206)	100	0
9/14/2023 6:00	10.3	1	6	SSW (212)	100	0
9/14/2023 7:00	10.7	1	4	NE (49)	100	0.2
9/14/2023 8:00	12.8	2	5	ENE (76)	100	0
9/14/2023 9:00	14.9	4	7	E (100)	90	0
9/14/2023 10:00	16.2	3	11	WSW (243)	71	0
9/14/2023 11:00	16.6	6	13	NW (304)	68	0
9/14/2023 12:00	17.2	7	16	WNW (295)	62	0
9/14/2023 13:00	17.7	8	19	N (3)	58	0
9/14/2023 14:00	18	10	20	W (267)	55	0
9/14/2023 15:00	18.4	12	23	WNW (291)	54	0
9/14/2023 16:00	18.2	12	20	NW (322)	49	0
9/14/2023 17:00	18.2	9	16	N (3)	51	0.2
9/14/2023 18:00	17.4	6	12	NNE (27)	63	0
9/14/2023 19:00	15.5	5	8	NE (43)	72	0
9/14/2023 20:00	14	6	8	ENE (67)	78	0
9/14/2023 21:00	12.9	5	8	ENE (62)	82	0
9/14/2023 22:00	12.2	4	7	ESE (103)	84	0
9/14/2023 23:00	11.6	4	6	ENE (75)	93	0
9/15/2023 0:00	10.8	6	9	E (83)	90	0
9/15/2023 1:00	10.7	5	10	SSW (200)	85	0
9/15/2023 2:00	10.2	3	8	SSW (196)	88	0
9/15/2023 3:00	9.7	1	4	SW (222)	100	0
9/15/2023 4:00	9	3	10	E (94)	100	0
9/15/2023 5:00	8.5	5	7	ESE (102)	100	0
9/15/2023 6:00	8.4	5	8	ESE (103)	100	0
9/15/2023 7:00	8.9	7	10	E (96)	100	0
9/15/2023 8:00	11.5	6	8	ESE (107)	84	0
9/15/2023 9:00	14.5	7	11	ESE (102)	76	0.2

DATE (EST)	Temperature (C) - 60 minutes	Wind Speed (km/h) - 60 minutes	Wind Gust (km/h) - 60 minutes	Wind Direction - 60 minutes	Relative Humidity (%) - 60 minutes	Precipitation (mm) - 60 minutes
9/15/2023 10:00	16.8	5	11	E (90)	68	0
9/15/2023 11:00	18.1	5	11	ENE (65)	56	0
9/15/2023 12:00	19	4	10	NNW (345)	57	0
9/15/2023 13:00	19.3	4	12	WNW (287)	54	0
9/15/2023 14:00	19.8	5	14	N (349)	53	0
9/15/2023 15:00	20	4	9	E (96)	51	0
9/15/2023 16:00	20.1	2	8	SW (218)	50	0
9/15/2023 17:00	20.2	3	7	NNE (15)	54	0
9/15/2023 18:00	18.9	5	9	E (94)	62	0
9/15/2023 19:00	16.8	5	8	NE (43)	72	0
9/15/2023 20:00	15.1	5	9	E (94)	76	0
9/15/2023 21:00	15	8	18	SSE (167)	76	0
9/15/2023 22:00	13.7	3	6	SSE (164)	82	0
9/15/2023 23:00	13.7	5	7	SE (146)	81	0

APPENDIX E2

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: NA

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/02
Report #: R7746554
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3L5307
Received: 2023/07/20, 09:00

Sample Matrix: Air
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Canister Pressure (TO-15)	2	N/A	2023/07/24	BRL SOP-00304	EPA TO-15 m
VOCs in Air (TO-15)	2	N/A	2023/07/24	BRL SOP-00304	EPA TO-15 m
Volatile Organics in Air (TO-15) (1)	2	N/A	2023/07/24	BRL SOP-00304	EPA TO-15 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Air sampling canisters have been cleaned in accordance with U.S. EPA Method TO15. At the end of the cleaning, evacuation, and pressurization cycles, one canister was selected and was pressurized with Zero Air. This canister was then analyzed via TO15 on a GC/MS. The canister must have been found to contain <0.2 ppbv concentration of all target analytes in order for the batch to have been considered clean. Each canister also underwent a leak check prior to shipment.

Please Note: SUMMA® canister samples will be retained by Bureau Veritas for a period of 5 calendar days or as contractually agreed from the date of this report, after which time they will be cleaned for reuse. If you require a longer sample storage period, please contact your service representative.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: NA

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/02
Report #: R7746554
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3L5307
Received: 2023/07/20, 09:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3L5307
Report Date: 2023/08/02

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

RESULTS OF ANALYSES OF AIR

Bureau Veritas ID		WLC174	WLC175	
Sampling Date		2023/07/19	2023/07/19	
COC Number		NA	NA	
	UNITS	**1A/2754**	**1B/18240**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	(-2.0)	(-3.7)	8808217
QC Batch = Quality Control Batch				

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3L5307
Report Date: 2023/08/02

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (AIR)

Bureau Veritas ID		WLC174		WLC175		
Sampling Date		2023/07/19		2023/07/19		
COC Number		NA		NA		
	UNITS	**1A/2754**	**RDL**	**1B/18240**	**RDL**	**QC Batch**
Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.55	0.20	0.47	0.20	8808210
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<0.17	0.17	8808210
Chloromethane	ppbv	0.48	0.30	0.50	0.30	8808210
Vinyl Chloride	ppbv	0.03	0.02	<0.02	0.02	8816380
Chloroethane	ppbv	<0.30	0.30	<0.30	0.30	8808210
1,3-Butadiene	ppbv	<0.50	0.50	<0.50	0.50	8808210
Trichlorofluoromethane (FREON 11)	ppbv	0.46	0.20	0.35	0.20	8808210
Ethanol (ethyl alcohol)	ppbv	10.7	1.0	4.5	1.0	8808210
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<0.15	0.15	8808210
2-propanol	ppbv	<1.0	1.0	<1.0	1.0	8808210
2-Propanone	ppbv	6.79	0.60	2.47	0.60	8808210
Methyl Ethyl Ketone (2-Butanone)	ppbv	2.11	0.20	0.55	0.20	8808210
Methyl Isobutyl Ketone	ppbv	<0.20	0.20	<0.20	0.20	8808210
Methyl Butyl Ketone (2-Hexanone)	ppbv	<1.0	1.0	<1.0	1.0	8808210
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.20	0.20	8808210
Ethyl Acetate	ppbv	<1.0	1.0	<1.0	1.0	8808210
1,1-Dichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8808210
cis-1,2-Dichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8808210
trans-1,2-Dichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8808210
Methylene Chloride(Dichloromethane)	ppbv	1.21	0.60	<0.60	0.60	8808210
Chloroform	ppbv	<0.10	0.10	<0.10	0.10	8808210
Carbon Tetrachloride	ppbv	0.12	0.10	0.14	0.10	8808210
1,1-Dichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8808210
1,2-Dichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8808210
Ethylene Dibromide	ppbv	<0.10	0.10	<0.10	0.10	8808210
1,1,1-Trichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8808210
1,1,2-Trichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8808210
1,1,2,2-Tetrachloroethane	ppbv	<0.10	0.10	<0.10	0.10	8808210
cis-1,3-Dichloropropene	ppbv	<0.10	0.10	<0.10	0.10	8808210
trans-1,3-Dichloropropene	ppbv	<0.10	0.10	<0.10	0.10	8808210
1,2-Dichloropropane	ppbv	<0.10	0.10	<0.10	0.10	8808210
Bromomethane	ppbv	<0.10	0.10	<0.10	0.10	8808210
Bromoform	ppbv	<0.20	0.20	<0.20	0.20	8808210
Bromodichloromethane	ppbv	<0.20	0.20	<0.20	0.20	8808210

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3L5307
Report Date: 2023/08/02

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (AIR)

Bureau Veritas ID		WLC174		WLC175		
Sampling Date		2023/07/19		2023/07/19		
COC Number		NA		NA		
	UNITS	**1A/2754**	**RDL**	**1B/18240**	**RDL**	**QC Batch**
Dibromochloromethane	ppbv	<0.20	0.20	<0.20	0.20	8808210
Trichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8808210
Tetrachloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8808210
Benzene	ppbv	0.16	0.10	0.12	0.10	8808210
Toluene	ppbv	0.51	0.10	0.12	0.10	8808210
Ethylbenzene	ppbv	<0.10	0.10	<0.10	0.10	8808210
p+m-Xylene	ppbv	<0.20	0.20	<0.20	0.20	8808210
o-Xylene	ppbv	<0.10	0.10	<0.10	0.10	8808210
Styrene	ppbv	<0.10	0.10	<0.10	0.10	8808210
4-ethyltoluene	ppbv	<0.50	0.50	<0.50	0.50	8808210
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<0.50	0.50	8808210
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<0.50	0.50	8808210
Chlorobenzene	ppbv	<0.10	0.10	<0.10	0.10	8808210
Benzyl chloride	ppbv	<0.50	0.50	<0.50	0.50	8808210
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<0.40	0.40	8808210
1,4-Dichlorobenzene	ppbv	<0.10	0.10	<0.10	0.10	8808210
1,2-Dichlorobenzene	ppbv	<0.10	0.10	<0.10	0.10	8808210
1,2,4-Trichlorobenzene	ppbv	<0.50	0.50	<0.50	0.50	8808210
Hexachlorobutadiene	ppbv	<0.50	0.50	<0.50	0.50	8808210
Hexane	ppbv	1.15	0.20	<0.20	0.20	8808210
Heptane	ppbv	<0.30	0.30	<0.30	0.30	8808210
Cyclohexane	ppbv	<0.20	0.20	<0.20	0.20	8808210
Tetrahydrofuran	ppbv	<0.40	0.40	<0.40	0.40	8808210
1,4-Dioxane	ppbv	<1.0	1.0	<1.0	1.0	8808210
Naphthalene	ppbv	<0.20	0.20	<0.20	0.20	8808210
Total Xylenes	ppbv	<0.30	0.30	<0.30	0.30	8808210
1,1,1,2-Tetrachloroethane	ppbv	<0.10	0.10	<0.10	0.10	8808210
Vinyl Bromide	ppbv	<0.20	0.20	<0.20	0.20	8808210
Propene	ppbv	<1.3	1.3	<0.50	0.50	8808210
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.20	0.20	8808210
Carbon Disulfide	ppbv	<0.50	0.50	<0.50	0.50	8808210
Vinyl Acetate	ppbv	<0.20	0.20	<0.20	0.20	8808210
Surrogate Recovery (%)						
Bromochloromethane	%	97		98		8816380
D5-Chlorobenzene	%	98		91		8816380

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3L5307
Report Date: 2023/08/02

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (AIR)

Bureau Veritas ID		WLC174		WLC175		
Sampling Date		2023/07/19		2023/07/19		
COC Number		NA		NA		
	UNITS	**1A/2754**	**RDL**	**1B/18240**	**RDL**	**QC Batch**
Difluorobenzene	%	91		88		8816380
Bromochloromethane	%	97		98		8808210
D5-Chlorobenzene	%	98		91		8808210
Difluorobenzene	%	91		88		8808210

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Sample WLC174:
The following compounds were not detected above 1ppbv via a library search:
1,2,3-Trimethylbenzene,
2-Methylhexane,
2-Methylpentane,
3-Methylpentane,
3-Methylhexane,
2-Methylbutane,
Butyl Acetate,
Decane,
Limonene,
m/p ethyl toluene,
m-cymene,
methyl cyclohexane,
chlorodifluoromethane,
n-butanal,
nonane,
o-ethyl toluene,
propylbenzene,
2-butanol,
octane

Pentane was detected at 2.6 ppbv (87% probability)

Sample WLC175:
The following compounds were not detected above 1ppbv via a library search:
1,2,3-Trimethylbenzene,
2-Methylhexane,
2-Methylpentane,
3-Methylpentane,
3-Methylhexane,
2-Methylbutane,
Butyl Acetate,
Decane,
Limonene,
m/p ethyl toluene,
m-cymene,
methyl cyclohexane,
chlorodifluoromethane,
n-butanal,
nonane,
o-ethyl toluene,
propylbenzene,
2-butanol,
pentane,
octane

Sample WLC174 [1A/2754] : Increased DL for propene due to interference from propane.

Results relate only to the items tested.

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Bureau Veritas Job #: C3L5307
Report Date: 2023/08/02

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

			SPIKED BLANK		Method Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS
8808210	Bromochloromethane	2023/07/24	108	60 - 140	111	%
8808210	D5-Chlorobenzene	2023/07/24	113	60 - 140	97	%
8808210	Difluorobenzene	2023/07/24	111	60 - 140	98	%
8816380	Bromochloromethane	2023/07/24	108	60 - 140	111	%
8816380	D5-Chlorobenzene	2023/07/24	113	60 - 140	97	%
8816380	Difluorobenzene	2023/07/24	111	60 - 140	98	%
8808210	1,1,1,2-Tetrachloroethane	2023/07/24	106	70 - 130	<0.10	ppbv
8808210	1,1,1-Trichloroethane	2023/07/24	107	70 - 130	<0.10	ppbv
8808210	1,1,2,2-Tetrachloroethane	2023/07/24	95	70 - 130	<0.10	ppbv
8808210	1,1,2-Trichloroethane	2023/07/24	101	70 - 130	<0.10	ppbv
8808210	1,1-Dichloroethane	2023/07/24	93	70 - 130	<0.10	ppbv
8808210	1,1-Dichloroethylene	2023/07/24	94	70 - 130	<0.10	ppbv
8808210	1,2,4-Trichlorobenzene	2023/07/24	103	70 - 130	<0.50	ppbv
8808210	1,2,4-Trimethylbenzene	2023/07/24	109	70 - 130	<0.50	ppbv
8808210	1,2-Dichlorobenzene	2023/07/24	104	70 - 130	<0.10	ppbv
8808210	1,2-Dichloroethane	2023/07/24	107	70 - 130	<0.10	ppbv
8808210	1,2-Dichloropropane	2023/07/24	97	70 - 130	<0.10	ppbv
8808210	1,2-Dichlorotetrafluoroethane	2023/07/24	96	70 - 130	<0.17	ppbv
8808210	1,3,5-Trimethylbenzene	2023/07/24	109	70 - 130	<0.50	ppbv
8808210	1,3-Butadiene	2023/07/24	100	70 - 130	<0.50	ppbv
8808210	1,3-Dichlorobenzene	2023/07/24	108	70 - 130	<0.40	ppbv
8808210	1,4-Dichlorobenzene	2023/07/24	114	70 - 130	<0.10	ppbv
8808210	1,4-Dioxane	2023/07/24	102	70 - 130	<1.0	ppbv
8808210	2,2,4-Trimethylpentane	2023/07/24	101	70 - 130	<0.20	ppbv
8808210	2-propanol	2023/07/24	102	70 - 130	<1.0	ppbv
8808210	2-Propanone	2023/07/24	126	70 - 130	<0.60	ppbv
8808210	4-ethyltoluene	2023/07/24	112	70 - 130	<0.50	ppbv
8808210	Benzene	2023/07/24	100	70 - 130	<0.10	ppbv
8808210	Benzyl chloride	2023/07/24	140 (1)	70 - 130	<0.50	ppbv
8808210	Bromodichloromethane	2023/07/24	99	70 - 130	<0.20	ppbv

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Bureau Veritas Job #: C3L5307
Report Date: 2023/08/02

QUALITY ASSURANCE REPORT(CONT'D)

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

			SPIKED BLANK		Method Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS
8808210	Bromoform	2023/07/24	110	70 - 130	<0.20	ppbv
8808210	Bromomethane	2023/07/24	95	70 - 130	<0.10	ppbv
8808210	Carbon Disulfide	2023/07/24	92	70 - 130	<0.50	ppbv
8808210	Carbon Tetrachloride	2023/07/24	112	70 - 130	<0.10	ppbv
8808210	Chlorobenzene	2023/07/24	103	70 - 130	<0.10	ppbv
8808210	Chloroethane	2023/07/24	100	70 - 130	<0.30	ppbv
8808210	Chloroform	2023/07/24	105	70 - 130	<0.10	ppbv
8808210	Chloromethane	2023/07/24	98	70 - 130	<0.30	ppbv
8808210	cis-1,2-Dichloroethylene	2023/07/24	98	70 - 130	<0.10	ppbv
8808210	cis-1,3-Dichloropropene	2023/07/24	105	70 - 130	<0.10	ppbv
8808210	Cyclohexane	2023/07/24	99	70 - 130	<0.20	ppbv
8808210	Dibromochloromethane	2023/07/24	107	70 - 130	<0.20	ppbv
8808210	Dichlorodifluoromethane (FREON 12)	2023/07/24	99	70 - 130	<0.20	ppbv
8808210	Ethanol (ethyl alcohol)	2023/07/24	108	70 - 130	<1.0	ppbv
8808210	Ethyl Acetate	2023/07/24	103	70 - 130	<1.0	ppbv
8808210	Ethylbenzene	2023/07/24	108	70 - 130	<0.10	ppbv
8808210	Ethylene Dibromide	2023/07/24	106	70 - 130	<0.10	ppbv
8808210	Heptane	2023/07/24	105	70 - 130	<0.30	ppbv
8808210	Hexachlorobutadiene	2023/07/24	115	70 - 130	<0.50	ppbv
8808210	Hexane	2023/07/24	93	70 - 130	<0.20	ppbv
8808210	Methyl Butyl Ketone (2-Hexanone)	2023/07/24	111	70 - 130	<1.0	ppbv
8808210	Methyl Ethyl Ketone (2-Butanone)	2023/07/24	103	70 - 130	<0.20	ppbv
8808210	Methyl Isobutyl Ketone	2023/07/24	103	70 - 130	<0.20	ppbv
8808210	Methyl t-butyl ether (MTBE)	2023/07/24	91	70 - 130	<0.20	ppbv
8808210	Methylene Chloride(Dichloromethane)	2023/07/24	98	70 - 130	<0.60	ppbv
8808210	Naphthalene	2023/07/24	105	70 - 130	<0.20	ppbv
8808210	o-Xylene	2023/07/24	104	70 - 130	<0.10	ppbv
8808210	p+m-Xylene	2023/07/24	110	70 - 130	<0.20	ppbv
8808210	Propene	2023/07/24	92	70 - 130	<0.50	ppbv
8808210	Styrene	2023/07/24	106	70 - 130	<0.10	ppbv

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Bureau Veritas Job #: C3L5307
Report Date: 2023/08/02

QUALITY ASSURANCE REPORT(CONT'D)

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

			SPIKED BLANK		Method Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS
8808210	Tetrachloroethylene	2023/07/24	104	70 - 130	<0.10	ppbv
8808210	Tetrahydrofuran	2023/07/24	101	70 - 130	<0.40	ppbv
8808210	Toluene	2023/07/24	106	70 - 130	<0.10	ppbv
8808210	Total Xylenes	2023/07/24	108	70 - 130	<0.30	ppbv
8808210	trans-1,2-Dichloroethylene	2023/07/24	94	70 - 130	<0.10	ppbv
8808210	trans-1,3-Dichloropropene	2023/07/24	118	70 - 130	<0.10	ppbv
8808210	Trichloroethylene	2023/07/24	104	70 - 130	<0.10	ppbv
8808210	Trichlorofluoromethane (FREON 11)	2023/07/24	107	70 - 130	<0.20	ppbv
8808210	Trichlorotrifluoroethane	2023/07/24	102	70 - 130	<0.15	ppbv
8808210	Vinyl Acetate	2023/07/24	103	70 - 130	<0.20	ppbv
8808210	Vinyl Bromide	2023/07/24	92	70 - 130	<0.20	ppbv
8808210	Vinyl Chloride	2023/07/24	93	70 - 130	<0.10	ppbv
8816380	Vinyl Chloride	2023/07/24	93	70 - 130	<0.02	ppbv

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Bureau Veritas Job #: C3L5307
Report Date: 2023/08/02

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anke Macfarlane, Laboratory Manager, VOC

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Chain of Custody Form - Summa™ Canister

Maxxam
A Bureau Veritas Group Company

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Mississauga Ontario ,L5N 2L8
www.maxxam.ca

Toll Free: 1-800-668-0639
Phone: (905) 817-5700
Fax: (905) 817-5777

CAM FCD-01302 /2 Page 1 of 1

INVOICE INFORMATION

Company Name: WM of Canada
Contact Name: Lisa Mertick
Address: 8039 Zion Line
RR#4Watford, ON NON 1A0
E-mail: lmertick@wm.com
Ph:
Sampled by: BEG, RWDI

REPORT INFORMATION

Company Name: RWDI AIR Inc.
Project Manager: Khalid Hussein
Address: 600 Southgate Dr.,
Guelph, ON N1G 4A6
E-mail: khalid.Hussein@rwdi.com, jeffery.cleland@rwdi.com
Ph: 519-823-1311 ext 2055

ANALYSIS REQUESTED

Field Sample ID	Canister Serial #	Flow Regulator Serial #	Collection Date	START VACUUM (inches of Hg)	END VACUUM (inches of Hg)	SOIL VAPOUR	AMBIENT AIR	AMBIENT/COMMERCIAL/INDUSTRIAL	SUB-SLAB GAS	FULL LIST OF VOCs (reference TO15A)	Aromatic/Aliphatic Hydrocarbon Fractions	F1 (C6-C10) and F2 (C10-C16)	Selected VOC's - please specify	Other	T015, T014 Vinyl Chloride by SIM and Library Search			CANISTERS NOT USED
1A	2754	A0241531-3	Jul 18-19	-29	-6		X								X			
1B	18240	A0218335-4	Jul 18-19	-29.5	-7.5		X								X			

20-Jul-2[illegible] 09:00
Patricia Legett
C3L5307
BSU AIR-001

TAT Requirement

STD 10 Business day ☑
Rush 5 Business day * ☐
Rush 2 Business day * ☐
Rush Other * ☐

* need approval from Maxxam

PROJECT INFORMATION

Project #: 2303459.02
Name: Twin Creeks
PO #: 10123733
Maxxam Quote #:
Maxxam Contact:
Task Order/Line Item

REPORTING REQUIREMENTS

EDD ☐
Regulations ON 153 ☐
ON 419 ☐
BC CSR ☐
Other

Notes

1) please indicate on chain of custody if your samples are soil vapour or ambient air
2) please list all canisters on the chain of custody even if unused

PROJECT SPECIFIC COMMENTS

See attached page for list of Library Search Items

Client Signature: BEG
Date/Time: 7/19/2023, AM

Received by: [signature] Banishe Simon
Date/Time: 2023/07/20 09:00

PLEASE RETURN ALL UNUSED EQUIPMENT

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/21
Report #: R7774590
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3N4550
Received: 2023/08/04, 09:00

Sample Matrix: Air
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Canister Pressure (TO-15)	2	N/A	2023/08/11	BRL SOP-00304	EPA TO-15 m
VOCs in Air (TO-15)	2	N/A	2023/08/11	BRL SOP-00304	EPA TO-15 m
Volatile Organics in Air (TO-15) (1)	2	N/A	2023/08/11	BRL SOP-00304	EPA TO-15 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Air sampling canisters have been cleaned in accordance with U.S. EPA Method TO15. At the end of the cleaning, evacuation, and pressurization cycles, one canister was selected and was pressurized with Zero Air. This canister was then analyzed via TO15 on a GC/MS. The canister must have been found to contain <0.2 ppbv concentration of all target analytes in order for the batch to have been considered clean. Each canister also underwent a leak check prior to shipment.

Please Note: SUMMA® canister samples will be retained by Bureau Veritas for a period of 5 calendar days or as contractually agreed from the date of this report, after which time they will be cleaned for reuse. If you require a longer sample storage period, please contact your service representative.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/21
Report #: R7774590
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3N4550
Received: 2023/08/04, 09:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N4550
Report Date: 2023/08/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

RESULTS OF ANALYSES OF AIR

Bureau Veritas ID		WPE074	WPE075	
Sampling Date				
COC Number		na	na	
	UNITS	**2A**	**2B**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	(-3.7)	(-3.9)	8847368
QC Batch = Quality Control Batch				

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RWDI
Client Project #: 2303459.02
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Your P.O. #: 12285740
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (AIR)

Bureau Veritas ID		WPE074		WPE075		
Sampling Date						
COC Number		na		na		
	UNITS	**2A**	**RDL**	**2B**	**RDL**	**QC Batch**
Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.52	0.20	0.98	0.20	8847364
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<0.17	0.17	8847364
Chloromethane	ppbv	0.64	0.30	0.70	0.30	8847364
Vinyl Chloride	ppbv	<0.02	0.02	<0.02	0.02	8851067
Chloroethane	ppbv	<0.30	0.30	<0.30	0.30	8847364
1,3-Butadiene	ppbv	<0.50	0.50	<0.50	0.50	8847364
Trichlorofluoromethane (FREON 11)	ppbv	0.30	0.20	1.24	0.20	8847364
Ethanol (ethyl alcohol)	ppbv	4.1	1.0	133	4.0	8847364
Trichlorotrifluoroethane	ppbv	<0.15	0.15	0.26	0.15	8847364
2-propanol	ppbv	<1.0	1.0	6.3	1.0	8847364
2-Propanone	ppbv	2.93	0.60	9.1	2.4	8847364
Methyl Ethyl Ketone (2-Butanone)	ppbv	0.40	0.20	11.8	0.80	8847364
Methyl Isobutyl Ketone	ppbv	<0.20	0.20	0.21	0.20	8847364
Methyl Butyl Ketone (2-Hexanone)	ppbv	<1.0	1.0	<1.0	1.0	8847364
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.20	0.20	8847364
Ethyl Acetate	ppbv	<1.0	1.0	6.4	1.0	8847364
1,1-Dichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8847364
cis-1,2-Dichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8847364
trans-1,2-Dichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8847364
Methylene Chloride(Dichloromethane)	ppbv	<0.60	0.60	0.91	0.60	8847364
Chloroform	ppbv	<0.10	0.10	<0.10	0.10	8847364
Carbon Tetrachloride	ppbv	<0.10	0.10	<0.10	0.10	8847364
1,1-Dichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8847364
1,2-Dichloroethane	ppbv	<0.10	0.10	0.12	0.10	8847364
Ethylene Dibromide	ppbv	<0.10	0.10	<0.10	0.10	8847364
1,1,1-Trichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8847364
1,1,2-Trichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8847364
1,1,2,2-Tetrachloroethane	ppbv	<0.10	0.10	<0.10	0.10	8847364
cis-1,3-Dichloropropene	ppbv	<0.10	0.10	<0.10	0.10	8847364
trans-1,3-Dichloropropene	ppbv	<0.10	0.10	<0.10	0.10	8847364
1,2-Dichloropropane	ppbv	<0.10	0.10	<0.10	0.10	8847364
Bromomethane	ppbv	<0.10	0.10	<0.10	0.10	8847364
Bromoform	ppbv	<0.20	0.20	<0.20	0.20	8847364
Bromodichloromethane	ppbv	<0.20	0.20	<0.20	0.20	8847364

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3N4550
Report Date: 2023/08/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (AIR)

Bureau Veritas ID		WPE074		WPE075		
Sampling Date						
COC Number		na		na		
	UNITS	**2A**	**RDL**	**2B**	**RDL**	**QC Batch**
Dibromochloromethane	ppbv	<0.20	0.20	<0.20	0.20	8847364
Trichloroethylene	ppbv	<0.10	0.10	0.18	0.10	8847364
Tetrachloroethylene	ppbv	<0.10	0.10	0.31	0.10	8847364
Benzene	ppbv	0.16	0.10	0.14	0.10	8847364
Toluene	ppbv	0.15	0.10	2.91	0.10	8847364
Ethylbenzene	ppbv	<0.10	0.10	0.79	0.10	8847364
p+m-Xylene	ppbv	<0.20	0.20	2.54	0.20	8847364
o-Xylene	ppbv	<0.10	0.10	0.84	0.10	8847364
Styrene	ppbv	<0.10	0.10	0.63	0.10	8847364
4-ethyltoluene	ppbv	<0.50	0.50	<0.50	0.50	8847364
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<0.50	0.50	8847364
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<0.50	0.50	8847364
Chlorobenzene	ppbv	<0.10	0.10	<0.10	0.10	8847364
Benzyl chloride	ppbv	<0.50	0.50	<0.50	0.50	8847364
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<0.40	0.40	8847364
1,4-Dichlorobenzene	ppbv	<0.10	0.10	<0.10	0.10	8847364
1,2-Dichlorobenzene	ppbv	<0.10	0.10	<0.10	0.10	8847364
1,2,4-Trichlorobenzene	ppbv	<0.50	0.50	<0.50	0.50	8847364
Hexachlorobutadiene	ppbv	<0.50	0.50	<0.50	0.50	8847364
Hexane	ppbv	0.38	0.20	0.71	0.20	8847364
Heptane	ppbv	<0.30	0.30	1.10	0.30	8847364
Cyclohexane	ppbv	<0.20	0.20	0.34	0.20	8847364
Tetrahydrofuran	ppbv	<0.40	0.40	0.76	0.40	8847364
1,4-Dioxane	ppbv	<1.0	1.0	<1.0	1.0	8847364
Naphthalene	ppbv	<0.20	0.20	<0.20	0.20	8847364
Total Xylenes	ppbv	<0.30	0.30	3.37	0.30	8847364
1,1,1,2-Tetrachloroethane	ppbv	<0.10	0.10	<0.10	0.10	8847364
Vinyl Bromide	ppbv	<0.20	0.20	<0.20	0.20	8847364
Propene	ppbv	<0.50	0.50	<4.0	4.0	8847364
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.20	0.20	8847364
Carbon Disulfide	ppbv	<0.50	0.50	<0.50	0.50	8847364
Vinyl Acetate	ppbv	<0.20	0.20	<0.20	0.20	8847364
Surrogate Recovery (%)						
Bromochloromethane	%	84		77		8851067
D5-Chlorobenzene	%	81		79		8851067

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3N4550
Report Date: 2023/08/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (AIR)

Bureau Veritas ID		WPE074		WPE075		
Sampling Date						
COC Number		na		na		
	UNITS	**2A**	**RDL**	**2B**	**RDL**	**QC Batch**
Difluorobenzene	%	80		77		8851067
Bromochloromethane	%	84		77		8847364
D5-Chlorobenzene	%	81		79		8847364
Difluorobenzene	%	80		77		8847364

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Sample WPE074:
The following compounds were not detected above 1ppbv via a library search:
1,2,3-Trimethylbenzene,
2-Methylhexane,
2-Methylpentane,
3-Methylpentane,
3-Methylhexane,
2-Methylbutane,
Butyl Acetate,
Decane,
Limonene,
m/p ethyl toluene,
m-cymene,
methyl cyclohexane,
chlorodifluoromethane,
n-butanal,
nonane,
o-ethyl toluene,
propylbenzene,
2-butanol,
pentane,
octane

Sample WPE075:
The following compounds were not detected above 1ppbv via a library search:
1,2,3-Trimethylbenzene,
2-Methylpentane,
3-Methylpentane,
3-Methylhexane,
Butyl Acetate,
Decane,
m/p ethyl toluene,
m-cymene,
methyl cyclohexane,
chlorodifluoromethane,
n-butanal,
nonane,
o-ethyl toluene,
propylbenzene,
2-butanol,
octane

2-Methyl hexane was detected at 1.1 ppbv (58% probability), 2-methyl butane was detected at 7.7 ppbv (94 % probability), limonene was detected at 5.7 ppbv (94% probability) and pentane was detected at 16.6 ppbv (91% probability).

Sample WPE075 [2B] : Increased DL for propene due to interference from propane.
Ethanol, 2-propanone and 2-butanone were analyzed at a 4x dilution. The DL's were adjusted accordingly.

Results relate only to the items tested.

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Bureau Veritas Job #: C3N4550
Report Date: 2023/08/21

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

			SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8847364	Bromochloromethane	2023/08/11	94	60 - 140	100	%		
8847364	D5-Chlorobenzene	2023/08/11	93	60 - 140	94	%		
8847364	Difluorobenzene	2023/08/11	93	60 - 140	96	%		
8851067	Bromochloromethane	2023/08/11	94	60 - 140	100	%		
8851067	D5-Chlorobenzene	2023/08/11	93	60 - 140	94	%		
8851067	Difluorobenzene	2023/08/11	93	60 - 140	96	%		
8847364	1,1,1,2-Tetrachloroethane	2023/08/11	97	70 - 130	<0.10	ppbv		
8847364	1,1,1-Trichloroethane	2023/08/11	102	70 - 130	<0.10	ppbv		
8847364	1,1,2,2-Tetrachloroethane	2023/08/11	105	70 - 130	<0.10	ppbv		
8847364	1,1,2-Trichloroethane	2023/08/11	110	70 - 130	<0.10	ppbv		
8847364	1,1-Dichloroethane	2023/08/11	105	70 - 130	<0.10	ppbv		
8847364	1,1-Dichloroethylene	2023/08/11	120	70 - 130	<0.10	ppbv		
8847364	1,2,4-Trichlorobenzene	2023/08/11	108	70 - 130	<0.50	ppbv		
8847364	1,2,4-Trimethylbenzene	2023/08/11	106	70 - 130	<0.50	ppbv	NC (2)	25
8847364	1,2-Dichlorobenzene	2023/08/11	103	70 - 130	<0.10	ppbv		
8847364	1,2-Dichloroethane	2023/08/11	106	70 - 130	<0.10	ppbv		
8847364	1,2-Dichloropropane	2023/08/11	110	70 - 130	<0.10	ppbv		
8847364	1,2-Dichlorotetrafluoroethane	2023/08/11	102	70 - 130	<0.17	ppbv	NC (2)	25
8847364	1,3,5-Trimethylbenzene	2023/08/11	106	70 - 130	<0.50	ppbv	NC (2)	25
8847364	1,3-Butadiene	2023/08/11	108	70 - 130	<0.50	ppbv	NC (2)	25
8847364	1,3-Dichlorobenzene	2023/08/11	103	70 - 130	<0.40	ppbv	NC (2)	25
8847364	1,4-Dichlorobenzene	2023/08/11	102	70 - 130	<0.10	ppbv		
8847364	1,4-Dioxane	2023/08/11	98	70 - 130	<1.0	ppbv	NC (2)	25
8847364	2,2,4-Trimethylpentane	2023/08/11	102	70 - 130	<0.20	ppbv	NC (2)	25
8847364	2-propanol	2023/08/11	106	70 - 130	<1.0	ppbv	NC (2)	25
8847364	2-Propanone	2023/08/11	102	70 - 130	<0.60	ppbv		
8847364	4-ethyltoluene	2023/08/11	100	70 - 130	<0.50	ppbv	NC (2)	25
8847364	Benzene	2023/08/11	108	70 - 130	<0.10	ppbv		
8847364	Benzyl chloride	2023/08/11	92	70 - 130	<0.50	ppbv	NC (2)	25
8847364	Bromodichloromethane	2023/08/11	95	70 - 130	<0.20	ppbv	NC (2)	25

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Bureau Veritas Job #: C3N4550
Report Date: 2023/08/21

QUALITY ASSURANCE REPORT(CONT'D)

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

			SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8847364	Bromoform	2023/08/11	90	70 - 130	<0.20	ppbv		
8847364	Bromomethane	2023/08/11	106	70 - 130	<0.10	ppbv		
8847364	Carbon Disulfide	2023/08/11	104	70 - 130	<0.50	ppbv	2.0 (2)	25
8847364	Carbon Tetrachloride	2023/08/11	97	70 - 130	<0.10	ppbv		
8847364	Chlorobenzene	2023/08/11	107	70 - 130	<0.10	ppbv		
8847364	Chloroethane	2023/08/11	116	70 - 130	<0.30	ppbv	NC (2)	25
8847364	Chloroform	2023/08/11	110	70 - 130	<0.10	ppbv		
8847364	Chloromethane	2023/08/11	111	70 - 130	<0.30	ppbv	0.56 (2)	25
8847364	cis-1,2-Dichloroethylene	2023/08/11	107	70 - 130	<0.10	ppbv		
8847364	cis-1,3-Dichloropropene	2023/08/11	105	70 - 130	<0.10	ppbv		
8847364	Cyclohexane	2023/08/11	102	70 - 130	<0.20	ppbv	2.6 (2)	25
8847364	Dibromochloromethane	2023/08/11	95	70 - 130	<0.20	ppbv	NC (2)	25
8847364	Dichlorodifluoromethane (FREON 12)	2023/08/11	103	70 - 130	<0.20	ppbv	6.2 (2)	25
8847364	Ethanol (ethyl alcohol)	2023/08/11	105	70 - 130	<1.0	ppbv	5.6 (2)	25
8847364	Ethyl Acetate	2023/08/11	104	70 - 130	<1.0	ppbv	NC (2)	25
8847364	Ethylbenzene	2023/08/11	107	70 - 130	<0.10	ppbv		
8847364	Ethylene Dibromide	2023/08/11	104	70 - 130	<0.10	ppbv		
8847364	Heptane	2023/08/11	105	70 - 130	<0.30	ppbv	NC (2)	25
8847364	Hexachlorobutadiene	2023/08/11	140 (1)	70 - 130	<0.50	ppbv		
8847364	Hexane	2023/08/11	100	70 - 130	<0.20	ppbv		
8847364	Methyl Butyl Ketone (2-Hexanone)	2023/08/11	97	70 - 130	<1.0	ppbv	NC (2)	25
8847364	Methyl Ethyl Ketone (2-Butanone)	2023/08/11	103	70 - 130	<0.20	ppbv		
8847364	Methyl Isobutyl Ketone	2023/08/11	99	70 - 130	<0.20	ppbv		
8847364	Methyl t-butyl ether (MTBE)	2023/08/11	89	70 - 130	<0.20	ppbv		
8847364	Methylene Chloride(Dichloromethane)	2023/08/11	103	70 - 130	<0.60	ppbv		
8847364	Naphthalene	2023/08/11	100	70 - 130	<0.20	ppbv		
8847364	o-Xylene	2023/08/11	103	70 - 130	<0.10	ppbv		
8847364	p+m-Xylene	2023/08/11	105	70 - 130	<0.20	ppbv		
8847364	Propene	2023/08/11	102	70 - 130	<0.50	ppbv	NC (2)	25
8847364	Styrene	2023/08/11	102	70 - 130	<0.10	ppbv		

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Bureau Veritas Job #: C3N4550
Report Date: 2023/08/21

QUALITY ASSURANCE REPORT(CONT'D)

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

			SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8847364	Tetrachloroethylene	2023/08/11	110	70 - 130	<0.10	ppbv		
8847364	Tetrahydrofuran	2023/08/11	105	70 - 130	<0.40	ppbv	NC (2)	25
8847364	Toluene	2023/08/11	105	70 - 130	<0.10	ppbv		
8847364	Total Xylenes	2023/08/11	104	70 - 130	<0.30	ppbv		
8847364	trans-1,2-Dichloroethylene	2023/08/11	102	70 - 130	<0.10	ppbv		
8847364	trans-1,3-Dichloropropene	2023/08/11	110	70 - 130	<0.10	ppbv		
8847364	Trichloroethylene	2023/08/11	111	70 - 130	<0.10	ppbv		
8847364	Trichlorofluoromethane (FREON 11)	2023/08/11	106	70 - 130	<0.20	ppbv	1.3 (2)	25
8847364	Trichlorotrifluoroethane	2023/08/11	108	70 - 130	<0.15	ppbv	NC (2)	25
8847364	Vinyl Acetate	2023/08/11	99	70 - 130	<0.20	ppbv	NC (2)	25
8847364	Vinyl Bromide	2023/08/11	94	70 - 130	<0.20	ppbv	NC (2)	25
8847364	Vinyl Chloride	2023/08/11	111	70 - 130	<0.10	ppbv		
8851067	Vinyl Chloride	2023/08/11	111	70 - 130	<0.02	ppbv		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(2) Duplicate Parent ID

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Bureau Veritas Job #: C3N4550
Report Date: 2023/08/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anke Macfarlane, Laboratory Manager, VOC

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Chain of Custody Form - Summa™ Canister

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A Bureau Veritas Group Company

6740 Campobello Rd
Mississauga Ontario ,L5N 2L8
www.maxxam.ca

Toll Free: 1-800-668-0639
Phone: (905) 817-5700
Fax: (905) 817-5777

CAM FCD-01302 /2

INVOICE INFORMATION

Company Name: WM of Canada
Contact Name: Lisa Mertick
Address: 8039 Zion Line
RR#4Watford, ON NON 1A0
E-mail: lmertick@wm.com
Ph:
Sampled by: BEG, RWDI

REPORT INFORMATION

Company Name: RWDI AIR Inc.
Project Manager: Khalid Hussein
Address: 600 Southgate Dr.,
Guelph, ON N1G 4A6
E-mail: khalid.Hussein@rwdi.com, jeffery.cleland@rwdi.com
Ph: 519-823-1311 ext 2055

ANALYSIS REQUESTED

Field Sample ID	Canister Serial #	Flow Regulator Serial #	Collection Date	START VACUUM (inches of Hg)	END VACUUM (inches of Hg)	SOIL VAPOUR	AMBIENT AIR	AMBIENT/COMMERCIAL/INDUSTRIAL	SUB-SLAB GAS	FULL LIST OF VOCs (reference TO15A)	Aromatic/Aliphatic Hydrocarbon Fractions	F1 (C6-C10) and F2 (C10-C16)	Selected VOC's - please specify	Other	T015, T014 Vinyl Chloride by SIM and Library Search			CANISTERS NOT USED
2A	SX0138	FX808	Aug 1-2	-30	-9		X								X			
2B	311	FX1400	Aug 1-2	-28.5	-7.0		X								X			

04-Aug-23 09:00
Patricia Legette
C3N4550
3SU AIR-001

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day * ☐
- Rush 2 Business day * ☐
- Rush Other * ☐

* need approval from Maxxam

PROJECT INFORMATION

Project #: 2303459.02
Name: Twin Creeks
PO #: 10123733
Maxxam Quote #:
Maxxam Contact:
Task Order/Line Item

REPORTING REQUIREMENTS

- EDD ☐
- Regulations ON 153 ☐
- ON 419 ☐
- BC CSR ☐
- Other

Notes

1) please indicate on chain of custody if your samples are soil vapour or ambient air
2) please list all canisters on the chain of custody even if unused

PROJECT SPECIFIC COMMENTS

See attached page for list of Library Search Items

Client Signature: BEG
Date/Time: 8/2/2023, AM

Received by:
Date/Time: 2023/08/04 09:00

PLEASE RETURN ALL UNUSED EQUIPMENT

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: NA

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/09/07
Report #: R7800863
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3P8499
Received: 2023/08/24, 11:00

Sample Matrix: Air
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Canister Pressure (TO-15)	2	N/A	2023/09/05	BRL SOP-00304	EPA TO-15 m
VOCs in Air (TO-15)	2	N/A	2023/09/05	BRL SOP-00304	EPA TO-15 m
Volatile Organics in Air (TO-15) (1)	2	N/A	2023/09/06	BRL SOP-00304	EPA TO-15 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Air sampling canisters have been cleaned in accordance with U.S. EPA Method TO15. At the end of the cleaning, evacuation, and pressurization cycles, one canister was selected and was pressurized with Zero Air. This canister was then analyzed via TO15 on a GC/MS. The canister must have been found to contain <0.2 ppbv concentration of all target analytes in order for the batch to have been considered clean. Each canister also underwent a leak check prior to shipment.

Please Note: SUMMA® canister samples will be retained by Bureau Veritas for a period of 5 calendar days or as contractually agreed from the date of this report, after which time they will be cleaned for reuse. If you require a longer sample storage period, please contact your service representative.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: NA

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/09/07
Report #: R7800863
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3P8499
Received: 2023/08/24, 11:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Bureau Veritas Job #: C3P8499
Report Date: 2023/09/07

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

RESULTS OF ANALYSES OF AIR

Bureau Veritas ID		WUE040	WUE041	
Sampling Date		2023/08/22	2023/08/22	
COC Number		NA	NA	
	UNITS	**3A**	**3B**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	(-3.6)	(-3.6)	8896192
QC Batch = Quality Control Batch				

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Bureau Veritas Job #: C3P8499
Report Date: 2023/09/07

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (AIR)

Bureau Veritas ID		WUE040		WUE041		
Sampling Date		2023/08/22		2023/08/22		
COC Number		NA		NA		
	UNITS	**3A**	**RDL**	**3B**	**RDL**	**QC Batch**
Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.50	0.20	0.65	0.20	8898698
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<0.17	0.17	8898698
Chloromethane	ppbv	0.44	0.30	0.45	0.30	8898698
Vinyl Chloride	ppbv	<0.02	0.02	<0.02	0.02	8900969
Chloroethane	ppbv	<0.30	0.30	<0.30	0.30	8898698
1,3-Butadiene	ppbv	<0.50	0.50	<0.50	0.50	8898698
Trichlorofluoromethane (FREON 11)	ppbv	0.22	0.20	0.34	0.20	8898698
Ethanol (ethyl alcohol)	ppbv	1.7	1.0	28.3	1.0	8898698
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<0.15	0.15	8898698
2-propanol	ppbv	<1.0	1.0	<1.0	1.0	8898698
2-Propanone	ppbv	2.99	0.60	5.26	0.60	8898698
Methyl Ethyl Ketone (2-Butanone)	ppbv	0.40	0.20	1.83	0.20	8898698
Methyl Isobutyl Ketone	ppbv	<0.20	0.20	<0.20	0.20	8898698
Methyl Butyl Ketone (2-Hexanone)	ppbv	<1.0	1.0	<1.0	1.0	8898698
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.20	0.20	8898698
Ethyl Acetate	ppbv	<1.0	1.0	<1.0	1.0	8898698
1,1-Dichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8898698
cis-1,2-Dichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8898698
trans-1,2-Dichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8898698
Methylene Chloride(Dichloromethane)	ppbv	<0.60	0.60	<0.60	0.60	8898698
Chloroform	ppbv	<0.10	0.10	<0.10	0.10	8898698
Carbon Tetrachloride	ppbv	<0.10	0.10	<0.10	0.10	8898698
1,1-Dichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8898698
1,2-Dichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8898698
Ethylene Dibromide	ppbv	<0.10	0.10	<0.10	0.10	8898698
1,1,1-Trichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8898698
1,1,2-Trichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8898698
1,1,2,2-Tetrachloroethane	ppbv	<0.10	0.10	<0.10	0.10	8898698
cis-1,3-Dichloropropene	ppbv	<0.10	0.10	<0.10	0.10	8898698
trans-1,3-Dichloropropene	ppbv	<0.10	0.10	<0.10	0.10	8898698
1,2-Dichloropropane	ppbv	<0.10	0.10	<0.10	0.10	8898698
Bromomethane	ppbv	<0.10	0.10	<0.10	0.10	8898698
Bromoform	ppbv	<0.20	0.20	<0.20	0.20	8898698
Bromodichloromethane	ppbv	<0.20	0.20	<0.20	0.20	8898698

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P8499
Report Date: 2023/09/07

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (AIR)

Bureau Veritas ID		WUE040		WUE041		
Sampling Date		2023/08/22		2023/08/22		
COC Number		NA		NA		
	UNITS	**3A**	**RDL**	**3B**	**RDL**	**QC Batch**
Dibromochloromethane	ppbv	<0.20	0.20	<0.20	0.20	8898698
Trichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8898698
Tetrachloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8898698
Benzene	ppbv	0.15	0.10	0.17	0.10	8898698
Toluene	ppbv	0.15	0.10	0.52	0.10	8898698
Ethylbenzene	ppbv	<0.10	0.10	<0.10	0.10	8898698
p+m-Xylene	ppbv	<0.20	0.20	0.30	0.20	8898698
o-Xylene	ppbv	<0.10	0.10	<0.10	0.10	8898698
Styrene	ppbv	<0.10	0.10	<0.10	0.10	8898698
4-ethyltoluene	ppbv	<0.50	0.50	<0.50	0.50	8898698
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<0.50	0.50	8898698
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<0.50	0.50	8898698
Chlorobenzene	ppbv	<0.10	0.10	<0.10	0.10	8898698
Benzyl chloride	ppbv	<0.50	0.50	<0.50	0.50	8898698
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<0.40	0.40	8898698
1,4-Dichlorobenzene	ppbv	<0.10	0.10	<0.10	0.10	8898698
1,2-Dichlorobenzene	ppbv	<0.10	0.10	<0.10	0.10	8898698
1,2,4-Trichlorobenzene	ppbv	<0.50	0.50	<0.50	0.50	8898698
Hexachlorobutadiene	ppbv	<0.50	0.50	<0.50	0.50	8898698
Hexane	ppbv	<0.20	0.20	0.33	0.20	8898698
Heptane	ppbv	<0.30	0.30	<0.30	0.30	8898698
Cyclohexane	ppbv	<0.20	0.20	<0.20	0.20	8898698
Tetrahydrofuran	ppbv	<0.40	0.40	<0.40	0.40	8898698
1,4-Dioxane	ppbv	<1.0	1.0	<1.0	1.0	8898698
Naphthalene	ppbv	<0.20	0.20	<0.20	0.20	8898698
Total Xylenes	ppbv	<0.30	0.30	0.30	0.30	8898698
1,1,1,2-Tetrachloroethane	ppbv	<0.10	0.10	<0.10	0.10	8898698
Vinyl Bromide	ppbv	<0.20	0.20	<0.20	0.20	8898698
Propene	ppbv	<0.50	0.50	<1.1	1.1	8898698
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.20	0.20	8898698
Carbon Disulfide	ppbv	<0.50	0.50	<0.50	0.50	8898698
Vinyl Acetate	ppbv	<0.20	0.20	<0.20	0.20	8898698
Surrogate Recovery (%)						
Bromochloromethane	%	94		89		8900969
D5-Chlorobenzene	%	81		81		8900969

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P8499
Report Date: 2023/09/07

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (AIR)

Bureau Veritas ID		WUE040		WUE041		
Sampling Date		2023/08/22		2023/08/22		
COC Number		NA		NA		
	UNITS	**3A**	**RDL**	**3B**	**RDL**	**QC Batch**
Difluorobenzene	%	82		82		8900969
Bromochloromethane	%	75		77		8898698
D5-Chlorobenzene	%	71		80		8898698
Difluorobenzene	%	76		75		8898698

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Sample WUE040:
The following compounds were not detected above 1ppbv via a library search:
1,2,3-Trimethylbenzene,
2-Methylhexane,
2-Methylpentane,
3-Methylpentane,
3-Methylhexane,
2-Methylbutane,
Butyl Acetate,
Decane,
Limonene,
m/p ethyl toluene,
m-cymene,
methyl cyclohexane,
chlorodifluoromethane,
n-butanal,
nonane,
o-ethyl toluene,
propylbenzene,
2-butanol,
pentane,
octane

Sample WUE041:
The following compounds were not detected above 1ppbv via a library search:
1,2,3-Trimethylbenzene,
2-Methylhexane,
2-Methylpentane,
3-Methylpentane,
3-Methylhexane,
Butyl Acetate,
Decane,
Limonene,
m/p ethyl toluene,
m-cymene,
methyl cyclohexane,
chlorodifluoromethane,
n-butanal,
nonane,
o-ethyl toluene,
propylbenzene,
2-butanol,
octane

2-methyl-butane was detected at 1.5 ppbv (87% probability) and pentane at 1.4 ppbv (80% probability)

Sample WUE041 [3B] : Increased DL for propene due to interference from propane.

Results relate only to the items tested.

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Bureau Veritas Job #: C3P8499
Report Date: 2023/09/07

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

			SPIKED BLANK		Method Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS
8898698	Bromochloromethane	2023/09/06	102	60 - 140	93	%
8898698	D5-Chlorobenzene	2023/09/06	101	60 - 140	89	%
8898698	Difluorobenzene	2023/09/06	101	60 - 140	95	%
8900969	Bromochloromethane	2023/09/05	101	60 - 140	100	%
8900969	D5-Chlorobenzene	2023/09/05	101	60 - 140	86	%
8900969	Difluorobenzene	2023/09/05	103	60 - 140	88	%
8898698	1,1,1,2-Tetrachloroethane	2023/09/06	101	70 - 130	<0.10	ppbv
8898698	1,1,1-Trichloroethane	2023/09/06	99	70 - 130	<0.10	ppbv
8898698	1,1,2,2-Tetrachloroethane	2023/09/06	95	70 - 130	<0.10	ppbv
8898698	1,1,2-Trichloroethane	2023/09/06	104	70 - 130	<0.10	ppbv
8898698	1,1-Dichloroethane	2023/09/06	93	70 - 130	<0.10	ppbv
8898698	1,1-Dichloroethylene	2023/09/06	90	70 - 130	<0.10	ppbv
8898698	1,2,4-Trichlorobenzene	2023/09/06	117	70 - 130	<0.50	ppbv
8898698	1,2,4-Trimethylbenzene	2023/09/06	96	70 - 130	<0.50	ppbv
8898698	1,2-Dichlorobenzene	2023/09/06	97	70 - 130	<0.10	ppbv
8898698	1,2-Dichloroethane	2023/09/06	95	70 - 130	<0.10	ppbv
8898698	1,2-Dichloropropane	2023/09/06	96	70 - 130	<0.10	ppbv
8898698	1,2-Dichlorotetrafluoroethane	2023/09/06	93	70 - 130	<0.17	ppbv
8898698	1,3,5-Trimethylbenzene	2023/09/06	95	70 - 130	<0.50	ppbv
8898698	1,3-Butadiene	2023/09/06	96	70 - 130	<0.50	ppbv
8898698	1,3-Dichlorobenzene	2023/09/06	98	70 - 130	<0.40	ppbv
8898698	1,4-Dichlorobenzene	2023/09/06	98	70 - 130	<0.10	ppbv
8898698	1,4-Dioxane	2023/09/06	113	70 - 130	<1.0	ppbv
8898698	2,2,4-Trimethylpentane	2023/09/06	98	70 - 130	<0.20	ppbv
8898698	2-propanol	2023/09/06	85	70 - 130	<1.0	ppbv
8898698	2-Propanone	2023/09/06	90	70 - 130	<0.60	ppbv
8898698	4-ethyltoluene	2023/09/06	100	70 - 130	<0.50	ppbv
8898698	Benzene	2023/09/06	99	70 - 130	<0.10	ppbv
8898698	Benzyl chloride	2023/09/06	99	70 - 130	<0.50	ppbv
8898698	Bromodichloromethane	2023/09/06	96	70 - 130	<0.20	ppbv

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Bureau Veritas Job #: C3P8499
Report Date: 2023/09/07

QUALITY ASSURANCE REPORT(CONT'D)

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

			SPIKED BLANK		Method Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS
8898698	Bromoform	2023/09/06	105	70 - 130	<0.20	ppbv
8898698	Bromomethane	2023/09/06	99	70 - 130	<0.10	ppbv
8898698	Carbon Disulfide	2023/09/06	96	70 - 130	<0.50	ppbv
8898698	Carbon Tetrachloride	2023/09/06	105	70 - 130	<0.10	ppbv
8898698	Chlorobenzene	2023/09/06	100	70 - 130	<0.10	ppbv
8898698	Chloroethane	2023/09/06	95	70 - 130	<0.30	ppbv
8898698	Chloroform	2023/09/06	99	70 - 130	<0.10	ppbv
8898698	Chloromethane	2023/09/06	91	70 - 130	<0.30	ppbv
8898698	cis-1,2-Dichloroethylene	2023/09/06	93	70 - 130	<0.10	ppbv
8898698	cis-1,3-Dichloropropene	2023/09/06	97	70 - 130	<0.10	ppbv
8898698	Cyclohexane	2023/09/06	93	70 - 130	<0.20	ppbv
8898698	Dibromochloromethane	2023/09/06	107	70 - 130	<0.20	ppbv
8898698	Dichlorodifluoromethane (FREON 12)	2023/09/06	99	70 - 130	<0.20	ppbv
8898698	Ethanol (ethyl alcohol)	2023/09/06	73	70 - 130	<1.0	ppbv
8898698	Ethyl Acetate	2023/09/06	98	70 - 130	<1.0	ppbv
8898698	Ethylbenzene	2023/09/06	100	70 - 130	<0.10	ppbv
8898698	Ethylene Dibromide	2023/09/06	105	70 - 130	<0.10	ppbv
8898698	Heptane	2023/09/06	96	70 - 130	<0.30	ppbv
8898698	Hexachlorobutadiene	2023/09/06	104	70 - 130	<0.50	ppbv
8898698	Hexane	2023/09/06	88	70 - 130	<0.20	ppbv
8898698	Methyl Butyl Ketone (2-Hexanone)	2023/09/06	94	70 - 130	<1.0	ppbv
8898698	Methyl Ethyl Ketone (2-Butanone)	2023/09/06	100	70 - 130	<0.20	ppbv
8898698	Methyl Isobutyl Ketone	2023/09/06	94	70 - 130	<0.20	ppbv
8898698	Methyl t-butyl ether (MTBE)	2023/09/06	85	70 - 130	<0.20	ppbv
8898698	Methylene Chloride(Dichloromethane)	2023/09/06	88	70 - 130	<0.60	ppbv
8898698	Naphthalene	2023/09/06	111	70 - 130	<0.20	ppbv
8898698	o-Xylene	2023/09/06	96	70 - 130	<0.10	ppbv
8898698	p+m-Xylene	2023/09/06	111	70 - 130	<0.20	ppbv
8898698	Propene	2023/09/06	86	70 - 130	<0.50	ppbv
8898698	Styrene	2023/09/06	101	70 - 130	<0.10	ppbv

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P8499
Report Date: 2023/09/07

QUALITY ASSURANCE REPORT(CONT'D)

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

			SPIKED BLANK		Method Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS
8898698	Tetrachloroethylene	2023/09/06	108	70 - 130	<0.10	ppbv
8898698	Tetrahydrofuran	2023/09/06	95	70 - 130	<0.40	ppbv
8898698	Toluene	2023/09/06	101	70 - 130	<0.10	ppbv
8898698	Total Xylenes	2023/09/06	106	70 - 130	<0.30	ppbv
8898698	trans-1,2-Dichloroethylene	2023/09/06	94	70 - 130	<0.10	ppbv
8898698	trans-1,3-Dichloropropene	2023/09/06	106	70 - 130	<0.10	ppbv
8898698	Trichloroethylene	2023/09/06	108	70 - 130	<0.10	ppbv
8898698	Trichlorofluoromethane (FREON 11)	2023/09/06	98	70 - 130	<0.20	ppbv
8898698	Trichlorotrifluoroethane	2023/09/06	96	70 - 130	<0.15	ppbv
8898698	Vinyl Acetate	2023/09/06	93	70 - 130	<0.20	ppbv
8898698	Vinyl Bromide	2023/09/06	90	70 - 130	<0.20	ppbv
8898698	Vinyl Chloride	2023/09/06	96	70 - 130	<0.10	ppbv
8900969	Vinyl Chloride	2023/09/05	99	70 - 130	<0.02	ppbv

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P8499
Report Date: 2023/09/07

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anke Macfarlane, Laboratory Manager, VOC

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Chain of Custody Form - Summa™ Canister

Maxxam
A Bureau Veritas Group Company

6740 Campobello Rd
Mississauga Ontario ,L5N 2L8
www.maxxam.ca

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Phone: (905) 817-5700
Fax: (905) 817-5777

CAM FCD-01302 /2 Page 1 of 1

ANALYSIS REQUESTED

INVOICE INFORMATION		REPORT INFORMATION	
Company Name:	WM of Canada	Company Name:	RWDI AIR Inc.
Contact Name:	Lisa Mertick	Project Manager:	Khalid Hussein
Address:	8039 Zion Line RR#4Watford, ON NON 1A0	Address:	600 Southgate Dr., Guelph, ON N1G 4A6
E-mail:	lmertick@wm.com	E-mail:	khalid.Hussein@rwdi.com, jeffery.cleland@rwdi.com
Ph:		Ph:	519-823-1311 ext 2055
Sampled by:	BEG, RWDI		

Field Sample ID	Canister Serial #	Flow Regulator Serial #	Collection Date	START VACUUM (inches of Hg)	END VACUUM (inches of Hg)	SOIL VAPOUR	AMBIENT AIR	AMBIENT/COMMERCIAL/INDUSTRIAL	SUB-SLAB GAS	FULL LIST OF VOCs (reference TO15A)	Aromatic/Aliphatic Hydrocarbon Fractions	F1 (C6-C10) and F2 (C10-C16)	Selected VOC's - please specify	Other	T015, T014 Vinyl Chloride by SIM and Library Search			CANISTERS NOT USED
3A	SX1616	FX1493	Aug 22-23	-30	-9		X								X			
3B	SX0753	FX0072	Aug 22-23	-30	-6.0		X								X			

24-Aug-23 11:00
Patricia Legette
C3P8499
BSU AIR-001

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day * ☐
- Rush 2 Business day * ☐
- Rush Other * ☐

* need approval from Maxxam

PROJECT INFORMATION

Project #: 2303459.02
Name: Twin Creeks
PO #: 10123733
Maxxam Quote #:
Maxxam Contact:
Task Order/Line Item

REPORTING REQUIREMENTS

- EDD ☐
- Regulations ON 153 ☐
- ON 419 ☐
- BC CSR ☐
- Other

Notes

1) please indicate on chain of custody if your samples are soil vapour or ambient air
2) please list all canisters on the chain of custody even if unused

PROJECT SPECIFIC COMMENTS

See attached page for list of Library Search Items

Client Signature: BEG

Date/Time: 8/23/2023, AM

Received by: [signature] Banisha Pinnan

Date/Time: 2023/08/24 11:00

PLEASE RETURN ALL UNUSED EQUIPMENT

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms.

ALS Canada Ltd.

right solutions.
right partner.

CERTIFICATE OF ANALYSIS

Work Order	: **WT2328283-AB**	Page	: 1 of 8
Amendment	: **1**		
Client	: **RWDI Air Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Khalid Hussein	Account Manager	: Gayle Braun
Address	: 600 Southgate Drive Guelph ON Canada N1G 4P6	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: 519 823 1311	Telephone	: +1 519 886 6910
Project	: 2101750.10	Date Samples Received	: 06-Sep-2023 10:30
PO	: ----	Date Analysis Commenced	: 07-Sep-2023
C-O-C number	: ----	Issue Date	: 02-Nov-2023 13:35
Sampler	: EW		
Site	: Sarnia		
Quote number	: 2101750.01		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	Air Quality, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
µg/m³	micrograms per cubic metre
Inches Hg	inches of mercury
ppbv	parts per billion (volume/volume)

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Amendment (02/11/2023): This report has been amended as a result of a request to change sample identification numbers (IDs). All analysis results are as per the previous report.

Qualifiers

Qualifier	*Description*
DLQ	*Detection Limit raised due to co-eluting interference. Mass Spectrometry qualifier ion ratio did not meet acceptance criteria.*

Analytical Results

Sub-Matrix: Canister (Matrix: Air)				Client sample ID	465	----	----	----	----
				Client sampling date / time	03-Sep-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	WT2328283-003	--------	--------	--------	--------
					Result	----	----	----	----
Field Tests									
ID, batch proof	----	EF001/WT	-	-	230811.119	----	----	----	----
ID, canister	----	EF001/WT	-	-	06000-0465	----	----	----	----
ID, regulator	----	EF001/WT	-	-	NR	----	----	----	----
Pressure on receipt	----	EF001/WT	0.10	Inches Hg	-6.95	----	----	----	----
Sulfur Compounds									
Dimethyl disulfide	624-92-0	EC630-L/WT	3.9	µg/m³	<3.8	----	----	----	----
Dimethyl disulfide	624-92-0	E630-L/WT	1.0	ppbv	<1.0	----	----	----	----
Dimethyl sulfide	75-18-3	EC630-L/WT	5.1	µg/m³	<5.1	----	----	----	----
Dimethyl sulfide	75-18-3	E630-L/WT	2.0	ppbv	<2.0	----	----	----	----
Hydrogen sulfide	7783-06-4	EC630-L/WT	2.8	µg/m³	<2.8	----	----	----	----
Hydrogen sulfide	7783-06-4	E630-L/WT	2.0	ppbv	<2.0	----	----	----	----
Methyl mercaptan	74-93-1	EC630-L/WT	3.9	µg/m³	<3.9	----	----	----	----
Methyl mercaptan	74-93-1	E630-L/WT	2.0	ppbv	<2.0	----	----	----	----
Sulfur, total reduced (as H2S), Ontario 4	----	EC630-L/WT	5.6	µg/m³	<5.6	----	----	----	----
Volatile Organic Compounds									
Acetone	67-64-1	EC621B/WT	2.4	µg/m³	17.8	----	----	----	----
Acetone	67-64-1	E621B/WT	1.0	ppbv	7.5	----	----	----	----
Allyl chloride	107-05-1	EC621B/WT	0.63	µg/m³	<0.63	----	----	----	----
Allyl chloride	107-05-1	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Benzene	71-43-2	EC621B/WT	0.32	µg/m³	<0.32	----	----	----	----
Benzene	71-43-2	E621B/WT	0.10	ppbv	<0.10	----	----	----	----
Benzyl chloride	100-44-7	EC621B/WT	1.0	µg/m³	<1.0	----	----	----	----
Benzyl chloride	100-44-7	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Bromodichloromethane	75-27-4	EC621B/WT	1.3	µg/m³	<1.3	----	----	----	----
Bromodichloromethane	75-27-4	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Bromoform	75-25-2	EC621B/WT	2.1	µg/m³	<2.1	----	----	----	----
Bromoform	75-25-2	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Bromomethane	74-83-9	EC621B/WT	0.78	µg/m³	<0.78	----	----	----	----
Bromomethane	74-83-9	E621B/WT	0.20	ppbv	<0.20	----	----	----	----

Analytical Results

Sub-Matrix: Canister (Matrix: Air)					Client sample ID	465	----	----	----	----
					Client sampling date / time	03-Sep-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2328283-003	--------	--------	--------	--------
						Result	----	----	----	----
Volatile Organic Compounds										
Butadiene, 1,3-	106-99-0	EC621B/WT	0.44	µg/m³		<0.44	----	----	----	----
Butadiene, 1,3-	106-99-0	E621B/WT	0.20	ppbv		<0.20	----	----	----	----
Carbon disulfide	75-15-0	EC621B/WT	1.6	µg/m³		<1.6	----	----	----	----
Carbon disulfide	75-15-0	E621B/WT	0.50	ppbv		<0.50	----	----	----	----
Carbon tetrachloride	56-23-5	EC621B/WT	1.30	µg/m³		<1.26	----	----	----	----
Carbon tetrachloride	56-23-5	E621B/WT	0.20	ppbv		<0.20	----	----	----	----
Chlorobenzene	108-90-7	EC621B/WT	0.92	µg/m³		<0.92	----	----	----	----
Chlorobenzene	108-90-7	E621B/WT	0.20	ppbv		<0.20	----	----	----	----
Chloroethane	75-00-3	EC621B/WT	0.53	µg/m³		<0.53	----	----	----	----
Chloroethane	75-00-3	E621B/WT	0.20	ppbv		<0.20	----	----	----	----
Chloroform	67-66-3	EC621B/WT	0.98	µg/m³		<0.98	----	----	----	----
Chloroform	67-66-3	E621B/WT	0.20	ppbv		<0.20	----	----	----	----
Chloromethane	74-87-3	EC621B/WT	0.41	µg/m³		0.72	----	----	----	----
Chloromethane	74-87-3	E621B/WT	0.20	ppbv		0.35	----	----	----	----
Cyclohexane	110-82-7	EC621B/WT	0.69	µg/m³		<0.69	----	----	----	----
Cyclohexane	110-82-7	E621B/WT	0.20	ppbv		<0.20	----	----	----	----
Dibromochloromethane	124-48-1	EC621B/WT	1.7	µg/m³		<1.7	----	----	----	----
Dibromochloromethane	124-48-1	E621B/WT	0.20	ppbv		<0.20	----	----	----	----
Dibromoethane, 1,2-	106-93-4	EC621B/WT	1.5	µg/m³		<1.5	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E621B/WT	0.20	ppbv		<0.20	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	EC621B/WT	1.2	µg/m³		<1.2	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E621B/WT	0.20	ppbv		<0.20	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	EC621B/WT	1.2	µg/m³		<1.2	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E621B/WT	0.20	ppbv		<0.20	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	EC621B/WT	1.2	µg/m³		<1.2	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E621B/WT	0.20	ppbv		<0.20	----	----	----	----
Dichlorodifluoromethane	75-71-8	EC621B/WT	1.0	µg/m³		2.0	----	----	----	----
Dichlorodifluoromethane	75-71-8	E621B/WT	0.20	ppbv		0.40	----	----	----	----
Dichloroethane, 1,1-	75-34-3	EC621B/WT	0.81	µg/m³		<0.81	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E621B/WT	0.20	ppbv		<0.20	----	----	----	----

Analytical Results

Sub-Matrix: Canister (Matrix: Air)									
				Client sample ID	465	----	----	----	----
				Client sampling date / time	03-Sep-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	WT2328283-003	--------	--------	--------	--------
					Result	----	----	----	----
Volatile Organic Compounds									
Dichloroethane, 1,2-	107-06-2	EC621B-L/WT	0.040	µg/m³	<0.040	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E621B-L/WT	0.010	ppbv	<0.010	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	EC621B/WT	0.79	µg/m³	<0.79	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	EC621B/WT	0.79	µg/m³	<0.79	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	EC621B/WT	0.79	µg/m³	<0.79	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Dichloromethane	75-09-2	EC621B/WT	0.69	µg/m³	<0.69	----	----	----	----
Dichloromethane	75-09-2	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Dichloropropane, 1,2-	78-87-5	EC621B/WT	0.9	µg/m³	<0.9	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	EC621B/WT	1.3	µg/m³	<1.8	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E621B/WT	0.30	ppbv	<0.30	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	EC621B/WT	0.9	µg/m³	<0.9	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	EC621B/WT	0.9	µg/m³	<0.9	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Dichlorotetrafluoroethane, 1,2- [Freon 114]	76-14-2	EC621B/WT	1.4	µg/m³	<1.4	----	----	----	----
Dichlorotetrafluoroethane, 1,2- [Freon 114]	76-14-2	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Dioxane, 1,4-	123-91-1	EC621B/WT	0.72	µg/m³	<0.72	----	----	----	----
Dioxane, 1,4-	123-91-1	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Ethyl acetate	141-78-6	EC621B/WT	0.72	µg/m³	<0.72	----	----	----	----
Ethyl acetate	141-78-6	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Ethylbenzene	100-41-4	EC621B/WT	0.43	µg/m³	<0.43	----	----	----	----
Ethylbenzene	100-41-4	E621B/WT	0.10	ppbv	<0.10	----	----	----	----
Ethyltoluene, 4-	622-96-8	EC621B/WT	1.0	µg/m³	<1.0	----	----	----	----
Ethyltoluene, 4-	622-96-8	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Heptane, n-	142-82-5	EC621B/WT	0.82	µg/m³	<0.82	----	----	----	----
Heptane, n-	142-82-5	E621B/WT	0.20	ppbv	<0.20	----	----	----	----

Analytical Results

Sub-Matrix: Canister (Matrix: Air)				Client sample ID	465	----	----	----	----
				Client sampling date / time	03-Sep-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	WT2328283-003	--------	--------	--------	--------
					Result	----	----	----	----
Volatile Organic Compounds									
Hexachlorobutadiene	87-68-3	EC621B/WT	2.1	µg/m³	<2.1	----	----	----	----
Hexachlorobutadiene	87-68-3	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Hexane, n-	110-54-3	EC621B/WT	0.70	µg/m³	<0.70	----	----	----	----
Hexane, n-	110-54-3	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Hexanone, 2-	591-78-6	EC621B/WT	4.10	µg/m³	<4.10	----	----	----	----
Hexanone, 2-	591-78-6	E621B/WT	1.0	ppbv	<1.0	----	----	----	----
Isopropylbenzene	98-82-8	EC621B/WT	1.0	µg/m³	<1.0	----	----	----	----
Isopropylbenzene	98-82-8	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	EC621B/WT	0.59	µg/m³	1.33	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E621B/WT	0.20	ppbv	0.45	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	EC621B/WT	0.82	µg/m³	<0.82	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	EC621B/WT	0.72	µg/m³	<0.72	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Naphthalene	91-20-3	EC621B/WT	0.52	µg/m³	<0.52	----	----	----	----
Naphthalene	91-20-3	E621B/WT	0.10	ppbv	<0.10	----	----	----	----
Propylene	115-07-1	EC621B/WT	0.34	µg/m³	<0.58	----	----	----	----
Propylene	115-07-1	E621B/WT	0.20	ppbv	<0.34 DLQ	----	----	----	----
Styrene	100-42-5	EC621B/WT	0.85	µg/m³	<0.85	----	----	----	----
Styrene	100-42-5	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	EC621B/WT	1.4	µg/m³	<1.4	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Tetrachloroethylene	127-18-4	EC621B/WT	1.4	µg/m³	<1.4	----	----	----	----
Tetrachloroethylene	127-18-4	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Tetrahydrofuran	109-99-9	EC621B/WT	0.59	µg/m³	<0.59	----	----	----	----
Tetrahydrofuran	109-99-9	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Toluene	108-88-3	EC621B/WT	0.38	µg/m³	0.41	----	----	----	----
Toluene	108-88-3	E621B/WT	0.10	ppbv	0.11	----	----	----	----
Trichloro-1,2,2-trifluoroethane, 1,1,2- [Freon 113]	76-13-1	EC621B/WT	1.5	µg/m³	<1.5	----	----	----	----

Analytical Results

Sub-Matrix: Canister (Matrix: Air)									
				Client sample ID	465	----	----	----	----
				Client sampling date / time	03-Sep-2023 00:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	WT2328283-003	--------	--------	--------	--------
					Result	----	----	----	----
Volatile Organic Compounds									
Trichloro-1,2,2-trifluoroethane, 1,1,2- [Freon 113]	76-13-1	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Trichlorobenzene, 1,2,4-	120-82-1	EC621B/WT	1.5	µg/m³	<1.5	----	----	----	----
Trichlorobenzene, 1,2,4-	120-82-1	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	EC621B/WT	1.1	µg/m³	<1.1	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	EC621B/WT	1.1	µg/m³	<1.1	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Trichloroethylene	79-01-6	EC621B/WT	1.1	µg/m³	<1.1	----	----	----	----
Trichloroethylene	79-01-6	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Trichlorofluoromethane	75-69-4	EC621B/WT	1.1	µg/m³	<1.1	----	----	----	----
Trichlorofluoromethane	75-69-4	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Trimethylbenzene, 1,2,4-	95-63-6	EC621B/WT	1.0	µg/m³	<1.0	----	----	----	----
Trimethylbenzene, 1,2,4-	95-63-6	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Trimethylbenzene, 1,3,5-	108-67-8	EC621B/WT	1.0	µg/m³	<1.0	----	----	----	----
Trimethylbenzene, 1,3,5-	108-67-8	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Trimethylpentane, 2,2,4-	540-84-1	EC621B/WT	0.9	µg/m³	<0.9	----	----	----	----
Trimethylpentane, 2,2,4-	540-84-1	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Vinyl acetate	108-05-4	EC621B/WT	1.8	µg/m³	<1.8	----	----	----	----
Vinyl acetate	108-05-4	E621B/WT	0.50	ppbv	<0.50	----	----	----	----
Vinyl bromide	593-60-2	EC621B/WT	0.9	µg/m³	<0.9	----	----	----	----
Vinyl bromide	593-60-2	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Vinyl chloride	75-01-4	EC621B-L/WT	0.051	µg/m³	<0.051	----	----	----	----
Vinyl chloride	75-01-4	E621B-L/WT	0.020	ppbv	<0.020	----	----	----	----
Xylene, m+p-	179601-23-1	EC621B/WT	0.87	µg/m³	<0.87	----	----	----	----
Xylene, m+p-	179601-23-1	E621B/WT	0.20	ppbv	<0.20	----	----	----	----
Xylene, o-	95-47-6	EC621B/WT	0.43	µg/m³	<0.43	----	----	----	----
Xylene, o-	95-47-6	E621B/WT	0.10	ppbv	<0.10	----	----	----	----
Xylenes, total	1330-20-7	EC621B/WT	1.3	µg/m³	<1.3	----	----	----	----
Xylenes, total	1330-20-7	E621B/WT	0.30	ppbv	<0.30	----	----	----	----

Analytical Results

Sub-Matrix: **Canister** (Matrix: **Air**)				Client sample ID	**465**	----	----	----	----
				Client sampling date / time	03-Sep-2023 00:00	----	----	----	----
Analyte	*CAS Number*	*Method/Lab*	*LOR*	*Unit*	**WT2328283-003**	--------	--------	--------	--------
					Result	----	----	----	----
Volatile Organic Compounds									
BTEX, total	----	EC621B/WT	1.2	µg/m³	<2.4	----	----	----	----
BTEX, total	----	E621B/WT	0.30	ppbv	<0.30	----	----	----	----
Volatile Organic Compounds Surrogates									
Bromofluorobenzene, 4-	460-00-4	E621B/WT	0.20	%	95.3	----	----	----	----
Bromofluorobenzene, 4-	460-00-4	E621B-L/WT	0.20	%	97.6	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL REPORT

Work Order	: **WT2328283-AB**	Page	: 1 of 11
Amendment	: **1**		
Client	: RWDI Air Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Khalid Hussein	Account Manager	: Gayle Braun
Address	: 600 Southgate Drive Guelph ON Canada N1G 4P6	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	:	Telephone	: +1 519 886 6910
Project	: 2101750.10	Date Samples Received	: 06-Sep-2023 10:30
PO	: ----	Date Analysis Commenced	: 07-Sep-2023
C-O-C number	: ----	Issue Date	: 02-Nov-2023 13:31
Sampler	: EW 519 823 1311		
Site	: Sarnia		
Quote number	: 2101750.01		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	Waterloo Air Quality, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Air**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Sulfur Compounds (QC Lot: 1124819)											
WT2328283-001	Anonymous	Dimethyl disulfide	624-92-0	E630-L	1.0	ppbv	<1.0	<1.0	0	Diff <2x LOR	----
		Dimethyl sulfide	75-18-3	E630-L	2.0	ppbv	<2.0	<2.0	0	Diff <2x LOR	----
		Hydrogen sulfide	7783-06-4	E630-L	2.0	ppbv	2.9	2.2	0.7	Diff <2x LOR	----
		Methyl mercaptan	74-93-1	E630-L	2.0	ppbv	<2.0	<2.0	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1127645)											
WT2328283-001	Anonymous	Dichloroethane, 1,2-	107-06-2	E621B-L	0.010	ppbv	<0.010	<0.010	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E621B-L	0.020	ppbv	<0.020	<0.020	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1127646)											
WT2328283-001	Anonymous	Acetone	67-64-1	E621B	2.5	ppbv	4.8	4.4	0.5	Diff <2x LOR	----
		Allyl chloride	107-05-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Benzene	71-43-2	E621B	0.10	ppbv	<0.10	<0.10	0	Diff <2x LOR	----
		Benzyl chloride	100-44-7	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Bromoform	75-25-2	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Butadiene, 1,3-	106-99-0	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Carbon disulfide	75-15-0	E621B	0.50	ppbv	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Chloroform	67-66-3	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E621B	0.20	ppbv	0.39	0.38	0.01	Diff <2x LOR	----
		Cyclohexane	110-82-7	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E621B	0.20	ppbv	0.40	0.41	0.010	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----

Sub-Matrix: **Air**

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Laboratory Duplicate (DUP) Report						
					LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Volatile Organic Compounds (QC Lot: 1127646) - continued											
WT2328283-001	Anonymous	Dichloroethylene, 1,1-	75-35-4	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloropropylene, cis+trans-1,3-	542-75-6	E621B	0.3	ppbv	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorotetrafluoroethane, 1,2- [Freon 114]	76-14-2	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Dioxane, 1,4-	123-91-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Ethyl acetate	141-78-6	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E621B	0.10	ppbv	<0.10	<0.10	0	Diff <2x LOR	----
		Ethyltoluene, 4-	622-96-8	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Heptane, n-	142-82-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Hexachlorobutadiene	87-68-3	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Hexanone, 2-	591-78-6	E621B	1.0	ppbv	<1.0	<1.0	0	Diff <2x LOR	----
		Isopropylbenzene	98-82-8	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E621B	0.20	ppbv	0.56	0.56	0.007	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Naphthalene	91-20-3	E621B	0.10	ppbv	<0.10	<0.10	0	Diff <2x LOR	----
		Propylene	115-07-1	E621B	0.40	ppbv	<0.40	<0.40	0	Diff <2x LOR	----
		Styrene	100-42-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Tetrahydrofuran	109-99-9	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Toluene	108-88-3	E621B	0.10	ppbv	0.15	0.16	0.002	Diff <2x LOR	----
		Trichloro-1,2,2-trifluoroethane, 1,1,2- [Freon 113]	76-13-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trichlorobenzene, 1,2,4-	120-82-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----

Sub-Matrix: **Air**

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Laboratory Duplicate (DUP) Report						
					LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Volatile Organic Compounds (QC Lot: 1127646) - continued											
WT2328283-001	Anonymous	Trichlorofluoromethane	75-69-4	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trimethylbenzene, 1,2,4-	95-63-6	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trimethylbenzene, 1,3,5-	108-67-8	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Trimethylpentane, 2,2,4-	540-84-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Vinyl acetate	108-05-4	E621B	0.50	ppbv	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl bromide	593-60-2	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E621B	0.20	ppbv	<0.20	<0.20	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E621B	0.10	ppbv	<0.10	<0.10	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Air**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Field Tests (QCLot: 1122391)						
Pressure on receipt	----	EF001	0.1	Inches Hg	-29.8	----
Sulfur Compounds (QCLot: 1124819)						
Dimethyl disulfide	624-92-0	E630-L	1	ppbv	<1.0	----
Dimethyl sulfide	75-18-3	E630-L	2	ppbv	<2.0	----
Hydrogen sulfide	7783-06-4	E630-L	2	ppbv	<2.0	----
Methyl mercaptan	74-93-1	E630-L	2	ppbv	<2.0	----
Volatile Organic Compounds (QCLot: 1127645)						
Dichloroethane, 1,2-	107-06-2	E621B-L	0.01	ppbv	<0.010	----
Vinyl chloride	75-01-4	E621B-L	0.02	ppbv	<0.020	----
Volatile Organic Compounds (QCLot: 1127646)						
Acetone	67-64-1	E621B	1	ppbv	<1.0	----
Allyl chloride	107-05-1	E621B	0.2	ppbv	<0.20	----
Benzene	71-43-2	E621B	0.1	ppbv	<0.10	----
Benzyl chloride	100-44-7	E621B	0.2	ppbv	<0.20	----
Bromodichloromethane	75-27-4	E621B	0.2	ppbv	<0.20	----
Bromoform	75-25-2	E621B	0.2	ppbv	<0.20	----
Bromomethane	74-83-9	E621B	0.2	ppbv	<0.20	----
Butadiene, 1,3-	106-99-0	E621B	0.2	ppbv	<0.20	----
Carbon disulfide	75-15-0	E621B	0.5	ppbv	<0.50	----
Carbon tetrachloride	56-23-5	E621B	0.2	ppbv	<0.20	----
Chlorobenzene	108-90-7	E621B	0.2	ppbv	<0.20	----
Chloroethane	75-00-3	E621B	0.2	ppbv	<0.20	----
Chloroform	67-66-3	E621B	0.2	ppbv	<0.20	----
Chloromethane	74-87-3	E621B	0.2	ppbv	<0.20	----
Cyclohexane	110-82-7	E621B	0.2	ppbv	<0.20	----
Dibromochloromethane	124-48-1	E621B	0.2	ppbv	<0.20	----
Dibromoethane, 1,2-	106-93-4	E621B	0.2	ppbv	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E621B	0.2	ppbv	<0.20	----
Dichlorobenzene, 1,3-	541-73-1	E621B	0.2	ppbv	<0.20	----
Dichlorobenzene, 1,4-	106-46-7	E621B	0.2	ppbv	<0.20	----
Dichlorodifluoromethane	75-71-8	E621B	0.2	ppbv	<0.20	----
Dichloroethane, 1,1-	75-34-3	E621B	0.2	ppbv	<0.20	----

Sub-Matrix: **Air**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1127646) - continued						
Dichloroethylene, 1,1-	75-35-4	E621B	0.2	ppbv	<0.20	----
Dichloroethylene, cis-1,2-	156-59-2	E621B	0.2	ppbv	<0.20	----
Dichloroethylene, trans-1,2-	156-60-5	E621B	0.2	ppbv	<0.20	----
Dichloromethane	75-09-2	E621B	0.2	ppbv	<0.20	----
Dichloropropane, 1,2-	78-87-5	E621B	0.2	ppbv	<0.20	----
Dichloropropylene, cis-1,3-	10061-01-5	E621B	0.2	ppbv	<0.20	----
Dichloropropylene, trans-1,3-	10061-02-6	E621B	0.2	ppbv	<0.20	----
Dichlorotetrafluoroethane, 1,2- [Freon 114]	76-14-2	E621B	0.2	ppbv	<0.20	----
Dioxane, 1,4-	123-91-1	E621B	0.2	ppbv	<0.20	----
Ethyl acetate	141-78-6	E621B	0.2	ppbv	<0.20	----
Ethylbenzene	100-41-4	E621B	0.1	ppbv	<0.10	----
Ethyltoluene, 4-	622-96-8	E621B	0.2	ppbv	<0.20	----
Heptane, n-	142-82-5	E621B	0.2	ppbv	<0.20	----
Hexachlorobutadiene	87-68-3	E621B	0.2	ppbv	<0.20	----
Hexane, n-	110-54-3	E621B	0.2	ppbv	<0.20	----
Hexanone, 2-	591-78-6	E621B	1	ppbv	<1.0	----
Isopropylbenzene	98-82-8	E621B	0.2	ppbv	<0.20	----
Methyl ethyl ketone [MEK]	78-93-3	E621B	0.2	ppbv	<0.20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E621B	0.2	ppbv	<0.20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E621B	0.2	ppbv	<0.20	----
Naphthalene	91-20-3	E621B	0.1	ppbv	<0.10	----
Propylene	115-07-1	E621B	0.2	ppbv	<0.20	----
Styrene	100-42-5	E621B	0.2	ppbv	<0.20	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E621B	0.2	ppbv	<0.20	----
Tetrachloroethylene	127-18-4	E621B	0.2	ppbv	<0.20	----
Tetrahydrofuran	109-99-9	E621B	0.2	ppbv	<0.20	----
Toluene	108-88-3	E621B	0.1	ppbv	<0.10	----
Trichloro-1,2,2-trifluoroethane, 1,1,2- [Freon 113]	76-13-1	E621B	0.2	ppbv	<0.20	----
Trichlorobenzene, 1,2,4-	120-82-1	E621B	0.2	ppbv	<0.20	----
Trichloroethane, 1,1,1-	71-55-6	E621B	0.2	ppbv	<0.20	----
Trichloroethane, 1,1,2-	79-00-5	E621B	0.2	ppbv	<0.20	----
Trichloroethylene	79-01-6	E621B	0.2	ppbv	<0.20	----
Trichlorofluoromethane	75-69-4	E621B	0.2	ppbv	<0.20	----
Trimethylbenzene, 1,2,4-	95-63-6	E621B	0.2	ppbv	<0.20	----
Trimethylbenzene, 1,3,5-	108-67-8	E621B	0.2	ppbv	<0.20	----

Sub-Matrix: **Air**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1127646) - continued						
Trimethylpentane, 2,2,4-	540-84-1	E621B	0.2	ppbv	<0.20	----
Vinyl acetate	108-05-4	E621B	0.5	ppbv	<0.50	----
Vinyl bromide	593-60-2	E621B	0.2	ppbv	<0.20	----
Xylene, m+p-	179601-23-1	E621B	0.2	ppbv	<0.20	----
Xylene, o-	95-47-6	E621B	0.1	ppbv	<0.10	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Air**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Sulfur Compounds (QCLot: 1124819)									
Hydrogen sulfide	7783-06-4	E630-L	2	ppbv	120 ppbv	107	60.0	140	----
Methyl mercaptan	74-93-1	E630-L	2	ppbv	88.8 ppbv	103	60.0	140	----
Volatile Organic Compounds (QCLot: 1127645)									
Dichloroethane, 1,2-	107-06-2	E621B-L	0.01	ppbv	0.104 ppbv	106	70.0	130	----
Vinyl chloride	75-01-4	E621B-L	0.02	ppbv	0.101 ppbv	106	70.0	130	----
Volatile Organic Compounds (QCLot: 1127646)									
Acetone	67-64-1	E621B	1	ppbv	1.06 ppbv	104	70.0	130	----
Allyl chloride	107-05-1	E621B	0.2	ppbv	1.04 ppbv	103	70.0	130	----
Benzene	71-43-2	E621B	0.1	ppbv	1.06 ppbv	96.1	70.0	130	----
Benzyl chloride	100-44-7	E621B	0.2	ppbv	1.06 ppbv	77.1	70.0	130	----
Bromodichloromethane	75-27-4	E621B	0.2	ppbv	1.02 ppbv	105	70.0	130	----
Bromoform	75-25-2	E621B	0.2	ppbv	1.06 ppbv	90.3	70.0	130	----
Bromomethane	74-83-9	E621B	0.2	ppbv	1.04 ppbv	97.2	70.0	130	----
Butadiene, 1,3-	106-99-0	E621B	0.2	ppbv	1.06 ppbv	79.8	70.0	130	----
Carbon disulfide	75-15-0	E621B	0.5	ppbv	1.06 ppbv	104	70.0	130	----
Carbon tetrachloride	56-23-5	E621B	0.2	ppbv	1.06 ppbv	104	70.0	130	----
Chlorobenzene	108-90-7	E621B	0.2	ppbv	1.07 ppbv	89.9	70.0	130	----
Chloroethane	75-00-3	E621B	0.2	ppbv	1.01 ppbv	97.0	70.0	130	----
Chloroform	67-66-3	E621B	0.2	ppbv	1.05 ppbv	101	70.0	130	----
Chloromethane	74-87-3	E621B	0.2	ppbv	1.01 ppbv	98.4	70.0	130	----
Cyclohexane	110-82-7	E621B	0.2	ppbv	1.06 ppbv	100	70.0	130	----
Dibromochloromethane	124-48-1	E621B	0.2	ppbv	1.07 ppbv	99.6	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E621B	0.2	ppbv	1.08 ppbv	96.6	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E621B	0.2	ppbv	1.06 ppbv	77.1	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E621B	0.2	ppbv	1.06 ppbv	77.5	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E621B	0.2	ppbv	1.05 ppbv	75.0	70.0	130	----
Dichlorodifluoromethane	75-71-8	E621B	0.2	ppbv	1.02 ppbv	88.0	70.0	130	----
Dichloroethane, 1,1-	75-34-3	E621B	0.2	ppbv	1.04 ppbv	97.5	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E621B	0.2	ppbv	1.04 ppbv	97.3	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E621B	0.2	ppbv	1.06 ppbv	100	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E621B	0.2	ppbv	1.06 ppbv	99.3	70.0	130	----
Dichloromethane	75-09-2	E621B	0.2	ppbv	1.04 ppbv	97.0	70.0	130	----

Sub-Matrix: **Air**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1127646) - continued									
Dichloropropane, 1,2-	78-87-5	E621B	0.2	ppbv	1.05 ppbv	100	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E621B	0.2	ppbv	1.05 ppbv	97.8	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E621B	0.2	ppbv	1.07 ppbv	99.4	70.0	130	----
Dichlorotetrafluoroethane, 1,2- [Freon 114]	76-14-2	E621B	0.2	ppbv	0.97 ppbv	102	70.0	130	----
Dioxane, 1,4-	123-91-1	E621B	0.2	ppbv	1.07 ppbv	95.8	70.0	130	----
Ethyl acetate	141-78-6	E621B	0.2	ppbv	1.05 ppbv	90.6	70.0	130	----
Ethylbenzene	100-41-4	E621B	0.1	ppbv	1.09 ppbv	85.6	70.0	130	----
Ethyltoluene, 4-	622-96-8	E621B	0.2	ppbv	1.06 ppbv	82.0	70.0	130	----
Heptane, n-	142-82-5	E621B	0.2	ppbv	1.06 ppbv	100	70.0	130	----
Hexachlorobutadiene	87-68-3	E621B	0.2	ppbv	1.09 ppbv	83.2	70.0	130	----
Hexane, n-	110-54-3	E621B	0.2	ppbv	1.07 ppbv	98.7	70.0	130	----
Hexanone, 2-	591-78-6	E621B	1	ppbv	1.09 ppbv	92.2	70.0	130	----
Isopropylbenzene	98-82-8	E621B	0.2	ppbv	1.04 ppbv	85.6	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E621B	0.2	ppbv	1.07 ppbv	99.5	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E621B	0.2	ppbv	1.07 ppbv	94.0	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E621B	0.2	ppbv	1.07 ppbv	97.2	70.0	130	----
Naphthalene	91-20-3	E621B	0.1	ppbv	1.12 ppbv	77.6	70.0	130	----
Propylene	115-07-1	E621B	0.2	ppbv	1.08 ppbv	97.2	70.0	130	----
Styrene	100-42-5	E621B	0.2	ppbv	1.06 ppbv	86.4	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E621B	0.2	ppbv	1.07 ppbv	88.8	70.0	130	----
Tetrachloroethylene	127-18-4	E621B	0.2	ppbv	1.04 ppbv	93.6	70.0	130	----
Tetrahydrofuran	109-99-9	E621B	0.2	ppbv	1.04 ppbv	99.5	70.0	130	----
Toluene	108-88-3	E621B	0.1	ppbv	1.09 ppbv	96.5	70.0	130	----
Trichloro-1,2,2-trifluoroethane, 1,1,2- [Freon 113]	76-13-1	E621B	0.2	ppbv	1.03 ppbv	95.5	70.0	130	----
Trichlorobenzene, 1,2,4-	120-82-1	E621B	0.2	ppbv	1.07 ppbv	71.6	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E621B	0.2	ppbv	1.05 ppbv	100	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E621B	0.2	ppbv	1.08 ppbv	99.2	70.0	130	----
Trichloroethylene	79-01-6	E621B	0.2	ppbv	1.08 ppbv	97.9	70.0	130	----
Trichlorofluoromethane	75-69-4	E621B	0.2	ppbv	1.07 ppbv	95.5	70.0	130	----
Trimethylbenzene, 1,2,4-	95-63-6	E621B	0.2	ppbv	1.07 ppbv	79.7	70.0	130	----
Trimethylbenzene, 1,3,5-	108-67-8	E621B	0.2	ppbv	1.06 ppbv	82.8	70.0	130	----
Trimethylpentane, 2,2,4-	540-84-1	E621B	0.2	ppbv	1.06 ppbv	101	70.0	130	----
Vinyl acetate	108-05-4	E621B	0.5	ppbv	1.1 ppbv	102	70.0	130	----
Vinyl bromide	593-60-2	E621B	0.2	ppbv	1.04 ppbv	98.1	70.0	130	----
Xylene, m+p-	179601-23-1	E621B	0.2	ppbv	2.12 ppbv	88.5	70.0	130	----
Xylene, o-	95-47-6	E621B	0.1	ppbv	1.07 ppbv	88.2	70.0	130	----

Sub-Matrix: **Air**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: NA

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/10/13
Report #: R7858826
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3S5955
Received: 2023/09/18, 08:45

Sample Matrix: Air
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Canister Pressure (TO-15)	2	N/A	2023/09/22	BRL SOP-00304	EPA TO-15 m
VOCs in Air (TO-15)	2	N/A	2023/09/22	BRL SOP-00304	EPA TO-15 m
Volatile Organics in Air (TO-15) (1)	2	N/A	2023/09/27	BRL SOP-00304	EPA TO-15 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Air sampling canisters have been cleaned in accordance with U.S. EPA Method TO15. At the end of the cleaning, evacuation, and pressurization cycles, one canister was selected and was pressurized with Zero Air. This canister was then analyzed via TO15 on a GC/MS. The canister must have been found to contain <0.2 ppbv concentration of all target analytes in order for the batch to have been considered clean. Each canister also underwent a leak check prior to shipment.

Please Note: SUMMA® canister samples will be retained by Bureau Veritas for a period of 5 calendar days or as contractually agreed from the date of this report, after which time they will be cleaned for reuse. If you require a longer sample storage period, please contact your service representative.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: NA

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/10/13
Report #: R7858826
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3S5955
Received: 2023/09/18, 08:45

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3S5955
Report Date: 2023/10/13

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

RESULTS OF ANALYSES OF AIR

Bureau Veritas ID		WZZ877	WZZ878	
Sampling Date		2023/09/15	2023/09/15	
COC Number		NA	NA	
	UNITS	**4A**	**4B**	**QC Batch**
Volatile Organics				
Pressure on Receipt	psig	(-2.4)	(-2.9)	8934554
QC Batch = Quality Control Batch				

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3S5955
Report Date: 2023/10/13

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (AIR)

Bureau Veritas ID		WZZ877		WZZ878		
Sampling Date		2023/09/15		2023/09/15		
COC Number		NA		NA		
	UNITS	**4A**	**RDL**	**4B**	**RDL**	**QC Batch**
Volatile Organics						
Dichlorodifluoromethane (FREON 12)	ppbv	0.54	0.20	0.52	0.20	8943985
1,2-Dichlorotetrafluoroethane	ppbv	<0.17	0.17	<0.17	0.17	8943985
Chloromethane	ppbv	0.45	0.30	0.42	0.30	8943985
Vinyl Chloride	ppbv	0.02	0.02	<0.02	0.02	8934555
Chloroethane	ppbv	<0.30	0.30	<0.30	0.30	8943985
1,3-Butadiene	ppbv	<0.50	0.50	<0.50	0.50	8943985
Trichlorofluoromethane (FREON 11)	ppbv	0.26	0.20	0.24	0.20	8943985
Ethanol (ethyl alcohol)	ppbv	12.7	1.0	3.8	1.0	8943985
Trichlorotrifluoroethane	ppbv	<0.15	0.15	<0.15	0.15	8943985
2-propanol	ppbv	<1.0	1.0	<1.0	1.0	8943985
2-Propanone	ppbv	2.21	0.60	1.49	0.60	8943985
Methyl Ethyl Ketone (2-Butanone)	ppbv	<0.60	0.60	<0.50	0.50	8943985
Methyl Isobutyl Ketone	ppbv	<0.20	0.20	<0.20	0.20	8943985
Methyl Butyl Ketone (2-Hexanone)	ppbv	<1.0	1.0	<1.0	1.0	8943985
Methyl t-butyl ether (MTBE)	ppbv	<0.20	0.20	<0.20	0.20	8943985
Ethyl Acetate	ppbv	<1.0	1.0	<1.0	1.0	8943985
1,1-Dichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8943985
cis-1,2-Dichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8943985
trans-1,2-Dichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8943985
Methylene Chloride(Dichloromethane)	ppbv	<0.60	0.60	<0.60	0.60	8943985
Chloroform	ppbv	<0.10	0.10	<0.10	0.10	8943985
Carbon Tetrachloride	ppbv	<0.10	0.10	<0.10	0.10	8943985
1,1-Dichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8943985
1,2-Dichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8943985
Ethylene Dibromide	ppbv	<0.10	0.10	<0.10	0.10	8943985
1,1,1-Trichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8943985
1,1,2-Trichloroethane	ppbv	<0.10	0.10	<0.10	0.10	8943985
1,1,2,2-Tetrachloroethane	ppbv	<0.10	0.10	<0.10	0.10	8943985
cis-1,3-Dichloropropene	ppbv	<0.10	0.10	<0.10	0.10	8943985
trans-1,3-Dichloropropene	ppbv	<0.10	0.10	<0.10	0.10	8943985
1,2-Dichloropropane	ppbv	<0.10	0.10	<0.10	0.10	8943985
Bromomethane	ppbv	<0.10	0.10	<0.10	0.10	8943985
Bromoform	ppbv	<0.20	0.20	<0.20	0.20	8943985
Bromodichloromethane	ppbv	<0.20	0.20	<0.20	0.20	8943985

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3S5955
Report Date: 2023/10/13

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (AIR)

Bureau Veritas ID		WZZ877		WZZ878		
Sampling Date		2023/09/15		2023/09/15		
COC Number		NA		NA		
	UNITS	**4A**	**RDL**	**4B**	**RDL**	**QC Batch**
Dibromochloromethane	ppbv	<0.20	0.20	<0.20	0.20	8943985
Trichloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8943985
Tetrachloroethylene	ppbv	<0.10	0.10	<0.10	0.10	8943985
Benzene	ppbv	0.13	0.10	0.11	0.10	8943985
Toluene	ppbv	0.21	0.10	0.12	0.10	8943985
Ethylbenzene	ppbv	<0.10	0.10	<0.10	0.10	8943985
p+m-Xylene	ppbv	<0.20	0.20	<0.20	0.20	8943985
o-Xylene	ppbv	<0.10	0.10	<0.10	0.10	8943985
Styrene	ppbv	<0.10	0.10	<0.10	0.10	8943985
4-ethyltoluene	ppbv	<0.50	0.50	<0.50	0.50	8943985
1,3,5-Trimethylbenzene	ppbv	<0.50	0.50	<0.50	0.50	8943985
1,2,4-Trimethylbenzene	ppbv	<0.50	0.50	<0.50	0.50	8943985
Chlorobenzene	ppbv	<0.10	0.10	<0.10	0.10	8943985
Benzyl chloride	ppbv	<0.50	0.50	<0.50	0.50	8943985
1,3-Dichlorobenzene	ppbv	<0.40	0.40	<0.40	0.40	8943985
1,4-Dichlorobenzene	ppbv	<0.10	0.10	<0.10	0.10	8943985
1,2-Dichlorobenzene	ppbv	<0.10	0.10	<0.10	0.10	8943985
1,2,4-Trichlorobenzene	ppbv	<0.50	0.50	<0.50	0.50	8943985
Hexachlorobutadiene	ppbv	<0.50	0.50	<0.50	0.50	8943985
Hexane	ppbv	<0.20	0.20	<0.20	0.20	8943985
Heptane	ppbv	<0.30	0.30	<0.30	0.30	8943985
Cyclohexane	ppbv	<0.20	0.20	<0.20	0.20	8943985
Tetrahydrofuran	ppbv	<0.40	0.40	<0.40	0.40	8943985
1,4-Dioxane	ppbv	<1.0	1.0	<1.0	1.0	8943985
Naphthalene	ppbv	<0.20	0.20	<0.20	0.20	8943985
Total Xylenes	ppbv	<0.30	0.30	<0.30	0.30	8943985
1,1,1,2-Tetrachloroethane	ppbv	<0.10	0.10	<0.10	0.10	8943985
Vinyl Bromide	ppbv	<0.20	0.20	<0.20	0.20	8943985
Propene	ppbv	<0.80	0.80	<0.50	0.50	8943985
2,2,4-Trimethylpentane	ppbv	<0.20	0.20	<0.20	0.20	8943985
Carbon Disulfide	ppbv	<0.50	0.50	<0.50	0.50	8943985
Vinyl Acetate	ppbv	<0.20	0.20	<0.20	0.20	8943985
Surrogate Recovery (%)						
Bromochloromethane	%	98		96		8934555
D5-Chlorobenzene	%	97		87		8934555

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3S5955
Report Date: 2023/10/13

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VOLATILE ORGANICS BY GC/MS (AIR)

Bureau Veritas ID		WZZ877		WZZ878		
Sampling Date		2023/09/15		2023/09/15		
COC Number		NA		NA		
	UNITS	**4A**	**RDL**	**4B**	**RDL**	**QC Batch**
Difluorobenzene	%	98		90		8934555
Bromochloromethane	%	84		86		8943985
D5-Chlorobenzene	%	81		83		8943985
Difluorobenzene	%	83		86		8943985

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Samples WZZ877 and WZZ878:
The following compounds were not detected above 1ppbv via a library search:
1,2,3-Trimethylbenzene,
2-Methylhexane,
2-Methylpentane,
3-Methylpentane,
3-Methylhexane,
2-Methylbutane,
Butyl Acetate,
Decane,
Limonene,
m/p ethyl toluene,
m-cymene,
methyl cyclohexane,
chlorodifluoromethane,
n-butanal,
nonane,
o-ethyl toluene,
propylbenzene,
2-butanol,
pentane,
octane

Sample WZZ877 [4A] : Increased DL for propene due to interference from propane.

Increased DL for 2-butanone due to interference.

Sample WZZ878 [4B] : Increased DL for 2-butanone due to matrix interference.

Results relate only to the items tested.

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Bureau Veritas Job #: C3S5955
Report Date: 2023/10/13

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

			SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8934555	Bromochloromethane	2023/09/22	104	60 - 140	106	%		
8934555	D5-Chlorobenzene	2023/09/22	109	60 - 140	89	%		
8934555	Difluorobenzene	2023/09/22	110	60 - 140	92	%		
8943985	Bromochloromethane	2023/09/27	101	60 - 140	90	%		
8943985	D5-Chlorobenzene	2023/09/27	99	60 - 140	83	%		
8943985	Difluorobenzene	2023/09/27	100	60 - 140	92	%		
8934555	Vinyl Chloride	2023/09/22	96	70 - 130	<0.02	ppbv		
8943985	1,1,1,2-Tetrachloroethane	2023/09/27	105	70 - 130	<0.10	ppbv	NC (1)	25
8943985	1,1,1-Trichloroethane	2023/09/27	98	70 - 130	<0.10	ppbv	3.9 (1)	25
8943985	1,1,2,2-Tetrachloroethane	2023/09/27	96	70 - 130	<0.10	ppbv	NC (1)	25
8943985	1,1,2-Trichloroethane	2023/09/27	102	70 - 130	<0.10	ppbv	NC (1)	25
8943985	1,1-Dichloroethane	2023/09/27	96	70 - 130	<0.10	ppbv	NC (1)	25
8943985	1,1-Dichloroethylene	2023/09/27	93	70 - 130	<0.10	ppbv	NC (1)	25
8943985	1,2,4-Trichlorobenzene	2023/09/27	90	70 - 130	<0.50	ppbv	NC (1)	25
8943985	1,2,4-Trimethylbenzene	2023/09/27	90	70 - 130	<0.50	ppbv	0.36 (1)	25
8943985	1,2-Dichlorobenzene	2023/09/27	89	70 - 130	<0.10	ppbv	NC (1)	25
8943985	1,2-Dichloroethane	2023/09/27	96	70 - 130	<0.10	ppbv	NC (1)	25
8943985	1,2-Dichloropropane	2023/09/27	100	70 - 130	<0.10	ppbv	NC (1)	25
8943985	1,2-Dichlorotetrafluoroethane	2023/09/27	96	70 - 130	<0.17	ppbv	NC (1)	25
8943985	1,3,5-Trimethylbenzene	2023/09/27	91	70 - 130	<0.50	ppbv	NC (1)	25
8943985	1,3-Butadiene	2023/09/27	103	70 - 130	<0.50	ppbv	NC (1)	25
8943985	1,3-Dichlorobenzene	2023/09/27	90	70 - 130	<0.40	ppbv	NC (1)	25
8943985	1,4-Dichlorobenzene	2023/09/27	89	70 - 130	<0.10	ppbv	NC (1)	25
8943985	1,4-Dioxane	2023/09/27	108	70 - 130	<1.0	ppbv	NC (1)	25
8943985	2,2,4-Trimethylpentane	2023/09/27	105	70 - 130	<0.20	ppbv	2.6 (1)	25
8943985	2-propanol	2023/09/27	88	70 - 130	<1.0	ppbv	3.6 (1)	25
8943985	2-Propanone	2023/09/27	93	70 - 130	<0.60	ppbv	3.6 (1)	25
8943985	4-ethyltoluene	2023/09/27	97	70 - 130	<0.50	ppbv	NC (1)	25
8943985	Benzene	2023/09/27	99	70 - 130	<0.10	ppbv	3.7 (1)	25
8943985	Benzyl chloride	2023/09/27	95	70 - 130	<0.50	ppbv	NC (1)	25

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Bureau Veritas Job #: C3S5955
Report Date: 2023/10/13

QUALITY ASSURANCE REPORT(CONT'D)

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

			SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8943985	Bromodichloromethane	2023/09/27	99	70 - 130	<0.20	ppbv	NC (1)	25
8943985	Bromoform	2023/09/27	105	70 - 130	<0.20	ppbv	NC (1)	25
8943985	Bromomethane	2023/09/27	99	70 - 130	<0.10	ppbv	NC (1)	25
8943985	Carbon Disulfide	2023/09/27	99	70 - 130	<0.50	ppbv	NC (1)	25
8943985	Carbon Tetrachloride	2023/09/27	102	70 - 130	<0.10	ppbv	NC (1)	25
8943985	Chlorobenzene	2023/09/27	96	70 - 130	<0.10	ppbv	NC (1)	25
8943985	Chloroethane	2023/09/27	101	70 - 130	<0.30	ppbv	NC (1)	25
8943985	Chloroform	2023/09/27	100	70 - 130	<0.10	ppbv	NC (1)	25
8943985	Chloromethane	2023/09/27	98	70 - 130	<0.30	ppbv	NC (1)	25
8943985	cis-1,2-Dichloroethylene	2023/09/27	96	70 - 130	<0.10	ppbv	NC (1)	25
8943985	cis-1,3-Dichloropropene	2023/09/27	97	70 - 130	<0.10	ppbv	NC (1)	25
8943985	Cyclohexane	2023/09/27	98	70 - 130	<0.20	ppbv	NC (1)	25
8943985	Dibromochloromethane	2023/09/27	106	70 - 130	<0.20	ppbv	NC (1)	25
8943985	Dichlorodifluoromethane (FREON 12)	2023/09/27	101	70 - 130	<0.20	ppbv	0.75 (1)	25
8943985	Ethanol (ethyl alcohol)	2023/09/27	75	70 - 130	<1.0	ppbv	1.6 (1)	25
8943985	Ethyl Acetate	2023/09/27	102	70 - 130	<1.0	ppbv	1.8 (1)	25
8943985	Ethylbenzene	2023/09/27	98	70 - 130	<0.10	ppbv	1.7 (1)	25
8943985	Ethylene Dibromide	2023/09/27	100	70 - 130	<0.10	ppbv	NC (1)	25
8943985	Heptane	2023/09/27	101	70 - 130	<0.30	ppbv	NC (1)	25
8943985	Hexachlorobutadiene	2023/09/27	80	70 - 130	<0.50	ppbv	NC (1)	25
8943985	Hexane	2023/09/27	94	70 - 130	<0.20	ppbv	3.8 (1)	25
8943985	Methyl Butyl Ketone (2-Hexanone)	2023/09/27	93	70 - 130	<1.0	ppbv	NC (1)	25
8943985	Methyl Ethyl Ketone (2-Butanone)	2023/09/27	103	70 - 130	<0.20	ppbv	4.5 (1)	25
8943985	Methyl Isobutyl Ketone	2023/09/27	97	70 - 130	<0.20	ppbv	NC (1)	25
8943985	Methyl t-butyl ether (MTBE)	2023/09/27	86	70 - 130	<0.20	ppbv	NC (1)	25
8943985	Methylene Chloride(Dichloromethane)	2023/09/27	94	70 - 130	<0.60	ppbv	NC (1)	25
8943985	Naphthalene	2023/09/27	87	70 - 130	<0.20	ppbv	NC (1)	25
8943985	o-Xylene	2023/09/27	94	70 - 130	<0.10	ppbv	1.8 (1)	25
8943985	p+m-Xylene	2023/09/27	97	70 - 130	<0.20	ppbv	0.91 (1)	25
8943985	Propene	2023/09/27	93	70 - 130	<0.50	ppbv	NC (1)	25

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Bureau Veritas Job #: C3S5955
Report Date: 2023/10/13

QUALITY ASSURANCE REPORT(CONT'D)

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

			SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8943985	Styrene	2023/09/27	95	70 - 130	<0.10	ppbv	NC (1)	25
8943985	Tetrachloroethylene	2023/09/27	100	70 - 130	<0.10	ppbv	1.7 (1)	25
8943985	Tetrahydrofuran	2023/09/27	98	70 - 130	<0.40	ppbv	NC (1)	25
8943985	Toluene	2023/09/27	99	70 - 130	<0.10	ppbv	2.3 (1)	25
8943985	Total Xylenes	2023/09/27	96	70 - 130	<0.30	ppbv	1.2 (1)	25
8943985	trans-1,2-Dichloroethylene	2023/09/27	97	70 - 130	<0.10	ppbv	NC (1)	25
8943985	trans-1,3-Dichloropropene	2023/09/27	104	70 - 130	<0.10	ppbv	NC (1)	25
8943985	Trichloroethylene	2023/09/27	103	70 - 130	<0.10	ppbv	NC (1)	25
8943985	Trichlorofluoromethane (FREON 11)	2023/09/27	97	70 - 130	<0.20	ppbv	3.6 (1)	25
8943985	Trichlorotrifluoroethane	2023/09/27	95	70 - 130	<0.15	ppbv	NC (1)	25
8943985	Vinyl Acetate	2023/09/27	98	70 - 130	<0.20	ppbv	NC (1)	25
8943985	Vinyl Bromide	2023/09/27	91	70 - 130	<0.20	ppbv	NC (1)	25
8943985	Vinyl Chloride	2023/09/27	101	70 - 130	<0.10	ppbv	NC (1)	25

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Report Date: 2023/10/13

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Melanie Mabini, Team Leader

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Chain of Custody Form - Summa™ Canister

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CAM FCD-01302 /2 Page 1 of 1

ANALYSIS REQUESTED

INVOICE INFORMATION		REPORT INFORMATION	
Company Name:	WM of Canada	**Company Name:**	RWDI AIR Inc.
Contact Name:	Lisa Mertick	**Project Manager:**	Khalid Hussein
Address:	8039 Zion Line RR#4Watford, ON NON 1A0	**Address:**	600 Southgate Dr., Guelph, ON N1G 4A6
E-mail:	lmertick@wm.com	**E-mail:**	khalid.Hussein@rwdi.com, jeffery.cleland@rwdi.com
Ph:		**Ph:**	519-823-1311 ext 2055
Sampled by:	EW, RWDI		

Field Sample ID	Canister Serial #	Flow Regulator Serial #	Collection Date	START VACUUM (inches of Hg)	END VACUUM (inches of Hg)	SOIL VAPOUR	AMBIENT AIR	AMBIENT/COMMERCIAL/INDUSTRIAL	SUB-SLAB GAS	FULL LIST OF VOCs (reference TO15A)	Aromatic/Aliphatic Hydrocarbon Fractions	F1 (C6-C10) and F2 (C10-C16)	Selected VOC's - please specify	Other	T015, T014 Vinyl Chloride by SIM and Library Search			CANISTERS NOT USED
4A	7816	FX48	Sept-15-23	-28	-3.5		X								X			
4B	27689	FX462	Sept-15-23	-27	-3.5		X								X			

18-Sep-23 08:45
Patricia Legette
C3S5955
VKK AIR-001

TAT Requirement

- STD 10 Business day ☑
- Rush 5 Business day * ☐
- Rush 2 Business day * ☐
- Rush Other * ☐

* need approval from Maxxam

PROJECT INFORMATION

Project #: 2303459.02
Name: Twin Creeks
PO #: 12285740
Maxxam Quote #:
Maxxam Contact:
Task Order/Line Item

REPORTING REQUIREMENTS

EDD ☐
Regulations ON 153 ☐
ON 419 ☐
BC CSR ☐
Other

Notes

1) please indicate on chain of custody if your samples are soil vapour or ambient air
2) please list all canisters on the chain of custody even if unused

PROJECT SPECIFIC COMMENTS

See attached page for list of Library Search Items

Client Signature: EW
Date/Time: 9/15/2023

Received by: Pawandeep Kaur Kuhar
Date/Time: 2023/09/18 8:45

PLEASE RETURN ALL UNUSED EQUIPMENT

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms.

APPENDIX F

1/2hr VOC Sampling Data Sheet

Date	18-July-23
Pbar	1014mb
Temp	18°C
Wind Speed	9km/h
Wind Direction	NW
Cloud Cover	Clear

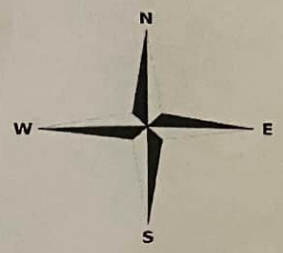
Comments

1A: NW of WM building on berm by Pond 3

1B: Corner of Haul Road and South Road

Lab Canister: 20166

Sample ID	Canister No.	S/N (Mass flow controller)	Initial			Final		
			Time	Delta P(in Hg)	Flow Rate (cc/min)	Time	Delta P(in Hg)	Flow Rate (cc/min)
1A	WCA910-01	FX1389	8:45 AM	-29.0	3.1022	8:15 AM	-6	3.0694
1B	WCA929-01	FX1381	9:00 AM	-29.5	3.1025	9:00 AM	-7.5	3.0336



(Wind Direction)

Sample ID 1A — UTM 428343.90mE, 17T 4758751.51 N — Upwind/ Downwind

Sample ID 1B — UTM 429141.53mE, 17T 4757685.48m N — Upwind/ Downwind

Canister 1A SN: 2754

Canister 1B SN: 18240

Runtime: 23.5 Hours: 1A

24.0 Hours: 1B

24

~~1/2hr~~ VOC Sampling Data Sheet

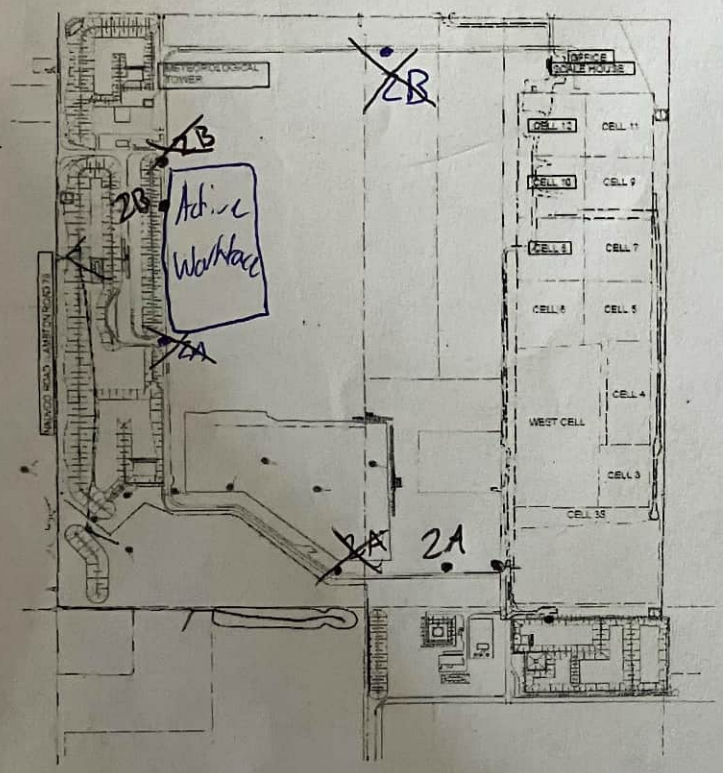
Date	1-Aug-23
Pbar	102.3 Kpa
Temp	16°C
Wind Speed	3 Km/h
Wind Direction	from the S (at setup)
Cloud Cover	Hazy

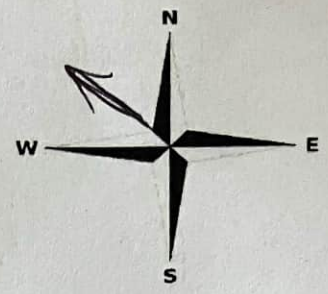
Comments

2A: on tripod at the landfill side shoulder of the road

2B: on tripod at the landfill side shoulder of the road

Sample ID	Canister No.	S/N (Mass flow controller)	Initial			Final		
			Time	Delta P(in Hg)	Flow Rate (cc/min)	Time	Delta P(in Hg)	Flow Rate (cc/min)
2A	WBT261-01	FX808	9:10 AM	-30	3.0881	9:10 AM	-9	3.0859
2B	WBT317-01	FX1400	9:24 AM	-28.5	3.0989	9:24 AM	-7	3.0755





(Wind Direction)

Sample ID 2A
UTM 4757682
17T 429091
Upwind/ Downwind

Sample ID 2B
UTM 4758497
17T 428473
Upwind/ Downwind

2A SN: ~~WBT261-01~~ SX0138

2B SN: 311

Runtime: 2A: 24.00 Hrs
2B: 24.00 Hrs

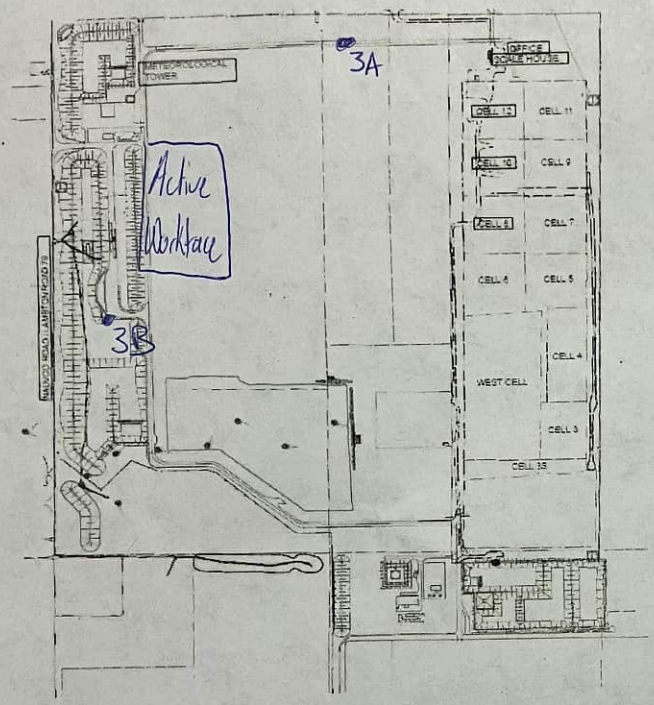
1/2hr VOC Sampling Data Sheet

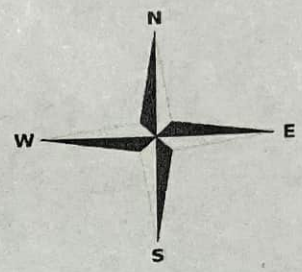
Date	22-Aug-23
Pbar	1026mb
Temp	14°C
Wind Speed	6kmh
Wind Direction	NE
Cloud Cover	Clear

Comments 3A: Set up on shoulder of North Road

3B: Set up near public drop off

Sample ID	Canister No.	S/N (Mass flow controller)	Initial			Final		
			Time	Delta P(in Hg)	Flow Rate (cc/min)	Time	Delta P(in Hg)	Flow Rate (cc/min)
3A	1312	FX1493	9:00 AM	-30	3.0802	9:00 AM	-9	3.0692
3B	1281	FX72	9:15 AM	-30	3.1058	9:15 AM	-6	3.1199





(Wind Direction)

Sample ID 3A

UTM 428884.541 E

17T 4758860.25 N

Upwind/ Downwind

Sample ID 3B

UTM 428375.09 E

17T 4758238.892 N

Upwind/ Downwind

3A SN: SX1616

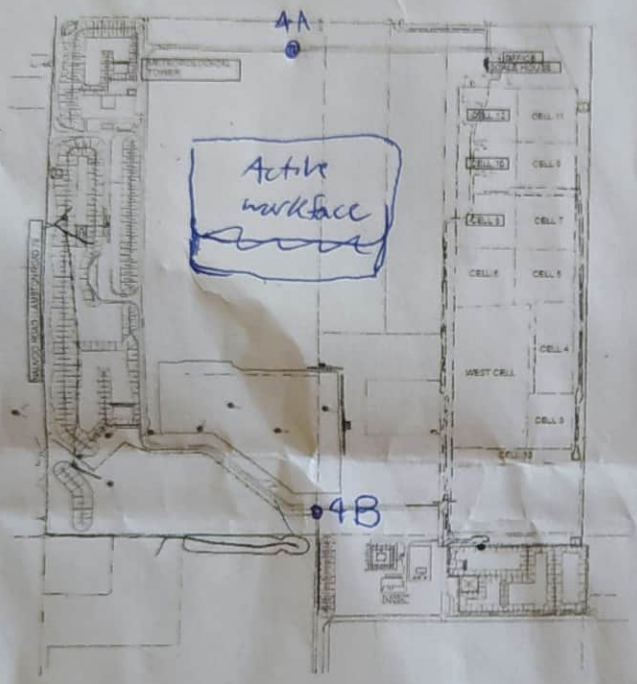
3B SN: SX0753

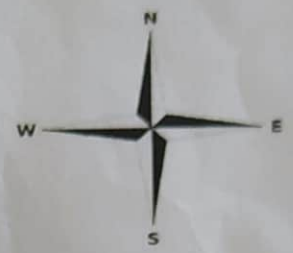
1/2hr VOC Sampling Data Sheet

Date	Sept 14, 23
Pbar	996
Temp	15c
Wind Speed	11 Kmh
Wind Direction	NW
Cloud Cover	Clear

Comments 4A: Set up on shoulder @ North road.
4B: Set up on shoulder @ South rd.

Sample ID	Canister No.	S/N (Mass flow controller)	Initial			Final		
			Time	Delta P(in Hg)	Flow Rate (cc/min)	Time	Delta P(in Hg)	Flow Rate (cc/min)
4A	7816	FX48	10:24AM	-28	3.10	10:24AM	-9.5	3.18
4B	7689	FX462	10:37AM	-27	3.10	10:37AM	-9.5	3.06





(Wind Direction)

Sample ID 4A
UTM 428733 E
17T 4758856 N
Upwind/ Downwind

Sample ID 4B
UTM 428817
17T 4757683
Upwind/ Downwind

4A:

4B:

Sample Date: 9/3/2023

Inspected by: EW

Collected by: EW

Location:	**Northeast**	**Southeast**	**Western**
Leak Check Passed	Y	Y	Y
Flow Check (2.8 - 3.3 mLpm)	3	3	3
Regulator ID			
Cannister ID	327	465	18
Timer ID	18	1206	126
Starting pressure	-29	-29	-29
Final pressure	-5	-7	-6
	mesured with regulator 204		

APPENDIX G

APPENDIX G1

600 Southgate Drive
Guelph, ON N1G 4P6
Canada

Tel: +1.519.823.1311
Fax: +1.519.823.1316
E-mail: solutions@rwdi.com

May 26, 2023

Ms. Angela McLachlan | Environmental Compliance Manager
Waste Management of Canada Corporation
5768 Nauvoo Road (Watford)
Warwick Township, County of Lambton N0M 2S0
E: amclachl@wm.com

Re: First Quarter 2023 TSP and Metals Report
January, February and March of 2023
Twin Creeks Environmental Centre – Watford, Ontario
RWDI Reference No. 2303459.02

Dear Ms. McLachlan,

RWDI AIR Inc. (RWDI) was retained by Waste Management of Canada Corporation (WM) to complete the Total Suspended Particulate Matter (TSP) and Airborne Metal (Metals) sampling is required under Condition 13.10 of the Amended Environmental Compliance Approval (ECA) No. A032203, dated February 4, 2023 (Waste ECA). From January 1 through February 3, 2023, WM was required to conform to the ECA dated December 19, 2020. The sampling program is being completed, as approved by the Ontario Ministry of the Environment, Conservation and Parks (MECP) per Condition 13.8 of the Waste ECA. The station locations were approved by the MECP, as noted under Schedule "A" Reference 85 in the Waste ECA. The sampler locations for the TSP samplers are illustrated in the figures section of this report. These locations remained fixed for the duration of the sampling program. This report outlines the results from the first quarter (Q1) samples collected from January 1 to March 31, 2023.

SAMPLING PROGRAM OVERVIEW

Consistent with the Waste ECA dated December 19, 2020 and the AAQMP dated May 18, 2017, the samplers are run on a 6-day schedule from January 1 to May 31 and October 1 to December 31 of each year and run on a 3-day cycle from June 1 to September 30 of each year. A copy of the most recently amended AAQMP can be found in **Attachment A.**

Each sample location has two (2) High Volume Air samplers (Hi-Vols) which run on an alternating 6-day or 3-day schedule, depending on the time of year. Each sample period consists of a 24-hour (midnight to midnight) sample that operates in concurrence with the NAPS sampling schedule.

During the month of January, a total of five (5) sample sets or fifteen (15) samples were initiated, fourteen (14) of which are valid.

During the month of February, a total of four (4) sample sets or twelve (12) samples were initiated, twelve (12) of which are valid.

CANADA'S BEST MANAGED COMPANIES Platinum member

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During the month of March, a total of six (6) sample sets or eighteen (18) samples were initiated, eighteen (18) of which are valid.

A total of forty-five (45) samples were initiated, forty-four (44) of which were valid. This indicates that 98% of the total samples were successful. Sample validity at the Southeast, Northeast and Western Stations were 93%, 100% and 100% respectively, which means that every sampling station had a valid quarter (>75% validity). **Table 1** below summarizes the measured TSP concentrations for the forty-four (44) valid samples as collected from the Southeast, Northeast, and Western samplers.

Table 1 also indicates the direction of the wind at each sampling location relative to the active landfill cell. The Downwind designation indicates that the sampler was located predominantly downwind of the active landfill cell during the sampling period. Under these conditions the landfilling operations are likely to contribute to the measured concentrations. The Upwind designation indicates that the sampler was located predominantly upwind from the active cell. The Crosswind designation indicates that the wind was blowing in a direction that did not put the sampler either upwind or downwind with respect to the active cell or that the sampler was not located upwind or downwind for a significant period of time. Under the Upwind and Crosswind conditions the landfilling operations are unlikely to make a significant contribution to the measured concentrations. **Table 2** summarizes the significant cardinal wind directions observed during each sampling period.

Table 1: Summary of Meteorological Conditions and Measured TSP Concentrations for January, February and March of 2023

Sample Date	Southeast TSP Concentration and Sample Location [1] (µg/m³)	Northeast TSP Concentration and Sample Location [1] (µg/m³)	Western TSP Concentration and Sample Location [1] (µg/m³)
6-Jan-23	16 µg/m³ Crosswind	11 µg/m³ Downwind	17 µg/m³ Upwind
12-Jan-23	Invalid Crosswind	19 µg/m³ Crosswind	54 µg/m³ Crosswind
18-Jan-23	6 µg/m³ Crosswind	7 µg/m³ Crosswind	73 µg/m³ Upwind
24-Jan-23	20 µg/m³ Crosswind	22 µg/m³ Downwind	31 µg/m³ Upwind
30-Jan-23	9 µg/m³ Crosswind	11 µg/m³ Crosswind	23 µg/m³ Crosswind
5-Feb-23	22 µg/m³ Crosswind	17 µg/m³ Crosswind	17 µg/m³ Upwind
11-Feb-23	13 µg/m³ Crosswind	11 µg/m³ Crosswind	18 µg/m³ Crosswind
17-Feb-23	9 µg/m³ Crosswind	8 µg/m³ Crosswind	12 µg/m³ Crosswind
23-Feb-23	12 µg/m³ Crosswind	12 µg/m³ Crosswind	24 µg/m³ Crosswind
1-Mar-23	21 µg/m³ Crosswind	19 µg/m³ Upwind	70 µg/m³ Downwind
7-Mar-23	13 µg/m³ Crosswind	17 µg/m³ Crosswind	47 µg/m³ Crosswind

Sample Date	Southeast TSP Concentration and Sample Location [1] (µg/m³)	Northeast TSP Concentration and Sample Location [1] (µg/m³)	Western TSP Concentration and Sample Location [1] (µg/m³)
13-Mar-23	9 µg/m³ Downwind	17 µg/m³ Crosswind	34 µg/m³ Crosswind
19-Mar-23	5 µg/m³ Crosswind	13 µg/m³ Downwind	14 µg/m³ Upwind
25-Mar-23	8 µg/m³ Crosswind	13 µg/m³ Crosswind	13 µg/m³ Crosswind
31-Mar-23	17 µg/m³ Crosswind	20 µg/m³ Crosswind	23 µg/m³ Crosswind

Notes: [1] Directional references indicate the direction of the wind at each sampling location during the sampling period relative to the active landfill cell, as described above.

Table 2: Summary of Meteorological Conditions for the Sample Dates in January, February and March of 2023

Sample Date	Range of Mean Wind Speeds [1] (km/h)	Dominant Wind Direction [2] (compass)
6-Jan-23	6-15	SW-W
12-Jan-23	4-24	NW-N, ESE
18-Jan-23	4-21	W-NW
24-Jan-23	9-25	SW-W, S
30-Jan-23	1-21	W, NW, SE
5-Feb-23	8-22	SSW-SW
11-Feb-23	9-25	S-SW, NW
17-Feb-23	4-13	WNW-N
23-Feb-23	6-27	ENE, ESE, WNW
1-Mar-23	4-25	ENE-ESE
7-Mar-23	6-24	NW-N
13-Mar-23	0-23	WNW-NNW, WSW
19-Mar-23	13-33	SW-W
25-Mar-23	13-47	ENE-ESE, SW-WSW
31-Mar-23	10-33	ESE-S

Notes: [1] Based on average wind speed per wind direction.
[2] Based on the direction from which the wind is blowing.
Calm – Less than 1.8 kilometers per hour.

Figures 1a through **3f**, found in the **figure section** of this report, illustrate the sample location, measured TSP concentration, and the wind-rose depicting the wind conditions for each sample period. The wind-roses express the percentage of time the wind is blowing from each direction and provides the distribution of wind speeds observed for each direction.

A summary of the calculated statistics for measured concentrations at the Twin Creeks Environmental Centre sampling locations is presented in **Table 3**.

Table 3: Calculated Statistics for Measured 24-hour Averaged TSP Concentrations (µg/m^3)

Sample Locations	No. of Valid Samples	Percentiles (%)			Maximum	Arithmetic Mean	Number of Measurements Above the AAQC (120 µg/m^3)
		50	70	90			
Southeast	14	12	17	21	22	13	0
Northeast	15	13	17	20	22	14	0
Western	15	23	33	64	73	31	0

The MECP 24-hour Ambient Air Quality Criteria (AAQC) for TSP (120 µg/m3) was not exceeded during the first quarter sampling period.

In agreement with the Warwick Township Technical Review Team, only the highest TSP filter weight for each station was analyzed for airborne metal concentrations per 4 sample sets.

During the first quarter, airborne metals were assessed on January 18 (Western), January 24 (Northeast and Southeast), January 30 (Western), February 5 (Northeast and Southeast), March 1 (Northeast, Southeast and Western), and March 31 (Southeast and Western). All measured concentrations of airborne metals were below their respective AAQC's as outlined in Ontario Regulation 419. The summary of Q1 total suspended particulate and metals results are provided in **Attachment B**. Laboratory analytical reports will be provided in the Annual Report.

CURRENT MITIGATION MEASURES

The Twin Creeks Environmental Centre has created a Best Management Practices Plan for dust that is implemented at the site. All Site employees are trained in the contents of the plan. Through the combined efforts of the mitigation measures and implementation of the Dust Management Plan, Twin Creeks Environmental Centre plans on limiting the number of TSP exceedances during the periods of heavy construction and beyond.

Currently, particulate emission mitigation measures are in place at the Twin Creeks Environmental Centre and consist of watering on-site roadways and construction sites as well as a number of other practices as outlined in the Best Management Practices Plan for dust. The practices listed above will not occur if precipitation events cause these activities to become redundant or if the ground is sufficiently wet from previous precipitation events.

CLOSING

Please feel free to contact us with any questions or comments that you may have with respect to this submission.

Yours very truly,

RWDI AIR Inc.

Khalid Hussein, P.Eng.
Project Manager

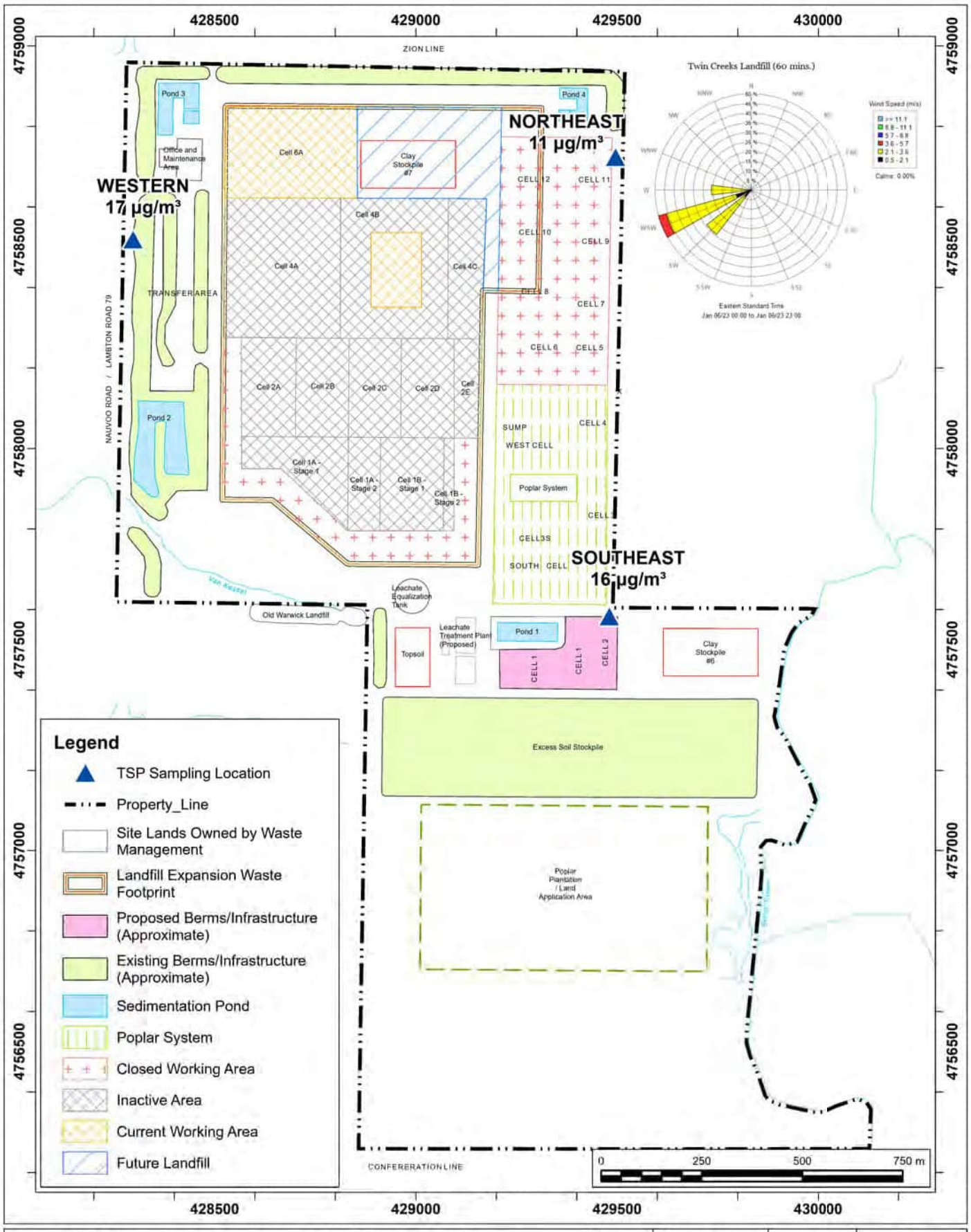
KAMH/kta

Attach.

GENERAL STATEMENT OF LIMITATIONS

This report entitled "First Quarter 2023 TSP and Metals Report", dated May 3, 2023 was prepared by RWDI AIR Inc. ("RWDI") for Waste Management of Canada Corporation ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). This report was prepared using scientific principles, published methodologies and professional judgment in assessing available information and data. The findings presented within this document are based on available data within the limits of the existing information, budgeted scope of work, and schedule. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.
This report was prepared for the exclusive use of Waste Management of Canada Corporation and the MECP. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. RWDI accepts no responsibility for damages, if any, suffered by any third party as result of decisions made or actions based on this report.

FIGURES



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: January 6, 2023

Map Projection: NAD 1983 UTM Zone 17N

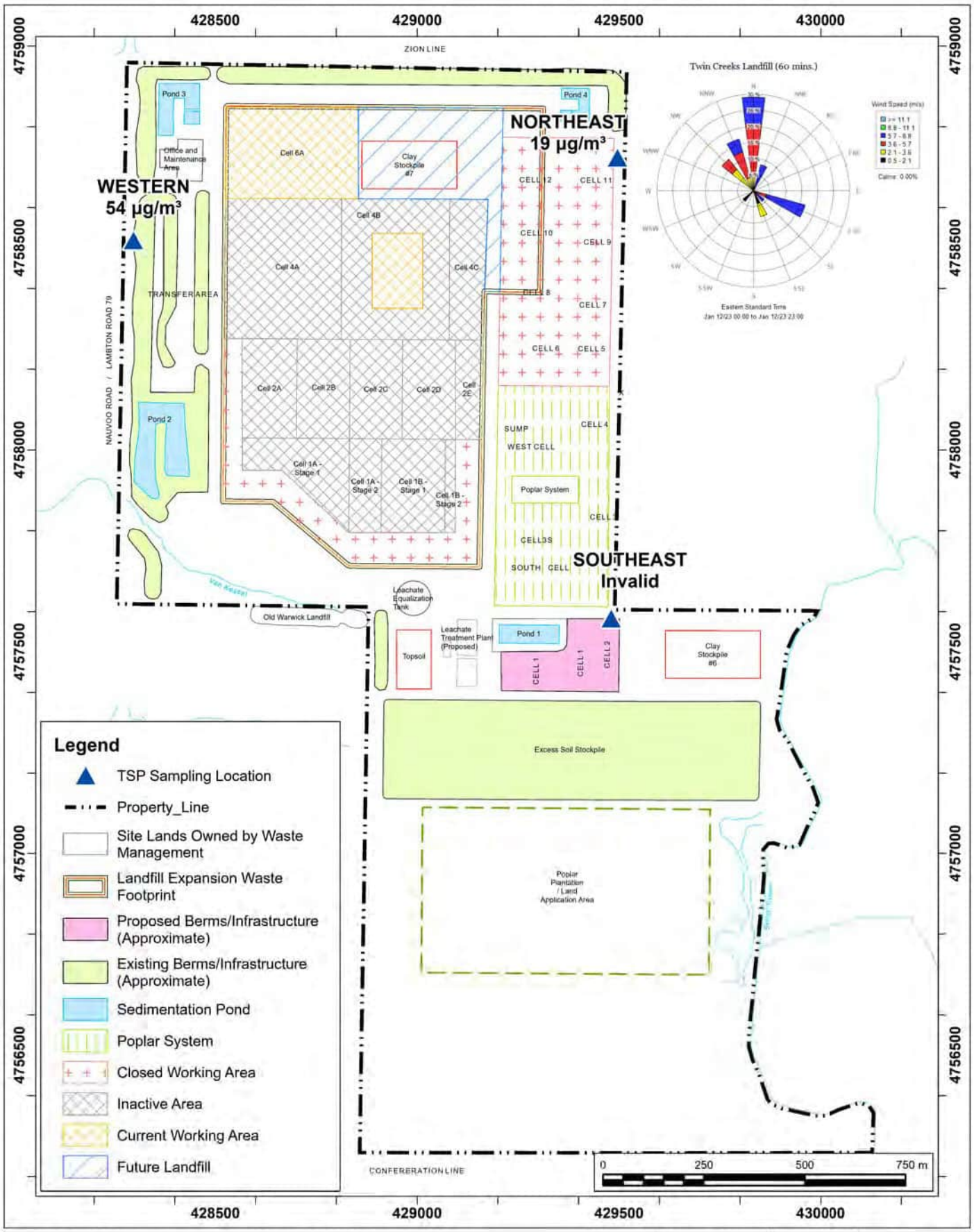
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1a
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2303459_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: January 12, 2023

Map Projection: NAD 1983 UTM Zone 17N

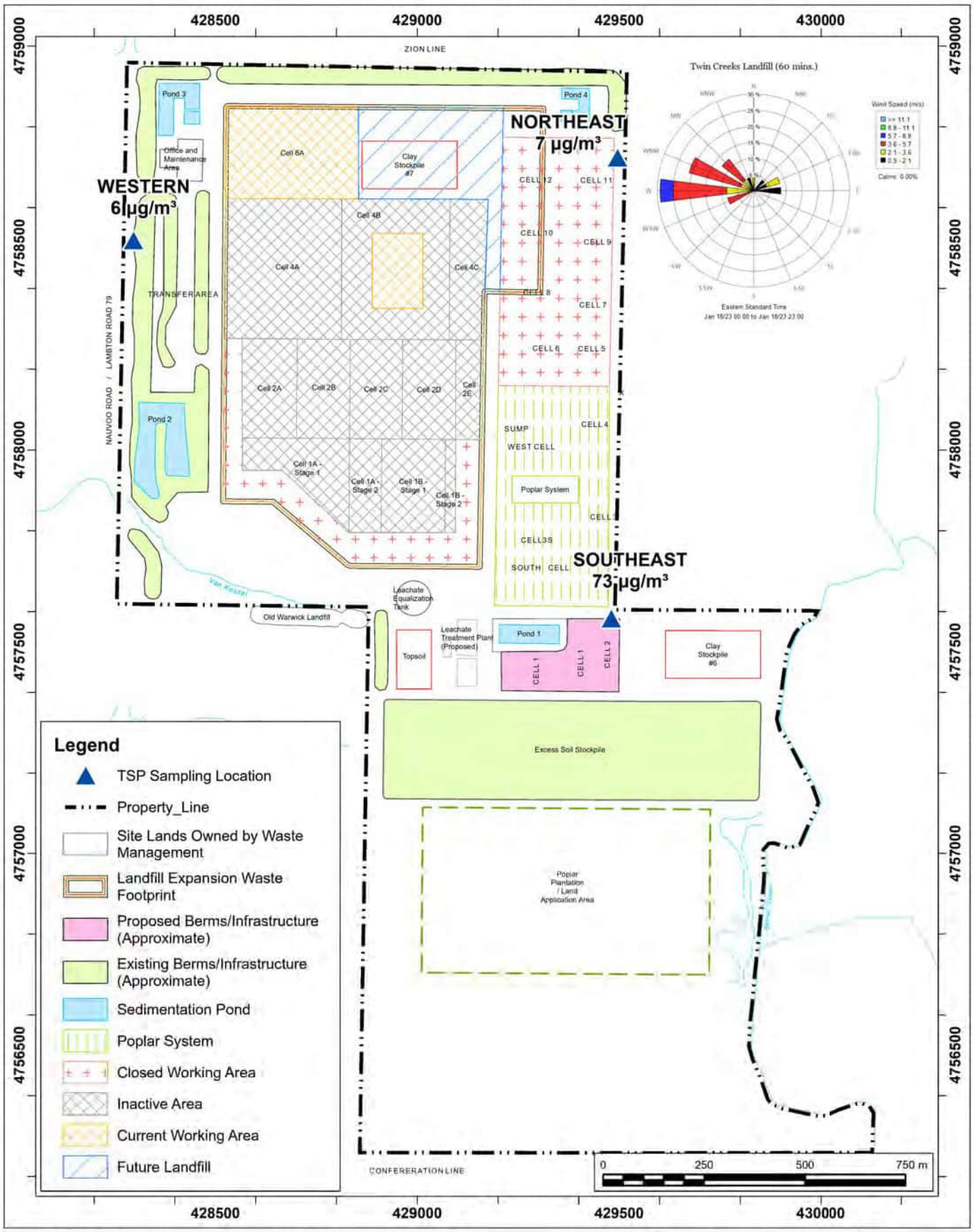
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1b
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2303459_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: January 18, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1c
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

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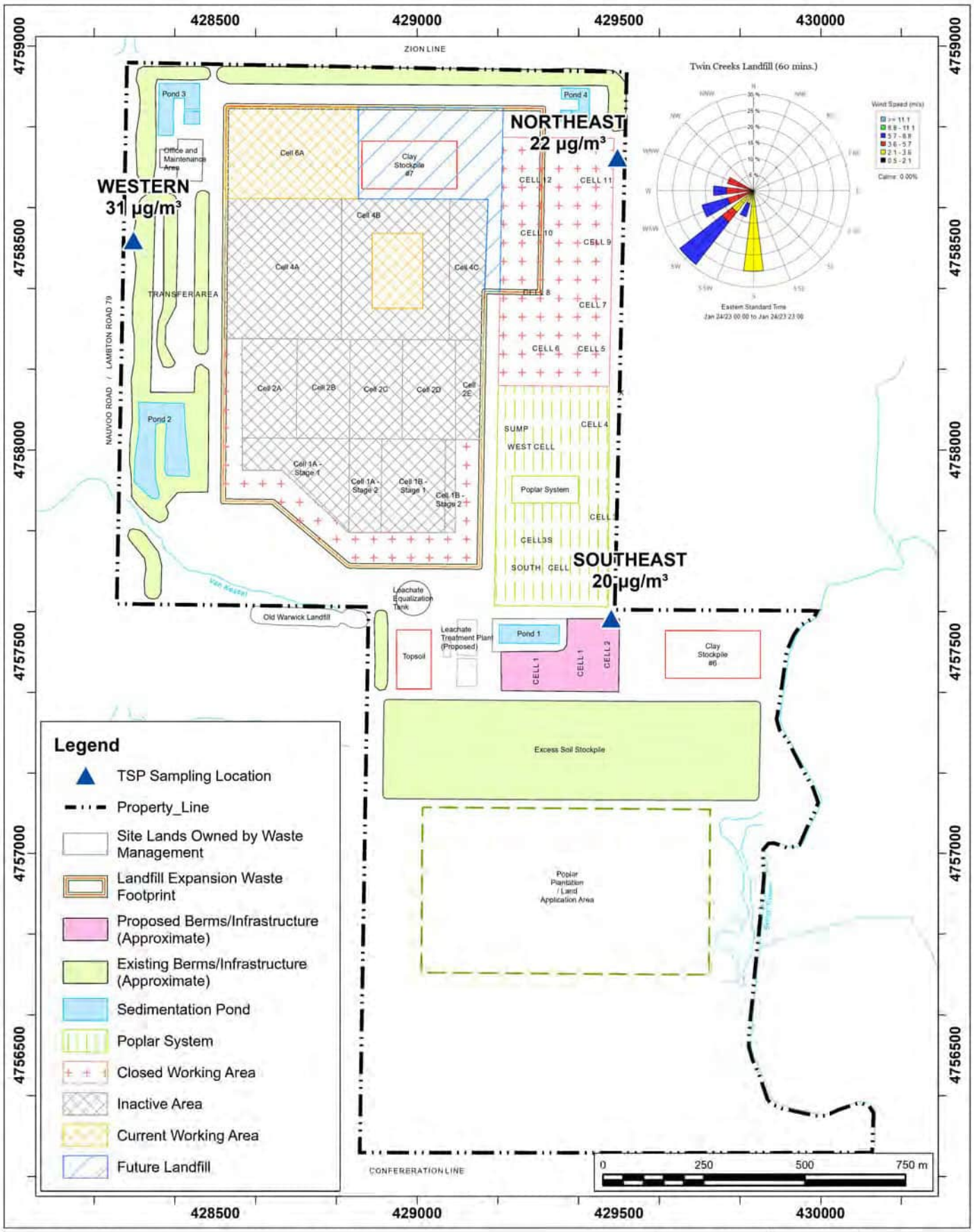

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: January 24, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1d
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

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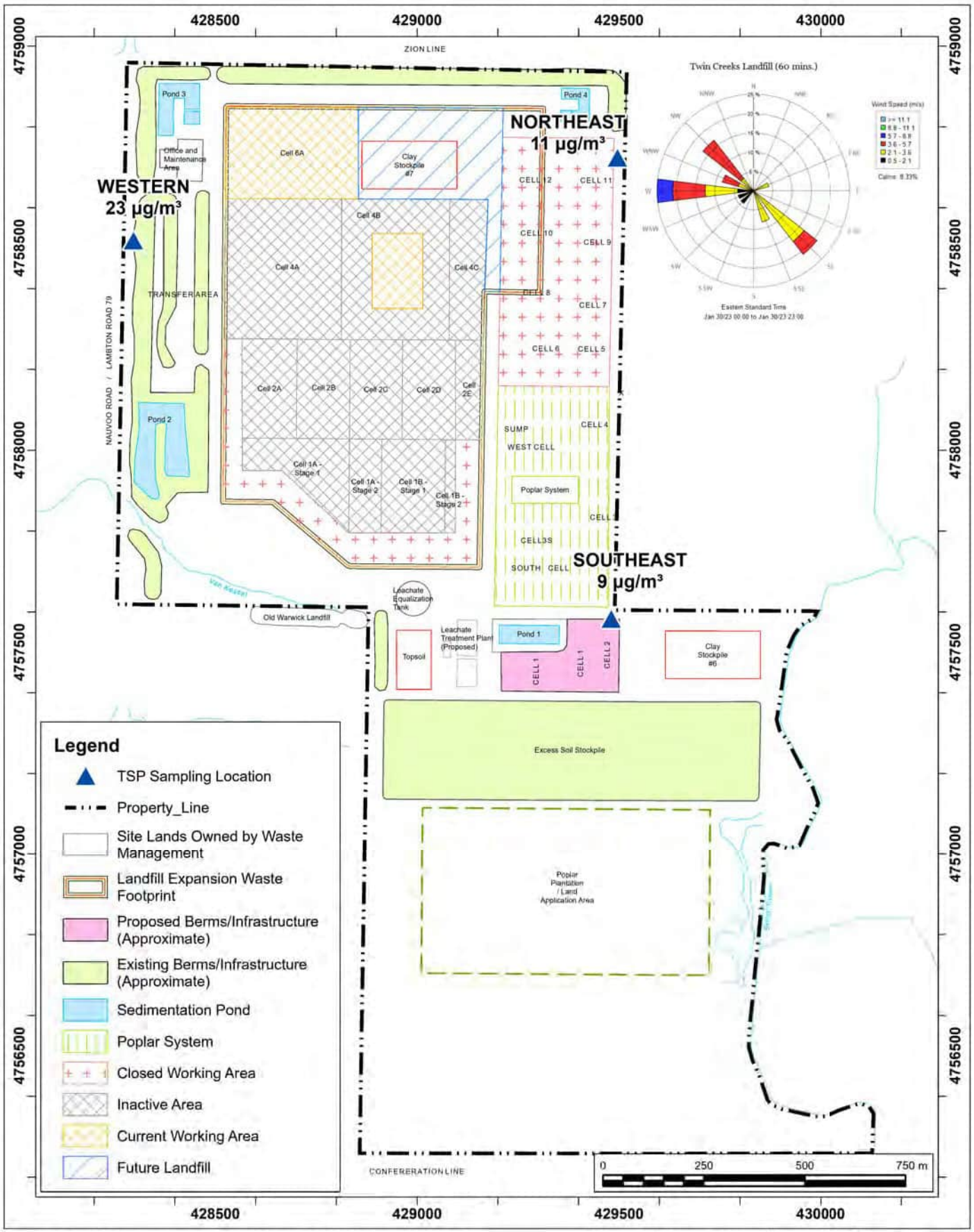

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: January 30, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1e
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

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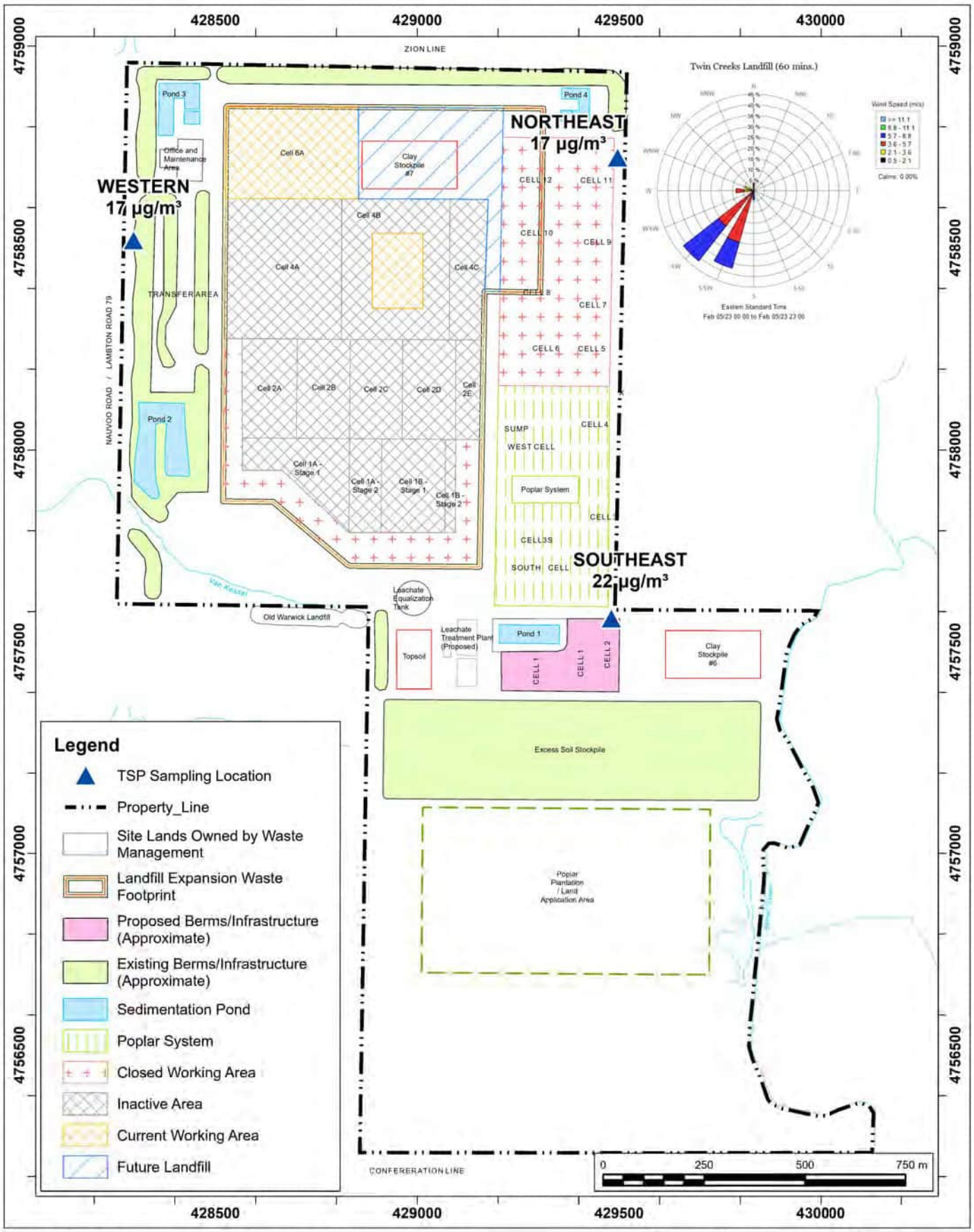

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: February 5, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 2a
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

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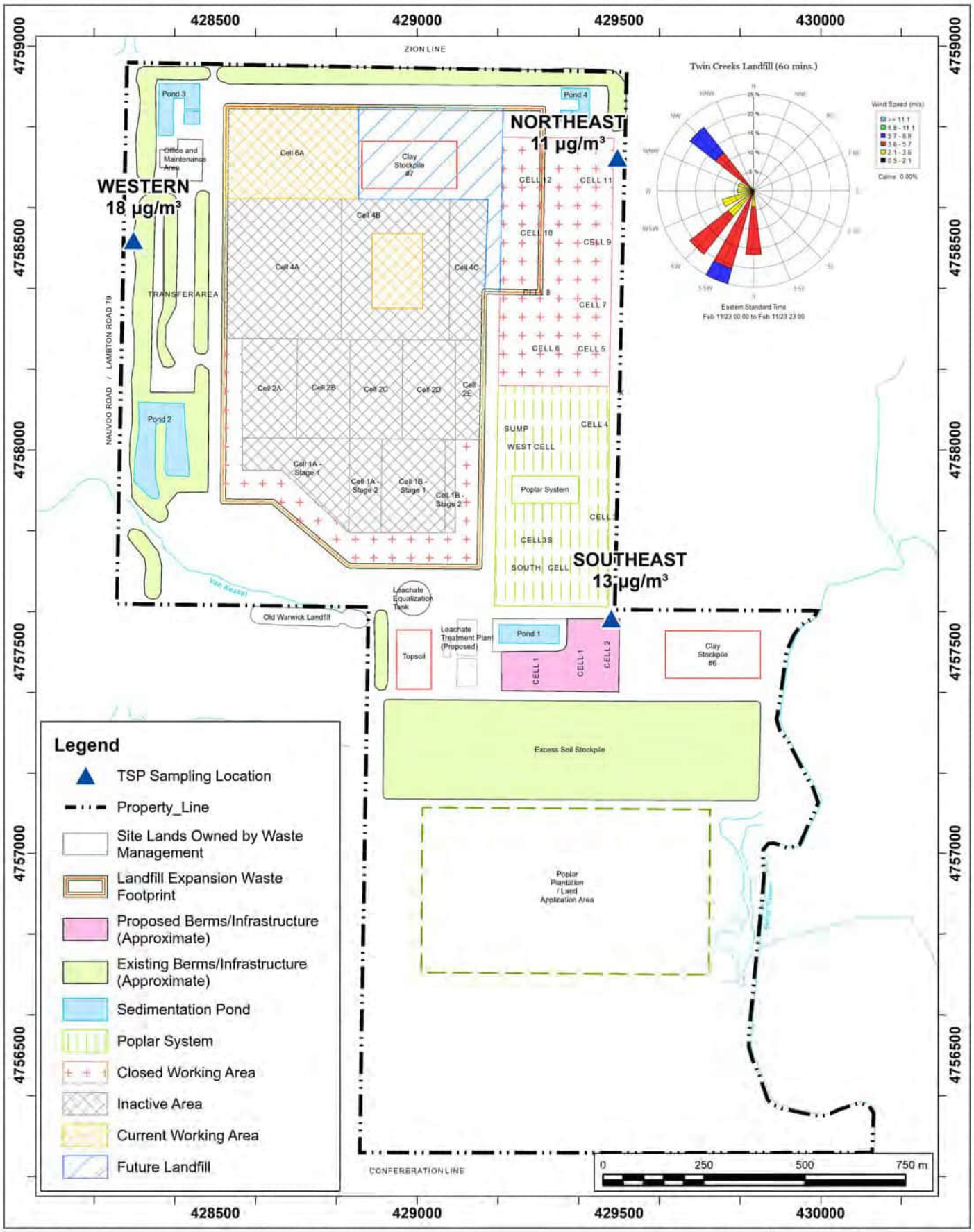

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: February 11, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 2b
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

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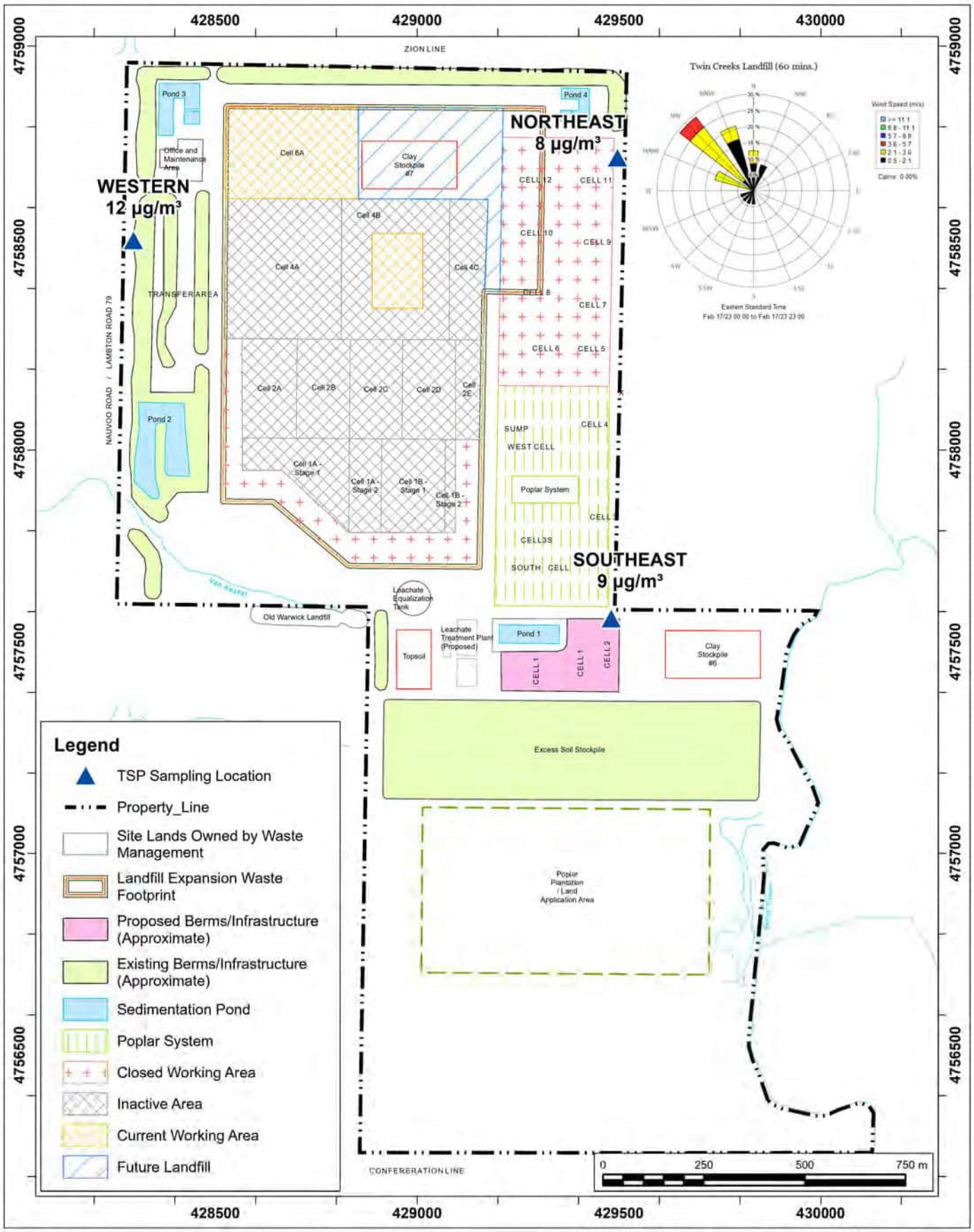

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: February 17, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 2c
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

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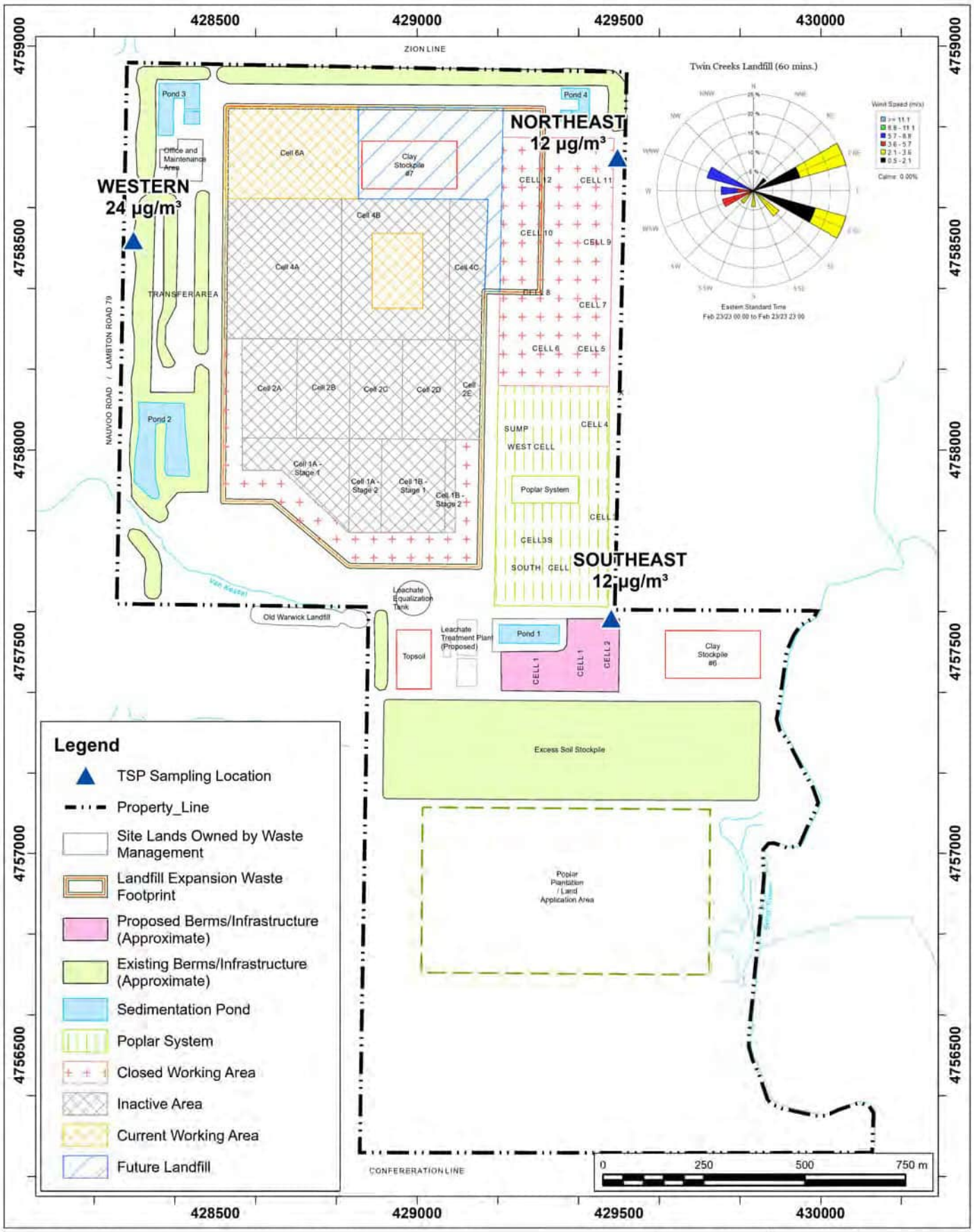

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: February 23, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 2d
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

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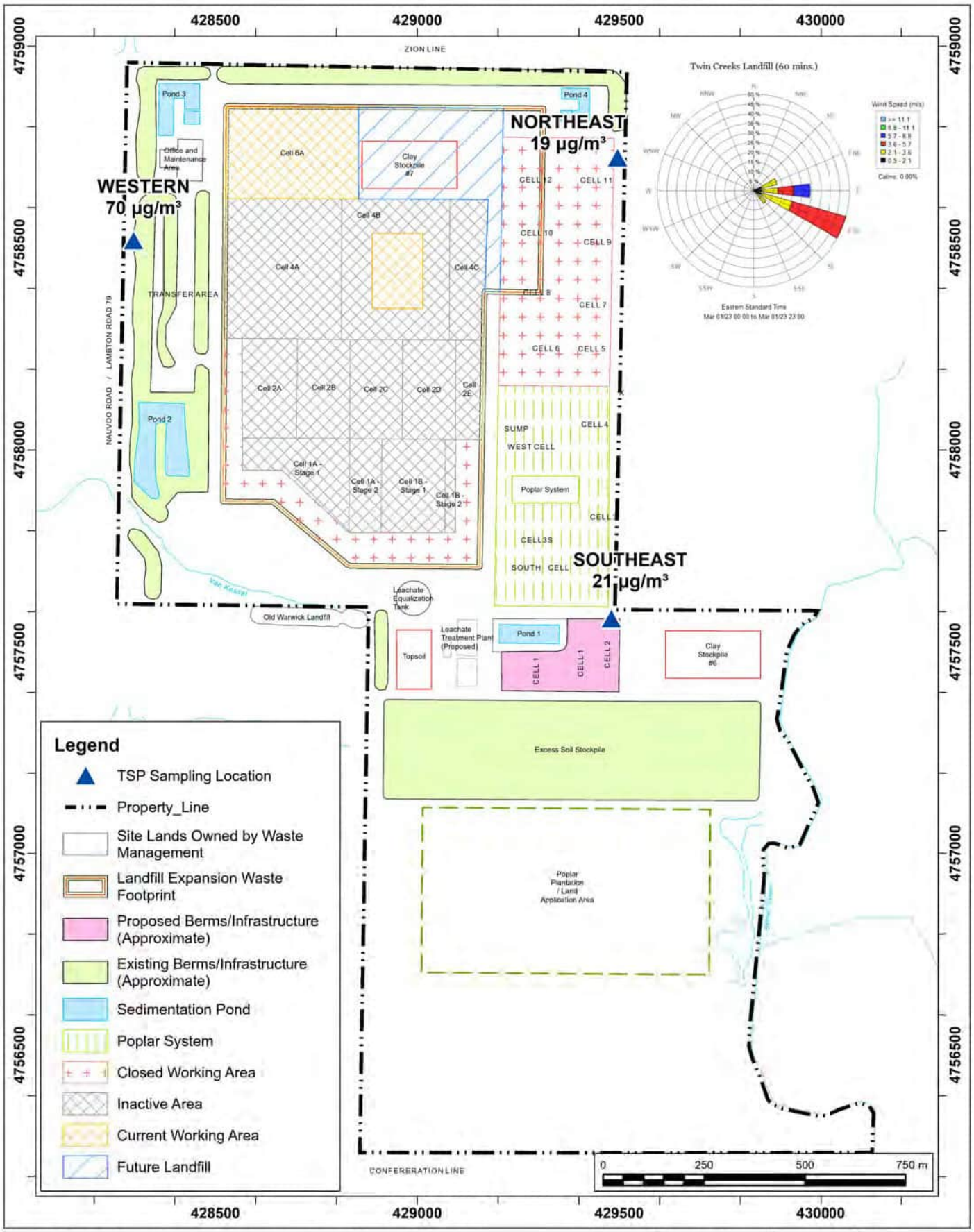

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: March 1, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 3a
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

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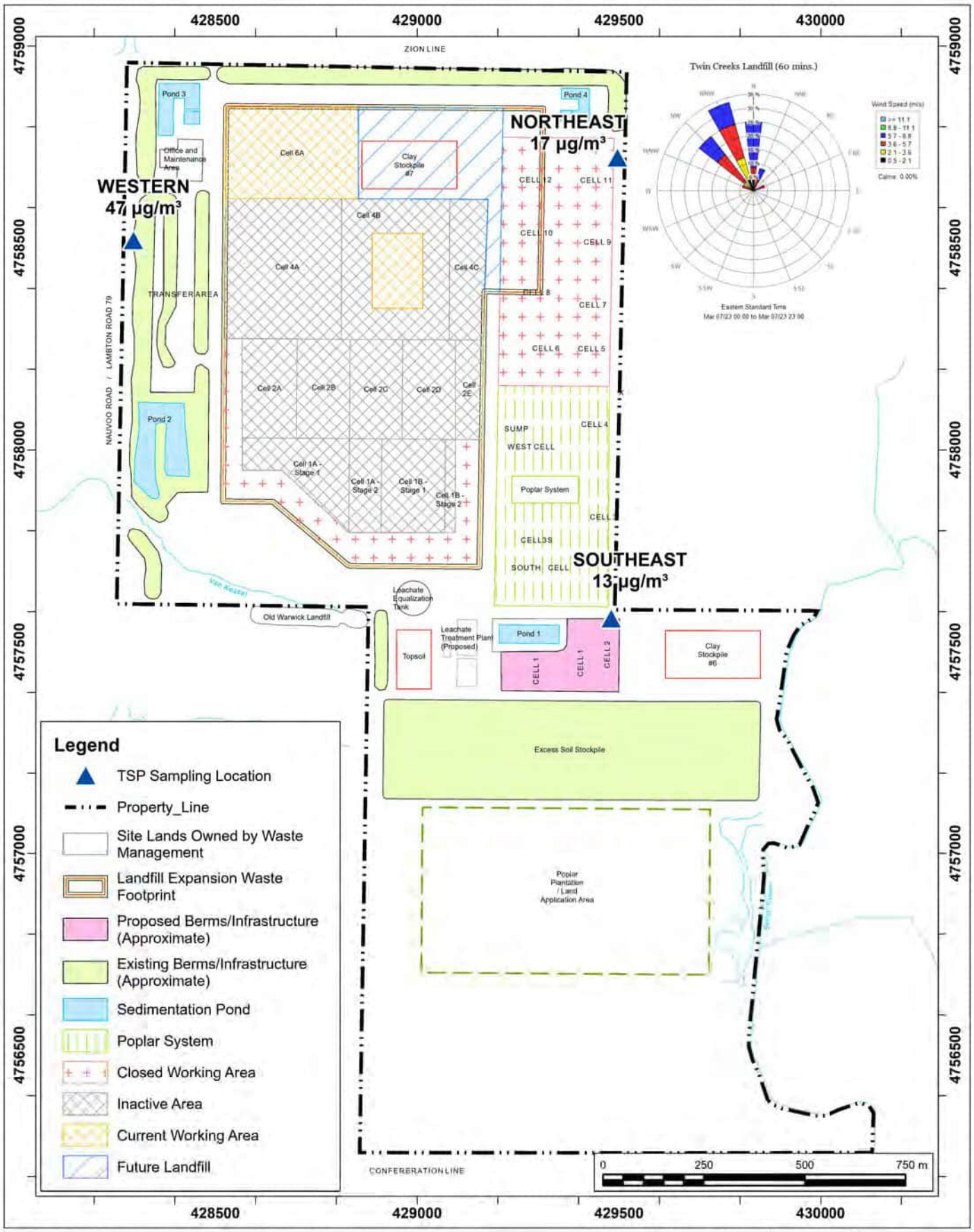


Site Plan Showing Sampling Locations and Wind Rose Sampling Period: March 7, 2023

Map Projection: NAD 1983 UTM Zone 17N

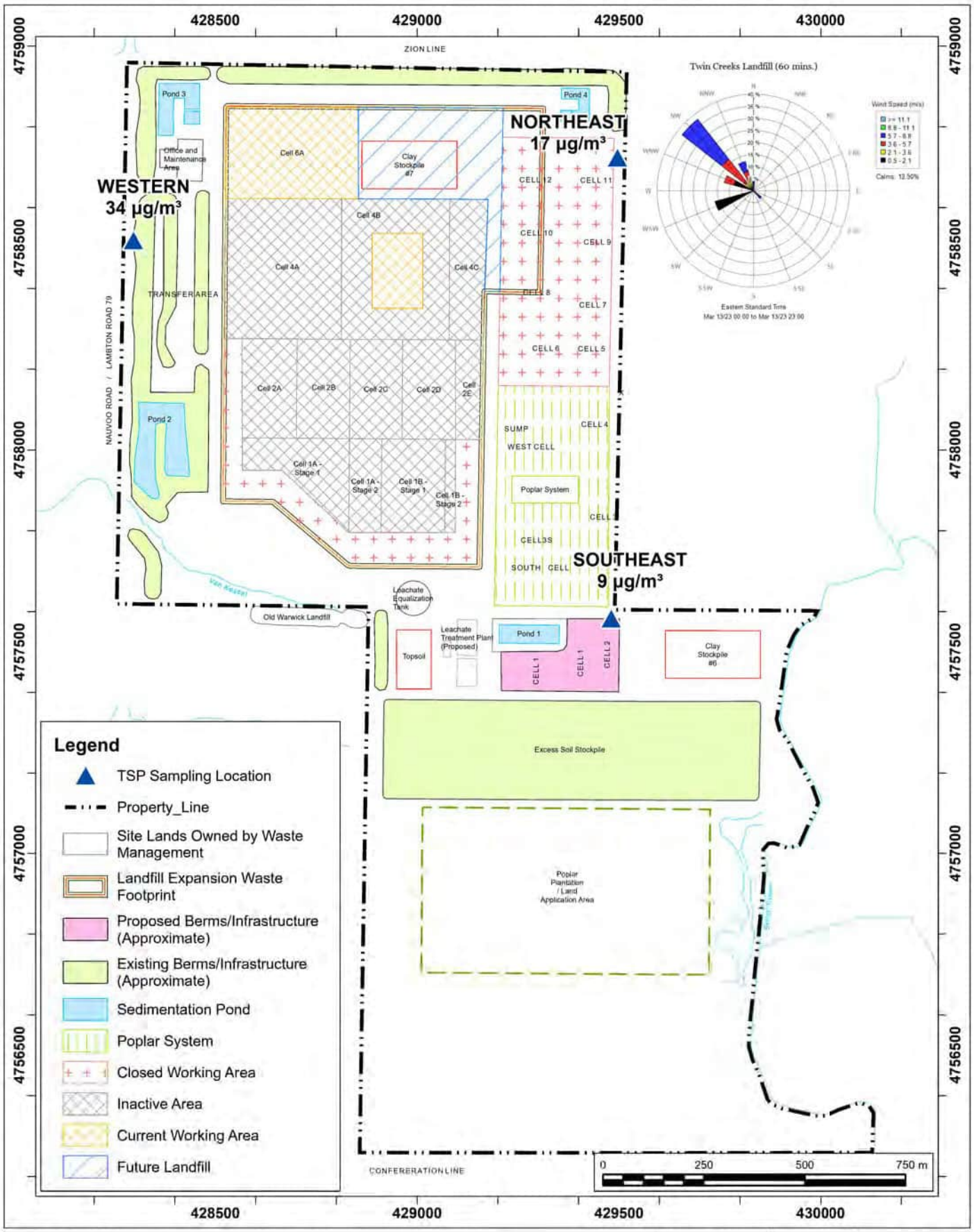
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 3b
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2303459_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: March 13, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

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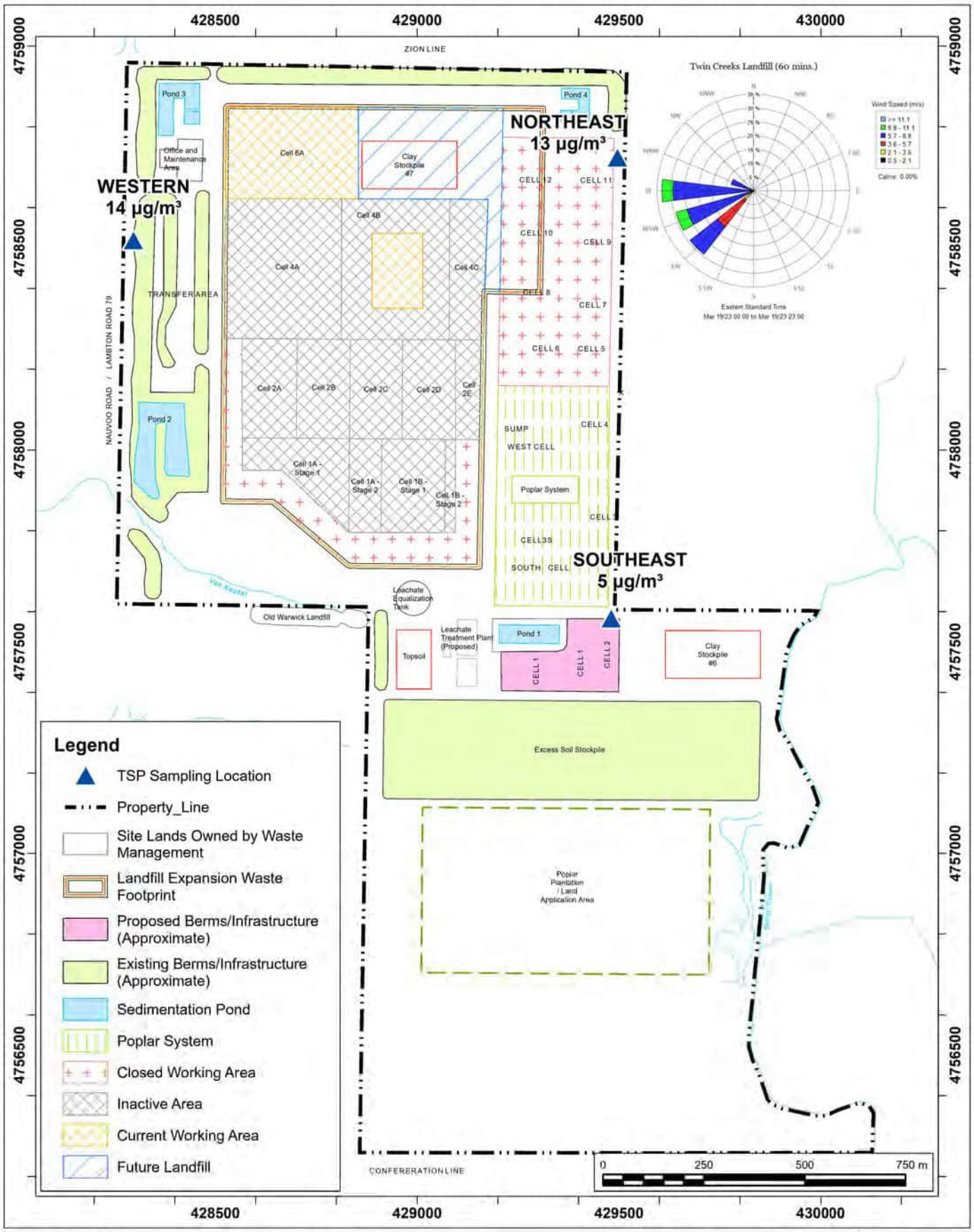
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: March 19, 2023

Map Projection: NAD 1983 UTM Zone 17N

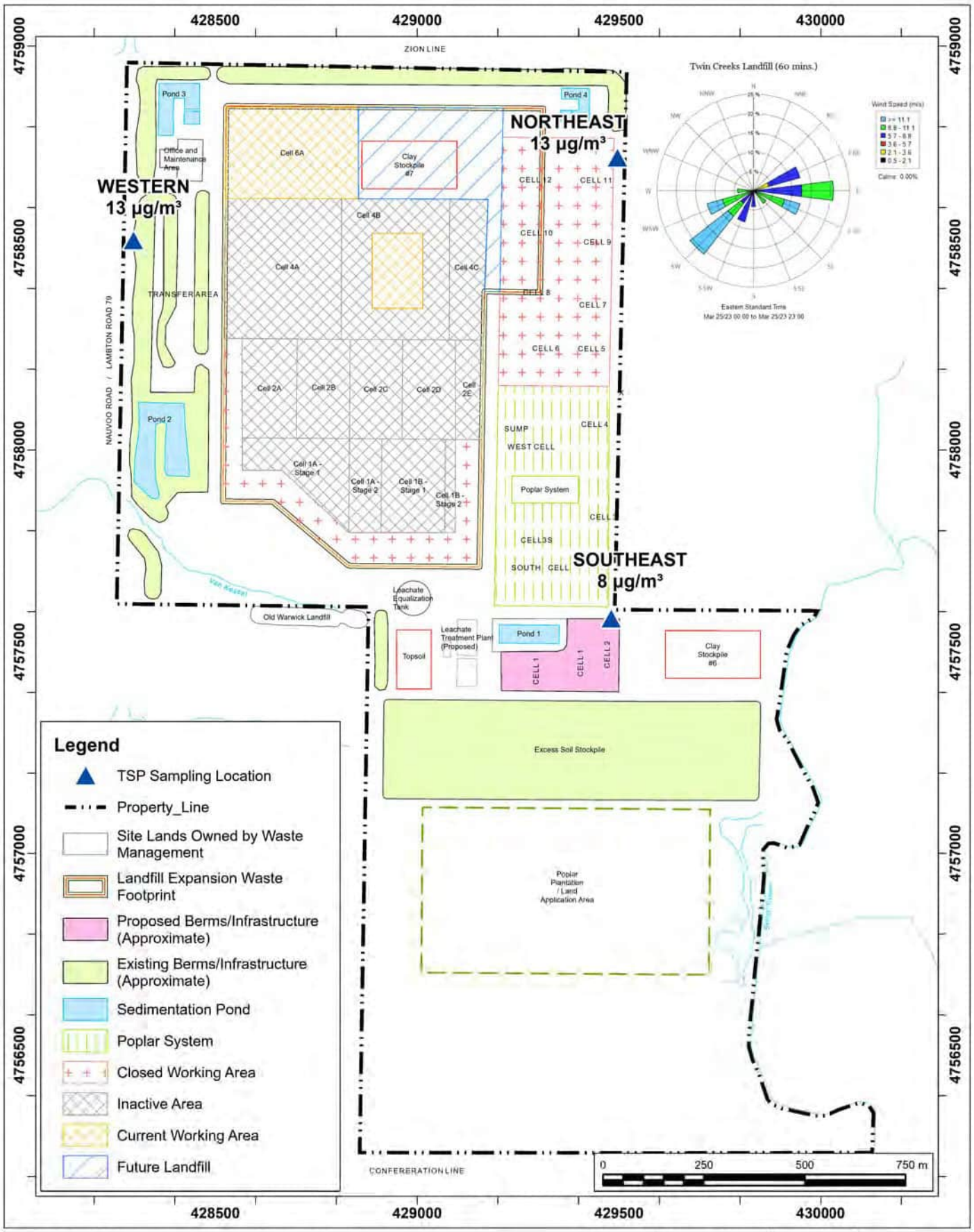
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 3d
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: March 25, 2023

Map Projection: NAD 1983 UTM Zone 17N

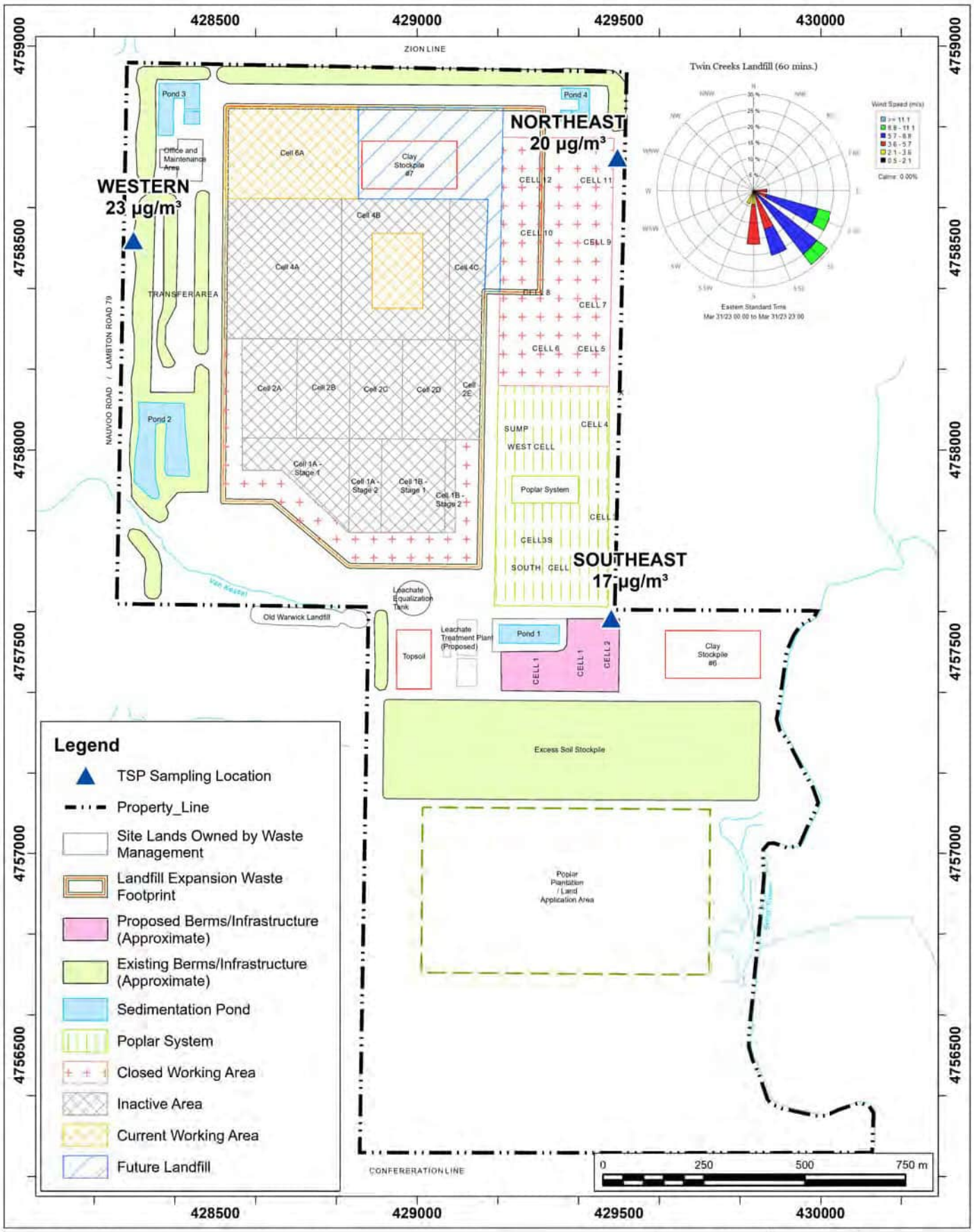
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 3e
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2303459_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: March 31, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 3f
Approx. Scale:	1:13,000
Date Revised:	Apr 27, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx

ATTACHMENT A

REPORT

WASTE MANAGEMENT OF CANADA CORPORATION

WATFORD, ONTARIO

TWIN CREEKS LANDFILL SITE: AMBIENT AIR QUALITY MONITORING PLAN [REVISION #3]

RWDI #1600984

May 18, 2017

SUBMITTED TO

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1 TOTAL HYDROCARBON "WALKABOUT" SURVEY

The "Walkabout" survey will consist of a grid survey of the entire landfill mound using a handheld THC analyzer (FID). A portable FID will be used throughout the surveys. The FID will be calibrated using a methane gas standard and zeroed using ultra zero pure air. The instrument used will have the following characteristics:

- a response time of no greater than 15 seconds
- an accuracy of 3 percent or better
- a minimum detectable limit of 5 ppmv (or lower)
- a flame-out indicator, audible and visual

The "Walkabout" survey will be completed in a grid like formation gathering data at 7.6 cm or lower (3 inches or lower) above the ground. "Hotspots" of "breakout points" consisting of cracks, fissures, areas of bubbling surface water, or patches of dead (brunt) vegetation on the mound will be visually observed and notes for THC concentrations exceeding 500 ppm (methane). The "walkabout" surveys should be completed at winds less the 8 kilometers per hour (5 miles per hour) and during dry conditions (no measurable precipitation for the proceeding 72 hours prior to sampling). In addition, for the instantaneous readings, the surveys should be completed when the ambient temperatures are within 0 to 50 degrees Celsius.

THC concentrations 500 ppm or greater should be considered of concern during the instantaneous measurements. Therefore, THC concentrations less than 500 ppm will not be noted during the survey. Locations where the THC concentrations are 500 ppm or greater should assist WMI in determining all potential and existing landfill gas release points that require remedial action.

All THC concentrations measured will be expressed as methane on the calibration standard used. After the 'hotspot" or "breakout points" are fixed, documentation of the corrective actions taken as well as confirmation of adequate actions taken (THC concentrations less than 500 ppm) will be presented to the MOECC. The "walkabout" survey will include the following:

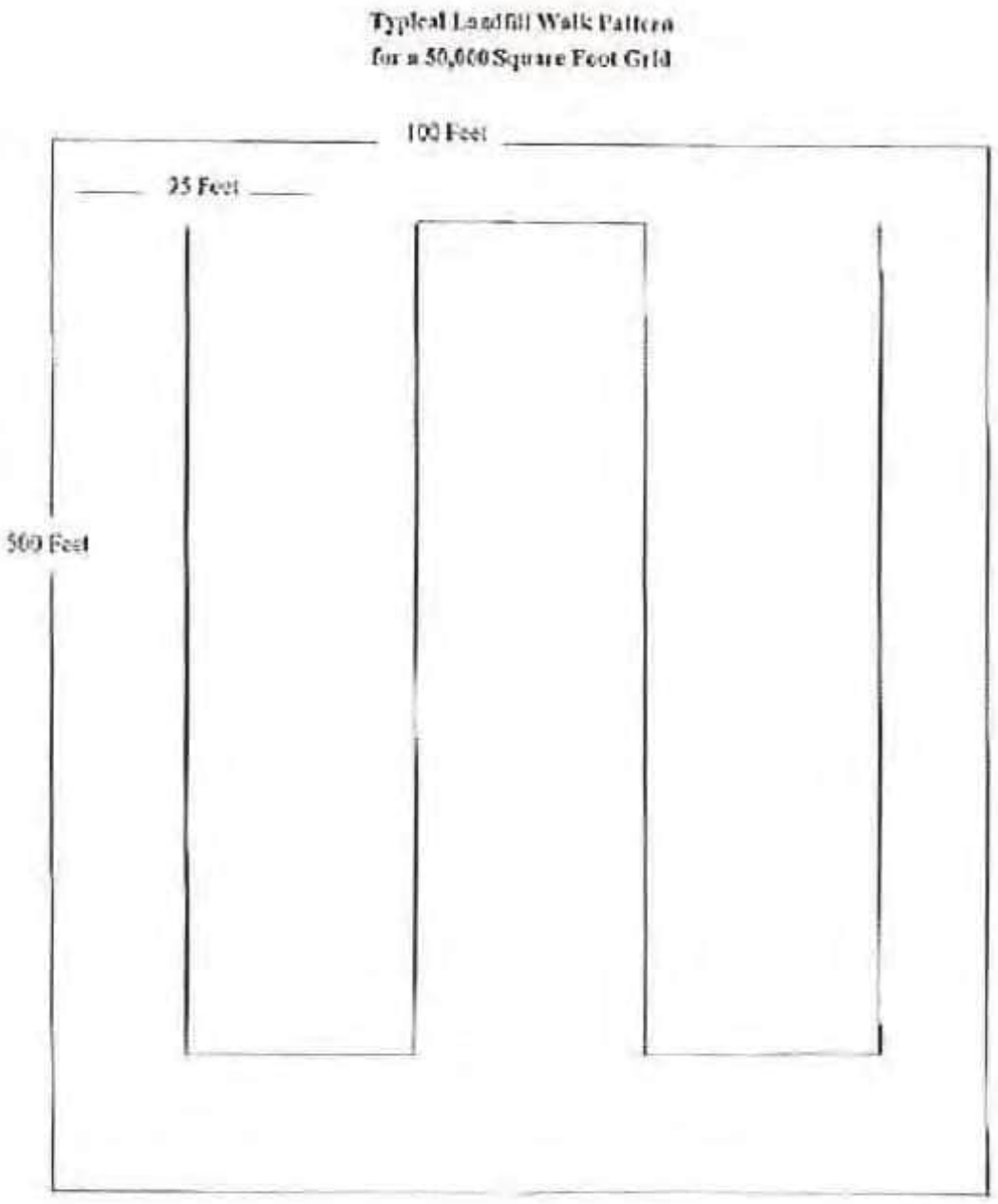
- precise locations of all sampling sites on the site map
- identification of all data obtained in the field measurements
- documentation of all remedial action

The "walkabout" survey should be done in the spring and the early fall. The measured areas should include areas where landfill cover is complete. Problem areas identified should be repaired within two (2) months of identification. Once repairs are completed, a follow-up survey on the specific locations will be completed to validate success of the remediation action(s). The process is important in minimizing odour and VOC emissions.

The "Walkabout" surveys will be performed twice per year or in response to otherwise unexplained odour events. As outlined in the Odour Best Management Practices Plan, routine visual inspections of the landfill cap integrity will also occur on a monthly basis to identify possible problem areas.

Figure 1 includes the walkabout pattern.

Figure 1: Walkabout Pattern



2 DUST MONITORING

The monitoring for Total Suspended Particulate (TSP) will be completed on an on-going basis at three locations around the landfill footprint. The TSP monitor locations are shown in **Figure 2.**

Total Suspended Particulate samples will be taken on a six-day interval during the months of October through May and samples will be taken on a three-day interval during the months of June through September. The sampling will be in concurrence with the U.S EPA National Air Pollutant Surveillance (NAPS) monitoring schedule. The sampling will include the entire year (sampling during 12 months per year). In addition, the analysis for airborne metals will be completed for 11 of the collected TSP samples per station (total of 33 metal samples per year). For each of the 11 sets of samples collected, the particulate analysis will be completed prior to the metal analysis and the highest particulate loaded filters from each station will undergo the analysis for airborne metals.

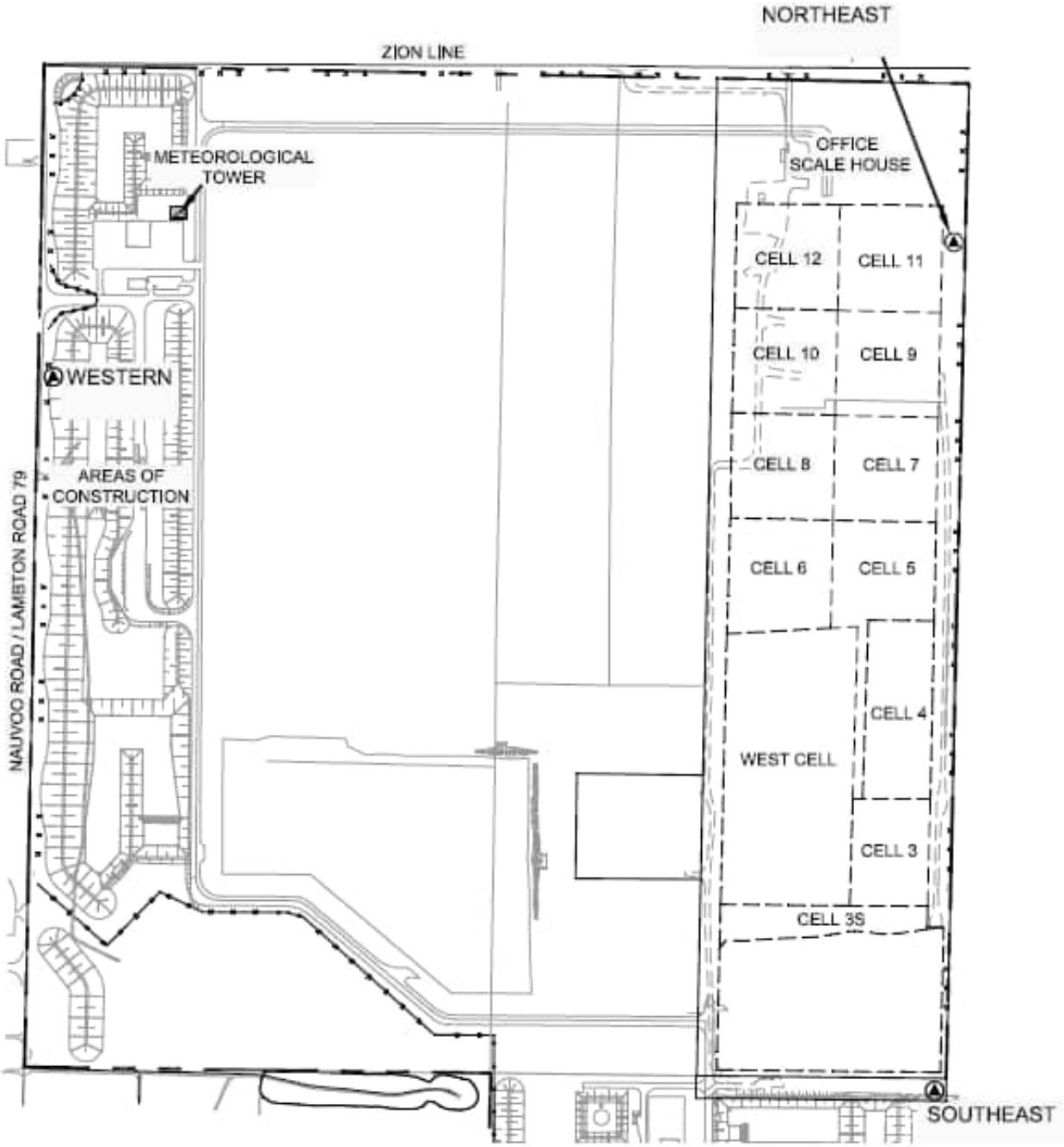
The monitoring method will comply with the metals specified by U.S. EPA Method I0-2. The 24-hour samples would be collected on standard hi-volume air samplers. The station siting requirements and sampling procedures will follow the most recent version of the U.S. EPA methods as well as the Ministry of the Environment's Operations Manual for Point Source Air Quality Monitoring as approved by the MOECC at the on-set on the monitoring. The U.S. EPA methods are referenced in the MOECC document as appropriate reference methods to follow for air quality monitoring programs.

The results will be presented in quarterly summary letters and an annual report. The report will include the data in tabular format with a description of the program, quality assurance documentation, details regarding data recovery, abnormal site conditions, etc. As well, any days when the ambient air quality criterion for TSP was exceeded would be reported to the District MOECC office within two (2) weeks of receiving results. In order to enhance the notification of elevated TSP Levels, WM will copy the Township of Warwick on any future elevated TSP level reporting provided to the MOECC.

As part of the dust control strategy, the shift supervisor will be responsible to see that a record of roadway sweeping and watering is maintained. The control measure will be initiated whenever a visible plume behind vehicles is longer than ¼ the length of the vehicle. These logs will be kept on-site for a period of not less than two (2) years and will be made available for inspection should the MOECC wish to see them.

When the facility receives a complaint, the shift supervisor will see that the relevant information is recorded, including any remedial action taken as a result of the complaint. A sample complaint log sheet is included in the Best Management Practices Plan (Dust).

Figure 2: Dust Monitor Locations



2.1 Additional Dust Monitoring Provisions

As discussed with stakeholders during the consultation for the annual fill rate increase for the site, the following provisions were made for additional monitoring to be completed under specific conditions. The following notes the agreed to provisions for the additional monitoring. This provision will also be included in the Dust Best Management Practices Plan (BMPP). In the event that the provisions are triggered, WM will prepare an updated Air Quality Monitoring Plan to layout the specific agreed to monitoring at the time the additional monitoring provision is required.

As agreed to with stakeholders, in the event that 2 measured exceedances (trigger), that can be attributed to WM operations, in any quarter (excluding periods when on-site cell construction is occurring) occurs, WM is committing to reviewing the data with the Township of Warwick. Upon confirmation that the exceedances can be attributed to WM operations, and are not related to cell construction, WM will complete the installation of continuous dust monitors.

If continuous dust monitors are to be installed, WM will work with the Township of Warwick to update the following documents:

- Air Quality Monitoring Plan – updated for equipment change as well as trigger for shorter duration alerts to be issued to WM as warnings for higher dust levels; and

- Best Management Practices Plan (Dust) – to be updated to link dust alerts to dust control initiatives.

3 VOC MONITORING

It is proposed that monitoring for VOC's be conducted through the summer months, with samples to be taken in upwind and downwind pairs, during normal operating hours of the landfill. There would be a total of 5 sample pairs taken between June and September. No more than two (2) samples will be collected in any calendar month. The samples will be 24-hours in duration and compared to their respective Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List.

The samples will be collected and analyzed using methods defined in U.S. EPA Method TO-14/15. Vinyl chloride is of particular concern with these types of samples and vinyl chloride will be analyzed in selective ion mode (SIM). Sampling for VOC samples will be collected during periods of light wind conditions (less than 15 kilometers per hour) and during dry conditions (no measureable precipitation for the proceeding 48 hours prior to sampling).The list of VOC's monitored is presented in Table 1.

Table 1: List of Monitored VOCs

CAS No.	Compound	CAS No.	Compound
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	620-14-4/622-96-8	m/p-Ethyl Toluene
526-73-8	1,2,3-Trimethyl Benzene	108-38-3/106-42-3	m/p-Xylene
95-63-6	1,2,4 -Trimethyl Benzene	535-77-3	m-Cymene
108-67-8	1,3,5 -Trimethyl Benzene	78-93-3	MEK
591-76-4	2-Methyl Hexane	108-87-2	Methyl Cyclohexane
107-83-5	2-Methyl Pentane	108-10-1	MIBK
78-78-4	2-Methyl Butane	75-45-6	Chlorodifluoromethane
96-14-0	3-Methyl Pentane	123-72-8	n-Butanol
589-34-4	3-Methyl Hexane	91-20-3	Naphthalene
67-64-1	Acetone	111-84-2	Nonane
71-43-2	Benzene	611-14-3	o-Ethyl Toluene
123-86-4	Butyl Acetate	95-47-6	o-Xylene
124-18-5	Decane	109-66-0	Pentane
25915-78-0	Dichlorodifluoromethane	64-17-5	Ethanol
75-09-2	Dichloromethane	103-65-1	Propyl Benzene
100-41-4	Ethyl Benzene	100-42-5	Styrene
142-82-5	Heptane	127-18-4	Tetrachloroethylene
110-54-3	Hexane	108-88-3	Toluene
67-63-0	Isopropyl Alcohol	75-69-4	Trichlorofluoromethane
138-86-3	Limonene	79-01-6	Trichloroethylene
75-01-4	Vinyl Chloride	141-78-6	Ethyl Acetate
56-23-5	Carbon Tetrachloride	71-55-6	1,1,1-Trichloroethane
67-66-3	Chloroform	75-35-4	Vinylidene Chloride
106-93-4	Ethylene Dibromide	540-59-0	1,2-Dichloroethene
107-6-2	Ethylene Dichloride	Na	Total VOCs

As the MOECC updates Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List in the Province of Ontario, the measured values will be compared to the most stringent limits available at the time of testing. For compounds that do not have Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List, the measured values will be compared to the predicated concentrations provided and approved by the MOECC for the Section 9 EPA approval supporting documentation to demonstrate compliance. As all compounds identified without Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List are subject to review by the MOECC's Standard Development Branch, these levels should be considered acceptable.

4 COMPLAINT RECORDING PROCESS

Waste Management of Canada has outlined Best Practices Plans of Odour, Litter and Dust. Within each plan the procedures for outlining the responsibilities and recordkeeping. For further details, please refer to the most recent versions of the Best Management Practices Plan. [1,2,3]. Please note that like this air quality monitoring plan, the Best Management Plans are intended to be updates to endure continuous improvements are being documented at the site.

5 REFERENCES

1. RWDI AIR Inc. Best Management Practices Plan (Odour), Twin Creeks Landfill Site, Watford, ON – Revision 7, dated May 18, 2017.

2. RWDI AIR Inc. Best Management Practices Plan (Dust), Twin Creeks Landfill Site, Watford, ON – Revision 5, dated May 18, 2017.

3. RWDI AIR Inc. Best Management Practices Plan (Litter), Twin Creeks Landfill Site, Watford, ON – Revision 4, dated December 11, 2007.

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ATTACHMENT B

Table 1: Summary of Total Suspended Particulate Results **January 6, 2023**

Compounds	CAS No.	06-Jan-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	22111448	Filter ID:	22111449	Filter ID:	22111450				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	27700	16	16900	11	28900	17	17	120	Schedule 3	14.21%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Downwind		Upwind					
Sample Duration (min)		1440		1440		1441					
Sample Volume (m^3) [1]		1679		1507		1695					
Sample Flow Rate (m^3/min)		1.17		1.05		1.18					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 2: Summary of Total Suspended Particulate Results **January 12, 2023**

Compounds	CAS No.	12-Jan-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	22111452	Filter ID:	22111463	Filter ID:	22111451				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Invalid Sample		Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	-	-	31600	19	87100	54	54	120	Schedule 3	44.86%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		-		1440		1440					
Sample Volume (m^3) [1]		-		1621		1618					
Sample Flow Rate (m^3/min)		-		1.13		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 3: Summary of Total Suspended Particulate Results **January 18, 2023**

Compounds	CAS No.	18-Jan-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	22111455	Filter ID:	22111456	Filter ID:	22111454				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19					ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12					ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14					ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18					55.8	0.035	0.035	50	Schedule 3	0.07%
Total Iron (Fe)	7439-89-16					853	0.529	0.529	N/A	N/A	-
Total Lead (Pb)	7439-92-11					6.3	0.004	0.004	0.5	Schedule 3	0.78%
Total Manganese (Mn)	7439-96-15					26.4	0.016	0.016	2.5	Guideline	0.65%
Total Nickel (Ni)	7440-02-10					ND	ND	ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12					ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12					ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16					57.7	0.036	0.036	120	Schedule 3	0.03%
Total Particulate	-	9000	6	10800	7	118000	73	73	120	Schedule 3	60.93%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Upwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1609		1594		1614					
Sample Flow Rate (m^3/min)		1.12		1.11		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 4: Summary of Total Suspended Particulate Results **January 24, 2023**

Compounds	CAS No.	24-Jan-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	22111465	Filter ID:	22111466	Filter ID:	22111464				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	ND	ND	Sample 4 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND	ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND	ND	ND			ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND	ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	49.7	0.031	66.5	0.041			0.041	50	Schedule 3	0.08%
Total Iron (Fe)	7439-89-16	237	0.147	313	0.192			0.192	N/A	N/A	-
Total Lead (Pb)	7439-92-11	3.1	0.002	3.2	0.002			0.002	0.5	Schedule 3	0.39%
Total Manganese (Mn)	7439-96-15	8.1	0.005	11.1	0.007			0.007	2.5	Guideline	0.27%
Total Nickel (Ni)	7440-02-10	ND	ND	ND	ND			ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12	ND	ND	ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND	ND	ND			ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	23.7	0.015	50.6	0.031			0.031	120	Schedule 3	0.03%
Total Particulate	-	31600	20	35500	22	49900	31	31	120	Schedule 3	25.94%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Downwind		Upwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1614		1634		1603					
Sample Flow Rate (m^3/min)		1.12		1.13		1.11					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 5: Summary of Total Suspended Particulate Results **January 30, 2023**

Compounds	CAS No.	30-Jan-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23011643	Filter ID:	23011642	Filter ID:	23011644				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19					ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12					ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14					ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18					60	0.037	0.037	50	Schedule 3	0.07%
Total Iron (Fe)	7439-89-16					399	0.245	0.245	N/A	N/A	-
Total Lead (Pb)	7439-92-11					ND	ND	ND	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15					13.3	0.008	0.008	2.5	Guideline	0.33%
Total Nickel (Ni)	7440-02-10					ND	ND	ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12					ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12					ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16					24.3	0.015	0.015	120	Schedule 3	0.01%
Total Particulate	-	14100	9	17500	11	37300	23	23	120	Schedule 3	19.12%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1630		1615		1626					
Sample Flow Rate (m^3/min)		1.13		1.12		1.13					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 6: Summary of Total Suspended Particulate Results **February 5, 2023**

Compounds	CAS No.	05-Feb-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23011640	Filter ID:	22111480	Filter ID:	23011641				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	ND	ND	Sample 2 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND	ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND	ND	ND			ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND	ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	39.8	0.025	46.6	0.029			0.029	50	Schedule 3	0.06%
Total Iron (Fe)	7439-89-16	288	0.180	207	0.128			0.180	N/A	N/A	-
Total Lead (Pb)	7439-92-11	3.2	0.002	ND	ND			0.002	0.5	Schedule 3	0.40%
Total Manganese (Mn)	7439-96-15	11	0.007	8.1	0.005			0.007	2.5	Guideline	0.28%
Total Nickel (Ni)	7440-02-10	ND	ND	ND	ND			ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12	ND	ND	ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND	ND	ND			ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	32.6	0.020	42.4	0.026			0.026	120	Schedule 3	0.02%
Total Particulate	-	34900	22	28100	17	27300	17	22	120	Schedule 3	18.20%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Upwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1598		1618		1597					
Sample Flow Rate (m^3/min)		1.11		1.12		1.11					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 7: Summary of Total Suspended Particulate Results **February 11, 2023**

Compounds	CAS No.	11-Feb-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23011655	Filter ID:	23011654	Filter ID:	23011656				
		Mass	Concentration	Mass	Concentration	Mass	Concentration				
		(ug)	(µg/m^3)	(ug)	(µg/m^3)	(ug)	(µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	21000	13	17300	11	29300	18	18	120	Schedule 3	15.38%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1608		1624		1588					
Sample Flow Rate (m^3/min)		1.12		1.13		1.10					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 8: Summary of Total Suspended Particulate Results **February 17, 2023**

Compounds	CAS No.	17-Feb-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23011652	Filter ID:	23011653	Filter ID:	23011651				
		Mass	Concentration	Mass	Concentration	Mass	Concentration				
		(ug)	(µg/m^3)	(ug)	(µg/m^3)	(ug)	(µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	14600	9	12300	8	18700	12	12	120	Schedule 3	9.65%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1617		1613		1615					
Sample Flow Rate (m^3/min)		1.12		1.12		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 9: Summary of Total Suspended Particulate Results **February 23, 2023**

Compounds	CAS No.	23-Feb-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23011665	Filter ID:	23011664	Filter ID:	23011663				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	18900	12	19600	12	39100	24	24	120	Schedule 3	20.42%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1600		1615		1596					
Sample Flow Rate (m^3/min)		1.11		1.12		1.11					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 10: Summary of Total Suspended Particulate Results **March 1, 2023**

Compounds	CAS No.	01-Mar-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23011678	Filter ID:	23011679	Filter ID:	23011680				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	ND	ND	ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND	ND	ND	ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND	ND	ND	ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND	ND	ND	ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	59.2	0.037	91.4	0.057	33.4	0.021	0.057	50	Schedule 3	0.11%
Total Iron (Fe)	7439-89-16	405	0.251	350	0.217	1270	0.783	0.783	N/A	N/A	-
Total Lead (Pb)	7439-92-11	3.1	0.002	ND	ND	4.5	0.003	0.003	0.5	Schedule 3	0.55%
Total Manganese (Mn)	7439-96-15	12.6	0.008	10.7	0.007	40.7	0.025	0.025	2.5	Guideline	1.00%
Total Nickel (Ni)	7440-02-10	ND	ND	ND	ND	ND	ND	ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12	ND	ND	ND	ND	ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND	ND	ND	ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	36	0.022	35.2	0.022	69.8	0.043	0.043	120	Schedule 3	0.04%
Total Particulate	-	34200	21	30800	19	114000	70	70	120	Schedule 3	58.57%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Upwind		Downwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1611		1612		1622					
Sample Flow Rate (m^3/min)		1.12		1.12		1.13					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 11: Summary of Total Suspended Particulate Results **March 7, 2023**

Compounds	CAS No.	07-Mar-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23011684	Filter ID:	23011685	Filter ID:	23011683				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	20300	13	27100	17	75200	47	47	120	Schedule 3	39.14%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1608		1604		1601					
Sample Flow Rate (m^3/min)		1.12		1.11		1.11					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 12: Summary of Total Suspended Particulate Results **March 13, 2023**

Compounds	CAS No.	13-Mar-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23011630	Filter ID:	23011629	Filter ID:	23011631				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	14800	9	27300	17	54300	34	34	120	Schedule 3	28.12%
Upwind or Downwind Position (based on actual meteorological data)		Downwind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1621		1609		1609					
Sample Flow Rate (m^3/min)		1.13		1.12		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 13: Summary of Total Suspended Particulate Results **March 19, 2023**

Compounds	CAS No.	19-Mar-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23011632	Filter ID:	23011633	Filter ID:	23011634				
		Mass	Concentration	Mass	Concentration	Mass	Concentration				
		(ug)	(µg/m^3)	(ug)	(µg/m^3)	(ug)	(µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	8500	5	20800	13	22400	14	14	120	Schedule 3	11.60%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Downwind		Upwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1620		1620		1609					
Sample Flow Rate (m^3/min)		1.13		1.13		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 14: Summary of Total Suspended Particulate Results **March 25, 2023**

Compounds	CAS No.	25-Mar-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23013177	Filter ID:	23013176	Filter ID:	23013178				
		Mass	Concentration	Mass	Concentration	Mass	Concentration				
		(ug)	(µg/m^3)	(ug)	(µg/m^3)	(ug)	(µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	12800	8	19700	13	20400	13	13	120	Schedule 3	10.83%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1605		1563		1570					
Sample Flow Rate (m^3/min)		1.11		1.09		1.09					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 15: Summary of Total Suspended Particulate Results **March 31, 2023**

Compounds	CAS No.	31-Mar-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23013179	Filter ID:	23013181	Filter ID:	23013180				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	Sample 3 of 4 No Metals Analysis		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND			ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND			ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND			ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	23	0.014			45.5	0.028	0.028	50	Schedule 3	0.06%
Total Iron (Fe)	7439-89-16	523	0.325			584	0.365	0.365	N/A	N/A	-
Total Lead (Pb)	7439-92-11	3.2	0.002			3.8	0.002	0.002	0.5	Schedule 3	0.48%
Total Manganese (Mn)	7439-96-15	13.5	0.008			15	0.009	0.009	2.5	Guideline	0.38%
Total Nickel (Ni)	7440-02-10	ND	ND			ND	ND	ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12	ND	ND			ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND			ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	23	0.014			35.8	0.022	0.022	120	Schedule 3	0.02%
Total Particulate	-	27000	17	32200	20	36100	23	23	120	Schedule 3	18.83%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1608		1620		1598					
Sample Flow Rate (m^3/min)		1.12		1.13		1.11					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

APPENDIX G2

600 Southgate Drive
Guelph, ON N1G 4P6
Canada

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E-mail: solutions@rwdi.com

August 9, 2023

Ms. Angela McLachlan | Environmental Compliance Manager
Waste Management of Canada Corporation
5768 Nauvoo Road (Watford)
Warwick Township, County of Lambton N0M 2S0
E: amclachl@wm.com

Re: Second Quarter 2023 TSP and Metals Report
April, May and June of 2023
Twin Creeks Environmental Centre – Watford, Ontario
RWDI Reference No. 2303459.02

Dear Ms. McLachlan,

RWDI AIR Inc. (RWDI) was retained by Waste Management of Canada Corporation (WM) to complete the Total Suspended Particulate Matter (TSP) and Airborne Metal (Metals) sampling required under the Environmental Compliance Approval A032203, dated February 4, 2023 (Waste ECA). The sampling program is being completed, as approved by the Ontario Ministry of the Environment, Conservation and Parks (MECP) per Condition 13.8 of the Waste ECA. The station locations were approved by the MECP, as noted under Schedule "A" Reference 85 in the Waste ECA. The sampler locations for the TSP samplers are illustrated in the figures section of this report. These locations remained fixed for the duration of the sampling program. This report outlines the results from the second quarter (Q2) samples collected from April 1 to June 30, 2023.

SAMPLING PROGRAM OVERVIEW

Consistent with the Waste ECA dated February 4, 2023 and the AAQMP dated May 18, 2017, the samplers are run on a 6-day schedule from January 1 to May 31 and October 1 to December 31 of each year and run on a 3-day cycle from June 1 to September 30 of each year. A copy of the most recently amended AAQMP can be found in **Attachment A.**

Each sample location has two (2) High Volume Air samplers (Hi-Vols) which run on an alternating 6-day or 3-day schedule, depending on the time of year. Each sample period consists of a 24-hour (midnight to midnight) sample that operates in concurrence with the NAPS sampling schedule.

During the month of April, a total of five (5) sample sets or fifteen (15) samples were initiated, fifteen (15) of which are valid.

During the month of May, a total of five (5) sample sets or fifteen (15) samples were initiated, fourteen (14) of which are valid.

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During the month of June, a total of ten (10) sample sets or thirty (30) samples were initiated, twenty-six (26) of which are valid.

A total of sixty (60) samples were initiated, fifty-five (55) of which were valid. This indicates that 92% of the total samples were successful. Sample validity at the Southeast, Northeast and Western Stations were 100%, 75% and 100% respectively, which means that every sampling station had a valid quarter (≥75% validity). **Table 1** below summarizes the measured TSP concentrations for the fifty-five (55) valid samples as collected from the Southeast, Northeast, and Western samplers.

Table 1 also indicates the direction of the wind at each sampling location relative to the active landfill cell. The Downwind designation indicates that the sampler was located predominantly downwind of the active landfill cell during the sampling period. Under these conditions the landfilling operations are likely to contribute to the measured concentrations. The Upwind designation indicates that the sampler was located predominantly upwind from the active cell. The Crosswind designation indicates that the wind was blowing in a direction that did not put the sampler either upwind or downwind with respect to the active cell or that the sampler was not located upwind or downwind for a significant period of time. Under the Upwind and Crosswind conditions the landfilling operations are unlikely to make a significant contribution to the measured concentrations. **Table 2** summarizes the significant cardinal wind directions observed during each sampling period.

Table 1: Summary of Meteorological Conditions and Measured TSP Concentrations for April, May and June of 2023

Sample Date	Southeast TSP Concentration and Sample Location [1] (µg/m³)	Northeast TSP Concentration and Sample Location [1] (µg/m³)	Western TSP Concentration and Sample Location [1] (µg/m³)
06-Apr-23	16 µg/m³ Crosswind	22 µg/m³ Downwind	21 µg/m³ Upwind
12-Apr-23	61 µg/m³ Crosswind	201 µg/m³ Downwind	49 µg/m³ Upwind
18-Apr-23	32 µg/m³ Crosswind	43 µg/m³ Downwind	15 µg/m³ Upwind
24-Apr-23	27 µg/m³ Crosswind	25 µg/m³ Crosswind	28 µg/m³ Crosswind
30-Apr-23	17 µg/m³ Crosswind	16 µg/m³ Crosswind	29 µg/m³ Crosswind
06-May-23	17 µg/m³ Crosswind	23 µg/m³ Crosswind	43 µg/m³ Crosswind
12-May-23	145 µg/m³ Crosswind	200 µg/m³ Crosswind	128 µg/m³ Crosswind
18-May-23	80 µg/m³ Crosswind	117 µg/m³ Crosswind	148 µg/m³ Crosswind
24-May-23	122 µg/m³ Crosswind	170 µg/m³ Crosswind	82 µg/m³ Crosswind
30-May-23	53 µg/m³ Crosswind	Invalid Crosswind	108 µg/m³ Crosswind
02-Jun-23	136 µg/m³ Crosswind	102 µg/m³ Crosswind	130 µg/m³ Crosswind

Sample Date	Southeast TSP Concentration and Sample Location [1] (µg/m³)	Northeast TSP Concentration and Sample Location [1] (µg/m³)	Western TSP Concentration and Sample Location [1] (µg/m³)
05-Jun-23	113 µg/m³ Crosswind	Invalid Crosswind	92 µg/m³ Crosswind
08-Jun-23	74 µg/m³ Downwind	158 µg/m³ Crosswind	55 µg/m³ Crosswind
11-Jun-23	52 µg/m³ Crosswind	80 µg/m³ Crosswind	36 µg/m³ Crosswind
14-Jun-23	31 µg/m³ Crosswind	49 µg/m³ Crosswind	43 µg/m³ Crosswind
17-Jun-23	41 µg/m³ Downwind	Invalid Crosswind	43 µg/m³ Crosswind
20-Jun-23	36 µg/m³ Crosswind	44 µg/m³ Upwind	211 µg/m³ Downwind
23-Jun-23	18 µg/m³ Crosswind	Invalid Upwind	82 µg/m³ Downwind
26-Jun-23	16 µg/m³ Crosswind	17 µg/m³ Crosswind	41 µg/m³ Crosswind
29-Jun-23	54 µg/m³ Crosswind	Invalid Crosswind	120 µg/m³ Crosswind

Notes: [1] Directional references indicate the direction of the wind at each sampling location during the sampling period relative to the active landfill cell, as described above.

Table 2: Summary of Meteorological Conditions for the Sample Dates in April, May and June of 2023

Sample Date	Range of Mean Wind Speeds [1] (km/h)	Dominant Wind Direction [2] (compass)
06-Apr-23	9-25	W, SW, WSW, WNW
12-Apr-23	9-32	SW, WSW, SSW
18-Apr-23	7-27	WSW, WNW, W, NW
24-Apr-23	4-16	NW, WNW, SW, WSW
30-Apr-23	0-18	W, NW, WNW, WSW
06-May-23	9-16	SE, ESE
12-May-23	2-10	SSW, SW, NNE, N
18-May-23	3-19	ESE, SE, E
24-May-23	2-25	NNW, SW, N, NW
30-May-23	10-21	E, SSE, SE, S, ESE
02-Jun-23	3-20	N, NNW, NNE
05-Jun-23	1-12	NW, W, WNW, NNW
08-Jun-23	4-21	NW, NNW, N, WNW
11-Jun-23	5-19	N, NNW, NNE
14-Jun-23	1-20	NNW, N, WNW
17-Jun-23	1-21	NW, NNW, WNW, N
20-Jun-23	14-25	E, ENE, ESE, SE
23-Jun-23	4-11	ESE, ENE, NE
26-Jun-23	3-18	ESE, S, SSW, SW
29-Jun-23	1-21	ESE, SE

Notes: [1] Based on average wind speed per wind direction.

[2] Based on the direction from which the wind is blowing.
Calm – Less than 1.8 kilometers per hour.

Figures 4a through **6j**, found in the **figure section** of this report, illustrate the sample location, measured TSP concentration, and the wind-rose depicting the wind conditions for each sample period. The wind-roses express the percentage of time the wind is blowing from each direction and provides the distribution of wind speeds observed for each direction.

A summary of the calculated statistics for measured concentrations at the Twin Creeks Environmental Centre sampling locations is presented in **Table 3**.

Table 3: Calculated Statistics for Measured 24-hour Averaged TSP Concentrations (µg/m^3)

Sample Locations	No. of Valid Samples	Percentiles (%)			Maximum	Arithmetic Mean	Number of Measurements Above the AAQC (120 µg/m^3)
		50	70	90			
Southeast	20	46	65	123	145	57	3
Northeast	15	49	114	188	201	84	4
Western	20	52	97	132	211	75	4

The MECP 24-hour Ambient Air Quality Criteria (AAQC) for TSP (120 µg/m3) was exceeded eleven (11) times during the second quarter sampling period:

- On April 12th, 2023, the AAQC was exceeded at the Northeast station, with a concentration of 201 µg/m^3.
- On May 12th, 2023, the AAQC was exceeded at the Northeast, Southeast and Western stations, with concentrations of 200 µg/m^3, 145 µg/m^3 and 128 µg/m^3 respectively.
- On May 18th, 2023, the AAQC was exceeded at the Western station, with a concentration of 148 µg/m^3.
- On May 24th, 2023, the AAQC was exceeded at the Northeast and Southeast stations, with concentrations of 170 µg/m^3 and 122 µg/m^3 respectively.
- On June 2nd, 2023, the AAQC was exceeded at the Southeast and Western stations, with concentrations of 136 µg/m^3 and 130 µg/m^3.
- On June 8th, 2023, the AAQC was exceeded at the Northeast station, with a concentration of 158 µg/m^3.
- On June 20th, 2023, the AAQC was exceeded at the Western station, with a concentration of 211 µg/m^3.

Consistent with the MECP approved monitoring/reporting requirements for TSP at the landfill, the exceedances were reported to the MECP within the 2-week notification requirements.

Due to a number entry error in the TSP Hi-vol sampler calibrations, sample volumes were initially reported as being slightly lower than the actual volume captured. The corrected sample volumes were greater than the initial sample volumes by less than 1%. This resulted in some TSP samples having their final concentration reduced by up to 1 µg/m^3.

Further details of the notifications and discussion of the event are provided in **Attachment C**.

In agreement with the Warwick Township Technical Review Team, only the highest TSP filter weight for each station was analyzed for airborne metal concentrations per 4 sample sets.

During the second quarter, airborne metals were assessed on April 6 (Northeast), April 12 (Northeast, Southeast and Western), May 12 (Northeast and Southeast), May 18 (Western), June 2 (Southeast and Western), June 8 (Northeast), June 11 (Southeast and Northeast), June 20 (Western), June 26 (Northeast), and June 29 (Southeast and Western). All measured concentrations of airborne metals were below their respective AAQC's as outlined in Ontario Regulation 419. The summary of Q2 total suspended particulate and metals results are provided in **Attachment B**. Laboratory analytical reports will be provided in the Annual Report.

CURRENT MITIGATION MEASURES

The Twin Creeks Environmental Centre has created a Best Management Practices Plan for dust that is implemented at the site. All Site employees are trained in the contents of the plan. Through the combined efforts of the mitigation measures and implementation of the Dust Management Plan, Twin Creeks Environmental Centre plans on limiting the number of TSP exceedances during the periods of heavy construction and beyond.

Currently, particulate emission mitigation measures are in place at the Twin Creeks Environmental Centre and consist of watering on-site roadways and construction sites as well as a number of other practices as outlined in the Best Management Practices Plan for dust. The practices listed above will not occur if precipitation events cause these activities to become redundant or if the ground is sufficiently wet from previous precipitation events.

CLOSING

Please feel free to contact us with any questions or comments that you may have with respect to this submission.

Yours very truly,

RWDI AIR Inc.

Khalid Hussein, P.Eng.
Project Manager

KAMH/kta

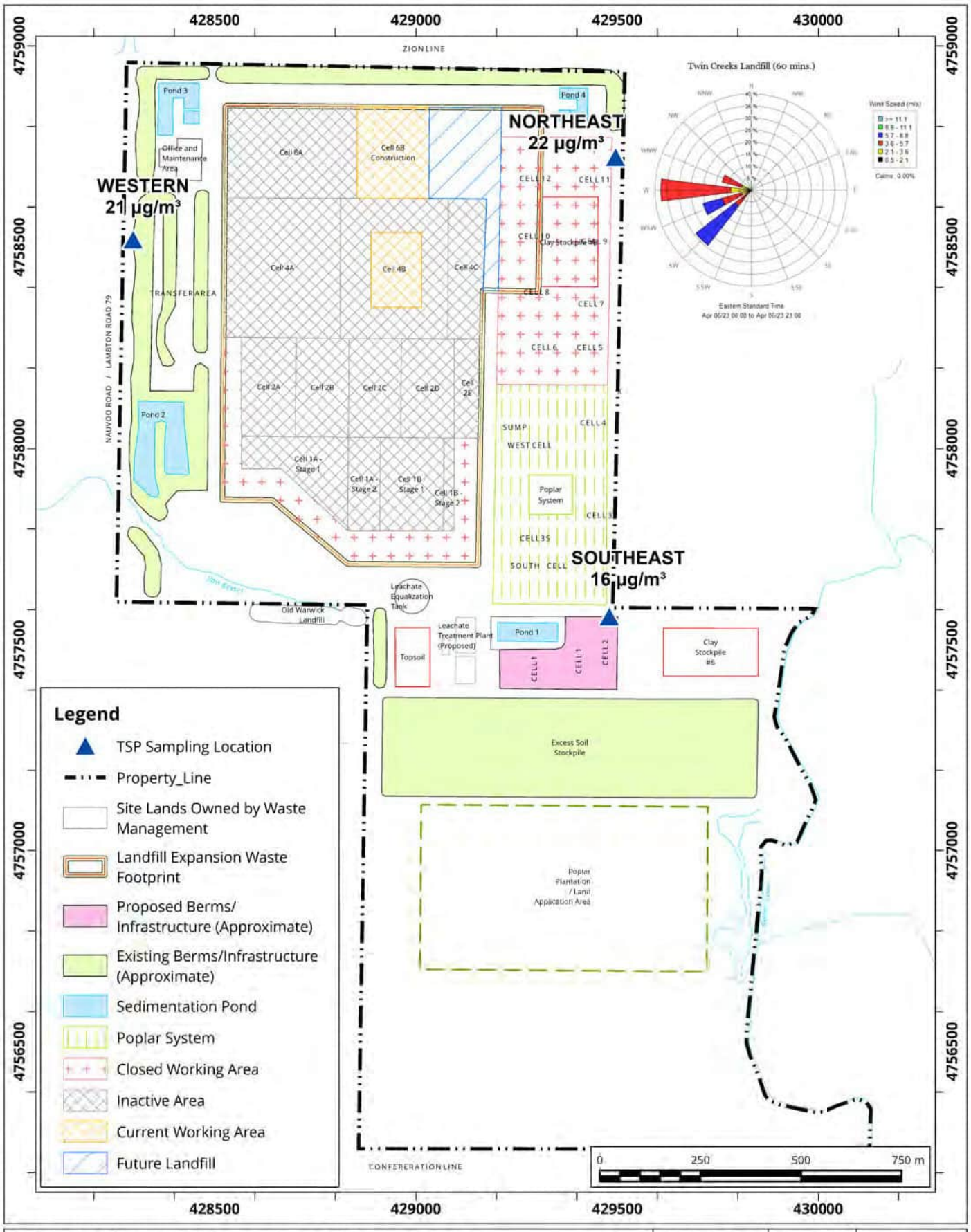
Attach.

GENERAL STATEMENT OF LIMITATIONS

This report entitled "Second Quarter 2023 TSP and Metals Report", dated August 9, 2023 was prepared by RWDI AIR Inc. ("RWDI") for Waste Management of Canada Corporation ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). This report was prepared using scientific principles, published methodologies and professional judgment in assessing available information and data. The findings presented within this document are based on available data within the limits of the existing information, budgeted scope of work, and schedule. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.

This report was prepared for the exclusive use of Waste Management of Canada Corporation and the MECP. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. RWDI accepts no responsibility for damages, if any, suffered by any third party as result of decisions made or actions based on this report.

FIGURES



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: April 6, 2023

Map Projection: NAD 1983 UTM Zone 17N

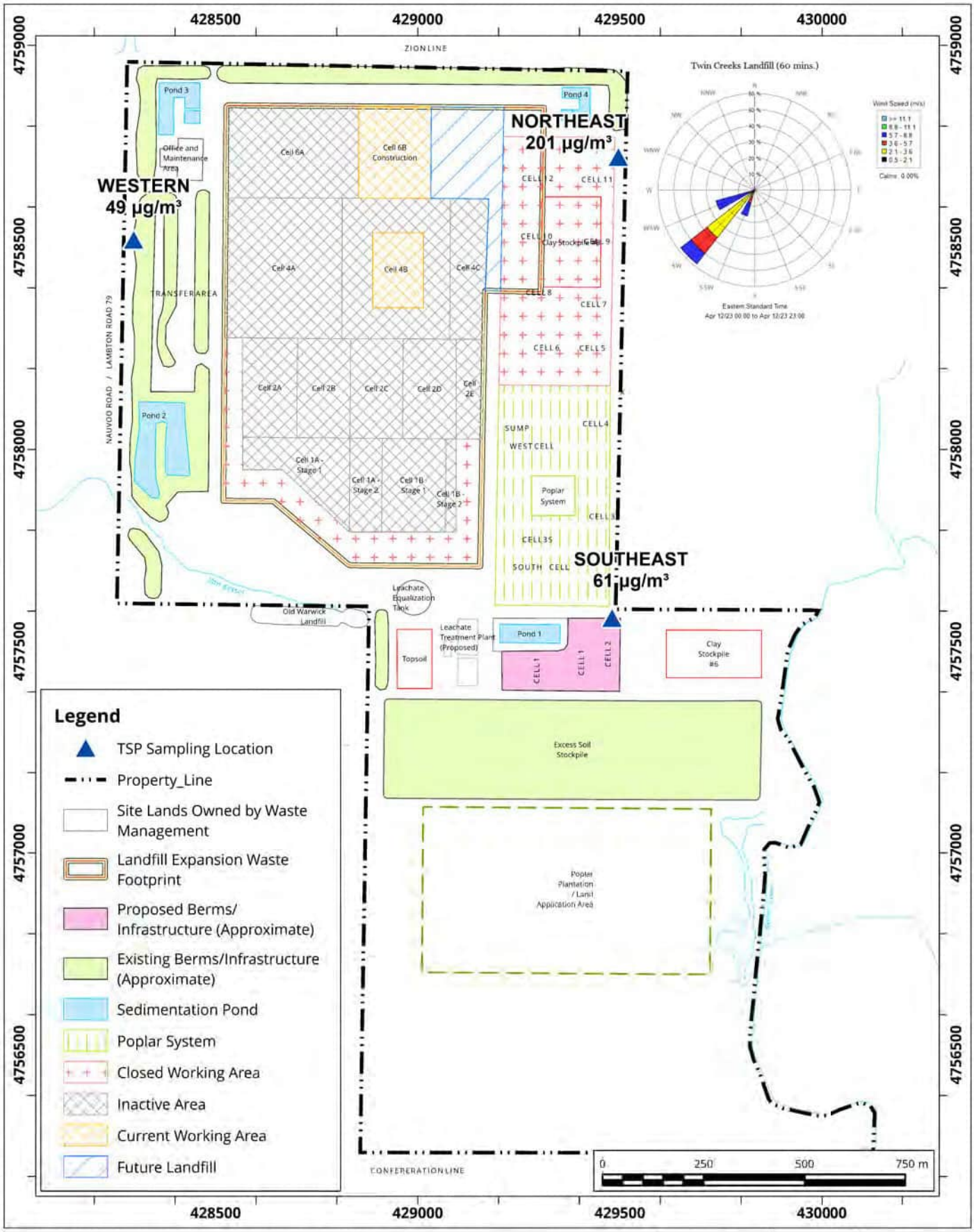
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 4a
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: April 12, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 4b	
Approx. Scale:	1:13,000	
Date Revised:	Jul 26, 2023	

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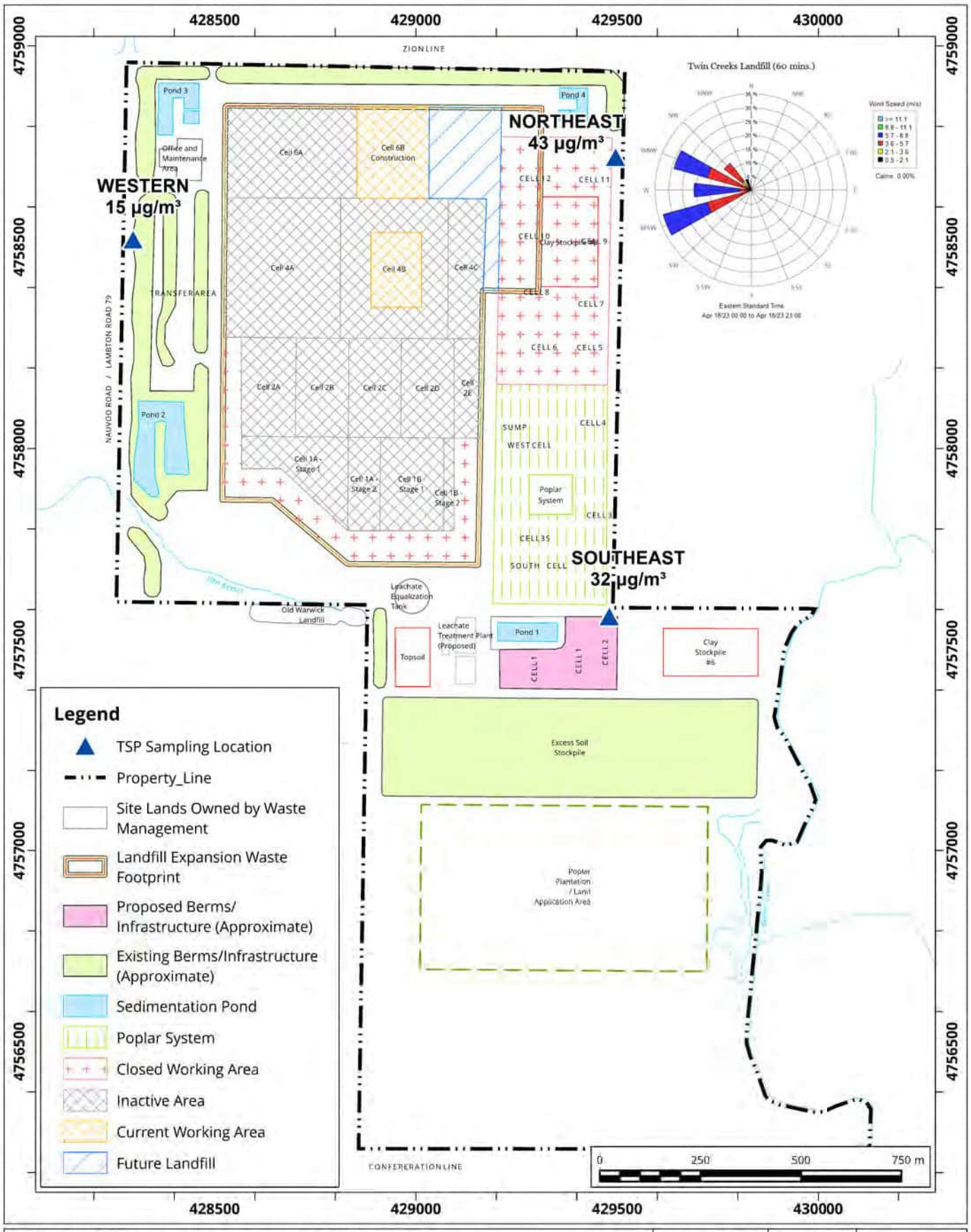

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: April 18, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 4c
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

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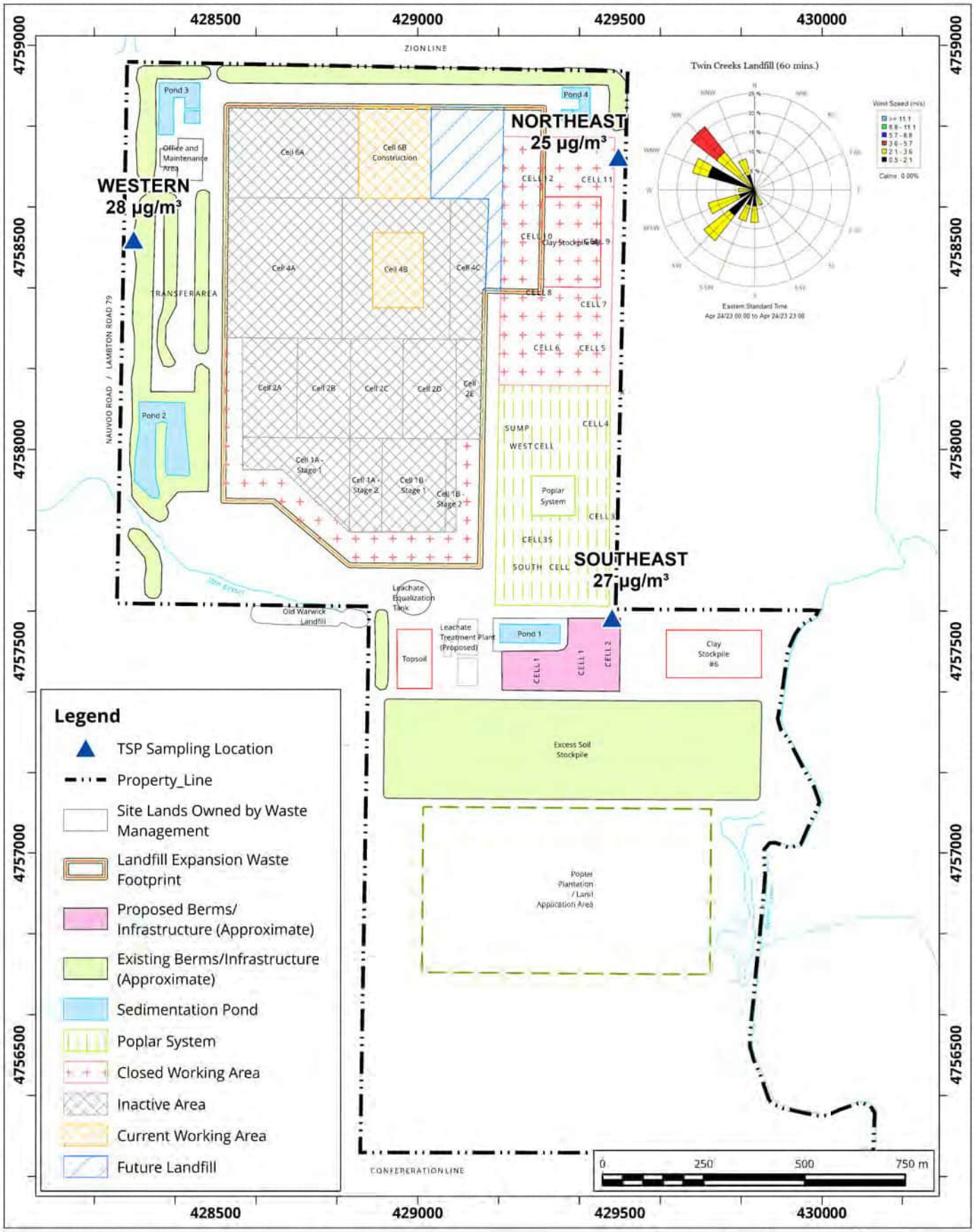

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: April 24, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 4d
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

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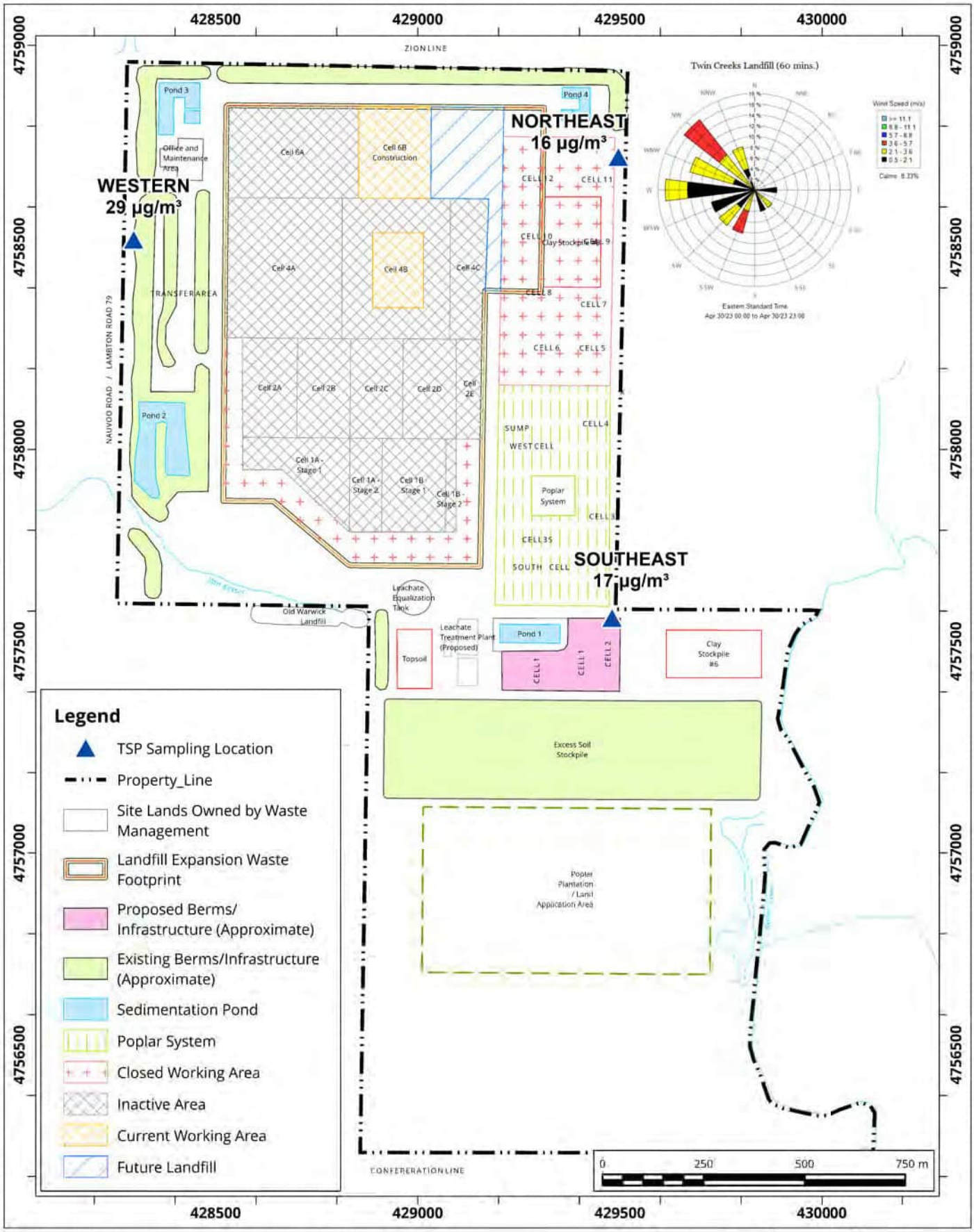

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: April 30, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

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Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

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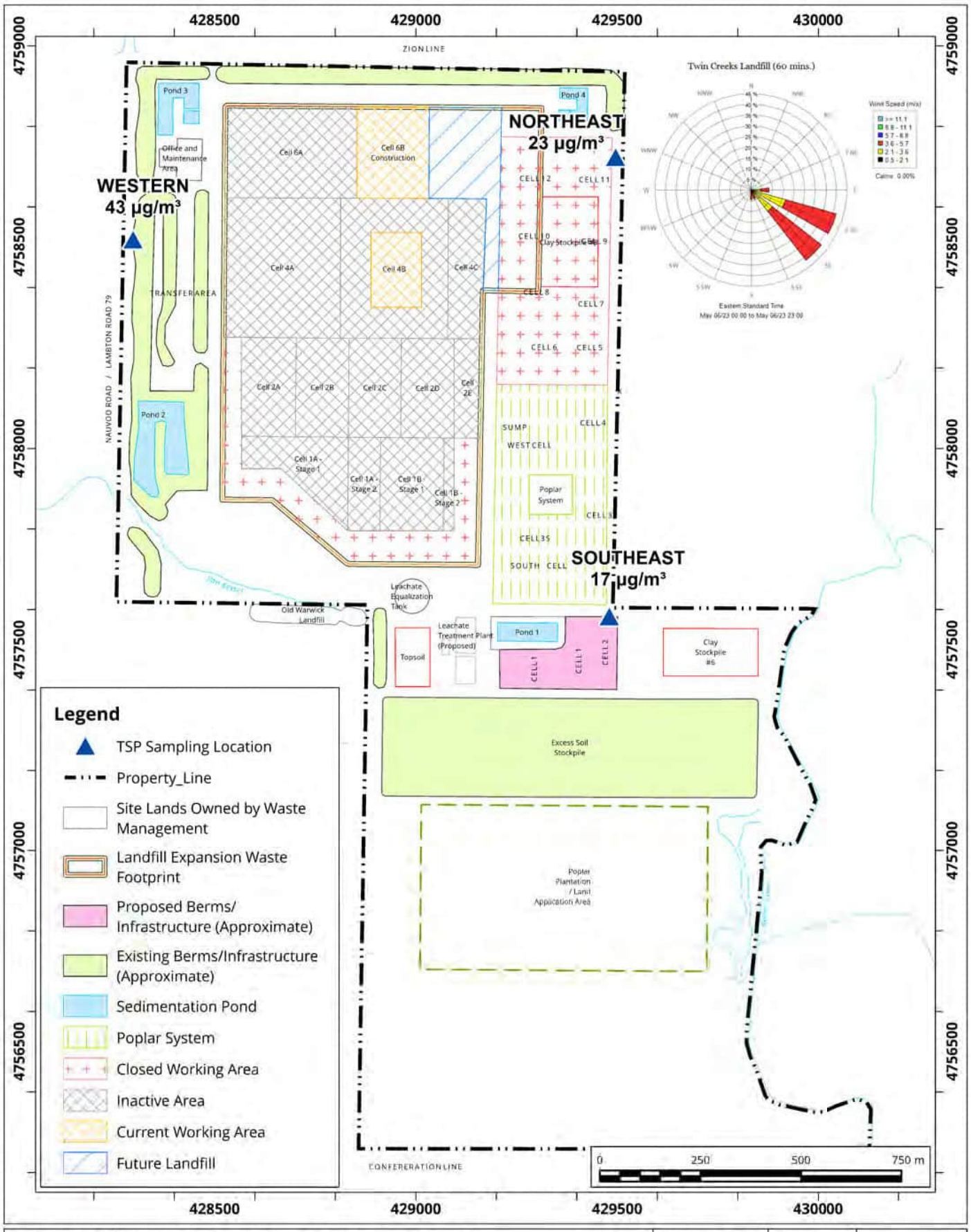

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: May 6, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 5a
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

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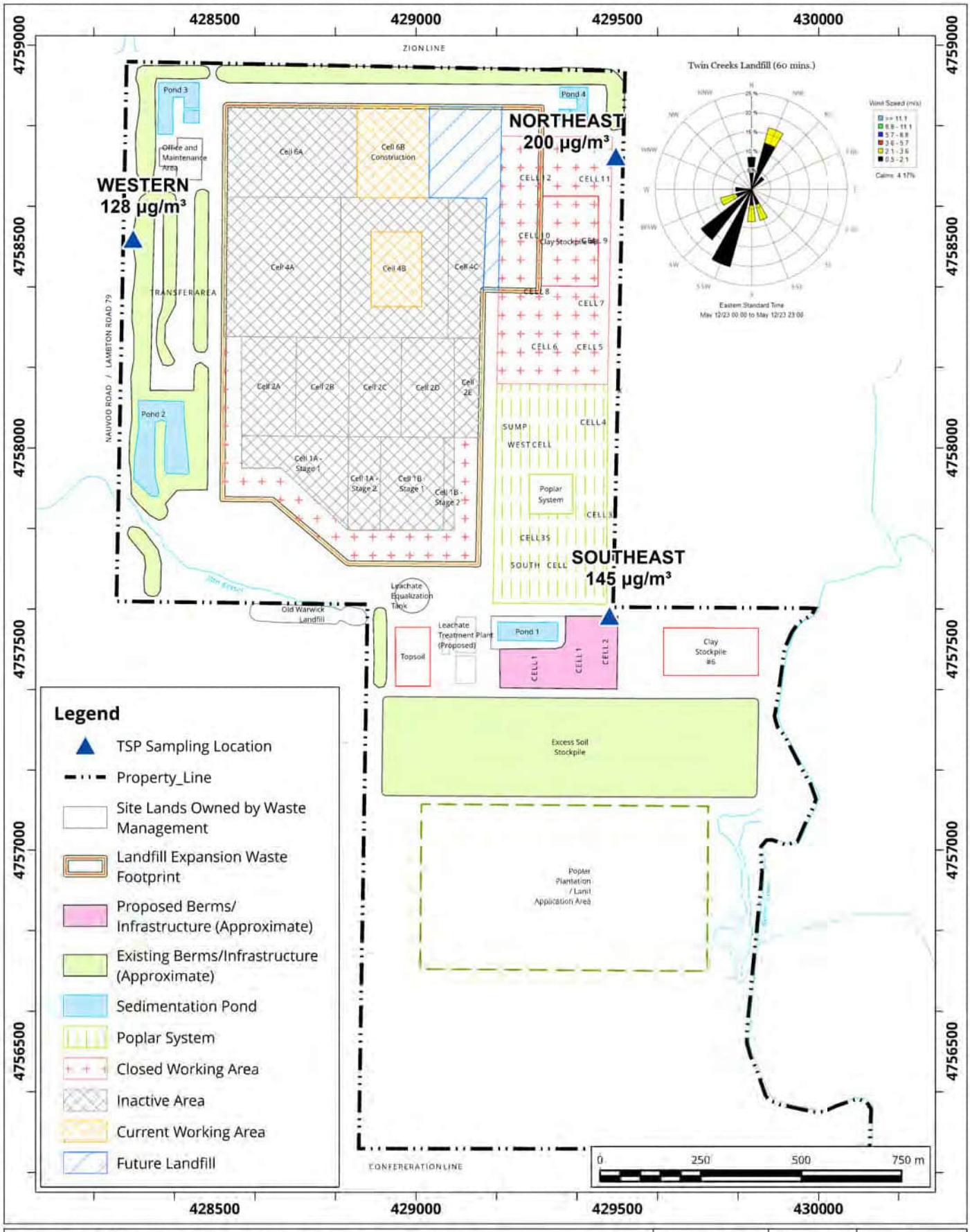

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: May 12, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 5b
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

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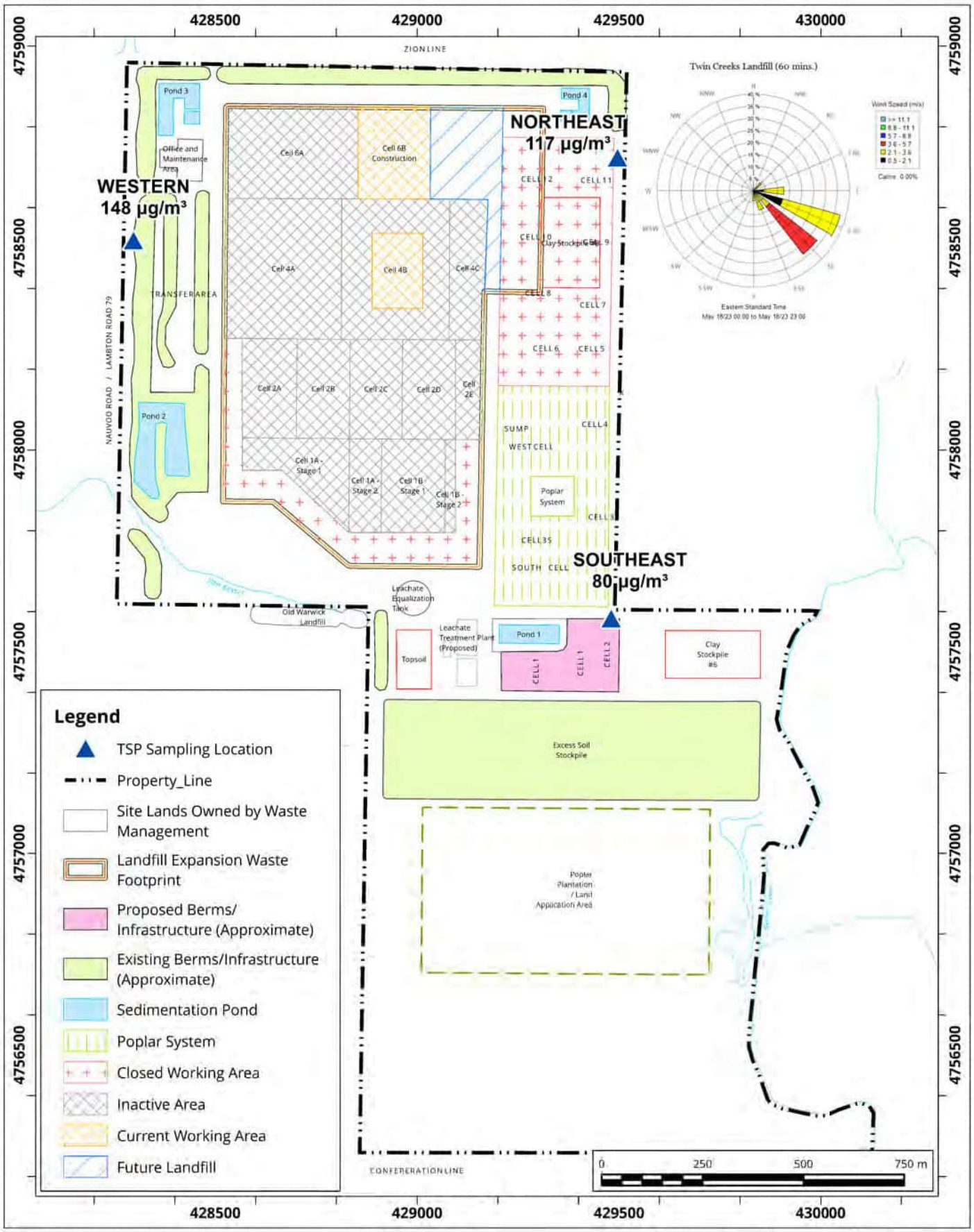

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: May 18, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 5c
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

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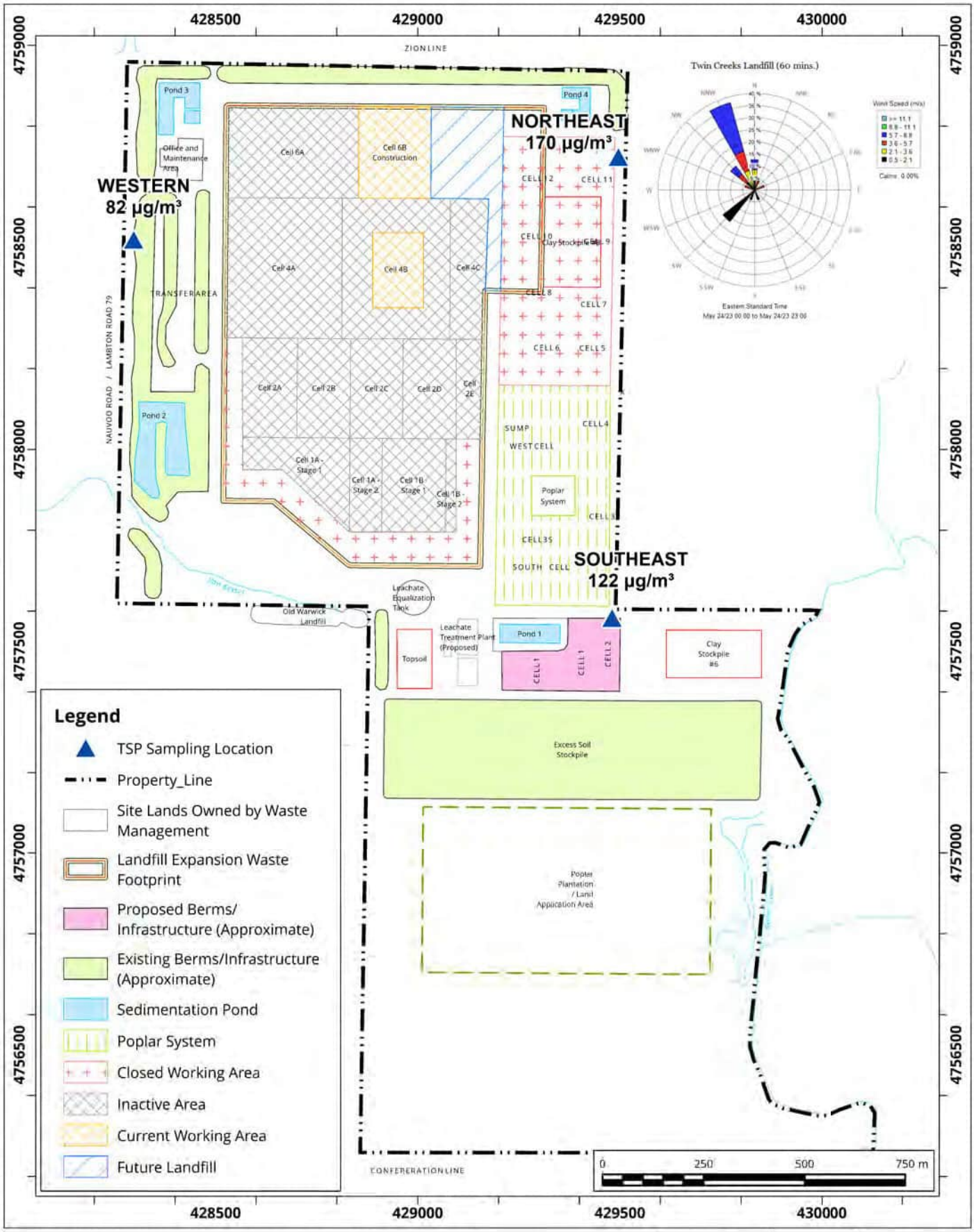

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: May 24, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 5d
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

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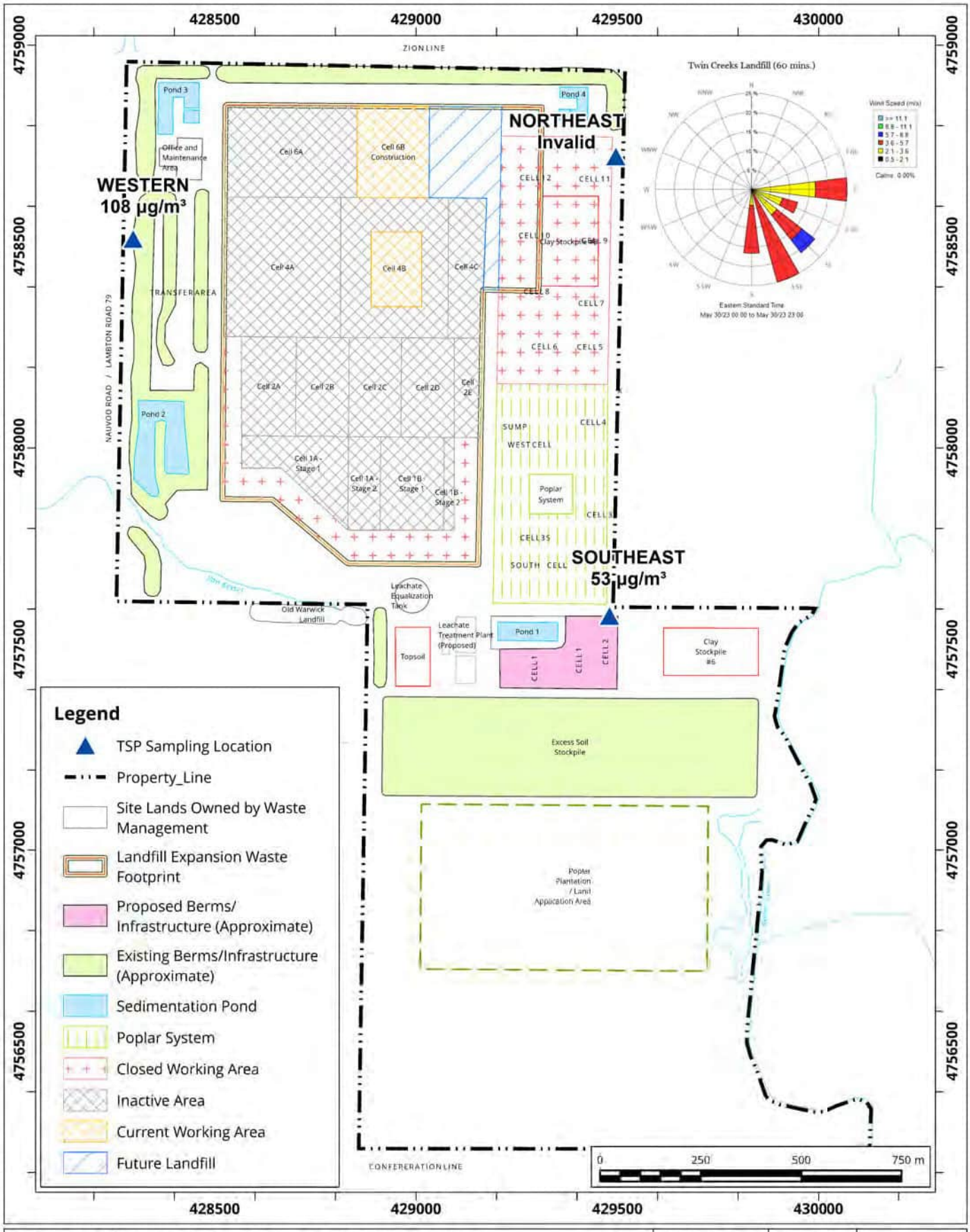

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: May 30, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

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Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

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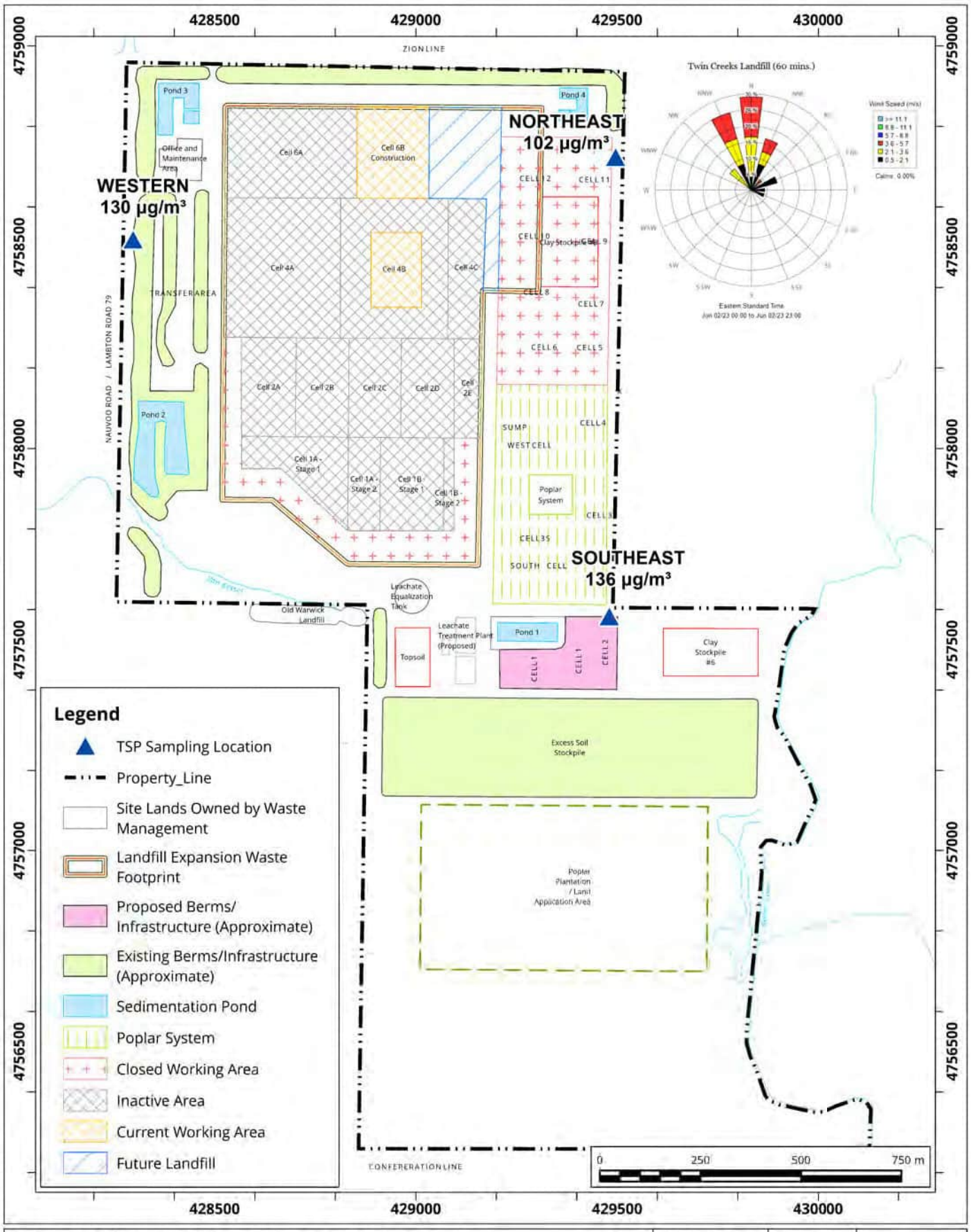

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 2, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 6a
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

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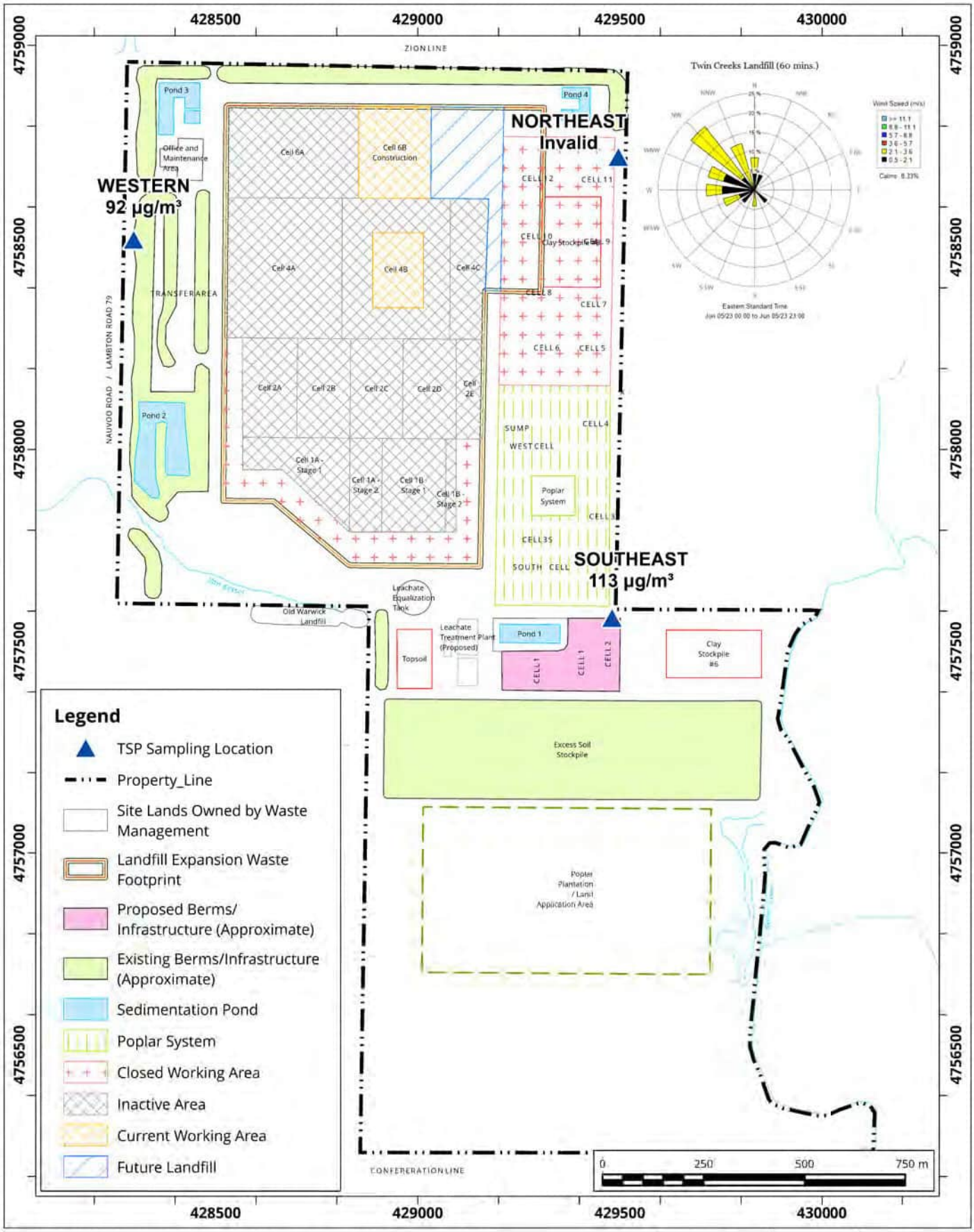

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 5, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 6b
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

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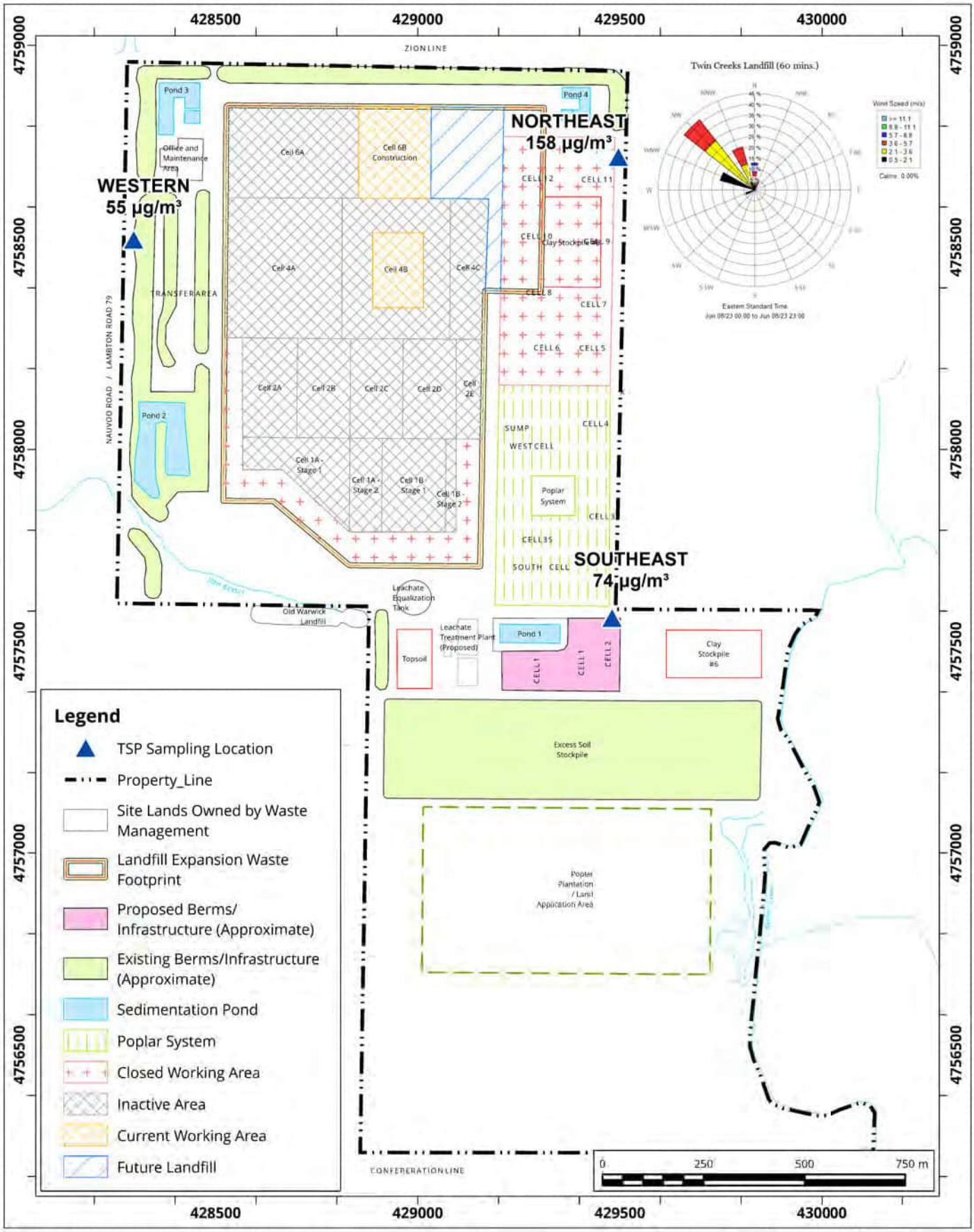

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 8, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 6c
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

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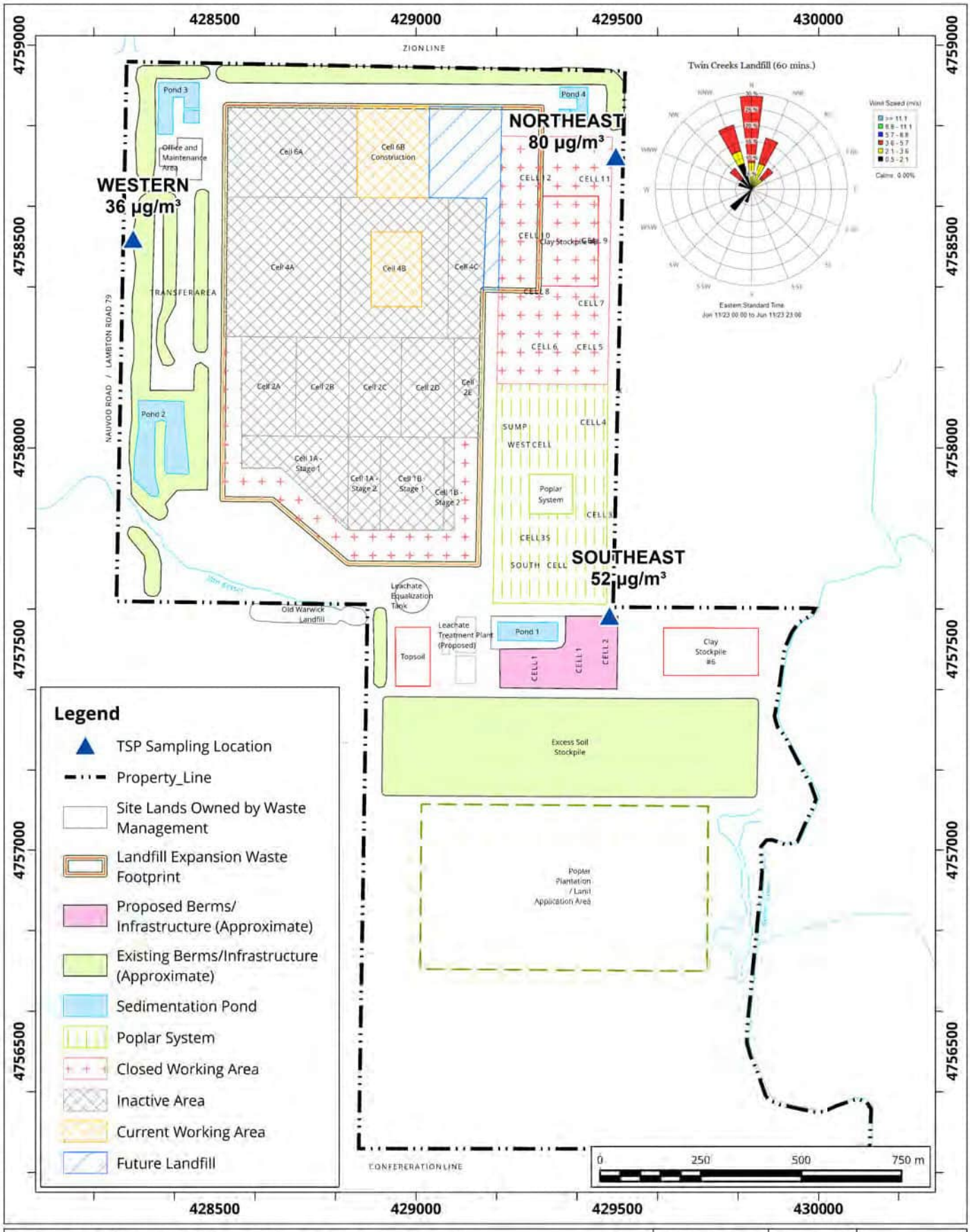

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 11, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 6d
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

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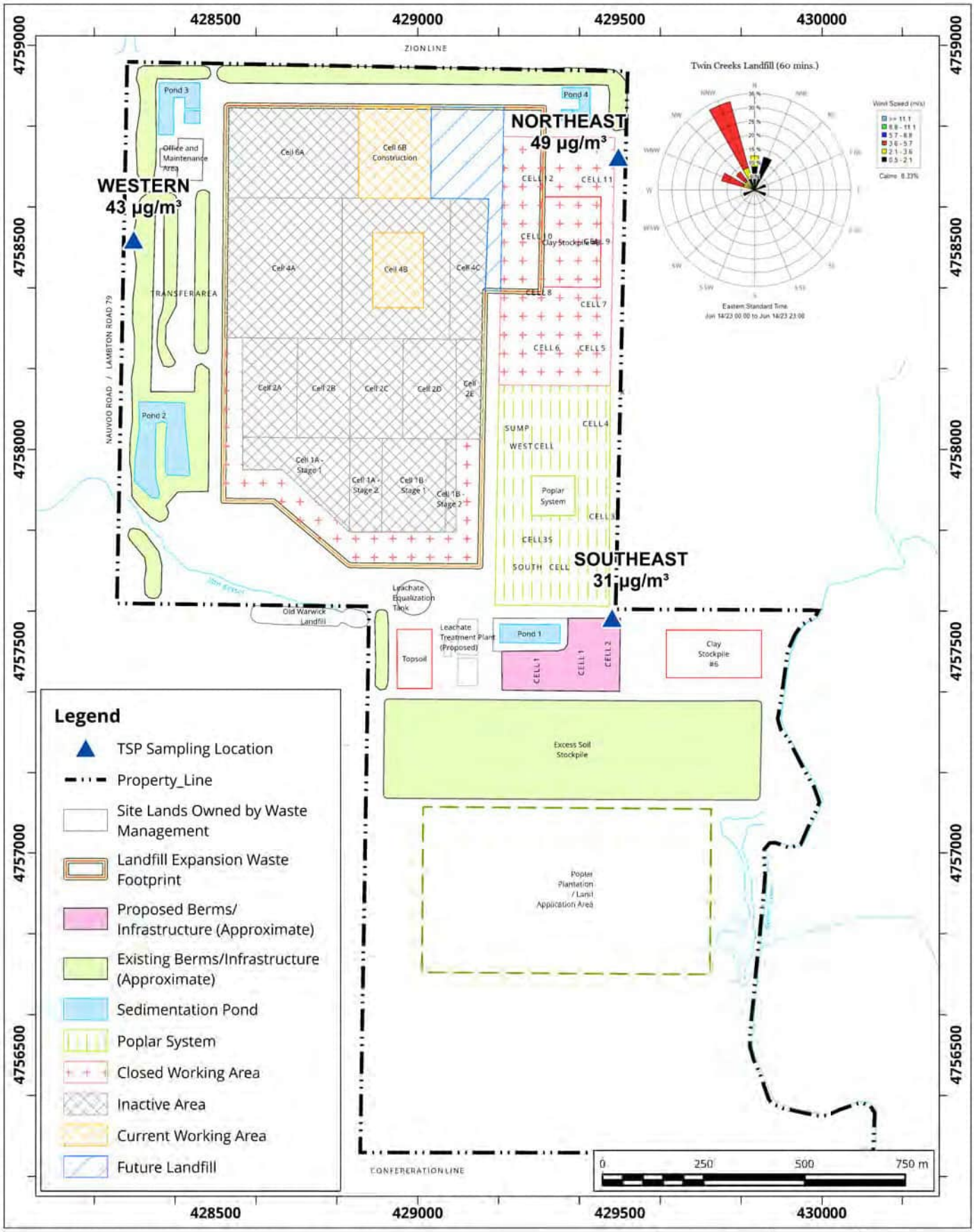


Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 14, 2023

Map Projection: NAD 1983 UTM Zone 17N

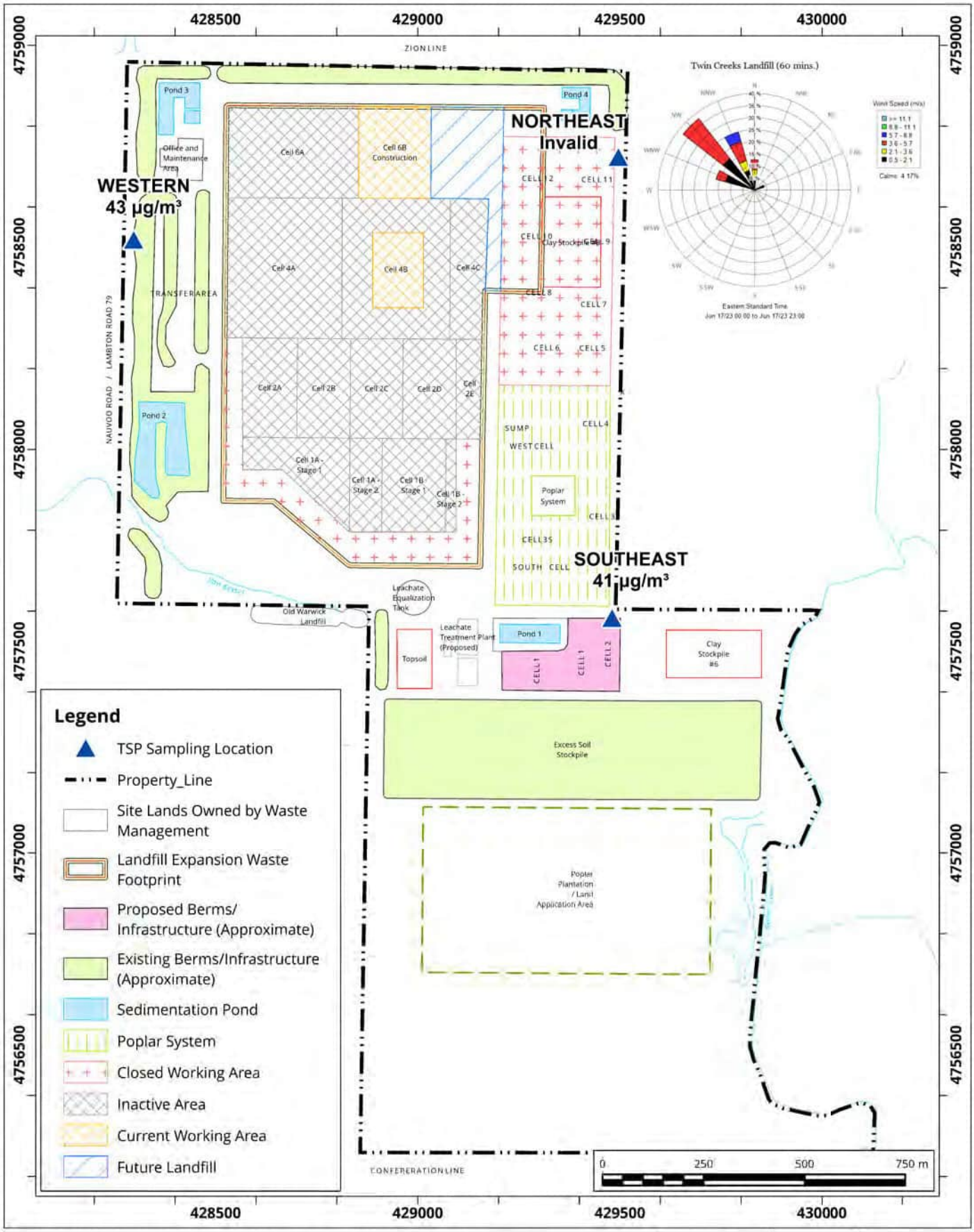
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 6e
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 17, 2023

Map Projection: NAD 1983 UTM Zone 17N

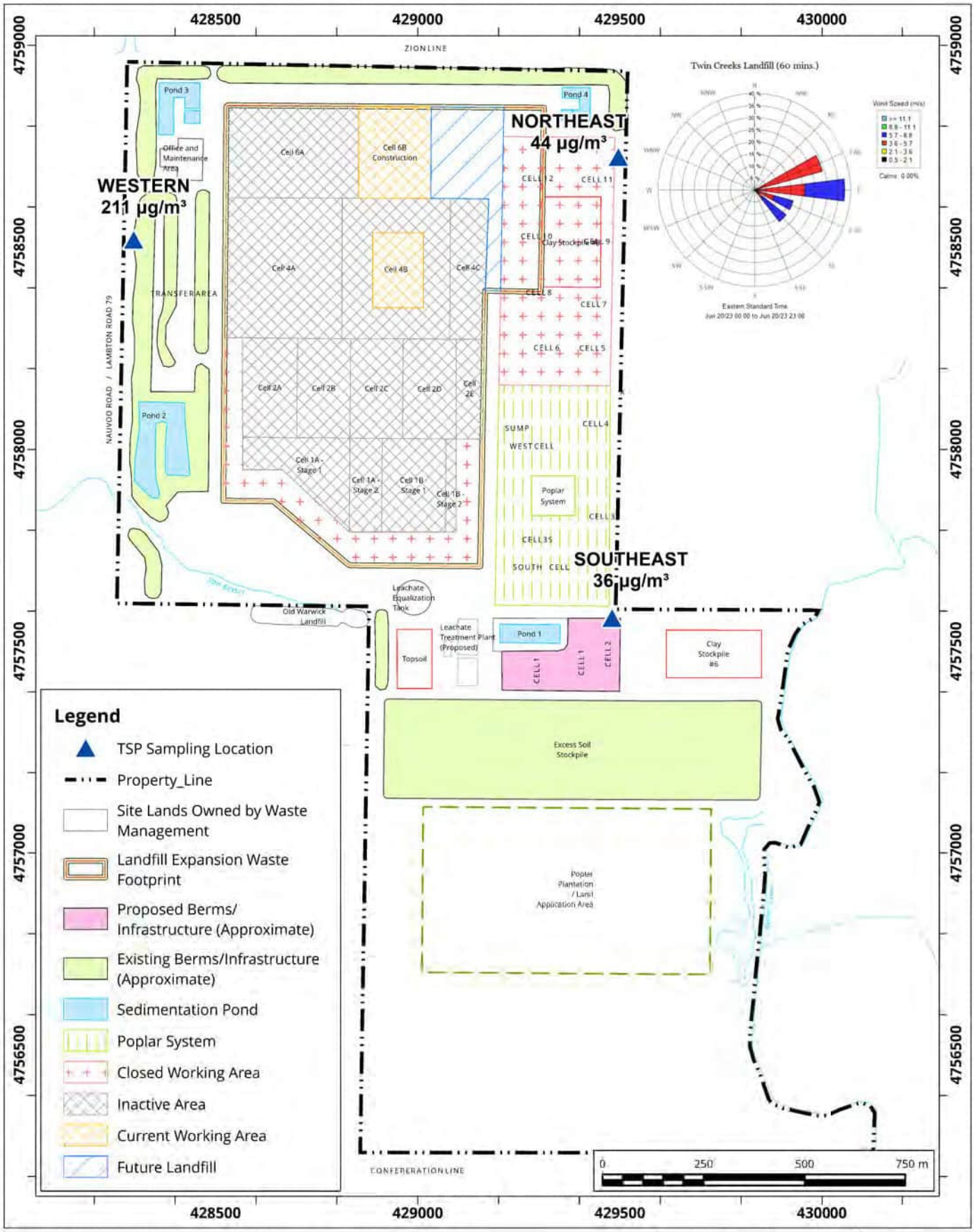
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 6f
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 20, 2023

Map Projection: NAD 1983 UTM Zone 17N

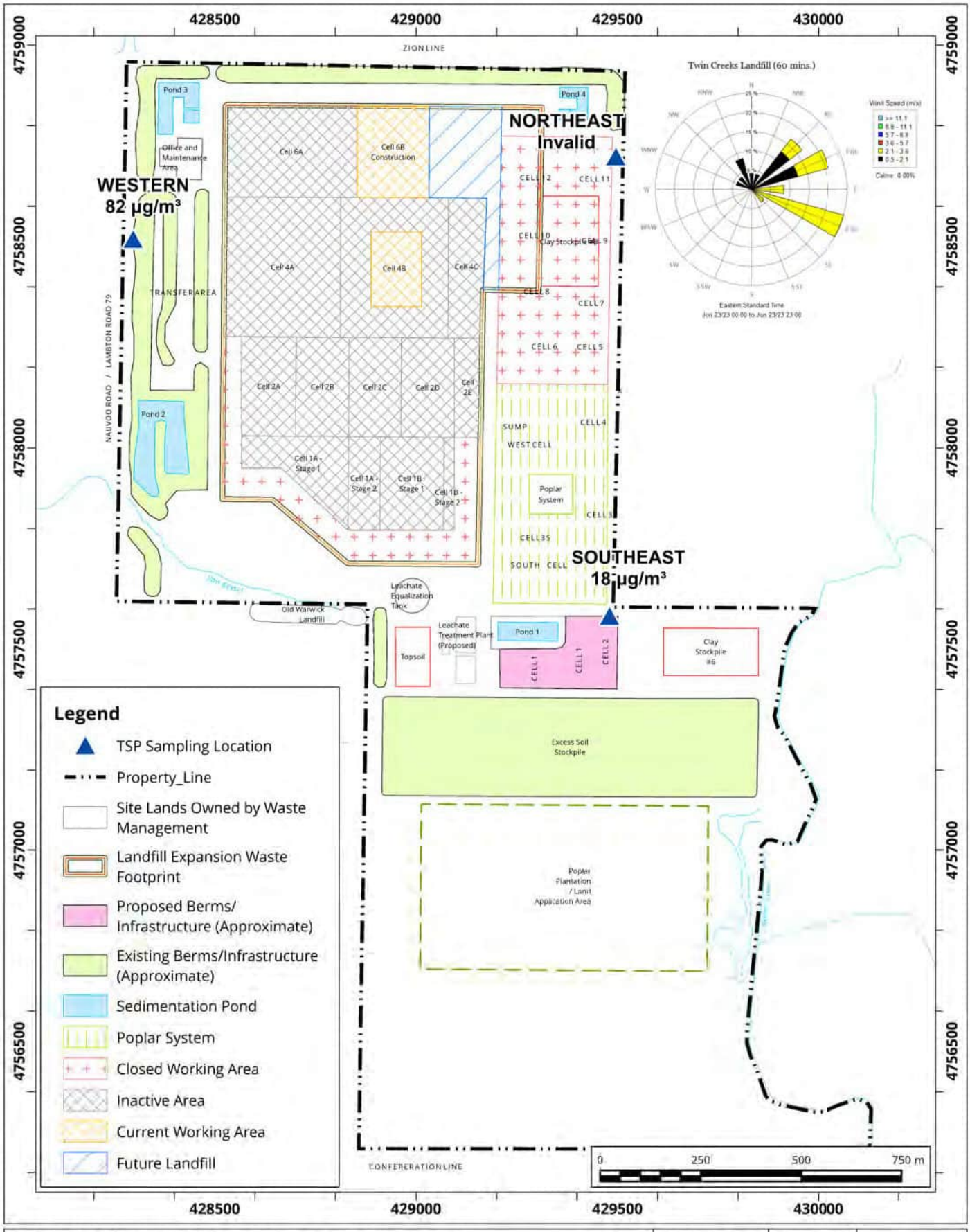
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 6g
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 23, 2023

Map Projection: NAD 1983 UTM Zone 17N

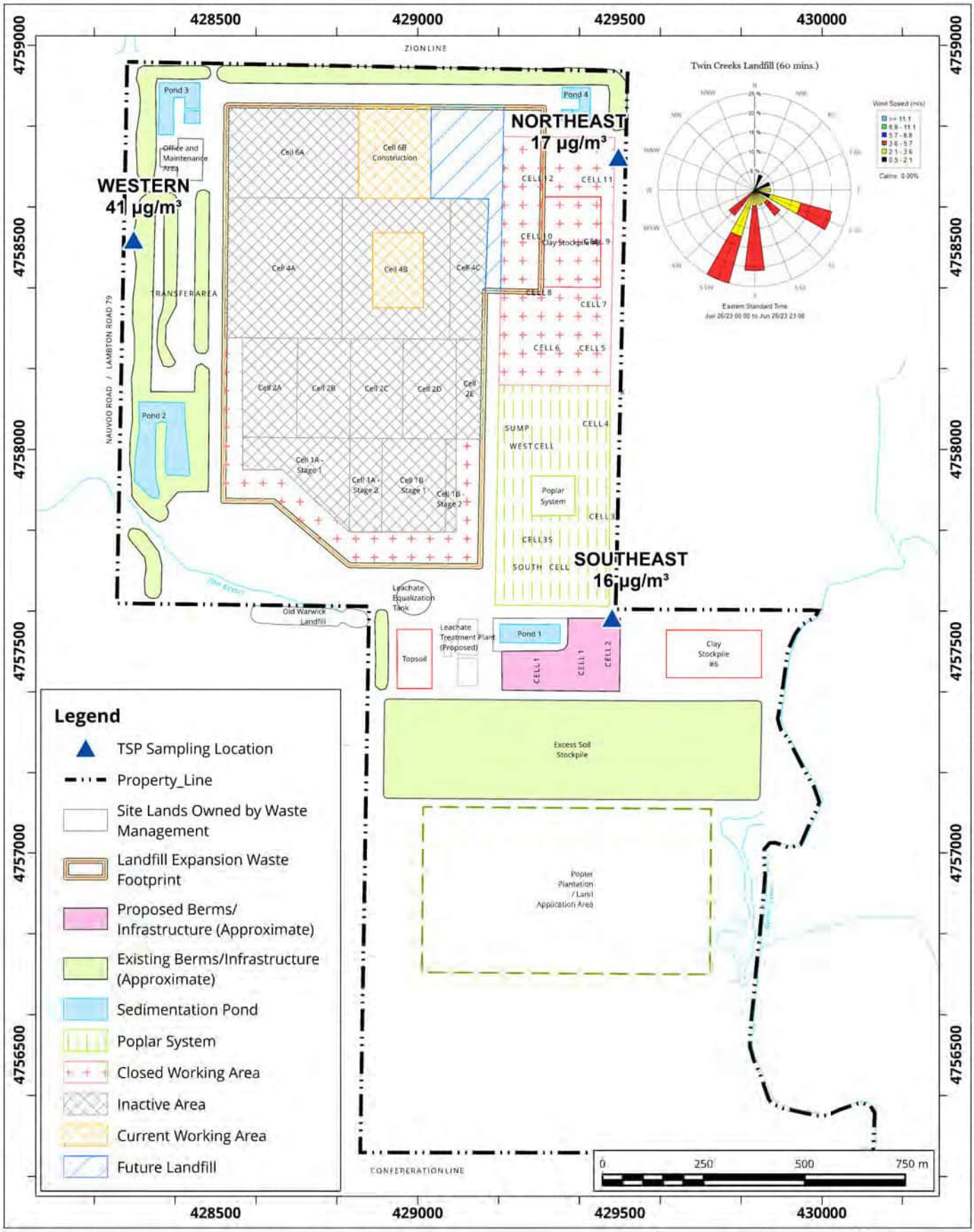
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 6h
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 26, 2023

Map Projection: NAD 1983 UTM Zone 17N

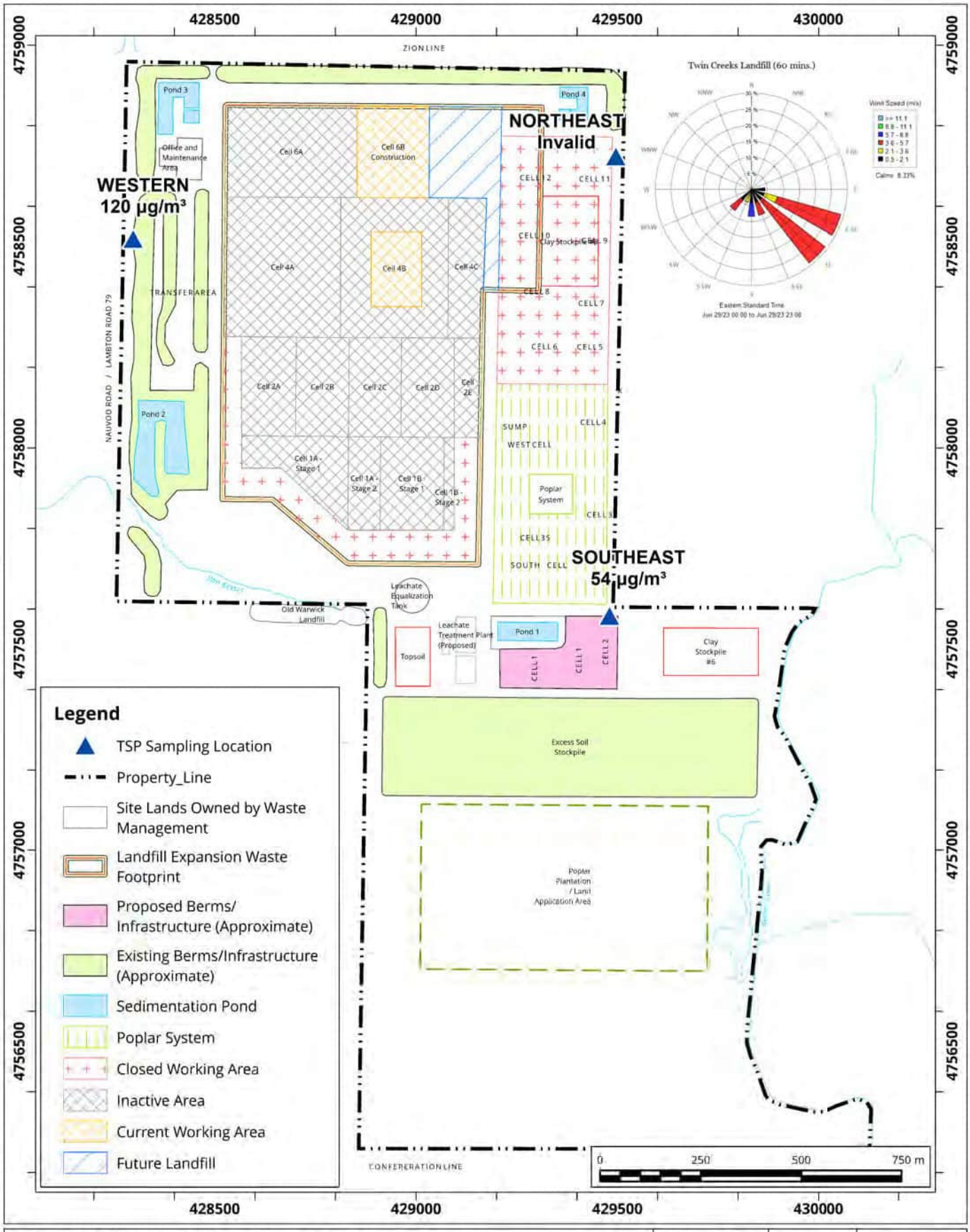
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 6i
Approx. Scale:	1:13,000
Date Revised:	Jul 26, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 29, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 6j	
Approx. Scale:	1:13,000	
Date Revised:	Jul 26, 2023	

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\P2001313_TwinCreeks.aprx

ATTACHMENT A

REPORT

WASTE MANAGEMENT OF CANADA CORPORATION

WATFORD, ONTARIO

TWIN CREEKS LANDFILL SITE: AMBIENT AIR QUALITY MONITORING PLAN [REVISION #3]

RWDI #1600984

May 18, 2017

SUBMITTED TO

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1 TOTAL HYDROCARBON "WALKABOUT" SURVEY

The "Walkabout" survey will consist of a grid survey of the entire landfill mound using a handheld THC analyzer (FID). A portable FID will be used throughout the surveys. The FID will be calibrated using a methane gas standard and zeroed using ultra zero pure air. The instrument used will have the following characteristics:

- a response time of no greater than 15 seconds
- an accuracy of 3 percent or better
- a minimum detectable limit of 5 ppmv (or lower)
- a flame-out indicator, audible and visual

The "Walkabout" survey will be completed in a grid like formation gathering data at 7.6 cm or lower (3 inches or lower) above the ground. "Hotspots" of "breakout points" consisting of cracks, fissures, areas of bubbling surface water, or patches of dead (brunt) vegetation on the mound will be visually observed and notes for THC concentrations exceeding 500 ppm (methane). The "walkabout" surveys should be completed at winds less the 8 kilometers per hour (5 miles per hour) and during dry conditions (no measurable precipitation for the proceeding 72 hours prior to sampling). In addition, for the instantaneous readings, the surveys should be completed when the ambient temperatures are within 0 to 50 degrees Celsius.

THC concentrations 500 ppm or greater should be considered of concern during the instantaneous measurements. Therefore, THC concentrations less than 500 ppm will not be noted during the survey. Locations where the THC concentrations are 500 ppm or greater should assist WMI in determining all potential and existing landfill gas release points that require remedial action.

All THC concentrations measured will be expressed as methane on the calibration standard used. After the 'hotspot" or "breakout points" are fixed, documentation of the corrective actions taken as well as confirmation of adequate actions taken (THC concentrations less than 500 ppm) will be presented to the MOECC. The "walkabout" survey will include the following:

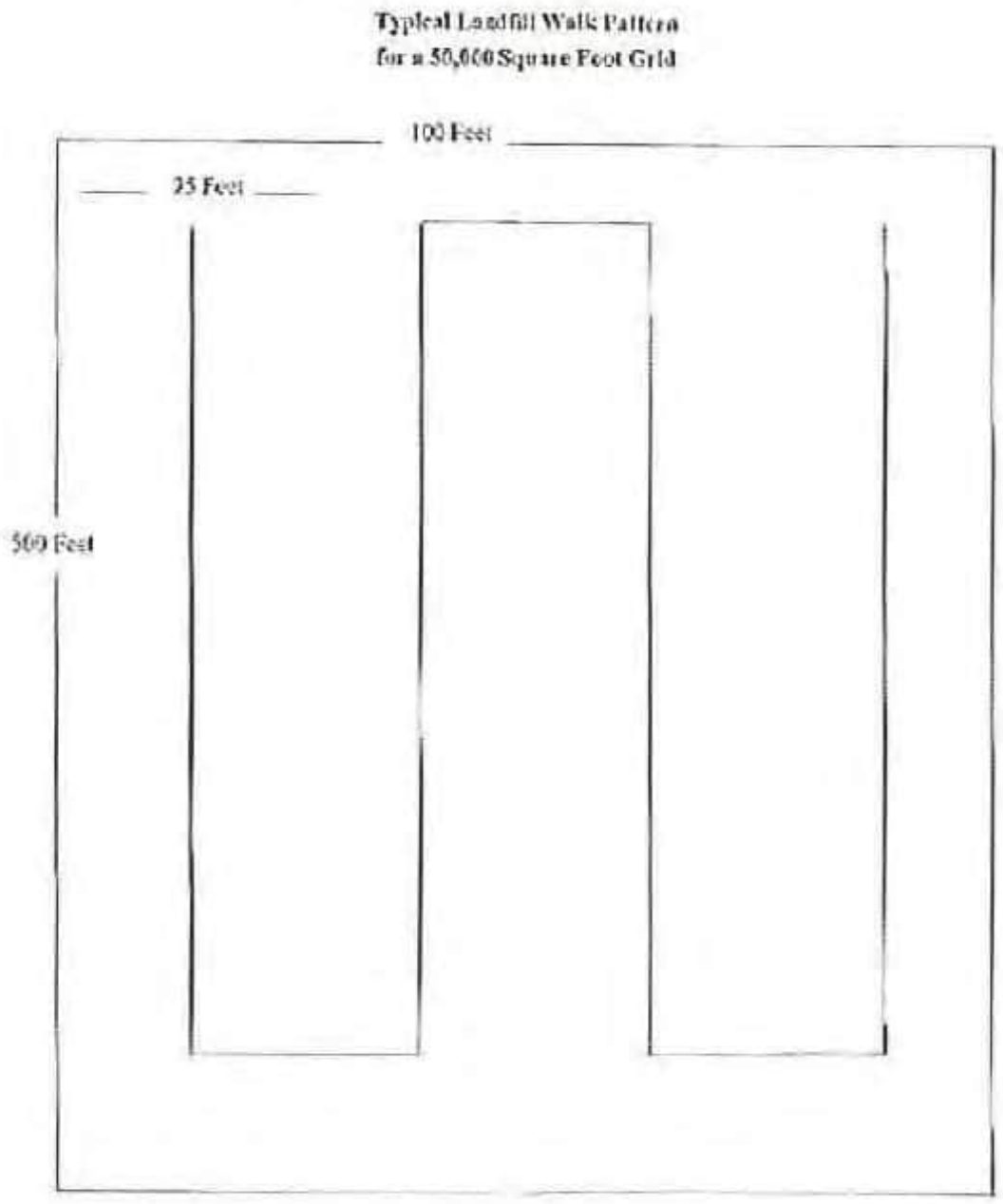
- precise locations of all sampling sites on the site map
- identification of all data obtained in the field measurements
- documentation of all remedial action

The "walkabout" survey should be done in the spring and the early fall. The measured areas should include areas where landfill cover is complete. Problem areas identified should be repaired within two (2) months of identification. Once repairs are completed, a follow-up survey on the specific locations will be completed to validate success of the remediation action(s). The process is important in minimizing odour and VOC emissions.

The "Walkabout" surveys will be performed twice per year or in response to otherwise unexplained odour events. As outlined in the Odour Best Management Practices Plan, routine visual inspections of the landfill cap integrity will also occur on a monthly basis to identify possible problem areas.

Figure 1 includes the walkabout pattern.

Figure 1: Walkabout Pattern



2 DUST MONITORING

The monitoring for Total Suspended Particulate (TSP) will be completed on an on-going basis at three locations around the landfill footprint. The TSP monitor locations are shown in **Figure 2.**

Total Suspended Particulate samples will be taken on a six-day interval during the months of October through May and samples will be taken on a three-day interval during the months of June through September. The sampling will be in concurrence with the U.S EPA National Air Pollutant Surveillance (NAPS) monitoring schedule. The sampling will include the entire year (sampling during 12 months per year). In addition, the analysis for airborne metals will be completed for 11 of the collected TSP samples per station (total of 33 metal samples per year). For each of the 11 sets of samples collected, the particulate analysis will be completed prior to the metal analysis and the highest particulate loaded filters from each station will undergo the analysis for airborne metals.

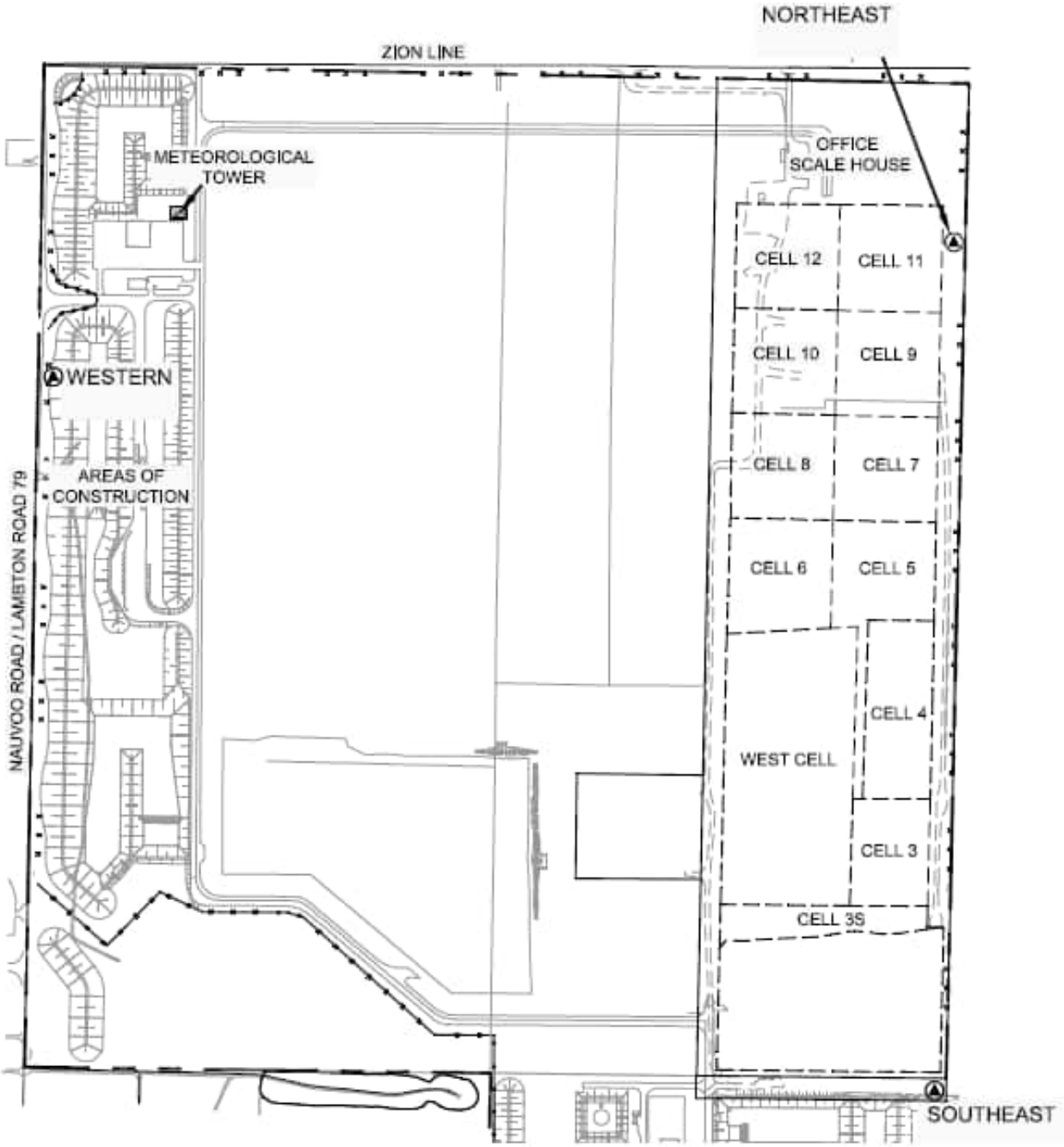
The monitoring method will comply with the metals specified by U.S. EPA Method I0-2. The 24-hour samples would be collected on standard hi-volume air samplers. The station siting requirements and sampling procedures will follow the most recent version of the U.S. EPA methods as well as the Ministry of the Environment's Operations Manual for Point Source Air Quality Monitoring as approved by the MOECC at the on-set on the monitoring. The U.S. EPA methods are referenced in the MOECC document as appropriate reference methods to follow for air quality monitoring programs.

The results will be presented in quarterly summary letters and an annual report. The report will include the data in tabular format with a description of the program, quality assurance documentation, details regarding data recovery, abnormal site conditions, etc. As well, any days when the ambient air quality criterion for TSP was exceeded would be reported to the District MOECC office within two (2) weeks of receiving results. In order to enhance the notification of elevated TSP Levels, WM will copy the Township of Warwick on any future elevated TSP level reporting provided to the MOECC.

As part of the dust control strategy, the shift supervisor will be responsible to see that a record of roadway sweeping and watering is maintained. The control measure will be initiated whenever a visible plume behind vehicles is longer than ¼ the length of the vehicle. These logs will be kept on-site for a period of not less than two (2) years and will be made available for inspection should the MOECC wish to see them.

When the facility receives a complaint, the shift supervisor will see that the relevant information is recorded, including any remedial action taken as a result of the complaint. A sample complaint log sheet is included in the Best Management Practices Plan (Dust).

Figure 2: Dust Monitor Locations



2.1 Additional Dust Monitoring Provisions

As discussed with stakeholders during the consultation for the annual fill rate increase for the site, the following provisions were made for additional monitoring to be completed under specific conditions. The following notes the agreed to provisions for the additional monitoring. This provision will also be included in the Dust Best Management Practices Plan (BMPP). In the event that the provisions are triggered, WM will prepare an updated Air Quality Monitoring Plan to layout the specific agreed to monitoring at the time the additional monitoring provision is required.

As agreed to with stakeholders, in the event that 2 measured exceedances (trigger), that can be attributed to WM operations, in any quarter (excluding periods when on-site cell construction is occurring) occurs, WM is committing to reviewing the data with the Township of Warwick. Upon confirmation that the exceedances can be attributed to WM operations, and are not related to cell construction, WM will complete the installation of continuous dust monitors.

If continuous dust monitors are to be installed, WM will work with the Township of Warwick to update the following documents:

- Air Quality Monitoring Plan – updated for equipment change as well as trigger for shorter duration alerts to be issued to WM as warnings for higher dust levels; and

- Best Management Practices Plan (Dust) – to be updated to link dust alerts to dust control initiatives.

3 VOC MONITORING

It is proposed that monitoring for VOC's be conducted through the summer months, with samples to be taken in upwind and downwind pairs, during normal operating hours of the landfill. There would be a total of 5 sample pairs taken between June and September. No more than two (2) samples will be collected in any calendar month. The samples will be 24-hours in duration and compared to their respective Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List.

The samples will be collected and analyzed using methods defined in U.S. EPA Method TO-14/15. Vinyl chloride is of particular concern with these types of samples and vinyl chloride will be analyzed in selective ion mode (SIM). Sampling for VOC samples will be collected during periods of light wind conditions (less than 15 kilometers per hour) and during dry conditions (no measureable precipitation for the proceeding 48 hours prior to sampling).The list of VOC's monitored is presented in Table 1.

Table 1: List of Monitored VOCs

CAS No.	Compound	CAS No.	Compound
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	620-14-4/622-96-8	m/p-Ethyl Toluene
526-73-8	1,2,3-Trimethyl Benzene	108-38-3/106-42-3	m/p-Xylene
95-63-6	1,2,4 -Trimethyl Benzene	535-77-3	m-Cymene
108-67-8	1,3,5 -Trimethyl Benzene	78-93-3	MEK
591-76-4	2-Methyl Hexane	108-87-2	Methyl Cyclohexane
107-83-5	2-Methyl Pentane	108-10-1	MIBK
78-78-4	2-Methyl Butane	75-45-6	Chlorodifluoromethane
96-14-0	3-Methyl Pentane	123-72-8	n-Butanol
589-34-4	3-Methyl Hexane	91-20-3	Naphthalene
67-64-1	Acetone	111-84-2	Nonane
71-43-2	Benzene	611-14-3	o-Ethyl Toluene
123-86-4	Butyl Acetate	95-47-6	o-Xylene
124-18-5	Decane	109-66-0	Pentane
25915-78-0	Dichlorodifluoromethane	64-17-5	Ethanol
75-09-2	Dichloromethane	103-65-1	Propyl Benzene
100-41-4	Ethyl Benzene	100-42-5	Styrene
142-82-5	Heptane	127-18-4	Tetrachloroethylene
110-54-3	Hexane	108-88-3	Toluene
67-63-0	Isopropyl Alcohol	75-69-4	Trichlorofluoromethane
138-86-3	Limonene	79-01-6	Trichloroethylene
75-01-4	Vinyl Chloride	141-78-6	Ethyl Acetate
56-23-5	Carbon Tetrachloride	71-55-6	1,1,1-Trichloroethane
67-66-3	Chloroform	75-35-4	Vinylidene Chloride
106-93-4	Ethylene Dibromide	540-59-0	1,2-Dichloroethene
107-6-2	Ethylene Dichloride	Na	Total VOCs

As the MOECC updates Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List in the Province of Ontario, the measured values will be compared to the most stringent limits available at the time of testing. For compounds that do not have Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List, the measured values will be compared to the predicated concentrations provided and approved by the MOECC for the Section 9 EPA approval supporting documentation to demonstrate compliance. As all compounds identified without Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List are subject to review by the MOECC's Standard Development Branch, these levels should be considered acceptable.

4 COMPLAINT RECORDING PROCESS

Waste Management of Canada has outlined Best Practices Plans of Odour, Litter and Dust. Within each plan the procedures for outlining the responsibilities and recordkeeping. For further details, please refer to the most recent versions of the Best Management Practices Plan. [1,2,3]. Please note that like this air quality monitoring plan, the Best Management Plans are intended to be updates to endure continuous improvements are being documented at the site.

5 REFERENCES

1. RWDI AIR Inc. Best Management Practices Plan (Odour), Twin Creeks Landfill Site, Watford, ON – Revision 7, dated May 18, 2017.

2. RWDI AIR Inc. Best Management Practices Plan (Dust), Twin Creeks Landfill Site, Watford, ON – Revision 5, dated May 18, 2017.

3. RWDI AIR Inc. Best Management Practices Plan (Litter), Twin Creeks Landfill Site, Watford, ON – Revision 4, dated December 11, 2007.

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ATTACHMENT B

Table 1: Summary of Total Suspended Particulate Results **April 6, 2023**

Compounds	CAS No.	6-Apr-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23013145	Filter ID:	23013146	Filter ID:	23013144				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		ND	ND	Sample 4 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19			ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12			ND	ND			ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14			ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18			103	0.062			0.062	50	Schedule 3	0.12%
Total Iron (Fe)	7439-89-16			514	0.310			0.310	N/A	N/A	-
Total Lead (Pb)	7439-92-11			ND	ND			ND	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15			14.3	0.009			0.009	2.5	Guideline	0.34%
Total Nickel (Ni)	7440-02-10			ND	ND			ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12			ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12			ND	ND			ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16			33.8	0.020			0.020	120	Schedule 3	0.02%
Total Particulate	-	25500	16	37100	22	33200	21	22	120	Schedule 3	19%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Downwind		Upwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1597		1658		1608					
Sample Flow Rate (m^3/min)		1.11		1.15		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 2: Summary of Total Suspended Particulate Results **April 12, 2023**

Compounds	CAS No.	12-Apr-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23013156	Filter ID:	23013155	Filter ID:	23013154				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	ND	ND	ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND	ND	ND	ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND	11.2	0.007	ND	ND	0.007	1.5	Guideline	0.47%
Total Cobalt (Co)	7440-48-14	ND	ND	2.3	0.001	ND	ND	0.001	0.1	Guideline	1.45%
Total Copper (Cu)	7440-50-18	40.8	0.025	232	0.147	15	0.010	0.147	50	Schedule 3	0.29%
Total Iron (Fe)	7439-89-16	1300	0.804	5310	3.359	1060	0.674	3.359	N/A	N/A	-
Total Lead (Pb)	7439-92-11	5.6	0.003	44.1	0.028	4.6	0.003	0.028	0.5	Schedule 3	5.58%
Total Manganese (Mn)	7439-96-15	48.6	0.030	128	0.081	39	0.025	0.081	2.5	Guideline	3.24%
Total Nickel (Ni)	7440-02-10	ND	ND	9.3	0.006	ND	ND	0.006	2	Schedule 3	0.29%
Total Selenium (Se)	7782-49-12	ND	ND	ND	ND	ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND	5.4	0.003	ND	ND	0.003	2	Schedule 3	0.17%
Total Zinc (Zn)	7440-66-16	48.7	0.030	460	0.291	46	0.029	0.291	120	Schedule 3	0.24%
Total Particulate	-	97800	61	318000	201	77300	49	201	120	Schedule 3	168%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Downwind		Upwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1616		1581		1572					
Sample Flow Rate (m^3/min)		1.12		1.10		1.09					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 3: Summary of Total Suspended Particulate Results **April 18, 2023**

Compounds	CAS No.	18-Apr-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23013191	Filter ID:	23013192	Filter ID:	23013193				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	49900	32	68600	43	24600	15	43	120	Schedule 3	36%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Downwind		Upwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1584		1599		1598					
Sample Flow Rate (m^3/min)		1.10		1.11		1.11					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 4: Summary of Total Suspended Particulate Results **April 24, 2023**

Compounds	CAS No.	24-Apr-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23013194	Filter ID:	23013196	Filter ID:	23013195				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	42300	27	38900	25	44200	28	28	120	Schedule 3	23%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1571		1566		1581					
Sample Flow Rate (m^3/min)		1.09		1.09		1.10					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 5: Summary of Total Suspended Particulate Results **April 30, 2023**

Compounds	CAS No.	30-Apr-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23021311	Filter ID:	23021312	Filter ID:	23021313				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	27100	17	25000	16	46300	29	29	120	Schedule 3	24%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1615		1607		1617					
Sample Flow Rate (m^3/min)		1.12		1.12		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 6: Summary of Total Suspended Particulate Results **May 6, 2023**

Compounds	CAS No.	6-May-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23041326	Filter ID:	23041325	Filter ID:	23041327				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	27600	17	36100	23	66600	43	43	120	Schedule 3	36%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1584		1570		1547					
Sample Flow Rate (m^3/min)		1.10		1.09		1.07					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 7: Summary of Total Suspended Particulate Results **May 12, 2023**

Compounds	CAS No.	12-May-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23041336	Filter ID:	23041338	Filter ID:	23041337				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	ND	ND	Sample 2 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND	ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	6.7	0.004	10.6	0.007			0.007	1.5	Guideline	0.45%
Total Cobalt (Co)	7440-48-14	ND	ND	2.3	0.001			0.001	0.1	Guideline	1.46%
Total Copper (Cu)	7440-50-18	166	0.105	177	0.112			0.112	50	Schedule 3	0.22%
Total Iron (Fe)	7439-89-16	5000	3.163	6620	4.198			4.198	N/A	N/A	-
Total Lead (Pb)	7439-92-11	16.6	0.010	23.4	0.015			0.015	0.5	Schedule 3	2.97%
Total Manganese (Mn)	7439-96-15	98.5	0.062	126	0.080			0.080	2.5	Guideline	3.20%
Total Nickel (Ni)	7440-02-10	7.2	0.005	10.2	0.006			0.006	2	Schedule 3	0.32%
Total Selenium (Se)	7782-49-12	ND	ND	ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	6.2	0.004	7.6	0.005			0.005	2	Schedule 3	0.24%
Total Zinc (Zn)	7440-66-16	148	0.094	216	0.137			0.137	120	Schedule 3	0.11%
Total Particulate	-	230000	145	316000	200	203000	128	200	120	Schedule 3	167%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1581		1577		1582					
Sample Flow Rate (m^3/min)		1.10		1.10		1.10					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 8: Summary of Total Suspended Particulate Results **May 18, 2023**

Compounds	CAS No.	18-May-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23041346	Filter ID:	23041347	Filter ID:	23041345				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19					ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12					ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14					2.1	0.001	0.001	0.1	Guideline	1.36%
Total Copper (Cu)	7440-50-18					69.7	0.045	0.045	50	Schedule 3	0.09%
Total Iron (Fe)	7439-89-16					4190	2.708	2.708	N/A	N/A	-
Total Lead (Pb)	7439-92-11					7.7	0.005	0.005	0.5	Schedule 3	1.00%
Total Manganese (Mn)	7439-96-15					105	0.068	0.068	2.5	Guideline	2.71%
Total Nickel (Ni)	7440-02-10					6.2	0.004	0.004	2	Schedule 3	0.20%
Total Selenium (Se)	7782-49-12					ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12					5.5	0.004	0.004	2	Schedule 3	0.18%
Total Zinc (Zn)	7440-66-16					62.5	0.040	0.040	120	Schedule 3	0.03%
Total Particulate	-	124000	80	184000	117	229000	148	148	120	Schedule 3	123%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1552		1578		1547					
Sample Flow Rate (m^3/min)		1.08		1.10		1.07					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 9: Summary of Total Suspended Particulate Results **May 24, 2023**

Compounds	CAS No.	24-May-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23041094	Filter ID:	23041096	Filter ID:	23041095				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	189000	122	266000	170	129000	82	170	120	Schedule 3	142%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1553		1566		1578					
Sample Flow Rate (m^3/min)		1.08		1.09		1.10					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 10: Summary of Total Suspended Particulate Results **May 30, 2023**

Compounds	CAS No.	30-May-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23041309	Filter ID:	23041310	Filter ID:	23041311				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		Invalid Sample		Sample 1 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	84700	53	-	-	168000	108	108	120	Schedule 3	90%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		-		1440					
Sample Volume (m^3) [1]		1585		-		1554					
Sample Flow Rate (m^3/min)		1.10		-		1.08					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 11: Summary of Total Suspended Particulate Results **June 2, 2023**

Compounds	CAS No.	2-Jun-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23041300	Filter ID:	23041098	Filter ID:	23041097				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	Sample 2 of 4 No Metals Analysis		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND			ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND			ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND			ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	98.2	0.061			60.5	0.037	0.06	50	Schedule 3	0.12%
Total Iron (Fe)	7439-89-16	3620	2.235			3580	2.182	2.23	N/A	N/A	-
Total Lead (Pb)	7439-92-11	5.2	0.003			12.2	0.007	0.007	0.5	Schedule 3	1.49%
Total Manganese (Mn)	7439-96-15	86.9	0.054			96.5	0.059	0.06	2.5	Guideline	2.35%
Total Nickel (Ni)	7440-02-10	6.8	0.004			6.7	0.004	0.00	2	Schedule 3	0.21%
Total Selenium (Se)	7782-49-12	ND	ND			ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND			ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	35.1	0.022			127	0.077	0.08	120	Schedule 3	0.06%
Total Particulate	-	221000	136	164000	102	213000	130	136	120	Schedule 3	114%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1620		1607		1641					
Sample Flow Rate (m^3/min)		1.13		1.12		1.14					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 12: Summary of Total Suspended Particulate Results **June 5, 2023**

Compounds	CAS No.	5-Jun-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23041071	Filter ID:	23041070	Filter ID:	23041059				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		Invalid Sample		Sample 3 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	187000	113	-	-	143000	92	113	120	Schedule 3	94%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		-		1440					
Sample Volume (m^3) [1]		1657		-		1560					
Sample Flow Rate (m^3/min)		1.15		-		1.08					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 13: Summary of Total Suspended Particulate Results **June 8, 2023**

Compounds	CAS No.	8-Jun-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23041067	Filter ID:	23041066	Filter ID:	23041062				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		ND	ND	Sample 4 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19			ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12			ND	ND			ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14			ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18			138	0.086			0.09	50	Schedule 3	0.17%
Total Iron (Fe)	7439-89-16			2440	1.525			1.53	N/A	N/A	-
Total Lead (Pb)	7439-92-11			3.7	0.002			0.002	0.5	Schedule 3	0.46%
Total Manganese (Mn)	7439-96-15			91.1	0.057			0.06	2.5	Guideline	2.28%
Total Nickel (Ni)	7440-02-10			5.6	0.004			0.00	2	Schedule 3	0.18%
Total Selenium (Se)	7782-49-12			ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12			ND	ND			ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16			28.5	0.018			0.02	120	Schedule 3	0.01%
Total Particulate	-	119000	74	253000	158	87100	55	158	120	Schedule 3	132%
Upwind or Downwind Position (based on actual meteorological data)		Downwind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1602		1600		1588					
Sample Flow Rate (m^3/min)		1.11		1.11		1.10					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 14: Summary of Total Suspended Particulate Results **June 11, 2023**

Compounds	CAS No.	11-Jun-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23041074	Filter ID:	23041072	Filter ID:	23041073				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	ND	ND	Sample 1 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND	ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND	ND	ND			ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND	ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	111	0.067	78.6	0.053			0.07	50	Schedule 3	0.13%
Total Iron (Fe)	7439-89-16	1020	0.612	918	0.614			0.61	N/A	N/A	-
Total Lead (Pb)	7439-92-11	6.1	0.004	ND	ND			0.004	0.5	Schedule 3	0.73%
Total Manganese (Mn)	7439-96-15	27.2	0.016	33.9	0.023			0.02	2.5	Guideline	0.91%
Total Nickel (Ni)	7440-02-10	ND	ND	ND	ND			ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12	ND	ND	ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND	ND	ND			ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	49.8	0.030	23.6	0.016			0.03	120	Schedule 3	0.02%
Total Particulate	-	87000	52	119000	80	59000	36	80	120	Schedule 3	66%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1667		1496		1620					
Sample Flow Rate (m^3/min)		1.16		1.04		1.13					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 15: Summary of Total Suspended Particulate Results **June 14, 2023**

Compounds	CAS No.	14-Jun-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23051284	Filter ID:	23051283	Filter ID:	23051285				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	48900	31	78200	49	67300	43	49	120	Schedule 3	41%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1568		1580		1567					
Sample Flow Rate (m^3/min)		1.09		1.10		1.09					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 16: Summary of Total Suspended Particulate Results **June 17, 2023**

Compounds	CAS No.	17-Jun-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23051292	Filter ID:	23051294	Filter ID:	23051293				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		Invalid Smaple		Sample 3 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	67400	41	-	-	65700	43	43	120	Schedule 3	36%
Upwind or Downwind Position (based on actual meteorological data)		Downwind		Crosswind		Crosswind					
Sample Duration (min)		1440		-		1438					
Sample Volume (m^3) [1]		1656		-		1528					
Sample Flow Rate (m^3/min)		1.15		-		1.06					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 17: Summary of Total Suspended Particulate Results **June 20, 2023**

Compounds	CAS No.	20-Jun-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23051300	Filter ID:	23051298	Filter ID:	23051299				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19					2.3	0.001	0.00	0.025	Schedule 3	5.84%
Total Chromium (Cr)	7440-47-12					25.8	0.016	0.016	1.5	Guideline	1.09%
Total Cobalt (Co)	7440-48-14					4.4	0.003	0.00	0.1	Guideline	2.79%
Total Copper (Cu)	7440-50-18					226	0.143	0.14	50	Schedule 3	0.29%
Total Iron (Fe)	7439-89-16					10600	6.730	6.73	N/A	N/A	-
Total Lead (Pb)	7439-92-11					143	0.091	0.091	0.5	Schedule 3	18.16%
Total Manganese (Mn)	7439-96-15					192	0.122	0.12	2.5	Guideline	4.88%
Total Nickel (Ni)	7440-02-10					21.2	0.013	0.01	2	Schedule 3	0.67%
Total Selenium (Se)	7782-49-12					ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12					6.4	0.004	0.00	2	Schedule 3	0.20%
Total Zinc (Zn)	7440-66-16					1350	0.857	0.86	120	Schedule 3	0.71%
Total Particulate	-	54800	36	69500	44	333000	211	211	120	Schedule 3	176%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Upwind		Downwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1503		1562		1575					
Sample Flow Rate (m^3/min)		1.04		1.08		1.09					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 18: Summary of Total Suspended Particulate Results **June 23, 2023**

Compounds	CAS No.	23-Jun-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23052308	Filter ID:	23052309	Filter ID:	23052307				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		Invalid Sample		Sample 1 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	29700	18	-	-	127000	82	82	120	Schedule 3	68%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Upwind		Downwind					
Sample Duration (min)		1440		-		1440					
Sample Volume (m^3) [1]		1635		-		1555					
Sample Flow Rate (m^3/min)		1.14		-		1.08					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 19: Summary of Total Suspended Particulate Results **June 26, 2023**

Compounds	CAS No.	26-Jun-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23052318	Filter ID:	23052317	Filter ID:	23052316				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 2 of 4 No Metals Analysis		ND	ND	Sample 2 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19			ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12			10.9	0.007			0.007	1.5	Guideline	0.46%
Total Cobalt (Co)	7440-48-14			ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18			179	0.113			0.11	50	Schedule 3	0.23%
Total Iron (Fe)	7439-89-16			3780	2.383			2.38	N/A	N/A	-
Total Lead (Pb)	7439-92-11			41	0.026			0.026	0.5	Schedule 3	5.17%
Total Manganese (Mn)	7439-96-15			72.9	0.046			0.05	2.5	Guideline	1.84%
Total Nickel (Ni)	7440-02-10			8.1	0.005			0.01	2	Schedule 3	0.26%
Total Selenium (Se)	7782-49-12			ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12			ND	ND			ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16			403	0.254			0.25	120	Schedule 3	0.21%
Total Particulate	-	25400	16	26800	17	65300	41	41	120	Schedule 3	34%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1438		1440					
Sample Volume (m^3) [1]		1623		1586		1586					
Sample Flow Rate (m^3/min)		1.13		1.10		1.10					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 20: Summary of Total Suspended Particulate Results **June 29, 2023**

Compounds	CAS No.	29-Jun-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23052354	Filter ID:	23052356	Filter ID:	23052355				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	Invalid Sample		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND			ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND			ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND			ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	58.7	0.036			89.8	0.058	0.06	50	Schedule 3	0.12%
Total Iron (Fe)	7439-89-16	351	0.214			2120	1.367	1.37	N/A	N/A	-
Total Lead (Pb)	7439-92-11	3	0.002			9.7	0.006	0.006	0.5	Schedule 3	1.25%
Total Manganese (Mn)	7439-96-15	12	0.007			55.5	0.036	0.04	2.5	Guideline	1.43%
Total Nickel (Ni)	7440-02-10	ND	ND			3.6	0.002	0.00	2	Schedule 3	0.12%
Total Selenium (Se)	7782-49-12	ND	ND			ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND			ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	32	0.019			105	0.068	0.07	120	Schedule 3	0.06%
Total Particulate	-	89300	54	-	-	186000	120	120	120	Schedule 3	100%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		-		1440					
Sample Volume (m^3) [1]		1644		-		1551					
Sample Flow Rate (m^3/min)		1.14		-		1.08					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

ATTACHMENT C

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

On April 26, 2023, we received PM_{10} results from Bureau Veritas regarding the particulate weights from the April 12, 2023 sampling event. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. On May 4, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the April 12, 2023 sampling event. On April 26, 2023 and May 4, 2023, the results were entered and assessed, and it was found that there was one (1) measured TSP concentration in excess of the 24-hour AAQC and one (1) measured PM_{10} concentration in excess of the 24-hour AAQC on the April 12, 2023 sampling date. Attached is the Exceedance Form (PIBS 5354e) for your reference. Below is a summary of the events.

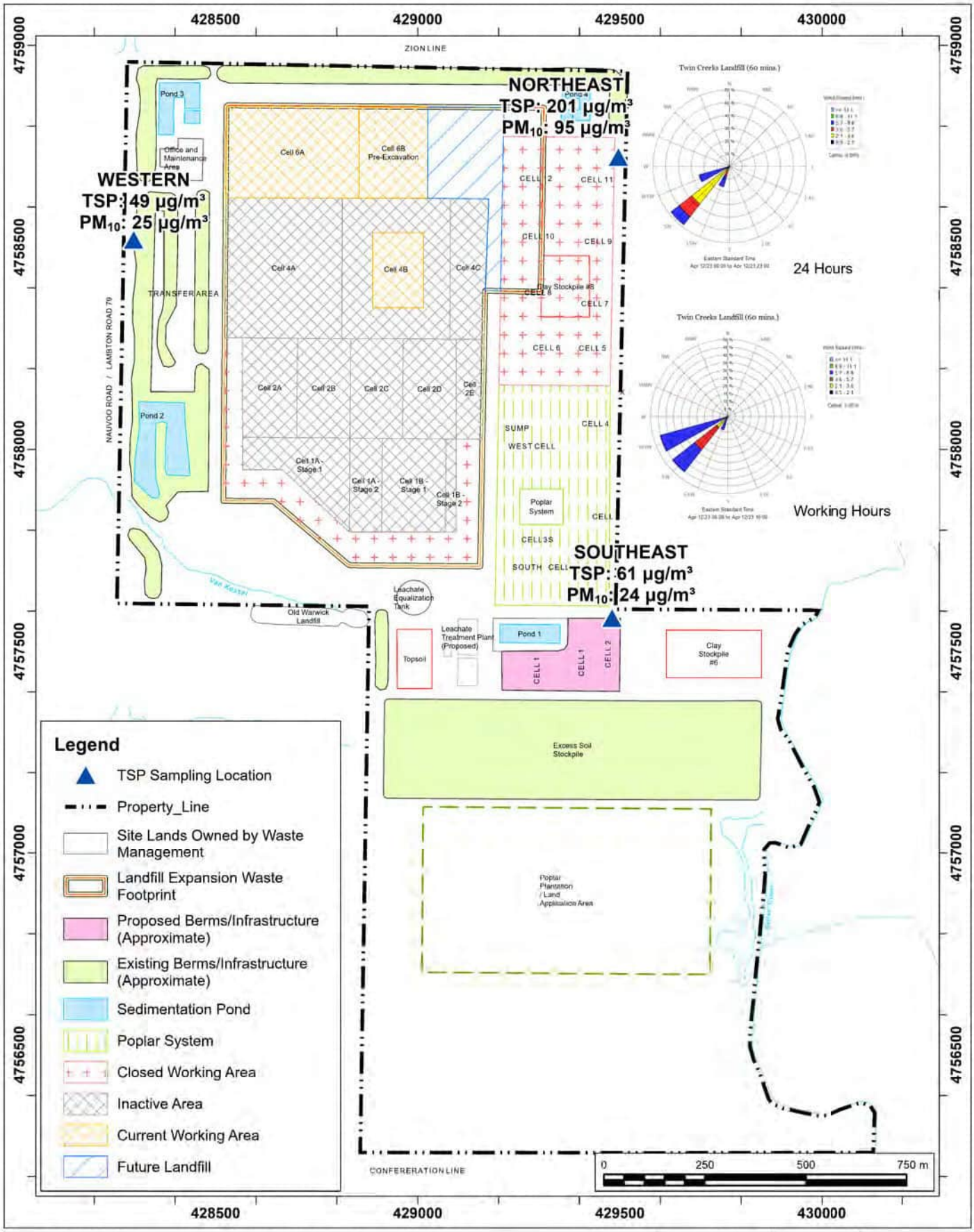
<u>April 12, 2023</u>

On Wednesday April 12, 2023, there was one (1) exceedance of the TSP 24-hour AAQC and one (1) exceedance of the PM_{10} 24-hour AAQC, which both occurred at the Northeast onsite TSP samplers. Attached is Figure 1, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the April 12th sampling date.

1. The measured TSP concentration at the Northeast sampler was 201 ug/m^3, the Southeast sampler was 61 ug/m^3 and the Western sampler was 49 ug/m^3. The measured PM_{10} concentration at the Northeast sampler was 95 ug/m^3, the Southeast sampler was 24 ug/m^3 and the Western sampler was 25 ug/m^3. During the 24-hour period, the wind was predominantly from the SSW to WSW; wind speeds ranged from 9 to 32 km/h and wind gusts reached a maximum of 46 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the SW to WSW. During this timeframe, the Northeast samplers were downwind of the haul routes from where clay material was excavated, just East of the Cell 6B pre-excavation, and hauled to Cell 4C and Cell 6A for daily/interim clay cover associated with the pre-construction activities for Cell 6B. The Northeast samplers were also downwind to the landfilling operations within Cells 4C.
3. Watering and sweeping activities for dust control purposes for the landfilling operations did take place on this date.
4. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the SSW to WSW during the operating hours of the site, which placed the Northeast samplers location downwind of the daily/interim clay cover hauling activities associated with the Cell 6B pre-construction activities and the landfill operations. Therefore, the TSP and PM10 exceedances, with concentrations of 201 ug/m3 and 95 ug/m3, measured on-site at the Northeast sampler dominantly originated from daily/interim clay cover hauling activities associated with the Cell 6B pre-construction activities, with contributions from off-site activities/sources as measured at the crosswind and upwind samplers (Southeast sampler at 61 ug/m3 and Western sampler at 49 ug/m3, for TSP respectively and Southeast sampler at 24 ug/m3 and Western sampler at 25 ug/m3, for PM10 respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: April 12, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1
Approx. Scale:	1:13,000
Date Revised:	May 8, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\TC excavation figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) May 10, 2023	Date Exceedednce Determined April 26, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

9488-AMPH4Y	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	December 19, 2020 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	12/03/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 December 19, 2020)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*
Am	10/05/2023

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	**CAS** [b] **Number**	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
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3									
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Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast Sampler	12/03/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (Northeastern Sampler)	N/A	Hi-Vol	201	24	120	Visability	AAQC	167.5%
2	PM10 (Northeastern Sampler)	N/A	Hi-Vol	95	24	50	Health	AAQC	190.0%
3									
4									
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**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

On June 23, 2023, we received TSP and PM_{10} results from Bureau Veritas regarding the particulate weights from the May 12, 2023 sampling event. On June 26, 2023, the results were entered and assessed, and it was found that there was three (3) measured TSP concentration in excess of the 24-hour AAQC and three (3) measured PM_{10} concentration in excess of the 24-hour AAQC on the May 12, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference. Below is a summary of the events.

<u>May 12, 2023</u>

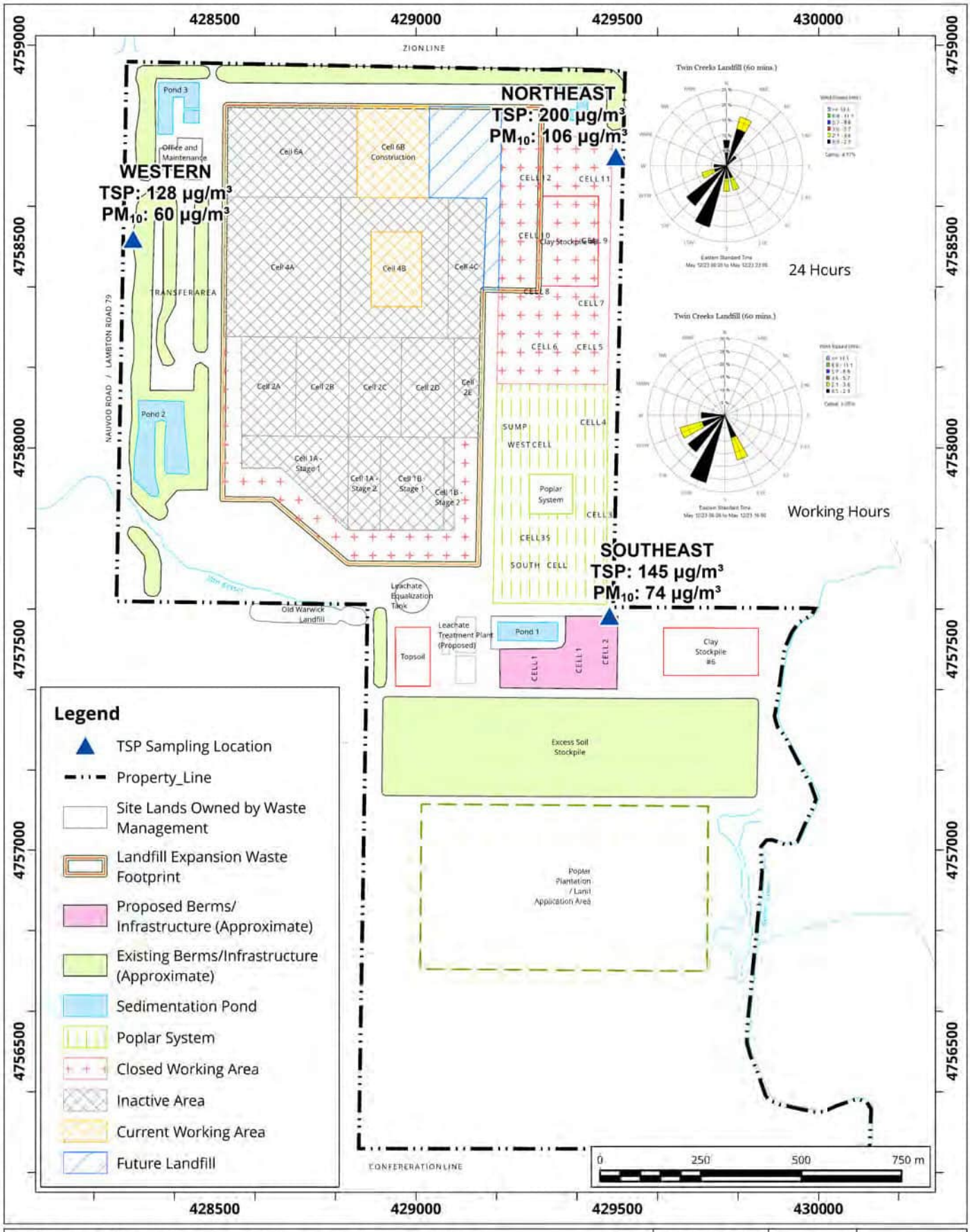
On Friday May 12, 2023, there were three (3) exceedances of the TSP 24-hour AAQC and three (3) exceedances of the PM_{10} 24-hour AAQC, which occurred at the Northeast, Southeast and Western onsite TSP and PM_{10} samplers. Attached is Figure 1, which presents windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the May 12 sampling date.

1. The measured TSP concentration at the Northeast sampler was 200 ug/m^3, the Southeast sampler was 145 ug/m^3 and the Western sampler was 128 ug/m^3. The measured PM_{10} concentration at the Northeast sampler was 106 ug/m^3, the Southeast sampler was 74 ug/m^3 and the Western sampler was 60 ug/m^3. During the 24-hour period, the wind was predominantly from the SSE to WSW, and N to NNE; wind speeds ranged from 2 to 10 km/h and wind gusts reached a maximum of 18 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the SSW to W and SSE. During this timeframe, the Northeast samplers were dominantly downwind of the haul routes from where clay material was excavated from Cell 6B and hauled to Cell 4B for daily cover. During this time, the Northeast sampler was also in immediate vicinity of the drainage layer gravel stockpiling activities related to the Cell 6B construction.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
5. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the SSW to W and SSE during the operating hours of the site, which placed the Northeast sampler location downwind of the hauling activities associated with the Cell 6B construction and downwind to the landfill operations. The western and southeast samplers were upwind of both the hauling activities associated with the Cell 6B construction and landfill operations which indicates that the concentration at these samplers are more influenced by the background air quality than onsite air quality.

Therefore, the TSP and PM_{10} exceedances, with concentrations of 200 ug/m^3 and 145 ug/m^3, measured on-site at the Northeast sampler dominantly originated from Cell 6B construction activities, with contributions from off-site activities/sources as measured at the crosswind and upwind samplers (Southeast sampler at 61 ug/m^3 and Western sampler at 49 ug/m^3, for TSP respectively and Southeast sampler at 24 ug/m^3 and Western sampler at 25 ug/m^3, for PM_{10} respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: May 12, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1	
Approx. Scale:	1:13,000	
Date Revised:	Jul 7, 2023	

Map Document: C:\Users\DAJH\OneDrive - BWDI\Desktop\TWN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;
(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or
(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or
(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,
(a) an approved dispersion model or other dispersion model; or
(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) July 7, 2023	Date Exceedednce Determined June 26, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No If No, please provide the following:

Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	12/05/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur *(select all that apply)*:

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*
	7/7/2023

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	**CAS** [b] **Number**	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
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Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast, Southeast, and West Samplers	12/05/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (Northeast Sampler)	N/A	Hi-Vol	200	24	120	Visability	AAQC	166.7%
2	PM10 (Northeast Sampler)	N/A	Hi-Vol	106	24	50	Health	AAQC	212.0%
3	TSP (Southeast Sampler)	N/A	Hi-Vol	145	24	120	Visability	AAQC	120.8%
4	PM10 (Southeast Sampler)	N/A	Hi-Vol	74	24	50	Health	AAQC	148.0%
5	TSP (West Sampler)	N/A	Hi-Vol	128	24	120	Visability	AAQC	106.7%
6	PM10 (West Sampler)	N/A	Hi-Vol	60	24	50	Health	AAQC	120.0%
7									
8									
9									
10									
11									
12									
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**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

On June 23, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the May 18, 2023 sampling event. On June 26, 2023, the results were entered and assessed, and it was found that there was one (1) measured TSP concentration in excess of the 24-hour AAQC and one (1) measured PM_{10} concentration in excess of the 24-hour AAQC on the May 18, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference. Below is a summary of the events.

<u>May 18, 2023</u>

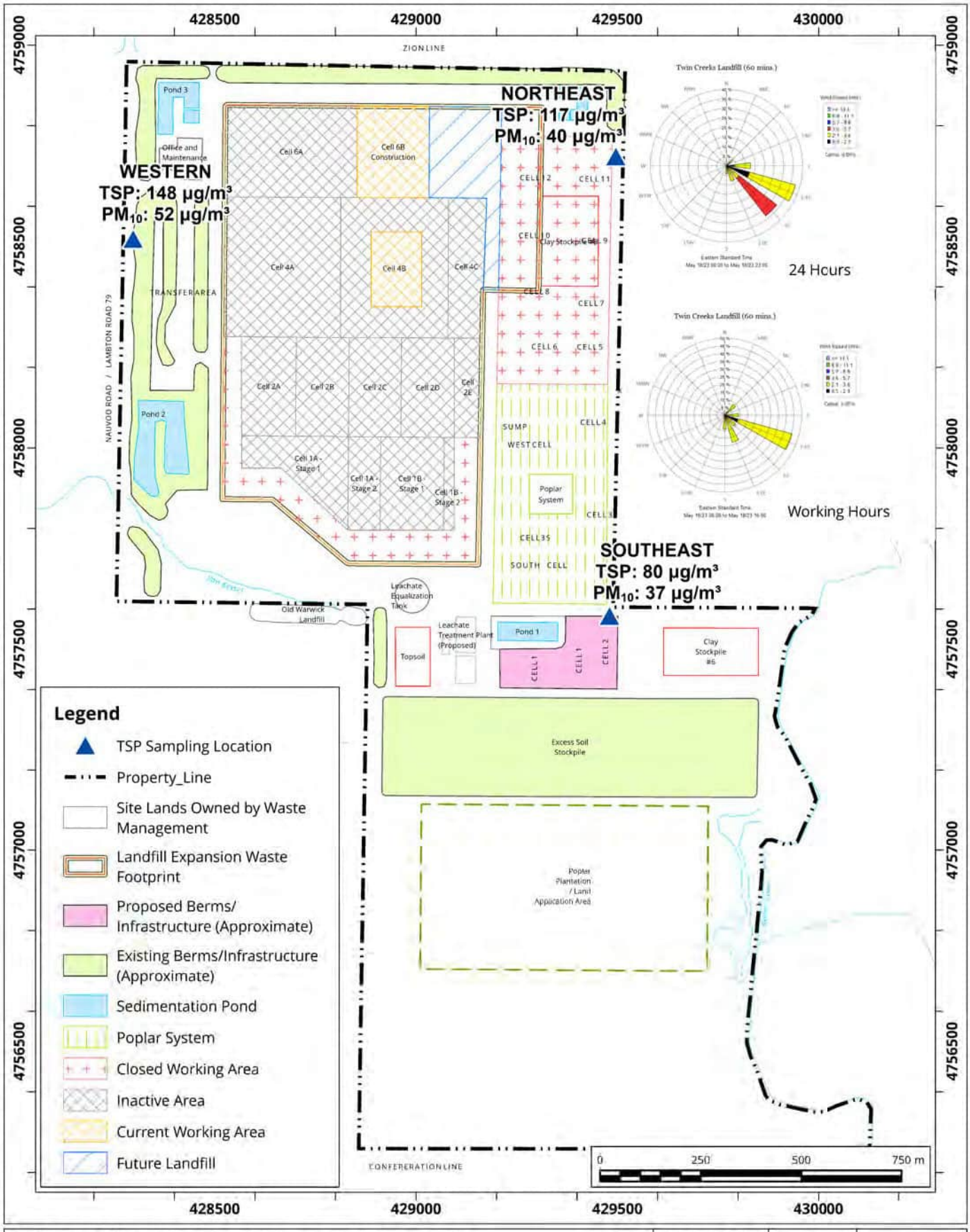
On Thursday May 18, 2023, there was one (1) exceedances of the TSP 24-hour AAQC and one (1) exceedance of the PM_{10} 24-hour AAQC, which occurred at the West onsite TSP and PM_{10} samplers. Attached is Figure 1, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the May 18 sampling date.

1. The measured TSP concentration at the West sampler was 148 ug/m^3, the Northeast sampler was 117 ug/m^3 and the Southeast sampler was 80 ug/m^3. The measured PM_{10} concentration at the West sampler was 52 ug/m^3, the Northeast sampler was 40 ug/m^3 and the Southeast sampler was 37 ug/m^3. During the 24-hour period, the wind was predominantly from the E to SE; wind speeds ranged from 3 to 19 km/h and wind gusts reached a maximum of 27 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the ESE and SSE. During this timeframe, the Western samplers were dominantly downwind of topsoil being placed on the side slopes of Cell 4A.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
5. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the ESE and SSE during the operating hours of the site, which placed the Western sampler location dominantly downwind of the topsoil being placed on the side slopes of Cell 4A.

Therefore, the TSP and PM_{10} exceedances, with concentrations of 148 ug/m^3 and 52 ug/m^3, measured on-site at the Western sampler dominantly originated from construction activities, with contributions from off-site activities/sources as measured at the crosswind and upwind samplers (Northeast sampler at 117 ug/m^3 and Southeast sampler at 80 ug/m^3, for TSP respectively and Northeast sampler at 40 ug/m^3 and Southeast sampler at 37 ug/m^3, for PM_{10} respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: May 18, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1	
Approx. Scale:	1:13,000	
Date Revised:	Jul 7, 2023	

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;
(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or
(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or
(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,
(a) an approved dispersion model or other dispersion model; or
(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) July 7, 2023	Date Exceedednce Determined June 26, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No If No, please provide the following:

Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	18/05/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur *(select all that apply)*:

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*
	7/7/2023

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	**CAS** [b] **Number**	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
West Sampler	18/05/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (West Sampler)	N/A	Hi-Vol	148	24	120	Visability	AAQC	123.4%
2	PM10 (West Sampler)	N/A	Hi-Vol	52	24	50	Health	AAQC	104.7%
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

On June 23, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the May 24, 2023 sampling event. On June 26, 2023, the results were entered and assessed, and it was found that there was two (2) measured TSP concentration in excess of the 24-hour AAQC and two (2) measured PM_{10} concentration in excess of the 24-hour AAQC on the May 24, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference. Below is a summary of the events.

<u>May 24, 2023</u>

On Wednesday May 24, 2023, there was two (2) exceedances of the TSP 24-hour AAQC and two (2) exceedances of the PM_{10} 24-hour AAQC, which occurred at the Northeast and Southeast onsite TSP and PM_{10} samplers. Attached is Figure 1, which presents windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

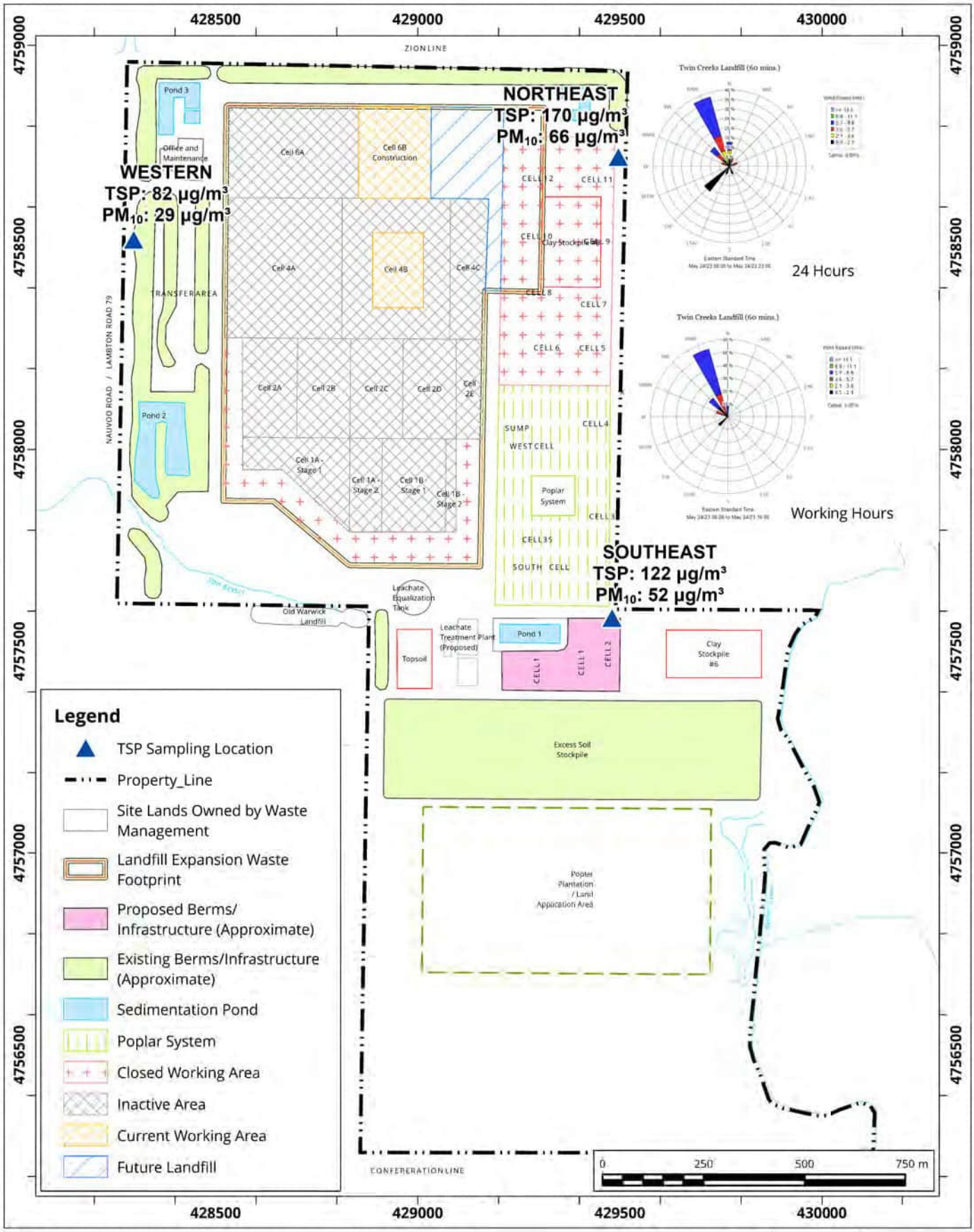
The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the May 24 sampling date.

1. The measured TSP concentration at the Northeast sampler was 170 ug/m^3 and the Southeast sampler was 122 ug/m^3. The measured PM_{10} concentration at the Northeast sampler was 66 ug/m^3 and the Southeast sampler was 52 ug/m^3. During the 24-hour period, the wind was predominantly from the NW to N, and SW; wind speeds ranged from 2 to 25 km/h and wind gusts reached a maximum of 42 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the NW to NNW. During this timeframe, the Southeast sampler was dominantly downwind of the haul routes from where clay material was excavated from Cell 6B and hauled to Cell 4B for daily cover.
3. Clay liner soil from stockpile 8 was being hauled to Cell 6B for liner construction. During this time, the Northeast sampler was immediate vicinity of the drainage layer gravel stockpiling activities related to the Cell 6B construction.
4. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
5. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
6. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the NW to NNW during the operating hours of the site, which placed the Southeast sampler location dominantly downwind of the hauling activities associated with the Cell 6B construction activities and downwind to the landfill operations. The northeast and western samplers were crosswind of both the hauling activities associated with the Cell 6B construction and landfill operations

and downwind of potential offsite contributions which indicates that the concentration at these samplers is more influenced by the background air quality rather than onsite air quality.

Therefore, the TSP and PM_{10} exceedances, with concentrations of 170 ug/m^3 and 66 ug/m^3, measured on-site at the Northeast sampler and 122 ug/m^3 and 52 ug/m^3, measured on-site at the Southeast sampler dominantly originated from hauling activities associated with the Cell 6B construction activities, and from off-site activities/sources as measured at the crosswind sampler (Western sampler at 82 ug/m^3, for TSP and 29 ug/m^3, for PM_{10}).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: May 24, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1
Approx. Scale:	1:13,000
Date Revised:	Jul 7, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

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3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

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This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) July 7, 2023	Date Exceedednce Determined June 26, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	24/05/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	**CAS** [b] **Number**	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
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Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast and Southeast Samplers	24/05/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (Northeast Sampler)	N/A	Hi-Vol	170	24	120	Visability	AAQC	141.6%
2	PM10 (Northeast Sampler)	N/A	Hi-Vol	66	24	50	Health	AAQC	132.0%
3	TSP (Southeast Sampler)	N/A	Hi-Vol	122	24	120	Visability	AAQC	101.7%
4	PM10 (Southeast Sampler)	N/A	Hi-Vol	52	24	50	Health	AAQC	104.0%
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**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information regarding air quality monitoring exceedances during the month of June and early July. Associated laboratory results were received within the last 14 days and below you will find a summary for each event in chronological order.

On July 10, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the June 2, 2023 sampling event. On July 11, 2023, the results were entered and assessed, and it was found that there were two (2) measured TSP concentrations in excess of the 24-hour AAQC and two (2) measured PM_{10} concentration in excess of the 24-hour AAQC on the June 2, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference.

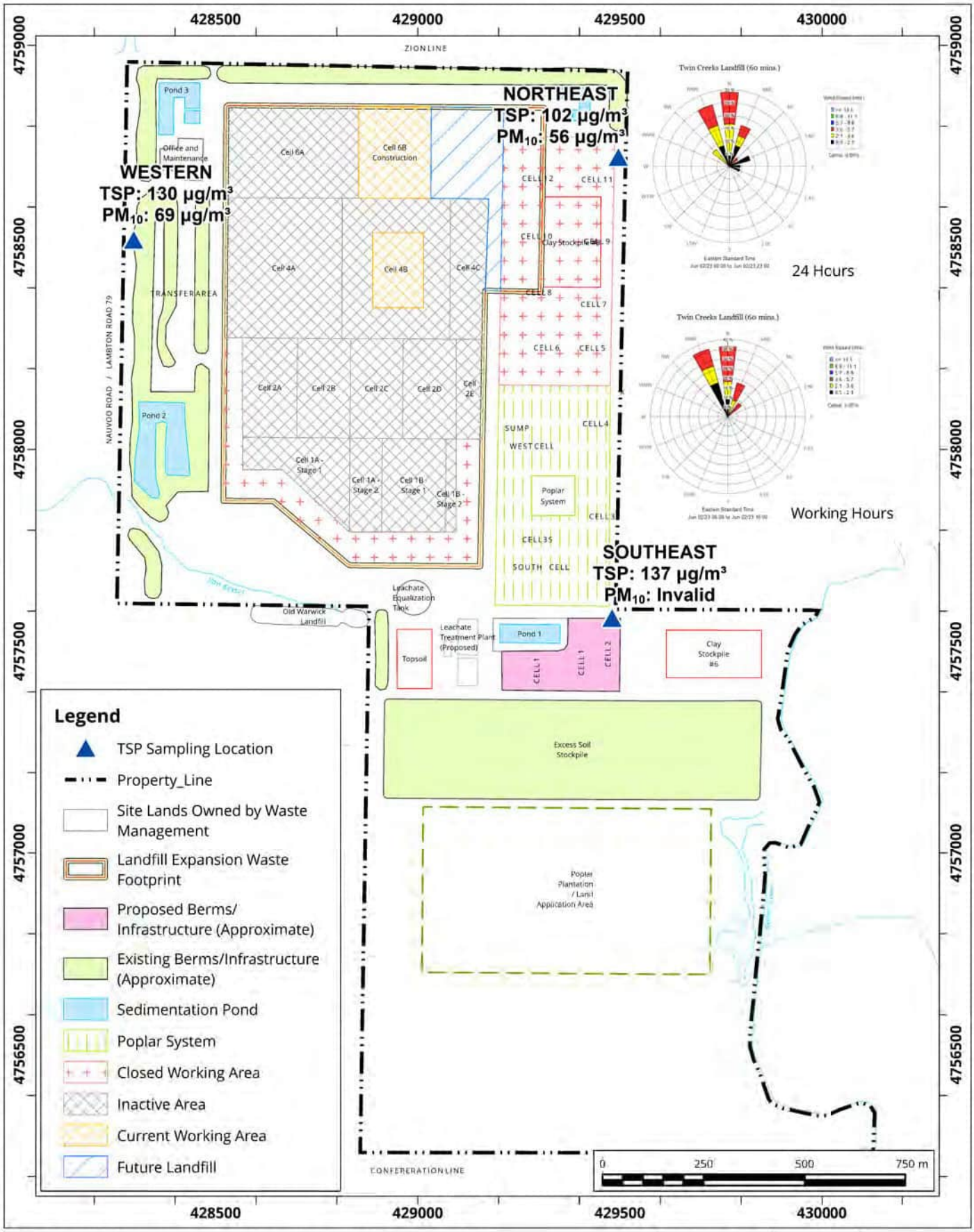
On Friday June 2, 2023, there were two (2) exceedances of the TSP 24-hour AAQC and two (2) exceedance of the PM_{10} 24-hour AAQC. The two (2) exceedances of the TSP 24-hour AAQC occurred at the West and Southeast onsite TSP samplers. The two (2) exceedances of the PM_{10} 24-hour AAQC occurred at the West and Northeast onsite PM_{10} samplers. Attached is Figure 1, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the June 2 sampling date.

1. The measured TSP concentration at the West sampler was 130 ug/m^3, the Northeast sampler was 102 ug/m^3 , and the Southeast sampler was 137 ug/m^3. The measured PM_{10} concentration at the West sampler was 69 ug/m^3 and the Northeast sampler was 56 ug/m^3. The PM_{10} sample at the Southeast sampler was Invalid. During the 24-hour period, the wind was predominantly from the NW to NE; wind speeds ranged from 3 to 20 km/h and wind gusts reached a maximum of 33 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the NNW and NE. During this timeframe, the Western samplers were crosswind, the Southeast sampler was downwind, and the Northeast sampler was upwind of the Cell 6B excavation, Cell 6B clay liner construction, and the hauling of clay material for daily cover to Cell 4B.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
5. The site was operating normally for landfilling activities.
6. On the date of June 2, 2023, there were severe wildfires in Canada which significantly impacted the Southern Ontario region's air quality with smoke. Exceptionally high levels of particulate matter were observed in the air across the region. It is likely that this high background level of particulate matter affected all of the samples on this date.

In summary, the wind conditions were dominantly from the NNW and NE during the operating hours of the site, which placed the Western sampler locations crosswind, the Southeast sampler location downwind, and the Northeast sampler location upwind, of Cell 6B excavation, Cell 6B clay liner construction, and the hauling of clay material for daily cover to Cell 4B. Therefore, the TSP exceedance with a concentration of 137 ug/m^3 measured

on-site at the Southeast sampler, dominantly originated from construction activities, with contributions from off-site activities/sources as measured at the crosswind and upwind samplers. (Western sampler at 130 ug/m^3 and Northeast sampler at 102 ug/m^3, for TSP, respectively, and Northeast sampler at 56 ug/m^3 for PM_{10}). The TSP and PM_{10} exceedances with concentrations of 130 ug/m^3 and 69 ug/m^3 measured on-site at the Western samplers, and the PM_{10} exceedance with a concentration of 56 ug/m^3 measured on-site at the Northeast sampler, originated from off-site activities/sources as measured at the crosswind and upwind samplers.



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 2, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1
Approx. Scale:	1:13,000
Date Revised:	Jul 7, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) July 21, 2023	Date Exceedednce Determined July 11, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	02/06/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	**CAS** [b] **Number**	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
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Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast, Southeast and West Samplers	02/06/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (West Sampler)	N/A	Hi-Vol	130	24	120	Visability	AAQC	108%
2	PM10 (West Sampler)	N/A	Hi-Vol	69	24	50	Health	AAQC	138%
3	TSP (Southeast Sampler)	N/A	Hi-Vol	137	24	120	Visability	AAQC	114%
4	PM10 (Northeast Sampler)	N/A	Hi-Vol	56	24	50	Health	AAQC	112%
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7									
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**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information regarding air quality monitoring exceedances during the month of June and early July. Associated laboratory results were received within the last 14 days and below you will find a summary for each event in chronological order.

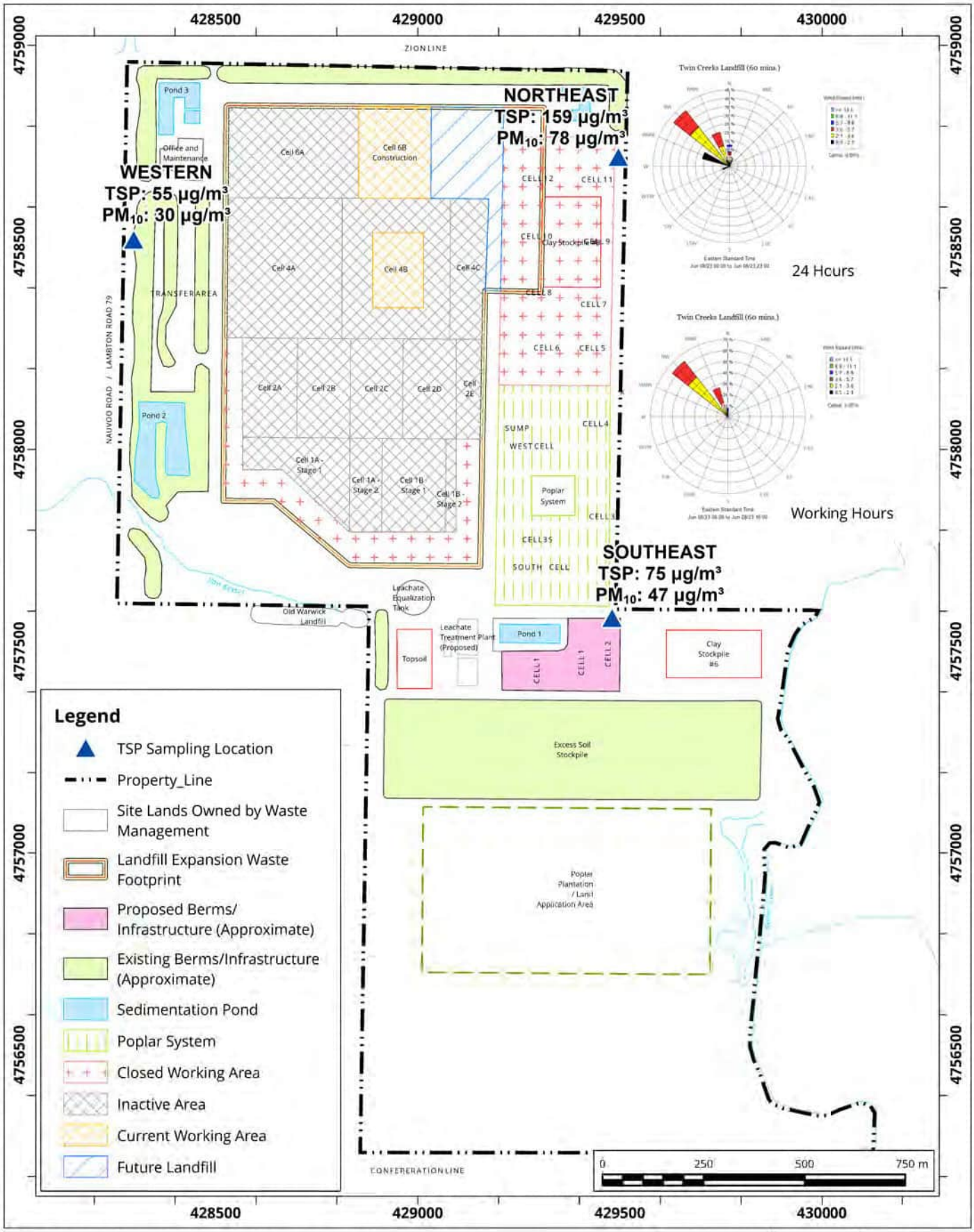
On July 10, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the June 8, 2023 sampling event. On July 12, 2023, the results were entered and assessed, and it was found that there was one (1) measured TSP concentration in excess of the 24-hour AAQC and one (1) measured PM_{10} concentration in excess of the 24-hour AAQC on the June 8, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference.

On Thursday June 8, 2023, there was one (1) exceedances of the TSP 24-hour AAQC and one (1) exceedance of the PM_{10} 24-hour AAQC, which occurred at the Northeast onsite TSP and PM_{10} samplers. Attached is Figure 3, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 3 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the June 8 sampling date.

1. The measured TSP concentration at the Northeast sampler was 159 ug/m^3, the West sampler was 55 ug/m^3 and the Southeast sampler was 75 ug/m^3. The measured PM_{10} concentration at the Northeast sampler was 78 ug/m^3, the West sampler was 30 ug/m^3 and the Southeast sampler was 47 ug/m^3. During the 24-hour period, the wind was predominantly from the WNW to N; wind speeds ranged from 4 to 21 km/h and wind gusts reached a maximum of 35 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the NW to NNW. During this timeframe, the Northeast samplers were downwind of the construction haul route transporting gravel material, from a gravel stockpile just east of Pond 4, to Cell 6B.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
5. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the NW to NNW during the operating hours of the site, which placed the Northeast sampler location downwind of the construction activities onsite. Therefore, the TSP and PM_{10} exceedances, with concentrations of 159 ug/m^3 and 78 ug/m^3, measured on-site at the Northeast sampler partially originated from construction activities, with contributions from off-site activities/sources as measured at the downwind and upwind samplers (West sampler at 55 ug/m^3 and Southeast sampler at 75 ug/m^3, for TSP respectively and West sampler at 30 ug/m^3 and Southeast sampler at 47 ug/m^3, for PM_{10} respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 8, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 3
Approx. Scale:	1:13,000
Date Revised:	Jul 20, 2023

Map Document: C:\Users\DAJH\OneDrive - BWDH\Desktop\TWN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) July 21, 2023	Date Exceedednce Determined July 12, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	08/06/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	**CAS** [b] **Number**	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast Sampler	08/06/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (Northeast Sampler)	N/A	Hi-Vol	159	24	120	Visability	AAQC	133%
2	PM10 (Northeast Sampler)	N/A	Hi-Vol	78	24	50	Health	AAQC	156%
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information regarding air quality monitoring exceedances during the month of June and early July. Associated laboratory results were received within the last 14 days and below you will find a summary for each event in chronological order.

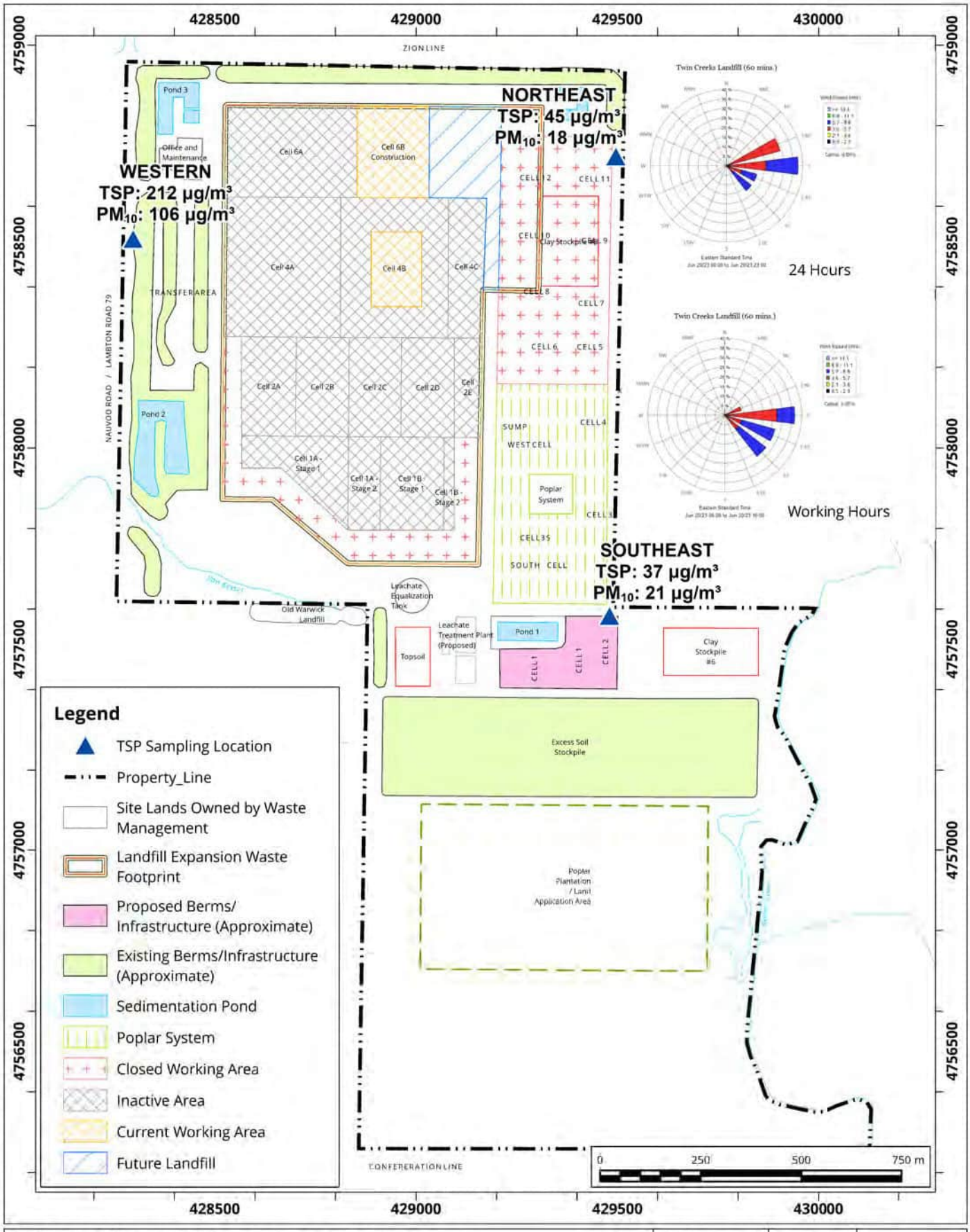
On July 10, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the June 20, 2023 sampling event. On July 12, 2023, the results were entered and assessed, and it was found that there was one (1) measured TSP concentration in excess of the 24-hour AAQC and one (1) measured PM_{10} concentration in excess of the 24-hour AAQC on the June 20, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference.

On Tuesday June 20, 2023, there was one (1) exceedances of the TSP 24-hour AAQC and one (1) exceedance of the PM_{10} 24-hour AAQC, which occurred at the West onsite TSP and PM_{10} samplers. Attached is Figure 4, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 4 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the June 20 sampling date.

1. The measured TSP concentration at the West sampler was 212 ug/m^3, the Northeast sampler was 45 ug/m^3 and the Southeast sampler was 37 ug/m^3. The measured PM_{10} concentration at the West sampler was 106 ug/m^3, the Northeast sampler was 18 ug/m^3 and the Southeast sampler was 21 ug/m^3. During the 24-hour period, the wind was predominantly from the ENE to SE; wind speeds ranged from 14 to 25 km/h and wind gusts reached a maximum of 34 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the ENE to SE. During this timeframe, the Western samplers were downwind of gravel operations from the gravel stockpile with the haul routes for liner stone being placed on Cell 6B upwind of the sampler.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
5. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the ENE to SE during the operating hours of the site, which placed the Western sampler location downwind of the gravel being placed on Cell 6B. Therefore, the TSP and PM_{10} exceedances, with concentrations of 212 ug/m^3 and 106 ug/m^3, measured on-site at the Western sampler originated from construction activities, with contributions from off-site activities/sources as measured at the crosswind and upwind samplers (Northeast sampler at 45 ug/m^3 and Southeast sampler at 37 ug/m^3, for TSP respectively and Northeast sampler at 18 ug/m^3 and Southeast sampler at 21 ug/m^3, for PM_{10} respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 20, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 4
Approx. Scale:	1:13,000
Date Revised:	Jul 20, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

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The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

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30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) July 21, 2023	Date Exceedednce Determined July 12, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
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Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	20/06/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	**CAS** [b] **Number**	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
West Sampler	20/06/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (West Sampler)	N/A	Hi-Vol	212	24	120	Visability	AAQC	177%
2	PM10 (West Sampler)	N/A	Hi-Vol	106	24	50	Health	AAQC	212%
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX G3

600 Southgate Drive
Guelph, ON N1G 4P6
Canada

Tel: +1.519.823.1311
Fax: +1.519.823.1316
E-mail: solutions@rwdi.com

November 7, 2023

Ms. Angela McLachlan | Environmental Compliance Manager
Waste Management of Canada Corporation
5768 Nauvoo Road (Watford)
Warwick Township, County of Lambton N0M 2S0
E: amclachl@wm.com

Re: Third Quarter 2023 TSP and Metals Report
July, August and September of 2023
Twin Creeks Environmental Centre – Watford, Ontario
RWDI Reference No. 2303459.02

Dear Ms. McLachlan,

RWDI AIR Inc. (RWDI) was retained by Waste Management of Canada Corporation (WM) to complete the Total Suspended Particulate Matter (TSP) and Airborne Metal (Metals) sampling required under the Environmental Compliance Approval A032203, dated February 4, 2023 (Waste ECA). The sampling program is being completed, as approved by the Ontario Ministry of the Environment, Conservation and Parks (MECP) per Condition 13.8 of the Waste ECA. The station locations were approved by the MECP, as noted under Schedule "A" Reference 85 in the Waste ECA. The sampler locations for the TSP samplers are illustrated in the figures section of this report. These locations remained fixed for the duration of the sampling program. This report outlines the results from the third quarter (Q3) samples collected from July 1 to September 30, 2023.

SAMPLING PROGRAM OVERVIEW

Consistent with the Waste ECA dated February 4, 2023 and the AAQMP dated May 18, 2017, the samplers are run on a 6-day schedule from January 1 to May 31 and October 1 to December 31 of each year and run on a 3-day cycle from June 1 to September 30 of each year. A copy of the most recently amended AAQMP can be found in **Attachment A.**

Each sample location has two (2) High Volume Air samplers (Hi-Vols) which run on an alternating 6-day or 3-day schedule, depending on the time of year. Each sample period consists of a 24-hour (midnight to midnight) sample that operates in concurrence with the NAPS sampling schedule.

During the month of July, a total of ten (10) sample sets or thirty (30) samples were initiated, twenty-six (26) of which are valid.

During the month of August, a total of eleven (11) sample sets or thirty-three (33) samples were initiated, thirty (30) of which are valid.

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CANADA'S BEST MANAGED COMPANIES Platinum member

During the month of September, a total of ten (10) sample sets or thirty (30) samples were initiated, twenty-eight (28) of which are valid.

A total of ninety-three (93) samples were initiated, eighty-four (84) of which were valid. This indicates that 90% of the total samples were successful. Sample validity at the Southeast, Northeast and Western Stations were 90%, 90% and 90% respectively, which means that every sampling station had a valid quarter (≥75% validity). **Table 1** below summarizes the measured TSP concentrations for the eighty-four (84) valid samples as collected from the Southeast, Northeast, and Western samplers.

Table 1 also indicates the direction of the wind at each sampling location relative to the active landfill cell. The Downwind designation indicates that the sampler was located predominantly downwind of the active landfill cell during the sampling period. Under these conditions the landfilling operations are likely to contribute to the measured concentrations. The Upwind designation indicates that the sampler was located predominantly upwind from the active cell. The Crosswind designation indicates that the wind was blowing in a direction that did not put the sampler either upwind or downwind with respect to the active cell or that the sampler was not located upwind or downwind for a significant period of time. Under the Upwind and Crosswind conditions the landfilling operations are unlikely to make a significant contribution to the measured concentrations. **Table 2** summarizes the significant cardinal wind directions observed during each sampling period.

Table 1: Summary of Meteorological Conditions and Measured TSP Concentrations for July, August and September of 2023

Sample Date	Southeast TSP Concentration and Sample Location [1] (µg/m³)	Northeast TSP Concentration and Sample Location [1] (µg/m³)	Western TSP Concentration and Sample Location [1] (µg/m³)
02-Jul-23	19 µg/m³ Crosswind	Invalid Crosswind	29 µg/m³ Crosswind
05-Jul-23	29 µg/m³ Crosswind	Invalid Crosswind	51 µg/m³ Crosswind
08-Jul-23	7 µg/m³ Crosswind	15 µg/m³ Crosswind	42 µg/m³ Crosswind
11-Jul-23	Invalid Crosswind	130 µg/m³ Downwind	Invalid Crosswind
14-Jul-23	21 µg/m³ Crosswind	34 µg/m³ Crosswind	31 µg/m³ Crosswind
17-Jul-23	32 µg/m³ Crosswind	47 µg/m³ Crosswind	43 µg/m³ Crosswind
20-Jul-23	23 µg/m³ Crosswind	48 µg/m³ Crosswind	42 µg/m³ Crosswind
23-Jul-23	20 µg/m³ Crosswind	30 µg/m³ Crosswind	28 µg/m³ Crosswind
26-Jul-23	37 µg/m³ Crosswind	44 µg/m³ Crosswind	43 µg/m³ Crosswind
29-Jul-23	18 µg/m³ Crosswind	18 µg/m³ Crosswind	15 µg/m³ Crosswind
01-Aug-23	13 µg/m³ Crosswind	16 µg/m³ Crosswind	95 µg/m³ Crosswind

Sample Date	Southeast TSP Concentration and Sample Location [1] (µg/m³)	Northeast TSP Concentration and Sample Location [1] (µg/m³)	Western TSP Concentration and Sample Location [1] (µg/m³)
04-Aug-23	36 µg/m³ Crosswind	114 µg/m³ Crosswind	34 µg/m³ Crosswind
07-Aug-23	Invalid Crosswind	20 µg/m³ Crosswind	15 µg/m³ Crosswind
10-Aug-23	73 µg/m³ Crosswind	51 µg/m³ Downwind	29 µg/m³ Crosswind
13-Aug-23	10 µg/m³ Crosswind	19 µg/m³ Crosswind	13 µg/m³ Crosswind
16-Aug-23	41 µg/m³ Crosswind	39 µg/m³ Crosswind	35 µg/m³ Crosswind
19-Aug-23	27 µg/m³ Crosswind	28 µg/m³ Crosswind	24 µg/m³ Crosswind
22-Aug-23	5 µg/m³ Crosswind	18 µg/m³ Crosswind	Invalid Crosswind
25-Aug-23	13 µg/m³ Crosswind	Invalid Crosswind	22 µg/m³ Crosswind
28-Aug-23	7 µg/m³ Crosswind	15 µg/m³ Crosswind	50 µg/m³ Crosswind
31-Aug-23	9 µg/m³ Crosswind	9 µg/m³ Upwind	67 µg/m³ Crosswind
03-Sep-23	27 µg/m³ Crosswind	30 µg/m³ Downwind	Invalid Crosswind
06-Sep-23	26 µg/m³ Crosswind	39 µg/m³ Crosswind	32 µg/m³ Crosswind
09-Sep-23	11 µg/m³ Crosswind	14 µg/m³ Crosswind	16 µg/m³ Crosswind
12-Sep-23	25 µg/m³ Crosswind	19 µg/m³ Crosswind	15 µg/m³ Crosswind
15-Sep-23	19 µg/m³ Crosswind	32 µg/m³ Upwind	80 µg/m³ Crosswind
18-Sep-23	28 µg/m³ Downwind	13 µg/m³ Crosswind	18 µg/m³ Crosswind
21-Sep-23	23 µg/m³ Upwind	50 µg/m³ Crosswind	36 µg/m³ Crosswind
24-Sep-23	20 µg/m³ Crosswind	32 µg/m³ Upwind	30 µg/m³ Downwind
27-Sep-23	Invalid Crosswind	100 µg/m³ Upwind	93 µg/m³ Downwind
30-Sep-23	37 µg/m³ Crosswind	30 µg/m³ Crosswind	43 µg/m³ Crosswind

Notes: [1] Directional references indicate the direction of the wind at each sampling location during the sampling period relative to the active landfill cell, as described above.

Table 2: Summary of Meteorological Conditions for the Sample Dates in July, August and September of 2023

Sample Date	Range of Mean Wind Speeds [1] (km/h)	Dominant Wind Direction [2] (compass)
02-Jul-23	1 - 14	ESE, E, SE
05-Jul-23	4 - 18	SSE, S, SE, SW
08-Jul-23	5 - 20	ESE, SSE, SE, S
11-Jul-23	4 - 22	SW, SSW
14-Jul-23	4 - 16	SSE, S, SE, SSW, ESE
17-Jul-23	2 - 14	SW, SSW, W, NW
20-Jul-23	6 - 32	SE, SSE, SW, SSW
23-Jul-23	2 - 16	SW, SSW, SSE, S
26-Jul-23	6 - 27	SSW, S, SW, SSE
29-Jul-23	4 - 25	NNW, N, SW
01-Aug-23	1 - 12	SSE, ESE, E, SE
04-Aug-23	3 - 20	NW, NNW, N
07-Aug-23	11 - 31	SW, NW, SSW, WNW
10-Aug-23	3 - 19	WNW, SW, W, SSW, NW
13-Aug-23	4 - 17	N, NW, WSW, W, WNW
16-Aug-23	3 - 13	NW, SW, SSE, SSW
19-Aug-23	3 - 12	SW, SSE, SSW, WNW
22-Aug-23	3 - 13	NNE, ENE, N, NE, ESE
25-Aug-23	2 - 15	N, NNW, NW, WSW, W
28-Aug-23	0 - 12	E, NNE, NW, N, NE, NNW
31-Aug-23	2 - 10	ENE, NE, NW
03-Sep-23	6 - 17	SW, SSW, WSW
06-Sep-23	4 - 24	SSE, S, SSW, WSW
09-Sep-23	1 - 9	NNW, NE, NW, WNW
12-Sep-23	2 - 16	NW, N, W, WNW
15-Sep-23	1 - 8	E, ESE
18-Sep-23	3 - 21	NW, WNW, NNW
21-Sep-23	5 - 16	SE, SSE
24-Sep-23	8 - 26	ENE, E
27-Sep-23	15 - 27	E, ESE
30-Sep-23	2 - 10	E, ESE, NNW

Notes: [1] Based on average wind speed per wind direction.
[2] Based on the direction from which the wind is blowing.
Calm – Less than 1.8 kilometers per hour.

Figures 7a through **9j**, found in the **figure section** of this report, illustrate the sample location, measured TSP concentration, and the wind-rose depicting the wind conditions for each sample period. The wind-roses express the percentage of time the wind is blowing from each direction and provides the distribution of wind speeds observed for each direction.

A summary of the calculated statistics for measured concentrations at the Twin Creeks Environmental Centre sampling locations is presented in **Table 3**.

Table 3: Calculated Statistics for Measured 24-hour Averaged TSP Concentrations (µg/m^3)

Sample Locations	No. of Valid Samples	Percentiles (%)			Maximum	Arithmetic Mean	Number of Measurements Above the AAQC (120 µg/m^3)
		50	70	90			
Southeast	28	22	27	37	73	23	0
Northeast	28	30	39	66	130	38	1
Western	28	33	43	71	95	38	0

The MECP 24-hour Ambient Air Quality Criteria (AAQC) for TSP (120 µg/m3) was exceeded one (1) time during the third quarter sampling period:

- On July 11th, 2023, the AAQC was exceeded at the Northeast station, with a concentration of 130 µg/m^3.

Consistent with the MECP approved monitoring/reporting requirements for TSP at the landfill, the exceedances were reported to the MECP within the 2-week notification requirements.

Further details of the notification and discussion of the event are provided in **Attachment C**.

In agreement with the Warwick Township Technical Review Team, only the highest TSP filter weight for each station was analyzed for airborne metal concentrations per 4 sample sets.

During the third quarter, airborne metals were assessed on July 5 (Southeast and Western), July 11 (Northeast), July 20 (Northeast), July 26 (Southeast and Western), August 1 (Western), August 4 (Northeast and Southeast), August 10 (Northeast and Southeast), August 16 (Western), August 22 (Northeast), August 25 (Southeast), September 3 (Southeast), September 6 (Northeast and Western), September 15 (Western), September 18 (Southeast), September 21 (Northeast) and September 27 (Western). All measured concentrations of airborne metals were below their respective AAQC's as outlined in Ontario Regulation 419. The summary of Q3 total suspended particulate and metals results are provided in **Attachment B**. Laboratory analytical reports will be provided in the Annual Report.

CURRENT MITIGATION MEASURES

The Twin Creeks Environmental Centre has created a Best Management Practices Plan for dust that is implemented at the site. All Site employees are trained in the contents of the plan. Through the combined efforts of the mitigation measures and implementation of the Dust Management Plan, Twin Creeks Environmental Centre plans on limiting the number of TSP exceedances during the periods of heavy construction and beyond.

Currently, particulate emission mitigation measures are in place at the Twin Creeks Environmental Centre and consist of watering on-site roadways and construction sites as well as a number of other practices as outlined in the Best Management Practices Plan for dust. The practices listed above will not occur if precipitation events cause these activities to become redundant or if the ground is sufficiently wet from previous precipitation events.

CLOSING

Please feel free to contact us with any questions or comments that you may have with respect to this submission.

Yours very truly,

RWDI AIR Inc.

Khalid Hussein, P.Eng.
Project Manager

KAMH/kta

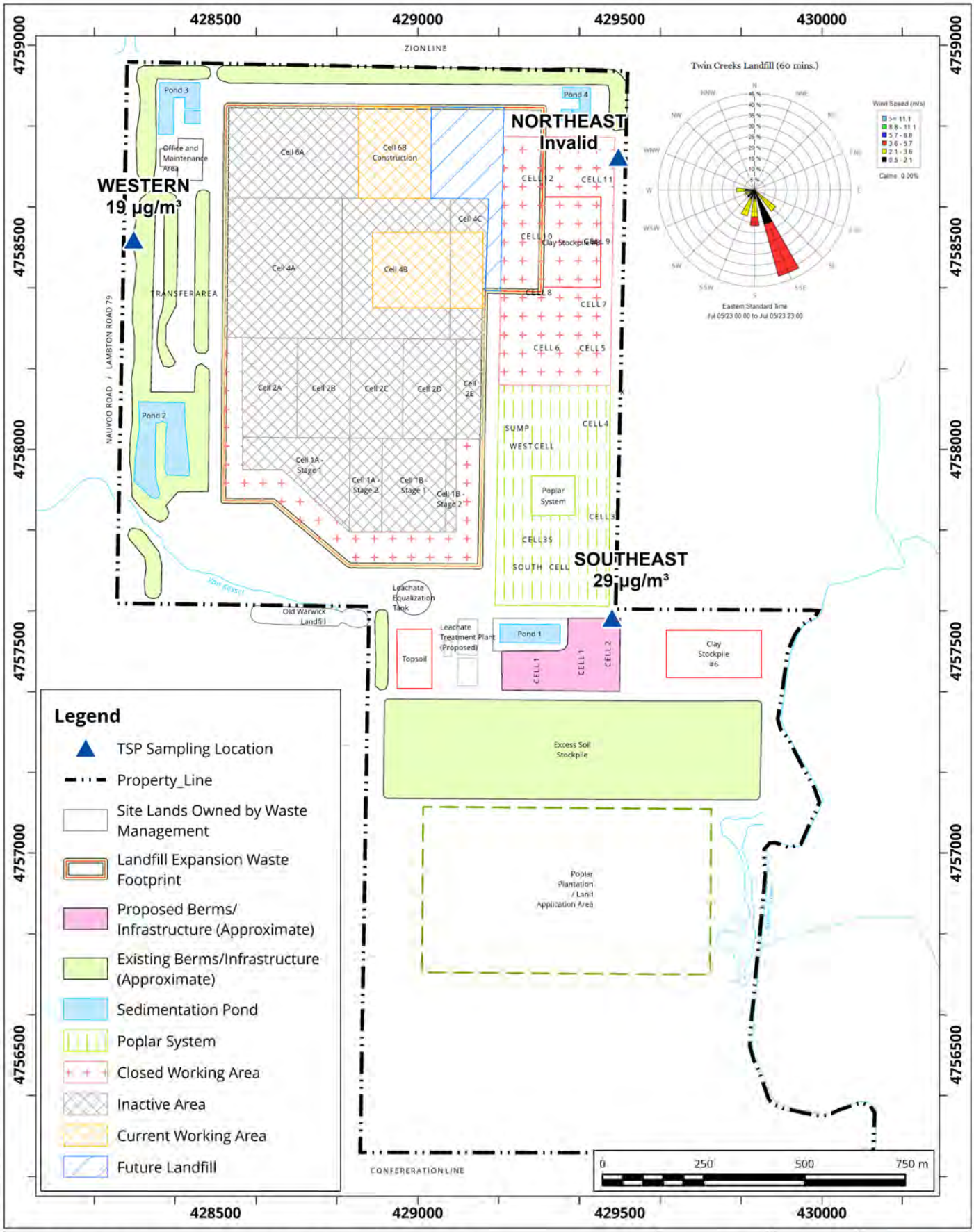
Attach.

GENERAL STATEMENT OF LIMITATIONS

This report entitled "Third Quarter 2023 TSP and Metals Report", dated November 7, 2023 was prepared by RWDI AIR Inc. ("RWDI") for Waste Management of Canada Corporation ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). This report was prepared using scientific principles, published methodologies and professional judgment in assessing available information and data. The findings presented within this document are based on available data within the limits of the existing information, budgeted scope of work, and schedule. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.

This report was prepared for the exclusive use of Waste Management of Canada Corporation and the MECP. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. RWDI accepts no responsibility for damages, if any, suffered by any third party as result of decisions made or actions based on this report.

FIGURES



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 2, 2023

Map Projection: NAD 1983 UTM Zone 17N

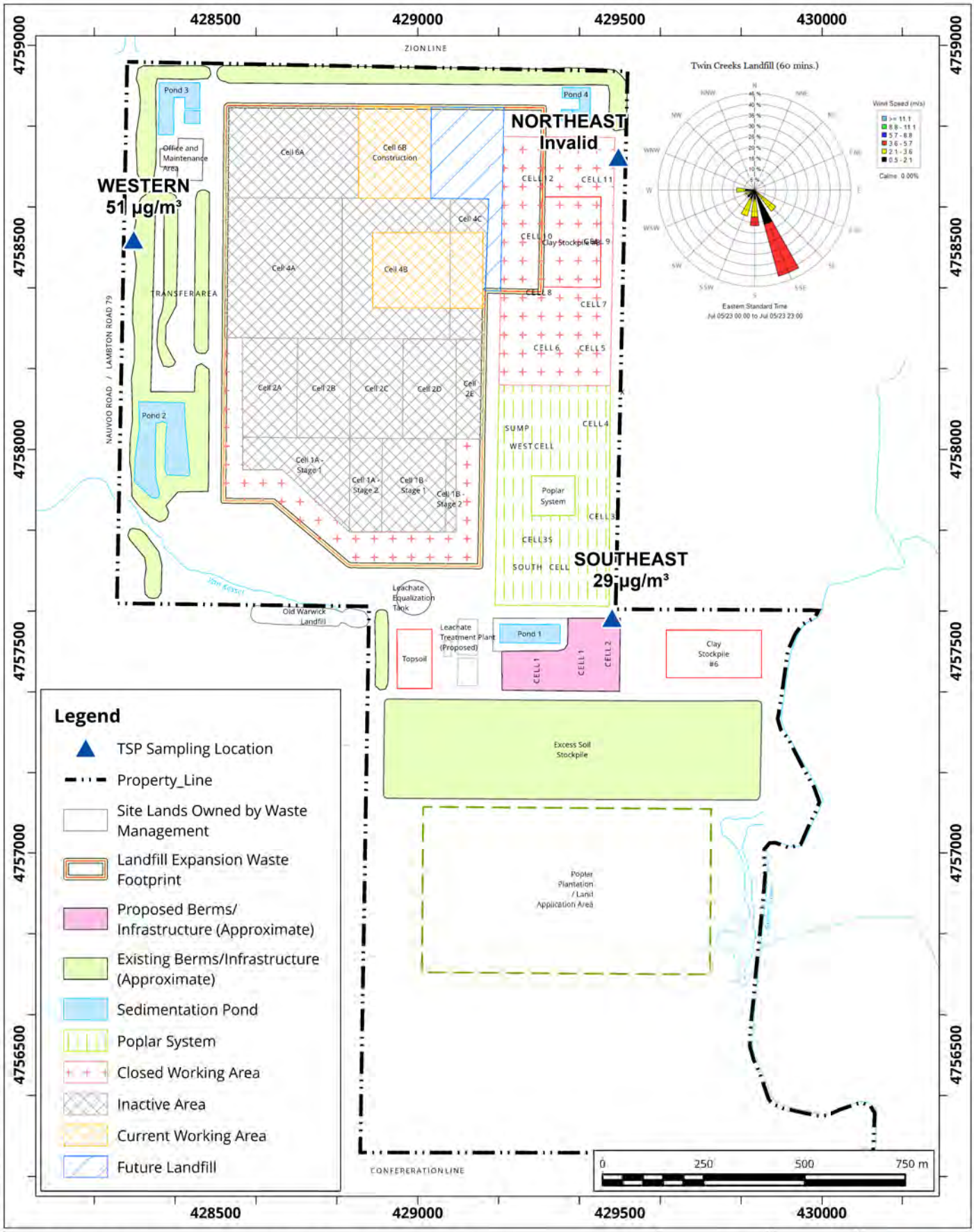
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by:DAJH	Figure: 7a
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 5, 2023

Map Projection: NAD 1983 UTM Zone 17N

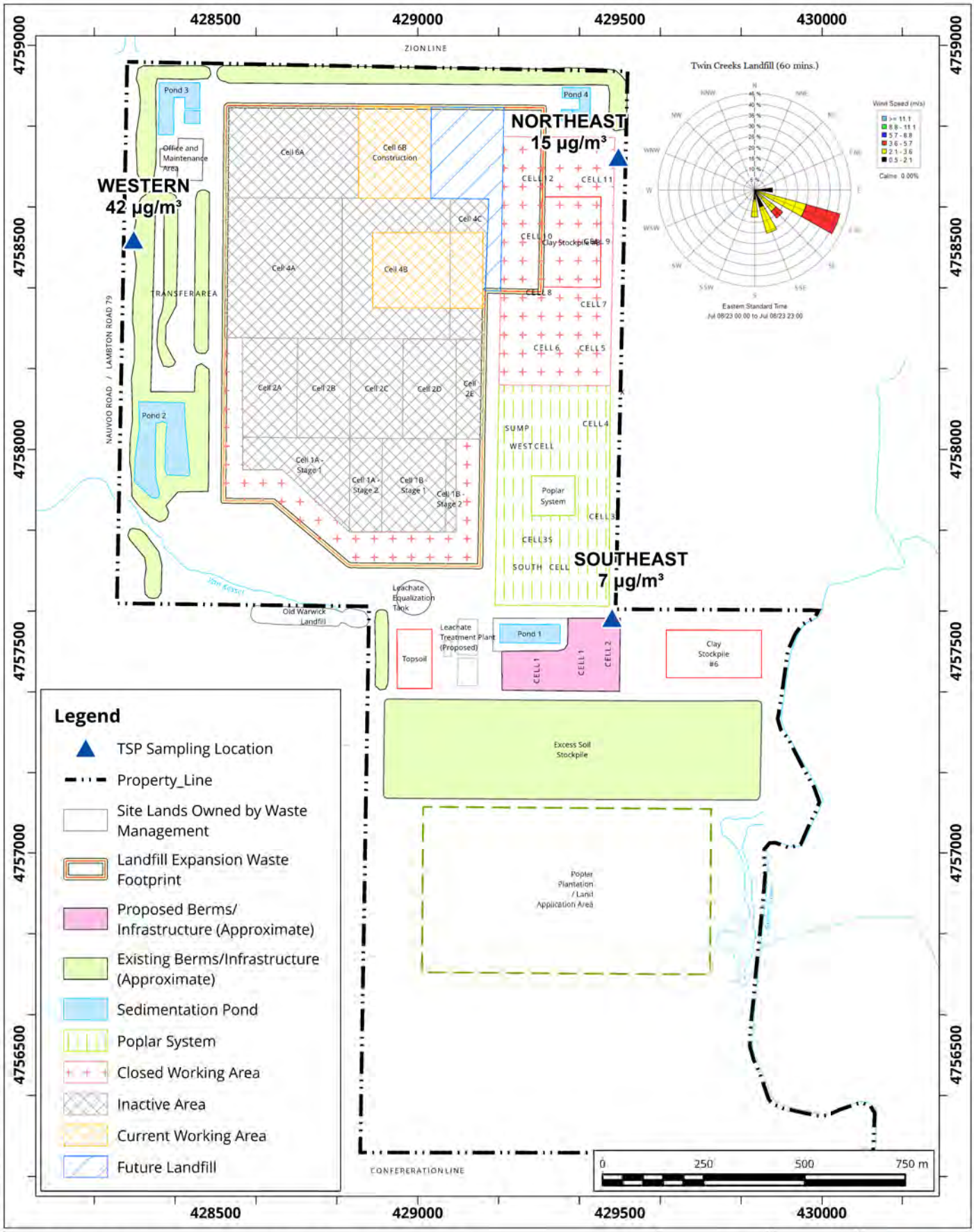
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by:DAJH	Figure: 7b
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 8, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 7c
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

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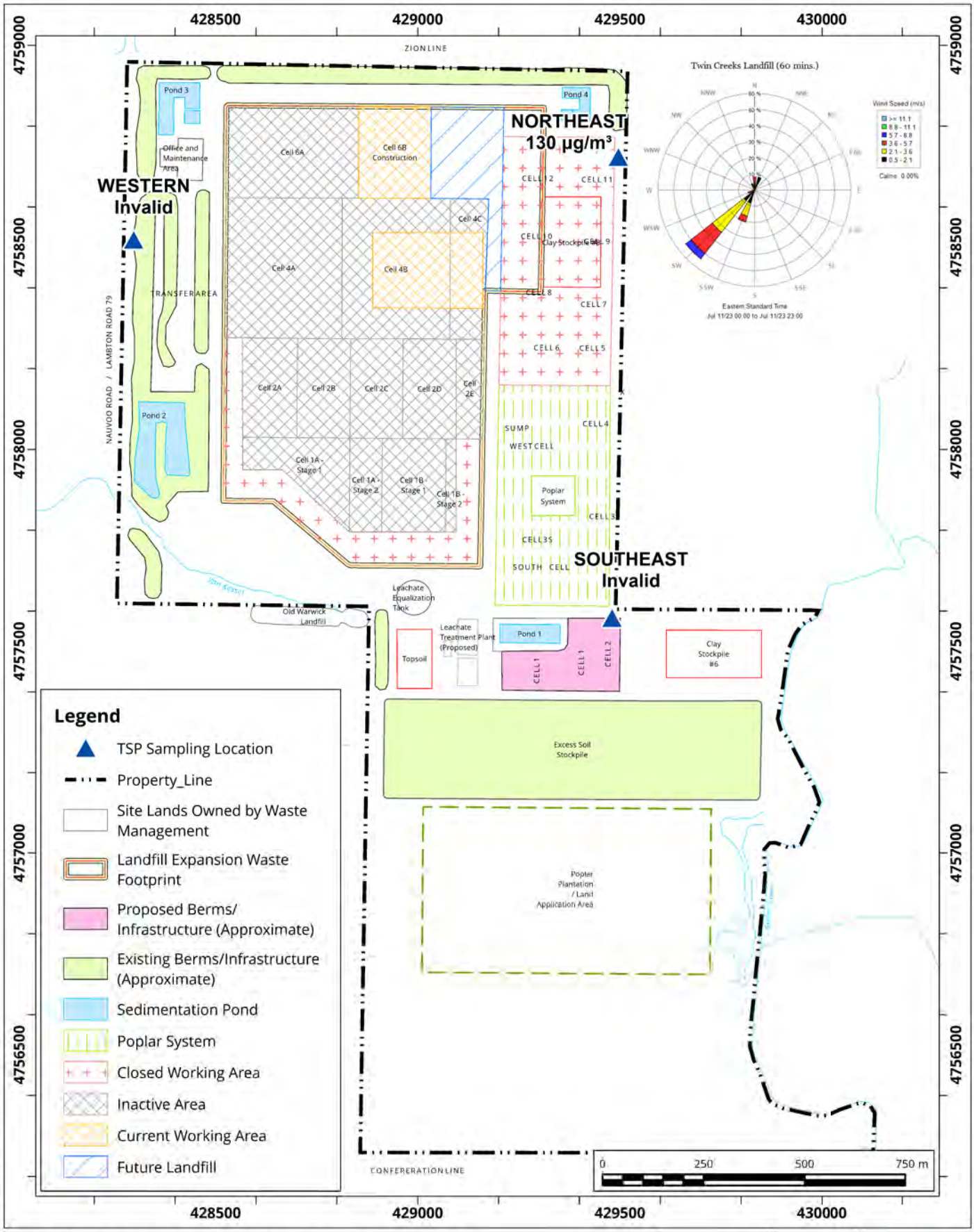

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 11, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by:DAJH	Figure: 7d
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

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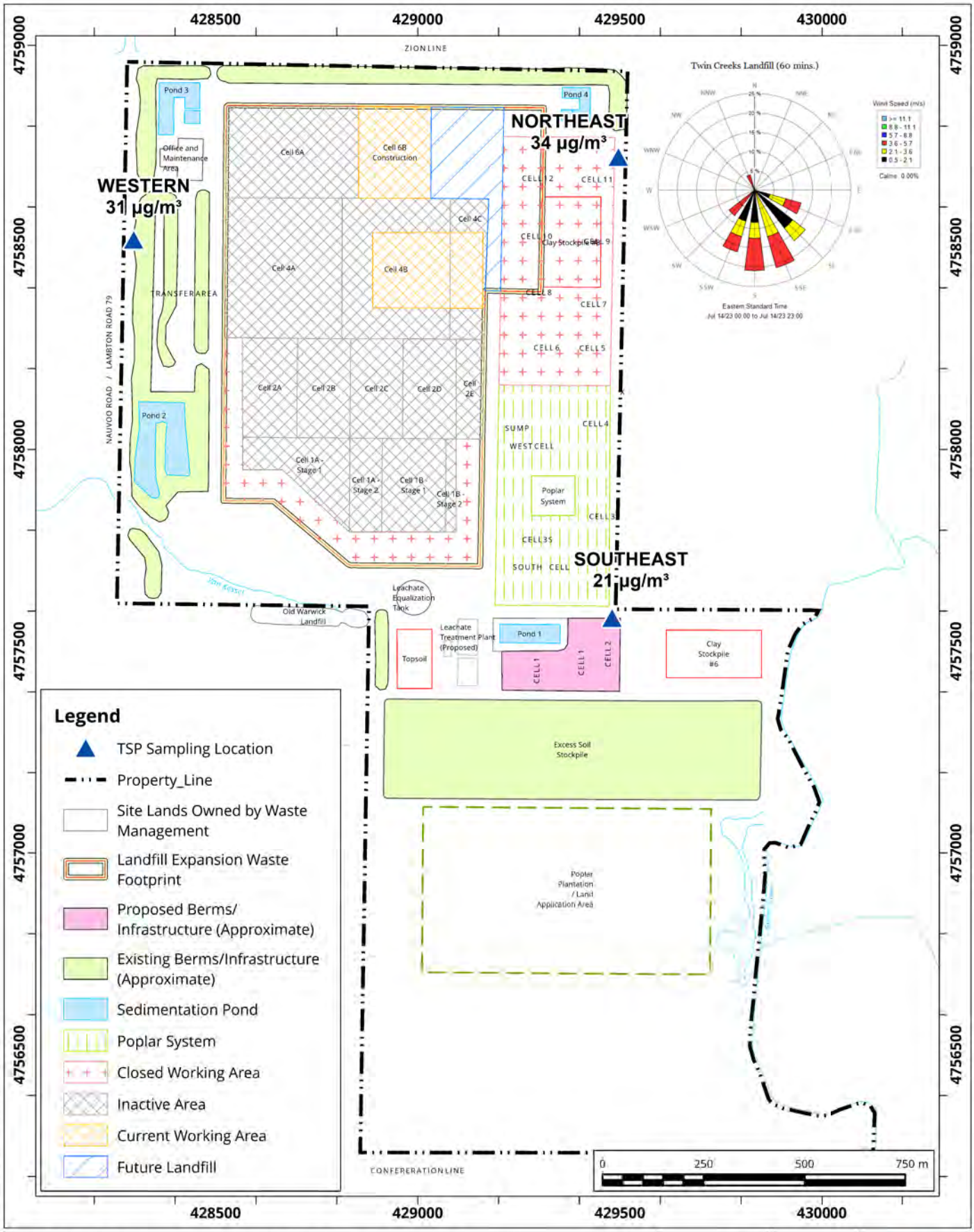


Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 14, 2023

Map Projection: NAD 1983 UTM Zone 17N

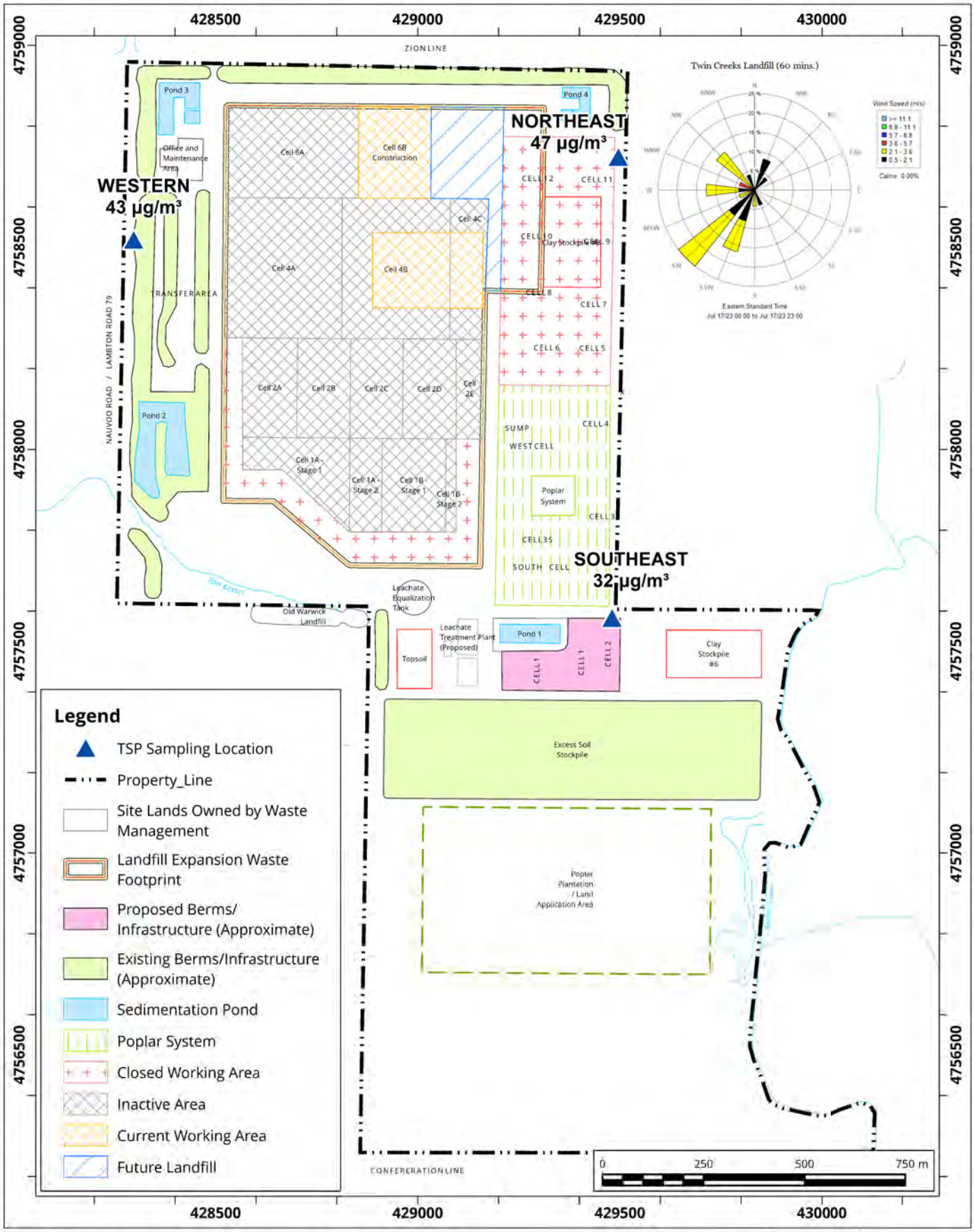
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 7e
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 17, 2023

Map Projection: NAD 1983 UTM Zone 17N

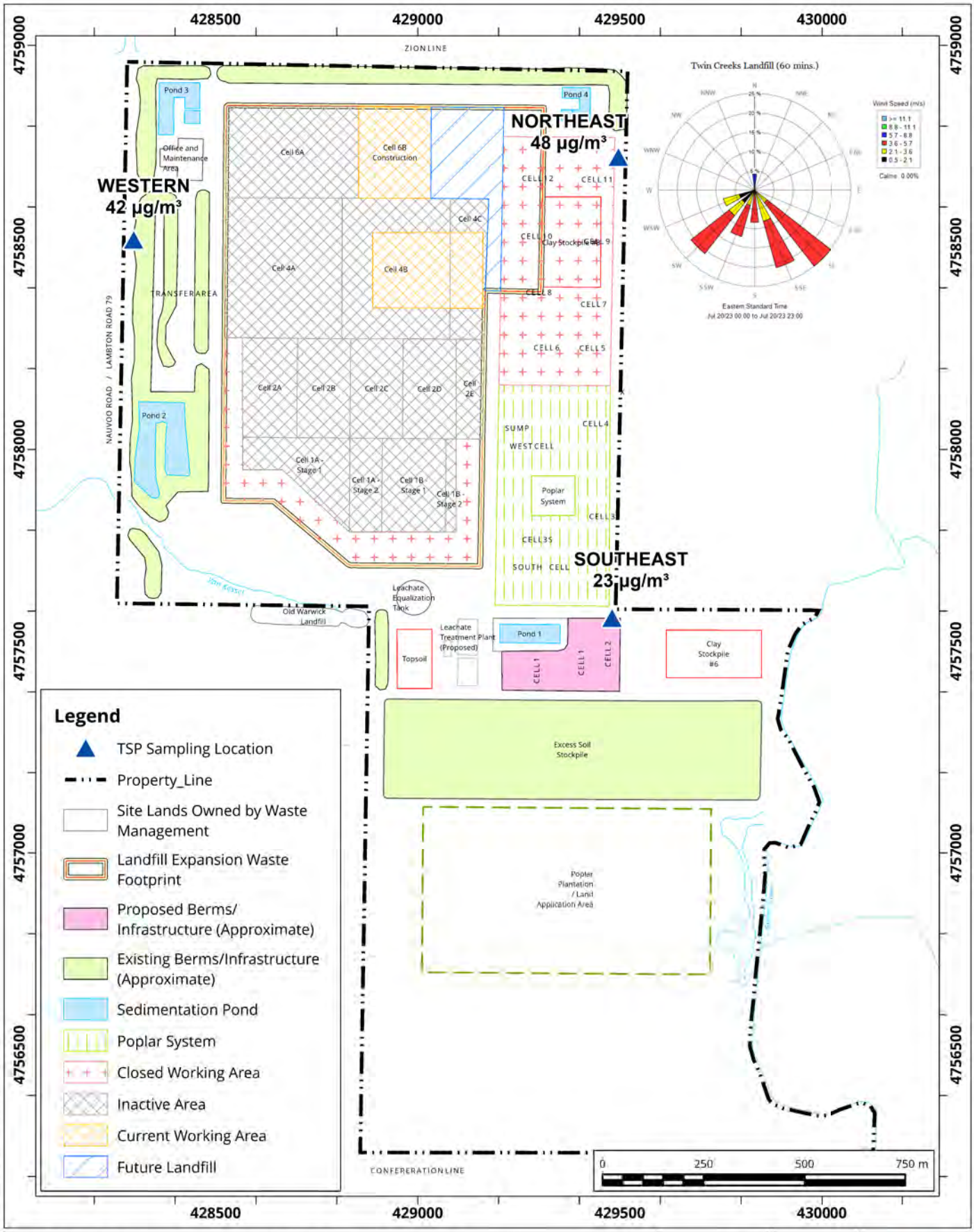
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 7f
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 20, 2023

Map Projection: NAD 1983 UTM Zone 17N

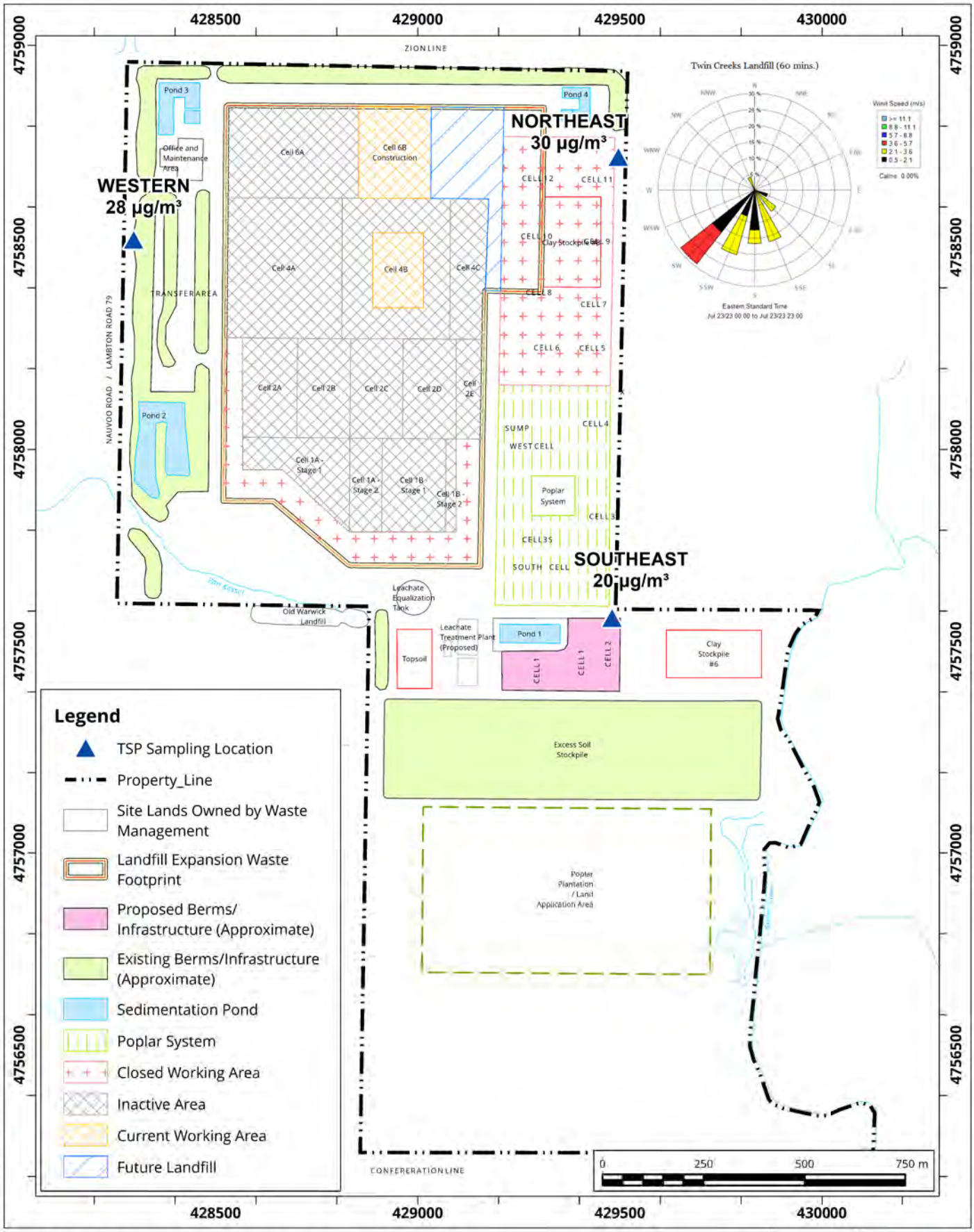
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 7g
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 23, 2023

Map Projection: NAD 1983 UTM Zone 17N

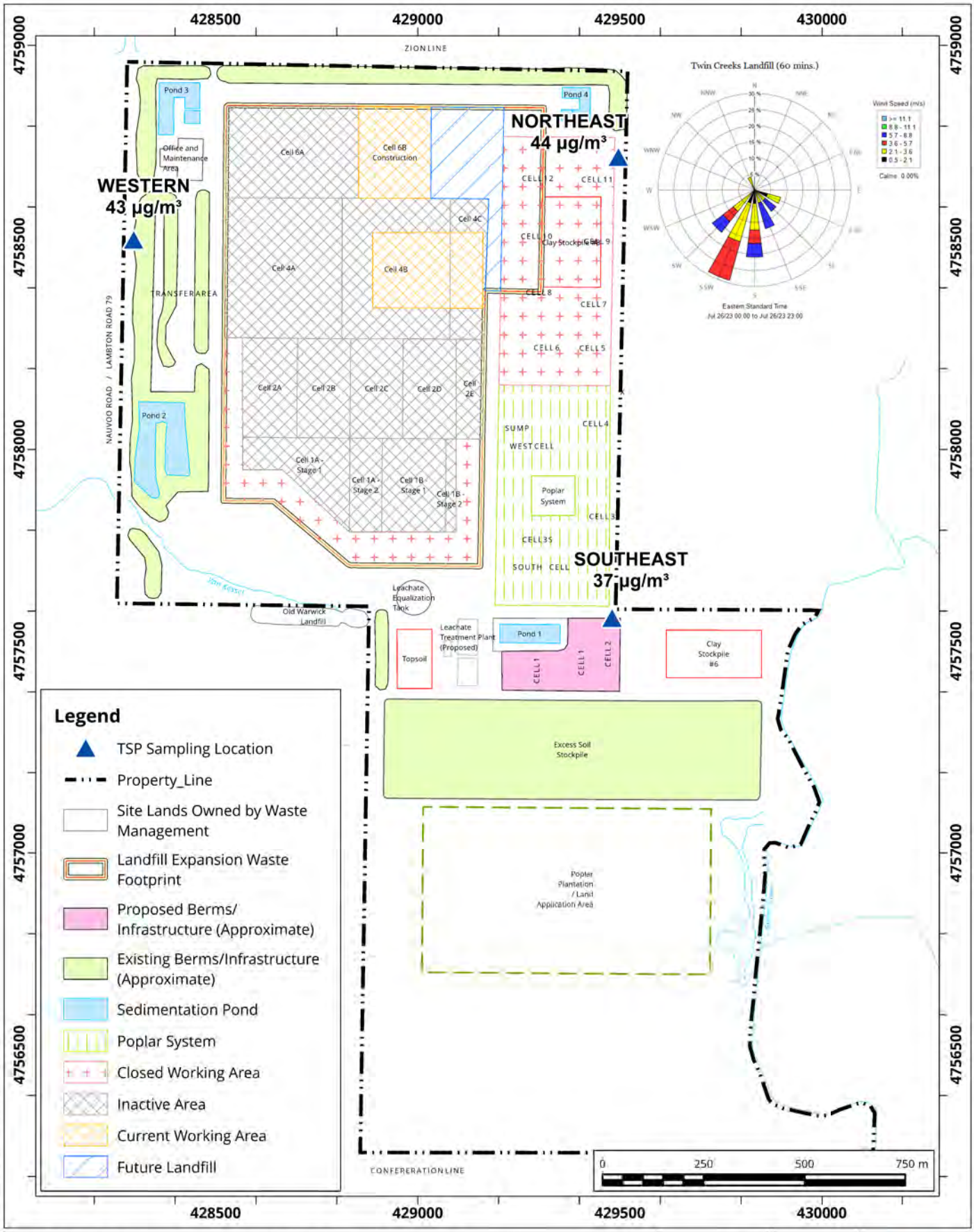
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 7h
Approx. Scale:	1:13,000
Date Revised:	Oct 10, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 26, 2023

Map Projection: NAD 1983 UTM Zone 17N

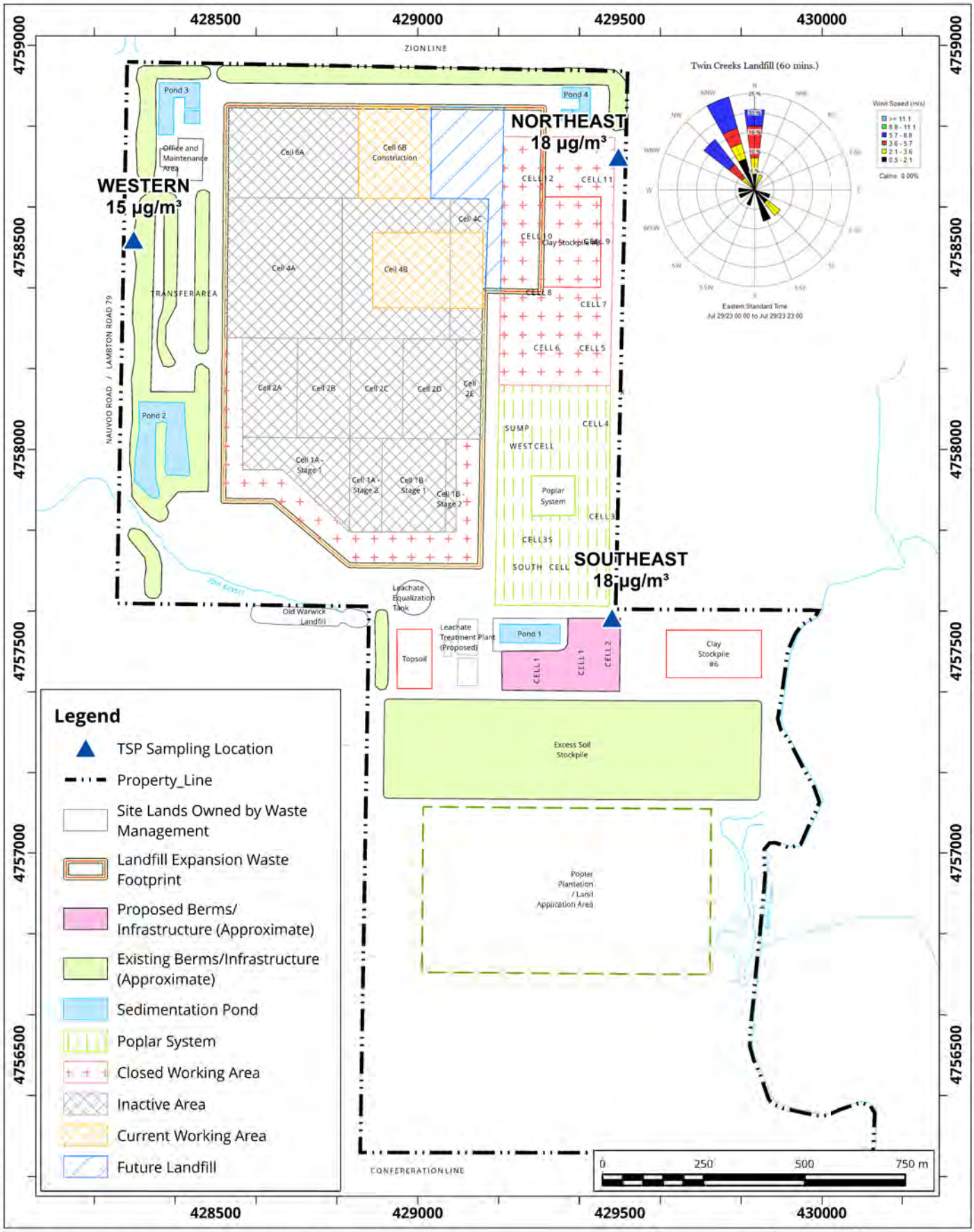
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 7i
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 29, 2023

Map Projection: NAD 1983 UTM Zone 17N

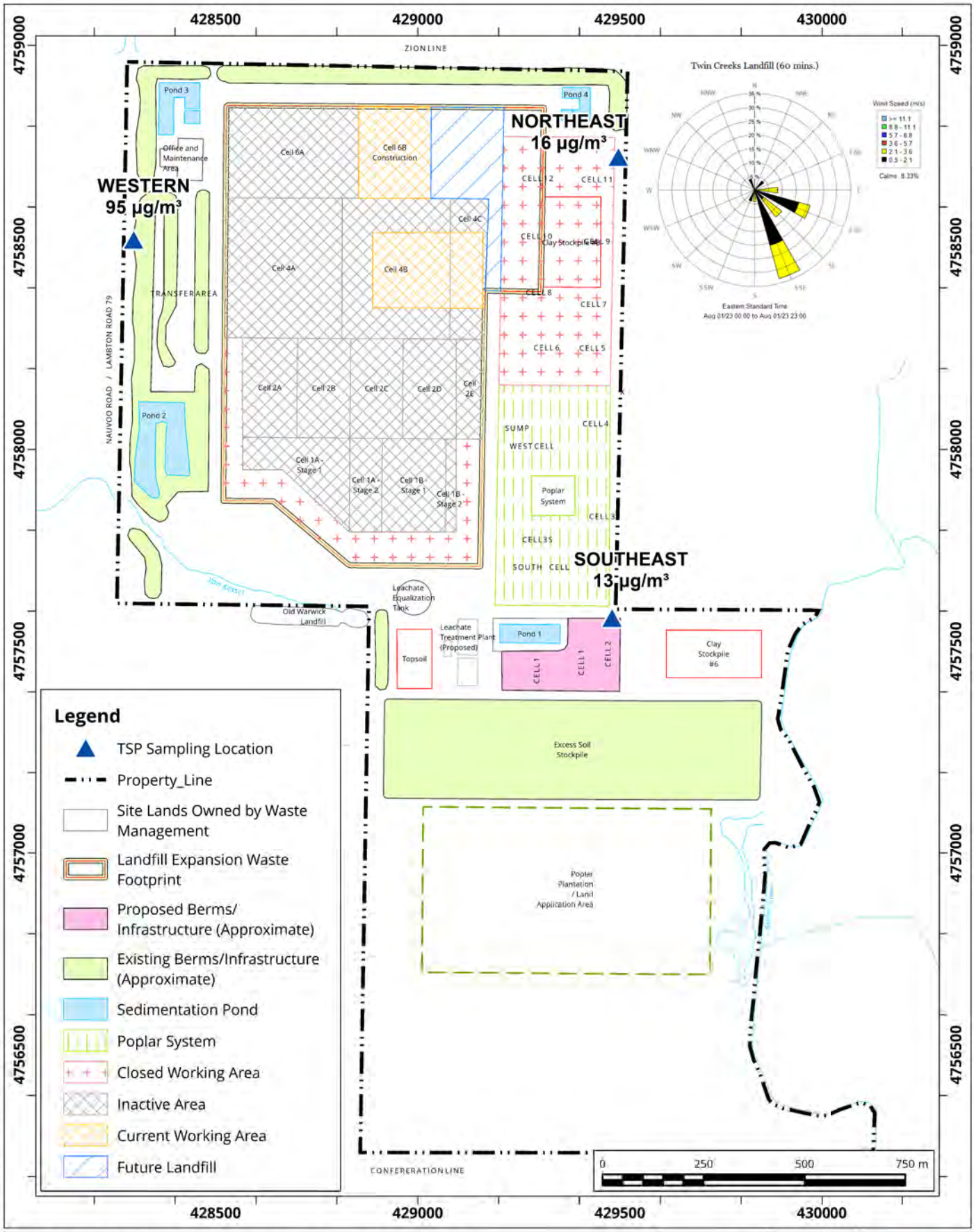
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 7j
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 1, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 8a
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

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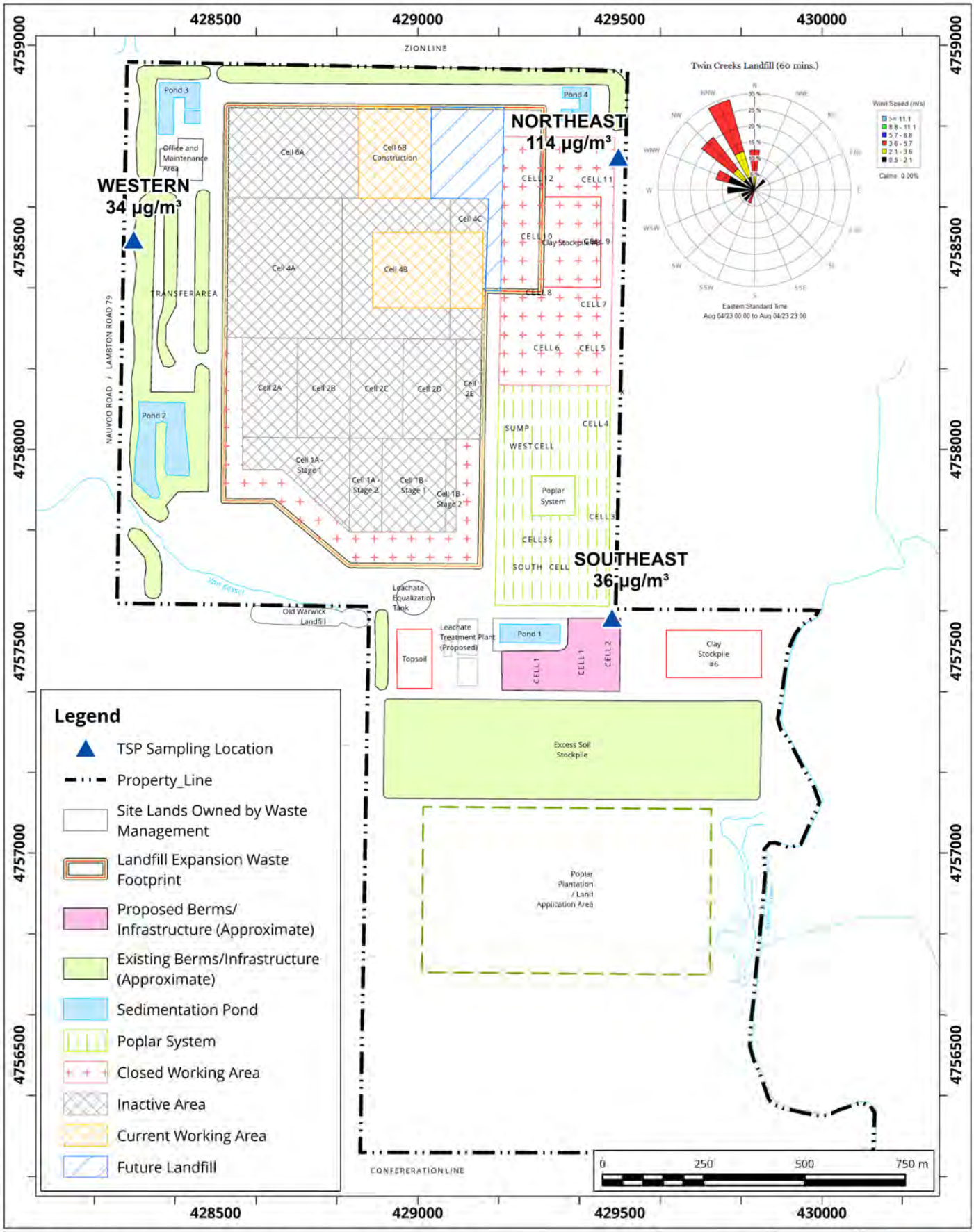

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 4, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 8b
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

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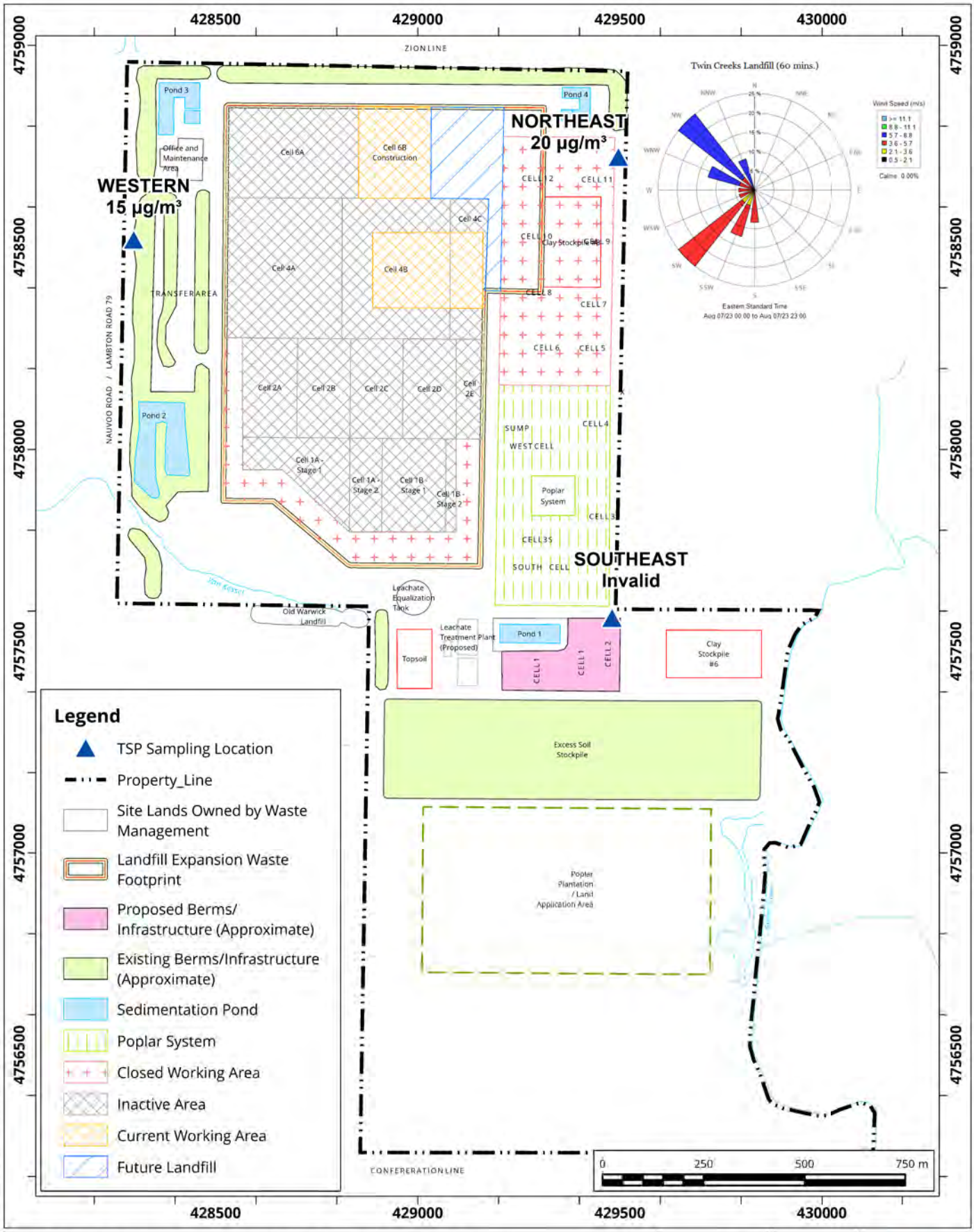

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 7, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 8c
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

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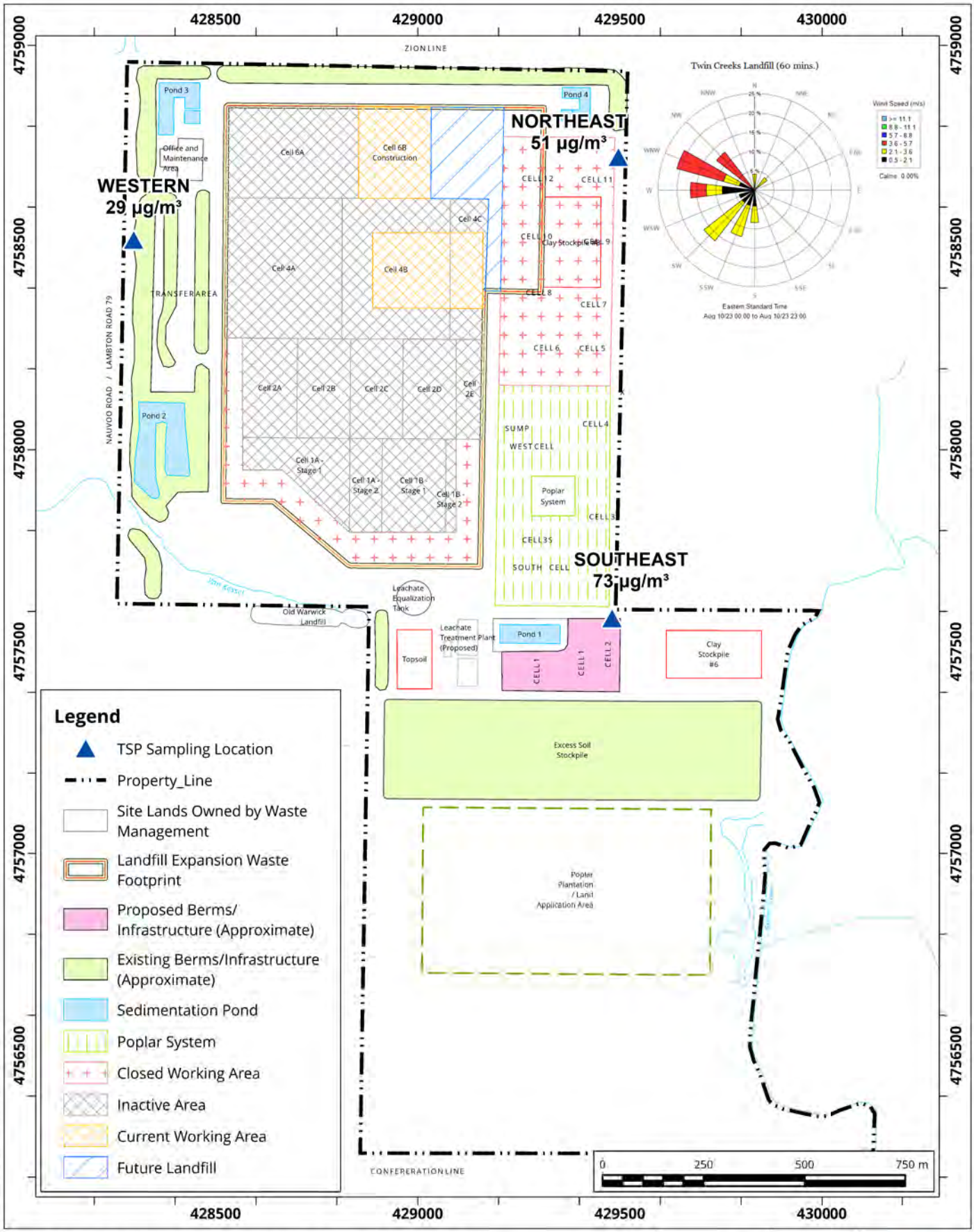


Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 10, 2023

Map Projection: NAD 1983 UTM Zone 17N

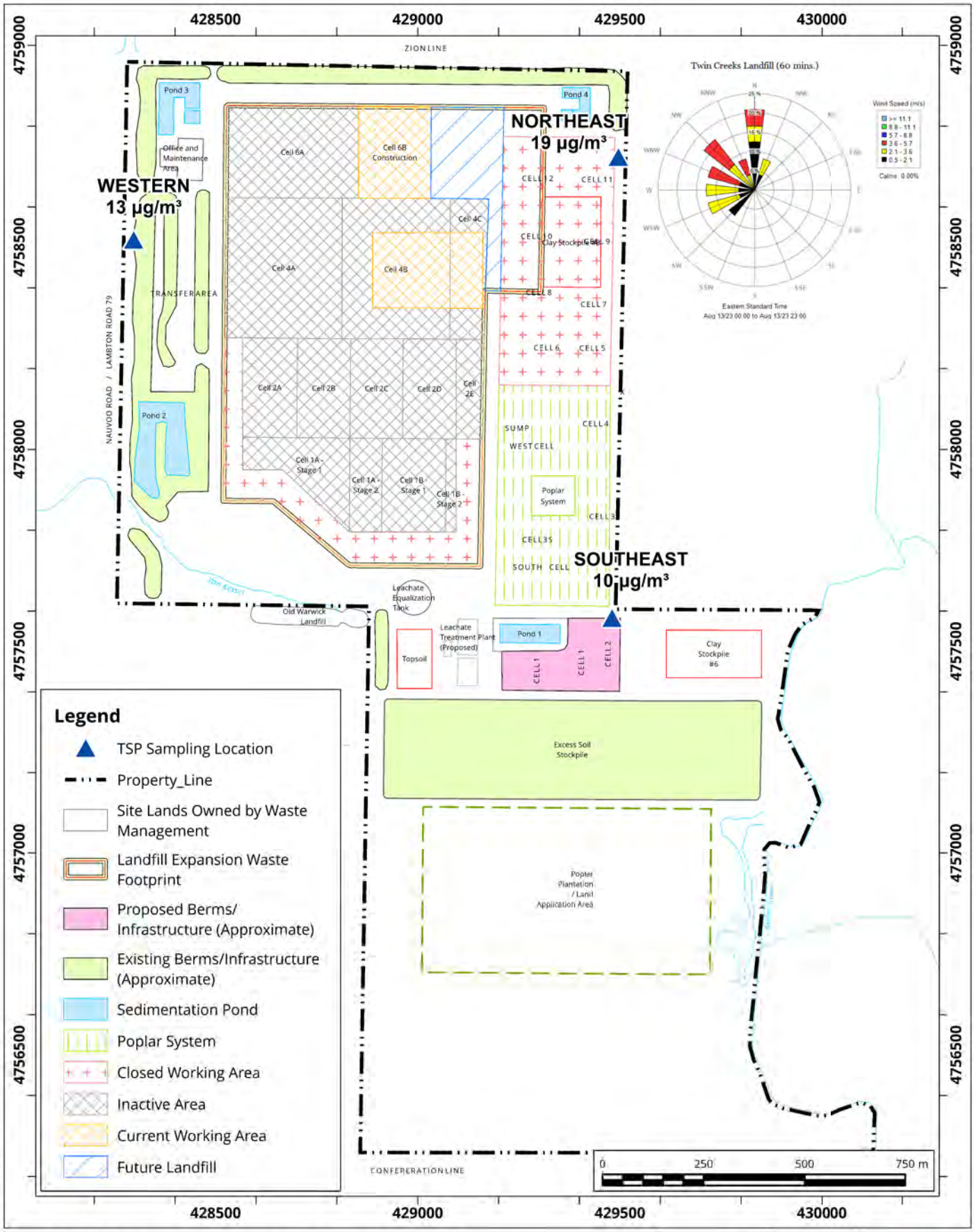
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by:DAJH	Figure: 8d
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 13, 2023

Map Projection: NAD 1983 UTM Zone 17N

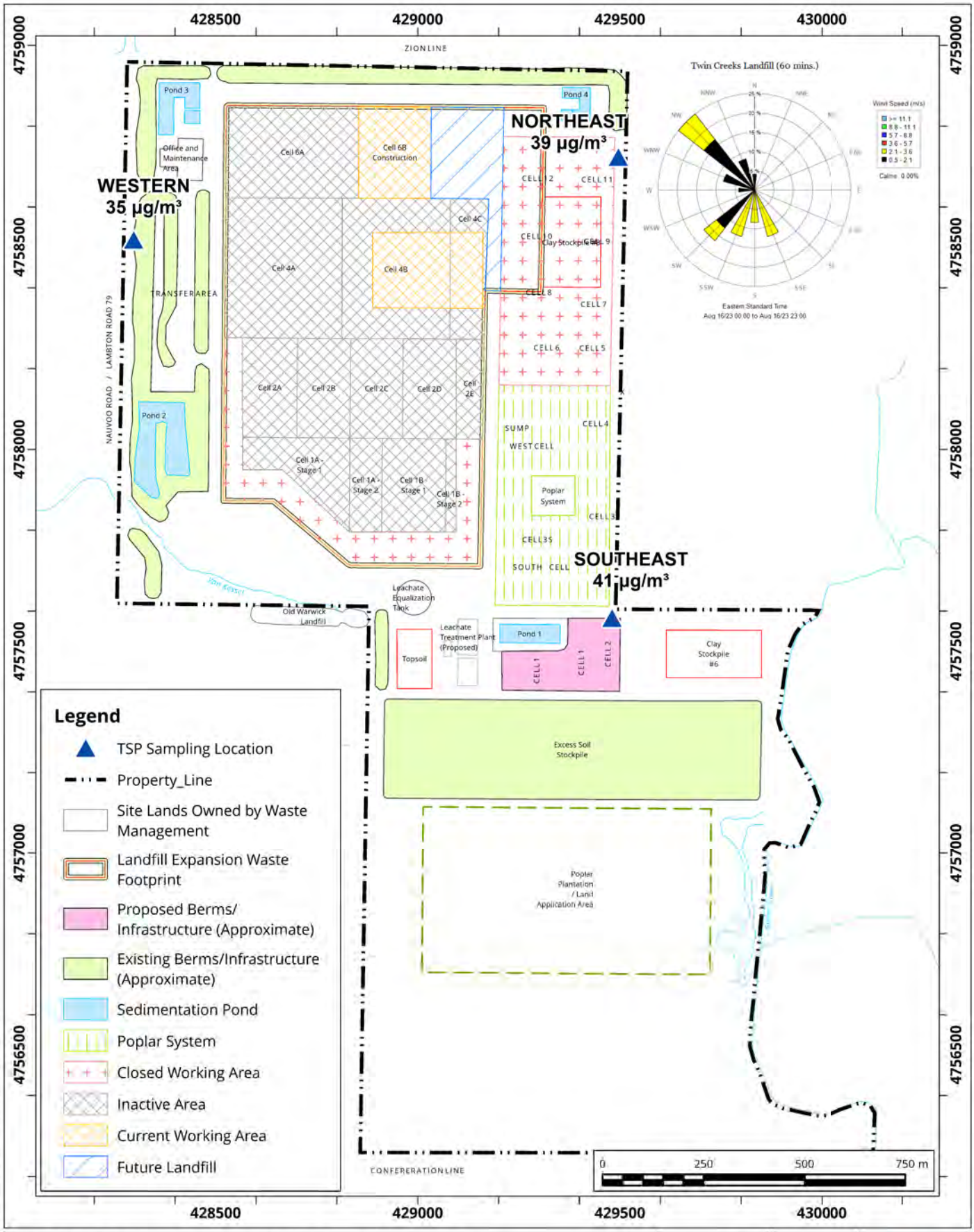
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 8e
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 16, 2023

Map Projection: NAD 1983 UTM Zone 17N

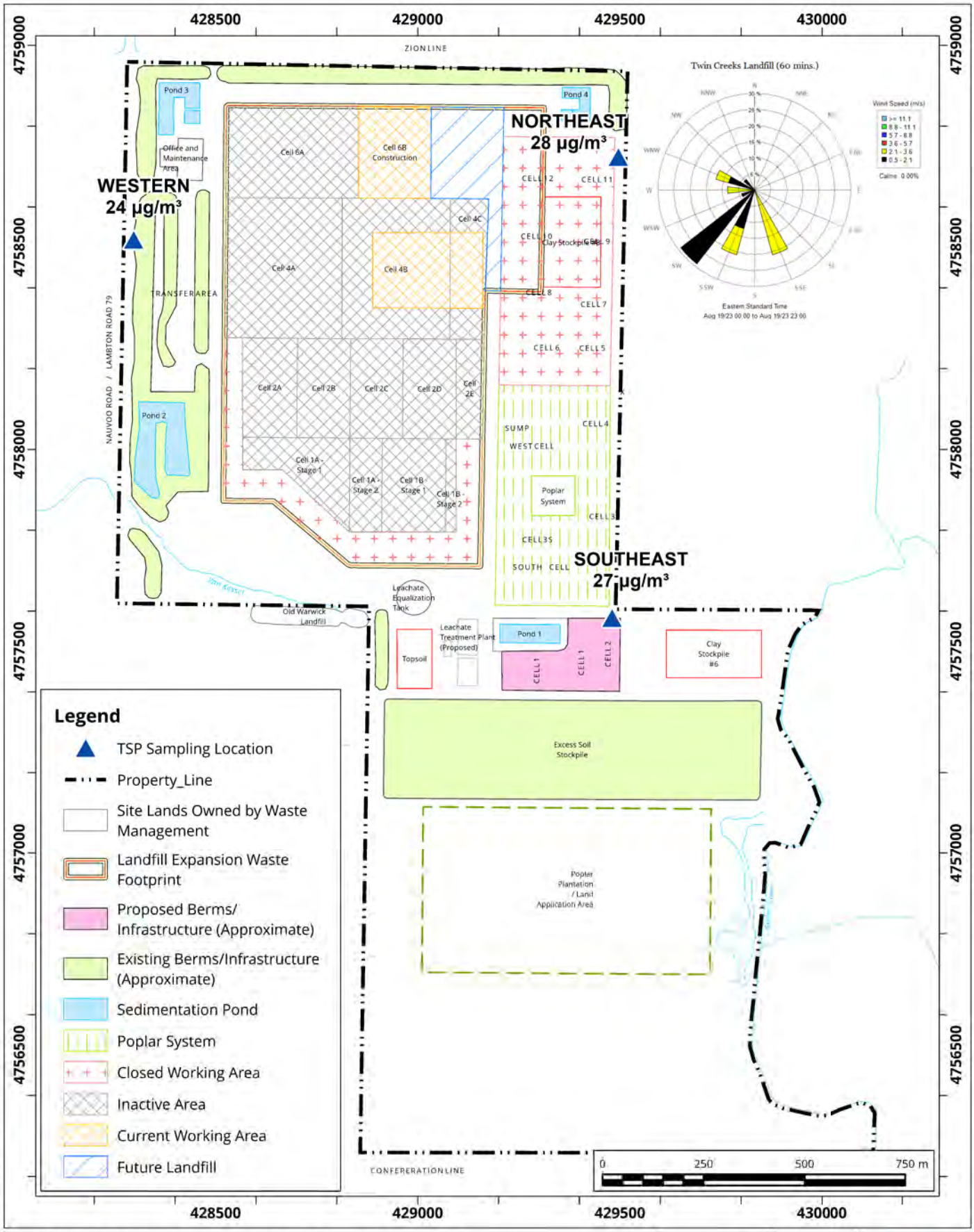
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 8f
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 19, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 8g
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

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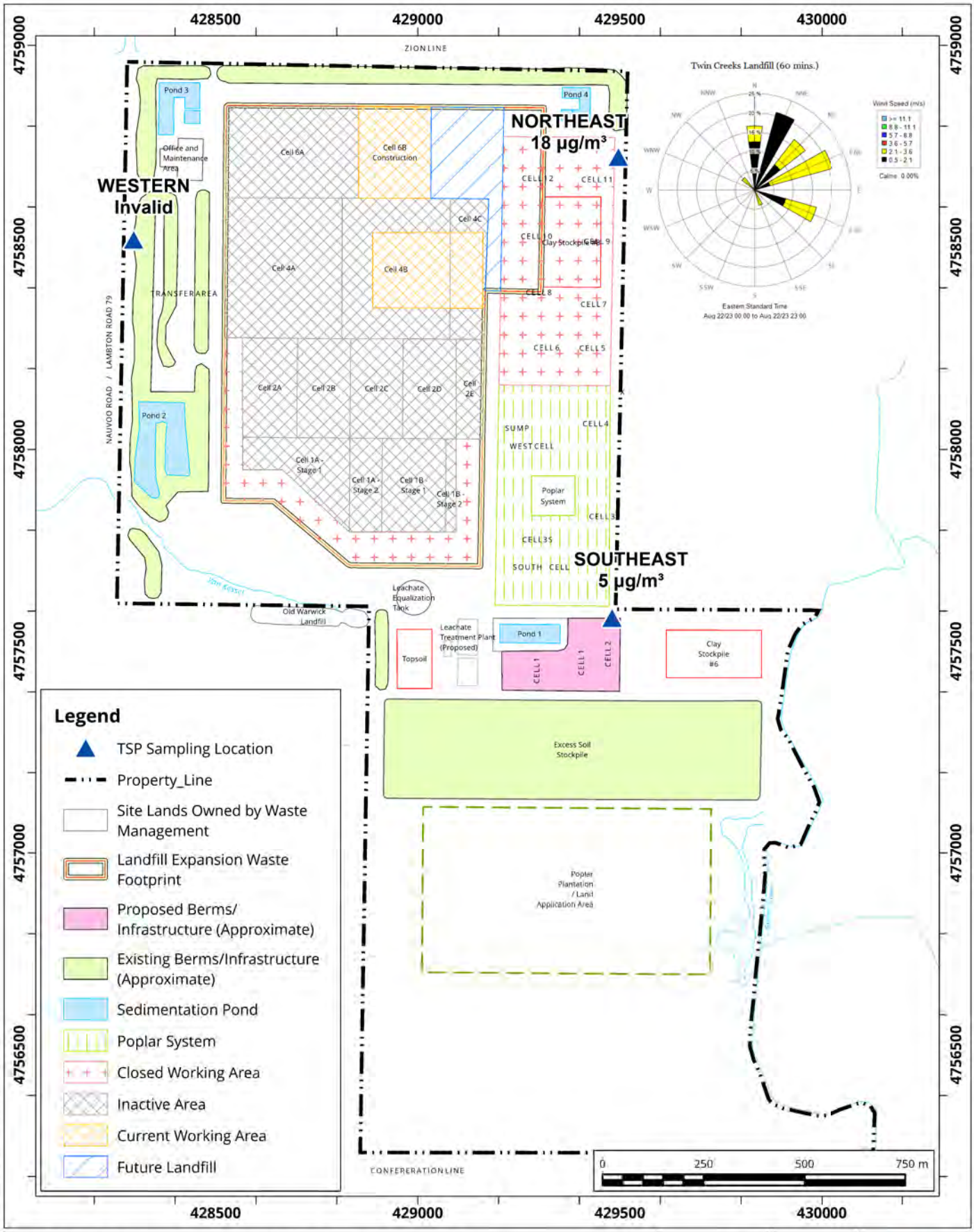


Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 22, 2023

Map Projection: NAD 1983 UTM Zone 17N

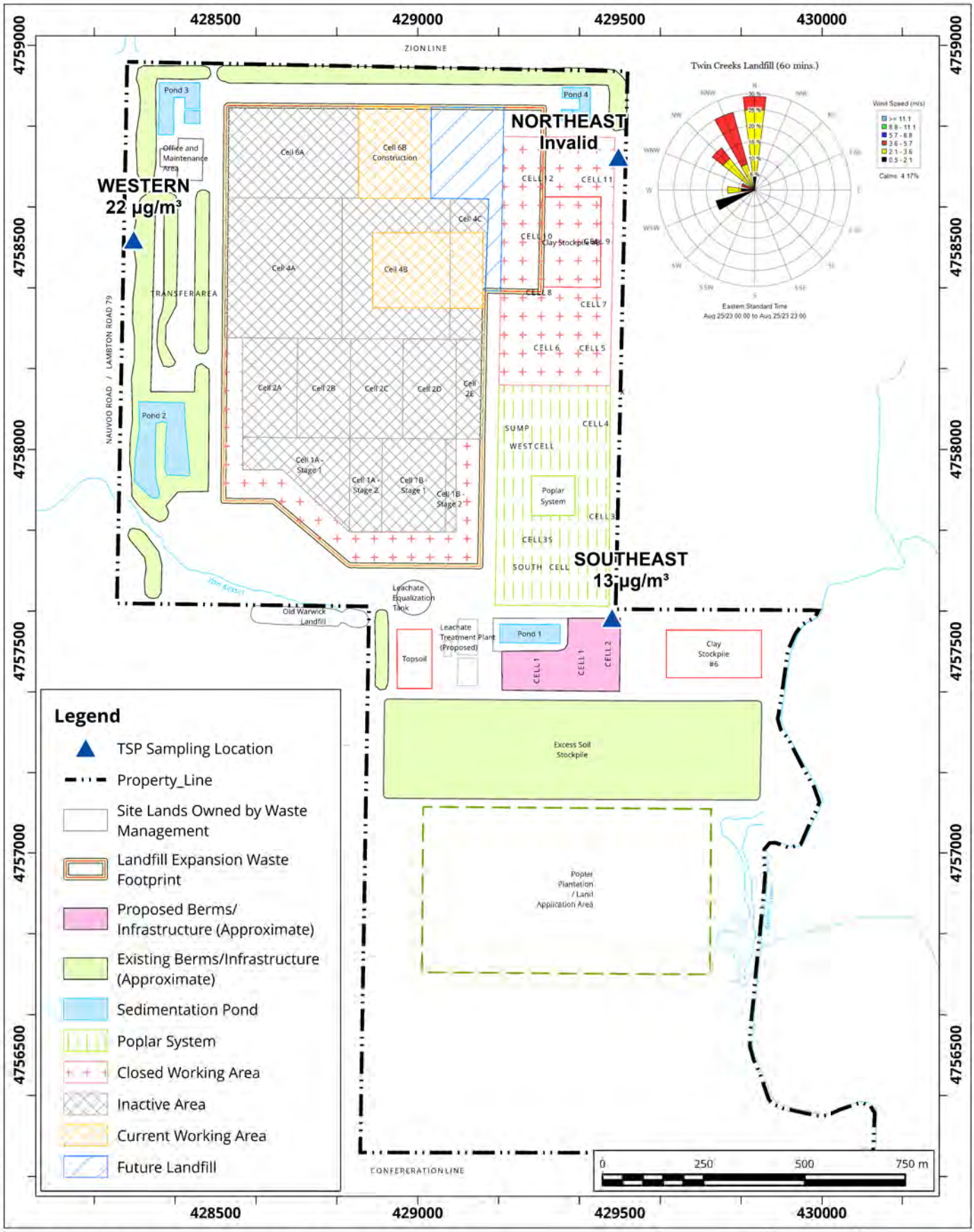
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 8h
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 25, 2023

Map Projection: NAD 1983 UTM Zone 17N

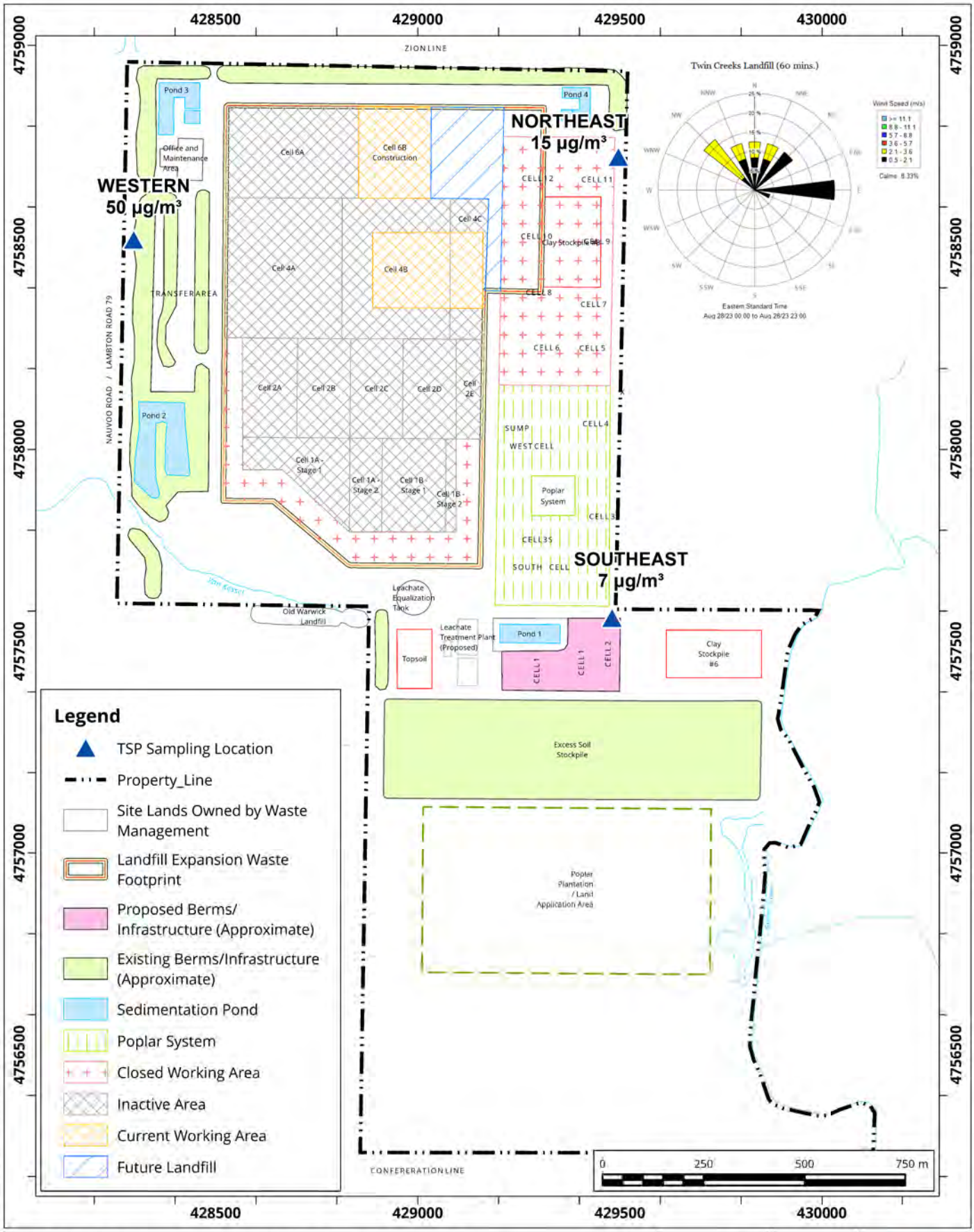
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 8i
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 28, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 8j
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

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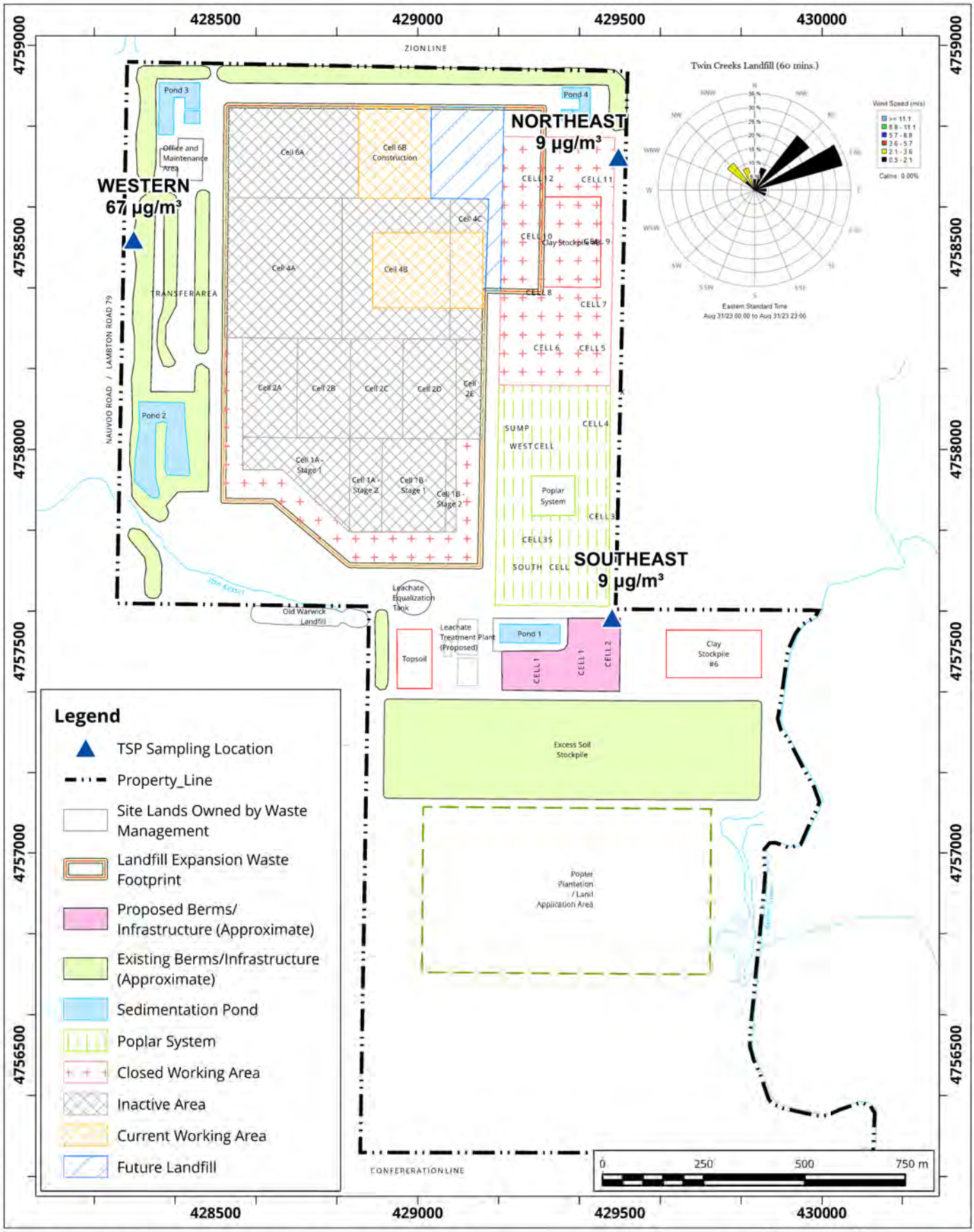


Site Plan Showing Sampling Locations and Wind Rose Sampling Period: August 31, 2023

Map Projection: NAD 1983 UTM Zone 17N

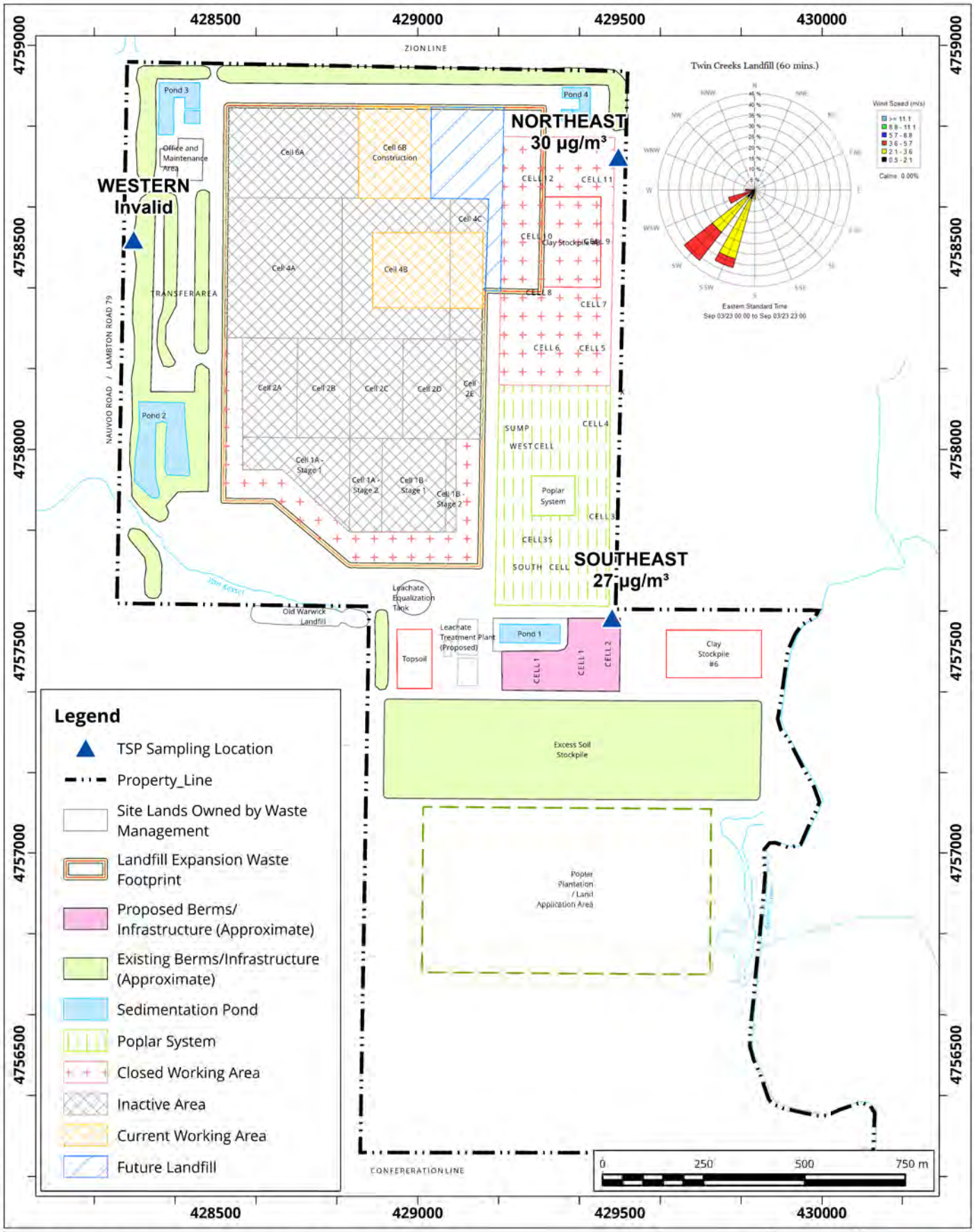
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 8k
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 3, 2023

Map Projection: NAD 1983 UTM Zone 17N

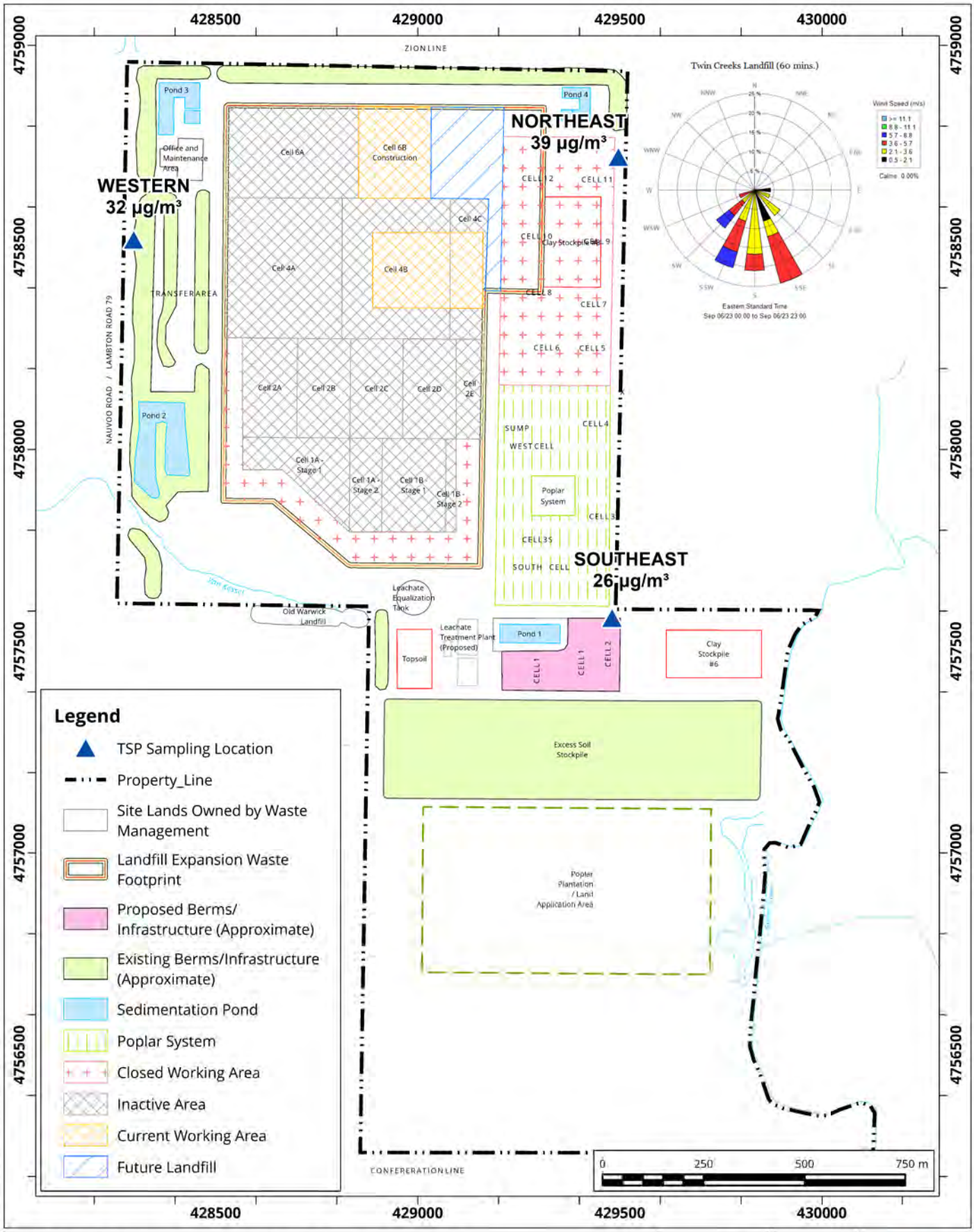
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 9a
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 6, 2023

Map Projection: NAD 1983 UTM Zone 17N

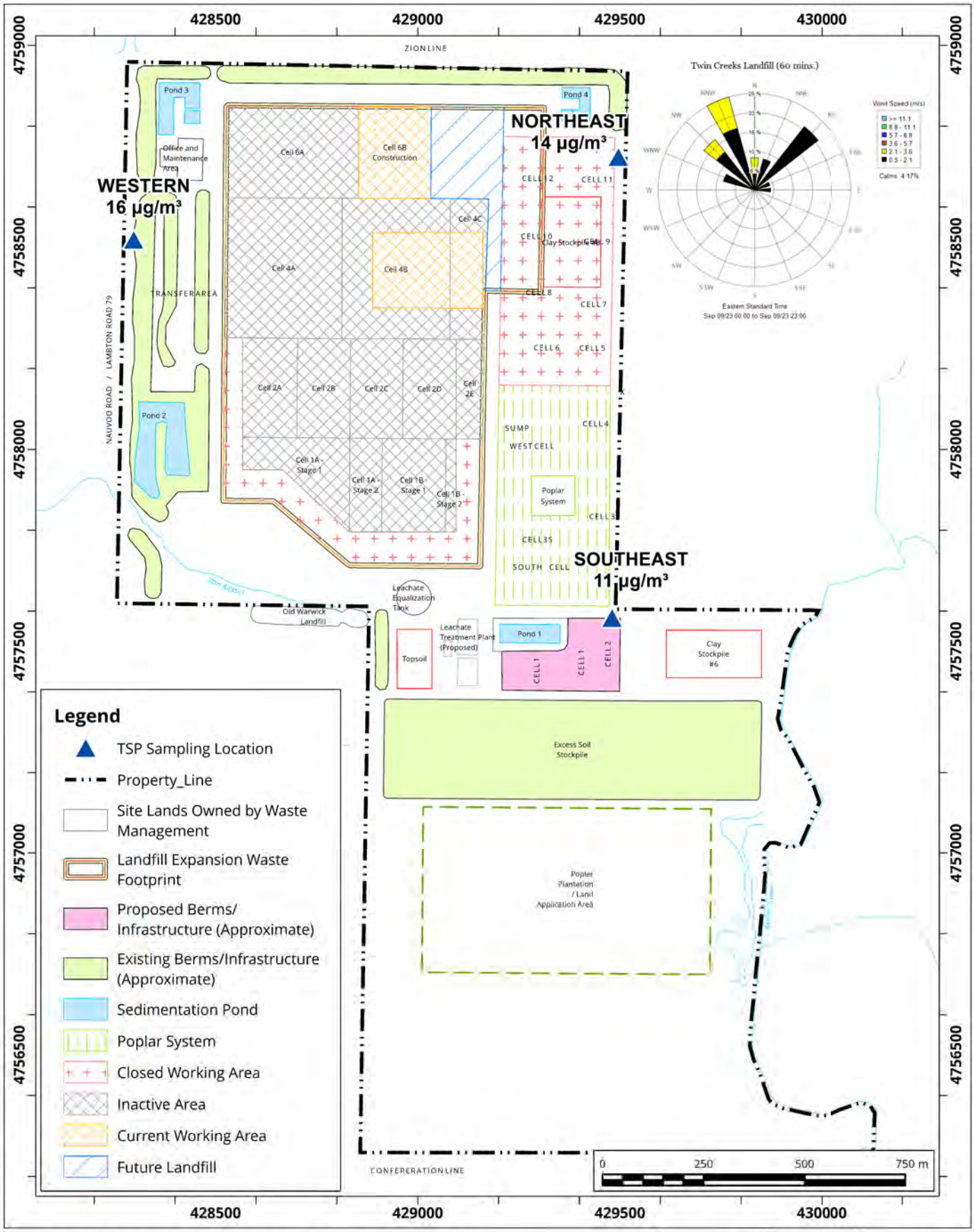
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 9b
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 9, 2023

Map Projection: NAD 1983 UTM Zone 17N

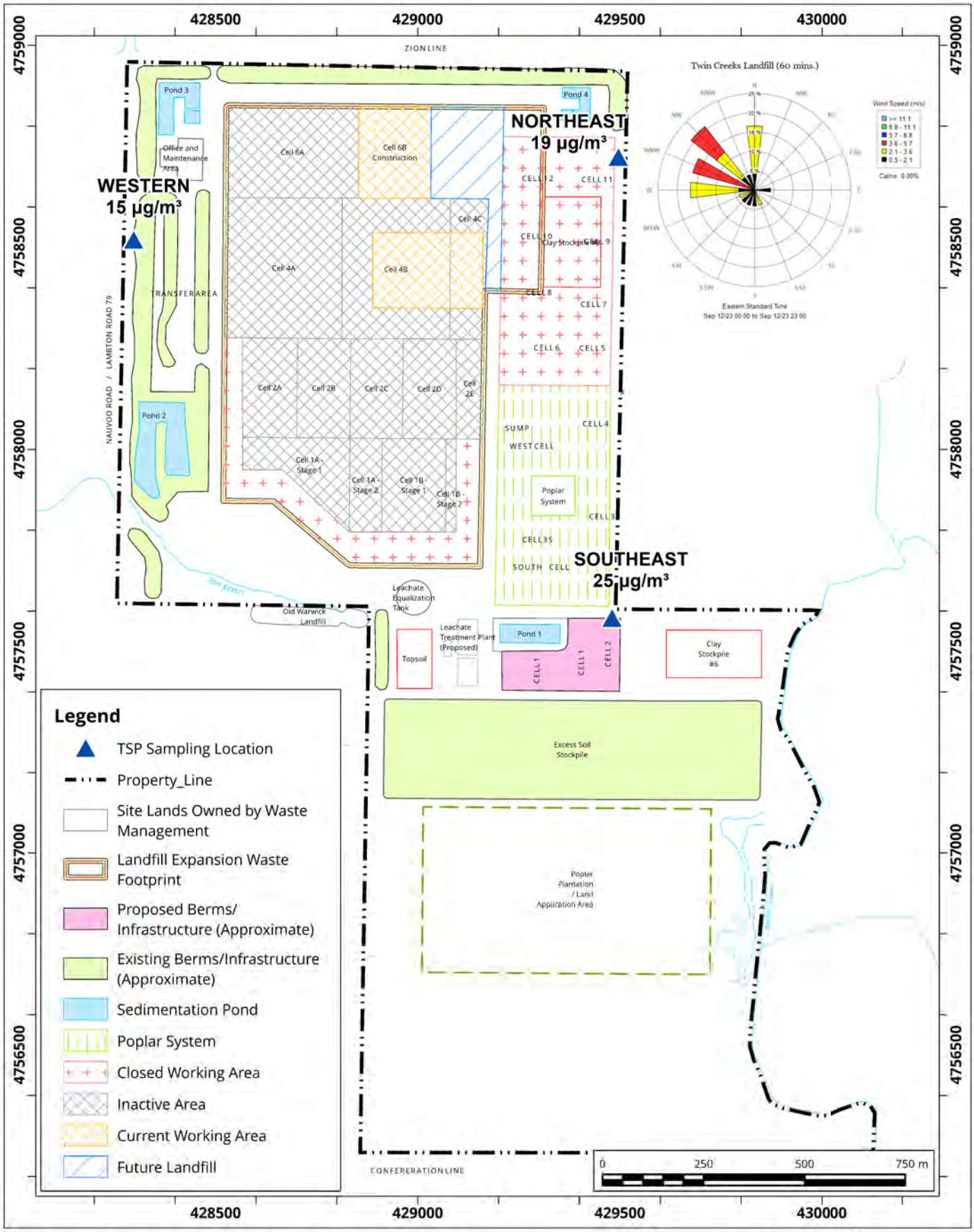
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 9c
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 12, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 9d
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

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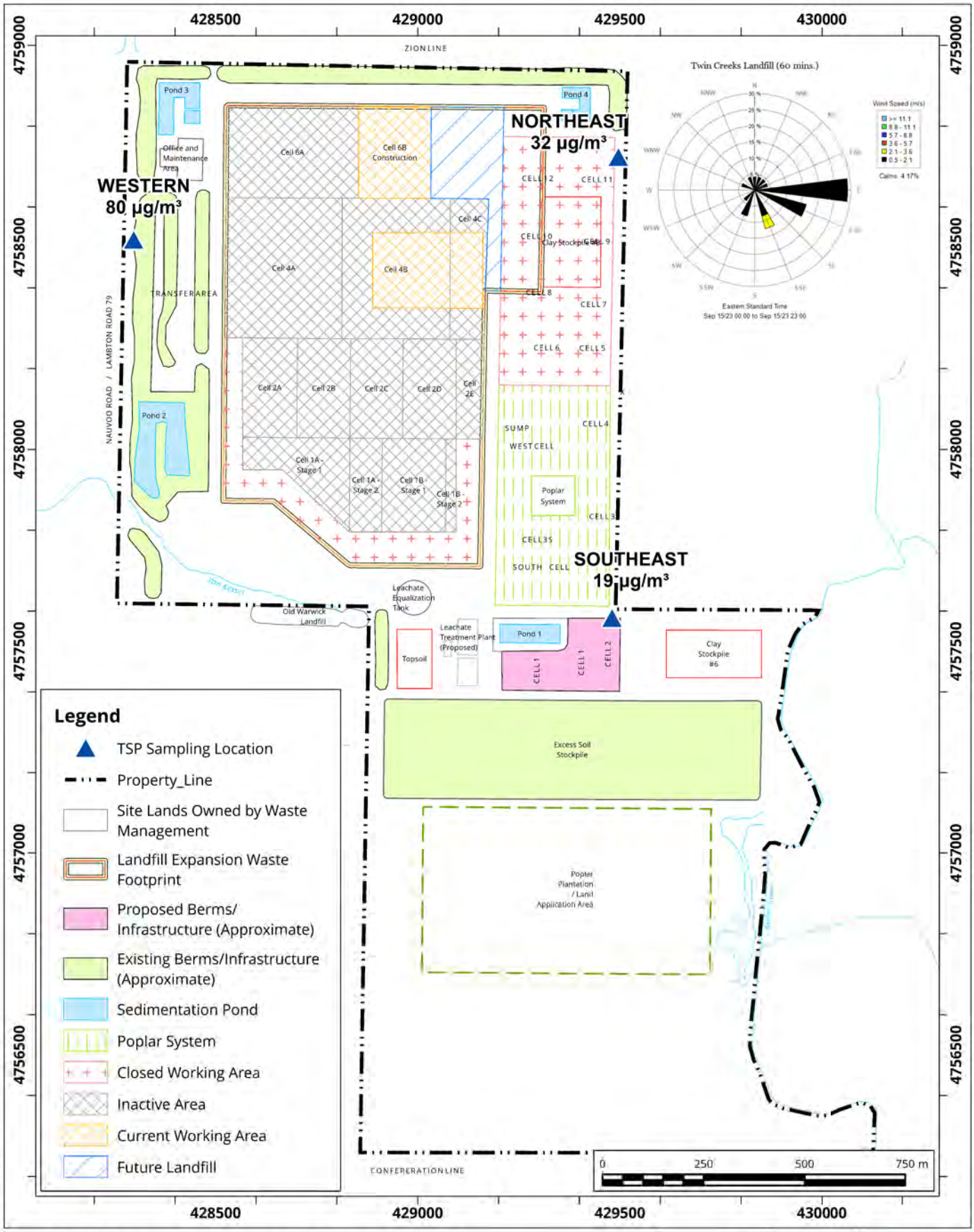


Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 15, 2023

Map Projection: NAD 1983 UTM Zone 17N

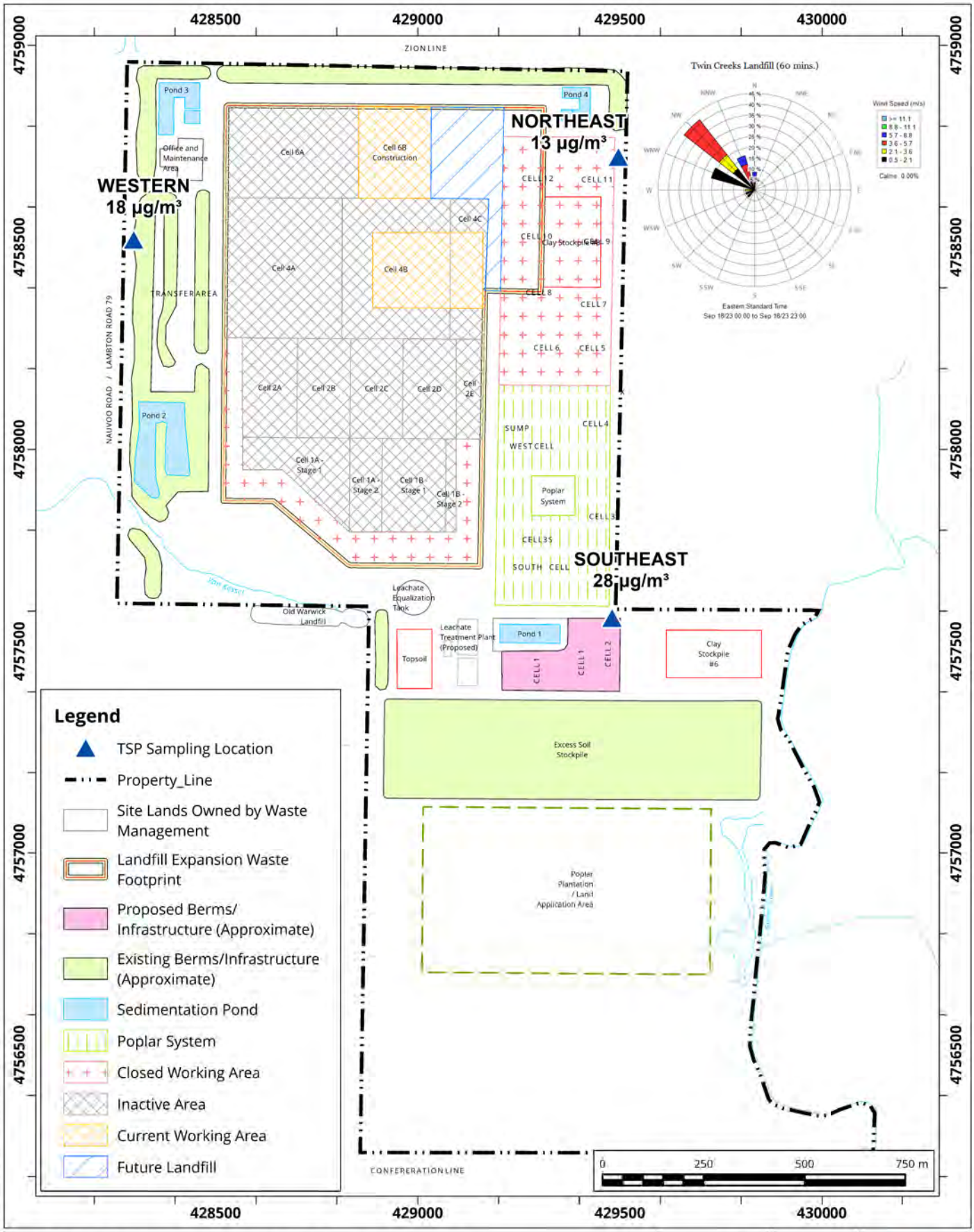
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 9e
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 18, 2023

Map Projection: NAD 1983 UTM Zone 17N

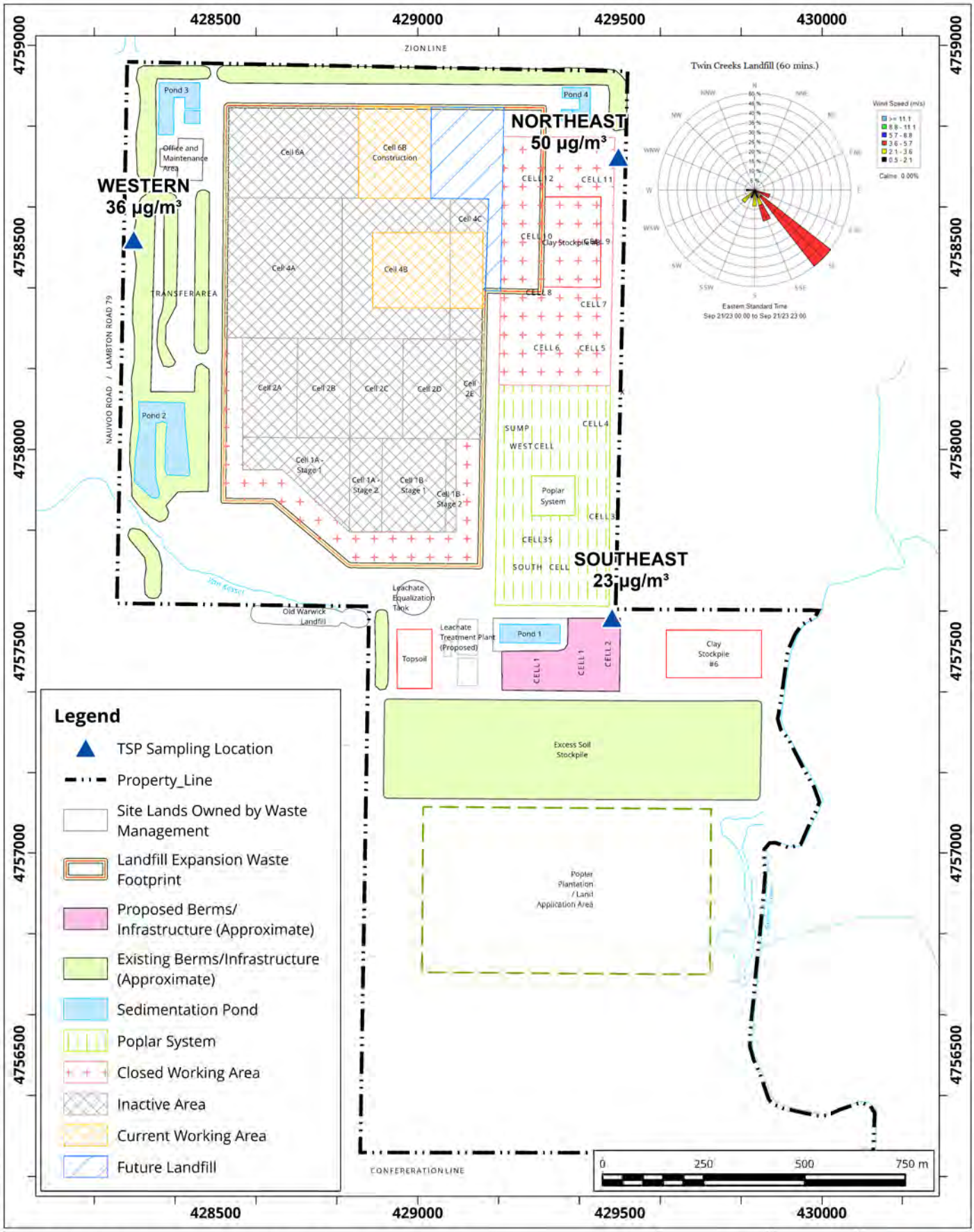
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 9f
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 21, 2023

Map Projection: NAD 1983 UTM Zone 17N

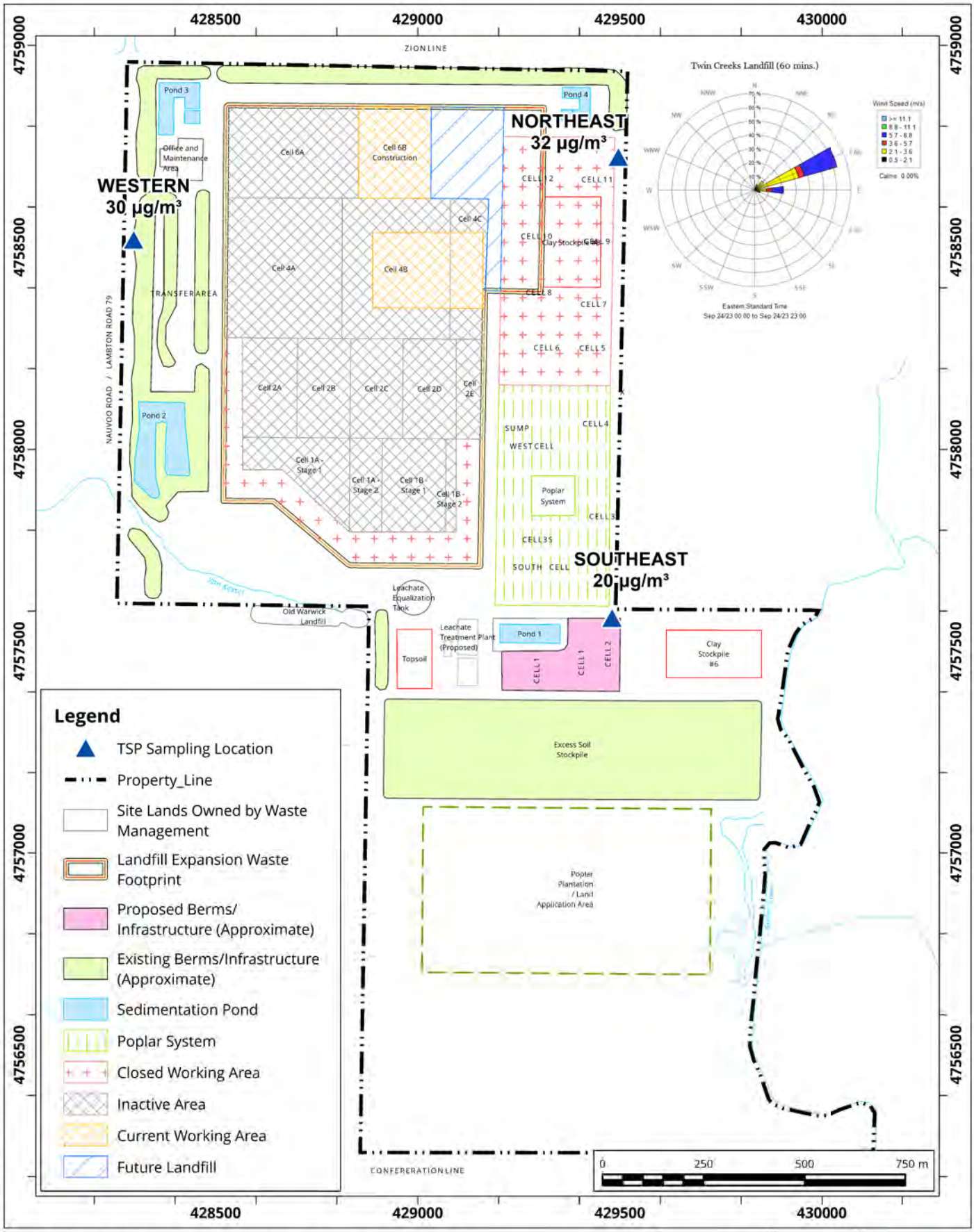
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 9g
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 24, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 9h
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

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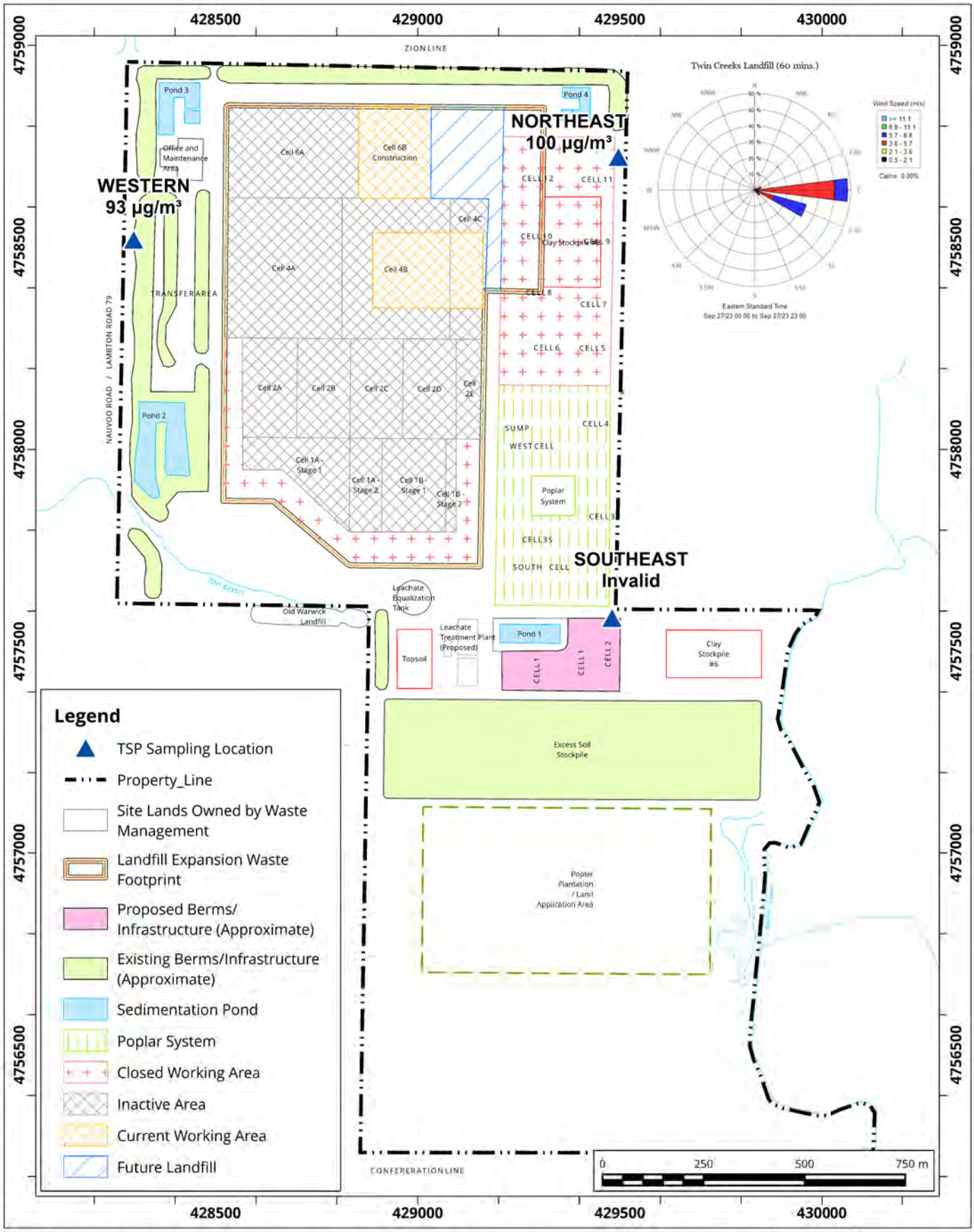


Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 27, 2023

Map Projection: NAD 1983 UTM Zone 17N

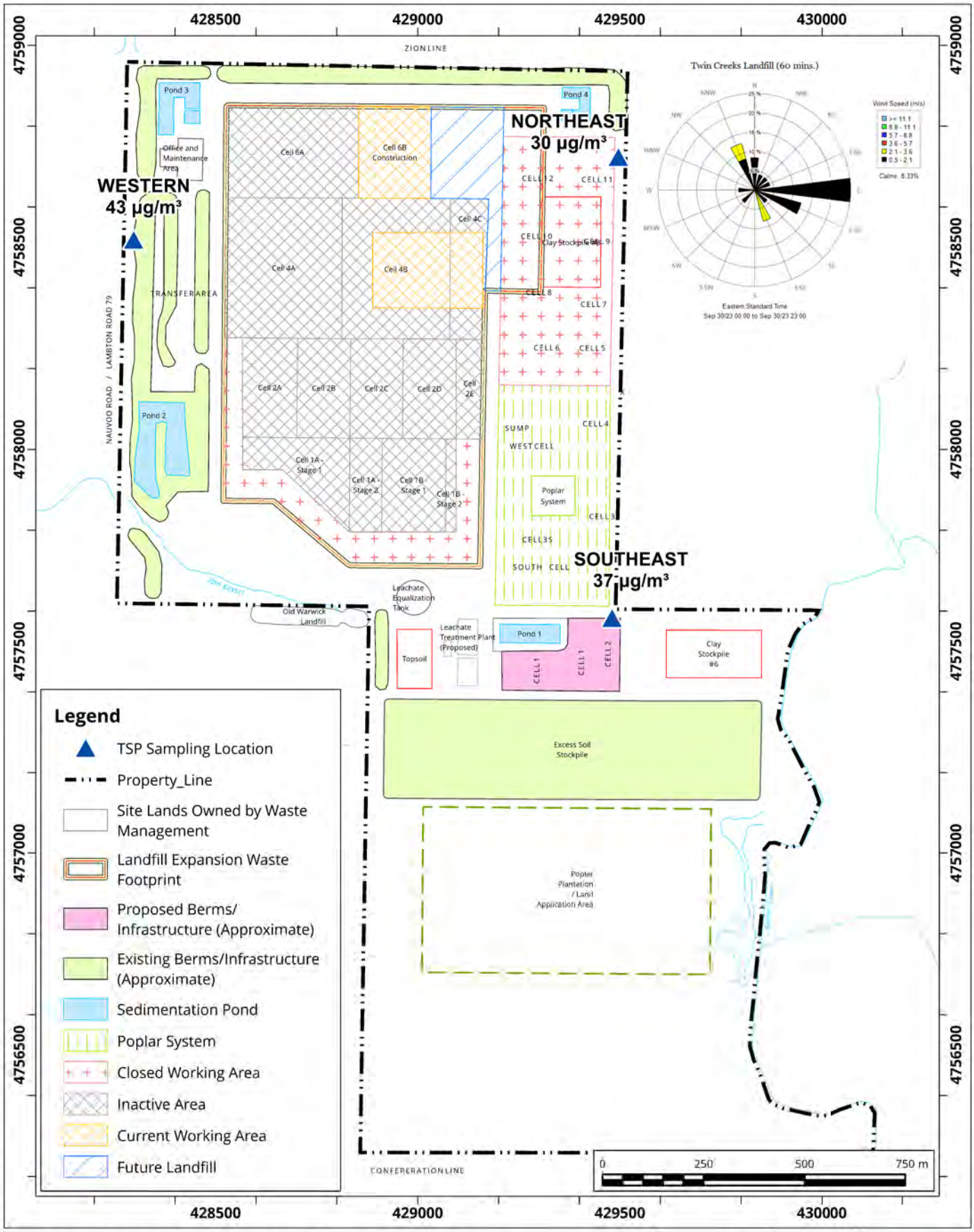
Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 9i
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: September 30, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 9j
Approx. Scale:	1:13,000
Date Revised:	Oct 30, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\P2001313_TwinCreeks.aprx

ATTACHMENT A

REPORT

WASTE MANAGEMENT OF CANADA CORPORATION

WATFORD, ONTARIO

TWIN CREEKS LANDFILL SITE: AMBIENT AIR QUALITY MONITORING PLAN [REVISION #3]

RWDI #1600984

May 18, 2017

SUBMITTED TO

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1 TOTAL HYDROCARBON "WALKABOUT" SURVEY

The "Walkabout" survey will consist of a grid survey of the entire landfill mound using a handheld THC analyzer (FID). A portable FID will be used throughout the surveys. The FID will be calibrated using a methane gas standard and zeroed using ultra zero pure air. The instrument used will have the following characteristics:

- a response time of no greater than 15 seconds
- an accuracy of 3 percent or better
- a minimum detectable limit of 5 ppmv (or lower)
- a flame-out indicator, audible and visual

The "Walkabout" survey will be completed in a grid like formation gathering data at 7.6 cm or lower (3 inches or lower) above the ground. "Hotspots" of "breakout points" consisting of cracks, fissures, areas of bubbling surface water, or patches of dead (brunt) vegetation on the mound will be visually observed and notes for THC concentrations exceeding 500 ppm (methane). The "walkabout" surveys should be completed at winds less the 8 kilometers per hour (5 miles per hour) and during dry conditions (no measurable precipitation for the proceeding 72 hours prior to sampling). In addition, for the instantaneous readings, the surveys should be completed when the ambient temperatures are within 0 to 50 degrees Celsius.

THC concentrations 500 ppm or greater should be considered of concern during the instantaneous measurements. Therefore, THC concentrations less than 500 ppm will not be noted during the survey. Locations where the THC concentrations are 500 ppm or greater should assist WMI in determining all potential and existing landfill gas release points that require remedial action.

All THC concentrations measured will be expressed as methane on the calibration standard used. After the 'hotspot" or "breakout points" are fixed, documentation of the corrective actions taken as well as confirmation of adequate actions taken (THC concentrations less than 500 ppm) will be presented to the MOECC. The "walkabout" survey will include the following:

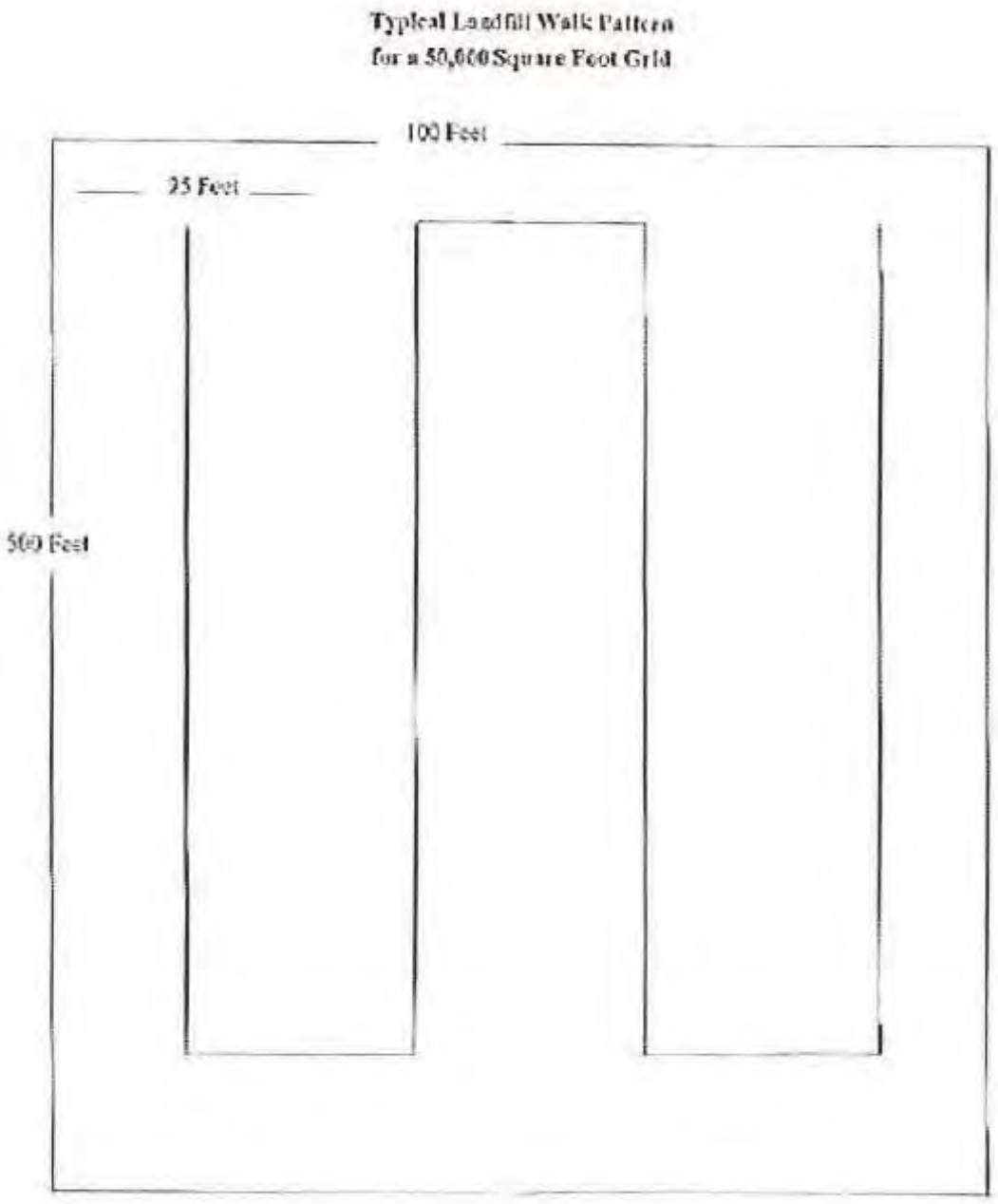
- precise locations of all sampling sites on the site map
- identification of all data obtained in the field measurements
- documentation of all remedial action

The "walkabout" survey should be done in the spring and the early fall. The measured areas should include areas where landfill cover is complete. Problem areas identified should be repaired within two (2) months of identification. Once repairs are completed, a follow-up survey on the specific locations will be completed to validate success of the remediation action(s). The process is important in minimizing odour and VOC emissions.

The "Walkabout" surveys will be performed twice per year or in response to otherwise unexplained odour events. As outlined in the Odour Best Management Practices Plan, routine visual inspections of the landfill cap integrity will also occur on a monthly basis to identify possible problem areas.

Figure 1 includes the walkabout pattern.

Figure 1: Walkabout Pattern



2 DUST MONITORING

The monitoring for Total Suspended Particulate (TSP) will be completed on an on-going basis at three locations around the landfill footprint. The TSP monitor locations are shown in **Figure 2.**

Total Suspended Particulate samples will be taken on a six-day interval during the months of October through May and samples will be taken on a three-day interval during the months of June through September. The sampling will be in concurrence with the U.S EPA National Air Pollutant Surveillance (NAPS) monitoring schedule. The sampling will include the entire year (sampling during 12 months per year). In addition, the analysis for airborne metals will be completed for 11 of the collected TSP samples per station (total of 33 metal samples per year). For each of the 11 sets of samples collected, the particulate analysis will be completed prior to the metal analysis and the highest particulate loaded filters from each station will undergo the analysis for airborne metals.

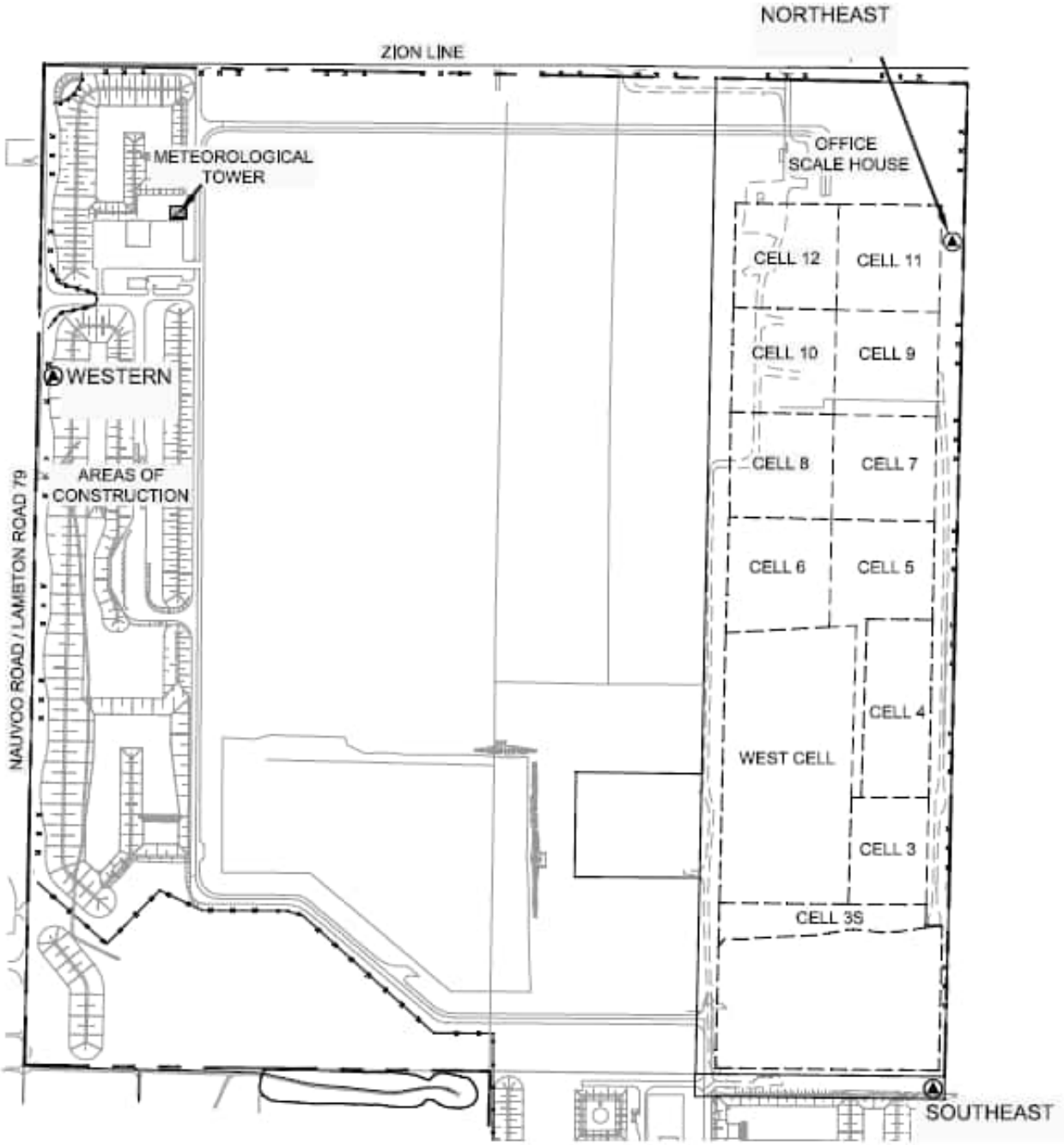
The monitoring method will comply with the metals specified by U.S. EPA Method I0-2. The 24-hour samples would be collected on standard hi-volume air samplers. The station siting requirements and sampling procedures will follow the most recent version of the U.S. EPA methods as well as the Ministry of the Environment's Operations Manual for Point Source Air Quality Monitoring as approved by the MOECC at the on-set on the monitoring. The U.S. EPA methods are referenced in the MOECC document as appropriate reference methods to follow for air quality monitoring programs.

The results will be presented in quarterly summary letters and an annual report. The report will include the data in tabular format with a description of the program, quality assurance documentation, details regarding data recovery, abnormal site conditions, etc. As well, any days when the ambient air quality criterion for TSP was exceeded would be reported to the District MOECC office within two (2) weeks of receiving results. In order to enhance the notification of elevated TSP Levels, WM will copy the Township of Warwick on any future elevated TSP level reporting provided to the MOECC.

As part of the dust control strategy, the shift supervisor will be responsible to see that a record of roadway sweeping and watering is maintained. The control measure will be initiated whenever a visible plume behind vehicles is longer than ¼ the length of the vehicle. These logs will be kept on-site for a period of not less than two (2) years and will be made available for inspection should the MOECC wish to see them.

When the facility receives a complaint, the shift supervisor will see that the relevant information is recorded, including any remedial action taken as a result of the complaint. A sample complaint log sheet is included in the Best Management Practices Plan (Dust).

Figure 2: Dust Monitor Locations



2.1 Additional Dust Monitoring Provisions

As discussed with stakeholders during the consultation for the annual fill rate increase for the site, the following provisions were made for additional monitoring to be completed under specific conditions. The following notes the agreed to provisions for the additional monitoring. This provision will also be included in the Dust Best Management Practices Plan (BMPP). In the event that the provisions are triggered, WM will prepare an updated Air Quality Monitoring Plan to layout the specific agreed to monitoring at the time the additional monitoring provision is required.

As agreed to with stakeholders, in the event that 2 measured exceedances (trigger), that can be attributed to WM operations, in any quarter (excluding periods when on-site cell construction is occurring) occurs, WM is committing to reviewing the data with the Township of Warwick. Upon confirmation that the exceedances can be attributed to WM operations, and are not related to cell construction, WM will complete the installation of continuous dust monitors.

If continuous dust monitors are to be installed, WM will work with the Township of Warwick to update the following documents:

- Air Quality Monitoring Plan – updated for equipment change as well as trigger for shorter duration alerts to be issued to WM as warnings for higher dust levels; and

- Best Management Practices Plan (Dust) – to be updated to link dust alerts to dust control initiatives.

3 VOC MONITORING

It is proposed that monitoring for VOC's be conducted through the summer months, with samples to be taken in upwind and downwind pairs, during normal operating hours of the landfill. There would be a total of 5 sample pairs taken between June and September. No more than two (2) samples will be collected in any calendar month. The samples will be 24-hours in duration and compared to their respective Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List.

The samples will be collected and analyzed using methods defined in U.S. EPA Method TO-14/15. Vinyl chloride is of particular concern with these types of samples and vinyl chloride will be analyzed in selective ion mode (SIM). Sampling for VOC samples will be collected during periods of light wind conditions (less than 15 kilometers per hour) and during dry conditions (no measureable precipitation for the proceeding 48 hours prior to sampling).The list of VOC's monitored is presented in Table 1.

Table 1: List of Monitored VOCs

CAS No.	Compound	CAS No.	Compound
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	620-14-4/622-96-8	m/p-Ethyl Toluene
526-73-8	1,2,3-Trimethyl Benzene	108-38-3/106-42-3	m/p-Xylene
95-63-6	1,2,4 -Trimethyl Benzene	535-77-3	m-Cymene
108-67-8	1,3,5 -Trimethyl Benzene	78-93-3	MEK
591-76-4	2-Methyl Hexane	108-87-2	Methyl Cyclohexane
107-83-5	2-Methyl Pentane	108-10-1	MIBK
78-78-4	2-Methyl Butane	75-45-6	Chlorodifluoromethane
96-14-0	3-Methyl Pentane	123-72-8	n-Butanol
589-34-4	3-Methyl Hexane	91-20-3	Naphthalene
67-64-1	Acetone	111-84-2	Nonane
71-43-2	Benzene	611-14-3	o-Ethyl Toluene
123-86-4	Butyl Acetate	95-47-6	o-Xylene
124-18-5	Decane	109-66-0	Pentane
25915-78-0	Dichlorodifluoromethane	64-17-5	Ethanol
75-09-2	Dichloromethane	103-65-1	Propyl Benzene
100-41-4	Ethyl Benzene	100-42-5	Styrene
142-82-5	Heptane	127-18-4	Tetrachloroethylene
110-54-3	Hexane	108-88-3	Toluene
67-63-0	Isopropyl Alcohol	75-69-4	Trichlorofluoromethane
138-86-3	Limonene	79-01-6	Trichloroethylene
75-01-4	Vinyl Chloride	141-78-6	Ethyl Acetate
56-23-5	Carbon Tetrachloride	71-55-6	1,1,1-Trichloroethane
67-66-3	Chloroform	75-35-4	Vinylidene Chloride
106-93-4	Ethylene Dibromide	540-59-0	1,2-Dichloroethene
107-6-2	Ethylene Dichloride	Na	Total VOCs

As the MOECC updates Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List in the Province of Ontario, the measured values will be compared to the most stringent limits available at the time of testing. For compounds that do not have Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List, the measured values will be compared to the predicated concentrations provided and approved by the MOECC for the Section 9 EPA approval supporting documentation to demonstrate compliance. As all compounds identified without Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List are subject to review by the MOECC's Standard Development Branch, these levels should be considered acceptable.

4 COMPLAINT RECORDING PROCESS

Waste Management of Canada has outlined Best Practices Plans of Odour, Litter and Dust. Within each plan the procedures for outlining the responsibilities and recordkeeping. For further details, please refer to the most recent versions of the Best Management Practices Plan. [1,2,3]. Please note that like this air quality monitoring plan, the Best Management Plans are intended to be updates to endure continuous improvements are being documented at the site.

5 REFERENCES

1. RWDI AIR Inc. Best Management Practices Plan (Odour), Twin Creeks Landfill Site, Watford, ON – Revision 7, dated May 18, 2017.

2. RWDI AIR Inc. Best Management Practices Plan (Dust), Twin Creeks Landfill Site, Watford, ON – Revision 5, dated May 18, 2017.

3. RWDI AIR Inc. Best Management Practices Plan (Litter), Twin Creeks Landfill Site, Watford, ON – Revision 4, dated December 11, 2007.

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ATTACHMENT B

Table 21: Summary of Total Suspended Particulate Results **July 2, 2023**

Compounds	CAS No.	2-Jul-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23052332	Filter ID:	23052333	Filter ID:	23052361				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Invalid Sample		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	29000	19	-	-	45600	29	29	120	Schedule 3	24%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		-		1440					
Sample Volume (m^3) [1]		1535		-		1572					
Sample Flow Rate (m^3/min)		1.07		-		1.09					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 37: Summary of Total Suspended Particulate Results **July 5, 2023**

Compounds	CAS No.	5-Jul-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23052341	Filter ID:	23052343	Filter ID:	23052342				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	Invalid Sample		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND			ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND			ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND			ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	88.8	0.054			99	0.064	0.06	50	Schedule 3	0.13%
Total Iron (Fe)	7439-89-16	289	0.177			848	0.546	0.55	N/A	N/A	-
Total Lead (Pb)	7439-92-11	3.2	0.002			6.3	0.004	0.004	0.5	Schedule 3	0.81%
Total Manganese (Mn)	7439-96-15	10.9	0.007			26.5	0.017	0.02	2.5	Guideline	0.68%
Total Nickel (Ni)	7440-02-10	ND	ND			ND	ND	ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12	ND	ND			ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND			ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	28.1	0.017			62.5	0.040	0.04	120	Schedule 3	0.03%
Total Particulate	-	47500	29	-	-	79900	51	51	120	Schedule 3	43%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		-		1440					
Sample Volume (m^3) [1]		1632		-		1553					
Sample Flow Rate (m^3/min)		1.13		-		1.08					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 38: Summary of Total Suspended Particulate Results **July 8, 2023**

Compounds	CAS No.	8-Jul-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23052367	Filter ID:	23052366	Filter ID:	23052365				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	10900	7	25500	15	65800	42	42	120	Schedule 3	35%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1569		1652		1566					
Sample Flow Rate (m^3/min)		1.09		1.15		1.09					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 39: Summary of Total Suspended Particulate Results **July 11, 2023**

Compounds	CAS No.	11-Jul-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23061283	Filter ID:	23061284	Filter ID:	23061285				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Invalid Sample		ND	ND	Invalid Sample		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19			ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12			5.4	0.004			0.004	1.5	Guideline	0.24%
Total Cobalt (Co)	7440-48-14			ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18			150	0.101			0.10	50	Schedule 3	0.20%
Total Iron (Fe)	7439-89-16			2780	1.878			1.88	N/A	N/A	-
Total Lead (Pb)	7439-92-11			25.2	0.017			0.017	0.5	Schedule 3	3.41%
Total Manganese (Mn)	7439-96-15			72.2	0.049			0.05	2.5	Guideline	1.95%
Total Nickel (Ni)	7440-02-10			5.7	0.004			0.00	2	Schedule 3	0.19%
Total Selenium (Se)	7782-49-12			ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12			ND	ND			ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16			252	0.170			0.17	120	Schedule 3	0.14%
Total Particulate	-	-	-	193000	130	-	-	130	120	Schedule 3	109%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Downwind		Crosswind					
Sample Duration (min)		-		1320		1440					
Sample Volume (m^3) [1]		-		1480		1561					
Sample Flow Rate (m^3/min)		-		1.12		1.08					

*lab report noted loose filter material, coupled with ND result, has resulted in an invalidation

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 40: Summary of Total Suspended Particulate Results **July 14, 2023**

Compounds	CAS No.	14-Jul-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23061295	Filter ID:	23061292	Filter ID:	23061294				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	34200	21	54600	34	49600	31	34	120	Schedule 3	28%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1602		1622		1618					
Sample Flow Rate (m^3/min)		1.11		1.13		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 41: Summary of Total Suspended Particulate Results **July 17, 2023**

Compounds	CAS No.	17-Jul-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23062919	Filter ID:	23062004	Filter ID:	23062005				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	50800	32	75800	47	70100	43	47	120	Schedule 3	39%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1607		1623		1635					
Sample Flow Rate (m^3/min)		1.12		1.13		1.14					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 42: Summary of Total Suspended Particulate Results **July 20, 2023**

Compounds	CAS No.	20-Jul-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23062927	Filter ID:	23062921	Filter ID:	23062920				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 2 of 4 No Metals Analysis		ND	ND	Sample 2 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19			ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12			ND	ND			ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14			ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18			71.8	0.044			0.04	50	Schedule 3	0.09%
Total Iron (Fe)	7439-89-16			948	0.585			0.58	N/A	N/A	-
Total Lead (Pb)	7439-92-11			6.8	0.004			0.004	0.5	Schedule 3	0.84%
Total Manganese (Mn)	7439-96-15			26.4	0.016			0.02	2.5	Guideline	0.65%
Total Nickel (Ni)	7440-02-10			ND	ND			ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12			ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12			ND	ND			ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16			69	0.043			0.04	120	Schedule 3	0.04%
Total Particulate	-	37400	23	77400	48	68800	42	48	120	Schedule 3	40%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1434		1440		1440					
Sample Volume (m^3) [1]		1603		1621		1640					
Sample Flow Rate (m^3/min)		1.12		1.13		1.14					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 43: Summary of Total Suspended Particulate Results **July 23, 2023**

Compounds	CAS No.	23-Jul-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23062935	Filter ID:	23062928	Filter ID:	23052362				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	31900	20	47700	30	45300	28	30	120	Schedule 3	25%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1611		1613		1597					
Sample Flow Rate (m^3/min)		1.12		1.12		1.11					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 44: Summary of Total Suspended Particulate Results **July 26, 2023**

Compounds	CAS No.	26-Jul-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23071090	Filter ID:	23062937	Filter ID:	23062936				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	Sample 4 of 4 No Metals Analysis		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND			ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND			ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND			ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	73.4	0.046			80.6	0.048	0.05	50	Schedule 3	0.10%
Total Iron (Fe)	7439-89-16	349	0.219			469	0.280	0.28	N/A	N/A	-
Total Lead (Pb)	7439-92-11	3.4	0.002			4.9	0.003	0.003	0.5	Schedule 3	0.59%
Total Manganese (Mn)	7439-96-15	13	0.008			17.3	0.010	0.01	2.5	Guideline	0.41%
Total Nickel (Ni)	7440-02-10	ND	ND			ND	ND	ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12	ND	ND			ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND			ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	34.7	0.022			58.1	0.035	0.03	120	Schedule 3	0.03%
Total Particulate	-	59800	37	74000	44	72100	43	44	120	Schedule 3	37%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1596		1679		1673					
Sample Flow Rate (m^3/min)		1.11		1.17		1.16					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 45: Summary of Total Suspended Particulate Results **July 29, 2023**

Compounds	CAS No.	29-Jul-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23062047	Filter ID:	23071091	Filter ID:	23071092				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	28900	18	28800	18	24000	15	18	120	Schedule 3	15%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1598		1637		1600					
Sample Flow Rate (m^3/min)		1.11		1.14		1.11					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 46: Summary of Total Suspended Particulate Results **August 1, 2023**

Compounds	CAS No.	1-Aug-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23071608	Filter ID:	23062946	Filter ID:	23062945				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19					ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12					5.1	0.003	0.003	1.5	Guideline	0.21%
Total Cobalt (Co)	7440-48-14					ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18					80.6	0.050	0.05	50	Schedule 3	0.10%
Total Iron (Fe)	7439-89-16					2360	1.461	1.46	N/A	N/A	-
Total Lead (Pb)	7439-92-11					16.8	0.010	0.010	0.5	Schedule 3	2.08%
Total Manganese (Mn)	7439-96-15					58.6	0.036	0.04	2.5	Guideline	1.45%
Total Nickel (Ni)	7440-02-10					4.3	0.003	0.00	2	Schedule 3	0.13%
Total Selenium (Se)	7782-49-12					ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12					ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16					174	0.108	0.11	120	Schedule 3	0.09%
Total Particulate	-	21400	13	27000	16	153000	95	95	120	Schedule 3	79%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1610		1647		1615					
Sample Flow Rate (m^3/min)		1.12		1.14		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 47: Summary of Total Suspended Particulate Results **August 4, 2023**

Compounds	CAS No.	4-Aug-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23071613	Filter ID:	23071607	Filter ID:	23071606				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	ND	ND	Sample 3 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND	ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND	ND	ND			ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND	ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	65	0.043	190	0.115			0.115	50	Schedule 3	0.23%
Total Iron (Fe)	7439-89-16	569	0.380	2060	1.250			1.250	N/A	N/A	-
Total Lead (Pb)	7439-92-11	4.5	0.003	4.2	0.003			0.003	0.5	Schedule 3	0.60%
Total Manganese (Mn)	7439-96-15	15.6	0.010	68.3	0.041			0.041	2.5	Guideline	1.66%
Total Nickel (Ni)	7440-02-10	ND	ND	3.6	0.002			0.002	2	Schedule 3	0.11%
Total Selenium (Se)	7782-49-12	ND	ND	ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND	ND	ND			ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	55.9	0.037	48	0.029			0.037	120	Schedule 3	0.03%
Total Particulate	-	53200	36	188000	114	56400	34	114	120	Schedule 3	95%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1498		1648		1636					
Sample Flow Rate (m^3/min)		1.04		1.14		1.14					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 48: Summary of Total Suspended Particulate Results **August 7, 2023**

Compounds	CAS No.	7-Aug-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23071668	Filter ID:	23071662	Filter ID:	23071661				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Invalid Sample		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	-	-	33300	20	24100	15	20	120	Schedule 3	17%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1585		1647		1637					
Sample Flow Rate (m^3/min)		1.10		1.14		1.14					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

*lab report noted loose filter material, coupled with ND result, has resulted in an invalidation

Table 49: Summary of Total Suspended Particulate Results **August 10, 2023**

Compounds	CAS No.	10-Aug-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23071663	Filter ID:	23071612	Filter ID:	23071611				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	ND	ND	Sample 1 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND	ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND	ND	ND			ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND	ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	130	0.079	212	0.130			0.130	50	Schedule 3	0.26%
Total Iron (Fe)	7439-89-16	1670	1.015	1180	0.726			1.015	N/A	N/A	-
Total Lead (Pb)	7439-92-11	13.9	0.008	10.6	0.007			0.008	0.5	Schedule 3	1.69%
Total Manganese (Mn)	7439-96-15	42.2	0.026	28.5	0.018			0.026	2.5	Guideline	1.03%
Total Nickel (Ni)	7440-02-10	4	0.002	ND	ND			0.002	2	Schedule 3	0.12%
Total Selenium (Se)	7782-49-12	ND	ND	ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	5	0.003	ND	ND			0.003	2	Schedule 3	0.15%
Total Zinc (Zn)	7440-66-16	146	0.089	104	0.064			0.089	120	Schedule 3	0.07%
Total Particulate	-	120000	73	82600	51	47000	29	73	120	Schedule 3	61%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Downwind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1646		1625		1609					
Sample Flow Rate (m^3/min)		1.14		1.13		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 50: Summary of Total Suspended Particulate Results **August 13, 2023**

Compounds	CAS No.	13-Aug-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23072269	Filter ID:	23071666	Filter ID:	23071667				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	15800	10	31200	19	21300	13	19	120	Schedule 3	16%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1566		1644		1612					
Sample Flow Rate (m^3/min)		1.09		1.14		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 51: Summary of Total Suspended Particulate Results **August 16, 2023**

Compounds	CAS No.	16-Aug-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23072271	Filter ID:	23072270	Filter ID:	23072268				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19					ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12					ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14					ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18					197	0.124	0.12	50	Schedule 3	0.25%
Total Iron (Fe)	7439-89-16					287	0.180	0.18	N/A	N/A	-
Total Lead (Pb)	7439-92-11					3.3	0.002	0.002	0.5	Schedule 3	0.41%
Total Manganese (Mn)	7439-96-15					9	0.006	0.01	2.5	Guideline	0.23%
Total Nickel (Ni)	7440-02-10					ND	ND	ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12					ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12					ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16					37.3	0.023	0.02	120	Schedule 3	0.02%
Total Particulate	-	65900	41	63200	39	56000	35	41	120	Schedule 3	34%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1441		1440					
Sample Volume (m^3) [1]		1606		1621		1594					
Sample Flow Rate (m^3/min)		1.12		1.12		1.11					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 52: Summary of Total Suspended Particulate Results **August 19, 2023**

Compounds	CAS No.	19-Aug-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23072284	Filter ID:	23072276	Filter ID:	23072275				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	42300	27	44300	28	37300	24	28	120	Schedule 3	23%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1439		1440					
Sample Volume (m^3) [1]		1596		1606		1581					
Sample Flow Rate (m^3/min)		1.11		1.12		1.10					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 53: Summary of Total Suspended Particulate Results **August 22, 2023**

Compounds	CAS No.	22-Aug-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23080277	Filter ID:	23072272	Filter ID:	23077273				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		ND	ND	Invalid Sample		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19			ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12			ND	ND			ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14			ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18			205	0.126			0.126	50	Schedule 3	0.25%
Total Iron (Fe)	7439-89-16			415	0.254			0.254	N/A	N/A	-
Total Lead (Pb)	7439-92-11			5.4	0.003			0.003	0.5	Schedule 3	0.66%
Total Manganese (Mn)	7439-96-15			14	0.009			0.009	2.5	Guideline	0.34%
Total Nickel (Ni)	7440-02-10			ND	ND			ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12			ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12			ND	ND			ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16			23.8	0.015			0.015	120	Schedule 3	0.01%
Total Particulate	-	8300	5	30000	18	-	-	18	120	Schedule 3	15%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		-					
Sample Volume (m^3) [1]		1642		1631		-					
Sample Flow Rate (m^3/min)		1.14		1.13		-					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 54: Summary of Total Suspended Particulate Results **August 25, 2023**

Compounds	CAS No.	25-Aug-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23081081	Filter ID:	23081071	Filter ID:	23081070				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	Invalid Sample		Sample 2 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND					ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND					ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND					ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	75.5	0.047					0.05	50	Schedule 3	0.09%
Total Iron (Fe)	7439-89-16	112	0.069					0.07	N/A	N/A	-
Total Lead (Pb)	7439-92-11	ND	ND					ND	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15	6.7	0.004					0.00	2.5	Guideline	0.17%
Total Nickel (Ni)	7440-02-10	ND	ND					ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12	ND	ND					ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND					ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	17.3	0.011					0.01	120	Schedule 3	0.01%
Total Particulate	-	20300	13	-	-	35600	22	22	120	Schedule 3	18%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		-		1440					
Sample Volume (m^3) [1]		1613		-		1631					
Sample Flow Rate (m^3/min)		1.12		-		1.13					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 55: Summary of Total Suspended Particulate Results **August 28, 2023**

Compounds	CAS No.	28-Aug-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23081088	Filter ID:	23081077	Filter ID:	23081076				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	10800	7	25100	15	88800	50	50	120	Schedule 3	42%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1446					
Sample Volume (m^3) [1]		1609		1631		1783					
Sample Flow Rate (m^3/min)		1.12		1.13		1.23					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 56: Summary of Total Suspended Particulate Results **August 31, 2023**

Compounds	CAS No.	31-Aug-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23081095	Filter ID:	23081086	Filter ID:	23081087				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	14100	9	15000	9	113000	67	67	120	Schedule 3	56%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Upwind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1559		1617		1693					
Sample Flow Rate (m^3/min)		1.08		1.12		1.18					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 57: Summary of Total Suspended Particulate Results **September 3, 2023**

Compounds	CAS No.	3-Sep-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23081620	Filter ID:	23081611	Filter ID:					
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	Sample 1 of 4 No Metals Analysis		Invalid Sample		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND					ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND					ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND					ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	191	0.122					0.12	50	Schedule 3	0.24%
Total Iron (Fe)	7439-89-16	416	0.266					0.27	N/A	N/A	-
Total Lead (Pb)	7439-92-11	11.3	0.007					0.01	0.5	Schedule 3	1.45%
Total Manganese (Mn)	7439-96-15	15.9	0.010					0.01	2.5	Guideline	0.41%
Total Nickel (Ni)	7440-02-10	ND	ND					ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12	ND	ND					ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND					ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	37.7	0.024					0.02	120	Schedule 3	0.02%
Total Particulate	-	41600	27	48300	30	-	-	30	120	Schedule 3	25%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Downwind		Crosswind					
Sample Duration (min)		1440		1440		-					
Sample Volume (m^3) [1]		1562		1613		-					
Sample Flow Rate (m^3/min)		1.08		1.12		-					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 58: Summary of Total Suspended Particulate Results **September 6, 2023**

Compounds	CAS No.	6-Sep-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23081064	Filter ID:	23081096	Filter ID:	23081097				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 2 of 4 No Metals Analysis		ND	ND	ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19			ND	ND	ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12			ND	ND	ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14			ND	ND	ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18			91.3	0.056	72.2	0.042	0.056	50	Schedule 3	0.11%
Total Iron (Fe)	7439-89-16			813	0.502	503	0.295	0.502	N/A	N/A	-
Total Lead (Pb)	7439-92-11			6.7	0.004	3.6	0.002	0.004	0.5	Schedule 3	0.83%
Total Manganese (Mn)	7439-96-15			20.7	0.013	16.9	0.010	0.013	2.5	Guideline	0.51%
Total Nickel (Ni)	7440-02-10			ND	ND	ND	ND	ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12			ND	ND	ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12			ND	ND	ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16			61.7	0.038	37.5	0.022	0.038	120	Schedule 3	0.03%
Total Particulate	-	43700	26	63700	39	53900	32	39	120	Schedule 3	33%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1666		1619		1706					
Sample Flow Rate (m^3/min)		1.16		1.12		1.18					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 59: Summary of Total Suspended Particulate Results **September 9, 2023**

Compounds	CAS No.	9-Sep-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23081066	Filter ID:	23081619	Filter ID:	23081618				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	17400	11	21900	14	25500	16	16	120	Schedule 3	13%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1568		1606		1625					
Sample Flow Rate (m^3/min)		1.09		1.12		1.13					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 60: Summary of Total Suspended Particulate Results **September 12, 2023**

Compounds	CAS No.	12-Sep-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23082514	Filter ID:	23081067	Filter ID:	23081065				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	40100	25	30300	19	24900	15	25	120	Schedule 3	21%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1618		1611		1709					
Sample Flow Rate (m^3/min)		1.12		1.12		1.19					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 61: Summary of Total Suspended Particulate Results **September 15, 2023**

Compounds	CAS No.	15-Sep-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23082512	Filter ID:	23082504	Filter ID:	23090674				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19					ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12					ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14					ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18					156	0.096	0.10	50	Schedule 3	0.19%
Total Iron (Fe)	7439-89-16					1730	1.062	1.06	N/A	N/A	-
Total Lead (Pb)	7439-92-11					7.5	0.005	0.005	0.5	Schedule 3	0.92%
Total Manganese (Mn)	7439-96-15					50.9	0.031	0.03	2.5	Guideline	1.25%
Total Nickel (Ni)	7440-02-10					ND	ND	ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12					ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12					ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16					75	0.046	0.05	120	Schedule 3	0.04%
Total Particulate	-	30200	19	52400	32	130000	80	80	120	Schedule 3	67%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Upwind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1622		1652		1629					
Sample Flow Rate (m^3/min)		1.13		1.15		1.13					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 62: Summary of Total Suspended Particulate Results **September 18, 2023**

Compounds	CAS No.	18-Sep-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23082520	Filter ID:	23032521	Filter ID:	23082522				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND					ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND					ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND					ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	51.9	0.032					0.03	50	Schedule 3	0.06%
Total Iron (Fe)	7439-89-16	503	0.309					0.31	N/A	N/A	-
Total Lead (Pb)	7439-92-11	3.6	0.002					0.00	0.5	Schedule 3	0.44%
Total Manganese (Mn)	7439-96-15	14.2	0.009					0.01	2.5	Guideline	0.35%
Total Nickel (Ni)	7440-02-10	ND	ND					ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12	ND	ND					ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND					ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	35.9	0.022					0.02	120	Schedule 3	0.02%
Total Particulate	-	45700	28	21900	13	31400	18	28	120	Schedule 3	23%
Upwind or Downwind Position (based on actual meteorological data)		Downwind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1626		1625		1766					
Sample Flow Rate (m^3/min)		1.13		1.13		1.23					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 63: Summary of Total Suspended Particulate Results **September 21, 2023**

Compounds	CAS No.	21-Sep-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23090678	Filter ID:	23090676	Filter ID:	23090675				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		ND	ND	Sample 3 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19			ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12			ND	ND			ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14			ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18			123	0.073			0.073	50	Schedule 3	0.15%
Total Iron (Fe)	7439-89-16			1170	0.696			0.696	N/A	N/A	-
Total Lead (Pb)	7439-92-11			4.4	0.003			0.003	0.5	Schedule 3	0.52%
Total Manganese (Mn)	7439-96-15			40.3	0.024			0.024	2.5	Guideline	0.96%
Total Nickel (Ni)	7440-02-10			ND	ND			ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12			ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12			ND	ND			ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16			40.1	0.024			0.024	120	Schedule 3	0.02%
Total Particulate	-	36700	23	84600	50	58400	36	50	120	Schedule 3	42%
Upwind or Downwind Position (based on actual meteorological data)		Upwind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1598		1681		1608					
Sample Flow Rate (m^3/min)		1.11		1.17		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 64: Summary of Total Suspended Particulate Results **September 24, 2023**

Compounds	CAS No.	24-Sep-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23090677	Filter ID:	23083009	Filter ID:	23090679				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	33000	20	51600	32	52600	30	32	120	Schedule 3	26%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Upwind		Downwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1628		1637		1744					
Sample Flow Rate (m^3/min)		1.13		1.14		1.21					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 65: Summary of Total Suspended Particulate Results **September 27, 2023**

Compounds	CAS No.	27-Sep-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23090664	Filter ID:	23090663	Filter ID:	23090662				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Invalid Sample		Sample 1 of 4 No Metals Analysis		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19					ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12					7.7	0.005	0.005	1.5	Guideline	0.32%
Total Cobalt (Co)	7440-48-14					ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18					49.7	0.031	0.03	50	Schedule 3	0.06%
Total Iron (Fe)	7439-89-16					2580	1.598	1.60	N/A	N/A	-
Total Lead (Pb)	7439-92-11					27.7	0.017	0.017	0.5	Schedule 3	3.43%
Total Manganese (Mn)	7439-96-15					63.9	0.040	0.04	2.5	Guideline	1.58%
Total Nickel (Ni)	7440-02-10					5	0.003	0.00	2	Schedule 3	0.15%
Total Selenium (Se)	7782-49-12					ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12					ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16					234	0.145	0.14	120	Schedule 3	0.12%
Total Particulate	-	-	-	168000	100	150000	93	100	120	Schedule 3	84%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Upwind		Downwind					
Sample Duration (min)		-		1440		1440					
Sample Volume (m^3) [1]		-		1676		1615					
Sample Flow Rate (m^3/min)		-		1.16		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 66: Summary of Total Suspended Particulate Results **September 30, 2023**

Compounds	CAS No.	30-Sep-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23090673	Filter ID:	23090671	Filter ID:	23090672				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	60300	37	47900	30	73700	44	44	120	Schedule 3	36%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1622		1618		1692					
Sample Flow Rate (m^3/min)		1.13		1.12		1.18					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

ATTACHMENT C

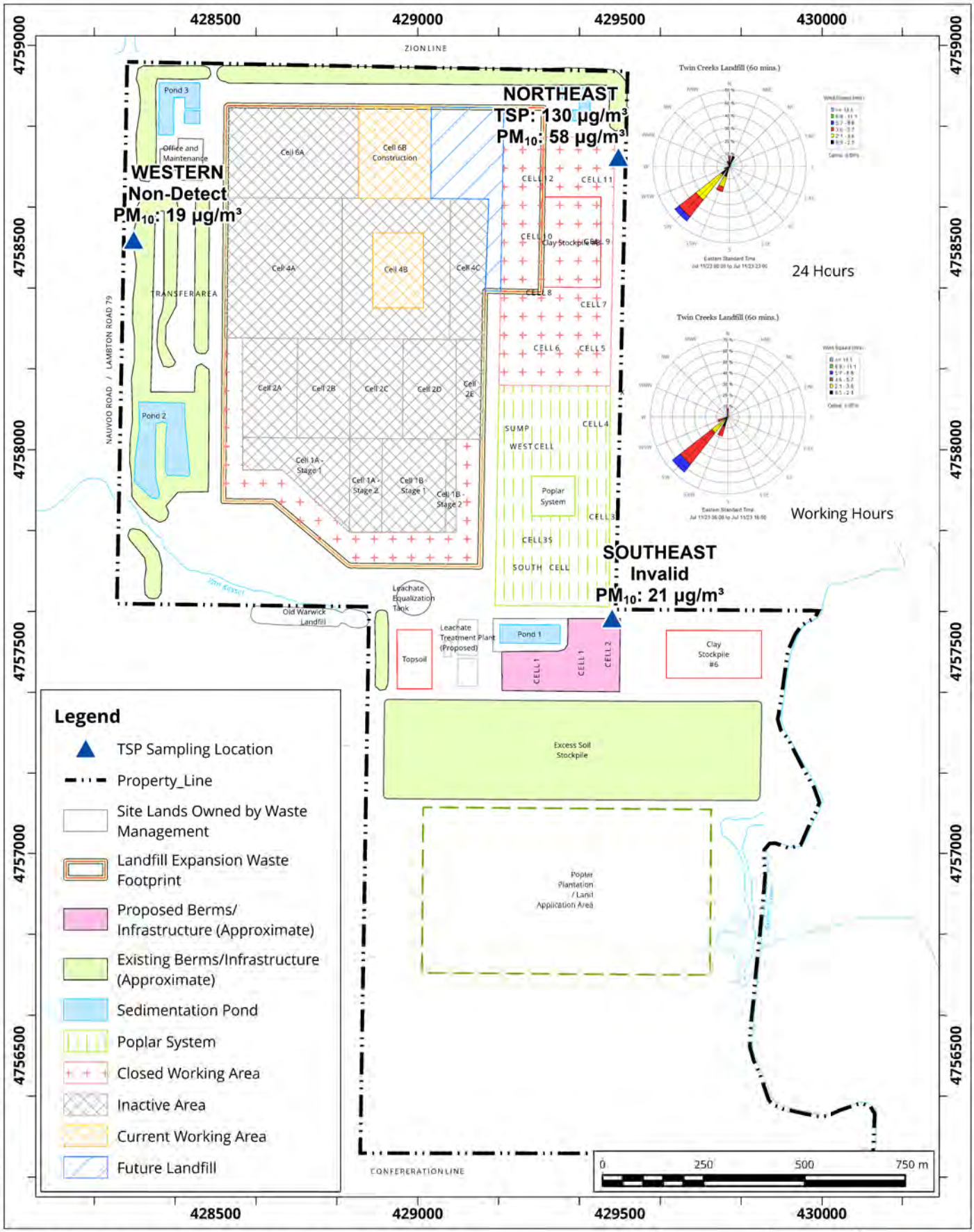
Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

On July 31, 2023, we received the PM10 and TSP results from Bureau Veritas regarding the particulate weights from the July 11, 2023 sampling event. On August 1, 2023, the results were entered and assessed, and it was found that there was one (1) measured TSP concentration in excess of the 24-hour AAQC and one (1) measured PM10 concentration in excess of the 24-hour AAQC on the July 11, 2023 sampling date. Monitoring for PM10 has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached is the Exceedance Form (PIBS 5354e) for your reference. Below is a summary of the events.

<u>July 11, 2023</u>
On Tuesday July 11, 2023, there was one (1) exceedance of the TSP 24-hour AAQC and one (1) exceedance of the PM10 24-hour AAQC, which occurred at the Northeast onsite TSP and PM10 samplers. Attached is Figure 1, which presents windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM10 concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.
The following section summarizes the TSP and PM10 concentrations as well as the onsite conditions during the July 11 sampling date.

1. The measured TSP concentration at the Northeast sampler was 130 ug/m3, the West sampler was below the detection limit and the Southeast sampler was invalid. The measured PM10 concentration at the Northeast sampler was 58 ug/m3, the West sampler was 19 ug/m3 and the Southeast sampler was 21 ug/m3. During the 24-hour period, the wind was predominantly from the SSW to SW; wind speeds ranged from 4 to 22 km/h and wind gusts reached a maximum of 38 km/h.
2. During the operational hours of the facility (7 am to 5 pm EDT), the wind was predominantly coming from the SSW to SW. During this timeframe, the Northeast samplers were downwind and in close proximity to gravel stockpile deliveries.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the SSW to SW during the operating hours of the site, which placed the Northeast sampler location downwind of the gravel stockpiling activities associated with future construction work. Therefore, the TSP and PM10 exceedances, with concentrations of 130 ug/m3 and 58 ug/m3, measured on-site at the Northeast sampler originated from construction activities, with contributions from off-site activities/sources as measured at the crosswind and upwind samplers (West sampler at 19 ug/m3 and Southeast sampler at 21 ug/m3, for PM10 respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 11, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1
Approx. Scale:	1:13,000
Date Revised:	Aug 9, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) August 11, 2023	Date Exceedednce Determined August 1, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	11/07/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast Sampler	11/07/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (Northeast Sampler)	N/A	Hi-Vol	130	24	120	Visibility	AAQC	108%
2	PM10 (Northeast Sampler)	N/A	Hi-Vol	58	24	50	Health	AAQC	116%
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX G4

600 Southgate Drive
Guelph, ON N1G 4P6
Canada

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February 9, 2024

Ms. Angela McLachlan | Environmental Compliance Manager
Waste Management of Canada Corporation
5768 Nauvoo Road (Watford)
Warwick Township, County of Lambton N0M 2S0
E: amclachl@wm.com

Re: Fourth Quarter 2023 TSP and Metals Report
October, November and December of 2023
Twin Creeks Environmental Centre – Watford, Ontario
RWDI Reference No. 2303459.02

Dear Ms. McLachlan,

RWDI AIR Inc. (RWDI) was retained by Waste Management of Canada Corporation (WM) to complete the Total Suspended Particulate Matter (TSP) and Airborne Metal (Metals) sampling required under the Amended Environmental Compliance Approval (ECA) No. A032203, dated December 16, 2023 (Waste ECA). From February 4 through December 15, 2023, WM was required to conform to the ECA dated February 4, 2023. The sampling program is being completed, as approved by the Ontario Ministry of the Environment, Conservation and Parks (MECP) per Condition 13.8 of the Waste ECA. The station locations were approved by the MECP, as noted under Schedule "A" Reference 85 in the Waste ECA. The sampler locations for the TSP samplers are illustrated in the figures section of this report. These locations remained fixed for the duration of the sampling program. This report outlines the results from the fourth quarter (Q4) samples collected from October 1 to December 31, 2023.

SAMPLING PROGRAM OVERVIEW

Consistent with the Waste ECA dated December 16, 2023 and the AAQMP dated May 18, 2017, the samplers are run on a 6-day schedule from January 1 to May 31 and October 1 to December 31 of each year and run on a 3-day cycle from June 1 to September 30 of each year. A copy of the most recently amended AAQMP can be found in **Attachment A.**

Each sample location has two (2) High Volume Air samplers (Hi-Vols) which run on an alternating 6-day or 3-day schedule, depending on the time of year. Each sample period consists of a 24-hour (midnight to midnight) sample that operates in concurrence with the NAPS sampling schedule.

During the month of October, a total of five (5) sample sets or fifteen (15) samples were initiated, fourteen (14) of which are valid.

During the month of November, a total of five (5) sample sets or fifteen (15) samples were initiated, fifteen (15) of which are valid.

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During the month of December, a total of five (5) sample sets or fifteen (15) samples were initiated, fourteen (14) of which are valid.

A total of forty-five (45) samples were initiated, forty-three (43) of which were valid. This indicates that 96% of the total samples were successful. Sample validity at the Southeast, Northeast and Western Stations were 87%, 100% and 100% respectively, which means that every sampling station had a valid quarter (≥75% validity). **Table 1** below summarizes the measured TSP concentrations for the forty-five (45) initiated samples as collected from the Southeast, Northeast, and Western samplers.

Table 1 also indicates the direction of the wind at each sampling location relative to the active landfill cell. The Downwind designation indicates that the sampler was located predominantly downwind of the active landfill cell during the sampling period. Under these conditions the landfilling operations are likely to contribute to the measured concentrations. The Upwind designation indicates that the sampler was located predominantly upwind from the active cell. The Crosswind designation indicates that the wind was blowing in a direction that did not put the sampler either upwind or downwind with respect to the active cell or that the sampler was not located upwind or downwind for a significant period of time. Under the Upwind and Crosswind conditions the landfilling operations are unlikely to make a significant contribution to the measured concentrations. **Table 2** summarizes the significant cardinal wind directions observed during each sampling period.

Table 1: Summary of Meteorological Conditions and Measured TSP Concentrations for October, November and December of 2023

Sample Date	Southeast TSP Concentration and Sample Location [1] (µg/m³)	Northeast TSP Concentration and Sample Location [1] (µg/m³)	Western TSP Concentration and Sample Location [1] (µg/m³)
03-Oct-23	39 µg/m³ Crosswind	236 µg/m³ Crosswind	55 µg/m³ Crosswind
09-Oct-23	17 µg/m³ Crosswind	9 µg/m³ Downwind	6 µg/m³ Upwind
15-Oct-23	Invalid Crosswind	12 µg/m³ Crosswind	13 µg/m³ Crosswind
21-Oct-23	6 µg/m³ Downwind	8 µg/m³ Crosswind	9 µg/m³ Crosswind
27-Oct-23	24 µg/m³ Crosswind	33 µg/m³ Crosswind	29 µg/m³ Crosswind
02-Nov-23	18 µg/m³ Crosswind	20 µg/m³ Crosswind	25 µg/m³ Crosswind
08-Nov-23	9 µg/m³ Crosswind	9 µg/m³ Upwind	44 µg/m³ Downwind
14-Nov-23	30 µg/m³ Crosswind	61 µg/m³ Crosswind	50 µg/m³ Crosswind
20-Nov-23	17 µg/m³ Crosswind	24 µg/m³ Upwind	72 µg/m³ Downwind
26-Nov-23	19 µg/m³ Crosswind	24 µg/m³ Crosswind	18 µg/m³ Crosswind

Sample Date	Southeast TSP Concentration and Sample Location [1] (µg/m³)	Northeast TSP Concentration and Sample Location [1] (µg/m³)	Western TSP Concentration and Sample Location [1] (µg/m³)
02-Dec-23	Invalid Crosswind	17 µg/m³ Upwind	11 µg/m³ Crosswind
08-Dec-23	15 µg/m³ Crosswind	18 µg/m³ Crosswind	22 µg/m³ Crosswind
14-Dec-23	15 µg/m³ Crosswind	91 µg/m³ Downwind	26 µg/m³ Crosswind
20-Dec-23	17 µg/m³ Crosswind	28 µg/m³ Crosswind	27 µg/m³ Crosswind
26-Dec-23	10 µg/m³ Upwind	9 µg/m³ Crosswind	19 µg/m³ Crosswind

Notes: [1] Directional references indicate the direction of the wind at each sampling location during the sampling period relative to the active landfill cell, as described above.

Table 2: Summary of Meteorological Conditions for the Sample Dates in October, November and December of 2023

Sample Date	Range of Mean Wind Speeds [1] (km/h)	Dominant Wind Direction [2] (compass)
03-Oct-23	1-16	ESE, SE, SSE, S, SSW
09-Oct-23	8-23	SW, WSW, W
15-Oct-23	2-24	N, NNE, NWN, NW
21-Oct-23	10-22	WNW, NW
27-Oct-23	9-22	SSW, SW
02-Nov-23	7-18	SSE, S, SSW, SW
08-Nov-23	7-36	NE, E, ESE
14-Nov-23	3-12	SSE, S, SSW, SW, NNW
20-Nov-23	1-22	NE, E
26-Nov-23	4-18	E, ESE, SE, SSW, SW
02-Dec-23	4-14	N, NNE, NE, ENE,
08-Dec-23	13-20	ESE, SE, SSE, S, SW
14-Dec-23	4-18	SSW, SW, WSW
20-Dec-23	2-14	E, S, SSW, SW
26-Dec-23	10-23	ESE, SE

Notes: [1] Based on average wind speed per wind direction.

[2] Based on the direction from which the wind is blowing.
Calm – Less than 1.8 kilometers per hour.

Figures 10a through **12e**, found in the **figure section** of this report, illustrate the sample location, measured TSP concentration, and the wind-rose depicting the wind conditions for each sample period. The wind-roses express the percentage of time the wind is blowing from each direction and provides the distribution of wind speeds observed for each direction.

A summary of the calculated statistics for measured concentrations at the Twin Creeks Environmental Centre sampling locations is presented in **Table 3**.

Table 3: Calculated Statistics for Measured 24-hour Averaged TSP Concentrations (µg/m^3)

Sample Locations	No. of Valid Samples	Percentiles (%)			Maximum	Arithmetic Mean	Number of Measurements Above the AAQC (120 µg/m^3)
		50	70	90			
Southeast	13	17	19	29	39	18	0
Northeast	15	20	27	79	236	40	1
Western	15	25	29	53	72	28	0

The MECP 24-hour Ambient Air Quality Criteria (AAQC) for TSP (120 µg/m3) was exceeded one (1) time during the fourth quarter sampling period:

- On October 3rd, 2023, the AAQC was exceeded at the Northeast station, with a concentration of 236 µg/m^3.

Consistent with the MECP approved monitoring/reporting requirements for TSP at the landfill, the exceedances were reported to the MECP within the 2-week notification requirements.

Further details of the notification and discussion of the event are provided in **Attachment C**.

In agreement with the Warwick Township Technical Review Team, only the highest TSP filter weight for each station was analyzed for airborne metal concentrations per 4 sample sets.

During the fourth quarter, airborne metals were assessed on October 3 (Northeast and Southeast), October 27 (Northeast, Southeast and Western), November 14 (Northeast and Southeast), November 20 (Western), December 14 (Northeast) and December 20 (Southeast and Western). All measured concentrations of airborne metals were below their respective AAQC's as outlined in Ontario Regulation 419. The summary of Q4 total suspended particulate and metals results are provided in **Attachment B**. Laboratory analytical reports will be provided in the Annual Report.

CURRENT MITIGATION MEASURES

The Twin Creeks Environmental Centre has created a Best Management Practices Plan for dust that is implemented at the site. All Site employees are trained in the contents of the plan. Through the combined efforts of the mitigation measures and implementation of the Dust Management Plan, Twin Creeks Environmental Centre plans on limiting the number of TSP exceedances during the periods of heavy construction and beyond.

Currently, particulate emission mitigation measures are in place at the Twin Creeks Environmental Centre and consist of watering on-site roadways and construction sites as well as a number of other practices as outlined in the Best Management Practices Plan for dust. The practices listed above will not occur if precipitation events cause these activities to become redundant or if the ground is sufficiently wet from previous precipitation events.

CLOSING

Please feel free to contact us with any questions or comments that you may have with respect to this submission.

Yours very truly,

RWDI AIR Inc.

Khalid Hussein, P.Eng.
Project Manager

KAMH/kta

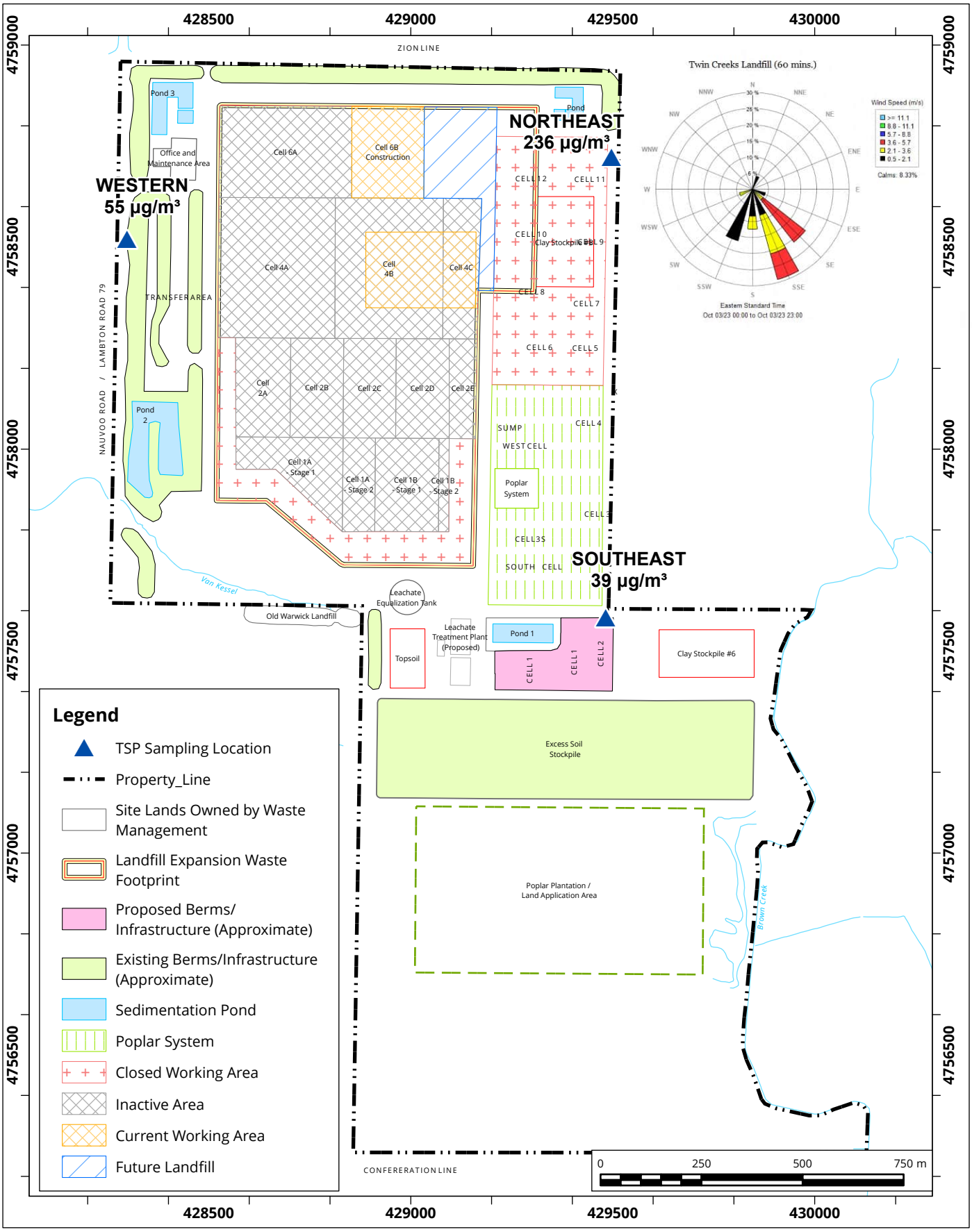
Attach.

GENERAL STATEMENT OF LIMITATIONS

This report entitled "Fourth Quarter 2023 TSP and Metals Report", dated February 2, 2024 was prepared by RWDI AIR Inc. ("RWDI") for Waste Management of Canada Corporation ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). This report was prepared using scientific principles, published methodologies and professional judgment in assessing available information and data. The findings presented within this document are based on available data within the limits of the existing information, budgeted scope of work, and schedule. The conclusions contained in this report are based on the information available to RWDI when this report was prepared; subsequent changes made by the Client after the date of this report have not been reflected in the conclusions.

This report was prepared for the exclusive use of Waste Management of Canada Corporation and the MECP. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. RWDI accepts no responsibility for damages, if any, suffered by any third party as result of decisions made or actions based on this report.

FIGURES



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: October 3, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: AXT	Figure:10a
Approx. Scale:	1:13,000
Date Revised:	Jan 26, 2024

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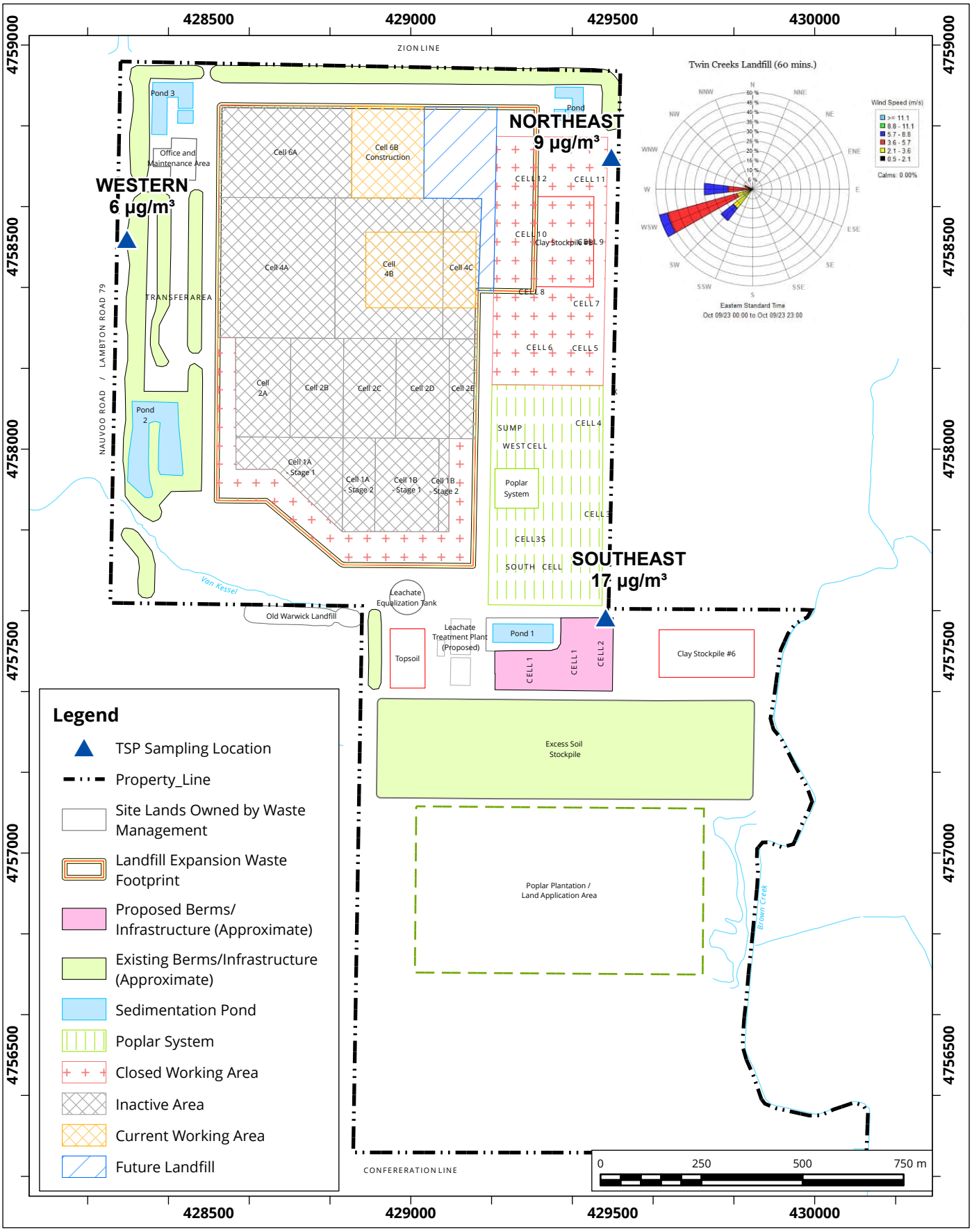

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: October 9, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: AXT	Figure:10b
Approx. Scale:	1:13,000
Date Revised:	Jan 26, 2024

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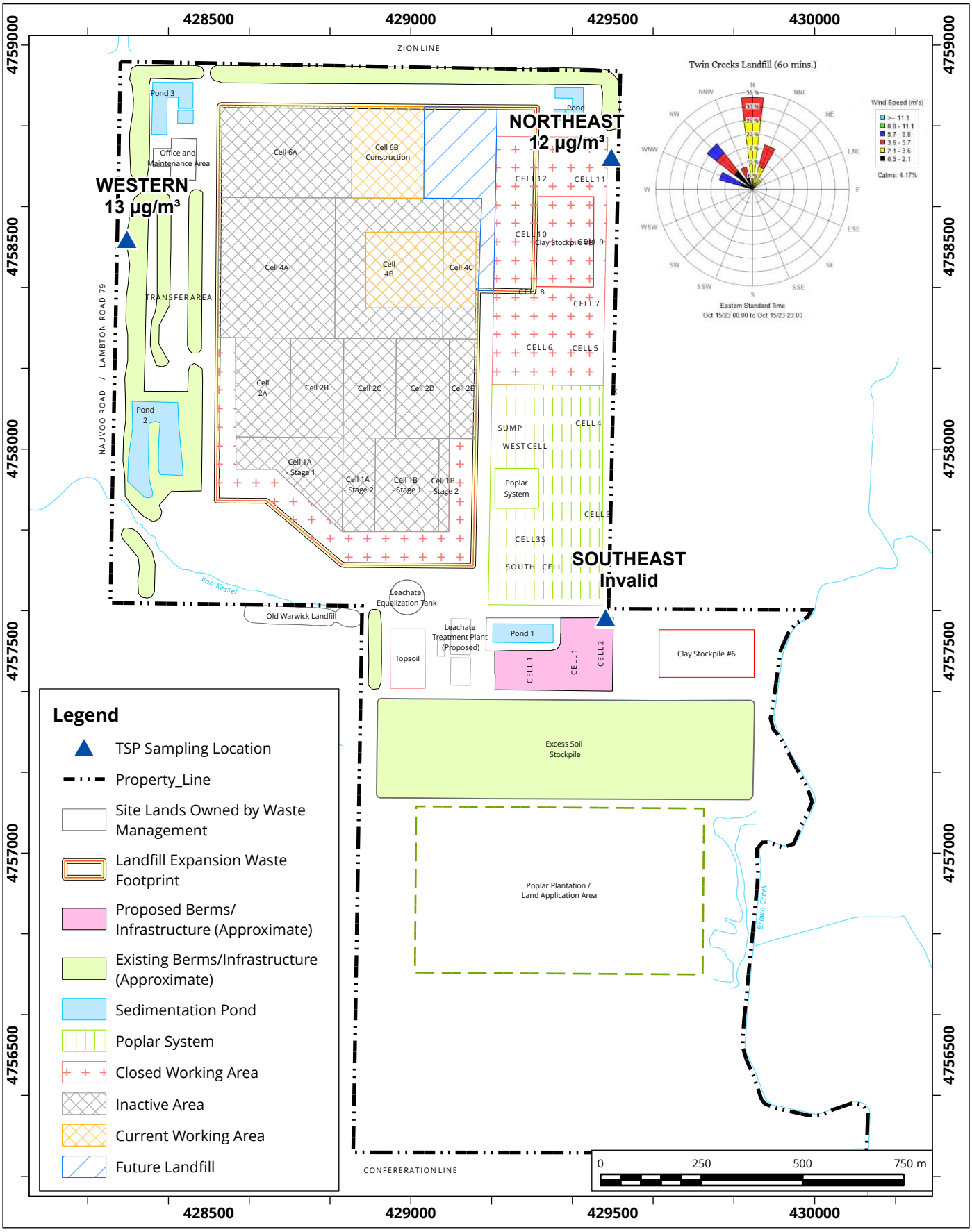

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: October 15, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: AXT	Figure: 10c
Approx. Scale:	1:13,000
Date Revised:	Jan 26, 2024

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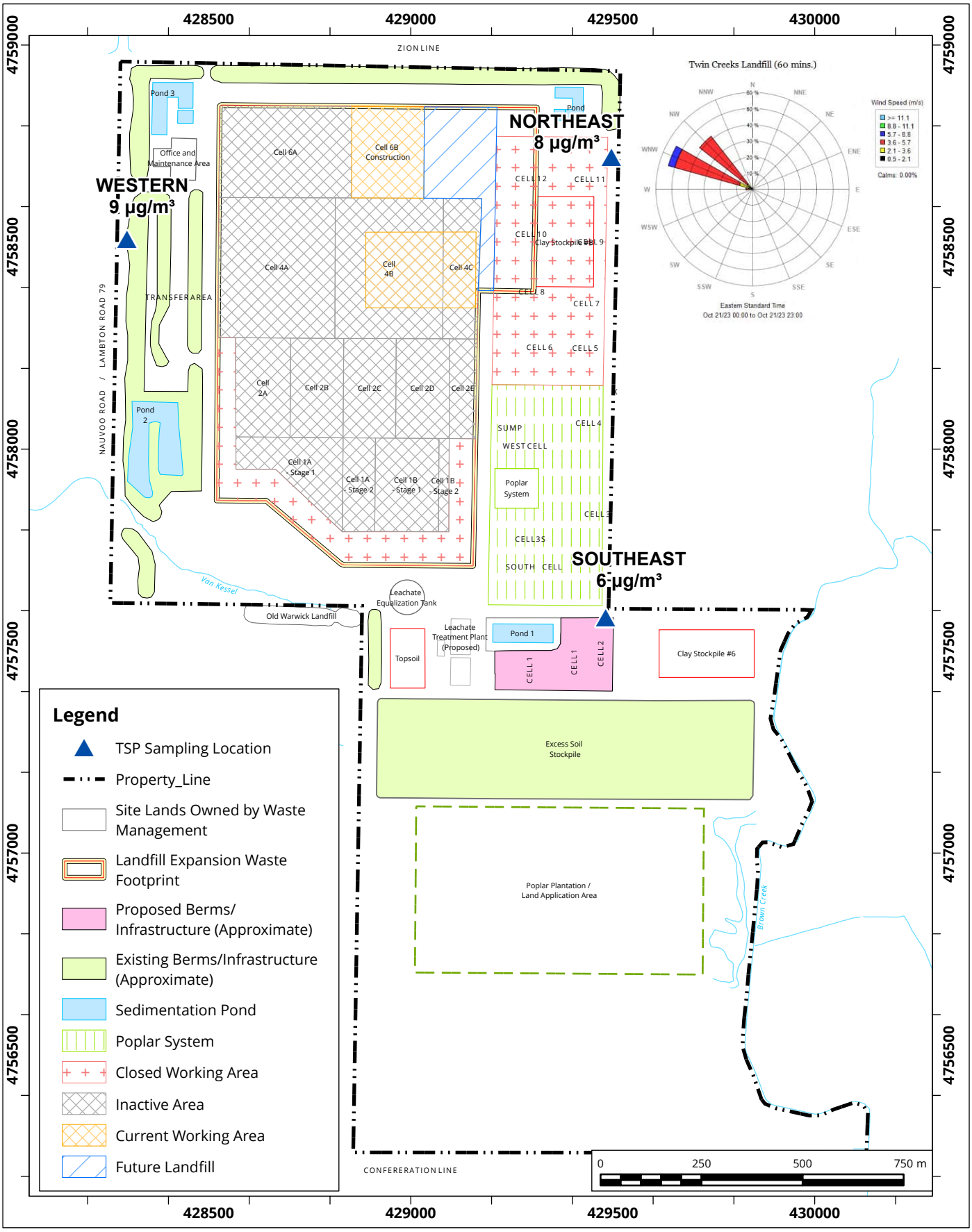

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: October 21, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

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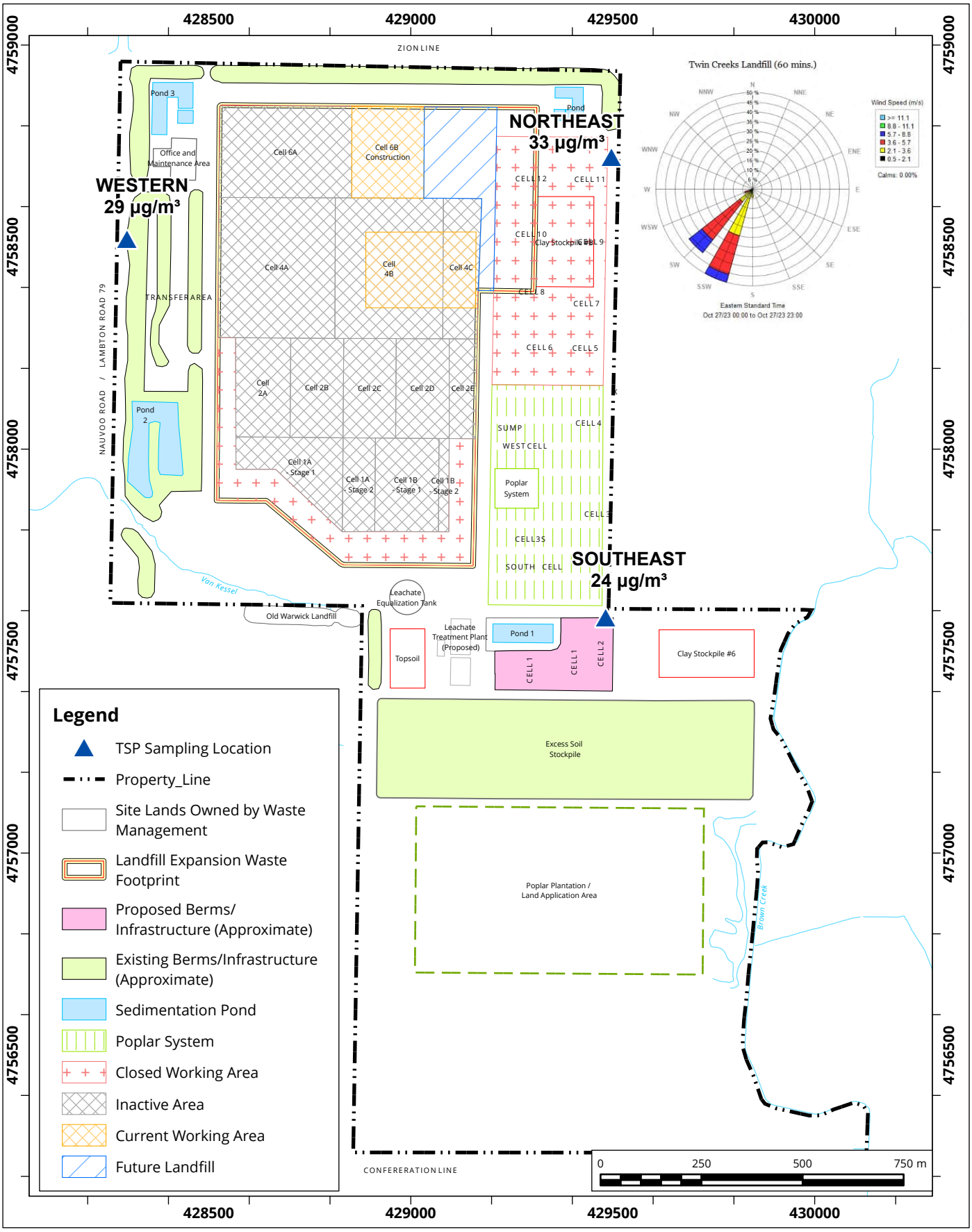

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: October 27, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

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Date Revised:	Jan 26, 2024

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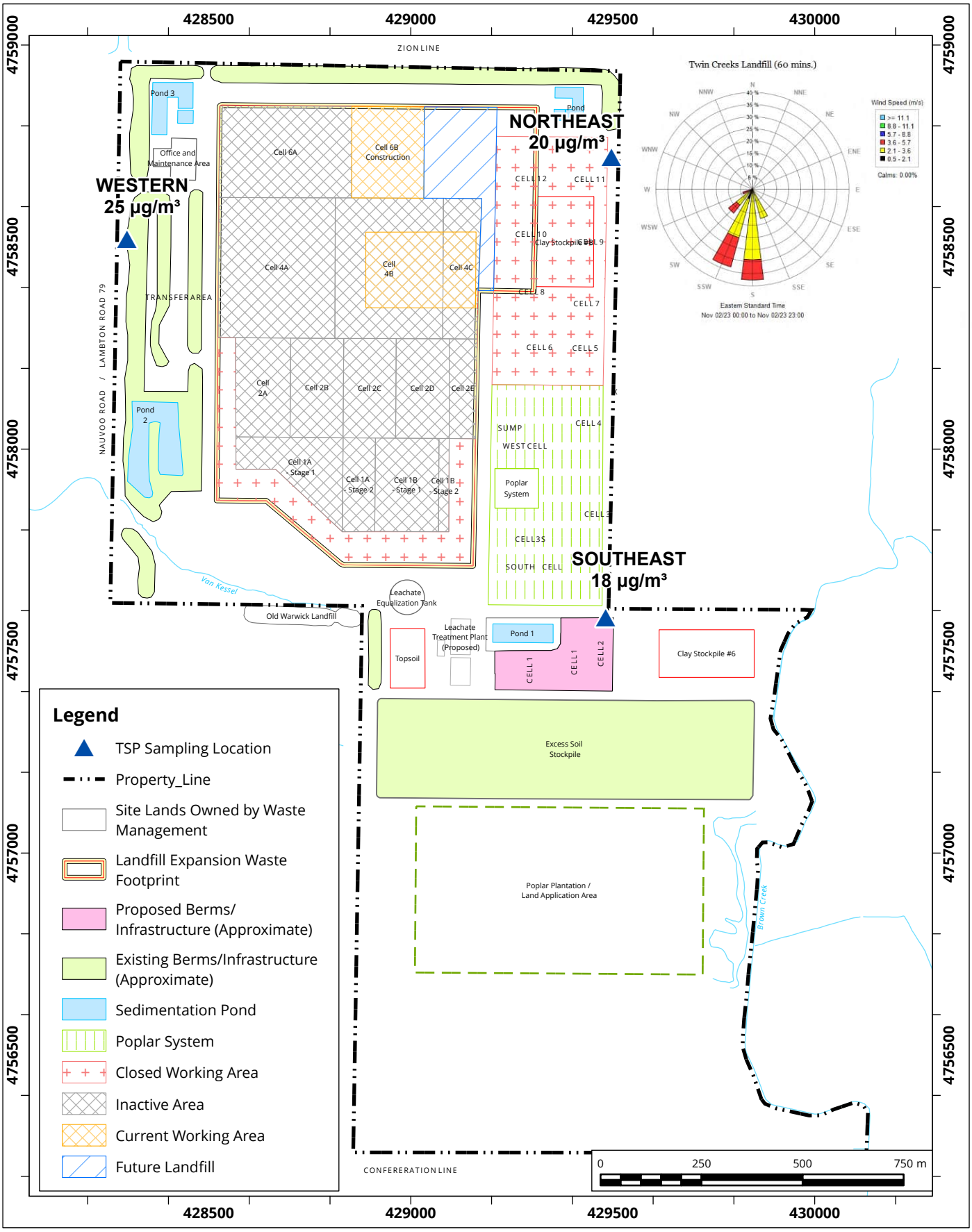

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: November 2, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

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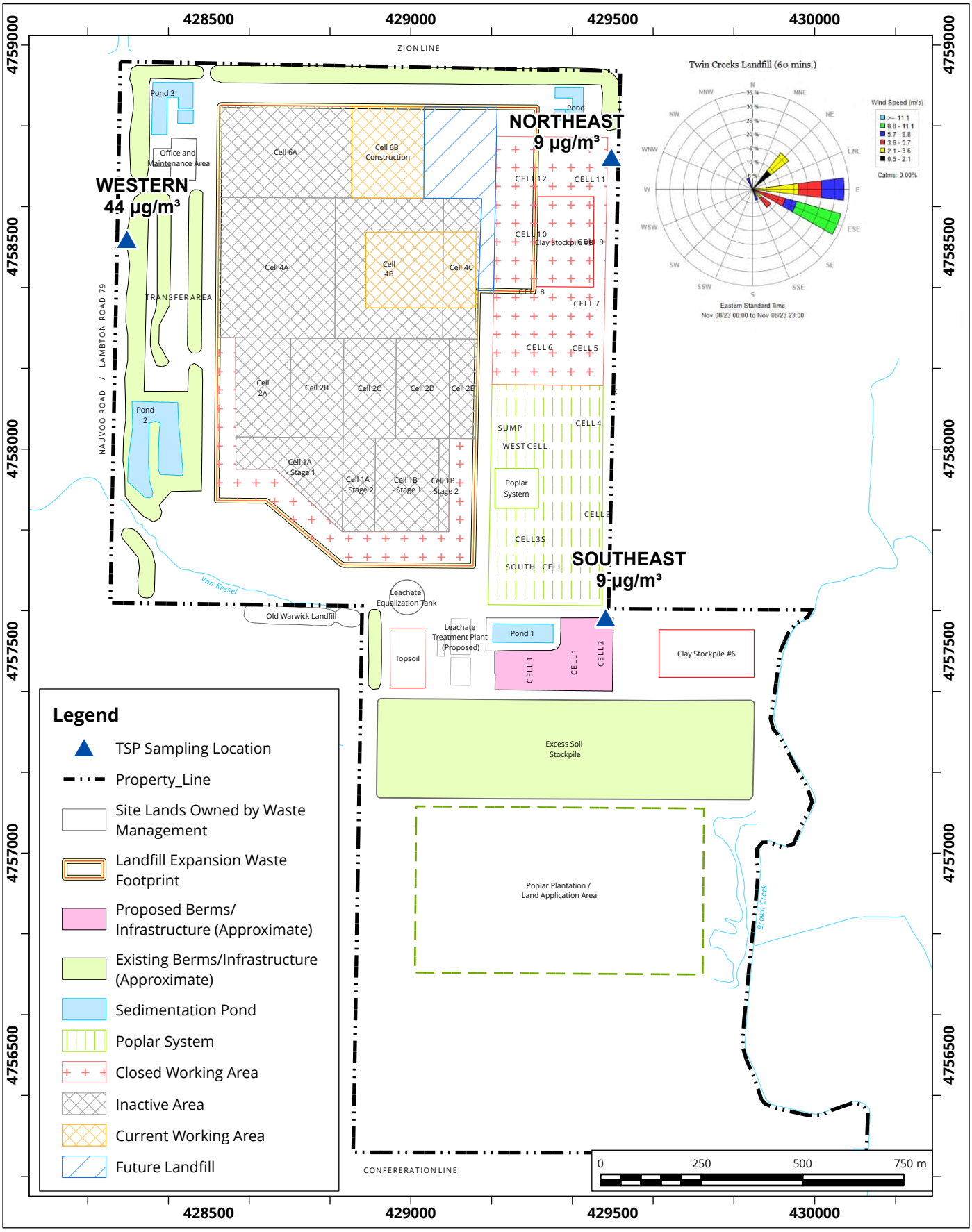

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: November 8, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: AXT	Figure: 11b
Approx. Scale:	1:13,000
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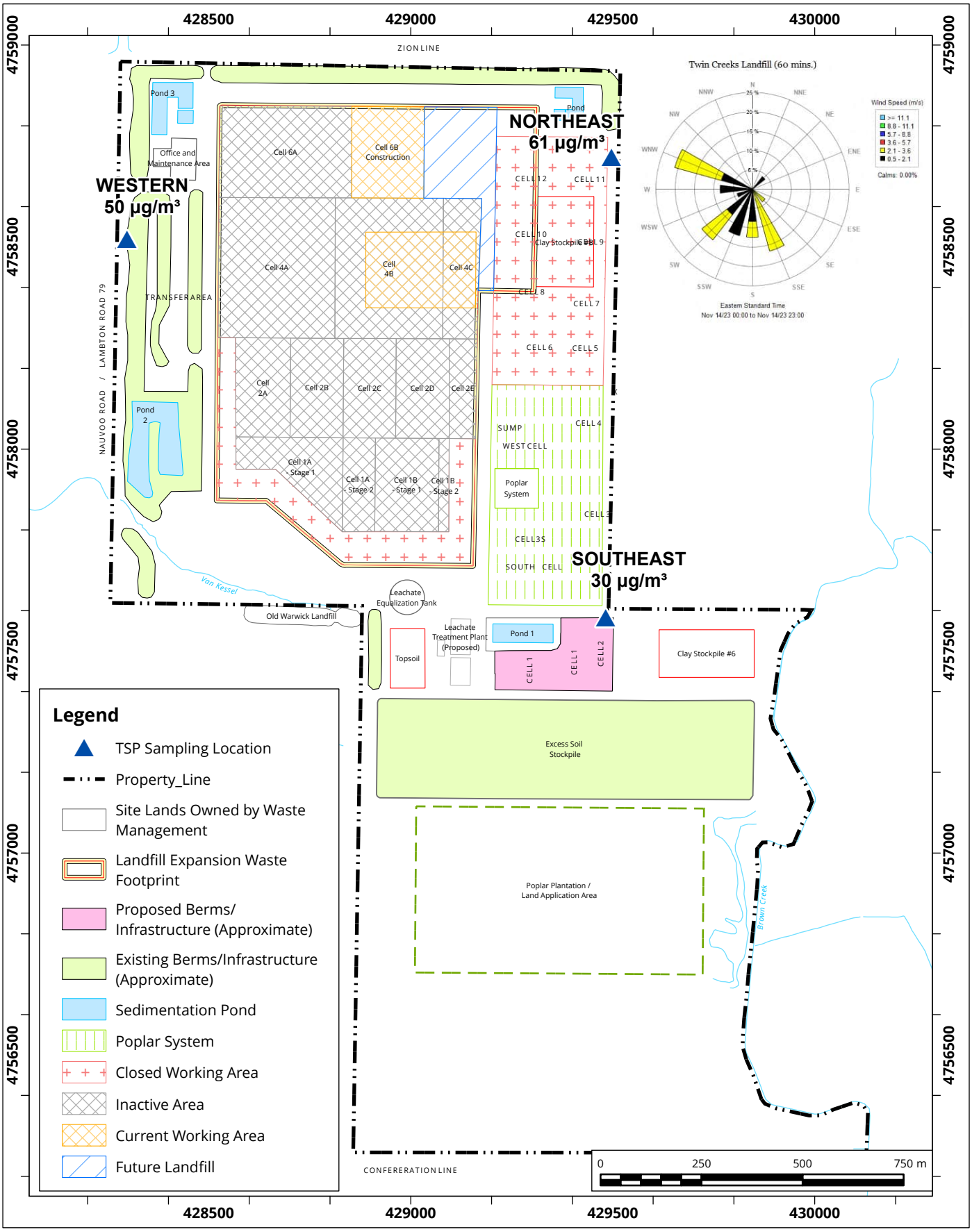

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: November 14, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: AXT	Figure: 11c
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Date Revised:	Jan 26, 2024

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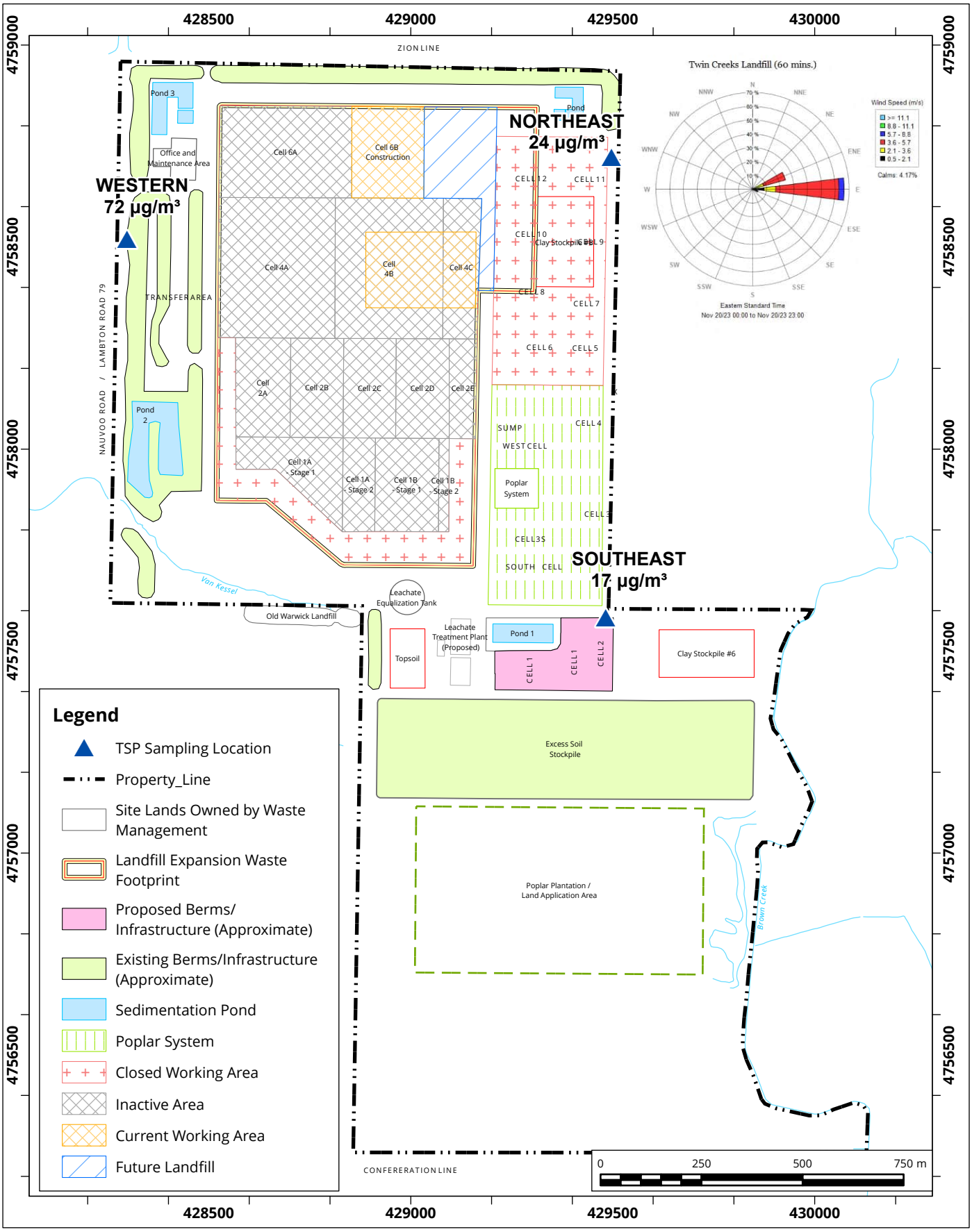

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: November 20, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

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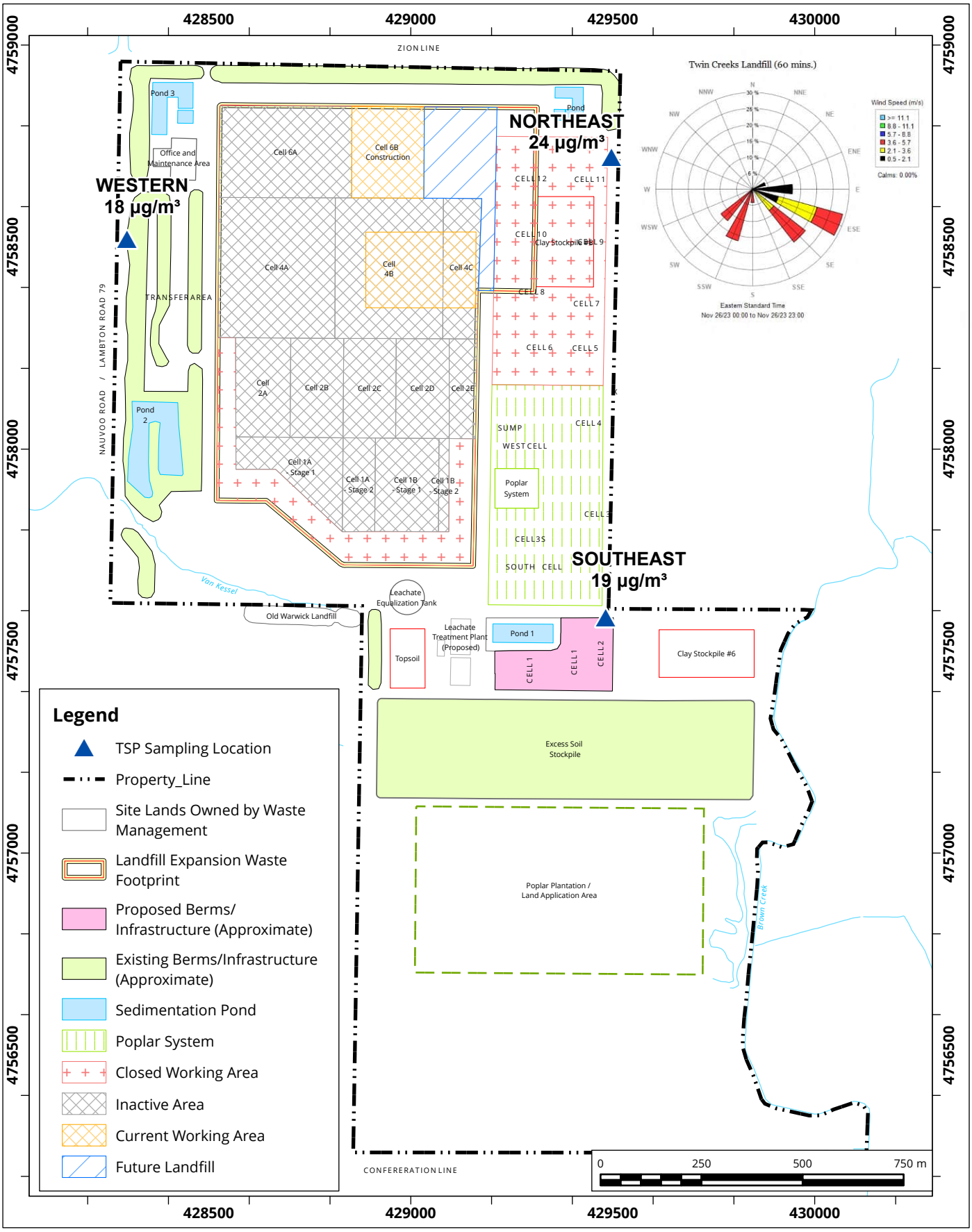

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: November 26, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

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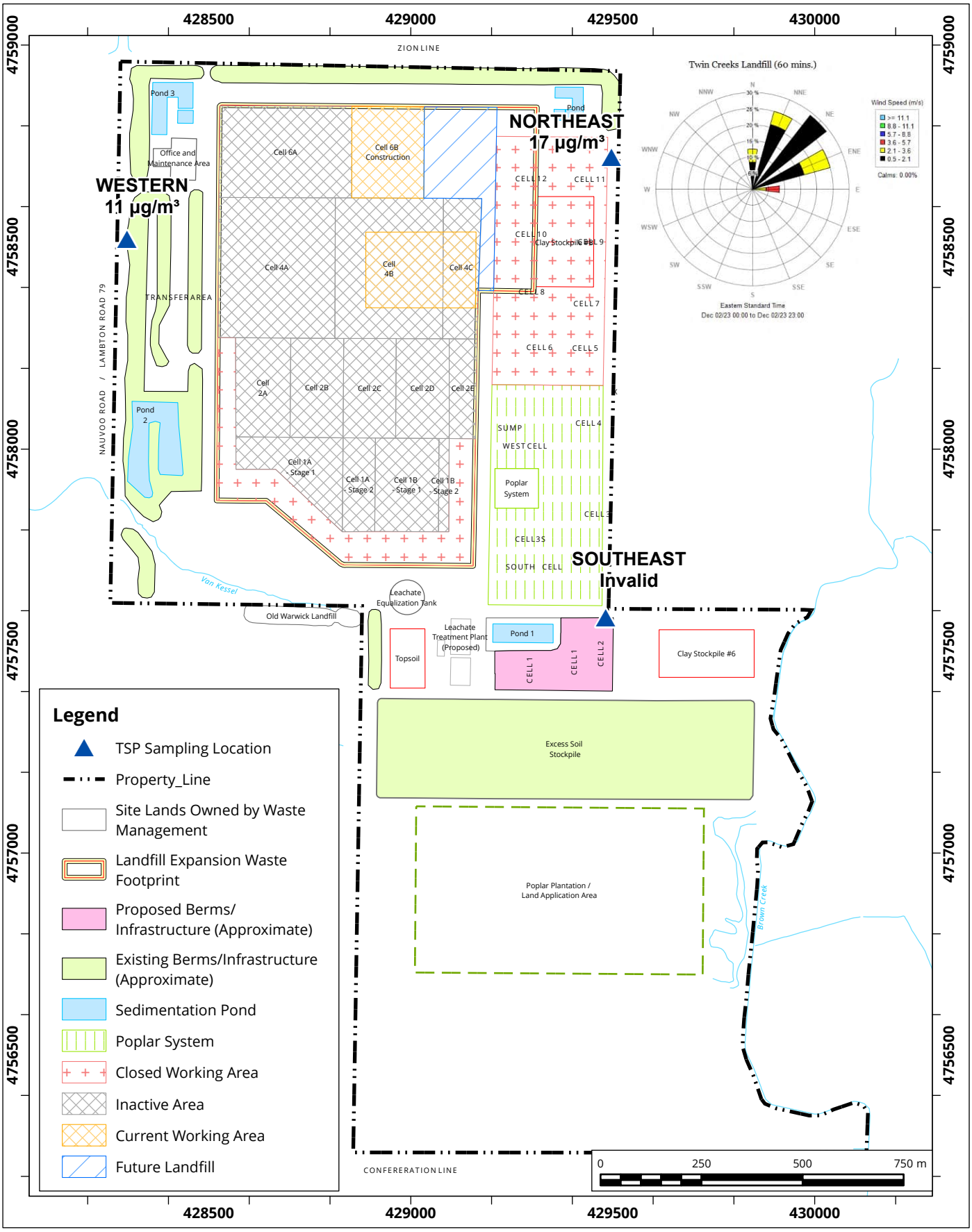

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: December 2, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

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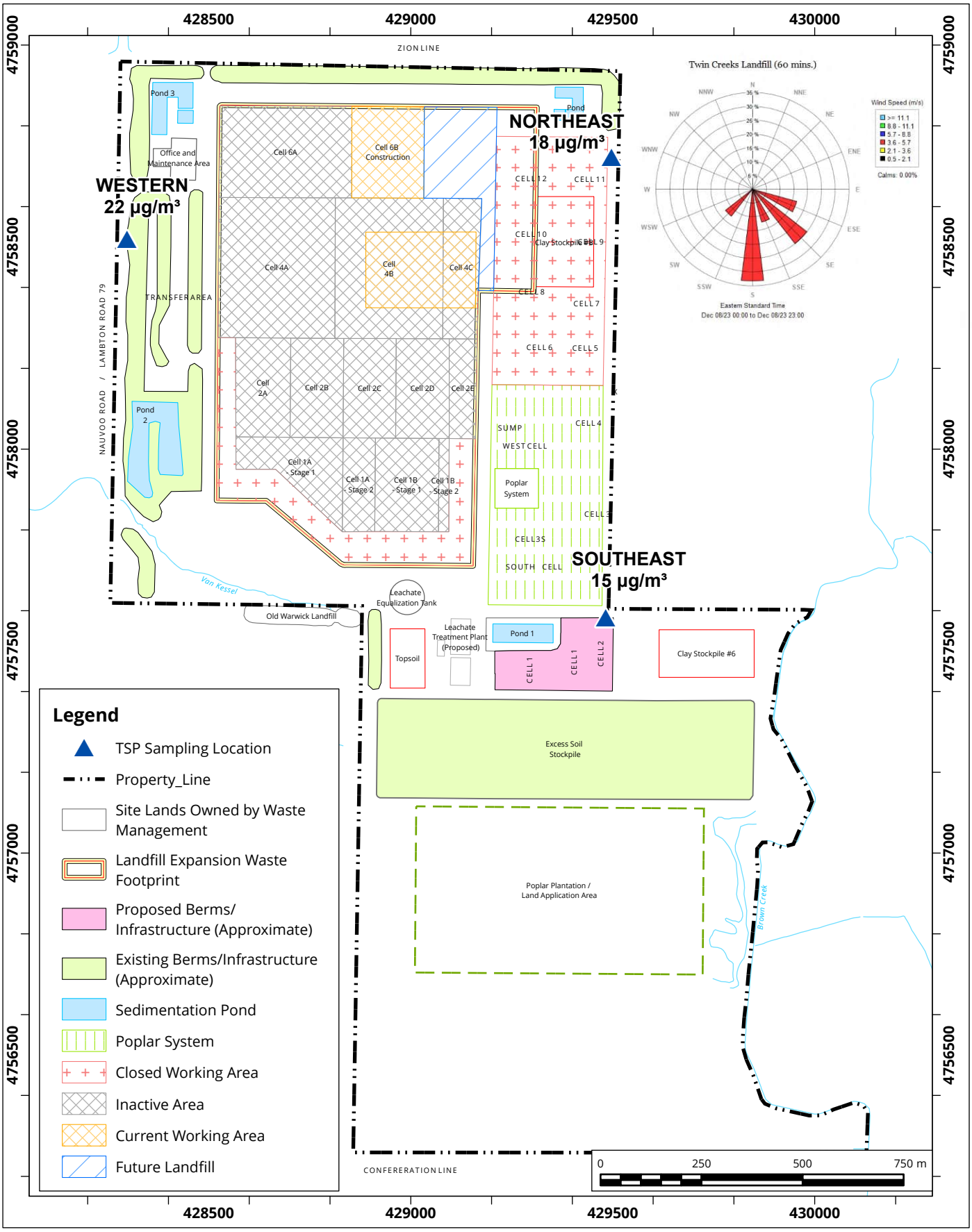

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: December 8, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

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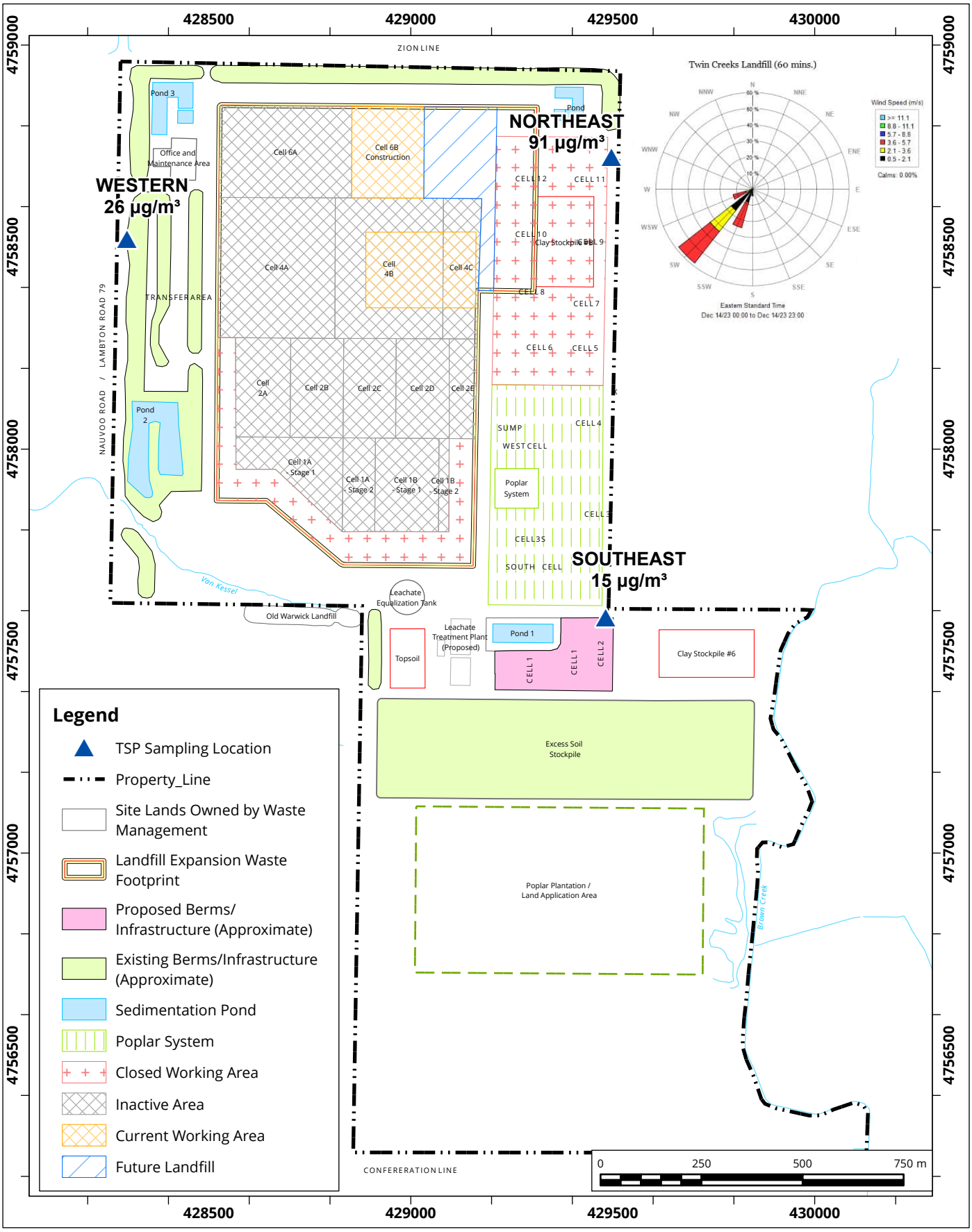

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: December 14, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: AXT	Figure: 12c
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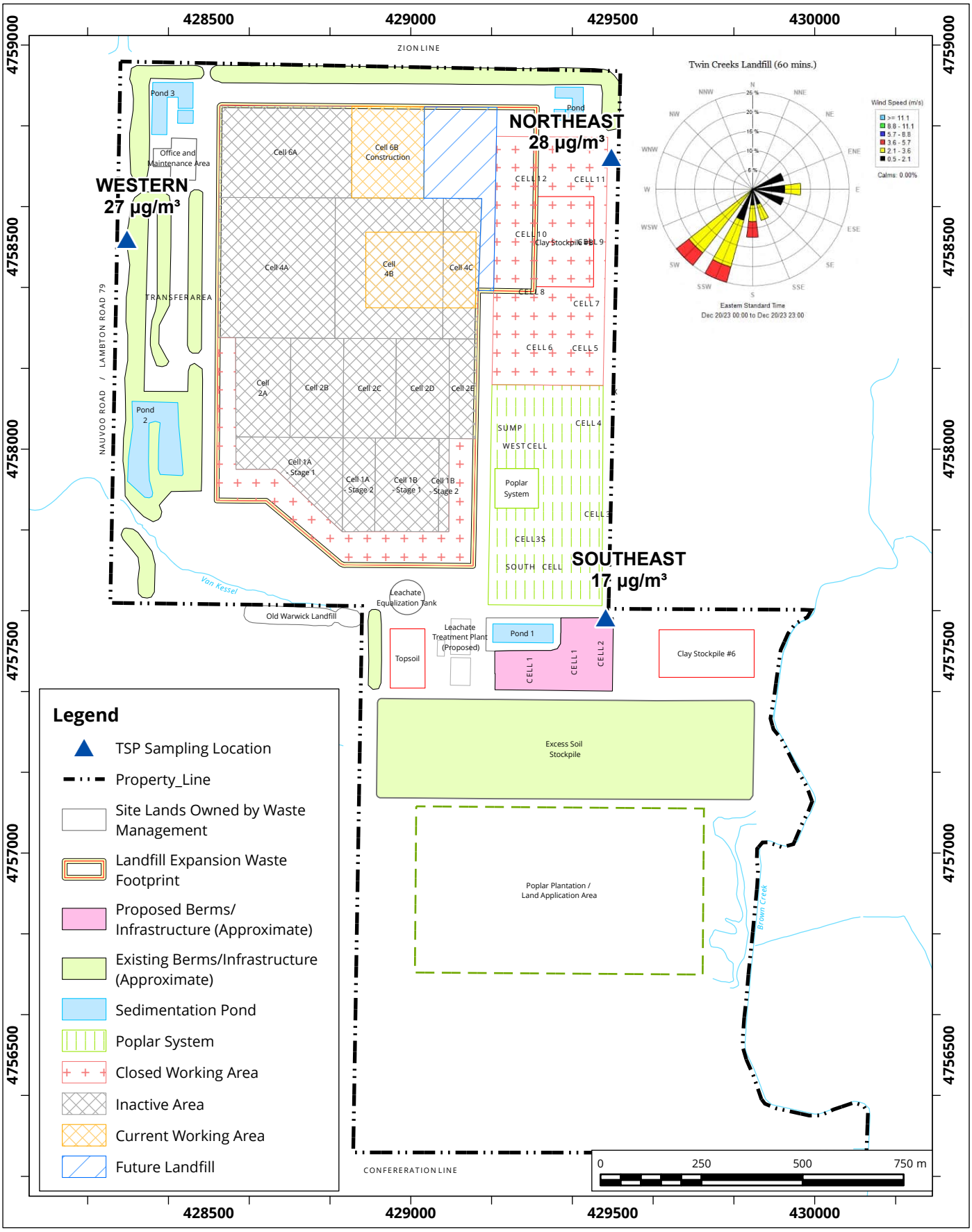

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: December 20, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: AXT	Figure:12d
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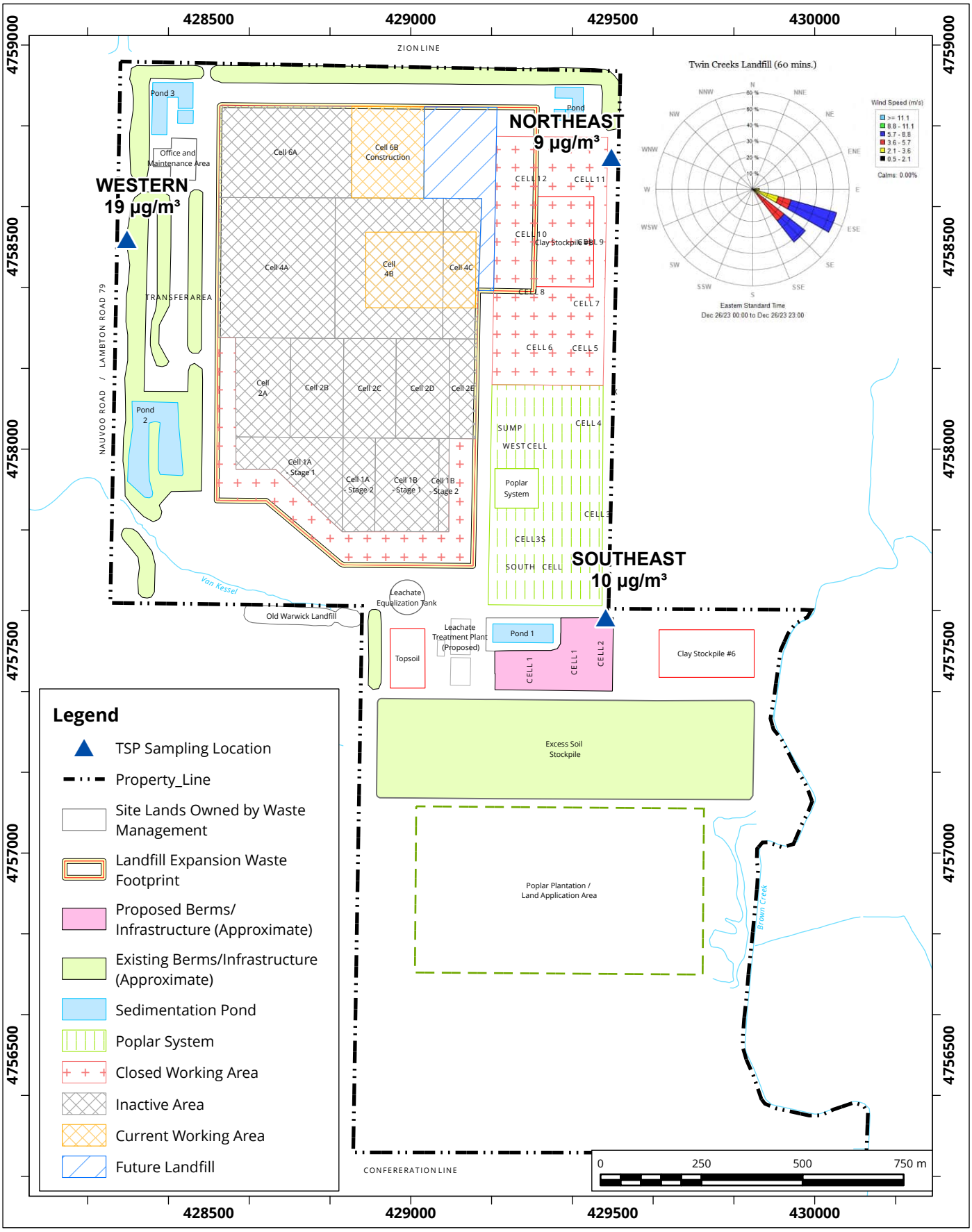

Site Plan Showing Sampling Locations and Wind Rose Sampling Period: December 26, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

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ATTACHMENT A

REPORT

WASTE MANAGEMENT OF CANADA CORPORATION

WATFORD, ONTARIO

TWIN CREEKS LANDFILL SITE: AMBIENT AIR QUALITY MONITORING PLAN [REVISION #3]

RWDI #1600984

May 18, 2017

SUBMITTED TO

Wayne Jenken
Area Landfill Engineer
wjenken@wm.com

Waste Management of Canada Corporation | Twin Creeks Landfill
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Watford, Ontario N0M 2S0

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SUBMITTED BY

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Senior Project Manager | Principal
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1 TOTAL HYDROCARBON "WALKABOUT" SURVEY

The "Walkabout" survey will consist of a grid survey of the entire landfill mound using a handheld THC analyzer (FID). A portable FID will be used throughout the surveys. The FID will be calibrated using a methane gas standard and zeroed using ultra zero pure air. The instrument used will have the following characteristics:

- a response time of no greater than 15 seconds
- an accuracy of 3 percent or better
- a minimum detectable limit of 5 ppmv (or lower)
- a flame-out indicator, audible and visual

The "Walkabout" survey will be completed in a grid like formation gathering data at 7.6 cm or lower (3 inches or lower) above the ground. "Hotspots" of "breakout points" consisting of cracks, fissures, areas of bubbling surface water, or patches of dead (brunt) vegetation on the mound will be visually observed and notes for THC concentrations exceeding 500 ppm (methane). The "walkabout" surveys should be completed at winds less the 8 kilometers per hour (5 miles per hour) and during dry conditions (no measurable precipitation for the proceeding 72 hours prior to sampling). In addition, for the instantaneous readings, the surveys should be completed when the ambient temperatures are within 0 to 50 degrees Celsius.

THC concentrations 500 ppm or greater should be considered of concern during the instantaneous measurements. Therefore, THC concentrations less than 500 ppm will not be noted during the survey. Locations where the THC concentrations are 500 ppm or greater should assist WMI in determining all potential and existing landfill gas release points that require remedial action.

All THC concentrations measured will be expressed as methane on the calibration standard used. After the 'hotspot" or "breakout points" are fixed, documentation of the corrective actions taken as well as confirmation of adequate actions taken (THC concentrations less than 500 ppm) will be presented to the MOECC. The "walkabout" survey will include the following:

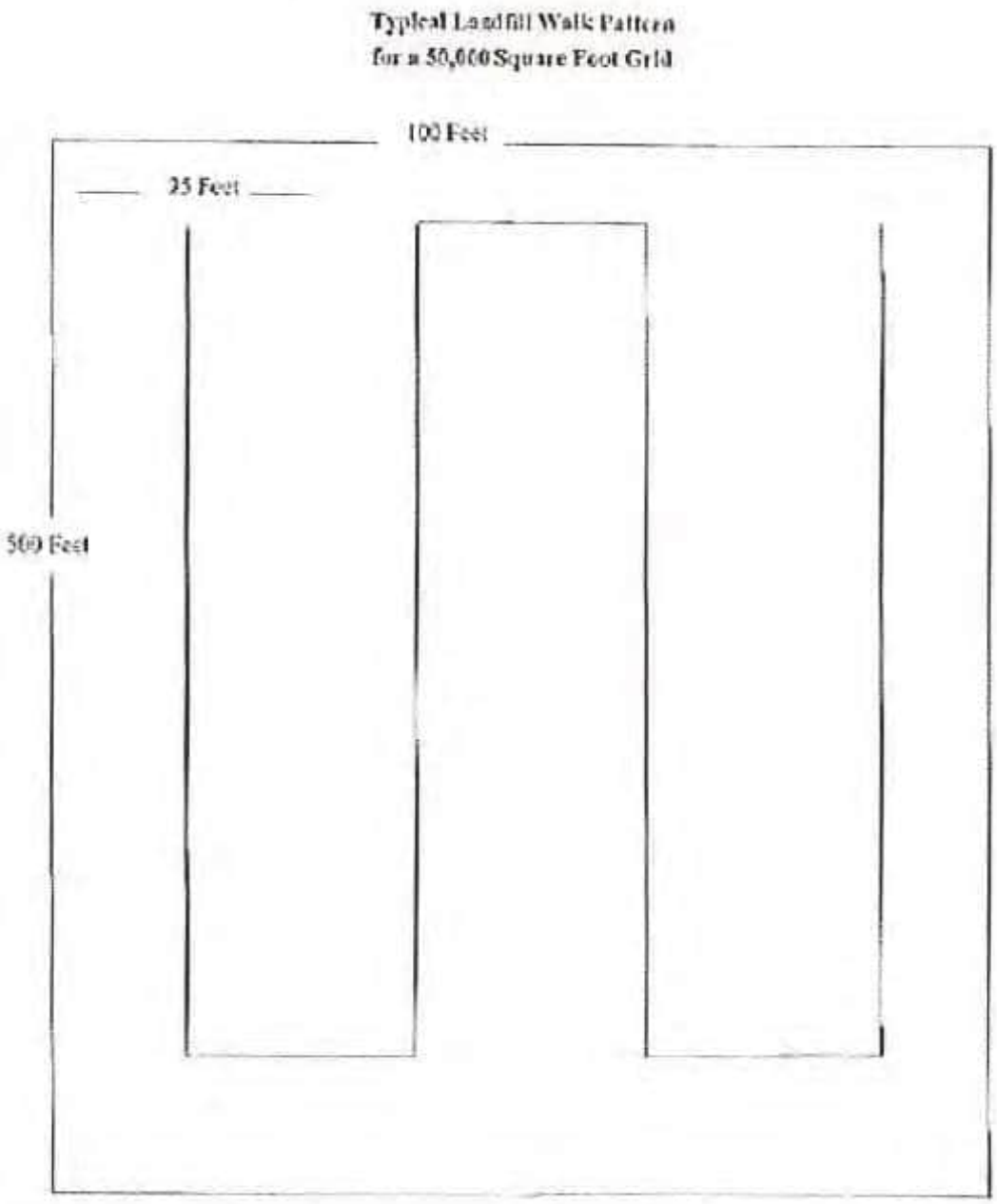
- precise locations of all sampling sites on the site map
- identification of all data obtained in the field measurements
- documentation of all remedial action

The "walkabout" survey should be done in the spring and the early fall. The measured areas should include areas where landfill cover is complete. Problem areas identified should be repaired within two (2) months of identification. Once repairs are completed, a follow-up survey on the specific locations will be completed to validate success of the remediation action(s). The process is important in minimizing odour and VOC emissions.

The "Walkabout" surveys will be performed twice per year or in response to otherwise unexplained odour events. As outlined in the Odour Best Management Practices Plan, routine visual inspections of the landfill cap integrity will also occur on a monthly basis to identify possible problem areas.

Figure 1 includes the walkabout pattern.

Figure 1: Walkabout Pattern



2 DUST MONITORING

The monitoring for Total Suspended Particulate (TSP) will be completed on an on-going basis at three locations around the landfill footprint. The TSP monitor locations are shown in **Figure 2.**

Total Suspended Particulate samples will be taken on a six-day interval during the months of October through May and samples will be taken on a three-day interval during the months of June through September. The sampling will be in concurrence with the U.S EPA National Air Pollutant Surveillance (NAPS) monitoring schedule. The sampling will include the entire year (sampling during 12 months per year). In addition, the analysis for airborne metals will be completed for 11 of the collected TSP samples per station (total of 33 metal samples per year). For each of the 11 sets of samples collected, the particulate analysis will be completed prior to the metal analysis and the highest particulate loaded filters from each station will undergo the analysis for airborne metals.

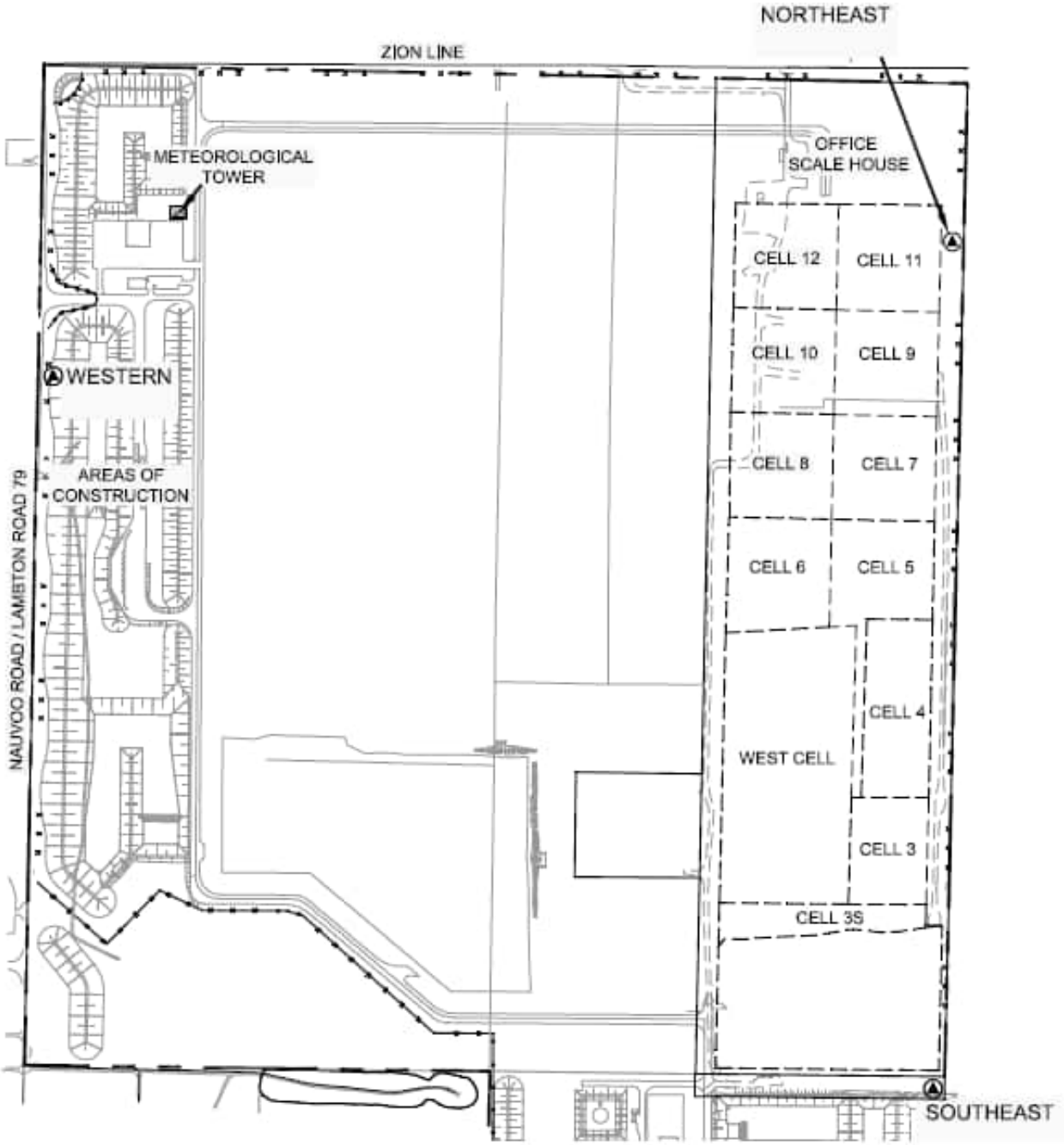
The monitoring method will comply with the metals specified by U.S. EPA Method I0-2. The 24-hour samples would be collected on standard hi-volume air samplers. The station siting requirements and sampling procedures will follow the most recent version of the U.S. EPA methods as well as the Ministry of the Environment's Operations Manual for Point Source Air Quality Monitoring as approved by the MOECC at the on-set on the monitoring. The U.S. EPA methods are referenced in the MOECC document as appropriate reference methods to follow for air quality monitoring programs.

The results will be presented in quarterly summary letters and an annual report. The report will include the data in tabular format with a description of the program, quality assurance documentation, details regarding data recovery, abnormal site conditions, etc. As well, any days when the ambient air quality criterion for TSP was exceeded would be reported to the District MOECC office within two (2) weeks of receiving results. In order to enhance the notification of elevated TSP Levels, WM will copy the Township of Warwick on any future elevated TSP level reporting provided to the MOECC.

As part of the dust control strategy, the shift supervisor will be responsible to see that a record of roadway sweeping and watering is maintained. The control measure will be initiated whenever a visible plume behind vehicles is longer than ¼ the length of the vehicle. These logs will be kept on-site for a period of not less than two (2) years and will be made available for inspection should the MOECC wish to see them.

When the facility receives a complaint, the shift supervisor will see that the relevant information is recorded, including any remedial action taken as a result of the complaint. A sample complaint log sheet is included in the Best Management Practices Plan (Dust).

Figure 2: Dust Monitor Locations



2.1 Additional Dust Monitoring Provisions

As discussed with stakeholders during the consultation for the annual fill rate increase for the site, the following provisions were made for additional monitoring to be completed under specific conditions. The following notes the agreed to provisions for the additional monitoring. This provision will also be included in the Dust Best Management Practices Plan (BMPP). In the event that the provisions are triggered, WM will prepare an updated Air Quality Monitoring Plan to layout the specific agreed to monitoring at the time the additional monitoring provision is required.

As agreed to with stakeholders, in the event that 2 measured exceedances (trigger), that can be attributed to WM operations, in any quarter (excluding periods when on-site cell construction is occurring) occurs, WM is committing to reviewing the data with the Township of Warwick. Upon confirmation that the exceedances can be attributed to WM operations, and are not related to cell construction, WM will complete the installation of continuous dust monitors.

If continuous dust monitors are to be installed, WM will work with the Township of Warwick to update the following documents:

- Air Quality Monitoring Plan – updated for equipment change as well as trigger for shorter duration alerts to be issued to WM as warnings for higher dust levels; and

- Best Management Practices Plan (Dust) – to be updated to link dust alerts to dust control initiatives.

3 VOC MONITORING

It is proposed that monitoring for VOC's be conducted through the summer months, with samples to be taken in upwind and downwind pairs, during normal operating hours of the landfill. There would be a total of 5 sample pairs taken between June and September. No more than two (2) samples will be collected in any calendar month. The samples will be 24-hours in duration and compared to their respective Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List.

The samples will be collected and analyzed using methods defined in U.S. EPA Method TO-14/15. Vinyl chloride is of particular concern with these types of samples and vinyl chloride will be analyzed in selective ion mode (SIM). Sampling for VOC samples will be collected during periods of light wind conditions (less than 15 kilometers per hour) and during dry conditions (no measureable precipitation for the proceeding 48 hours prior to sampling).The list of VOC's monitored is presented in Table 1.

Table 1: List of Monitored VOCs

CAS No.	Compound	CAS No.	Compound
76-13-1	1,1,2-Trichloro-1,2,2-Trifluoroethane	620-14-4/622-96-8	m/p-Ethyl Toluene
526-73-8	1,2,3-Trimethyl Benzene	108-38-3/106-42-3	m/p-Xylene
95-63-6	1,2,4 -Trimethyl Benzene	535-77-3	m-Cymene
108-67-8	1,3,5 -Trimethyl Benzene	78-93-3	MEK
591-76-4	2-Methyl Hexane	108-87-2	Methyl Cyclohexane
107-83-5	2-Methyl Pentane	108-10-1	MIBK
78-78-4	2-Methyl Butane	75-45-6	Chlorodifluoromethane
96-14-0	3-Methyl Pentane	123-72-8	n-Butanol
589-34-4	3-Methyl Hexane	91-20-3	Naphthalene
67-64-1	Acetone	111-84-2	Nonane
71-43-2	Benzene	611-14-3	o-Ethyl Toluene
123-86-4	Butyl Acetate	95-47-6	o-Xylene
124-18-5	Decane	109-66-0	Pentane
25915-78-0	Dichlorodifluoromethane	64-17-5	Ethanol
75-09-2	Dichloromethane	103-65-1	Propyl Benzene
100-41-4	Ethyl Benzene	100-42-5	Styrene
142-82-5	Heptane	127-18-4	Tetrachloroethylene
110-54-3	Hexane	108-88-3	Toluene
67-63-0	Isopropyl Alcohol	75-69-4	Trichlorofluoromethane
138-86-3	Limonene	79-01-6	Trichloroethylene
75-01-4	Vinyl Chloride	141-78-6	Ethyl Acetate
56-23-5	Carbon Tetrachloride	71-55-6	1,1,1-Trichloroethane
67-66-3	Chloroform	75-35-4	Vinylidene Chloride
106-93-4	Ethylene Dibromide	540-59-0	1,2-Dichloroethene
107-6-2	Ethylene Dichloride	Na	Total VOCs

As the MOECC updates Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List in the Province of Ontario, the measured values will be compared to the most stringent limits available at the time of testing. For compounds that do not have Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List, the measured values will be compared to the predicated concentrations provided and approved by the MOECC for the Section 9 EPA approval supporting documentation to demonstrate compliance. As all compounds identified without Schedule 3 Standards and other guidelines listed in the Ministry document Air Contaminants Benchmarks (ACB) List are subject to review by the MOECC's Standard Development Branch, these levels should be considered acceptable.

4 COMPLAINT RECORDING PROCESS

Waste Management of Canada has outlined Best Practices Plans of Odour, Litter and Dust. Within each plan the procedures for outlining the responsibilities and recordkeeping. For further details, please refer to the most recent versions of the Best Management Practices Plan. [1,2,3]. Please note that like this air quality monitoring plan, the Best Management Plans are intended to be updates to endure continuous improvements are being documented at the site.

5 REFERENCES

1. RWDI AIR Inc. Best Management Practices Plan (Odour), Twin Creeks Landfill Site, Watford, ON – Revision 7, dated May 18, 2017.

2. RWDI AIR Inc. Best Management Practices Plan (Dust), Twin Creeks Landfill Site, Watford, ON – Revision 5, dated May 18, 2017.

3. RWDI AIR Inc. Best Management Practices Plan (Litter), Twin Creeks Landfill Site, Watford, ON – Revision 4, dated December 11, 2007.

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ATTACHMENT B

Table 67: Summary of Total Suspended Particulate Results **October 3, 2023**

Compounds	CAS No.	3-Oct-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23091118	Filter ID:	23090694	Filter ID:	23090693				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	ND	ND	Sample 3 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND	ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND	6.3	0.004			0.004	1.5	Guideline	0%
Total Cobalt (Co)	7440-48-14	ND	ND	2.1	0.001			0.001	0.1	Guideline	1%
Total Copper (Cu)	7440-50-18	175	0.110	258	0.158			0.158	50	Schedule 3	0%
Total Iron (Fe)	7439-89-16	620	0.391	4180	2.558			2.558	N/A	N/A	-
Total Lead (Pb)	7439-92-11	4.6	0.003	9.1	0.006			0.006	0.5	Schedule 3	1%
Total Manganese (Mn)	7439-96-15	17.7	0.011	150	0.092			0.092	2.5	Guideline	4%
Total Nickel (Ni)	7440-02-10	ND	ND	6.6	0.004			0.004	2	Schedule 3	0%
Total Selenium (Se)	7782-49-12	ND	ND	ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND	9.8	0.006			0.006	2	Schedule 3	0%
Total Zinc (Zn)	7440-66-16	28.9	0.018	51.4	0.031			0.031	120	Schedule 3	0%
Total Particulate	-	62100	39	386000	236	88600	55	236	120	Schedule 3	197%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1584		1634		1606					
Sample Flow Rate (m^3/min)		1.10		1.13		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 68: Summary of Total Suspended Particulate Results **October 9, 2023**

Compounds	CAS No.	9-Oct-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23091128	Filter ID:	23091126	Filter ID:	23091127				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	27100	17	14200	9	10300	6	17	120	Schedule 3	14%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Downwind		Upwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1625		1622		1698					
Sample Flow Rate (m^3/min)		1.13		1.13		1.18					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 69: Summary of Total Suspended Particulate Results **October 15, 2023**

Compounds	CAS No.	15-Oct-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23091130	Filter ID:	23091131	Filter ID:	23091129				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Invalid Sample		Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	-	-	19700	12	21500	13	13	120	Schedule 3	11%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		-		1440		1440					
Sample Volume (m^3) [1]		-		1650		1613					
Sample Flow Rate (m^3/min)		-		1.15		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 70: Summary of Total Suspended Particulate Results **October 21, 2023**

Compounds	CAS No.	21-Oct-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23091474	Filter ID:	23091473	Filter ID:	23091472				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	9900	6	13000	8	15800	9	9	120	Schedule 3	7%
Upwind or Downwind Position (based on actual meteorological data)		Downwind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1646		1643		1763					
Sample Flow Rate (m^3/min)		1.14		1.14		1.22					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 71: Summary of Total Suspended Particulate Results **October 27, 2023**

Compounds	CAS No.	27-Oct-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23091482	Filter ID:	23091483	Filter ID:	23091481				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	ND	ND	ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND	ND	ND	ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND	ND	ND	ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND	ND	ND	ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	95	0.059	74.6	0.044	31.1	0.019	0.059	50	Schedule 3	0%
Total Iron (Fe)	7439-89-16	322	0.201	618	0.368	446	0.270	0.368	N/A	N/A	-
Total Lead (Pb)	7439-92-11	6.8	0.004	3.7	0.002	ND	ND	0.004	0.5	Schedule 3	1%
Total Manganese (Mn)	7439-96-15	13.5	0.008	21.7	0.013	17.4	0.011	0.013	2.5	Guideline	1%
Total Nickel (Ni)	7440-02-10	ND	ND	ND	ND	ND	ND	ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12	ND	ND	ND	ND	ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND	ND	ND	ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	19.6	0.012	32.7	0.019	27.9	0.017	0.019	120	Schedule 3	0%
Total Particulate	-	38700	24	55200	33	48100	29	33	120	Schedule 3	27%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1605		1681		1651					
Sample Flow Rate (m^3/min)		1.11		1.17		1.15					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 72: Summary of Total Suspended Particulate Results **November 2, 2023**

Compounds	CAS No.	2-Nov-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23100611	Filter ID:	23100610	Filter ID:	23100608				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	29500	18	31300	20	40500	25	25	120	Schedule 3	21%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1627		1603		1600					
Sample Flow Rate (m^3/min)		1.13		1.11		1.11					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 73: Summary of Total Suspended Particulate Results **November 8, 2023**

Compounds	CAS No.	8-Nov-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23100606	Filter ID:	23100605	Filter ID:	23100607				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	14100	9	14900	9	70700	44	44	120	Schedule 3	36%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Upwind		Downwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1609		1580		1625					
Sample Flow Rate (m^3/min)		1.12		1.10		1.13					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 74: Summary of Total Suspended Particulate Results **November 14, 2023**

Compounds	CAS No.	14-Nov-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23100618	Filter ID:	23100619	Filter ID:	23100620				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	ND	ND	Sample 2 of 4 No Metals Analysis		0.00	0.3	Guideline	0%
Total Cadmium (Cd)	7440-43-19	ND	ND	ND	ND			0.00	0.025	Schedule 3	0%
Total Chromium (Cr)	7440-47-12	ND	ND	ND	ND			0.000	1.5	Guideline	0%
Total Cobalt (Co)	7440-48-14	ND	ND	ND	ND			0.00	0.1	Guideline	0%
Total Copper (Cu)	7440-50-18	93.8	0.058	136	0.084			0.08	50	Schedule 3	0%
Total Iron (Fe)	7439-89-16	644	0.396	1530	0.947			0.95	N/A	N/A	-
Total Lead (Pb)	7439-92-11	ND	ND	5.1	0.003			0.003	0.5	Schedule 3	1%
Total Manganese (Mn)	7439-96-15	18.8	0.012	41.3	0.026			0.03	2.5	Guideline	1%
Total Nickel (Ni)	7440-02-10	ND	ND	ND	ND			0.00	2	Schedule 3	0%
Total Selenium (Se)	7782-49-12	ND	ND	ND	ND			0.00	10	Guideline	0%
Total Vanadium (V)	7440-62-12	ND	ND	ND	ND			0.00	2	Schedule 3	0%
Total Zinc (Zn)	7440-66-16	24.9	0.015	44.5	0.028			0.03	120	Schedule 3	0%
Total Particulate	-	49300	30	99000	61	80900	50	61	120	Schedule 3	51%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1627		1615		1615					
Sample Flow Rate (m^3/min)		1.13		1.12		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 75: Summary of Total Suspended Particulate Results **November 20, 2023**

Compounds	CAS No.	20-Nov-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23103119	Filter ID:	23103118	Filter ID:	23103117				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		Sample 3 of 4 No Metals Analysis		ND	ND	0.00	0.3	Guideline	0%
Total Cadmium (Cd)	7440-43-19					ND	ND	0.00	0.025	Schedule 3	0%
Total Chromium (Cr)	7440-47-12					ND	ND	0.000	1.5	Guideline	0%
Total Cobalt (Co)	7440-48-14					ND	ND	0.00	0.1	Guideline	0%
Total Copper (Cu)	7440-50-18					58.1	0.036	0.04	50	Schedule 3	0%
Total Iron (Fe)	7439-89-16					2080	1.297	1.30	N/A	N/A	-
Total Lead (Pb)	7439-92-11					8.3	0.005	0.005	0.5	Schedule 3	1%
Total Manganese (Mn)	7439-96-15					55	0.034	0.03	2.5	Guideline	1%
Total Nickel (Ni)	7440-02-10					4	0.002	0.00	2	Schedule 3	0%
Total Selenium (Se)	7782-49-12					ND	ND	0.00	10	Guideline	0%
Total Vanadium (V)	7440-62-12					ND	ND	0.00	2	Schedule 3	0%
Total Zinc (Zn)	7440-66-16					76.7	0.048	0.05	120	Schedule 3	0%
Total Particulate	-	26800	17	37500	24	115000	72	72	120	Schedule 3	60%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Upwind		Downwind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1613		1576		1604					
Sample Flow Rate (m^3/min)		1.12		1.09		1.11					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 76: Summary of Total Suspended Particulate Results **November 26, 2023**

Compounds	CAS No.	26-Nov-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23103110	Filter ID:	23103108	Filter ID:	23103109				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		Sample 4 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	31000	19	38700	24	29000	18	24	120	Schedule 3	20%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1622		1598		1611					
Sample Flow Rate (m^3/min)		1.13		1.11		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 77: Summary of Total Suspended Particulate Results **December 2, 2023**

Compounds	CAS No.	2-Dec-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23103121	Filter ID:	23103120	Filter ID:	23103122				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Invalid Sample		Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	-	-	26400	17	17800	11	17	120	Schedule 3	14%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Upwind		Crosswind					
Sample Duration (min)		-		1440		1438					
Sample Volume (m^3) [1]		-		1588		1648					
Sample Flow Rate (m^3/min)		-		1.10		1.15					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 78: Summary of Total Suspended Particulate Results **December 8, 2023**

Compounds	CAS No.	8-Dec-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23103129	Filter ID:	23103131	Filter ID:	23103130				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		Sample 2 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	23600	15	29700	18	35500	22	22	120	Schedule 3	18%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1439		1440		1440					
Sample Volume (m^3) [1]		1625		1641		1614					
Sample Flow Rate (m^3/min)		1.13		1.14		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 79: Summary of Total Suspended Particulate Results **December 14, 2023**

Compounds	CAS No.	14-Dec-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23103183	Filter ID:	23110119	Filter ID:	23103182				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 3 of 4 No Metals Analysis		ND	ND	Sample 3 of 4 No Metals Analysis		ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19			ND	ND			ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12			5.4	0.003			0.003	1.5	Guideline	0%
Total Cobalt (Co)	7440-48-14			ND	ND			ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18			48.9	0.031			0.031	50	Schedule 3	0%
Total Iron (Fe)	7439-89-16			2530	1.582			1.582	N/A	N/A	-
Total Lead (Pb)	7439-92-11			15.8	0.010			0.010	0.5	Schedule 3	2%
Total Manganese (Mn)	7439-96-15			68.9	0.043			0.043	2.5	Guideline	2%
Total Nickel (Ni)	7440-02-10			4.3	0.003			0.003	2	Schedule 3	0%
Total Selenium (Se)	7782-49-12			ND	ND			ND	10	Guideline	-
Total Vanadium (V)	7440-62-12			ND	ND			ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16			135	0.084			0.084	120	Schedule 3	0%
Total Particulate	-	24300	15	145000	91	42800	26	91	120	Schedule 3	76%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Downwind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1617		1599		1627					
Sample Flow Rate (m^3/min)		1.12		1.11		1.13					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 80: Summary of Total Suspended Particulate Results **December 20, 2023**

Compounds	CAS No.	20-Dec-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-6		Northeast - WMI-3		Western - WMI-5					
		Filter ID:	23110143	Filter ID:	23110142	Filter ID:	23110141				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	ND	ND	Sample 4 of 4 No Metals Analysis		ND	ND	ND	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19	ND	ND			ND	ND	ND	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12	ND	ND			ND	ND	ND	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14	ND	ND			ND	ND	ND	0.1	Guideline	-
Total Copper (Cu)	7440-50-18	53.6	0.033			29.4	0.018	0.03	50	Schedule 3	0%
Total Iron (Fe)	7439-89-16	418	0.254			682	0.417	0.42	N/A	N/A	-
Total Lead (Pb)	7439-92-11	3.5	0.002			4.9	0.003	0.003	0.5	Schedule 3	1%
Total Manganese (Mn)	7439-96-15	12.8	0.008			23.2	0.014	0.01	2.5	Guideline	1%
Total Nickel (Ni)	7440-02-10	ND	ND			ND	ND	ND	2	Schedule 3	-
Total Selenium (Se)	7782-49-12	ND	ND			ND	ND	ND	10	Guideline	-
Total Vanadium (V)	7440-62-12	ND	ND			ND	ND	ND	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16	41.9	0.025			84.6	0.052	0.05	120	Schedule 3	0%
Total Particulate	-	28600	17	45800	28	44100	27	28	120	Schedule 3	23%
Upwind or Downwind Position (based on actual meteorological data)		Crosswind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1646		1630		1635					
Sample Flow Rate (m^3/min)		1.14		1.13		1.14					

[1] Volume Corrected to 10°C and 101.325 kPa
[2] O.Reg 419/05 Schedule 13
[3] Ontario's Ambient Air Quality Criteria Guideline
N/A - not applicable (No current standards for Total Iron)
ND-Not Detected, Results were less than the reportable detection limit (RDL)

Table 81: Summary of Total Suspended Particulate Results **December 26, 2023**

Compounds	CAS No.	26-Dec-23						Maximum Concentration (ug/m^3)	Air Quality Standard or POI Limit (ug/m^3)	Source of Limit [2][3]	Percentage of Criteria (%)
		Southeast - WMI-4		Northeast - WMI-2		Western - WMI-1					
		Filter ID:	23110950	Filter ID:	23110952	Filter ID:	23110951				
		Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)	Mass (ug)	Concentration (µg/m^3)				
Total Arsenic (As)	7440-38-12	Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		Sample 1 of 4 No Metals Analysis		-	0.3	Guideline	-
Total Cadmium (Cd)	7440-43-19							-	0.025	Schedule 3	-
Total Chromium (Cr)	7440-47-12							-	1.5	Guideline	-
Total Cobalt (Co)	7440-48-14							-	0.1	Guideline	-
Total Copper (Cu)	7440-50-18							-	50	Schedule 3	-
Total Iron (Fe)	7439-89-16							-	N/A	N/A	-
Total Lead (Pb)	7439-92-11							-	0.5	Schedule 3	-
Total Manganese (Mn)	7439-96-15							-	2.5	Guideline	-
Total Nickel (Ni)	7440-02-10							-	2	Schedule 3	-
Total Selenium (Se)	7782-49-12							-	10	Guideline	-
Total Vanadium (V)	7440-62-12							-	2	Schedule 3	-
Total Zinc (Zn)	7440-66-16							-	120	Schedule 3	-
Total Particulate	-	16700	10	14000	9	30700	19	19	120	Schedule 3	16%
Upwind or Downwind Position (based on actual meteorological data)		Upwind		Crosswind		Crosswind					
Sample Duration (min)		1440		1440		1440					
Sample Volume (m^3) [1]		1625		1571		1615					
Sample Flow Rate (m^3/min)		1.13		1.09		1.12					

[1] Volume Corrected to 10°C and 101.325 kPa

[2] O.Reg 419/05 Schedule 13

[3] Ontario's Ambient Air Quality Criteria Guideline

N/A - not applicable (No current standards for Total Iron)

ND-Not Detected, Results were less than the reportable detection limit (RDL)

ATTACHMENT C

Amanda and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

On January 10, 2024, we received the PM_{10} and TSP results from Bureau Veritas regarding the particulate weights from the October 3, 2023 sampling event. On January 10, 2024, the results were entered and assessed, and it was found that there was one (1) measured TSP concentration in excess of the 24-hour AAQC and two (2) measured PM_{10} concentrations in excess of the 24-hour AAQC on the October 3, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference. Below is a summary of the events.

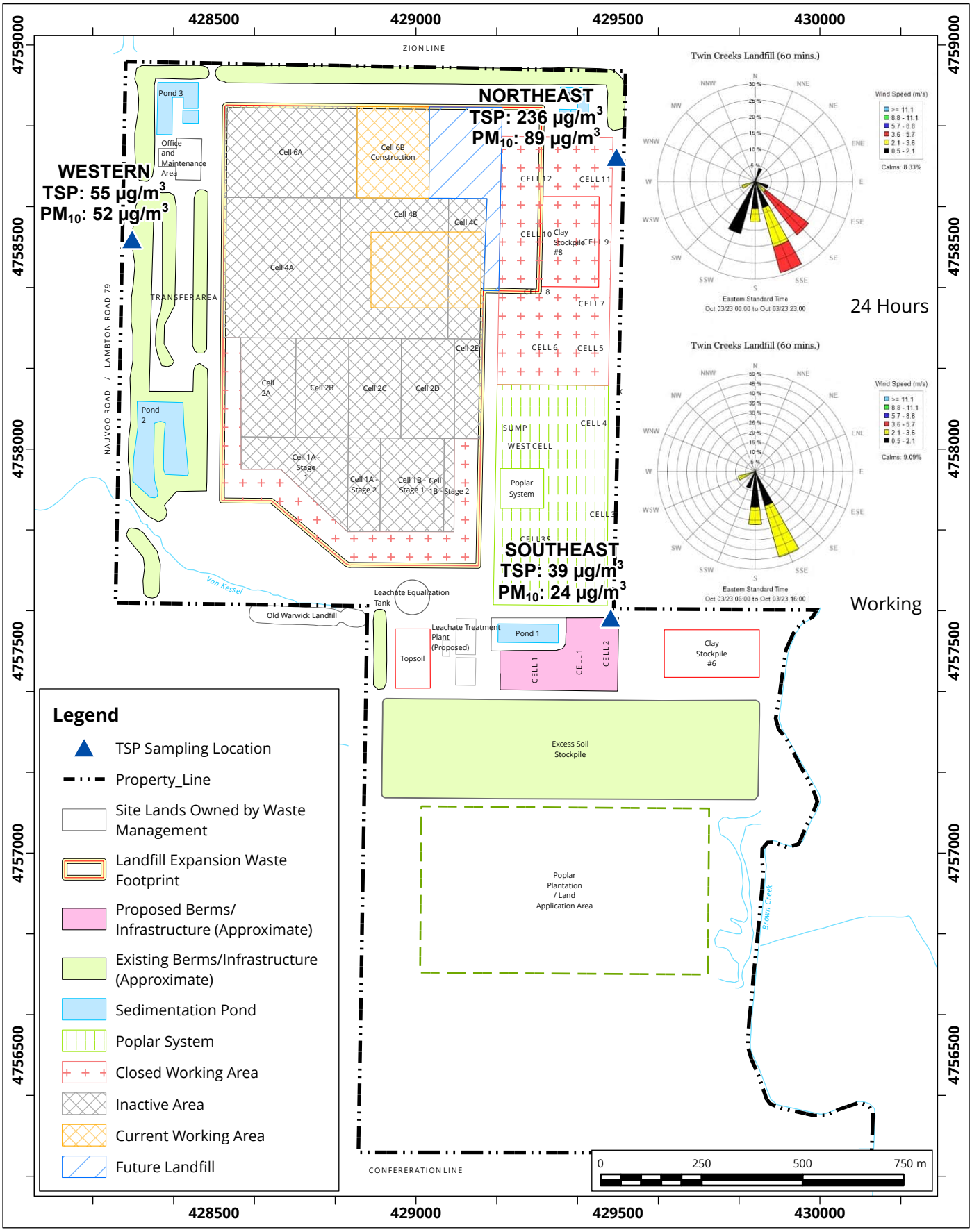
<u>October 3, 2023</u>

On Tuesday October 3, 2023, there was an exceedance of the TSP 24-hour AAQC at the Northeast sampler and an exceedance of the PM_{10} 24-hour AAQC and the Northeast and Western samplers. Attached is Figure 1, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the October 3 sampling date.

1. The measured TSP concentration at the Northeast sampler was 236 ug/m^3, the West sampler was 55 ug/m^3 and Southeast sampler (site background) was 39 ug/m^3. The measured PM_{10} concentration at the Northeast sampler was 89 ug/m^3, the West sampler was 52 ug/m^3 and the Southeast sampler (site background) was 24 ug/m^3. During the 24-hour period, the wind was predominantly from the SSE, SE and SSW; wind speeds ranged from 1 to 16 km/h and wind gusts reached a maximum of 22 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the SSE to S. During this timeframe, the Northeast sampler location was in close proximity to the (site construction activities) operations related to the drainage layer stone stockpile. During this timeframe, the Western sampler location was crosswind from the haul route and clay capping placement on Cell 4A.
3. Sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. The site was operating normally for landfilling activities.

In summary, the aforementioned TSP and PM_{10} exceedances, measured on-site at the Northeast TSP, PM_{10} and Western PM_{10} sampler locations originated from site construction activities, with contributions from off-site activities/sources as measured at the site background location (Southeast samplers at 39 ug/m^3 for TSP and 24 ug/m^3 for PM_{10}).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: October 03, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by:	PIP	Figure:	1
Approx. Scale:	1:13,000		
Date Revised:	Jan 15, 2024		

Map Document: C:\WorkingFolder\Jobs_Guelph_1\P2303459\P2001313_TwinCreeks.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed)	Date Exceedednce Determined
January 22, 2024	January 10, 2024
District Office: Sarnia District Office	Fax Number: (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification	Business Name
Angela McLachlan	Waste Management of Canada Corporation

North American Industry Classification System (NAICS) Code	Business Activity Description (*a description of the business endeavour, this may include products sold, services provided, equipment used, etc.*)
562210	Waste Disposal Site

Site Name	MOE District Office
Twin Creeks Environmental Centre	Sarnia District Office

Address Information:

Site Address - Street information (*address that has civic numbering and street information includes street number, name, type and direction*)	Unit Identifier (*i.e. suite or apartment number*)
5768 Nauvoo Road	

Survey Address (*used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory*)

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information (*includes any additional information to clarify applicants' physical location*)

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

6138-CX4NFX	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No — If No, please provide the following:

Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
Dust Management Plan (BMPP)	December 16, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	03/10/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 December 16, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur *(select all that apply)*:

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act.*
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*
Am	22/01/2024

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast and Western Samplers	03/10/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (Northeast Sampler)	N/A	Hi-Vol	236	24	120	Visibility	AAQC	197%
2	PM10 (Northeast Sampler)	N/A	Hi-Vol	89	24	50	Health	AAQC	178%
3	PM10 (Western Sampler)	N/A	Hi-Vol	52	24	50	Health	AAQC	104%
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX G5

Your P.O. #: 12285740
Your Project #: 2202861-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/02/10
Report #: R7504516
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C317227
Received: 2023/01/19, 09:45

Sample Matrix: Filter
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/02/08	2023/02/09	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	5	N/A	2023/01/25		
Particulates on Filter (Method IO-3.1)	6	2023/01/25	2023/01/24	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	5	N/A	2023/01/19		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2202861-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/02/10
Report #: R7504516
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C317227
Received: 2023/01/19, 09:45

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Bureau Veritas Job #: C317227
Report Date: 2023/02/10

RWDI
Client Project #: 2202861-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		UVO057	UVO058	UVO059	UVO060	UVO061			UVO062		
Sampling Date		2023/01/06	2023/01/06	2023/01/06	2023/01/12	2023/01/12			2023/01/17		
COC Number		n/a	n/a	n/a	n/a	n/a			n/a		
	UNITS	**22111448**	**22111449**	**22111450**	**22111451**	**22111463**	**RDL**	**QC Batch**	**22111479**	**RDL**	**QC Batch**
Particulate	ug/m3	16	11	17	54	19	3	8458604			
Particulate Weight on Filter	ug	27700	16900	28900	87100	31600	5000	8468895	<5000 (1)	5000	8468895
Volume	m3	1679	1507	1695	1618	1621	N/A	ONSITE			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Negative weight observed

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C317227
Report Date: 2023/02/10

RWDI
Client Project #: 2202861-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		UVO062		
Sampling Date		2023/01/17		
COC Number		n/a		
	UNITS	**22111479**	**RDL**	**QC Batch**
Metals				
Arsenic (As)	ug	<6.0	6.0	8492971
Cadmium (Cd)	ug	<2.0	2.0	8492971
Chromium (Cr)	ug	<5.0	5.0	8492971
Cobalt (Co)	ug	<2.0	2.0	8492971
Copper (Cu)	ug	<5.0	5.0	8492971
Iron (Fe)	ug	<50	50	8492971
Lead (Pb)	ug	<3.0	3.0	8492971
Manganese (Mn)	ug	1.1	1.0	8492971
Nickel (Ni)	ug	<3.0	3.0	8492971
Selenium (Se)	ug	<10	10	8492971
Vanadium (V)	ug	<5.0	5.0	8492971
Zinc (Zn)	ug	<5.0	5.0	8492971

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C317227
Report Date: 2023/02/10

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2202861-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8492971	Arsenic (As)	2023/02/09	104	75 - 125	101	85 - 115	<6.0	ug	NC (1)	20
8492971	Cadmium (Cd)	2023/02/09	105	75 - 125	101	85 - 115	<2.0	ug	NC (1)	20
8492971	Chromium (Cr)	2023/02/09	105	75 - 125	102	85 - 115	<5.0	ug	NC (1)	20
8492971	Cobalt (Co)	2023/02/09	101	75 - 125	99	85 - 115	<2.0	ug	NC (1)	20
8492971	Copper (Cu)	2023/02/09	99	75 - 125	101	85 - 115	<5.0	ug	4.6 (1)	20
8492971	Iron (Fe)	2023/02/09	105	75 - 125	100	85 - 115	<50	ug	1.9 (1)	20
8492971	Lead (Pb)	2023/02/09	99	75 - 125	97	85 - 115	<3.0	ug	14 (1)	20
8492971	Manganese (Mn)	2023/02/09	102	75 - 125	100	85 - 115	<1.0	ug	0.68 (1)	20
8492971	Nickel (Ni)	2023/02/09	100	75 - 125	99	85 - 115	<3.0	ug	NC (1)	20
8492971	Selenium (Se)	2023/02/09	107	75 - 125	103	85 - 115	<10	ug	NC (1)	20
8492971	Vanadium (V)	2023/02/09	99	75 - 125	98	85 - 115	<5.0	ug	NC (1)	20
8492971	Zinc (Zn)	2023/02/09	102	75 - 125	99	85 - 115	<5.0	ug	1.4 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C317227
Report Date: 2023/02/10

RWDI
Client Project #: 2202861-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

ATR

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #:		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733	19-Jan-23 09:45
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2202861-2000	Patricia Legette
				Project Name:	Twin Creeks	C317227
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks	
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Sampled By:	JRA	

KTN AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 31-Jan-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	22111448	6-Jan-23	1679	TSP	N	N	X	X	1	
2	22111449	6-Jan-23	1507	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	22111450	6-Jan-23	1695	TSP	N	N	X	X	1	
4	22111451	12-Jan-23	1618	TSP	N	N	X	X	1	
5	22111463	12-Jan-23	1621	TSP	N	N	X	X	1	
6	22111479	17-Jan-23	-	TSP	N	N	X	X	1	Field Blank
7										
8										
9										
10										
11										Field Blank

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA 17-Jan-23/PM	[signature]	19/01/19	0945	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2202861-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/02/10
Report #: R7504512
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C328326
Received: 2023/01/31, 08:30

Sample Matrix: Filter
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/02/07	2023/02/10		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/02/08	2023/02/09	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	6	N/A	2023/02/03		
Particulates on Filter (Method IO-3.1)	6	2023/02/03	2023/02/03	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/01/31		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2202861-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/02/10
Report #: R7504512
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C328326
Received: 2023/01/31, 08:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

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Bureau Veritas Job #: C328326
Report Date: 2023/02/10

RWDI
Client Project #: 2202861-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		UYA365	UYA366	UYA367	UYA368	UYA369	UYA370		
Sampling Date		2023/01/18	2023/01/18	2023/01/18	2023/01/24	2023/01/24	2023/01/24		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**22111454**	**22111455**	**22111456**	**22111464**	**22111465**	**22111466**	**RDL**	**QC Batch**
Particulate	ug/m3	73	6	7	31	20	22	3	8479080
Particulate Weight on Filter	ug	118000	9000	10800	49900	31600	35500	5000	8485872
Volume	m3	1614	1609	1594	1603	1614	1634	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C328326
Report Date: 2023/02/10

RWDI
Client Project #: 2202861-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		UYA365	UYA369	UYA370		
Sampling Date		2023/01/18	2023/01/24	2023/01/24		
COC Number		n/a	n/a	n/a		
	UNITS	**22111454**	**22111465**	**22111466**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	<6.0	<6.0	6.0	8492971
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	2.0	8492971
Chromium (Cr)	ug	<5.0	<5.0	<5.0	5.0	8492971
Cobalt (Co)	ug	<2.0	<2.0	<2.0	2.0	8492971
Copper (Cu)	ug	55.8	49.7	66.5	5.0	8492971
Iron (Fe)	ug	853	237	313	50	8492971
Lead (Pb)	ug	6.3	3.1	3.2	3.0	8492971
Manganese (Mn)	ug	26.4	8.1	11.1	1.0	8492971
Nickel (Ni)	ug	<3.0	<3.0	<3.0	3.0	8492971
Selenium (Se)	ug	<10	<10	<10	10	8492971
Vanadium (V)	ug	<5.0	<5.0	<5.0	5.0	8492971
Zinc (Zn)	ug	57.7	23.7	50.6	5.0	8492971

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C328326
Report Date: 2023/02/10

RWDI
Client Project #: 2202861-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		UYA365	UYA369		UYA370		
Sampling Date		2023/01/18	2023/01/24		2023/01/24		
COC Number		n/a	n/a		n/a		
	UNITS	**22111454**	**22111465**	**RDL**	**22111466**	**RDL**	**QC Batch**
Metals							
Total Arsenic (As)	ug/m3	<0.0037	<0.0037	0.0037	<0.0037	0.0037	8491786
Total Cadmium (Cd)	ug/m3	<0.0012	<0.0012	0.0012	<0.0012	0.0012	8491786
Total Chromium (Cr)	ug/m3	<0.0031	<0.0031	0.0031	<0.0031	0.0031	8491786
Total Cobalt (Co)	ug/m3	<0.0012	<0.0012	0.0012	<0.0012	0.0012	8491786
Total Copper (Cu)	ug/m3	0.0346	0.0308	0.0031	0.0407	0.0031	8491786
Total Iron (Fe)	ug/m3	0.528	0.147	0.031	0.192	0.031	8491786
Total Lead (Pb)	ug/m3	0.0039	<0.0019	0.0019	0.0020	0.0018	8491786
Total Lithium (Li)	ug/m3	<0.017	<0.017	0.017	<0.017	0.017	8491786
Total Nickel (Ni)	ug/m3	<0.0019	<0.0019	0.0019	<0.0018	0.0018	8491786
Total Selenium (Se)	ug/m3	<0.0062	<0.0062	0.0062	<0.0061	0.0061	8491786
Total Sulphur (S)	ug/m3	0.337	0.625	0.015	0.694	0.015	8491786
Total Vanadium (V)	ug/m3	<0.0031	<0.0031	0.0031	<0.0031	0.0031	8491786
Total Zinc (Zn)	ug/m3	0.0357	0.0147	0.0031	0.0310	0.0031	8491786

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C328326
Report Date: 2023/02/10

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2202861-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8492971	Arsenic (As)	2023/02/09	104 (1)	75 - 125	101	85 - 115	<6.0	ug	NC (3)	20
8492971	Cadmium (Cd)	2023/02/09	105 (1)	75 - 125	101	85 - 115	<2.0	ug	NC (3)	20
8492971	Chromium (Cr)	2023/02/09	105 (1)	75 - 125	102	85 - 115	<5.0	ug	NC (3)	20
8492971	Cobalt (Co)	2023/02/09	101 (1)	75 - 125	99	85 - 115	<2.0	ug	NC (3)	20
8492971	Copper (Cu)	2023/02/09	99 (1)	75 - 125	101	85 - 115	<5.0	ug	4.6 (3)	20
8492971	Iron (Fe)	2023/02/09	105 (1)	75 - 125	100	85 - 115	<50	ug	1.9 (3)	20
8492971	Lead (Pb)	2023/02/09	99 (1)	75 - 125	97	85 - 115	<3.0	ug	14 (3)	20
8492971	Manganese (Mn)	2023/02/09	102 (1)	75 - 125	100	85 - 115	<1.0	ug	0.68 (3)	20
8492971	Nickel (Ni)	2023/02/09	100 (1)	75 - 125	99	85 - 115	<3.0	ug	NC (3)	20
8492971	Selenium (Se)	2023/02/09	107 (1)	75 - 125	103	85 - 115	<10	ug	NC (3)	20
8492971	Vanadium (V)	2023/02/09	99 (1)	75 - 125	98	85 - 115	<5.0	ug	NC (3)	20
8492971	Zinc (Zn)	2023/02/09	102 (1)	75 - 125	99	85 - 115	<5.0	ug	1.4 (3)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [UYA365-01]

(2) Duplicate Parent ID

(3) Duplicate Parent ID [UYA365-01]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C328326
Report Date: 2023/02/10

RWDI
Client Project #: 2202861-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2202861-2000
				Project Name:	Twin Creeks
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Sampled By:	JRA

31-Jan-23 08:30
Patricia Legette
C328326
SPJ AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ PWQO ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Sanitary ☐ Storm Region: _____ site specific (specify)
☐ Reg. 558

Report Criteria on C of A ? n

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 10-Feb-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	22111454	18-Jan-23	1614	TSP	N	N	X	X	1	
2	22111455	18-Jan-23	1609	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	22111456	18-Jan-23	1594	TSP	N	N	X	X	1	
4	22111464	24-Jan-23	1603	TSP	N	N	X	X	1	
5	22111465	24-Jan-23	1614	TSP	N	N	X	X	1	
6	22111466	24-Jan-23	1634	TSP	N	N	X	X	1	
7										
8										
9										
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA 30-Jan-23/PM	[signature]	023/01/31	08:30	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 1228540
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/03/07
Report #: R7537050
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C340023
Received: 2023/02/10, 09:15

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/03/01	2023/03/07		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	4	2023/03/02	2023/03/03	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	6	N/A	2023/02/13		
Particulates on Filter (Method IO-3.1)	7	2023/02/13	2023/02/13	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/02/10		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 1228540
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/03/07
Report #: R7537050
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C340023
Received: 2023/02/10, 09:15

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C340023
Report Date: 2023/03/07

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 1228540
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		VAL193	VAL194	VAL195	VAL196	VAL197	VAL198		
Sampling Date		2023/01/30	2023/01/30	2023/01/30	2023/02/05	2023/02/05	2023/02/05		
COC Number		na	na	na	na	na	na		
	UNITS	**23011642**	**23011643**	**23011644**	**23011680**	**23011640**	**23011641**	**RDL**	**QC Batch**
Particulate	ug/m3	11	9	23	17	22	17	3	8498266
Particulate Weight on Filter	ug	17500	14100	37300	28100	34900	27300	5000	8501898
Volume	m3	1615	1630	1626	1618	1598	1597	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		VAL199		
Sampling Date				
COC Number		na		
	UNITS	**23011682**	**RDL**	**QC Batch**
Particulate Weight on Filter	ug	<5000	5000	8501898

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C340023
Report Date: 2023/03/07

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 1228540
Sampler Initials: JRA

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		VAL195	VAL196	VAL197	VAL199		
Sampling Date		2023/01/30	2023/02/05	2023/02/05			
COC Number		na	na	na	na		
	UNITS	**23011644**	**23011680**	**23011640**	**23011682**	**RDL**	**QC Batch**
Metals							
Arsenic (As)	ug	<6.0	<6.0	<6.0	<6.0	6.0	8530592
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	<2.0	2.0	8530592
Chromium (Cr)	ug	<5.0	<5.0	<5.0	<5.0	5.0	8530592
Cobalt (Co)	ug	<2.0	<2.0	<2.0	<2.0	2.0	8530592
Copper (Cu)	ug	60.0	46.6	39.8	<5.0	5.0	8530592
Iron (Fe)	ug	399	207	288	<50	50	8530592
Lead (Pb)	ug	<3.0	<3.0	3.2	<3.0	3.0	8530592
Manganese (Mn)	ug	13.3	8.1	11.0	<1.0	1.0	8530592
Nickel (Ni)	ug	<3.0	<3.0	<3.0	<3.0	3.0	8530592
Selenium (Se)	ug	<10	<10	<10	<10	10	8530592
Vanadium (V)	ug	<5.0	<5.0	<5.0	<5.0	5.0	8530592
Zinc (Zn)	ug	24.3	42.4	32.6	<5.0	5.0	8530592

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C340023
Report Date: 2023/03/07

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 1228540
Sampler Initials: JRA

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		VAL195		VAL196		VAL197		
Sampling Date		2023/01/30		2023/02/05		2023/02/05		
COC Number		na		na		na		
	UNITS	**23011644**	**RDL**	**23011680**	**RDL**	**23011640**	**RDL**	**QC Batch**
Metals								
Total Arsenic (As)	ug/m3	<0.0037	0.0037	<0.0037	0.0037	<0.0038	0.0038	8528921
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	<0.0012	0.0012	<0.0013	0.0013	8528921
Total Chromium (Cr)	ug/m3	<0.0031	0.0031	<0.0031	0.0031	<0.0031	0.0031	8528921
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	<0.0012	0.0012	<0.0013	0.0013	8528921
Total Copper (Cu)	ug/m3	0.0369	0.0031	0.0288	0.0031	0.0249	0.0031	8528921
Total Iron (Fe)	ug/m3	0.245	0.031	0.128	0.031	0.181	0.031	8528921
Total Lead (Pb)	ug/m3	<0.0018	0.0018	<0.0019	0.0019	0.0020	0.0019	8528921
Total Lithium (Li)	ug/m3	<0.017	0.017	<0.017	0.017	<0.017	0.017	8528921
Total Nickel (Ni)	ug/m3	<0.0018	0.0018	<0.0019	0.0019	<0.0019	0.0019	8528921
Total Selenium (Se)	ug/m3	<0.0062	0.0062	<0.0062	0.0062	<0.0063	0.0063	8528921
Total Sulphur (S)	ug/m3	0.406	0.015	0.481	0.015	0.462	0.016	8528921
Total Vanadium (V)	ug/m3	<0.0031	0.0031	<0.0031	0.0031	<0.0031	0.0031	8528921
Total Zinc (Zn)	ug/m3	0.0150	0.0031	0.0262	0.0031	0.0204	0.0031	8528921

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C340023
Report Date: 2023/03/07

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 1228540
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8530592	Arsenic (As)	2023/03/03	106 (1)	75 - 125	104	85 - 115	<6.0	ug	NC (3)	20
8530592	Cadmium (Cd)	2023/03/03	99 (1)	75 - 125	97	85 - 115	<2.0	ug	NC (3)	20
8530592	Chromium (Cr)	2023/03/03	104 (1)	75 - 125	101	85 - 115	<5.0	ug	NC (3)	20
8530592	Cobalt (Co)	2023/03/03	97 (1)	75 - 125	96	85 - 115	<2.0	ug	NC (3)	20
8530592	Copper (Cu)	2023/03/03	100 (1)	75 - 125	99	85 - 115	<5.0	ug	0.48 (3)	20
8530592	Iron (Fe)	2023/03/03	94 (1)	75 - 125	93	85 - 115	<50	ug	5.7 (3)	20
8530592	Lead (Pb)	2023/03/03	97 (1)	75 - 125	95	85 - 115	<3.0	ug	NC (3)	20
8530592	Manganese (Mn)	2023/03/03	100 (1)	75 - 125	98	85 - 115	<1.0	ug	2.8 (3)	20
8530592	Nickel (Ni)	2023/03/03	102 (1)	75 - 125	101	85 - 115	<3.0	ug	NC (3)	20
8530592	Selenium (Se)	2023/03/03	98 (1)	75 - 125	97	85 - 115	<10	ug	NC (3)	20
8530592	Vanadium (V)	2023/03/03	101 (1)	75 - 125	98	85 - 115	<5.0	ug	NC (3)	20
8530592	Zinc (Zn)	2023/03/03	95 (1)	75 - 125	94	85 - 115	<5.0	ug	2.1 (3)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [VAL196-01]

(2) Duplicate Parent ID

(3) Duplicate Parent ID [VAL196-01]

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C340023
Report Date: 2023/03/07

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 1228540
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

MaxAir Analytics Inc

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

10-Feb-23 09:15
Patricia Legette
C340023
J_L AIR-RmTmp

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMAT	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	1228540
Address:	5768 Nauvoo Rd, Watford, ON	Address:	4510 Rhodes Drive, Suite 530	Project #:	2303459-2000
	N0M 2S0		Windsor, ON, N8W 5K5	Project Name:	Twin Creeks
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks
Email: lmertick@wm.com		Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		Sampled By:	JRA

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 20-Feb-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23011642	30-Jan-23	1615	TSP	N	N	X	X	1	
2	23011643	30-Jan-23	1630	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23011644	30-Jan-23	1626	TSP	N	N	X	X	1	
4	22111480	5-Feb-23	1618	TSP	N	N	X	X	1	
5	23011640	5-Feb-23	1598	TSP	N	N	X	X	1	
6	23011641	5-Feb-23	1597	TSP	N	N	X	X	1	
7	23011682	-	-	TSP	N	N	X	X	1	Field Blank
8										
9										
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA 9-Feb-23/PM	[illegible]	2023/02/10	09:15	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 10123733
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/03/01
Report #: R7527721
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C353557
Received: 2023/02/24, 09:16

Sample Matrix: Filter
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Particulates on Hi-Vol Filters	6	N/A	2023/02/28		
Particulates on Filter (Method IO-3.1)	6	2023/02/28	2023/02/28	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/02/24		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 10123733
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/03/01
Report #: R7527721
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C353557
Received: 2023/02/24, 09:16

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C353557
Report Date: 2023/03/01

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 10123733
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		VDF754	VDF755	VDF756	VDF757	VDF758	VDF759		
Sampling Date		2023/02/17	2023/02/17	2023/02/17	2023/02/11	2023/02/11	2023/02/11		
COC Number		na	na	na	na	na	na		
	UNITS	**23011651**	**23011652**	**23011653**	**23011654**	**23011655**	**23011656**	**RDL**	**QC Batch**
Particulate	ug/m3	12	9	8	11	13	18	3	8520942
Particulate Weight on Filter	ug	18700	14600	12300	17300	21000	29300	5000	8526685
Volume	m3	1615	1617	1613	1624	1608	1588	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C353557
Report Date: 2023/03/01

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 10123733
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:

Company Name: Waste Management of Canada Corporation
Contact Name: Lisa Mertick
Address: 5768 Nauvoo Rd, Watford, ON N0M 2S0
Phone: 519-849-5810 Fax: 519-849-5811
Email: lmertick@wm.com

REPORT INFORMATION (if differs from invoice):

Company Name: RWDI AIR Inc.
Contact Name: Brent Langille
Address: 4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5
Phone: 519-823-1311 x 2618 Fax: 519-823-1316
Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com

PROJECT INFORMATI

Quotation #
P.O. #: 10123733
Project #: 2303459-2000
Project Name: Twin Creeks
Location: Twin Creeks
Sampled By: JRA

24-Feb-23 09:16
Patricia Legette
C353557
MLIM AIR RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary site specific
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region:
☐ Reg. 558
Report Criteria on C of A ? n

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 1-Mar-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23011651	17-Feb-23	1615	TSP	N	N	X	X	1	
2	23011652	17-Feb-23	1617	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23011653	17-Feb-23	1613	TSP	N	N	X	X	1	
4	23011654	11-Feb-23	1624	TSP	N	N	X	X	1	
5	23011655	11-Feb-23	1608	TSP	N	N	X	X	1	
6	23011656	11-Feb-23	1588	TSP	N	N	X	X	1	
7										
8										
9										
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only: Temperature (°C) on Receipt	Condition of Sample on Receipt
JRA Feb-23/PM	Muskan	2023/02/24	0916		☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEK

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/04/25
Report #: R7602296
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C361166
Received: 2023/03/03, 09:30

Sample Matrix: Filter
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Particulates on Hi-Vol Filters	3	N/A	2023/03/09		
Particulates on Filter (Method IO-3.1)	4	2023/03/09	2023/03/09	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	3	N/A	2023/03/03		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEK

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/04/25
Report #: R7602296
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C361166
Received: 2023/03/03, 09:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Bureau Veritas Job #: C361166
Report Date: 2023/04/25

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEK
Your P.O. #: 12285740
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		VET621	VET622	VET623			VET624		
Sampling Date		2023/02/23	2023/02/23	2023/02/23			2023/03/02		
	UNITS	**23011663**	**23011664**	**23011665**	**RDL**	**QC Batch**	**23013167**	**RDL**	**QC Batch**
Particulate	ug/m3	24	12	12	3	8533701			
Particulate Weight on Filter	ug	39100	19600	18900	5000	8543404	<5000	5000	8543404
Volume	m3	1596	1615	1600	N/A	ONSITE			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C361166
Report Date: 2023/04/25

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEK
Your P.O. #: 12285740
Sampler Initials: JRA

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

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Bureau Veritas Job #: C361166
Report Date: 2023/04/25

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEK
Your P.O. #: 12285740
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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CHAIN OF CUSTODY RECORD

Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

INVOICE INFORMATION:

Company Name: Waste Management of Canada Corporation
Contact Name: Lisa Mertick
Address: 5768 Nauvoo Rd, Watford, ON N0M 2S0
Phone: 519-849-5810 Fax: 519-849-5811
Email: lmertick@wm.com

REPORT INFORMATION (if differs from invoice):

Company Name: RWDI AIR Inc.
Contact Name: Brent Langille
Address: 4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5
Phone: 519-823-1311 x 2618 Fax: 519-823-1316
Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com

PROJECT INFORMATION:

Quotation #
P.O. #: 10123733
Project #: 2303459-2000
Project Name: Twin Creeks
Location: Twin Creeks
Sampled By: JRA

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # :

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary site specific
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 10-Mar-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23011663	23-Feb-23	1596	TSP	N	N	X	X	1	
2	23011664	23-Feb-23	1615	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at
3	23011665	23-Feb-23	1600	TSP	N	N	X	X	1	
4	23011367	2-Mar-23	-	TSP	N	N	X	X	1	Field Blank
5										
6										
7										
8										
9										
10										
11										

03-Mar-23 09:30
Patricia Legette
C361166
AJH AIR-RmTmp

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA 2-Mar-23/PM	[illegible]	03/03/23	1530	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEK
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/04/27
Report #: R7605484
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C377515
Received: 2023/03/20, 08:50

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/04/20	2023/04/27		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	4	2023/04/25	2023/04/27	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	6	N/A	2023/03/23		
Particulates on Filter (Method IO-3.1)	7	2023/03/23	2023/03/23	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/03/20		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEK
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/04/27
Report #: R7605484
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C377515
Received: 2023/03/20, 08:50

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
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Bureau Veritas Job #: C377515
Report Date: 2023/04/27

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEK
Your P.O. #: 12285740
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		VIE748	VIE749	VIE750	VIE751	VIE752	VIE753		
Sampling Date		2023/03/01	2023/03/01	2023/03/01	2023/03/07	2023/03/07	2023/03/07		
COC Number		na	na	na	na	na	na		
	UNITS	**23011678**	**23011679**	**23011680**	**23011683**	**23011684**	**23011685**	**RDL**	**QC Batch**
Particulate	ug/m3	21	19	70	47	12	17	3	8562361
Particulate Weight on Filter	ug	34200	30800	114000	75200	20300	27100	5000	8568800
Volume	m3	1611	1612	1622	1601	1633	1604	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		VIE754		
Sampling Date		2023/03/09		
COC Number		na		
	UNITS	**23013175**	**RDL**	**QC Batch**
Particulate Weight on Filter	ug	<5000	5000	8568800

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C377515
Report Date: 2023/04/27

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEK
Your P.O. #: 12285740
Sampler Initials: JRA

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		VIE748	VIE749	VIE750	VIE754		
Sampling Date		2023/03/01	2023/03/01	2023/03/01	2023/03/09		
COC Number		na	na	na	na		
	UNITS	**23011678**	**23011679**	**23011680**	**23013175**	**RDL**	**QC Batch**
Metals							
Arsenic (As)	ug	<6.0	<6.0	<6.0	<6.0	6.0	8626935
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	<2.0	2.0	8626935
Chromium (Cr)	ug	<5.0	<5.0	<5.0	<5.0	5.0	8626935
Cobalt (Co)	ug	<2.0	<2.0	<2.0	<2.0	2.0	8626935
Copper (Cu)	ug	59.2	91.4	33.4	<5.0	5.0	8626935
Iron (Fe)	ug	405	350	1270	<50	50	8626935
Lead (Pb)	ug	3.1	<3.0	4.5	<3.0	3.0	8626935
Manganese (Mn)	ug	12.6	10.7	40.7	<1.0	1.0	8626935
Nickel (Ni)	ug	<3.0	<3.0	<3.0	<3.0	3.0	8626935
Selenium (Se)	ug	<10	<10	<10	<10	10	8626935
Vanadium (V)	ug	<5.0	<5.0	<5.0	<5.0	5.0	8626935
Zinc (Zn)	ug	36.0	35.2	69.8	<5.0	5.0	8626935

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C377515
Report Date: 2023/04/27

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEK
Your P.O. #: 12285740
Sampler Initials: JRA

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		VIE748	VIE749		VIE750		
Sampling Date		2023/03/01	2023/03/01		2023/03/01		
COC Number		na	na		na		
	UNITS	**23011678**	**23011679**	**RDL**	**23011680**	**RDL**	**QC Batch**
Metals							
Total Arsenic (As)	ug/m3	<0.0037	<0.0037	0.0037	<0.0037	0.0037	8619906
Total Cadmium (Cd)	ug/m3	<0.0012	<0.0012	0.0012	<0.0012	0.0012	8619906
Total Chromium (Cr)	ug/m3	<0.0031	<0.0031	0.0031	<0.0031	0.0031	8619906
Total Cobalt (Co)	ug/m3	<0.0012	<0.0012	0.0012	<0.0012	0.0012	8619906
Total Copper (Cu)	ug/m3	0.0367	0.0567	0.0031	0.0206	0.0031	8619906
Total Iron (Fe)	ug/m3	0.251	0.217	0.031	0.785	0.031	8619906
Total Lead (Pb)	ug/m3	0.0019	<0.0019	0.0019	0.0027	0.0019	8619906
Total Lithium (Li)	ug/m3	<0.017	<0.017	0.017	<0.017	0.017	8619906
Total Nickel (Ni)	ug/m3	<0.0019	<0.0019	0.0019	<0.0019	0.0019	8619906
Total Selenium (Se)	ug/m3	<0.0062	<0.0062	0.0062	<0.0062	0.0062	8619906
Total Sulphur (S)	ug/m3	0.570	0.568	0.016	0.820	0.015	8619906
Total Vanadium (V)	ug/m3	<0.0031	<0.0031	0.0031	<0.0031	0.0031	8619906
Total Zinc (Zn)	ug/m3	0.0223	0.0219	0.0031	0.0430	0.0031	8619906

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C377515
Report Date: 2023/04/27

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEK
Your P.O. #: 12285740
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8626935	Arsenic (As)	2023/04/27	108 (1)	75 - 125	102	85 - 115	<6.0	ug	NC (3)	20
8626935	Cadmium (Cd)	2023/04/27	107 (1)	75 - 125	101	85 - 115	<2.0	ug	NC (3)	20
8626935	Chromium (Cr)	2023/04/27	106 (1)	75 - 125	100	85 - 115	<5.0	ug	NC (3)	20
8626935	Cobalt (Co)	2023/04/27	104 (1)	75 - 125	99	85 - 115	<2.0	ug	NC (3)	20
8626935	Copper (Cu)	2023/04/27	106 (1)	75 - 125	98	85 - 115	<5.0	ug	5.3 (3)	20
8626935	Iron (Fe)	2023/04/27	103 (1)	75 - 125	97	85 - 115	<50	ug	1.6 (3)	20
8626935	Lead (Pb)	2023/04/27	104 (1)	75 - 125	98	85 - 115	<3.0	ug	NC (3)	20
8626935	Manganese (Mn)	2023/04/27	105 (1)	75 - 125	99	85 - 115	<1.0	ug	3.3 (3)	20
8626935	Nickel (Ni)	2023/04/27	105 (1)	75 - 125	100	85 - 115	<3.0	ug	NC (3)	20
8626935	Selenium (Se)	2023/04/27	107 (1)	75 - 125	103	85 - 115	<10	ug	NC (3)	20
8626935	Vanadium (V)	2023/04/27	101 (1)	75 - 125	97	85 - 115	<5.0	ug	NC (3)	20
8626935	Zinc (Zn)	2023/04/27	104 (1)	75 - 125	98	85 - 115	<5.0	ug	3.0 (3)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [VIE749-01]

(2) Duplicate Parent ID

(3) Duplicate Parent ID [VIE749-01]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C377515
Report Date: 2023/04/27

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEK
Your P.O. #: 12285740
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORM	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON	Address:	4510 Rhodes Drive, Suite 530	Project #:	2303459-2000
	N0M 2S0		Windsor, ON, N8W 5K5	Project Name:	Twin Creeks
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Sampled By:	JRA

20-Mar-23 08:50
Patricia Legette
C377515
MUM AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other site specific (specify)
☐ PWQO ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Sanitary ☐ Storm Region _____
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 27-Mar-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23011678	1-Mar-23	1611	TSP	N	N	X	X	1	
2	23011679	1-Mar-23	1612	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23011680	1-Mar-23	1622	TSP	N	N	X	X	1	
4	23011683	7-Mar-23	1601	TSP	N	N	X	X	1	
5	23011684	7-Mar-23	1633	TSP	N	N	X	X	1	
6	23011685	7-Mar-23	1604	TSP	N	N	X	X	1	
7	23013175	9-Mar-23	-	TSP	N	N	X	X	1	Field Blank
8										
9										
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA 16-Mar-23/PM	[signature] / MUSKAN	~~2023/03/20~~ MUM 2023/03/20	0850	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/04/27
Report #: R7604623
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C394964
Received: 2023/04/05, 08:55

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Particulates on Hi-Vol Filters	6	N/A	2023/04/18		
Particulates on Filter (Method IO-3.1)	7	2023/04/18	2023/04/18	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/04/05		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/04/27
Report #: R7604623
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C394964
Received: 2023/04/05, 08:55

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Bureau Veritas Job #: C394964
Report Date: 2023/04/27

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		VLX419	VLX420	VLX421	VLX422	VLX423	VLX424		
Sampling Date		2023/03/13	2023/03/13	2023/03/13	2023/03/19	2023/03/19	2023/03/19		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23011629**	**23011630**	**23011631**	**23011632**	**23011633**	**23011634**	**RDL**	**QC Batch**
Particulate	ug/m3	17	9	34	5	13	14	3	8592810
Particulate Weight on Filter	ug	27300	14800	54300	8500	20800	22400	5000	8614435
Volume	m3	1614	1626	1613	1620	1620	1609	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		VLX386		
Sampling Date		2023/03/20		
COC Number		n/a		
	UNITS	**23013147**	**RDL**	**QC Batch**
Particulate Weight on Filter	ug	<5000	5000	8614435

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C394964
Report Date: 2023/04/27

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

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Bureau Veritas Job #: C394964
Report Date: 2023/04/27

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

AIR

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMAT		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		05-Apr-23 08:55
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733	Patricia Legette
Address:	5768 Nauvoo Rd, Watford, ON	Address:	4510 Rhodes Drive, Suite 530	Project #:	2303459-2000	C394964
	N0M 2S0		Windsor, ON, N8W 5K5	Project Name:	Twin Creeks	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Sampled By:	JRA	KTN AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 12-Apr-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23011629	13-Mar-23	1614	TSP	N	N	X	X	1	
2	23011630	13-Mar-23	1626	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23011631	13-Mar-23	1613	TSP	N	N	X	X	1	
4	23011632	19-Mar-23	1620	TSP	N	N	X	X	1	
5	23011633	19-Mar-23	1620	TSP	N	N	X	X	1	
6	23011634	19-Mar-23	1609	TSP	N	N	X	X	1	
7	23013147	20-Mar-23	-	TSP	N	N	X	X	1	Field Blank
8										
9										
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA 3-Apr-23/PM	[illegible]	[illegible]	0855	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN-CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/05/02
Report #: R7611509
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C399565
Received: 2023/04/11, 08:45

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	2	2023/04/27	2023/05/02		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/04/27	2023/05/01	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	6	N/A	2023/04/21		
Particulates on Filter (Method IO-3.1)	7	2023/04/20	2023/04/20	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/04/11		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
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Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN-CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/05/02
Report #: R7611509
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C399565
Received: 2023/04/11, 08:45

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Bureau Veritas Job #: C399565
Report Date: 2023/05/02

RWDI
Client Project #: 2303459-2000
Site Location: TWIN-CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		VMX719	VMX720	VMX721	VMX722	VMX723	VMX724		
Sampling Date		2023/03/25	2023/03/25	2023/03/25	2023/03/31	2023/03/31	2023/03/31		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23013176**	**23013177**	**23013178**	**23013179**	**23013180**	**23013181**	**RDL**	**QC Batch**
Particulate	ug/m3	13	8	13	17	23	20	3	8600986
Particulate Weight on Filter	ug	19700	12800	20400	27000	36100	32200	5000	8621259
Volume	m3	1563	1605	1570	1608	1598	1620	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		VMX725		
Sampling Date		2023/04/05		
COC Number		n/a		
	UNITS	**23013163**	**RDL**	**QC Batch**
Particulate Weight on Filter	ug	<5000	5000	8621259

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C399565
Report Date: 2023/05/02

RWDI
Client Project #: 2303459-2000
Site Location: TWIN-CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		VMX722	VMX723	VMX725		
Sampling Date		2023/03/31	2023/03/31	2023/04/05		
COC Number		n/a	n/a	n/a		
	UNITS	**23013179**	**23013180**	**23013163**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	<6.0	<6.0	6.0	8632788
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	2.0	8632788
Chromium (Cr)	ug	<5.0	<5.0	<5.0	5.0	8632788
Cobalt (Co)	ug	<2.0	<2.0	<2.0	2.0	8632788
Copper (Cu)	ug	23.0	45.5	<5.0	5.0	8632788
Iron (Fe)	ug	523	584	<50	50	8632788
Lead (Pb)	ug	3.2	3.8	<3.0	3.0	8632788
Manganese (Mn)	ug	13.5	15.0	1.7	1.0	8632788
Nickel (Ni)	ug	<3.0	<3.0	<3.0	3.0	8632788
Selenium (Se)	ug	<10	<10	<10	10	8632788
Vanadium (V)	ug	<5.0	<5.0	<5.0	5.0	8632788
Zinc (Zn)	ug	23.0	35.8	6.0	5.0	8632788

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C399565
Report Date: 2023/05/02

RWDI
Client Project #: 2303459-2000
Site Location: TWIN-CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		VMX722		VMX723		
Sampling Date		2023/03/31		2023/03/31		
COC Number		n/a		n/a		
	UNITS	**23013179**	**RDL**	**23013180**	**RDL**	**QC Batch**
Metals						
Total Arsenic (As)	ug/m3	<0.0037	0.0037	<0.0038	0.0038	8632006
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	<0.0013	0.0013	8632006
Total Chromium (Cr)	ug/m3	<0.0031	0.0031	<0.0031	0.0031	8632006
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	<0.0013	0.0013	8632006
Total Copper (Cu)	ug/m3	0.0143	0.0031	0.0285	0.0031	8632006
Total Iron (Fe)	ug/m3	0.325	0.031	0.365	0.031	8632006
Total Lead (Pb)	ug/m3	0.0020	0.0019	0.0024	0.0019	8632006
Total Lithium (Li)	ug/m3	<0.017	0.017	<0.017	0.017	8632006
Total Nickel (Ni)	ug/m3	<0.0019	0.0019	<0.0019	0.0019	8632006
Total Selenium (Se)	ug/m3	<0.0062	0.0062	<0.0063	0.0063	8632006
Total Sulphur (S)	ug/m3	0.607	0.016	0.689	0.016	8632006
Total Vanadium (V)	ug/m3	<0.0031	0.0031	<0.0031	0.0031	8632006
Total Zinc (Zn)	ug/m3	0.0143	0.0031	0.0224	0.0031	8632006

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C399565
Report Date: 2023/05/02

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459-2000
Site Location: TWIN-CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8632788	Arsenic (As)	2023/05/01	103 (1)	75 - 125	104	85 - 115	<6.0	ug	NC (3)	20
8632788	Cadmium (Cd)	2023/05/01	106 (1)	75 - 125	104	85 - 115	<2.0	ug	NC (3)	20
8632788	Chromium (Cr)	2023/05/01	107 (1)	75 - 125	103	85 - 115	<5.0	ug	NC (3)	20
8632788	Cobalt (Co)	2023/05/01	103 (1)	75 - 125	101	85 - 115	<2.0	ug	NC (3)	20
8632788	Copper (Cu)	2023/05/01	100 (1)	75 - 125	101	85 - 115	<5.0	ug	3.1 (3)	20
8632788	Iron (Fe)	2023/05/01	102 (1)	75 - 125	101	85 - 115	<50	ug	0.93 (3)	20
8632788	Lead (Pb)	2023/05/01	102 (1)	75 - 125	100	85 - 115	<3.0	ug	19 (3)	20
8632788	Manganese (Mn)	2023/05/01	104 (1)	75 - 125	102	85 - 115	<1.0	ug	1.8 (3)	20
8632788	Nickel (Ni)	2023/05/01	105 (1)	75 - 125	102	85 - 115	<3.0	ug	NC (3)	20
8632788	Selenium (Se)	2023/05/01	107 (1)	75 - 125	104	85 - 115	<10	ug	NC (3)	20
8632788	Vanadium (V)	2023/05/01	100 (1)	75 - 125	100	85 - 115	<5.0	ug	NC (3)	20
8632788	Zinc (Zn)	2023/05/01	103 (1)	75 - 125	101	85 - 115	<5.0	ug	0.76 (3)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [VMX723-01]

(2) Duplicate Parent ID

(3) Duplicate Parent ID [VMX723-01]

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C399565
Report Date: 2023/05/02

RWDI
Client Project #: 2303459-2000
Site Location: TWIN-CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Maxxam AIR Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

11-Apr-23 08:45
Patricia Legette
C399565
KTN AIR-RmTmp

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMA	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459-2000
				Project Name:	Twin Creeks
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks
Email: lmertick@wm.com		Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		Sampled By:	JRA

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23013176	25-Mar-23	1563	TSP	N	N	X	X	1	
2	23013177	25-Mar-23	1605	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23013178	25-Mar-23	1570	TSP	N	N	X	X	1	
4	23013179	31-Mar-23	1608	TSP	N	N	X	X	1	
5	23013180	31-Mar-23	1598	TSP	N	N	X	X	1	
6	23013181	31-Mar-23	1620	TSP	N	N	X	X	1	
7	23013163	5-Apr-23	-	TSP	N	N	X	X	1	Field Blank
8										
9										
10										
11										

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 18-Apr-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA 6-Apr-23/PM	[signature]	2023/04/11	08:45	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/05/17
Report #: R7633129
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C3A9137
Received: 2023/04/19, 09:24

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/04/27	2023/05/03		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/05/12	2023/05/17		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/05/01	2023/05/02	CAM SOP-00408	EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	4	2023/05/15	2023/05/16	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	6	N/A	2023/04/25		
Particulates on Filter (Method IO-3.1)	7	2023/04/25	2023/04/25	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/04/25		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/05/17
Report #: R7633129
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C3A9137
Received: 2023/04/19, 09:24

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Bureau Veritas Job #: C3A9137
Report Date: 2023/05/17

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		VOW290	VOW291	VOW292	VOW293	VOW294	VOW295		
Sampling Date		2023/04/06	2023/04/06	2023/04/06	2023/04/12	2023/04/12	2023/04/12		
COC Number		na	na	na	na	na	na		
	UNITS	**23013144**	**23013145**	**23013146**	**23013154**	**23013155**	**23013156**	**RDL**	**QC Batch**
Particulate	ug/m3	21	16	22	49	201	61	3	8617038
Particulate Weight on Filter	ug	33200	25500	37100	77300	318000	97800	5000	8628379
Volume	m3	1608	1597	1658	1572	1581	1616	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		VOW296		
Sampling Date		2023/04/13		
COC Number		na		
	UNITS	**230121309**	**RDL**	**QC Batch**
Particulate Weight on Filter	ug	<5000	5000	8628379

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3A9137
Report Date: 2023/05/17

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		VOW292		VOW293	VOW294	VOW295	VOW296		
Sampling Date		2023/04/06		2023/04/12	2023/04/12	2023/04/12	2023/04/13		
COC Number		na		na	na	na	na		
	UNITS	**23013146**	**QC Batch**	**23013154**	**23013155**	**23013156**	**230121309**	**RDL**	**QC Batch**
Metals									
Arsenic (As)	ug	<6.0	8638247	<6.0	<6.0	<6.0	<6.0	6.0	8663071
Cadmium (Cd)	ug	<2.0	8638247	<2.0	<2.0	<2.0	<2.0	2.0	8663071
Chromium (Cr)	ug	<5.0	8638247	<5.0	11.2	<5.0	<5.0	5.0	8663071
Cobalt (Co)	ug	<2.0	8638247	<2.0	2.3	<2.0	<2.0	2.0	8663071
Copper (Cu)	ug	103	8638247	15.0	232	40.8	<5.0	5.0	8663071
Iron (Fe)	ug	514	8638247	1060	5310	1300	<50	50	8663071
Lead (Pb)	ug	<3.0	8638247	4.6	44.1	5.6	<3.0	3.0	8663071
Manganese (Mn)	ug	14.3	8638247	39.0	128	48.6	<1.0	1.0	8663071
Nickel (Ni)	ug	<3.0	8638247	<3.0	9.3	<3.0	<3.0	3.0	8663071
Selenium (Se)	ug	<10	8638247	<10	<10	<10	<10	10	8663071
Vanadium (V)	ug	<5.0	8638247	<5.0	5.4	<5.0	<5.0	5.0	8663071
Zinc (Zn)	ug	33.8	8638247	46.0	460	48.7	<5.0	5.0	8663071

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3A9137
Report Date: 2023/05/17

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		VOW292			VOW293		VOW294		VOW295		
Sampling Date		2023/04/06			2023/04/12		2023/04/12		2023/04/12		
COC Number		na			na		na		na		
	UNITS	**23013146**	**RDL**	**QC Batch**	**23013154**	**RDL**	**23013155**	**RDL**	**23013156**	**RDL**	**QC Batch**
Metals											
Total Arsenic (As)	ug/m3	<0.0036	0.0036	8632006	<0.0038	0.0038	<0.0038	0.0038	<0.0037	0.0037	8662301
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	8632006	<0.0013	0.0013	<0.0013	0.0013	<0.0012	0.0012	8662301
Total Chromium (Cr)	ug/m3	<0.0030	0.0030	8632006	<0.0032	0.0032	0.0071	0.0032	<0.0031	0.0031	8662301
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	8632006	<0.0013	0.0013	0.0015	0.0013	<0.0012	0.0012	8662301
Total Copper (Cu)	ug/m3	0.0620	0.0030	8632006	0.0096	0.0032	0.147	0.0032	0.0252	0.0031	8662301
Total Iron (Fe)	ug/m3	0.310	0.030	8632006	0.676	0.032	3.36	0.032	0.807	0.031	8662301
Total Lead (Pb)	ug/m3	<0.0018	0.0018	8632006	0.0029	0.0019	0.0279	0.0019	0.0035	0.0019	8662301
Total Lithium (Li)	ug/m3	<0.016	0.016	8632006	<0.017	0.017	<0.017	0.017	<0.017	0.017	8662301
Total Nickel (Ni)	ug/m3	<0.0018	0.0018	8632006	<0.0019	0.0019	0.0059	0.0019	<0.0019	0.0019	8662301
Total Selenium (Se)	ug/m3	<0.0060	0.0060	8632006	<0.0064	0.0064	<0.0063	0.0063	<0.0062	0.0062	8662301
Total Sulphur (S)	ug/m3	0.521	0.015	8632006	0.571	0.016	1.50	0.016	0.646	0.015	8662301
Total Vanadium (V)	ug/m3	<0.0030	0.0030	8632006	<0.0032	0.0032	0.0034	0.0032	<0.0031	0.0031	8662301
Total Zinc (Zn)	ug/m3	0.0204	0.0030	8632006	0.0293	0.0032	0.291	0.0032	0.0302	0.0031	8662301

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

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Bureau Veritas Job #: C3A9137
Report Date: 2023/05/17

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8638247	Arsenic (As)	2023/05/02	107	75 - 125	105	85 - 115	<6.0	ug	NC (1)	20
8638247	Cadmium (Cd)	2023/05/02	108	75 - 125	106	85 - 115	<2.0	ug	NC (1)	20
8638247	Chromium (Cr)	2023/05/02	104	75 - 125	101	85 - 115	<5.0	ug	NC (1)	20
8638247	Cobalt (Co)	2023/05/02	105	75 - 125	103	85 - 115	<2.0	ug	NC (1)	20
8638247	Copper (Cu)	2023/05/02	102	75 - 125	105	85 - 115	<5.0	ug	3.8 (1)	20
8638247	Iron (Fe)	2023/05/02	110	75 - 125	107	85 - 115	<50	ug	1.1 (1)	20
8638247	Lead (Pb)	2023/05/02	103	75 - 125	101	85 - 115	<3.0	ug	NC (1)	20
8638247	Manganese (Mn)	2023/05/02	106	75 - 125	105	85 - 115	<1.0	ug	1.1 (1)	20
8638247	Nickel (Ni)	2023/05/02	103	75 - 125	102	85 - 115	<3.0	ug	NC (1)	20
8638247	Selenium (Se)	2023/05/02	110	75 - 125	107	85 - 115	<10	ug	NC (1)	20
8638247	Vanadium (V)	2023/05/02	101	75 - 125	101	85 - 115	<5.0	ug	NC (1)	20
8638247	Zinc (Zn)	2023/05/02	105	75 - 125	103	85 - 115	<5.0	ug	8.5 (1)	20
8663071	Arsenic (As)	2023/05/17	103	75 - 125	102	85 - 115	<6.0	ug	0.49 (1)	20
8663071	Cadmium (Cd)	2023/05/17	104	75 - 125	103	85 - 115	<2.0	ug	0.49 (1)	20
8663071	Chromium (Cr)	2023/05/17	100	75 - 125	100	85 - 115	<5.0	ug	0.80 (1)	20
8663071	Cobalt (Co)	2023/05/17	101	75 - 125	100	85 - 115	<2.0	ug	0.50 (1)	20
8663071	Copper (Cu)	2023/05/17	112	75 - 125	102	85 - 115	<5.0	ug	0.49 (1)	20
8663071	Iron (Fe)	2023/05/17	106	75 - 125	104	85 - 115	<50	ug	0.58 (1)	20
8663071	Lead (Pb)	2023/05/17	99	75 - 125	98	85 - 115	<3.0	ug	0.71 (1)	20
8663071	Manganese (Mn)	2023/05/17	104	75 - 125	104	85 - 115	<1.0	ug	0.96 (1)	20
8663071	Nickel (Ni)	2023/05/17	100	75 - 125	99	85 - 115	<3.0	ug	0.20 (1)	20
8663071	Selenium (Se)	2023/05/17	107	75 - 125	106	85 - 115	<10	ug	0.75 (1)	20
8663071	Vanadium (V)	2023/05/17	97	75 - 125	98	85 - 115	<5.0	ug	0.41 (1)	20

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3A9137
Report Date: 2023/05/17

QUALITY ASSURANCE REPORT(CONT'D)

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8663071	Zinc (Zn)	2023/05/17	101	75 - 125	100	85 - 115	<5.0	ug	0.40 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Bureau Veritas Job #: C3A9137
Report Date: 2023/05/17

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Julian Tong, Project Manager Assistant

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459-2000
				Project Name:	Twin Creeks
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Sampled By:	JRA

MAXXAM JOB NUMBER

19-Apr-23 09:24
Patricia Legette
C3A9137
MUM AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 27-Apr-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23013144	6-Apr-23		TSP	N	N	X	X	1	
2	23013145	6-Apr-23		TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23013146	6-Apr-23		TSP	N	N	X	X	1	
4	23013154	12-Apr-23		TSP	N	N	X	X	1	
5	23013155	12-Apr-23		TSP	N	N	X	X	1	
6	23013156	12-Apr-23		TSP	N	N	X	X	1	
7	230121309	13-Apr-23	-	TSP	N	N	X	X	1	Field Blank
8										
9										
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only: Temperature (°C) on Receipt	Condition of Sample on Receipt
JRA 18-Apr-23/AM	[illegible]	2023/04/19	0924		☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/05/10
Report #: R7623569
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C6234
Received: 2023/05/04, 09:14

Sample Matrix: Filter
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Particulates on Hi-Vol Filters	9	N/A	2023/05/10		
Particulates on Filter (Method IO-3.1)	10	2023/05/10	2023/05/10	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	9	N/A	2023/05/04		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/05/10
Report #: R7623569
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3C6234
Received: 2023/05/04, 09:14

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Bureau Veritas Job #: C3C6234
Report Date: 2023/05/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		VSJ952	VSJ953	VSJ954	VSJ955	VSJ956	VSJ957		
Sampling Date		2023/04/18	2023/04/18	2023/04/18	2023/04/24	2023/04/24	2023/04/24		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23013191**	**23013192**	**23013193**	**23013194**	**23013195**	**23013196**	**RDL**	**QC Batch**
Particulate	ug/m3	32	43	15	27	28	25	3	8646375
Particulate Weight on Filter	ug	49900	68600	24600	42300	44200	38900	5000	8656370
Volume	m3	1584	1599	1598	1571	1581	1566	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		VSJ958			VSJ959	VSJ960	VSJ961		
Sampling Date		2023/04/28			2023/04/30	2023/04/30	2023/04/30		
COC Number		n/a			n/a	n/a	n/a		
	UNITS	**23041335**	**RDL**	**QC Batch**	**23021311**	**23021312**	**23021313**	**RDL**	**QC Batch**
Particulate	ug/m3				17	16	29	3	8646375
Particulate Weight on Filter	ug	<5000	5000	8656370	27100	25000	46300	5000	8656370
Volume	m3				1615	1607	1617	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3C6234
Report Date: 2023/05/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

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Bureau Veritas Job #: C3C6234
Report Date: 2023/05/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Maxxam Analytics Inc

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

04-May-23 09:14
Patricia Legette
C3C6234
AN4 AIR-RmTmp

INVOICE INFORMATION:

Company Name: Waste Management of Canada Corporation
Contact Name: Lisa Mertick
Address: 5768 Nauvoo Rd, Watford, ON
N0M 2S0
Phone: 519-849-5810 Fax: 519-849-5811
Email: lmertick@wm.com

REPORT INFORMATION (if differs from invoice):

Company Name: RWDI AIR Inc.
Contact Name: Brent Langille
Address: 4510 Rhodes Drive, Suite 530
Windsor, ON, N8W 5K5
Phone: 519-823-1311 x 2618 Fax: 519-823-1316
Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com

PROJECT INFORMATION:

Quotation #
P.O. #: 10123733
Project #: 2303459-2000
Project Name: Twin Creeks
Location: Twin Creeks
Sampled By: JRA

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ PWQO ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Sanitary ☐ Storm Region: _____ site specific (specify)
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 12-May-23

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23013191	18-Apr-23	1584	TSP	N	N	X	X	1	
2	23013192	18-Apr-23	1599	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23013193	18-Apr-23	1598	TSP	N	N	X	X	1	
4	23013194	24-Apr-23	1571	TSP	N	N	X	X	1	
5	23013195	24-Apr-23	1581	TSP	N	N	X	X	1	
6	23013196	24-Apr-23	1566	TSP	N	N	X	X	1	
7	23041335	28-Apr-23	-	TSP	N	N	X	X	1	Field Blank
8	23021311	30-Apr-23	1615	TSP	N	N	X	X	1	
9	23021312	30-Apr-23	1607	TSP	N	N	X	X	1	
10	23021313	30-Apr-23	1617	TSP	N	N	X	X	1	
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
JRA 3-May-23/AM	[signature]	10/3/05/04	09:14

Laboratory Use Only

Temperature (°C) on Receipt

Condition of Sample on Receipt ☐ OK ☐ SIF

[signature]

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/06/23
Report #: R7685373
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3E2121
Received: 2023/05/18, 08:50

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	2	2023/06/15	2023/06/22		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/06/19	2023/06/22	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	6	N/A	2023/05/24		
Particulates on Filter (Method IO-3.1)	7	2023/05/24	2023/05/23	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/05/18		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
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Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/06/23
Report #: R7685373
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3E2121
Received: 2023/05/18, 08:50

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3E2121
Report Date: 2023/06/23

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		VVS376	VVS377	VVS378	VVS379	VVS380	VVS381		
Sampling Date		2023/05/06	2023/05/06	2023/05/06	2023/05/12	2023/05/12	2023/05/12		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23041325**	**23041326**	**23041327**	**23041338**	**23041337**	**23041336**	**RDL**	**QC Batch**
Particulate	ug/m3	23	17	43	200	128	146	3	8673107
Particulate Weight on Filter	ug	36100	27600	66600	316000	203000	230000	5000	8681087
Volume	m3	1570	1584	1547	1577	1582	1581	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		VVS382		
Sampling Date		2023/05/12		
COC Number		n/a		
	UNITS	**23041307**	**RDL**	**QC Batch**
Particulate Weight on Filter	ug	<5000	5000	8681087

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3E2121
Report Date: 2023/06/23

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		VVS379	VVS381	VVS382		
Sampling Date		2023/05/12	2023/05/12	2023/05/12		
COC Number		n/a	n/a	n/a		
	UNITS	**23041338**	**23041336**	**23041307**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	<6.0	<6.0	6.0	8735743
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	2.0	8735743
Chromium (Cr)	ug	10.6	6.7	<5.0	5.0	8735743
Cobalt (Co)	ug	2.3	<2.0	<2.0	2.0	8735743
Copper (Cu)	ug	177	166	<5.0	5.0	8735743
Iron (Fe)	ug	6620	5000	53	50	8735743
Lead (Pb)	ug	23.4	16.6	<3.0	3.0	8735743
Manganese (Mn)	ug	126	98.5	<1.0	1.0	8735743
Nickel (Ni)	ug	10.2	7.2	<3.0	3.0	8735743
Selenium (Se)	ug	<10	<10	<10	10	8735743
Vanadium (V)	ug	7.6	6.2	<5.0	5.0	8735743
Zinc (Zn)	ug	216	148	<5.0	5.0	8735743

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3E2121
Report Date: 2023/06/23

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		VVS379	VVS381		
Sampling Date		2023/05/12	2023/05/12		
COC Number		n/a	n/a		
	UNITS	**23041338**	**23041336**	**RDL**	**QC Batch**
Metals					
Total Arsenic (As)	ug/m3	<0.0038	<0.0038	0.0038	8728371
Total Cadmium (Cd)	ug/m3	<0.0013	<0.0013	0.0013	8728371
Total Chromium (Cr)	ug/m3	0.0067	0.0042	0.0032	8728371
Total Cobalt (Co)	ug/m3	0.0015	<0.0013	0.0013	8728371
Total Copper (Cu)	ug/m3	0.112	0.105	0.0032	8728371
Total Iron (Fe)	ug/m3	4.20	3.17	0.032	8728371
Total Lead (Pb)	ug/m3	0.0148	0.0105	0.0019	8728371
Total Lithium (Li)	ug/m3	<0.017	<0.017	0.017	8728371
Total Nickel (Ni)	ug/m3	0.0064	0.0046	0.0019	8728371
Total Selenium (Se)	ug/m3	<0.0063	<0.0063	0.0063	8728371
Total Sulphur (S)	ug/m3	1.07	0.881	0.016	8728371
Total Vanadium (V)	ug/m3	0.0048	0.0039	0.0032	8728371
Total Zinc (Zn)	ug/m3	0.137	0.0933	0.0032	8728371

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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Bureau Veritas Job #: C3E2121
Report Date: 2023/06/23

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8735743	Arsenic (As)	2023/06/22	105 (1)	75 - 125	103	85 - 115	<6.0	ug	NC (3)	20
8735743	Cadmium (Cd)	2023/06/22	105 (1)	75 - 125	104	85 - 115	<2.0	ug	NC (3)	20
8735743	Chromium (Cr)	2023/06/22	106 (1)	75 - 125	103	85 - 115	<5.0	ug	NC (3)	20
8735743	Cobalt (Co)	2023/06/22	101 (1)	75 - 125	101	85 - 115	<2.0	ug	3.4 (3)	20
8735743	Copper (Cu)	2023/06/22	103 (1)	75 - 125	102	85 - 115	<5.0	ug	9.1 (3)	20
8735743	Iron (Fe)	2023/06/22	113 (1)	75 - 125	102	85 - 115	<50	ug	13 (3)	20
8735743	Lead (Pb)	2023/06/22	101 (1)	75 - 125	102	85 - 115	<3.0	ug	14 (3)	20
8735743	Manganese (Mn)	2023/06/22	104 (1)	75 - 125	103	85 - 115	<1.0	ug	12 (3)	20
8735743	Nickel (Ni)	2023/06/22	103 (1)	75 - 125	104	85 - 115	<3.0	ug	13 (3)	20
8735743	Selenium (Se)	2023/06/22	103 (1)	75 - 125	107	85 - 115	<10	ug	NC (3)	20
8735743	Vanadium (V)	2023/06/22	102 (1)	75 - 125	100	85 - 115	<5.0	ug	4.3 (3)	20
8735743	Zinc (Zn)	2023/06/22	98 (1)	75 - 125	98	85 - 115	<5.0	ug	15 (3)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [VVS381-01]

(2) Duplicate Parent ID

(3) Duplicate Parent ID [VVS381-01]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3E2121
Report Date: 2023/06/23

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459-2000
				Project Name:	Twin Creeks
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Sampled By:	EW

18-May-23 08:50
Patricia Legette
C3E2121
AN4 AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary site specific
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region
☐ Reg. 558

Report Criteria on C of A? n

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 29-May-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23041325	6-May-23	1570	TSP	N	N	X	X	1	
2	23041326	6-May-23	1584	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23041327	6-May-23	1547	TSP	N	N	X	X	1	
4	23041338	12-May-23	1577	TSP	N	N	X	X	1	
5	23041337	12-May-23	1582	TSP	N	N	X	X	1	
6	23041336	12-May-23	1581	TSP	N	N	X	X	1	
7	23041307	12-May-23	-	TSP	N	N	X	X	1	Field Blank
8										
9										
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
Eric Wilson 17-May-23	TM JMUSKAN	2023/05/18	0850	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/06/23
Report #: R7685372
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3G2052
Received: 2023/06/06, 09:20

Sample Matrix: Filter
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/06/15	2023/06/22		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/06/19	2023/06/22	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	8	N/A	2023/06/12		
Particulates on Filter (Method IO-3.1)	9	2023/06/12	2023/06/09	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	8	N/A	2023/06/06		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/06/23
Report #: R7685372
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3G2052
Received: 2023/06/06, 09:20

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Bureau Veritas Job #: C3G2052
Report Date: 2023/06/23

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WAB329	WAB330	WAB331	WAB332	WAB333	WAB334		
Sampling Date		2023/05/18	2023/05/18	2023/05/18	2023/05/24	2023/05/24	2023/05/24		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23041345**	**23041346**	**23041347**	**23041095**	**23041096**	**23041094**	**RDL**	**QC Batch**
Particulate	ug/m3	148	80	117	82	170	122	3	8707650
Particulate Weight on Filter	ug	229000	124000	184000	129000	266000	189000	5000	8719611
Volume	m3	1547	1552	1578	1578	1566	1553	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		WAB335			WAB336	WAB337		
Sampling Date		2023/05/26			2022/05/30	2022/05/30		
COC Number		n/a			n/a	n/a		
	UNITS	**23041060**	**RDL**	**QC Batch**	**23041311**	**23041309**	**RDL**	**QC Batch**
Particulate	ug/m3				109	54	3	8707650
Particulate Weight on Filter	ug	<5000 (1)	5000	8719611	168000	84700	5000	8719611
Volume	m3				1549	1580	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) filter is found with frayed edges

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Bureau Veritas Job #: C3G2052
Report Date: 2023/06/23

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WAB329		
Sampling Date		2023/05/18		
COC Number		n/a		
	UNITS	**23041345**	**RDL**	**QC Batch**
Metals				
Arsenic (As)	ug	<6.0	6.0	8735743
Cadmium (Cd)	ug	<2.0	2.0	8735743
Chromium (Cr)	ug	<5.0	5.0	8735743
Cobalt (Co)	ug	2.1	2.0	8735743
Copper (Cu)	ug	69.7	5.0	8735743
Iron (Fe)	ug	4190	50	8735743
Lead (Pb)	ug	7.7	3.0	8735743
Manganese (Mn)	ug	105	1.0	8735743
Nickel (Ni)	ug	6.2	3.0	8735743
Selenium (Se)	ug	<10	10	8735743
Vanadium (V)	ug	5.5	5.0	8735743
Zinc (Zn)	ug	62.5	5.0	8735743

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3G2052
Report Date: 2023/06/23

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WAB329		
Sampling Date		2023/05/18		
COC Number		n/a		
	UNITS	**23041345**	**RDL**	**QC Batch**
Metals				
Total Arsenic (As)	ug/m3	<0.0039	0.0039	8728371
Total Cadmium (Cd)	ug/m3	<0.0013	0.0013	8728371
Total Chromium (Cr)	ug/m3	<0.0032	0.0032	8728371
Total Cobalt (Co)	ug/m3	0.0013	0.0013	8728371
Total Copper (Cu)	ug/m3	0.0450	0.0032	8728371
Total Iron (Fe)	ug/m3	2.71	0.032	8728371
Total Lead (Pb)	ug/m3	0.0050	0.0019	8728371
Total Lithium (Li)	ug/m3	<0.017	0.017	8728371
Total Nickel (Ni)	ug/m3	0.0040	0.0019	8728371
Total Selenium (Se)	ug/m3	<0.0065	0.0065	8728371
Total Sulphur (S)	ug/m3	0.677	0.016	8728371
Total Vanadium (V)	ug/m3	0.0036	0.0032	8728371
Total Zinc (Zn)	ug/m3	0.0404	0.0032	8728371

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

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Bureau Veritas Job #: C3G2052
Report Date: 2023/06/23

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8735743	Arsenic (As)	2023/06/22	105	75 - 125	103	85 - 115	<6.0	ug	NC (1)	20
8735743	Cadmium (Cd)	2023/06/22	105	75 - 125	104	85 - 115	<2.0	ug	NC (1)	20
8735743	Chromium (Cr)	2023/06/22	106	75 - 125	103	85 - 115	<5.0	ug	NC (1)	20
8735743	Cobalt (Co)	2023/06/22	101	75 - 125	101	85 - 115	<2.0	ug	3.4 (1)	20
8735743	Copper (Cu)	2023/06/22	103	75 - 125	102	85 - 115	<5.0	ug	9.1 (1)	20
8735743	Iron (Fe)	2023/06/22	113	75 - 125	102	85 - 115	<50	ug	13 (1)	20
8735743	Lead (Pb)	2023/06/22	101	75 - 125	102	85 - 115	<3.0	ug	14 (1)	20
8735743	Manganese (Mn)	2023/06/22	104	75 - 125	103	85 - 115	<1.0	ug	12 (1)	20
8735743	Nickel (Ni)	2023/06/22	103	75 - 125	104	85 - 115	<3.0	ug	13 (1)	20
8735743	Selenium (Se)	2023/06/22	103	75 - 125	107	85 - 115	<10	ug	NC (1)	20
8735743	Vanadium (V)	2023/06/22	102	75 - 125	100	85 - 115	<5.0	ug	4.3 (1)	20
8735743	Zinc (Zn)	2023/06/22	98	75 - 125	98	85 - 115	<5.0	ug	15 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Bureau Veritas Job #: C3G2052
Report Date: 2023/06/23

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

06-Jun-23 09:20
Patricia Legette
C3G2052
AN4 AIR-RmTmp

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORM/	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459-2000
				Project Name:	Twin Creeks
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks
Email: lmertick@wm.com		Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		Sampled By:	EW

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region: _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23041345	18-May-23	1547	TSP	N	N	X	X	1	
2	23041346	18-May-23	1552	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23041347	18-May-23	1578	TSP	N	N	X	X	1	
4	23041095	24-May-23	1578	TSP	N	N	X	X	1	
5	23041096	24-May-23	1566	TSP	N	N	X	X	1	
6	23041094	24-May-23	1553	TSP	N	N	X	X	1	
7	23041060	26-May-23	-	TSP	N	N	X	X	1	Field Blank
8	23041311	30-May-23	1549	TSP	N	N	X	X	1	
9	23041309	30-May-23	1580	TSP	N	N	X	X	1	
10										
11										

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only: Temperature (°C) on Receipt	Laboratory Use Only: Condition of Sample on Receipt
AW 5-Jun-23	PRABHJOT	2023/06/06	09:20	NA	☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: N/A

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/07/10
Report #: R7708839
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3H4750
Received: 2023/06/15, 10:48

Sample Matrix: Filter
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	2	2023/07/06	2023/07/07		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	2	2023/07/07	2023/07/07	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	5	N/A	2023/06/20		
Particulates on Filter (Method IO-3.1)	5	2023/06/20	2023/06/19	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	5	N/A	2023/06/15		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
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* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: N/A

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/07/10
Report #: R7708839
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3H4750
Received: 2023/06/15, 10:48

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3H4750
Report Date: 2023/07/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WCR507	WCR508	WCR509	WCR510	WCR511		
Sampling Date		2023/06/02	2023/06/02	2023/06/02	2023/06/05	2023/06/05		
COC Number		N/A	N/A	N/A	N/A	N/A		
	UNITS	**23041097**	**23041098**	**23041300**	**23041059**	**23041071**	**RDL**	**QC Batch**
Particulate	ug/m3	130	102	137	92	113	3	8730155
Particulate Weight on Filter	ug	213000	164000	221000	143000	187000	5000	8737918
Volume	m3	1636	1601	1614	1555	1652	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3H4750
Report Date: 2023/07/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WCR507	WCR509		
Sampling Date		2023/06/02	2023/06/02		
COC Number		N/A	N/A		
	UNITS	**23041097**	**23041300**	**RDL**	**QC Batch**
Metals					
Arsenic (As)	ug	<6.0	<6.0	6.0	8774012
Cadmium (Cd)	ug	<2.0	<2.0	2.0	8774012
Chromium (Cr)	ug	<5.0	<5.0	5.0	8774012
Cobalt (Co)	ug	<2.0	<2.0	2.0	8774012
Copper (Cu)	ug	60.5	98.2	5.0	8774012
Iron (Fe)	ug	3580	3620	50	8774012
Lead (Pb)	ug	12.2	5.2	3.0	8774012
Manganese (Mn)	ug	96.5	86.9	1.0	8774012
Nickel (Ni)	ug	6.7	6.8	3.0	8774012
Selenium (Se)	ug	<10	<10	10	8774012
Vanadium (V)	ug	<5.0	<5.0	5.0	8774012
Zinc (Zn)	ug	127	35.1	5.0	8774012

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3H4750
Report Date: 2023/07/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WCR507		WCR509		
Sampling Date		2023/06/02		2023/06/02		
COC Number		N/A		N/A		
	UNITS	**23041097**	**RDL**	**23041300**	**RDL**	**QC Batch**
Metals						
Total Arsenic (As)	ug/m3	<0.0037	0.0037	<0.0037	0.0037	8771458
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	<0.0012	0.0012	8771458
Total Chromium (Cr)	ug/m3	<0.0031	0.0031	<0.0031	0.0031	8771458
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	<0.0012	0.0012	8771458
Total Copper (Cu)	ug/m3	0.0370	0.0031	0.0609	0.0031	8771458
Total Iron (Fe)	ug/m3	2.19	0.031	2.24	0.031	8771458
Total Lead (Pb)	ug/m3	0.0075	0.0018	0.0032	0.0019	8771458
Total Lithium (Li)	ug/m3	<0.017	0.017	<0.017	0.017	8771458
Total Nickel (Ni)	ug/m3	0.0041	0.0018	0.0042	0.0019	8771458
Total Selenium (Se)	ug/m3	<0.0061	0.0061	<0.0062	0.0062	8771458
Total Sulphur (S)	ug/m3	1.13	0.015	0.863	0.015	8771458
Total Vanadium (V)	ug/m3	<0.0031	0.0031	<0.0031	0.0031	8771458
Total Zinc (Zn)	ug/m3	0.0776	0.0031	0.0218	0.0031	8771458

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8774012	Arsenic (As)	2023/07/07	101	75 - 125	99	85 - 115	<6.0	ug	NC (1)	20
8774012	Cadmium (Cd)	2023/07/07	103	75 - 125	100	85 - 115	<2.0	ug	NC (1)	20
8774012	Chromium (Cr)	2023/07/07	99	75 - 125	96	85 - 115	<5.0	ug	NC (1)	20
8774012	Cobalt (Co)	2023/07/07	98	75 - 125	97	85 - 115	<2.0	ug	NC (1)	20
8774012	Copper (Cu)	2023/07/07	103	75 - 125	98	85 - 115	<5.0	ug	5.7 (1)	20
8774012	Iron (Fe)	2023/07/07	99	75 - 125	96	85 - 115	<50	ug	4.9 (1)	20
8774012	Lead (Pb)	2023/07/07	98	75 - 125	96	85 - 115	<3.0	ug	NC (1)	20
8774012	Manganese (Mn)	2023/07/07	97	75 - 125	95	85 - 115	<1.0	ug	2.5 (1)	20
8774012	Nickel (Ni)	2023/07/07	101	75 - 125	101	85 - 115	<3.0	ug	NC (1)	20
8774012	Selenium (Se)	2023/07/07	106	75 - 125	102	85 - 115	<10	ug	NC (1)	20
8774012	Vanadium (V)	2023/07/07	96	75 - 125	94	85 - 115	<5.0	ug	NC (1)	20
8774012	Zinc (Zn)	2023/07/07	97	75 - 125	96	85 - 115	<5.0	ug	5.0 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Bureau Veritas Job #: C3H4750
Report Date: 2023/07/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

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Maxxam Analytics Inc
6740 Campobello Road, Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

AIR

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459-2000	CHAIN OF CUSTODY # :
				Project Name:	Twin Creeks	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	
Email: lmertick@wm.com		Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		Sampled By:	EW	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other site specific (specify)
☐ PWQO ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Sanitary ☐ Storm Region: _____
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: _____
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23041097	2-Jun-23	1636	TSP	N	N	X	X	1	
2	23041098	2-Jun-23	1601	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23041300	2-Jun-23	1614	TSP	N	N	X	X	1	
4	23041059	5-Jun-23	1555	TSP	N	N	X	X	1	
5	23041071	5-Jun-23	1652	TSP	N	N	X	X	1	
6										
7										
8										
9										
10										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	tory Use Only	
AW 14-Jun-23	[signature]	2023/06/15	1048	Temperature	Condition of Sample on Receipt ☐ OK ☐ SIF

* MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. A[illegible] MAY RESULT IN ANALYTICAL TAT DELAYS

15-Jun-23 10:48
Patricia Legette
C3H4750
RPK AIR-RmTmp

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: N/A

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/07/10
Report #: R7708840
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3H4742
Received: 2023/06/15, 10:48

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/07/06	2023/07/07		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	4	2023/07/07	2023/07/07	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	6	N/A	2023/06/20		
Particulates on Filter (Method IO-3.1)	7	2023/06/20	2023/06/19	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/06/15		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: N/A

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/07/10
Report #: R7708840
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CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3H4742
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Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
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Bureau Veritas Job #: C3H4742
Report Date: 2023/07/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WCR469	WCR470	WCR471	WCR472	WCR473	WCR474		
Sampling Date		2023/06/08	2023/06/08	2023/06/08	2023/06/11	2023/06/11	2023/06/11		
COC Number		N/A	N/A	N/A	N/A	N/A	N/A		
	UNITS	**23041067**	**23041062**	**23041066**	**23041072**	**23041073**	**23041074**	**RDL**	**QC Batch**
Particulate	ug/m3	75	55	159	80	37	52	3	8730155
Particulate Weight on Filter	ug	119000	87100	253000	119000	59000	87000	5000	8737918
Volume	m3	1596	1582	1594	1491	1614	1662	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		WCR475		
Sampling Date		2023/06/12		
COC Number		N/A		
	UNITS	**23051297**	**RDL**	**QC Batch**
Particulate Weight on Filter	ug	<5000	5000	8737918

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3H4742
Report Date: 2023/07/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WCR471	WCR472	WCR474	WCR475		
Sampling Date		2023/06/08	2023/06/11	2023/06/11	2023/06/12		
COC Number		N/A	N/A	N/A	N/A		
	UNITS	**23041066**	**23041072**	**23041074**	**23051297**	**RDL**	**QC Batch**
Metals							
Arsenic (As)	ug	<6.0	<6.0	<6.0	<6.0	6.0	8774012
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	<2.0	2.0	8774012
Chromium (Cr)	ug	<5.0	<5.0	<5.0	<5.0	5.0	8774012
Cobalt (Co)	ug	<2.0	<2.0	<2.0	<2.0	2.0	8774012
Copper (Cu)	ug	138	78.6	111	<5.0	5.0	8774012
Iron (Fe)	ug	2440	918	1020	<50	50	8774012
Lead (Pb)	ug	3.7	<3.0	6.1	<3.0	3.0	8774012
Manganese (Mn)	ug	91.1	33.9	27.2	<1.0	1.0	8774012
Nickel (Ni)	ug	5.6	<3.0	<3.0	<3.0	3.0	8774012
Selenium (Se)	ug	<10	<10	<10	<10	10	8774012
Vanadium (V)	ug	<5.0	<5.0	<5.0	<5.0	5.0	8774012
Zinc (Zn)	ug	28.5	23.6	49.8	<5.0	5.0	8774012

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2023/07/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WCR471		WCR472		WCR474		
Sampling Date		2023/06/08		2023/06/11		2023/06/11		
COC Number		N/A		N/A		N/A		
	UNITS	**23041066**	**RDL**	**23041072**	**RDL**	**23041074**	**RDL**	**QC Batch**
Metals								
Total Arsenic (As)	ug/m3	<0.0038	0.0038	<0.0040	0.0040	<0.0036	0.0036	8771458
Total Cadmium (Cd)	ug/m3	<0.0013	0.0013	<0.0013	0.0013	<0.0012	0.0012	8771458
Total Chromium (Cr)	ug/m3	<0.0031	0.0031	<0.0034	0.0034	<0.0030	0.0030	8771458
Total Cobalt (Co)	ug/m3	<0.0013	0.0013	<0.0013	0.0013	<0.0012	0.0012	8771458
Total Copper (Cu)	ug/m3	0.0863	0.0031	0.0527	0.0034	0.0669	0.0030	8771458
Total Iron (Fe)	ug/m3	1.53	0.031	0.615	0.034	0.616	0.030	8771458
Total Lead (Pb)	ug/m3	0.0023	0.0019	<0.0020	0.0020	0.0037	0.0018	8771458
Total Lithium (Li)	ug/m3	<0.017	0.017	<0.018	0.018	<0.016	0.016	8771458
Total Nickel (Ni)	ug/m3	0.0035	0.0019	<0.0020	0.0020	<0.0018	0.0018	8771458
Total Selenium (Se)	ug/m3	<0.0063	0.0063	<0.0067	0.0067	<0.0060	0.0060	8771458
Total Sulphur (S)	ug/m3	0.591	0.016	0.574	0.017	0.499	0.015	8771458
Total Vanadium (V)	ug/m3	<0.0031	0.0031	<0.0034	0.0034	<0.0030	0.0030	8771458
Total Zinc (Zn)	ug/m3	0.0179	0.0031	0.0158	0.0034	0.0299	0.0030	8771458

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

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Bureau Veritas Job #: C3H4742
Report Date: 2023/07/10

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8774012	Arsenic (As)	2023/07/07	101 (1)	75 - 125	99	85 - 115	<6.0	ug	NC (3)	20
8774012	Cadmium (Cd)	2023/07/07	103 (1)	75 - 125	100	85 - 115	<2.0	ug	NC (3)	20
8774012	Chromium (Cr)	2023/07/07	99 (1)	75 - 125	96	85 - 115	<5.0	ug	NC (3)	20
8774012	Cobalt (Co)	2023/07/07	98 (1)	75 - 125	97	85 - 115	<2.0	ug	NC (3)	20
8774012	Copper (Cu)	2023/07/07	103 (1)	75 - 125	98	85 - 115	<5.0	ug	5.7 (3)	20
8774012	Iron (Fe)	2023/07/07	99 (1)	75 - 125	96	85 - 115	<50	ug	4.9 (3)	20
8774012	Lead (Pb)	2023/07/07	98 (1)	75 - 125	96	85 - 115	<3.0	ug	NC (3)	20
8774012	Manganese (Mn)	2023/07/07	97 (1)	75 - 125	95	85 - 115	<1.0	ug	2.5 (3)	20
8774012	Nickel (Ni)	2023/07/07	101 (1)	75 - 125	101	85 - 115	<3.0	ug	NC (3)	20
8774012	Selenium (Se)	2023/07/07	106 (1)	75 - 125	102	85 - 115	<10	ug	NC (3)	20
8774012	Vanadium (V)	2023/07/07	96 (1)	75 - 125	94	85 - 115	<5.0	ug	NC (3)	20
8774012	Zinc (Zn)	2023/07/07	97 (1)	75 - 125	96	85 - 115	<5.0	ug	5.0 (3)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [WCR472-01]

(2) Duplicate Parent ID

(3) Duplicate Parent ID [WCR472-01]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3H4742
Report Date: 2023/07/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459-2000	CHAIN OF CUSTODY # :
				Project Name:	Twin Creeks	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	
Email: lmertick@wm.com		Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		Sampled By:	AW	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☐ Table 1 ☐ Sanitary ☐ Table 2 ☐ Storm ☐ Table 3 Region: ☐ PWQO ☐ Reg. 558 [x] Other site specific (specify)

Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #) ☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23041067	8-Jun-23	1596	TSP	N	N	X	X	1	
2	23041062	8-Jun-23	1582	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23041066	8-Jun-23	1594	TSP	N	N	X	X	1	
4	23041072	11-Jun-23	1491	TSP	N	N	X	X	1	
5	23041073	11-Jun-23	1614	TSP	N	N	X	X	1	
6	23041074	11-Jun-23	1662	TSP	N	N	X	X	1	
7	23051297	12-Jun-23	-	TSP	N	N	X	X	1	field blank
8										
9										
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
AW 14-Jun-23	[signature]	10/6/15	1098	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

15-Jun-23 10:48
Patricia Legette
C3H4742
RPK AIR-RmTmp

only seal intact

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/07/10
Report #: R7708838
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3I7920
Received: 2023/06/27, 08:50

Sample Matrix: Filter
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/07/06	2023/07/07		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	2	2023/07/07	2023/07/07	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	8	N/A	2023/07/01		
Particulates on Filter (Method IO-3.1)	9	2023/07/01	2023/07/01	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	8	N/A	2023/06/27		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459-2000
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/07/10
Report #: R7708838
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3I7920
Received: 2023/06/27, 08:50

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Bureau Veritas Job #: C3I7920
Report Date: 2023/07/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WFK027	WFK028	WFK029	WFK030	WFK031	WFK032	WFK033		
Sampling Date		2023/06/14	2023/06/14	2023/06/14	2023/06/17	2023/06/17	2023/06/20	2023/06/20		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23051283**	**23051284**	**23051285**	**23051292**	**23051293**	**23051298**	**23051299**	**RDL**	**QC Batch**
Particulate	ug/m3	50	31	43	41	43	45	212	3	8754905
Particulate Weight on Filter	ug	78200	48900	67300	67400	65700	69500	333000	5000	8765362
Volume	m3	1574	1562	1562	1650	1523	1557	1570	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		WFK034			WFK035		
Sampling Date		2023/06/20			2023/06/21		
COC Number		n/a			n/a		
	UNITS	**23052300**	**RDL**	**QC Batch**	**23052360**	**RDL**	**QC Batch**
Particulate	ug/m3	37	3	8754905			
Particulate Weight on Filter	ug	54800	5000	8765362	<5000	5000	8765362
Volume	m3	1498	N/A	ONSITE			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3I7920
Report Date: 2023/07/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WFK033	WFK035		
Sampling Date		2023/06/20	2023/06/21		
COC Number		n/a	n/a		
	UNITS	**23051299**	**23052360**	**RDL**	**QC Batch**
Metals					
Arsenic (As)	ug	<6.0	<6.0	6.0	8774012
Cadmium (Cd)	ug	2.3	<2.0	2.0	8774012
Chromium (Cr)	ug	25.8	<5.0	5.0	8774012
Cobalt (Co)	ug	4.4	<2.0	2.0	8774012
Copper (Cu)	ug	226	<5.0	5.0	8774012
Iron (Fe)	ug	10600	<50	50	8774012
Lead (Pb)	ug	143	<3.0	3.0	8774012
Manganese (Mn)	ug	192	<1.0	1.0	8774012
Nickel (Ni)	ug	21.2	<3.0	3.0	8774012
Selenium (Se)	ug	<10	<10	10	8774012
Vanadium (V)	ug	6.4	<5.0	5.0	8774012
Zinc (Zn)	ug	1350	6.3	5.0	8774012

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3I7920
Report Date: 2023/07/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WFK033		
Sampling Date		2023/06/20		
COC Number		n/a		
	UNITS	**23051299**	**RDL**	**QC Batch**
Metals				
Total Arsenic (As)	ug/m3	<0.0038	0.0038	8771458
Total Cadmium (Cd)	ug/m3	0.0014	0.0013	8771458
Total Chromium (Cr)	ug/m3	0.0165	0.0032	8771458
Total Cobalt (Co)	ug/m3	0.0028	0.0013	8771458
Total Copper (Cu)	ug/m3	0.144	0.0032	8771458
Total Iron (Fe)	ug/m3	6.78	0.032	8771458
Total Lead (Pb)	ug/m3	0.0911	0.0019	8771458
Total Lithium (Li)	ug/m3	<0.017	0.017	8771458
Total Nickel (Ni)	ug/m3	0.0135	0.0019	8771458
Total Selenium (Se)	ug/m3	<0.0064	0.0064	8771458
Total Sulphur (S)	ug/m3	2.73	0.016	8771458
Total Vanadium (V)	ug/m3	0.0041	0.0032	8771458
Total Zinc (Zn)	ug/m3	0.858	0.0032	8771458

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
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8774012	Cobalt (Co)	2023/07/07	98	75 - 125	97	85 - 115	<2.0	ug	NC (1)	20
8774012	Copper (Cu)	2023/07/07	103	75 - 125	98	85 - 115	<5.0	ug	5.7 (1)	20
8774012	Iron (Fe)	2023/07/07	99	75 - 125	96	85 - 115	<50	ug	4.9 (1)	20
8774012	Lead (Pb)	2023/07/07	98	75 - 125	96	85 - 115	<3.0	ug	NC (1)	20
8774012	Manganese (Mn)	2023/07/07	97	75 - 125	95	85 - 115	<1.0	ug	2.5 (1)	20
8774012	Nickel (Ni)	2023/07/07	101	75 - 125	101	85 - 115	<3.0	ug	NC (1)	20
8774012	Selenium (Se)	2023/07/07	106	75 - 125	102	85 - 115	<10	ug	NC (1)	20
8774012	Vanadium (V)	2023/07/07	96	75 - 125	94	85 - 115	<5.0	ug	NC (1)	20
8774012	Zinc (Zn)	2023/07/07	97	75 - 125	96	85 - 115	<5.0	ug	5.0 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Report Date: 2023/07/10

RWDI
Client Project #: 2303459-2000
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

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Maxxam AIR Analytical Inc. 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459-2000
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Project Name:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Location:	Twin Creeks
				Sampled By:	JRA

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # :

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23051283	14-Jun-23	1574	TSP	N	N	X	X	1	
2	23051284	14-Jun-23	1562	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23051285	14-Jun-23	1562	TSP	N	N	X	X	1	
4	23051292	17-Jun-23	1650	TSP	N	N	X	X	1	
5	23051293	17-Jun-23	1523	TSP	N	N	X	X	1	27-Jun-23 08:50
6										Patricia Legette
7	23051298	20-Jun-23	1557	TSP	N	N	X	X	1	C3I7920
8	23051299	20-Jun-23	1570	TSP	N	N	X	X	1	
9	23051300	20-Jun-23	1498	TSP	N	N	X	X	1	AK0 AIR-RmTmp
10	23052360	21-Jun-23	-	TSP	N	N	X	X	1	Field Blank
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
	[signature]	023/06/27	08:50	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF
J Artibello 23-Jun-23					

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/07/21
Report #: R7729256
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3J3198
Received: 2023/06/30, 08:40

Sample Matrix: Filter
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/07/17	2023/07/21		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/07/19	2023/07/21	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	5	N/A	2023/07/07		
Particulates on Filter (Method IO-3.1)	5	2023/07/07	2023/07/05	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	5	N/A	2023/06/30		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
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Attention: Data reports

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Report Date: 2023/07/21
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Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3J3198
Received: 2023/06/30, 08:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Bureau Veritas Job #: C3J3198
Report Date: 2023/07/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WGM667	WGM668	WGM669	WGM670	WGM671		
Sampling Date		2023/06/23	2023/06/23	2023/06/26	2023/06/26	2023/06/26		
COC Number		n/a	n/a	n/a	n/a	n/a		
	UNITS	**23052307**	**23052308**	**23052316**	**23052317**	**23052318**	**RDL**	**QC Batch**
Particulate	ug/m3	82	18	41	17	16	3	8764210
Particulate Weight on Filter	ug	127000	29700	65300	26800	25400	5000	8775769
Volume	m3	1550	1630	1581	1580	1617	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Report Date: 2023/07/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WGM670		
Sampling Date		2023/06/26		
COC Number		n/a		
	UNITS	**23052317**	**RDL**	**QC Batch**
Metals				
Arsenic (As)	ug	<6.0	6.0	8797913
Cadmium (Cd)	ug	<2.0	2.0	8797913
Chromium (Cr)	ug	10.9	5.0	8797913
Cobalt (Co)	ug	<2.0	2.0	8797913
Copper (Cu)	ug	179	5.0	8797913
Iron (Fe)	ug	3780	50	8797913
Lead (Pb)	ug	41.0	3.0	8797913
Manganese (Mn)	ug	72.9	1.0	8797913
Nickel (Ni)	ug	8.1	3.0	8797913
Selenium (Se)	ug	<10	10	8797913
Vanadium (V)	ug	<5.0	5.0	8797913
Zinc (Zn)	ug	403	5.0	8797913

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3J3198
Report Date: 2023/07/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WGM670		
Sampling Date		2023/06/26		
COC Number		n/a		
	UNITS	**23052317**	**RDL**	**QC Batch**
Metals				
Total Arsenic (As)	ug/m3	<0.0038	0.0038	8794233
Total Cadmium (Cd)	ug/m3	<0.0013	0.0013	8794233
Total Chromium (Cr)	ug/m3	0.0069	0.0032	8794233
Total Cobalt (Co)	ug/m3	<0.0013	0.0013	8794233
Total Copper (Cu)	ug/m3	0.113	0.0032	8794233
Total Iron (Fe)	ug/m3	2.39	0.032	8794233
Total Lead (Pb)	ug/m3	0.0259	0.0019	8794233
Total Lithium (Li)	ug/m3	<0.017	0.017	8794233
Total Nickel (Ni)	ug/m3	0.0051	0.0019	8794233
Total Selenium (Se)	ug/m3	<0.0063	0.0063	8794233
Total Sulphur (S)	ug/m3	1.23	0.016	8794233
Total Vanadium (V)	ug/m3	<0.0032	0.0032	8794233
Total Zinc (Zn)	ug/m3	0.255	0.0032	8794233

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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Bureau Veritas Job #: C3J3198
Report Date: 2023/07/21

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8797913	Arsenic (As)	2023/07/21	101	75 - 125	99	85 - 115	<6.0	ug	NC (1)	20
8797913	Cadmium (Cd)	2023/07/21	104	75 - 125	101	85 - 115	<2.0	ug	NC (1)	20
8797913	Chromium (Cr)	2023/07/21	105	75 - 125	99	85 - 115	<5.0	ug	NC (1)	20
8797913	Cobalt (Co)	2023/07/21	99	75 - 125	97	85 - 115	<2.0	ug	NC (1)	20
8797913	Copper (Cu)	2023/07/21	103	75 - 125	100	85 - 115	<5.0	ug	0.68 (1)	20
8797913	Iron (Fe)	2023/07/21	102	75 - 125	101	85 - 115	<50	ug	4.7 (1)	20
8797913	Lead (Pb)	2023/07/21	98	75 - 125	97	85 - 115	<3.0	ug	NC (1)	20
8797913	Manganese (Mn)	2023/07/21	100	75 - 125	100	85 - 115	<1.0	ug	2.8 (1)	20
8797913	Nickel (Ni)	2023/07/21	103	75 - 125	101	85 - 115	<3.0	ug	NC (1)	20
8797913	Selenium (Se)	2023/07/21	106	75 - 125	106	85 - 115	<10	ug	NC (1)	20
8797913	Vanadium (V)	2023/07/21	95	75 - 125	96	85 - 115	<5.0	ug	NC (1)	20
8797913	Zinc (Zn)	2023/07/21	95	75 - 125	96	85 - 115	<5.0	ug	4.8 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Bureau Veritas Job #: C3J3198
Report Date: 2023/07/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

MAXXAM JOB NUMBER: 30-Jun-23 08:40
Patricia Legette
C3J3198
SBS AIR-RmTmp

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMA	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
				Project Name:	Twin Creeks
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks
Email: lmertick@wm.com		Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		Sampled By:	AW

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary site specific
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region: _____
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23052307	23-Jun-23	1550	TSP	N	N	X	X	1	
2	23052308	23-Jun-23	1630	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23052316	26-Jun-23	1581	TSP	N	N	X	X	1	
4	23052317	26-Jun-23	1580	TSP	N	N	X	X	1	
5	23052318	26-Jun-23	1617	TSP	N	N	X	X	1	
6										
7										
8										
9										
10										
11										

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: _____
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
AW 29-Jun-23	[signature]	23/06/30	08:40	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 10123733
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/07/21
Report #: R7729257
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K0679
Received: 2023/07/07, 09:16

Sample Matrix: Filter
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	2	2023/07/17	2023/07/21		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	2	2023/07/19	2023/07/21	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	2	N/A	2023/07/13		
Particulates on Filter (Method IO-3.1)	2	2023/07/13	2023/07/13	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	2	N/A	2023/07/07		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
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Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Your P.O. #: 10123733
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/07/21
Report #: R7729257
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K0679
Received: 2023/07/07, 09:16

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Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
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Bureau Veritas Job #: C3K0679
Report Date: 2023/07/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 10123733
Sampler Initials: AW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WIA505	WIA506		
Sampling Date		2023/06/29	2023/06/29		
COC Number		n/a	n/a		
	UNITS	**23052354**	**23052355**	**RDL**	**QC Batch**
Particulate	ug/m3	55	120	3	8775920
Particulate Weight on Filter	ug	89300	186000	5000	8787172
Volume	m3	1638	1546	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3K0679
Report Date: 2023/07/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 10123733
Sampler Initials: AW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WIA505	WIA506		
Sampling Date		2023/06/29	2023/06/29		
COC Number		n/a	n/a		
	UNITS	**23052354**	**23052355**	**RDL**	**QC Batch**
Metals					
Arsenic (As)	ug	<6.0	<6.0	6.0	8797913
Cadmium (Cd)	ug	<2.0	<2.0	2.0	8797913
Chromium (Cr)	ug	<5.0	<5.0	5.0	8797913
Cobalt (Co)	ug	<2.0	<2.0	2.0	8797913
Copper (Cu)	ug	58.7	89.8	5.0	8797913
Iron (Fe)	ug	351	2120	50	8797913
Lead (Pb)	ug	3.0	9.7	3.0	8797913
Manganese (Mn)	ug	12.0	55.5	1.0	8797913
Nickel (Ni)	ug	<3.0	3.6	3.0	8797913
Selenium (Se)	ug	<10	<10	10	8797913
Vanadium (V)	ug	<5.0	<5.0	5.0	8797913
Zinc (Zn)	ug	32.0	105	5.0	8797913

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3K0679
Report Date: 2023/07/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 10123733
Sampler Initials: AW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WIA505		WIA506		
Sampling Date		2023/06/29		2023/06/29		
COC Number		n/a		n/a		
	UNITS	**23052354**	**RDL**	**23052355**	**RDL**	**QC Batch**
Metals						
Total Arsenic (As)	ug/m3	<0.0037	0.0037	<0.0039	0.0039	8794233
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	<0.0013	0.0013	8794233
Total Chromium (Cr)	ug/m3	<0.0031	0.0031	<0.0032	0.0032	8794233
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	<0.0013	0.0013	8794233
Total Copper (Cu)	ug/m3	0.0359	0.0031	0.0581	0.0032	8794233
Total Iron (Fe)	ug/m3	0.214	0.031	1.37	0.032	8794233
Total Lead (Pb)	ug/m3	0.0018	0.0018	0.0063	0.0019	8794233
Total Lithium (Li)	ug/m3	<0.016	0.016	<0.017	0.017	8794233
Total Nickel (Ni)	ug/m3	<0.0018	0.0018	0.0024	0.0019	8794233
Total Selenium (Se)	ug/m3	<0.0061	0.0061	<0.0065	0.0065	8794233
Total Sulphur (S)	ug/m3	0.635	0.015	0.908	0.016	8794233
Total Vanadium (V)	ug/m3	<0.0031	0.0031	<0.0032	0.0032	8794233
Total Zinc (Zn)	ug/m3	0.0195	0.0031	0.0680	0.0032	8794233

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3K0679
Report Date: 2023/07/21

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 10123733
Sampler Initials: AW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8797913	Arsenic (As)	2023/07/21	101	75 - 125	99	85 - 115	<6.0	ug	NC (1)	20
8797913	Cadmium (Cd)	2023/07/21	104	75 - 125	101	85 - 115	<2.0	ug	NC (1)	20
8797913	Chromium (Cr)	2023/07/21	105	75 - 125	99	85 - 115	<5.0	ug	NC (1)	20
8797913	Cobalt (Co)	2023/07/21	99	75 - 125	97	85 - 115	<2.0	ug	NC (1)	20
8797913	Copper (Cu)	2023/07/21	103	75 - 125	100	85 - 115	<5.0	ug	0.68 (1)	20
8797913	Iron (Fe)	2023/07/21	102	75 - 125	101	85 - 115	<50	ug	4.7 (1)	20
8797913	Lead (Pb)	2023/07/21	98	75 - 125	97	85 - 115	<3.0	ug	NC (1)	20
8797913	Manganese (Mn)	2023/07/21	100	75 - 125	100	85 - 115	<1.0	ug	2.8 (1)	20
8797913	Nickel (Ni)	2023/07/21	103	75 - 125	101	85 - 115	<3.0	ug	NC (1)	20
8797913	Selenium (Se)	2023/07/21	106	75 - 125	106	85 - 115	<10	ug	NC (1)	20
8797913	Vanadium (V)	2023/07/21	95	75 - 125	96	85 - 115	<5.0	ug	NC (1)	20
8797913	Zinc (Zn)	2023/07/21	95	75 - 125	96	85 - 115	<5.0	ug	4.8 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3K0679
Report Date: 2023/07/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 10123733
Sampler Initials: AW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

07-Jul-23 09:16
Patricia Legette
C3K0679
RUK AIR-RmTmp

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMA	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
				Project Name:	Twin Creeks
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks
Email: lmertick@wm.com		Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		Sampled By:	AW

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region: _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23052354	29-Jun-23	1638	TSP	N	N	X	X	1	
2	23052355	29-Jun-23	1546	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3										
4										
5										
6										
7										
8										
9										
10										
11										

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
AW 5-Jul-23	SATHA BASOLA	2023/07/07	09:16

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
	☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/07/21
Report #: R7729232
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K0504
Received: 2023/07/07, 09:16

Sample Matrix: Filter
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/07/19	2023/07/21	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	2	N/A	2023/07/13		
Particulates on Filter (Method IO-3.1)	3	2023/07/13	2023/07/13	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	2	N/A	2023/07/07		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/07/21
Report #: R7729232
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K0504
Received: 2023/07/07, 09:16

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3K0504
Report Date: 2023/07/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WHZ555	WHZ556			WHZ557		
Sampling Date		2023/07/02	2023/07/02			2023/07/04		
COC Number		n/a	n/a			n/a		
	UNITS	**23052361**	**23052332**	**RDL**	**QC Batch**	**23052364**	**RDL**	**QC Batch**
Particulate	ug/m3	29	19	3	8775920			
Particulate Weight on Filter	ug	45600	29000	5000	8787172	<5000 (1)	5000	8787172
Volume	m3	1567	1529	N/A	ONSITE			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Edges of filter frayed

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Bureau Veritas Job #: C3K0504
Report Date: 2023/07/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WHZ557		
Sampling Date		2023/07/04		
COC Number		n/a		
	UNITS	**23052364**	**RDL**	**QC Batch**
Metals				
Arsenic (As)	ug	<6.0	6.0	8797913
Cadmium (Cd)	ug	<2.0	2.0	8797913
Chromium (Cr)	ug	<5.0	5.0	8797913
Cobalt (Co)	ug	<2.0	2.0	8797913
Copper (Cu)	ug	<5.0	5.0	8797913
Iron (Fe)	ug	<50	50	8797913
Lead (Pb)	ug	<3.0	3.0	8797913
Manganese (Mn)	ug	<1.0	1.0	8797913
Nickel (Ni)	ug	<3.0	3.0	8797913
Selenium (Se)	ug	<10	10	8797913
Vanadium (V)	ug	<5.0	5.0	8797913
Zinc (Zn)	ug	<5.0	5.0	8797913

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3K0504
Report Date: 2023/07/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

GENERAL COMMENTS

Results relate only to the items tested.

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Bureau Veritas Job #: C3K0504
Report Date: 2023/07/21

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8797913	Arsenic (As)	2023/07/21	101	75 - 125	99	85 - 115	<6.0	ug	NC (1)	20
8797913	Cadmium (Cd)	2023/07/21	104	75 - 125	101	85 - 115	<2.0	ug	NC (1)	20
8797913	Chromium (Cr)	2023/07/21	105	75 - 125	99	85 - 115	<5.0	ug	NC (1)	20
8797913	Cobalt (Co)	2023/07/21	99	75 - 125	97	85 - 115	<2.0	ug	NC (1)	20
8797913	Copper (Cu)	2023/07/21	103	75 - 125	100	85 - 115	<5.0	ug	0.68 (1)	20
8797913	Iron (Fe)	2023/07/21	102	75 - 125	101	85 - 115	<50	ug	4.7 (1)	20
8797913	Lead (Pb)	2023/07/21	98	75 - 125	97	85 - 115	<3.0	ug	NC (1)	20
8797913	Manganese (Mn)	2023/07/21	100	75 - 125	100	85 - 115	<1.0	ug	2.8 (1)	20
8797913	Nickel (Ni)	2023/07/21	103	75 - 125	101	85 - 115	<3.0	ug	NC (1)	20
8797913	Selenium (Se)	2023/07/21	106	75 - 125	106	85 - 115	<10	ug	NC (1)	20
8797913	Vanadium (V)	2023/07/21	95	75 - 125	96	85 - 115	<5.0	ug	NC (1)	20
8797913	Zinc (Zn)	2023/07/21	95	75 - 125	96	85 - 115	<5.0	ug	4.8 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3K0504
Report Date: 2023/07/21

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

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Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/18
Report #: R7770704
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K7151
Received: 2023/07/13, 08:51

Sample Matrix: Filter
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	2	2023/08/10	2023/08/17		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/08/15	2023/08/17	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	5	N/A	2023/07/17		
Particulates on Filter (Method IO-3.1)	6	2023/07/17	2023/07/16	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	5	N/A	2023/07/13		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/18
Report #: R7770704
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K7151
Received: 2023/07/13, 08:51

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3K7151
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WJJ261	WJJ262	WJJ263	WJJ264	WJJ265			WJJ266		
Sampling Date		2023/07/05	2023/07/05	2023/07/08	2023/07/08	2023/07/08			2023/07/10		
COC Number		n/a	n/a	n/a	n/a	n/a			n/a		
	UNITS	**23052341**	**23052342**	**23052365**	**23052366**	**23052367**	**RDL**	**QC Batch**	**23062002**	**RDL**	**QC Batch**
Particulate	ug/m3	29	52	42	16	7	3	8787482			
Particulate Weight on Filter	ug	47500	79900	65800	25500	10900	5000	8794092	<5000	5000	8794092
Volume	m3	1626	1547	1561	1645	1562	N/A	ONSITE			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3K7151
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WJJ261	WJJ262	WJJ266		
Sampling Date		2023/07/05	2023/07/05	2023/07/10		
COC Number		n/a	n/a	n/a		
	UNITS	**23052341**	**23052342**	**23062002**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	<6.0	<6.0	6.0	8852515
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	2.0	8852515
Chromium (Cr)	ug	<5.0	<5.0	<5.0	5.0	8852515
Cobalt (Co)	ug	<2.0	<2.0	<2.0	2.0	8852515
Copper (Cu)	ug	88.8	99.0	<5.0	5.0	8852515
Iron (Fe)	ug	289	848	<50	50	8852515
Lead (Pb)	ug	3.2	6.3	<3.0	3.0	8852515
Manganese (Mn)	ug	10.9	26.5	<1.0	1.0	8852515
Nickel (Ni)	ug	<3.0	<3.0	<3.0	3.0	8852515
Selenium (Se)	ug	<10	<10	<10	10	8852515
Vanadium (V)	ug	<5.0	<5.0	<5.0	5.0	8852515
Zinc (Zn)	ug	28.1	62.5	5.9	5.0	8852515

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3K7151
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WJJ261		WJJ262		
Sampling Date		2023/07/05		2023/07/05		
COC Number		n/a		n/a		
	UNITS	**23052341**	**RDL**	**23052342**	**RDL**	**QC Batch**
Metals						
Total Arsenic (As)	ug/m3	<0.0037	0.0037	<0.0039	0.0039	8844558
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	<0.0013	0.0013	8844558
Total Chromium (Cr)	ug/m3	<0.0031	0.0031	<0.0032	0.0032	8844558
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	<0.0013	0.0013	8844558
Total Copper (Cu)	ug/m3	0.0546	0.0031	0.0640	0.0032	8844558
Total Iron (Fe)	ug/m3	0.178	0.031	0.548	0.032	8844558
Total Lead (Pb)	ug/m3	0.0019	0.0018	0.0040	0.0019	8844558
Total Lithium (Li)	ug/m3	<0.017	0.017	<0.017	0.017	8844558
Total Nickel (Ni)	ug/m3	<0.0018	0.0018	<0.0019	0.0019	8844558
Total Selenium (Se)	ug/m3	<0.0062	0.0062	<0.0065	0.0065	8844558
Total Sulphur (S)	ug/m3	0.819	0.015	0.936	0.016	8844558
Total Vanadium (V)	ug/m3	<0.0031	0.0031	<0.0032	0.0032	8844558
Total Zinc (Zn)	ug/m3	0.0173	0.0031	0.0404	0.0032	8844558

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3K7151
Report Date: 2023/08/18

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8852515	Arsenic (As)	2023/08/17	100 (1)	75 - 125	100	85 - 115	<6.0	ug	NC (3)	20
8852515	Cadmium (Cd)	2023/08/17	101 (1)	75 - 125	102	85 - 115	<2.0	ug	NC (3)	20
8852515	Chromium (Cr)	2023/08/17	98 (1)	75 - 125	100	85 - 115	<5.0	ug	NC (3)	20
8852515	Cobalt (Co)	2023/08/17	96 (1)	75 - 125	100	85 - 115	<2.0	ug	NC (3)	20
8852515	Copper (Cu)	2023/08/17	101 (1)	75 - 125	104	85 - 115	<5.0	ug	1.1 (3)	20
8852515	Iron (Fe)	2023/08/17	99 (1)	75 - 125	100	85 - 115	<50	ug	1.0 (3)	20
8852515	Lead (Pb)	2023/08/17	98 (1)	75 - 125	99	85 - 115	<3.0	ug	2.9 (3)	20
8852515	Manganese (Mn)	2023/08/17	102 (1)	75 - 125	104	85 - 115	<1.0	ug	0.34 (3)	20
8852515	Nickel (Ni)	2023/08/17	99 (1)	75 - 125	103	85 - 115	<3.0	ug	NC (3)	20
8852515	Selenium (Se)	2023/08/17	102 (1)	75 - 125	103	85 - 115	<10	ug	NC (3)	20
8852515	Vanadium (V)	2023/08/17	96 (1)	75 - 125	96	85 - 115	<5.0	ug	NC (3)	20
8852515	Zinc (Zn)	2023/08/17	98 (1)	75 - 125	100	85 - 115	<5.0	ug	0.58 (3)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [WJJ262-01]

(2) Duplicate Parent ID

(3) Duplicate Parent ID [WJJ262-01]

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3K7151
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORM	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON	Address:	4510 Rhodes Drive, Suite 530	Project #:	2303459.02
	N0M 2S0		Windsor, ON, N8W 5K5	Project Name:	Twin Creeks
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Sampled By:	AW

13-Jul-23 08:51
Patricia Legette
C3K7151
SPJ AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region: _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23052341	5-Jul-23	1626	TSP	N	N	X	X	1	
2	23052342	5-Jul-23	1547	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23052365	8-Jul-23	1561	TSP	N	N	X	X	1	
4	23052366	8-Jul-23	1645	TSP	N	N	X	X	1	
5	23052367	8-Jul-23	1562	TSP	N	N	X	X	1	
6	23062002	10-Jul-23		TSP	N	N	X	X	1	field blank
7										
8										
9										
10										
11										

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only: Temperature (°C) on Receipt	Condition of Sample on Receipt
AW 12-Jul-23	PRABHJOT	2023/07/13	08:51	NA	☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/18
Report #: R7770702
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3L0827
Received: 2023/07/17, 09:58

Sample Matrix: Filter
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/08/10	2023/08/17		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/08/15	2023/08/17	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	2	N/A	2023/07/21		
Particulates on Filter (Method IO-3.1)	2	2023/07/21	2023/07/20	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	2	N/A	2023/07/17		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/18
Report #: R7770702
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3L0827
Received: 2023/07/17, 09:58

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Bureau Veritas Job #: C3L0827
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WKD698	WKD699		
Sampling Date		2023/07/11	2023/07/11		
COC Number		n/a	n/a		
	UNITS	**23061284**	**23061285**	**RDL**	**QC Batch**
Particulate	ug/m3	131	<3	3	8793881
Particulate Weight on Filter	ug	193000	<5000 (1)	5000	8804439
Volume	m3	1474	1556	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Loose filter material

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Bureau Veritas Job #: C3L0827
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WKD698		
Sampling Date		2023/07/11		
COC Number		n/a		
	UNITS	**23061284**	**RDL**	**QC Batch**
Metals				
Arsenic (As)	ug	<6.0	6.0	8852515
Cadmium (Cd)	ug	<2.0	2.0	8852515
Chromium (Cr)	ug	5.4	5.0	8852515
Cobalt (Co)	ug	<2.0	2.0	8852515
Copper (Cu)	ug	150	5.0	8852515
Iron (Fe)	ug	2780	50	8852515
Lead (Pb)	ug	25.2	3.0	8852515
Manganese (Mn)	ug	72.2	1.0	8852515
Nickel (Ni)	ug	5.7	3.0	8852515
Selenium (Se)	ug	<10	10	8852515
Vanadium (V)	ug	<5.0	5.0	8852515
Zinc (Zn)	ug	252	5.0	8852515

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3L0827
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WKD698		
Sampling Date		2023/07/11		
COC Number		n/a		
	UNITS	**23061284**	**RDL**	**QC Batch**
Metals				
Total Arsenic (As)	ug/m3	<0.0041	0.0041	8844558
Total Cadmium (Cd)	ug/m3	<0.0014	0.0014	8844558
Total Chromium (Cr)	ug/m3	0.0037	0.0034	8844558
Total Cobalt (Co)	ug/m3	<0.0014	0.0014	8844558
Total Copper (Cu)	ug/m3	0.102	0.0034	8844558
Total Iron (Fe)	ug/m3	1.89	0.034	8844558
Total Lead (Pb)	ug/m3	0.0171	0.0020	8844558
Total Lithium (Li)	ug/m3	<0.018	0.018	8844558
Total Nickel (Ni)	ug/m3	0.0039	0.0020	8844558
Total Selenium (Se)	ug/m3	<0.0068	0.0068	8844558
Total Sulphur (S)	ug/m3	1.01	0.017	8844558
Total Vanadium (V)	ug/m3	<0.0034	0.0034	8844558
Total Zinc (Zn)	ug/m3	0.171	0.0034	8844558

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

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Bureau Veritas Job #: C3L0827
Report Date: 2023/08/18

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8852515	Arsenic (As)	2023/08/17	100	75 - 125	100	85 - 115	<6.0	ug	NC (1)	20
8852515	Cadmium (Cd)	2023/08/17	101	75 - 125	102	85 - 115	<2.0	ug	NC (1)	20
8852515	Chromium (Cr)	2023/08/17	98	75 - 125	100	85 - 115	<5.0	ug	NC (1)	20
8852515	Cobalt (Co)	2023/08/17	96	75 - 125	100	85 - 115	<2.0	ug	NC (1)	20
8852515	Copper (Cu)	2023/08/17	101	75 - 125	104	85 - 115	<5.0	ug	1.1 (1)	20
8852515	Iron (Fe)	2023/08/17	99	75 - 125	100	85 - 115	<50	ug	1.0 (1)	20
8852515	Lead (Pb)	2023/08/17	98	75 - 125	99	85 - 115	<3.0	ug	2.9 (1)	20
8852515	Manganese (Mn)	2023/08/17	102	75 - 125	104	85 - 115	<1.0	ug	0.34 (1)	20
8852515	Nickel (Ni)	2023/08/17	99	75 - 125	103	85 - 115	<3.0	ug	NC (1)	20
8852515	Selenium (Se)	2023/08/17	102	75 - 125	103	85 - 115	<10	ug	NC (1)	20
8852515	Vanadium (V)	2023/08/17	96	75 - 125	96	85 - 115	<5.0	ug	NC (1)	20
8852515	Zinc (Zn)	2023/08/17	98	75 - 125	100	85 - 115	<5.0	ug	0.58 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3L0827
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

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Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATIC	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
				Project Name:	Twin Creeks
				Location:	Twin Creeks
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Sampled By:	AW
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		

17-Jul-23 09:58
Patricia Legette
C3L0827
SBS AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558
Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3
Sewer Use: ☐ Sanitary ☐ Storm Region:
☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23061284	11-Jul-23	1474	TSP	N	N	X	X	1	
2	23061285	11-Jul-23	1556	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3										
4										
5										
6										
7										
8										
9										
10										
11										

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: _____
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
AW 14-Jul-23	[illegible]	[illegible]	0958	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/18
Report #: R7770701
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3N1968
Received: 2023/08/02, 08:43

Sample Matrix: Filter
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/08/10	2023/08/17		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/08/15	2023/08/17	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	9	N/A	2023/08/09		
Particulates on Filter (Method IO-3.1)	9	2023/08/09	2023/08/08	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	9	N/A	2023/08/03		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/18
Report #: R7770701
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3N1968
Received: 2023/08/02, 08:43

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

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Bureau Veritas Job #: C3N1968
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WOQ548	WOQ549	WOQ550	WOQ551	WOQ552	WOQ553	WOQ554		
Sampling Date		2023/07/14	2023/07/14	2023/07/14	2023/07/17	2023/07/17	2023/07/17	2023/07/20		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23061292**	**23061294**	**23061295**	**23062004**	**23062005**	**23062919**	**23062921**	**RDL**	**QC Batch**
Particulate	ug/m3	34	31	19	47	43	29	48	3	8832613
Particulate Weight on Filter	ug	54600	49600	34200	75800	70100	50800	77400	5000	8841302
Volume	m3	1615	1613	1756	1617	1629	1761	1621	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		WOQ555	WOQ556		
Sampling Date		2023/07/20	2023/07/20		
COC Number		n/a	n/a		
	UNITS	**23062920**	**23062927**	**RDL**	**QC Batch**
Particulate	ug/m3	42	23	3	8832613
Particulate Weight on Filter	ug	68800	37400	5000	8841302
Volume	m3	1634	1603	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N1968
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WOQ554		
Sampling Date		2023/07/20		
COC Number		n/a		
	UNITS	**23062921**	**RDL**	**QC Batch**
Metals				
Arsenic (As)	ug	<6.0	6.0	8852515
Cadmium (Cd)	ug	<2.0	2.0	8852515
Chromium (Cr)	ug	<5.0	5.0	8852515
Cobalt (Co)	ug	<2.0	2.0	8852515
Copper (Cu)	ug	71.8	5.0	8852515
Iron (Fe)	ug	948	50	8852515
Lead (Pb)	ug	6.8	3.0	8852515
Manganese (Mn)	ug	26.4	1.0	8852515
Nickel (Ni)	ug	<3.0	3.0	8852515
Selenium (Se)	ug	<10	10	8852515
Vanadium (V)	ug	<5.0	5.0	8852515
Zinc (Zn)	ug	69.0	5.0	8852515

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N1968
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WOQ554		
Sampling Date		2023/07/20		
COC Number		n/a		
	UNITS	**23062921**	**RDL**	**QC Batch**
Metals				
Total Arsenic (As)	ug/m3	<0.0037	0.0037	8844558
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	8844558
Total Chromium (Cr)	ug/m3	<0.0031	0.0031	8844558
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	8844558
Total Copper (Cu)	ug/m3	0.0443	0.0031	8844558
Total Iron (Fe)	ug/m3	0.585	0.031	8844558
Total Lead (Pb)	ug/m3	0.0042	0.0019	8844558
Total Lithium (Li)	ug/m3	<0.017	0.017	8844558
Total Nickel (Ni)	ug/m3	<0.0019	0.0019	8844558
Total Selenium (Se)	ug/m3	<0.0062	0.0062	8844558
Total Sulphur (S)	ug/m3	0.550	0.015	8844558
Total Vanadium (V)	ug/m3	<0.0031	0.0031	8844558
Total Zinc (Zn)	ug/m3	0.0426	0.0031	8844558

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N1968
Report Date: 2023/08/18

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8852515	Arsenic (As)	2023/08/17	100	75 - 125	100	85 - 115	<6.0	ug	NC (1)	20
8852515	Cadmium (Cd)	2023/08/17	101	75 - 125	102	85 - 115	<2.0	ug	NC (1)	20
8852515	Chromium (Cr)	2023/08/17	98	75 - 125	100	85 - 115	<5.0	ug	NC (1)	20
8852515	Cobalt (Co)	2023/08/17	96	75 - 125	100	85 - 115	<2.0	ug	NC (1)	20
8852515	Copper (Cu)	2023/08/17	101	75 - 125	104	85 - 115	<5.0	ug	1.1 (1)	20
8852515	Iron (Fe)	2023/08/17	99	75 - 125	100	85 - 115	<50	ug	1.0 (1)	20
8852515	Lead (Pb)	2023/08/17	98	75 - 125	99	85 - 115	<3.0	ug	2.9 (1)	20
8852515	Manganese (Mn)	2023/08/17	102	75 - 125	104	85 - 115	<1.0	ug	0.34 (1)	20
8852515	Nickel (Ni)	2023/08/17	99	75 - 125	103	85 - 115	<3.0	ug	NC (1)	20
8852515	Selenium (Se)	2023/08/17	102	75 - 125	103	85 - 115	<10	ug	NC (1)	20
8852515	Vanadium (V)	2023/08/17	96	75 - 125	96	85 - 115	<5.0	ug	NC (1)	20
8852515	Zinc (Zn)	2023/08/17	98	75 - 125	100	85 - 115	<5.0	ug	0.58 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N1968
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

02-Aug-23 08:43
Patricia Legette
C3N1968
URE AIR-RmTmp

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORM	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
				Project Name:	Twin Creeks
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks
Email: lmertick@wm.com		Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		Sampled By:	AW

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

[ ] MISA Reg. 153 Sewer Use [x] Other
[ ] Table 1 [ ] Sanitary site specific
[ ] PWQO [ ] Table 2 [ ] Storm specify
[ ] Table 3 Region _____
[ ] Reg. 558

Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23061292	14-Jul-23	1615	TSP	N	N	X	X	1	
2	23061294	14-Jul-23	1613	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23061295	14-Jul-23	1756	TSP	N	N	X	X	1	
4	23062004	17-Jul-23	1617	TSP	N	N	X	X	1	
5	23062005	17-Jul-23	1629	TSP	N	N	X	X	1	
6	23062919	17-Jul-23	1761	TSP	N	N	X	X	1	
7	23062921	20-Jul-23	1621	TSP	N	N	X	X	1	
8	23062920	20-Jul-23	1634	TSP	N	N	X	X	1	
9	23062927	20-Jul-23	1603	TSP	N	N	X	X	1	
10										
11										

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
[x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
[ ] 1 day [ ] 2 days [ ] 3 days
DATE Required: _____
TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
				Temperature (°C) on Receipt	Condition of Sample on Receipt
JCL 1-AUG-23	PRABHJOT	2023/08/02	08:43	NA	[ ] OK [ ] SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/18
Report #: R7770700
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3N1960
Received: 2023/08/02, 08:43

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	2	2023/08/10	2023/08/17		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/08/15	2023/08/17	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	6	N/A	2023/08/09		
Particulates on Filter (Method IO-3.1)	7	2023/08/09	2023/08/08	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/08/03		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/18
Report #: R7770700
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3N1960
Received: 2023/08/02, 08:43

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N1960
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WOQ472	WOQ473	WOQ474			WOQ475		
Sampling Date		2023/07/23	2023/07/23	2023/07/23			2023/07/24		
COC Number		n/a	n/a	n/a			n/a		
	UNITS	**23052362**	**23062935**	**23062928**	**RDL**	**QC Batch**	**23062944**	**RDL**	**QC Batch**
Particulate	ug/m3	28	20	30	3	8832613			
Particulate Weight on Filter	ug	45300	31900	47700	5000	8841302	<5000	5000	8841302
Volume	m3	1597	1611	1613	N/A	ONSITE			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		WOQ476	WOQ477	WOQ478		
Sampling Date		2023/07/26	2023/07/26	2023/07/26		
COC Number		n/a	n/a	n/a		
	UNITS	**23062936**	**23062937**	**23071090**	**RDL**	**QC Batch**
Particulate	ug/m3	43	44	37	3	8832613
Particulate Weight on Filter	ug	72100	74000	59800	5000	8841302
Volume	m3	1673	1679	1596	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N1960
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WOQ475	WOQ476	WOQ478		
Sampling Date		2023/07/24	2023/07/26	2023/07/26		
COC Number		n/a	n/a	n/a		
	UNITS	**23062944**	**23062936**	**23071090**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	<6.0	<6.0	6.0	8852515
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	2.0	8852515
Chromium (Cr)	ug	<5.0	<5.0	<5.0	5.0	8852515
Cobalt (Co)	ug	<2.0	<2.0	<2.0	2.0	8852515
Copper (Cu)	ug	<5.0	80.6	73.4	5.0	8852515
Iron (Fe)	ug	<50	469	349	50	8852515
Lead (Pb)	ug	<3.0	4.9	3.4	3.0	8852515
Manganese (Mn)	ug	<1.0	17.3	13.0	1.0	8852515
Nickel (Ni)	ug	<3.0	<3.0	<3.0	3.0	8852515
Selenium (Se)	ug	<10	<10	<10	10	8852515
Vanadium (V)	ug	<5.0	<5.0	<5.0	5.0	8852515
Zinc (Zn)	ug	<5.0	58.1	34.7	5.0	8852515

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N1960
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WOQ476		WOQ478		
Sampling Date		2023/07/26		2023/07/26		
COC Number		n/a		n/a		
	UNITS	**23062936**	**RDL**	**23071090**	**RDL**	**QC Batch**
Metals						
Total Arsenic (As)	ug/m3	<0.0036	0.0036	<0.0038	0.0038	8844558
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	<0.0013	0.0013	8844558
Total Chromium (Cr)	ug/m3	<0.0030	0.0030	<0.0031	0.0031	8844558
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	<0.0013	0.0013	8844558
Total Copper (Cu)	ug/m3	0.0482	0.0030	0.0460	0.0031	8844558
Total Iron (Fe)	ug/m3	0.280	0.030	0.219	0.031	8844558
Total Lead (Pb)	ug/m3	0.0029	0.0018	0.0021	0.0019	8844558
Total Lithium (Li)	ug/m3	<0.016	0.016	<0.017	0.017	8844558
Total Nickel (Ni)	ug/m3	<0.0018	0.0018	<0.0019	0.0019	8844558
Total Selenium (Se)	ug/m3	<0.0060	0.0060	<0.0063	0.0063	8844558
Total Sulphur (S)	ug/m3	0.743	0.015	0.764	0.016	8844558
Total Vanadium (V)	ug/m3	<0.0030	0.0030	<0.0031	0.0031	8844558
Total Zinc (Zn)	ug/m3	0.0348	0.0030	0.0218	0.0031	8844558

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N1960
Report Date: 2023/08/18

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8852515	Arsenic (As)	2023/08/17	100	75 - 125	100	85 - 115	<6.0	ug	NC (1)	20
8852515	Cadmium (Cd)	2023/08/17	101	75 - 125	102	85 - 115	<2.0	ug	NC (1)	20
8852515	Chromium (Cr)	2023/08/17	98	75 - 125	100	85 - 115	<5.0	ug	NC (1)	20
8852515	Cobalt (Co)	2023/08/17	96	75 - 125	100	85 - 115	<2.0	ug	NC (1)	20
8852515	Copper (Cu)	2023/08/17	101	75 - 125	104	85 - 115	<5.0	ug	1.1 (1)	20
8852515	Iron (Fe)	2023/08/17	99	75 - 125	100	85 - 115	<50	ug	1.0 (1)	20
8852515	Lead (Pb)	2023/08/17	98	75 - 125	99	85 - 115	<3.0	ug	2.9 (1)	20
8852515	Manganese (Mn)	2023/08/17	102	75 - 125	104	85 - 115	<1.0	ug	0.34 (1)	20
8852515	Nickel (Ni)	2023/08/17	99	75 - 125	103	85 - 115	<3.0	ug	NC (1)	20
8852515	Selenium (Se)	2023/08/17	102	75 - 125	103	85 - 115	<10	ug	NC (1)	20
8852515	Vanadium (V)	2023/08/17	96	75 - 125	96	85 - 115	<5.0	ug	NC (1)	20
8852515	Zinc (Zn)	2023/08/17	98	75 - 125	100	85 - 115	<5.0	ug	0.58 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N1960
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

02-Aug-23 08:43
Patricia Legette
C3N1960
URE AIR-RmTmp

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMA	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #:	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
				Project Name:	Twin Creeks
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks
Email: lmertick@wm.com		Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		Sampled By:	AW

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary site specific
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region _____
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23052362	23-Jul-23	1597	TSP	N	N	X	X	1	
2	23062935	23-Jul-23	1611	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23062928	23-Jul-23	1613	TSP	N	N	X	X	1	
4										
5										
6	23062944	24-Jul-23		TSP	N	N	X	X	1	field blank
7	23062936	26-Jul-23	1673	TSP	N	N	X	X	1	
8	23062937	26-Jul-23	1679	TSP	N	N	X	X	1	
9	23071090	26-Jul-23	1596	TSP	N	N	X	X	1	
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JCL-1-AUG-23	PRABHJOT	2023/08/02	08:43	Temperature (°C) on Receipt: NA	Condition of Sample on Receipt: ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/18
Report #: R7770693
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3N1963
Received: 2023/08/02, 08:42

Sample Matrix: Filter
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Particulates on Hi-Vol Filters	3	N/A	2023/08/09		
Particulates on Filter (Method IO-3.1)	4	2023/08/09	2023/08/08	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	3	N/A	2023/08/03		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/08/18
Report #: R7770693
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3N1963
Received: 2023/08/02, 08:42

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N1963
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WOQ514	WOQ515	WOQ516			WOQ517		
Sampling Date		2023/07/29	2023/07/29	2023/07/29			2023/07/31		
COC Number		n/a	n/a	n/a			n/a		
	UNITS	**23071092**	**23071091**	**23062047**	**RDL**	**QC Batch**	**23071660**	**RDL**	**QC Batch**
Particulate	ug/m3	15	18	18	3	8832613			
Particulate Weight on Filter	ug	24000	28800	28900	5000	8841302	<5000	5000	8841302
Volume	m3	1600	1637	1598	N/A	ONSITE			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N1963
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3N1963
Report Date: 2023/08/18

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: AW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

02-Aug-23 08:42
Patricia Legette
C3N1963
URE AIR-RmTmp

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORM	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON	Address:	4510 Rhodes Drive, Suite 530	Project #:	2303459.02
	N0M 2S0		Windsor, ON, N8W 5K5	Project Name:	Twin Creeks
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Sampled By:	AW

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary site specific
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region _____
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23071092	29-Jul-23	1600	TSP	N	N	X	X	1	
2	23071091	29-Jul-23	1637	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23062047	29-Jul-23	1598	TSP	N	N	X	X	1	
4										
5										
6	23071660	31-Jul-23		TSP	N	N	X	X	1	field blank
7										
8										
9										
10										
11										

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: _____
TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
JCL-1-AUG-23	PRABHJOT	2023/08/02	08:42

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
NA	☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/09/27
Report #: R7832871
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3P6081
Received: 2023/08/23, 09:55

Sample Matrix: Filter
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/09/01	2023/09/11		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/09/09	2023/09/11	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	9	N/A	2023/08/29		
Particulates on Filter (Method IO-3.1)	9	2023/08/29	2023/08/25	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	9	N/A	2023/08/24		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/09/27
Report #: R7832871
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3P6081
Received: 2023/08/23, 09:55

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P6081
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WTR146	WTR147	WTR148	WTR149	WTR150	WTR151	WTR152		
Sampling Date		2023/08/01	2023/08/01	2023/08/01	2023/08/04	2023/08/04	2023/08/04	2023/08/07		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23062946**	**23062945**	**23071608**	**23071613**	**23071606**	**23071607**	**23071661**	**RDL**	**QC Batch**
Particulate	ug/m3	16	95	13	36	34	114	15	3	8874354
Particulate Weight on Filter	ug	27000	153000	21400	53200	56400	188000	24100	5000	8884226
Volume	m3	1647	1615	1610	1498	1636	1648	1637	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		WTR153	WTR154		
Sampling Date		2023/08/07	2023/08/07		
COC Number		n/a	n/a		
	UNITS	**23071662**	**23071668**	**RDL**	**QC Batch**
Particulate	ug/m3	20	<3	3	8874354
Particulate Weight on Filter	ug	33300	<5000 (1)	5000	8884226
Volume	m3	1647	1585	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Loose filter material
A big portion of filter edge is missing

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P6081
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WTR147	WTR149	WTR151		
Sampling Date		2023/08/01	2023/08/04	2023/08/04		
COC Number		n/a	n/a	n/a		
	UNITS	**23062945**	**23071613**	**23071607**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	<6.0	<6.0	6.0	8904237
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	2.0	8904237
Chromium (Cr)	ug	5.1	<5.0	<5.0	5.0	8904237
Cobalt (Co)	ug	<2.0	<2.0	<2.0	2.0	8904237
Copper (Cu)	ug	80.6	65.0	190	5.0	8904237
Iron (Fe)	ug	2360	569	2060	50	8904237
Lead (Pb)	ug	16.8	4.5	4.2	3.0	8904237
Manganese (Mn)	ug	58.6	15.6	68.3	1.0	8904237
Nickel (Ni)	ug	4.3	<3.0	3.6	3.0	8904237
Selenium (Se)	ug	<10	<10	<10	10	8904237
Vanadium (V)	ug	<5.0	<5.0	<5.0	5.0	8904237
Zinc (Zn)	ug	174	55.9	48.0	5.0	8904237

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P6081
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WTR147		WTR149		WTR151		
Sampling Date		2023/08/01		2023/08/04		2023/08/04		
COC Number		n/a		n/a		n/a		
	UNITS	**23062945**	**RDL**	**23071613**	**RDL**	**23071607**	**RDL**	**QC Batch**
Metals								
Total Arsenic (As)	ug/m3	<0.0037	0.0037	<0.0040	0.0040	<0.0036	0.0036	8892484
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	<0.0013	0.0013	<0.0012	0.0012	8892484
Total Chromium (Cr)	ug/m3	0.0032	0.0031	<0.0033	0.0033	<0.0030	0.0030	8892484
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	<0.0013	0.0013	<0.0012	0.0012	8892484
Total Copper (Cu)	ug/m3	0.0499	0.0031	0.0434	0.0033	0.115	0.0030	8892484
Total Iron (Fe)	ug/m3	1.46	0.031	0.380	0.033	1.25	0.030	8892484
Total Lead (Pb)	ug/m3	0.0104	0.0019	0.0030	0.0020	0.0026	0.0018	8892484
Total Lithium (Li)	ug/m3	<0.017	0.017	<0.018	0.018	<0.016	0.016	8892484
Total Nickel (Ni)	ug/m3	0.0026	0.0019	<0.0020	0.0020	0.0022	0.0018	8892484
Total Selenium (Se)	ug/m3	<0.0062	0.0062	<0.0067	0.0067	<0.0061	0.0061	8892484
Total Sulphur (S)	ug/m3	0.567	0.015	0.438	0.017	0.546	0.015	8892484
Total Vanadium (V)	ug/m3	<0.0031	0.0031	<0.0033	0.0033	<0.0030	0.0030	8892484
Total Zinc (Zn)	ug/m3	0.107	0.0031	0.0373	0.0033	0.0291	0.0030	8892484

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P6081
Report Date: 2023/09/27

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8904237	Arsenic (As)	2023/09/11	99 (1)	75 - 125	103	85 - 115	<6.0	ug	NC (3)	20
8904237	Cadmium (Cd)	2023/09/11	100 (1)	75 - 125	102	85 - 115	<2.0	ug	NC (3)	20
8904237	Chromium (Cr)	2023/09/11	98 (1)	75 - 125	102	85 - 115	<5.0	ug	NC (3)	20
8904237	Cobalt (Co)	2023/09/11	96 (1)	75 - 125	99	85 - 115	<2.0	ug	NC (3)	20
8904237	Copper (Cu)	2023/09/11	99 (1)	75 - 125	99	85 - 115	<5.0	ug	2.6 (3)	20
8904237	Iron (Fe)	2023/09/11	97 (1)	75 - 125	98	85 - 115	<50	ug	4.5 (3)	20
8904237	Lead (Pb)	2023/09/11	98 (1)	75 - 125	99	85 - 115	<3.0	ug	6.7 (3)	20
8904237	Manganese (Mn)	2023/09/11	95 (1)	75 - 125	99	85 - 115	<1.0	ug	6.3 (3)	20
8904237	Nickel (Ni)	2023/09/11	97 (1)	75 - 125	100	85 - 115	<3.0	ug	NC (3)	20
8904237	Selenium (Se)	2023/09/11	101 (1)	75 - 125	103	85 - 115	<10	ug	NC (3)	20
8904237	Vanadium (V)	2023/09/11	94 (1)	75 - 125	97	85 - 115	<5.0	ug	NC (3)	20
8904237	Zinc (Zn)	2023/09/11	97 (1)	75 - 125	99	85 - 115	<5.0	ug	6.9 (3)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [WTR149-01]

(2) Duplicate Parent ID

(3) Duplicate Parent ID [WTR149-01]

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Bureau Veritas Job #: C3P6081
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Brad Newman, B.Sc., C.Chem., Scientific Service Specialist

Cristina Carriere, Senior Scientific Specialist

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Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
				Project Name:	Twin Creeks
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Sampled By:	BEG

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # :

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region: _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23062946	1-Aug-23	1647	TSP	N	N	X	X	1	
2	23062945	1-Aug-23	1615	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23071608	1-Aug-23	1610	TSP	N	N	X	X	1	
4	23071613	4-Aug-23	1498	TSP	N	N	X	X	1	
5	23071606	4-Aug-23	1636	TSP	N	N	X	X	1	
6	23071607	4-Aug-23	1648	TSP	N	N	X	X	1	
7	23071661	7-Aug-23	1637	TSP	N	N	X	X	1	
8	23071662	7-Aug-23	1647	TSP	N	N	X	X	1	
9	23071668	7-Aug-23	1585	TSP	N	N	X	X	1	
10										
11										

23-Aug-23 09:55
Clayton Johnson
C3P6081
AN4 AIR-RmTmp

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
AW 22-Aug-23	[signature]	2023/08/23	0955

Laboratory Use Only

Temperature (°C) on Receipt

Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/09/27
Report #: R7832869
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3P6100
Received: 2023/08/23, 09:55

Sample Matrix: Filter
Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/09/01	2023/09/11		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	4	2023/09/09	2023/09/11	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	9	N/A	2023/08/29		
Particulates on Filter (Method IO-3.1)	10	2023/08/29	2023/08/25	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	9	N/A	2023/08/24		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/09/27
Report #: R7832869
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3P6100
Received: 2023/08/23, 09:55

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Bureau Veritas Job #: C3P6100
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WTR226	WTR227	WTR228	WTR229	WTR230	WTR231	WTR232		
Sampling Date		2023/08/10	2023/08/10	2023/08/10	2023/08/13	2023/08/13	2023/08/13	2023/08/16		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23071611**	**23071612**	**23071663**	**23071666**	**23071667**	**23072269**	**23072270**	**RDL**	**QC Batch**
Particulate	ug/m3	29	51	73	19	13	10	39	3	8874354
Particulate Weight on Filter	ug	47000	82600	120000	31200	21300	15800	63200	5000	8884226
Volume	m3	1609	1625	1646	1644	1612	1564	1621	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		WTR233	WTR234			WTR235		
Sampling Date		2023/08/16	2023/08/16			2023/08/11		
COC Number		n/a	n/a			n/a		
	UNITS	**23072271**	**23072268**	**RDL**	**QC Batch**	**23072274**	**RDL**	**QC Batch**
Particulate	ug/m3	41	35	3	8874354			
Particulate Weight on Filter	ug	65900	56000	5000	8884226	<5000	5000	8884226
Volume	m3	1604	1594	N/A	ONSITE			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P6100
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WTR227	WTR228	WTR234	WTR235		
Sampling Date		2023/08/10	2023/08/10	2023/08/16	2023/08/11		
COC Number		n/a	n/a	n/a	n/a		
	UNITS	**23071612**	**23071663**	**23072268**	**23072274**	**RDL**	**QC Batch**
Metals							
Arsenic (As)	ug	<6.0	<6.0	<6.0	<6.0	6.0	8904237
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	<2.0	2.0	8904237
Chromium (Cr)	ug	<5.0	<5.0	<5.0	<5.0	5.0	8904237
Cobalt (Co)	ug	<2.0	<2.0	<2.0	<2.0	2.0	8904237
Copper (Cu)	ug	212	130	197	<5.0	5.0	8904237
Iron (Fe)	ug	1180	1670	287	<50	50	8904237
Lead (Pb)	ug	10.6	13.9	3.3	<3.0	3.0	8904237
Manganese (Mn)	ug	28.5	42.2	9.0	<1.0	1.0	8904237
Nickel (Ni)	ug	<3.0	4.0	<3.0	<3.0	3.0	8904237
Selenium (Se)	ug	<10	<10	<10	<10	10	8904237
Vanadium (V)	ug	<5.0	5.0	<5.0	<5.0	5.0	8904237
Zinc (Zn)	ug	104	146	37.3	<5.0	5.0	8904237

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P6100
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WTR227		WTR228		WTR234		
Sampling Date		2023/08/10		2023/08/10		2023/08/16		
COC Number		n/a		n/a		n/a		
	UNITS	**23071612**	**RDL**	**23071663**	**RDL**	**23072268**	**RDL**	**QC Batch**
Metals								
Total Arsenic (As)	ug/m3	<0.0037	0.0037	<0.0036	0.0036	<0.0038	0.0038	8892484
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	<0.0012	0.0012	<0.0013	0.0013	8892484
Total Chromium (Cr)	ug/m3	<0.0031	0.0031	<0.0030	0.0030	<0.0031	0.0031	8892484
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	<0.0012	0.0012	<0.0013	0.0013	8892484
Total Copper (Cu)	ug/m3	0.130	0.0031	0.0787	0.0030	0.124	0.0031	8892484
Total Iron (Fe)	ug/m3	0.724	0.031	1.02	0.030	0.180	0.031	8892484
Total Lead (Pb)	ug/m3	0.0065	0.0018	0.0084	0.0018	0.0021	0.0019	8892484
Total Lithium (Li)	ug/m3	<0.017	0.017	<0.016	0.016	<0.017	0.017	8892484
Total Nickel (Ni)	ug/m3	<0.0018	0.0018	0.0024	0.0018	<0.0019	0.0019	8892484
Total Selenium (Se)	ug/m3	<0.0062	0.0062	<0.0061	0.0061	<0.0063	0.0063	8892484
Total Sulphur (S)	ug/m3	0.785	0.015	0.877	0.015	0.662	0.016	8892484
Total Vanadium (V)	ug/m3	<0.0031	0.0031	0.0031	0.0030	<0.0031	0.0031	8892484
Total Zinc (Zn)	ug/m3	0.0642	0.0031	0.0888	0.0030	0.0234	0.0031	8892484

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P6100
Report Date: 2023/09/27

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8904237	Arsenic (As)	2023/09/11	99	75 - 125	103	85 - 115	<6.0	ug	NC (1)	20
8904237	Cadmium (Cd)	2023/09/11	100	75 - 125	102	85 - 115	<2.0	ug	NC (1)	20
8904237	Chromium (Cr)	2023/09/11	98	75 - 125	102	85 - 115	<5.0	ug	NC (1)	20
8904237	Cobalt (Co)	2023/09/11	96	75 - 125	99	85 - 115	<2.0	ug	NC (1)	20
8904237	Copper (Cu)	2023/09/11	99	75 - 125	99	85 - 115	<5.0	ug	2.6 (1)	20
8904237	Iron (Fe)	2023/09/11	97	75 - 125	98	85 - 115	<50	ug	4.5 (1)	20
8904237	Lead (Pb)	2023/09/11	98	75 - 125	99	85 - 115	<3.0	ug	6.7 (1)	20
8904237	Manganese (Mn)	2023/09/11	95	75 - 125	99	85 - 115	<1.0	ug	6.3 (1)	20
8904237	Nickel (Ni)	2023/09/11	97	75 - 125	100	85 - 115	<3.0	ug	NC (1)	20
8904237	Selenium (Se)	2023/09/11	101	75 - 125	103	85 - 115	<10	ug	NC (1)	20
8904237	Vanadium (V)	2023/09/11	94	75 - 125	97	85 - 115	<5.0	ug	NC (1)	20
8904237	Zinc (Zn)	2023/09/11	97	75 - 125	99	85 - 115	<5.0	ug	6.9 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P6100
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

AIR

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
				Project Name:	Twin Creeks
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Sampled By:	BEG

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # :

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

[ ] MISA [ ] PWQO [ ] Reg. 558

Reg. 153: [ ] Table 1 [ ] Table 2 [ ] Table 3

Sewer Use: [ ] Sanitary [ ] Storm Region: _____

[x] Other: site specific (specify)

Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

[ ] 1 day [ ] 2 days [ ] 3 days

DATE Required: _____

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23071611	10-Aug-23	1609	TSP	N	N	X	X	1	
2	23071612	10-Aug-23	1625	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at
3	23071663	10-Aug-23	1646	TSP	N	N	X	X	1	
4	23071666	13-Aug-23	1644	TSP	N	N	X	X	1	
5	~~23071667~~	~~13-Aug-23~~	1612	TSP	N	N	X	X	1	
6	23072269	13-Aug-23	1564	TSP	N	N	X	X	1	
7	23072270	16-Aug-23	1621	TSP	N	N	X	X	1	
8	23072271	16-Aug-23	1604	TSP	N	N	X	X	1	
9	23072268	16-Aug-23	1594	TSP	N	N	X	X	1	
10	23072274	11-Aug-23		TSP	N	N	X	X	1	Field Blank
11										

23-Aug-23 09:55
Patricia Legette
C3P6100
AN4 AIR-RmTmp

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
AW 22-Aug-23	[signature]	10/08/23	0955

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
	[ ] OK [ ] SIF

[signature]

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/09/27
Report #: R7832870
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3P6093
Received: 2023/08/23, 09:55

Sample Matrix: Filter
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/09/09	2023/09/11	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	3	N/A	2023/08/29		
Particulates on Filter (Method IO-3.1)	4	2023/08/29	2023/08/25	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	3	N/A	2023/08/24		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/09/27
Report #: R7832870
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3P6093
Received: 2023/08/23, 09:55

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Bureau Veritas Job #: C3P6093
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WTR203	WTR204	WTR205			WTR206		
Sampling Date		2023/08/19	2023/08/19	2023/08/19			2023/08/21		
COC Number		n/a	n/a	n/a			n/a		
	UNITS	**23072275**	**23072276**	**23072284**	**RDL**	**QC Batch**	**23081074**	**RDL**	**QC Batch**
Particulate	ug/m3	24	28	27	3	8874354			
Particulate Weight on Filter	ug	37300	44300	42300	5000	8884226	<5000 (1)	5000	8884226
Volume	m3	1581	1606	1596	N/A	ONSITE			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Loose filter material

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P6093
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WTR206		
Sampling Date		2023/08/21		
COC Number		n/a		
	UNITS	**23081074**	**RDL**	**QC Batch**
Metals				
Arsenic (As)	ug	<6.0	6.0	8904237
Cadmium (Cd)	ug	<2.0	2.0	8904237
Chromium (Cr)	ug	<5.0	5.0	8904237
Cobalt (Co)	ug	<2.0	2.0	8904237
Copper (Cu)	ug	<5.0	5.0	8904237
Iron (Fe)	ug	<50	50	8904237
Lead (Pb)	ug	<3.0	3.0	8904237
Manganese (Mn)	ug	<1.0	1.0	8904237
Nickel (Ni)	ug	<3.0	3.0	8904237
Selenium (Se)	ug	<10	10	8904237
Vanadium (V)	ug	<5.0	5.0	8904237
Zinc (Zn)	ug	7.0	5.0	8904237

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3P6093
Report Date: 2023/09/27

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8904237	Arsenic (As)	2023/09/11	99	75 - 125	103	85 - 115	<6.0	ug	NC (1)	20
8904237	Cadmium (Cd)	2023/09/11	100	75 - 125	102	85 - 115	<2.0	ug	NC (1)	20
8904237	Chromium (Cr)	2023/09/11	98	75 - 125	102	85 - 115	<5.0	ug	NC (1)	20
8904237	Cobalt (Co)	2023/09/11	96	75 - 125	99	85 - 115	<2.0	ug	NC (1)	20
8904237	Copper (Cu)	2023/09/11	99	75 - 125	99	85 - 115	<5.0	ug	2.6 (1)	20
8904237	Iron (Fe)	2023/09/11	97	75 - 125	98	85 - 115	<50	ug	4.5 (1)	20
8904237	Lead (Pb)	2023/09/11	98	75 - 125	99	85 - 115	<3.0	ug	6.7 (1)	20
8904237	Manganese (Mn)	2023/09/11	95	75 - 125	99	85 - 115	<1.0	ug	6.3 (1)	20
8904237	Nickel (Ni)	2023/09/11	97	75 - 125	100	85 - 115	<3.0	ug	NC (1)	20
8904237	Selenium (Se)	2023/09/11	101	75 - 125	103	85 - 115	<10	ug	NC (1)	20
8904237	Vanadium (V)	2023/09/11	94	75 - 125	97	85 - 115	<5.0	ug	NC (1)	20
8904237	Zinc (Zn)	2023/09/11	97	75 - 125	99	85 - 115	<5.0	ug	6.9 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Bureau Veritas Job #: C3P6093
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

AIR

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02	CHAIN OF CUSTODY # :
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Project Name:	Twin Creeks	
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Location:	Twin Creeks	
				Sampled By:	BEG	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region: _____

☒ Other site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23072275	19-Aug-23	1581	TSP	N	N	X	X	1	
2	23072276	19-Aug-23	1606	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23072284	19-Aug-23	1596	TSP	N	N	X	X	1	
4										
5										
6	23081074	21-Aug-23		TSP	N	N	X	X	1	field blank
7										
8										
9										
10										
11										

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

23-Aug-23 09:55
Patricia Legette
C3P6093
AN4 AIR-RmTmp

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Temperature (°C) on Receipt	Condition of Sample on Receipt
AW 22-Aug-23	[signature]	23/08/23	0955		☐ OK ☐ SIF

Custody Seal Ntg

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/09/27
Report #: R7832880
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3S3130
Received: 2023/09/14, 09:00

Sample Matrix: Filter
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/09/19	2023/09/26		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/09/22	2023/09/25	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	9	N/A	2023/09/18		
Particulates on Filter (Method IO-3.1)	9	2023/09/18	2023/09/14	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	9	N/A	2023/09/14		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/09/27
Report #: R7832880
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3S3130
Received: 2023/09/14, 09:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Bureau Veritas Job #: C3S3130
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WZK685	WZK686	WZK687	WZK688	WZK689	WZK690	WZK691		
Sampling Date		2023/08/22	2023/08/22	2023/08/22	2023/08/25	2023/08/25	2023/08/25	2023/08/28		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23077273**	**23072272**	**23080277**	**23081071**	**23081070**	**23081081**	**23081076**	**RDL**	**QC Batch**
Particulate	ug/m3	82	18	5	<3	22	13	55	3	8918618
Particulate Weight on Filter	ug	120000	30000	8300	<5000	35600	20300	88800	5000	8923638
Volume	m3	1469	1631	1642	1632	1631	1613	1609	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		WZK692	WZK693		
Sampling Date		2023/08/28	2023/08/28		
COC Number		n/a	n/a		
	UNITS	**23081077**	**23081088**	**RDL**	**QC Batch**
Particulate	ug/m3	15	6	3	8918618
Particulate Weight on Filter	ug	25100	10800 (1)	5000	8923638
Volume	m3	1634	1783	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Loose filter material.

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Bureau Veritas Job #: C3S3130
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WZK685	WZK686	WZK690		
Sampling Date		2023/08/22	2023/08/22	2023/08/25		
COC Number		n/a	n/a	n/a		
	UNITS	**23077273**	**23072272**	**23081081**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	<6.0	<6.0	6.0	8934718
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	2.0	8934718
Chromium (Cr)	ug	<5.0	<5.0	<5.0	5.0	8934718
Cobalt (Co)	ug	<2.0	<2.0	<2.0	2.0	8934718
Copper (Cu)	ug	116	205	75.5	5.0	8934718
Iron (Fe)	ug	1920	415	112	50	8934718
Lead (Pb)	ug	13.5	5.4	<3.0	3.0	8934718
Manganese (Mn)	ug	57.0	14.0	6.7	1.0	8934718
Nickel (Ni)	ug	3.9	<3.0	<3.0	3.0	8934718
Selenium (Se)	ug	<10	<10	<10	10	8934718
Vanadium (V)	ug	<5.0	<5.0	<5.0	5.0	8934718
Zinc (Zn)	ug	118	23.8	17.3	5.0	8934718

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3S3130
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WZK685		WZK686		WZK690		
Sampling Date		2023/08/22		2023/08/22		2023/08/25		
COC Number		n/a		n/a		n/a		
	UNITS	**23077273**	**RDL**	**23072272**	**RDL**	**23081081**	**RDL**	**QC Batch**
Metals								
Total Arsenic (As)	ug/m3	<0.0041	0.0041	<0.0037	0.0037	<0.0037	0.0037	8927184
Total Cadmium (Cd)	ug/m3	<0.0014	0.0014	<0.0012	0.0012	<0.0012	0.0012	8927184
Total Chromium (Cr)	ug/m3	<0.0034	0.0034	<0.0031	0.0031	<0.0031	0.0031	8927184
Total Cobalt (Co)	ug/m3	<0.0014	0.0014	<0.0012	0.0012	<0.0012	0.0012	8927184
Total Copper (Cu)	ug/m3	0.0788	0.0034	0.126	0.0031	0.0468	0.0031	8927184
Total Iron (Fe)	ug/m3	1.31	0.034	0.255	0.031	0.070	0.031	8927184
Total Lead (Pb)	ug/m3	0.0092	0.0020	0.0033	0.0018	<0.0019	0.0019	8927184
Total Lithium (Li)	ug/m3	<0.018	0.018	<0.017	0.017	<0.017	0.017	8927184
Total Nickel (Ni)	ug/m3	0.0027	0.0020	<0.0018	0.0018	<0.0019	0.0019	8927184
Total Selenium (Se)	ug/m3	<0.0068	0.0068	<0.0061	0.0061	<0.0062	0.0062	8927184
Total Sulphur (S)	ug/m3	0.604	0.017	0.264	0.015	0.400	0.016	8927184
Total Vanadium (V)	ug/m3	<0.0034	0.0034	<0.0031	0.0031	<0.0031	0.0031	8927184
Total Zinc (Zn)	ug/m3	0.0806	0.0034	0.0146	0.0031	0.0107	0.0031	8927184

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QC Batch = Quality Control Batch

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GENERAL COMMENTS

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Bureau Veritas Job #: C3S3130
Report Date: 2023/09/27

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8934718	Arsenic (As)	2023/09/25	111	75 - 125	106	85 - 115	<6.0	ug	NC (1)	20
8934718	Cadmium (Cd)	2023/09/25	105	75 - 125	103	85 - 115	<2.0	ug	NC (1)	20
8934718	Chromium (Cr)	2023/09/25	103	75 - 125	101	85 - 115	<5.0	ug	NC (1)	20
8934718	Cobalt (Co)	2023/09/25	103	75 - 125	102	85 - 115	<2.0	ug	NC (1)	20
8934718	Copper (Cu)	2023/09/25	106	75 - 125	105	85 - 115	<5.0	ug	4.4 (1)	20
8934718	Iron (Fe)	2023/09/25	104	75 - 125	100	85 - 115	<50	ug	8.6 (1)	20
8934718	Lead (Pb)	2023/09/25	104	75 - 125	101	85 - 115	<3.0	ug	NC (1)	20
8934718	Manganese (Mn)	2023/09/25	105	75 - 125	103	85 - 115	<1.0	ug	8.5 (1)	20
8934718	Nickel (Ni)	2023/09/25	104	75 - 125	103	85 - 115	<3.0	ug	NC (1)	20
8934718	Selenium (Se)	2023/09/25	108	75 - 125	108	85 - 115	<10	ug	11 (1)	20
8934718	Vanadium (V)	2023/09/25	100	75 - 125	100	85 - 115	<5.0	ug	NC (1)	20
8934718	Zinc (Zn)	2023/09/25	102	75 - 125	100	85 - 115	<5.0	ug	8.9 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Bureau Veritas Job #: C3S3130
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Brenda Moore, Team Lead, Inorganic

Cristina Carriere, Senior Scientific Specialist

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Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

AIR

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		14-Sep-23 09:00
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733	Clayton Johnson
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02	C3S3130
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Project Name:	Twin Creeks	
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Location:	Twin Creeks	
				Sampled By:	EW	ASR AIR-Rm Tmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23077273	22-Aug-23	1469	TSP	N	N	X	X	1	
2	23072272	22-Aug-23	1631	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23080277	22-Aug-23	1642	TSP	N	N	X	X	1	
4	23081071	25-Aug-23	1632	TSP	N	N	X	X	1	
5	23081070	25-Aug-23	1631	TSP	N	N	X	X	1	
6	23081081	25-Aug-23	1613	TSP	N	N	X	X	1	
7	23081076	28-Aug-23	1609	TSP	N	N	X	X	1	
8	23081077	28-Aug-23	1634	TSP	N	N	X	X	1	
9	23081088	28-Aug-23	1783	TSP	N	N	X	X	1	
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA 12-Sep-23	Twinkle Kaura / TWINKLE KAURA	2023/09/14	09:00	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/09/27
Report #: R7832874
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3S3161
Received: 2023/09/14, 09:00

Sample Matrix: Filter
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Particulates on Hi-Vol Filters	3	N/A	2023/09/18		
Particulates on Filter (Method IO-3.1)	3	2023/09/18	2023/09/14	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	3	N/A	2023/09/14		

Remarks:

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Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
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* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/09/27
Report #: R7832874
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3S3161
Received: 2023/09/14, 09:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
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Bureau Veritas Job #: C3S3161
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WZK754	WZK755	WZK756		
Sampling Date		2023/08/31	2023/08/31	2023/08/31		
COC Number		n/a	n/a	n/a		
	UNITS	**23081086**	**23081087**	**23081095**	**RDL**	**QC Batch**
Particulate	ug/m3	9	67	9	3	8917949
Particulate Weight on Filter	ug	15000	113000	14100	5000	8923638
Volume	m3	1617	1693	1559	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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GENERAL COMMENTS

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Bureau Veritas Job #: C3S3161
Report Date: 2023/09/27

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Brenda Moore

Brenda Moore, Team Lead, Inorganic

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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AIR

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Project Name:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Location:	Twin Creeks
				Sampled By:	EW

14-Sep-23 09:00
Clayton Johnson
C383161
ASR AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23081086	31-Aug-23	1617	TSP	N	N	X	X	1	
2	23081087	31-Aug-23	1693	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23081095	31-Aug-23	1559	TSP	N	N	X	X	1	
4	23081611	3-Sep-23	1613	TSP	N	N	X	X	1	
5	23081620	3-Sep-23	1562	TSP	N	N	X	X	1	
6	23081064	6-Sep-23	1665	TSP	N	N	X	X	1	
7	23081096	6-Sep-23	1619	TSP	N	N	X	X	1	
8	23081097	6-Sep-23	1707	TSP	N	N	X	X	1	
9										
10										
11										

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
JRA 12-Sep-23	Twinkle Kaura / TWINKLE KAURA	2023/09/14	09:00

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
	☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/10/30
Report #: R7885402
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3S4455
Received: 2023/09/14, 09:00

Sample Matrix: Filter
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/10/16	2023/10/23		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/10/20	2023/10/23	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	5	N/A	2023/09/19		
Particulates on Filter (Method IO-3.1)	5	2023/09/19	2023/09/14	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	5	N/A	2023/09/14		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/10/30
Report #: R7885402
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3S4455
Received: 2023/09/14, 09:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Bureau Veritas Job #: C3S4455
Report Date: 2023/10/30

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		WZK757	WZK758	WZK759	WZK760	WZK761		
Sampling Date		2023/09/03	2023/09/03	2023/09/06	2023/09/06	2023/09/06		
COC Number		n/a	n/a	n/a	n/a	n/a		
	UNITS	**23081611**	**23081620**	**23081064**	**23081096**	**23081097**	**RDL**	**QC Batch**
Particulate	ug/m3	30	27	26	39	32	3	8917949
Particulate Weight on Filter	ug	48300	41600	43700	63700	53900	5000	8926601
Volume	m3	1613	1562	1665	1619	1707	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3S4455
Report Date: 2023/10/30

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		WZK758	WZK760	WZK761		
Sampling Date		2023/09/03	2023/09/06	2023/09/06		
COC Number		n/a	n/a	n/a		
	UNITS	**23081620**	**23081096**	**23081097**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	<6.0	<6.0	6.0	8993149
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	2.0	8993149
Chromium (Cr)	ug	<5.0	<5.0	<5.0	5.0	8993149
Cobalt (Co)	ug	<2.0	<2.0	<2.0	2.0	8993149
Copper (Cu)	ug	191	91.3	72.2	5.0	8993149
Iron (Fe)	ug	416	813	503	50	8993149
Lead (Pb)	ug	11.3	6.7	3.6	3.0	8993149
Manganese (Mn)	ug	15.9	20.7	16.9	1.0	8993149
Nickel (Ni)	ug	<3.0	<3.0	<3.0	3.0	8993149
Selenium (Se)	ug	<10	<10	<10	10	8993149
Vanadium (V)	ug	<5.0	<5.0	<5.0	5.0	8993149
Zinc (Zn)	ug	37.7	61.7	37.5	5.0	8993149

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3S4455
Report Date: 2023/10/30

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		WZK758		WZK760		WZK761		
Sampling Date		2023/09/03		2023/09/06		2023/09/06		
COC Number		n/a		n/a		n/a		
	UNITS	**23081620**	**RDL**	**23081096**	**RDL**	**23081097**	**RDL**	**QC Batch**
Metals								
Total Arsenic (As)	ug/m3	<0.0038	0.0038	<0.0037	0.0037	<0.0035	0.0035	8984264
Total Cadmium (Cd)	ug/m3	<0.0013	0.0013	<0.0012	0.0012	<0.0012	0.0012	8984264
Total Chromium (Cr)	ug/m3	<0.0032	0.0032	<0.0031	0.0031	<0.0029	0.0029	8984264
Total Cobalt (Co)	ug/m3	<0.0013	0.0013	<0.0012	0.0012	<0.0012	0.0012	8984264
Total Copper (Cu)	ug/m3	0.122	0.0032	0.0564	0.0031	0.0423	0.0029	8984264
Total Iron (Fe)	ug/m3	0.266	0.032	0.502	0.031	0.295	0.029	8984264
Total Lead (Pb)	ug/m3	0.0072	0.0019	0.0041	0.0019	0.0021	0.0018	8984264
Total Lithium (Li)	ug/m3	<0.017	0.017	<0.017	0.017	<0.016	0.016	8984264
Total Nickel (Ni)	ug/m3	<0.0019	0.0019	<0.0019	0.0019	<0.0018	0.0018	8984264
Total Selenium (Se)	ug/m3	<0.0064	0.0064	<0.0062	0.0062	<0.0059	0.0059	8984264
Total Sulphur (S)	ug/m3	0.889	0.016	0.792	0.015	0.707	0.015	8984264
Total Vanadium (V)	ug/m3	<0.0032	0.0032	<0.0031	0.0031	<0.0029	0.0029	8984264
Total Zinc (Zn)	ug/m3	0.0241	0.0032	0.0381	0.0031	0.0220	0.0029	8984264

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3S4455
Report Date: 2023/10/30

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8993149	Arsenic (As)	2023/10/23	104	75 - 125	102	85 - 115	<6.0	ug	NC (1)	20
8993149	Cadmium (Cd)	2023/10/23	103	75 - 125	103	85 - 115	<2.0	ug	NC (1)	20
8993149	Chromium (Cr)	2023/10/23	105	75 - 125	103	85 - 115	<5.0	ug	NC (1)	20
8993149	Cobalt (Co)	2023/10/23	100	75 - 125	101	85 - 115	<2.0	ug	NC (1)	20
8993149	Copper (Cu)	2023/10/23	103	75 - 125	103	85 - 115	<5.0	ug	4.3 (1)	20
8993149	Iron (Fe)	2023/10/23	105	75 - 125	105	85 - 115	<50	ug	4.4 (1)	20
8993149	Lead (Pb)	2023/10/23	98	75 - 125	99	85 - 115	<3.0	ug	NC (1)	20
8993149	Manganese (Mn)	2023/10/23	107	75 - 125	108	85 - 115	<1.0	ug	3.2 (1)	20
8993149	Nickel (Ni)	2023/10/23	103	75 - 125	104	85 - 115	<3.0	ug	NC (1)	20
8993149	Selenium (Se)	2023/10/23	104	75 - 125	103	85 - 115	<10	ug	NC (1)	20
8993149	Vanadium (V)	2023/10/23	103	75 - 125	103	85 - 115	<5.0	ug	NC (1)	20
8993149	Zinc (Zn)	2023/10/23	100	75 - 125	101	85 - 115	<5.0	ug	2.1 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3S4455
Report Date: 2023/10/30

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Maxxam Analytics Inc. 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

AIR

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Project Name:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Location:	Twin Creeks
				Sampled By:	EW

14-Sep-23 09:00
Clayton Johnson
C383161
ASR AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.
1	23081086	31-Aug-23	1617	TSP	N	N	X	X	1
2	23081087	31-Aug-23	1693	TSP	N	N	X	X	1
3	23081095	31-Aug-23	1559	TSP	N	N	X	X	1
4	23081611	3-Sep-23	1613	TSP	N	N	X	X	1
5	23081620	3-Sep-23	1562	TSP	N	N	X	X	1
6	23081064	6-Sep-23	1665	TSP	N	N	X	X	1
7	23081096	6-Sep-23	1619	TSP	N	N	X	X	1
8	23081097	6-Sep-23	1707	TSP	N	N	X	X	1
9									
10									
11									

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

COMMENTS / TAT COMMENTS

******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
JRA 12-Sep-23	Twinkle Kaura / TWINKLE KAURA	2023/09/14	09:00

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
	☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/10/30
Report #: R7885400
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V2469
Received: 2023/10/10, 08:40

Sample Matrix: Filter
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Particulates on Hi-Vol Filters	6	N/A	2023/10/13		
Particulates on Filter (Method IO-3.1)	6	2023/10/13	2023/10/12	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/10/10		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/10/30
Report #: R7885400
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V2469
Received: 2023/10/10, 08:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3V2469
Report Date: 2023/10/30

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		XFQ563	XFQ564	XFQ565	XFQ566	XFQ567	XFQ568		
Sampling Date		2023/09/09	2023/09/09	2023/09/09	2023/09/12	2023/09/12	2023/09/12		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23081618**	**23081619**	**23081066**	**23081067**	**23081065**	**23082514**	**RDL**	**QC Batch**
Particulate	ug/m3	16	14	11	19	15	25	3	8971664
Particulate Weight on Filter	ug	25500	21900	17400	30300	24900 (1)	40100	5000	8978619
Volume	m3	1625	1606	1568	1611	1709	1618	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Loose filter material

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3V2469
Report Date: 2023/10/30

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

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Report Date: 2023/10/30

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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MaxxAm AIR Analytics Inc. 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:

Company Name: Waste Management of Canada Corporation
Contact Name: Lisa Mertick
Address: 5768 Nauvoo Rd, Watford, ON N0M 2S0
Phone: 519-849-5810 Fax: 519-849-5811
Email: lmertick@wm.com

REPORT INFORMATION (if differs from invoice):

Company Name: RWDI AIR Inc.
Contact Name: Brent Langille
Address: 4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5
Phone: 519-823-1311 x 2618 Fax: 519-823-1316
Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com

PROJECT INFORMATION:

Quotation #
P.O. #: 10123733
Project #: 2303459.02
Project Name: Twin Creeks
Location: Twin Creeks
Sampled By: EW

10-Oct-23 08:40
Clayton Johnson
C3V2469
AN4 AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558
Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3
Sewer Use: ☐ Sanitary ☐ Storm Region: _____
☒ Other: site specific (specify)
Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: _____
TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23081618	9-Sep-23	1625	TSP	N	N	X	X	1	
2	23081619	9-Sep-23	1606	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23081066	9-Sep-23	1568	TSP	N	N	X	X	1	
4	23081067	12-Sep-23	1611	TSP	N	N	X	X		
5	23081065	12-Sep-23	1709	TSP	N	N	X	X		
6	23082514	12-Sep-23	1618	TSP	N	N	X	X		
7										
8										
9										
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only: Temperature (°C) on Receipt	Condition of Sample on Receipt
JRA 5-Oct-23	[illegible]	2023/10/10	08:40		☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/10/30
Report #: R7885404
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V2470
Received: 2023/10/10, 08:40

Sample Matrix: Filter
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	2	2023/10/16	2023/10/23		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2023/10/20	2023/10/23	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	6	N/A	2023/10/13		
Particulates on Filter (Method IO-3.1)	7	2023/10/13	2023/10/12	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/10/10		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/10/30
Report #: R7885404
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V2470
Received: 2023/10/10, 08:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Bureau Veritas Job #: C3V2470
Report Date: 2023/10/30

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		XFQ569	XFQ570	XFQ571	XFQ572	XFQ573	XFQ574		
Sampling Date		2023/09/15	2023/09/15	2023/09/15	2023/09/18	2023/09/18	2023/09/18		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23082512**	**23082504**	**23090674**	**23082521**	**23082522**	**23082520**	**RDL**	**QC Batch**
Particulate	ug/m3	19	32	80	13	18	28	3	8971664
Particulate Weight on Filter	ug	30200	52400	130000	21900	31400	45700	5000	8978619
Volume	m3	1622	1652	1629	1625	1766	1626	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		XFQ575		
Sampling Date		2023/09/18		
COC Number		n/a		
	UNITS	**23091471**	**RDL**	**QC Batch**
Particulate Weight on Filter	ug	<5000	5000	8978619

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3V2470
Report Date: 2023/10/30

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		XFQ571	XFQ574	XFQ575		
Sampling Date		2023/09/15	2023/09/18	2023/09/18		
COC Number		n/a	n/a	n/a		
	UNITS	**23090674**	**23082520**	**23091471**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	<6.0	<6.0	6.0	8993149
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	2.0	8993149
Chromium (Cr)	ug	<5.0	<5.0	<5.0	5.0	8993149
Cobalt (Co)	ug	<2.0	<2.0	<2.0	2.0	8993149
Copper (Cu)	ug	156	51.9	<5.0	5.0	8993149
Iron (Fe)	ug	1730	503	<50	50	8993149
Lead (Pb)	ug	7.5	3.6	<3.0	3.0	8993149
Manganese (Mn)	ug	50.9	14.2	<1.0	1.0	8993149
Nickel (Ni)	ug	<3.0	<3.0	<3.0	3.0	8993149
Selenium (Se)	ug	<10	<10	<10	10	8993149
Vanadium (V)	ug	<5.0	<5.0	<5.0	5.0	8993149
Zinc (Zn)	ug	75.0	35.9	<5.0	5.0	8993149

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3V2470
Report Date: 2023/10/30

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		XFQ571		XFQ574		
Sampling Date		2023/09/15		2023/09/18		
COC Number		n/a		n/a		
	UNITS	**23090674**	**RDL**	**23082520**	**RDL**	**QC Batch**
Metals						
Total Arsenic (As)	ug/m3	<0.0037	0.0037	<0.0037	0.0037	8984264
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	<0.0012	0.0012	8984264
Total Chromium (Cr)	ug/m3	<0.0031	0.0031	<0.0031	0.0031	8984264
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	<0.0012	0.0012	8984264
Total Copper (Cu)	ug/m3	0.0958	0.0031	0.0319	0.0031	8984264
Total Iron (Fe)	ug/m3	1.06	0.031	0.309	0.031	8984264
Total Lead (Pb)	ug/m3	0.0046	0.0018	0.0022	0.0018	8984264
Total Lithium (Li)	ug/m3	<0.017	0.017	<0.017	0.017	8984264
Total Nickel (Ni)	ug/m3	<0.0018	0.0018	<0.0018	0.0018	8984264
Total Selenium (Se)	ug/m3	<0.0061	0.0061	<0.0062	0.0062	8984264
Total Sulphur (S)	ug/m3	0.653	0.015	0.407	0.015	8984264
Total Vanadium (V)	ug/m3	<0.0031	0.0031	<0.0031	0.0031	8984264
Total Zinc (Zn)	ug/m3	0.0460	0.0031	0.0221	0.0031	8984264

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3V2470
Report Date: 2023/10/30

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8993149	Arsenic (As)	2023/10/23	104	75 - 125	102	85 - 115	<6.0	ug	NC (1)	20
8993149	Cadmium (Cd)	2023/10/23	103	75 - 125	103	85 - 115	<2.0	ug	NC (1)	20
8993149	Chromium (Cr)	2023/10/23	105	75 - 125	103	85 - 115	<5.0	ug	NC (1)	20
8993149	Cobalt (Co)	2023/10/23	100	75 - 125	101	85 - 115	<2.0	ug	NC (1)	20
8993149	Copper (Cu)	2023/10/23	103	75 - 125	103	85 - 115	<5.0	ug	4.3 (1)	20
8993149	Iron (Fe)	2023/10/23	105	75 - 125	105	85 - 115	<50	ug	4.4 (1)	20
8993149	Lead (Pb)	2023/10/23	98	75 - 125	99	85 - 115	<3.0	ug	NC (1)	20
8993149	Manganese (Mn)	2023/10/23	107	75 - 125	108	85 - 115	<1.0	ug	3.2 (1)	20
8993149	Nickel (Ni)	2023/10/23	103	75 - 125	104	85 - 115	<3.0	ug	NC (1)	20
8993149	Selenium (Se)	2023/10/23	104	75 - 125	103	85 - 115	<10	ug	NC (1)	20
8993149	Vanadium (V)	2023/10/23	103	75 - 125	103	85 - 115	<5.0	ug	NC (1)	20
8993149	Zinc (Zn)	2023/10/23	100	75 - 125	101	85 - 115	<5.0	ug	2.1 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Bureau Veritas Job #: C3V2470
Report Date: 2023/10/30

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

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MaxAIR

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:

Company Name: Waste Management of Canada Corporation
Contact Name: Lisa Mertick
Address: 5768 Nauvoo Rd, Watford, ON N0M 2S0
Phone: 519-849-5810 Fax: 519-849-5811
Email: lmertick@wm.com

REPORT INFORMATION (if differs from invoice):

Company Name: RWDI AIR Inc.
Contact Name: Brent Langille
Address: 4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5
Phone: 519-823-1311 x 2618 Fax: 519-823-1316
Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com

PROJECT INFORMATIO

Quotation #
P.O. #: 10123733
Project #: 2303459.02
Project Name: Twin Creeks
Location: Twin Creeks
Sampled By: EW

10-Oct-23 08:40
Clayton Johnson
C3V2470
AN4 AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

[ ] MISA [ ] PWQO [ ] Reg. 558
Reg. 153: [ ] Table 1 [ ] Table 2 [ ] Table 3
Sewer Use: [ ] Sanitary [ ] Storm Region: _____
[x] Other: site specific (specify)
Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23082512	15-Sep-23	1622	TSP	N	N	X	X	1	
2	23082504	15-Sep-23	1652	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23090674	15-Sep-23	1629	TSP	N	N	X	X	1	
4	23082521	18-Sep-23	1625	TSP	N	N	X	X	1	
5	23082522	18-Sep-23	1766	TSP	N	N	X	X	1	
6	23082520	18-Sep-23	1626	TSP	N	N	X	X	1	
7	23091471	18-Sep-23	-	TSP	N	N	X	X	1	Field Blank
8										
9										
10										
11										

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
[x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
[ ] 1 day [ ] 2 days [ ] 3 days
DATE Required: _____
TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
JRA 5-Oct-23	[illegible]	2023/10/10	08:40

Laboratory Use Only
Temperature (°C) on Receipt:
Condition of Sample on Receipt: [ ] OK [ ] SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/11/07
Report #: R7899716
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V2481
Received: 2023/10/10, 08:40

Sample Matrix: Filter
Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/10/16	2023/10/23		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/10/31	2023/11/03		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/10/20	2023/10/23	CAM SOP-00408	EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/11/02	2023/11/02	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	9	N/A	2023/10/13		
Particulates on Filter (Method IO-3.1)	9	2023/10/13	2023/10/13	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	9	N/A	2023/10/11		

Remarks:

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Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
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Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/11/07
Report #: R7899716
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V2481
Received: 2023/10/10, 08:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3V2481
Report Date: 2023/11/07

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		XFQ705	XFQ706	XFQ707	XFQ709	XFQ710	XFQ711	XFQ712		
Sampling Date		2023/09/21	2023/09/21	2023/09/21	2023/09/24	2023/09/24	2023/09/27	2023/09/27		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23090675**	**23090676**	**23090678**	**23090679**	**23090677**	**23090664**	**23090662**	**RDL**	**QC Batch**
Particulate	ug/m3	36	50	23	30	20	18	93	3	8974750
Particulate Weight on Filter	ug	58400	84600	36700	52600	33000	28700	150000	5000	8980167
Volume	m3	1608	1681	1598	1744	1628	1624	1615	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		XFQ713	XFQ888		
Sampling Date		2023/09/27	2023/09/24		
COC Number		n/a	n/a		
	UNITS	**23090663**	**23083009**	**RDL**	**QC Batch**
Particulate	ug/m3	100	32	3	8974750
Particulate Weight on Filter	ug	168000	51600	5000	8980167
Volume	m3	1676	1637	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3V2481
Report Date: 2023/11/07

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		XFQ706		XFQ712		
Sampling Date		2023/09/21		2023/09/27		
COC Number		n/a		n/a		
	UNITS	**23090676**	**QC Batch**	**23090662**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	8993149	<6.0	6.0	9021589
Cadmium (Cd)	ug	<2.0	8993149	<2.0	2.0	9021589
Chromium (Cr)	ug	<5.0	8993149	7.7	5.0	9021589
Cobalt (Co)	ug	<2.0	8993149	<2.0	2.0	9021589
Copper (Cu)	ug	123	8993149	49.7	5.0	9021589
Iron (Fe)	ug	1170	8993149	2580	50	9021589
Lead (Pb)	ug	4.4	8993149	27.7	3.0	9021589
Manganese (Mn)	ug	40.3	8993149	63.9	1.0	9021589
Nickel (Ni)	ug	<3.0	8993149	5.0	3.0	9021589
Selenium (Se)	ug	<10	8993149	<10	10	9021589
Vanadium (V)	ug	<5.0	8993149	<5.0	5.0	9021589
Zinc (Zn)	ug	40.1	8993149	234	5.0	9021589

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3V2481
Report Date: 2023/11/07

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		XFQ706			XFQ712		
Sampling Date		2023/09/21			2023/09/27		
COC Number		n/a			n/a		
	UNITS	**23090676**	**RDL**	**QC Batch**	**23090662**	**RDL**	**QC Batch**
Metals							
Total Arsenic (As)	ug/m3	<0.0036	0.0036	8984264	<0.0037	0.0037	9018123
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	8984264	<0.0012	0.0012	9018123
Total Chromium (Cr)	ug/m3	<0.0030	0.0030	8984264	0.0048	0.0031	9018123
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	8984264	<0.0012	0.0012	9018123
Total Copper (Cu)	ug/m3	0.0732	0.0030	8984264	0.0308	0.0031	9018123
Total Iron (Fe)	ug/m3	0.695	0.030	8984264	1.60	0.031	9018123
Total Lead (Pb)	ug/m3	0.0026	0.0018	8984264	0.0171	0.0019	9018123
Total Lithium (Li)	ug/m3	<0.016	0.016	8984264	<0.017	0.017	9018123
Total Nickel (Ni)	ug/m3	<0.0018	0.0018	8984264	0.0031	0.0019	9018123
Total Selenium (Se)	ug/m3	<0.0059	0.0059	8984264	<0.0062	0.0062	9018123
Total Sulphur (S)	ug/m3	0.576	0.015	8984264	1.34	0.015	9018123
Total Vanadium (V)	ug/m3	<0.0030	0.0030	8984264	<0.0031	0.0031	9018123
Total Zinc (Zn)	ug/m3	0.0239	0.0030	8984264	0.145	0.0031	9018123

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3V2481
Report Date: 2023/11/07

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8993149	Arsenic (As)	2023/10/23	104	75 - 125	102	85 - 115	<6.0	ug	NC (1)	20
8993149	Cadmium (Cd)	2023/10/23	103	75 - 125	103	85 - 115	<2.0	ug	NC (1)	20
8993149	Chromium (Cr)	2023/10/23	105	75 - 125	103	85 - 115	<5.0	ug	NC (1)	20
8993149	Cobalt (Co)	2023/10/23	100	75 - 125	101	85 - 115	<2.0	ug	NC (1)	20
8993149	Copper (Cu)	2023/10/23	103	75 - 125	103	85 - 115	<5.0	ug	4.3 (1)	20
8993149	Iron (Fe)	2023/10/23	105	75 - 125	105	85 - 115	<50	ug	4.4 (1)	20
8993149	Lead (Pb)	2023/10/23	98	75 - 125	99	85 - 115	<3.0	ug	NC (1)	20
8993149	Manganese (Mn)	2023/10/23	107	75 - 125	108	85 - 115	<1.0	ug	3.2 (1)	20
8993149	Nickel (Ni)	2023/10/23	103	75 - 125	104	85 - 115	<3.0	ug	NC (1)	20
8993149	Selenium (Se)	2023/10/23	104	75 - 125	103	85 - 115	<10	ug	NC (1)	20
8993149	Vanadium (V)	2023/10/23	103	75 - 125	103	85 - 115	<5.0	ug	NC (1)	20
8993149	Zinc (Zn)	2023/10/23	100	75 - 125	101	85 - 115	<5.0	ug	2.1 (1)	20
9021589	Arsenic (As)	2023/11/02	102	75 - 125	101	85 - 115	<6.0	ug	NC (1)	20
9021589	Cadmium (Cd)	2023/11/02	102	75 - 125	102	85 - 115	<2.0	ug	NC (1)	20
9021589	Chromium (Cr)	2023/11/02	102	75 - 125	101	85 - 115	<5.0	ug	NC (1)	20
9021589	Cobalt (Co)	2023/11/02	100	75 - 125	100	85 - 115	<2.0	ug	NC (1)	20
9021589	Copper (Cu)	2023/11/02	124	75 - 125	100	85 - 115	<5.0	ug	17 (1)	20
9021589	Iron (Fe)	2023/11/02	102	75 - 125	100	85 - 115	<50	ug	13 (1)	20
9021589	Lead (Pb)	2023/11/02	98	75 - 125	99	85 - 115	<3.0	ug	10 (1)	20
9021589	Manganese (Mn)	2023/11/02	102	75 - 125	102	85 - 115	<1.0	ug	12 (1)	20
9021589	Nickel (Ni)	2023/11/02	100	75 - 125	101	85 - 115	<3.0	ug	NC (1)	20
9021589	Selenium (Se)	2023/11/02	102	75 - 125	102	85 - 115	<10	ug	NC (1)	20
9021589	Vanadium (V)	2023/11/02	99	75 - 125	100	85 - 115	<5.0	ug	NC (1)	20

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3V2481
Report Date: 2023/11/07

QUALITY ASSURANCE REPORT(CONT'D)

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9021589	Zinc (Zn)	2023/11/02	100	75 - 125	100	85 - 115	<5.0	ug	17 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Bureau Veritas Job #: C3V2481
Report Date: 2023/11/07

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

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Maxxam AIR Analytical Inc. 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
				Project Name:	Twin Creeks
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Sampled By:	EW

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # :

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary site specific
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region: _____
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: _____
TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23090675	21-Sep-23	1608	TSP	N	N	X	X	1	
2	23090676	21-Sep-23	1681	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
3	23090678	21-Sep-23	1598	TSP	N	N	X	X	1	
4	23090671	24-Sep-23	1637	TSP	N	N	X	X	1	
5	23090679	24-Sep-23	1744	TSP	N	N	X	X	1	
6	23090677	24-Sep-23	1628	TSP	N	N	X	X	1	
7	23090664	27-Sep-23	1624	TSP	N	N	X	X	1	
8	23090662	27-Sep-23	1615	TSP	N	N	X	X	1	
9	23090663	27-Sep-23	1676	TSP	N	N	X	X	1	
10										
11										

10-Oct-23 08:40
Patricia Legette
C3V2481
AN4 AIR-RmTmp

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA 5-Oct-23	[illegible]	023/10/10	08:40	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/11/07
Report #: R7899708
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V2478
Received: 2023/10/10, 08:40

Sample Matrix: Filter
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	1	2023/10/20	2023/10/23	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	3	N/A	2023/10/13		
Particulates on Filter (Method IO-3.1)	4	2023/10/13	2023/10/13	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	3	N/A	2023/10/10		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
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Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2023/11/07
Report #: R7899708
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V2478
Received: 2023/10/10, 08:40

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
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Bureau Veritas Job #: C3V2478
Report Date: 2023/11/07

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		XFQ647	XFQ648	XFQ649			XFQ650		
Sampling Date		2023/09/30	2023/09/30	2023/09/30			2023/09/30		
COC Number		n/a	n/a	n/a			n/a		
	UNITS	**23090672**	**23090671**	**23090673**	**RDL**	**QC Batch**	**23091800**	**RDL**	**QC Batch**
Particulate	ug/m3	44	30	37	3	8971716			
Particulate Weight on Filter	ug	73700	47900	60300	5000	8980167	<5000	5000	8980167
Volume	m3	1692	1618	1622	N/A	ONSITE			

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3V2478
Report Date: 2023/11/07

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		XFQ650		
Sampling Date		2023/09/30		
COC Number		n/a		
	UNITS	**23091800**	**RDL**	**QC Batch**
Metals				
Arsenic (As)	ug	<6.0	6.0	8993149
Cadmium (Cd)	ug	<2.0	2.0	8993149
Chromium (Cr)	ug	<5.0	5.0	8993149
Cobalt (Co)	ug	<2.0	2.0	8993149
Copper (Cu)	ug	<5.0	5.0	8993149
Iron (Fe)	ug	<50	50	8993149
Lead (Pb)	ug	<3.0	3.0	8993149
Manganese (Mn)	ug	<1.0	1.0	8993149
Nickel (Ni)	ug	<3.0	3.0	8993149
Selenium (Se)	ug	<10	10	8993149
Vanadium (V)	ug	<5.0	5.0	8993149
Zinc (Zn)	ug	<5.0	5.0	8993149

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3V2478
Report Date: 2023/11/07

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8993149	Arsenic (As)	2023/10/23	104	75 - 125	102	85 - 115	<6.0	ug	NC (1)	20
8993149	Cadmium (Cd)	2023/10/23	103	75 - 125	103	85 - 115	<2.0	ug	NC (1)	20
8993149	Chromium (Cr)	2023/10/23	105	75 - 125	103	85 - 115	<5.0	ug	NC (1)	20
8993149	Cobalt (Co)	2023/10/23	100	75 - 125	101	85 - 115	<2.0	ug	NC (1)	20
8993149	Copper (Cu)	2023/10/23	103	75 - 125	103	85 - 115	<5.0	ug	4.3 (1)	20
8993149	Iron (Fe)	2023/10/23	105	75 - 125	105	85 - 115	<50	ug	4.4 (1)	20
8993149	Lead (Pb)	2023/10/23	98	75 - 125	99	85 - 115	<3.0	ug	NC (1)	20
8993149	Manganese (Mn)	2023/10/23	107	75 - 125	108	85 - 115	<1.0	ug	3.2 (1)	20
8993149	Nickel (Ni)	2023/10/23	103	75 - 125	104	85 - 115	<3.0	ug	NC (1)	20
8993149	Selenium (Se)	2023/10/23	104	75 - 125	103	85 - 115	<10	ug	NC (1)	20
8993149	Vanadium (V)	2023/10/23	103	75 - 125	103	85 - 115	<5.0	ug	NC (1)	20
8993149	Zinc (Zn)	2023/10/23	100	75 - 125	101	85 - 115	<5.0	ug	2.1 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3V2478
Report Date: 2023/11/07

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2024/01/10
Report #: R7983844
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3X0405
Received: 2023/10/24, 08:35

Sample Matrix: Filter
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	2	2023/10/31	2023/11/03		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	2	2023/11/02	2023/11/02	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	6	N/A	2023/10/30		
Particulates on Filter (Method IO-3.1)	6	2023/10/30	2023/10/27	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	6	N/A	2023/10/26		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2024/01/10
Report #: R7983844
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3X0405
Received: 2023/10/24, 08:35

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3X0405
Report Date: 2024/01/10

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		XJN079	XJN080	XJN081	XJN082	XJN083	XJN084		
Sampling Date		2023/10/03	2023/10/03	2023/10/03	2023/10/09	2023/10/09	2023/10/09		
COC Number		n/	n/	n/	n/	n/	n/		
	UNITS	**23090693**	**23090694**	**23091118**	**23091126**	**23091127**	**23091128**	**RDL**	**QC Batch**
Particulate	ug/m3	55	236	39	9	6	17	3	9003335
Particulate Weight on Filter	ug	88600	386000	62100	14200	10300	27100	5000	9016299
Volume	m3	1606	1634	1584	1622	1698	1625	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3X0405
Report Date: 2024/01/10

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		XJN080	XJN081		
Sampling Date		2023/10/03	2023/10/03		
COC Number		n/	n/		
	UNITS	**23090694**	**23091118**	**RDL**	**QC Batch**
Metals					
Arsenic (As)	ug	<6.0	<6.0	6.0	9021589
Cadmium (Cd)	ug	<2.0	<2.0	2.0	9021589
Chromium (Cr)	ug	6.3	<5.0	5.0	9021589
Cobalt (Co)	ug	2.1	<2.0	2.0	9021589
Copper (Cu)	ug	258	175	5.0	9021589
Iron (Fe)	ug	4180	620	50	9021589
Lead (Pb)	ug	9.1	4.6	3.0	9021589
Manganese (Mn)	ug	150	17.7	1.0	9021589
Nickel (Ni)	ug	6.6	<3.0	3.0	9021589
Selenium (Se)	ug	<10	<10	10	9021589
Vanadium (V)	ug	9.8	<5.0	5.0	9021589
Zinc (Zn)	ug	51.4	28.9	5.0	9021589

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3X0405
Report Date: 2024/01/10

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		XJN080		XJN081		
Sampling Date		2023/10/03		2023/10/03		
COC Number		n/		n/		
	UNITS	**23090694**	**RDL**	**23091118**	**RDL**	**QC Batch**
Metals						
Total Arsenic (As)	ug/m3	<0.0037	0.0037	<0.0038	0.0038	9018123
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	<0.0013	0.0013	9018123
Total Chromium (Cr)	ug/m3	0.0038	0.0031	<0.0032	0.0032	9018123
Total Cobalt (Co)	ug/m3	0.0013	0.0012	<0.0013	0.0013	9018123
Total Copper (Cu)	ug/m3	0.158	0.0031	0.111	0.0032	9018123
Total Iron (Fe)	ug/m3	2.56	0.031	0.391	0.032	9018123
Total Lead (Pb)	ug/m3	0.0056	0.0018	0.0029	0.0019	9018123
Total Lithium (Li)	ug/m3	<0.017	0.017	<0.017	0.017	9018123
Total Nickel (Ni)	ug/m3	0.0040	0.0018	<0.0019	0.0019	9018123
Total Selenium (Se)	ug/m3	<0.0061	0.0061	<0.0063	0.0063	9018123
Total Sulphur (S)	ug/m3	1.07	0.015	0.757	0.016	9018123
Total Vanadium (V)	ug/m3	0.0060	0.0031	<0.0032	0.0032	9018123
Total Zinc (Zn)	ug/m3	0.0315	0.0031	0.0183	0.0032	9018123

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3X0405
Report Date: 2024/01/10

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9021589	Arsenic (As)	2023/11/02	102 (1)	75 - 125	101	85 - 115	<6.0	ug	NC (3)	20
9021589	Cadmium (Cd)	2023/11/02	102 (1)	75 - 125	102	85 - 115	<2.0	ug	NC (3)	20
9021589	Chromium (Cr)	2023/11/02	102 (1)	75 - 125	101	85 - 115	<5.0	ug	NC (3)	20
9021589	Cobalt (Co)	2023/11/02	100 (1)	75 - 125	100	85 - 115	<2.0	ug	NC (3)	20
9021589	Copper (Cu)	2023/11/02	124 (1)	75 - 125	100	85 - 115	<5.0	ug	17 (3)	20
9021589	Iron (Fe)	2023/11/02	102 (1)	75 - 125	100	85 - 115	<50	ug	13 (3)	20
9021589	Lead (Pb)	2023/11/02	98 (1)	75 - 125	99	85 - 115	<3.0	ug	10 (3)	20
9021589	Manganese (Mn)	2023/11/02	102 (1)	75 - 125	102	85 - 115	<1.0	ug	12 (3)	20
9021589	Nickel (Ni)	2023/11/02	100 (1)	75 - 125	101	85 - 115	<3.0	ug	NC (3)	20
9021589	Selenium (Se)	2023/11/02	102 (1)	75 - 125	102	85 - 115	<10	ug	NC (3)	20
9021589	Vanadium (V)	2023/11/02	99 (1)	75 - 125	100	85 - 115	<5.0	ug	NC (3)	20
9021589	Zinc (Zn)	2023/11/02	100 (1)	75 - 125	100	85 - 115	<5.0	ug	17 (3)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [XJN081-01]

(2) Duplicate Parent ID

(3) Duplicate Parent ID [XJN081-01]

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3X0405
Report Date: 2024/01/10

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Julian Tong, Project Manager Assistant

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMA	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
				Project Name:	Twin Creeks
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks
Email: lmertick@wm.com		Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		Sampled By:	JRA

24-Oct-23 08:35
Patricia Legette
C3X0405
AN4 AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary site specific
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region: _____
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23090693	3-Oct-23		TSP	N	N	X	X	1	
2	23090694	3-Oct-23		TSP	N	N	X	X	1	
3	23091118	3-Oct-23		TSP	N	N	X	X	1	
4	23091126	9-Oct-23		TSP	N	N	X	X	1	
5	23091127	9-Oct-23		TSP	N	N	X	X	1	
6	23091128	9-Oct-23		TSP	N	N	X	X	1	
7										******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
8										
9										
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
	Ameal ANERI	2023/10/24	08:35	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF
JRA 23-Oct-23					

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2024/01/10
Report #: R7983851
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Z7772
Received: 2023/11/15, 08:30

Sample Matrix: Filter
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	3	2024/01/03	2024/01/04		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2024/01/04	2024/01/04	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	8	N/A	2023/11/22		
Particulates on Filter (Method IO-3.1)	8	2023/11/22	2023/11/22	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	8	N/A	2023/11/15		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

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Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
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Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2024/01/10
Report #: R7983851
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3Z7772
Received: 2023/11/15, 08:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3Z7772
Report Date: 2024/01/10

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		XPI302	XPI303	XPI304	XPI305		XPI306	XPI307		
Sampling Date		2023/10/15	2023/10/15	2023/10/21	2023/10/21		2023/10/21	2023/10/27		
COC Number		na	na	na	na		na	na		
	UNITS	**23091129**	**23091131**	**23091472**	**23091473**	**QC Batch**	**23091474**	**23091481**	**RDL**	**QC Batch**
Particulate	ug/m3	13	12	9	8	9051478	6	29	3	9051906
Particulate Weight on Filter	ug	21500	19700	15800	13000	9065392	9900	48100	5000	9065392
Volume	m3	1613	1650	1763	1643	ONSITE	1646	1651	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		XPI308	XPI309		
Sampling Date		2023/10/27	2023/10/27		
COC Number		na	na		
	UNITS	**23091482**	**23091483**	**RDL**	**QC Batch**
Particulate	ug/m3	24	33	3	9051906
Particulate Weight on Filter	ug	38700	55200	5000	9065392
Volume	m3	1615	1681	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3Z7772
Report Date: 2024/01/10

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		XPI307	XPI308	XPI309		
Sampling Date		2023/10/27	2023/10/27	2023/10/27		
COC Number		na	na	na		
	UNITS	**23091481**	**23091482**	**23091483**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	<6.0	<6.0	6.0	9141496
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	2.0	9141496
Chromium (Cr)	ug	<5.0	<5.0	<5.0	5.0	9141496
Cobalt (Co)	ug	<2.0	<2.0	<2.0	2.0	9141496
Copper (Cu)	ug	31.1	95.0	74.6	5.0	9141496
Iron (Fe)	ug	446	322	618	50	9141496
Lead (Pb)	ug	<3.0	6.8	3.7	3.0	9141496
Manganese (Mn)	ug	17.4	13.5	21.7	1.0	9141496
Nickel (Ni)	ug	<3.0	<3.0	<3.0	3.0	9141496
Selenium (Se)	ug	<10	<10	<10	10	9141496
Vanadium (V)	ug	<5.0	<5.0	<5.0	5.0	9141496
Zinc (Zn)	ug	27.9	19.6	32.7	5.0	9141496

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3Z7772
Report Date: 2024/01/10

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		XPI307		XPI308		XPI309		
Sampling Date		2023/10/27		2023/10/27		2023/10/27		
COC Number		na		na		na		
	UNITS	**23091481**	**RDL**	**23091482**	**RDL**	**23091483**	**RDL**	**QC Batch**
Metals								
Total Arsenic (As)	ug/m3	<0.0036	0.0036	<0.0037	0.0037	<0.0036	0.0036	9141049
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	<0.0012	0.0012	<0.0012	0.0012	9141049
Total Chromium (Cr)	ug/m3	<0.0030	0.0030	<0.0031	0.0031	<0.0030	0.0030	9141049
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	<0.0012	0.0012	<0.0012	0.0012	9141049
Total Copper (Cu)	ug/m3	0.0188	0.0030	0.0588	0.0031	0.0444	0.0030	9141049
Total Iron (Fe)	ug/m3	0.270	0.030	0.199	0.031	0.368	0.030	9141049
Total Lead (Pb)	ug/m3	<0.0018	0.0018	0.0042	0.0019	0.0022	0.0018	9141049
Total Lithium (Li)	ug/m3	<0.016	0.016	<0.017	0.017	<0.016	0.016	9141049
Total Nickel (Ni)	ug/m3	<0.0018	0.0018	<0.0019	0.0019	<0.0018	0.0018	9141049
Total Selenium (Se)	ug/m3	<0.0061	0.0061	<0.0062	0.0062	<0.0059	0.0059	9141049
Total Sulphur (S)	ug/m3	0.556	0.015	0.538	0.015	0.693	0.015	9141049
Total Vanadium (V)	ug/m3	<0.0030	0.0030	<0.0031	0.0031	<0.0030	0.0030	9141049
Total Zinc (Zn)	ug/m3	0.0169	0.0030	0.0121	0.0031	0.0194	0.0030	9141049

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3Z7772
Report Date: 2024/01/10

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

GENERAL COMMENTS

Results relate only to the items tested.

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Bureau Veritas Job #: C3Z7772
Report Date: 2024/01/10

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9141496	Arsenic (As)	2024/01/04	103	75 - 125	101	85 - 115	<6.0	ug	NC (1)	20
9141496	Cadmium (Cd)	2024/01/04	103	75 - 125	101	85 - 115	<2.0	ug	NC (1)	20
9141496	Chromium (Cr)	2024/01/04	102	75 - 125	101	85 - 115	<5.0	ug	NC (1)	20
9141496	Cobalt (Co)	2024/01/04	100	75 - 125	99	85 - 115	<2.0	ug	NC (1)	20
9141496	Copper (Cu)	2024/01/04	105	75 - 125	110	85 - 115	<5.0	ug	11 (1)	20
9141496	Iron (Fe)	2024/01/04	102	75 - 125	106	85 - 115	<50	ug	15 (1)	20
9141496	Lead (Pb)	2024/01/04	98	75 - 125	96	85 - 115	<3.0	ug	20 (1)	20
9141496	Manganese (Mn)	2024/01/04	109	75 - 125	109	85 - 115	<1.0	ug	15 (1)	20
9141496	Nickel (Ni)	2024/01/04	104	75 - 125	102	85 - 115	<3.0	ug	NC (1)	20
9141496	Selenium (Se)	2024/01/04	106	75 - 125	104	85 - 115	<10	ug	NC (1)	20
9141496	Vanadium (V)	2024/01/04	104	75 - 125	103	85 - 115	<5.0	ug	NC (1)	20
9141496	Zinc (Zn)	2024/01/04	99	75 - 125	99	85 - 115	<5.0	ug	17 (1)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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Bureau Veritas Job #: C3Z7772
Report Date: 2024/01/10

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

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Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

15-Nov-23 08:30
Patricia Legette
C3Z7772
L AIR-RmTmp

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMAT	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Project Name:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com	Location:	Twin Creeks
				Sampled By:	JRA

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region: _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.
1	23091129	15-Oct-23	1613	TSP	N	N	X	X	1
2	23091131	15-Oct-23	1650	TSP	N	N	X	X	1
3	23091472	21-Oct-23	1763	TSP	N	N	X	X	1
4	23091473	21-Oct-23	1643	TSP	N	N	X	X	1
5	23091474	21-Oct-23	1646	TSP	N	N	X	X	1
6	23091481	27-Oct-23	1651	TSP	N	N	X	X	1
7	23091482	27-Oct-23	1615	TSP	N	N	X	X	1
8	23091483	27-Oct-23	1681	TSP	N	N	X	X	1
9									
10									
11									

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

COMMENTS / TAT COMMENTS

******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
JRA 13-Nov-23/PM	[signature]	023/11/15	08:30

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
	☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2024/01/15
Report #: R7989543
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3BJ935
Received: 2023/12/18, 09:16

Sample Matrix: Filter
Samples Received: 15

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	3	2024/01/03	2024/01/09		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2024/01/08	2024/01/08	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	15	N/A	2023/12/22		
Particulates on Filter (Method IO-3.1)	15	2023/12/22	2023/12/22	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	15	N/A	2023/12/19		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Your P.O. #: 12285740
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: n/a

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2024/01/15
Report #: R7989543
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3BJ935
Received: 2023/12/18, 09:16

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
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Bureau Veritas Job #: C3BJ935
Report Date: 2024/01/15

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		XXM679	XXM680	XXM681	XXM682	XXM683	XXM684	XXM685		
Sampling Date		2023/11/02	2023/11/02	2023/11/02	2023/11/08	2023/11/08	2023/11/08	2023/11/14		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23100608**	**23100610**	**23100611**	**23100605**	**23100606**	**23100607**	**23100618**	**RDL**	**QC Batch**
Particulate	ug/m3	25	20	18	9	9	44	30	3	9124723
Particulate Weight on Filter	ug	40500	31300	29500	14900	14100	70700	49300	5000	9128789
Volume	m3	1600	1603	1627	1580	1609	1625	1627	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		XXM686	XXM687	XXM688	XXM689	XXM690	XXM691	XXM692		
Sampling Date		2023/11/14	2023/11/14	2023/11/20	2023/11/20	2023/11/20	2023/11/26	2023/11/26		
COC Number		n/a	n/a	n/a	n/a	n/a	n/a	n/a		
	UNITS	**23100619**	**23100620**	**23103117**	**23103118**	**23103119**	**23103108**	**23103109**	**RDL**	**QC Batch**
Particulate	ug/m3	61	50	72	24	17	24	18	3	9124723
Particulate Weight on Filter	ug	99000	80900	115000	37500	26800	38700	29000	5000	9128789
Volume	m3	1615	1615	1604	1576	1613	1598	1611	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		XXM693		
Sampling Date		2023/11/26		
COC Number		n/a		
	UNITS	**23103110**	**RDL**	**QC Batch**
Particulate	ug/m3	19	3	9124723
Particulate Weight on Filter	ug	31000	5000	9128789
Volume	m3	1622	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3BJ935
Report Date: 2024/01/15

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		XXM685	XXM686	XXM688		
Sampling Date		2023/11/14	2023/11/14	2023/11/20		
COC Number		n/a	n/a	n/a		
	UNITS	**23100618**	**23100619**	**23103117**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	<6.0	<6.0	6.0	9146112
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	2.0	9146112
Chromium (Cr)	ug	<5.0	<5.0	<5.0	5.0	9146112
Cobalt (Co)	ug	<2.0	<2.0	<2.0	2.0	9146112
Copper (Cu)	ug	93.8	136	58.1	5.0	9146112
Iron (Fe)	ug	644	1530	2080	50	9146112
Lead (Pb)	ug	<3.0	5.1	8.3	3.0	9146112
Manganese (Mn)	ug	18.8	41.3	55.0	1.0	9146112
Nickel (Ni)	ug	<3.0	<3.0	4.0	3.0	9146112
Selenium (Se)	ug	<10	<10	<10	10	9146112
Vanadium (V)	ug	<5.0	<5.0	<5.0	5.0	9146112
Zinc (Zn)	ug	24.9	44.5	76.7	5.0	9146112

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3BJ935
Report Date: 2024/01/15

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		XXM685		XXM686		XXM688		
Sampling Date		2023/11/14		2023/11/14		2023/11/20		
COC Number		n/a		n/a		n/a		
	UNITS	**23100618**	**RDL**	**23100619**	**RDL**	**23103117**	**RDL**	**QC Batch**
Metals								
Total Arsenic (As)	ug/m3	<0.0037	0.0037	<0.0037	0.0037	<0.0037	0.0037	9141049
Total Cadmium (Cd)	ug/m3	<0.0012	0.0012	<0.0012	0.0012	<0.0012	0.0012	9141049
Total Chromium (Cr)	ug/m3	<0.0031	0.0031	<0.0031	0.0031	<0.0031	0.0031	9141049
Total Cobalt (Co)	ug/m3	<0.0012	0.0012	<0.0012	0.0012	<0.0012	0.0012	9141049
Total Copper (Cu)	ug/m3	0.0576	0.0031	0.0843	0.0031	0.0362	0.0031	9141049
Total Iron (Fe)	ug/m3	0.396	0.031	0.948	0.031	1.30	0.031	9141049
Total Lead (Pb)	ug/m3	<0.0018	0.0018	0.0032	0.0019	0.0052	0.0019	9141049
Total Lithium (Li)	ug/m3	<0.017	0.017	<0.017	0.017	<0.017	0.017	9141049
Total Nickel (Ni)	ug/m3	<0.0018	0.0018	<0.0019	0.0019	0.0025	0.0019	9141049
Total Selenium (Se)	ug/m3	<0.0061	0.0061	<0.0062	0.0062	<0.0062	0.0062	9141049
Total Sulphur (S)	ug/m3	0.261	0.015	0.365	0.015	0.660	0.016	9141049
Total Vanadium (V)	ug/m3	<0.0031	0.0031	<0.0031	0.0031	<0.0031	0.0031	9141049
Total Zinc (Zn)	ug/m3	0.0153	0.0031	0.0276	0.0031	0.0478	0.0031	9141049

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3BJ935
Report Date: 2024/01/15

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9146112	Arsenic (As)	2024/01/08	103 (1)	75 - 125	99	85 - 115	<6.0	ug	NC (3)	20
9146112	Cadmium (Cd)	2024/01/08	103 (1)	75 - 125	100	85 - 115	<2.0	ug	NC (3)	20
9146112	Chromium (Cr)	2024/01/08	101 (1)	75 - 125	98	85 - 115	<5.0	ug	NC (3)	20
9146112	Cobalt (Co)	2024/01/08	99 (1)	75 - 125	98	85 - 115	<2.0	ug	NC (3)	20
9146112	Copper (Cu)	2024/01/08	107 (1)	75 - 125	103	85 - 115	<5.0	ug	4.3 (3)	20
9146112	Iron (Fe)	2024/01/08	108 (1)	75 - 125	104	85 - 115	<50	ug	13 (3)	20
9146112	Lead (Pb)	2024/01/08	97 (1)	75 - 125	96	85 - 115	<3.0	ug	NC (3)	20
9146112	Manganese (Mn)	2024/01/08	106 (1)	75 - 125	103	85 - 115	<1.0	ug	14 (3)	20
9146112	Nickel (Ni)	2024/01/08	100 (1)	75 - 125	98	85 - 115	<3.0	ug	NC (3)	20
9146112	Selenium (Se)	2024/01/08	103 (1)	75 - 125	99	85 - 115	<10	ug	NC (3)	20
9146112	Vanadium (V)	2024/01/08	103 (1)	75 - 125	100	85 - 115	<5.0	ug	NC (3)	20
9146112	Zinc (Zn)	2024/01/08	101 (1)	75 - 125	99	85 - 115	<5.0	ug	NC (3)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [XXM685-01]

(2) Duplicate Parent ID

(3) Duplicate Parent ID [XXM685-01]

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C3BJ935
Report Date: 2024/01/15

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 12285740
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 2

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02	CHAIN OF CUSTODY # :
				Project Name:	Twin Creeks	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	
Email: lmertick@wm.com		Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		Sampled By:	JRA	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558

Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3

Sewer Use: ☐ Sanitary ☐ Storm Region: _____

☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.
1	23100608	2-Nov-23	1600	TSP	N	N	X	X	1
2	23100610	2-Nov-23	1603	TSP	N	N	X	X	1
3	23100611	2-Nov-23	1627	TSP	N	N	X	X	1
4	23100605	8-Nov-23	1580	TSP	N	N	X	X	1
5	23100606	8-Nov-23	1609	TSP	N	N	X	X	1
6	23100607	8-Nov-23	1625	TSP	N	N	X	X	1
7	23100618	14-Nov-23	1627	TSP	N	N	X	X	1
8	23100619	14-Nov-23	1615	TSP	N	N	X	X	1
9	23100620	14-Nov-23	1615	TSP	N	N	X	X	1
10	23103117	20-Nov-23	1604	TSP	N	N	X	X	1
11	23103118	20-Nov-23	1576	TSP	N	N	X	X	1

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

COMMENTS / TAT COMMENTS

18-Dec-23 09:16
Patricia Legette
C3BJ935
AN4 AIR-RmTmp

******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
JRA Dec 14/23			

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
	☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

AIR

CHAIN OF CUSTODY RECORD

Page 2 of 2

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733	
Address:	5768 Nauvoo Rd, Watford, ON	Address:	4510 Rhodes Drive, Suite 530	Project #:	2303459.02	CHAIN OF CUSTODY # :
	N0M 2S0		Windsor, ON, N8W 5K5	Project Name:	Twin Creeks	
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks	
Email: lmertick@wm.com		Email: Jeffery.Cleland@rwdi.com;Dan.Harrigan@rwdi.com		Sampled By:	JRA	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other site specific (specify)
☐ PWQO ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Sanitary ☐ Storm Region: _____
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)

☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: _____

TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23103119	20-Nov-23	1613	TSP	N	N	X	X	1	
2	23103108	26-Nov-23	1598	TSP	N	N	X	X	1	
3	23103109	26-Nov-23	1611	TSP	N	N	X	X	1	
4	23103110	26-Nov-23	1622	TSP	N	N	X	X	1	
5										
6										
7										******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
8										
9										
10										
11										

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only	
JRA Dec 14/23	[signature]	[illegible]	0916	Temperature (°C) on Receipt	Condition of Sample on Receipt ☐ OK ☐ SIF

[signature]

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 13254248
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2024/02/01
Report #: R8011337
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C417306
Received: 2024/01/18, 10:48

Sample Matrix: Filter
Samples Received: 15

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Metals on Hi-Vol Filter (6010Cmod)	3	2024/01/24	2024/01/29		EPA 6010D m
Total Metals on Hi-Vol Filter (6010Cmod)	3	2024/01/25	2024/01/26	CAM SOP-00408	EPA 6010D m
Particulates on Hi-Vol Filters	15	N/A	2024/01/23		
Particulates on Filter (Method IO-3.1)	15	2024/01/23	2024/01/22	CAM SOP-00942	Method IO-3.1
Air Volume from HiVol Sampling	15	N/A	2024/01/18		

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your P.O. #: 13254248
Your Project #: 2303459.02
Site Location: TWIN CREEKS
Your C.O.C. #: na

Attention: Data reports

RWDI
650 Woodlawn Rd. W
Guelph, ON
Canada N1K1B8

Report Date: 2024/02/01
Report #: R8011337
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C417306
Received: 2024/01/18, 10:48

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Clayton Johnson, CET LEAD-Air Toxics, Source Evaluation
Email: Clayton.Johnson@bureauveritas.com
Phone# (905)817-5769
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C417306
Report Date: 2024/02/01

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 13254248
Sampler Initials: EW

RESULTS OF ANALYSES OF FILTER

Bureau Veritas ID		YDO597	YDO598		YDO599		YDO600	YDO601	YDO602		
Sampling Date		2023/12/02	2023/12/02		2023/12/02		2023/12/08	2023/12/08	2023/12/08		
COC Number		na	na		na		na	na	na		
	UNITS	**23103122**	**23103120**	**RDL**	**23103121**	**RDL**	**23103129**	**23103131**	**23103130**	**RDL**	**QC Batch**
Particulate	ug/m3	11	17	3	15	5	15	18	22	3	9169551
Particulate Weight on Filter	ug	17800	26400	5000	15200	5000	23600	29700	35500	5000	9176566
Volume	m3	1648	1588	N/A	1028	N/A	1625	1641	1614	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		YDO603	YDO604	YDO605	YDO606	YDO607	YDO608	YDO609		
Sampling Date		2023/12/14	2023/12/14	2023/12/14	2023/12/20	2023/12/20	2023/12/20	2023/12/26		
COC Number		na	na	na	na	na	na	na		
	UNITS	**23110119**	**23103182**	**23103183**	**23110141**	**23110142**	**23110143**	**23110950**	**RDL**	**QC Batch**
Particulate	ug/m3	91	26	15	27	28	17	10	3	9169551
Particulate Weight on Filter	ug	145000	42800	24300	44100	45800	28600	16700	5000	9176566
Volume	m3	1599	1627	1617	1635	1630	1646	1625	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas ID		YDO610	YDO611		
Sampling Date		2023/12/26	2023/12/26		
COC Number		na	na		
	UNITS	**23110951**	**23110952**	**RDL**	**QC Batch**
Particulate	ug/m3	19	9	3	9169551
Particulate Weight on Filter	ug	30700	14000	5000	9176566
Volume	m3	1615	1571	N/A	ONSITE

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C417306
Report Date: 2024/02/01

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 13254248
Sampler Initials: EW

ELEMENTS BY ICP-AES (FILTER)

Bureau Veritas ID		YDO603	YDO606	YDO608		
Sampling Date		2023/12/14	2023/12/20	2023/12/20		
COC Number		na	na	na		
	UNITS	**23110119**	**23110141**	**23110143**	**RDL**	**QC Batch**
Metals						
Arsenic (As)	ug	<6.0	<6.0	<6.0	6.0	9182368
Cadmium (Cd)	ug	<2.0	<2.0	<2.0	2.0	9182368
Chromium (Cr)	ug	5.4	<5.0	<5.0	5.0	9182368
Cobalt (Co)	ug	<2.0	<2.0	<2.0	2.0	9182368
Copper (Cu)	ug	48.9	29.4	53.6	5.0	9182368
Iron (Fe)	ug	2530	682	418	50	9182368
Lead (Pb)	ug	15.8	4.9	3.5	3.0	9182368
Manganese (Mn)	ug	68.9	23.2	12.8	1.0	9182368
Nickel (Ni)	ug	4.3	<3.0	<3.0	3.0	9182368
Selenium (Se)	ug	<10	<10	<10	10	9182368
Vanadium (V)	ug	<5.0	<5.0	<5.0	5.0	9182368
Zinc (Zn)	ug	135	84.6	41.9	5.0	9182368

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C417306
Report Date: 2024/02/01

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 13254248
Sampler Initials: EW

CALCULATED ELEMENTS (FILTER)

Bureau Veritas ID		YDO603			YDO606		YDO608		
Sampling Date		2023/12/14			2023/12/20		2023/12/20		
COC Number		na			na		na		
	UNITS	**23110119**	**RDL**	**QC Batch**	**23110141**	**RDL**	**23110143**	**RDL**	**QC Batch**
Metals									
Total Arsenic (As)	ug/m3	<0.0038	0.0038	9179186	<0.0037	0.0037	<0.0036	0.0036	9179187
Total Cadmium (Cd)	ug/m3	<0.0013	0.0013	9179186	<0.0012	0.0012	<0.0012	0.0012	9179187
Total Chromium (Cr)	ug/m3	0.0034	0.0031	9179186	<0.0031	0.0031	<0.0030	0.0030	9179187
Total Cobalt (Co)	ug/m3	<0.0013	0.0013	9179186	<0.0012	0.0012	<0.0012	0.0012	9179187
Total Copper (Cu)	ug/m3	0.0306	0.0031	9179186	0.0180	0.0031	0.0326	0.0030	9179187
Total Iron (Fe)	ug/m3	1.58	0.031	9179186	0.417	0.031	0.254	0.030	9179187
Total Lead (Pb)	ug/m3	0.0099	0.0019	9179186	0.0030	0.0018	0.0021	0.0018	9179187
Total Lithium (Li)	ug/m3	<0.017	0.017	9179186	<0.017	0.017	<0.016	0.016	9179187
Total Nickel (Ni)	ug/m3	0.0027	0.0019	9179186	<0.0018	0.0018	<0.0018	0.0018	9179187
Total Selenium (Se)	ug/m3	<0.0063	0.0063	9179186	<0.0061	0.0061	<0.0061	0.0061	9179187
Total Sulphur (S)	ug/m3	0.694	0.016	9179186	0.594	0.015	0.413	0.015	9179187
Total Vanadium (V)	ug/m3	<0.0031	0.0031	9179186	<0.0031	0.0031	<0.0030	0.0030	9179187
Total Zinc (Zn)	ug/m3	0.0847	0.0031	9179186	0.0517	0.0031	0.0254	0.0030	9179187

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C417306
Report Date: 2024/02/01

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 13254248
Sampler Initials: EW

GENERAL COMMENTS

Sample YDO604 [23103182] : NPF Filter not properly folded

Sample YDO605 [23103183] : NPF Filter not properly folded

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C417306
Report Date: 2024/02/01

QUALITY ASSURANCE REPORT

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 13254248
Sampler Initials: EW

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9182368	Arsenic (As)	2024/01/26	102 (1)	75 - 125	100	85 - 115	<6.0	ug	NC (3)	20
9182368	Cadmium (Cd)	2024/01/26	102 (1)	75 - 125	101	85 - 115	<2.0	ug	NC (3)	20
9182368	Chromium (Cr)	2024/01/26	99 (1)	75 - 125	99	85 - 115	<5.0	ug	7.2 (3)	20
9182368	Cobalt (Co)	2024/01/26	98 (1)	75 - 125	99	85 - 115	<2.0	ug	NC (3)	20
9182368	Copper (Cu)	2024/01/26	99 (1)	75 - 125	100	85 - 115	<5.0	ug	0.092 (3)	20
9182368	Iron (Fe)	2024/01/26	106 (1)	75 - 125	105	85 - 115	<50	ug	4.5 (3)	20
9182368	Lead (Pb)	2024/01/26	100 (1)	75 - 125	100	85 - 115	<3.0	ug	5.0 (3)	20
9182368	Manganese (Mn)	2024/01/26	99 (1)	75 - 125	100	85 - 115	<1.0	ug	3.7 (3)	20
9182368	Nickel (Ni)	2024/01/26	96 (1)	75 - 125	97	85 - 115	<3.0	ug	5.1 (3)	20
9182368	Selenium (Se)	2024/01/26	106 (1)	75 - 125	105	85 - 115	<10	ug	NC (3)	20
9182368	Vanadium (V)	2024/01/26	99 (1)	75 - 125	99	85 - 115	<5.0	ug	NC (3)	20
9182368	Zinc (Zn)	2024/01/26	102 (1)	75 - 125	103	85 - 115	<5.0	ug	1.9 (3)	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Matrix Spike Parent ID [YDO603-01]

(2) Duplicate Parent ID

(3) Duplicate Parent ID [YDO603-01]

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C417306
Report Date: 2024/02/01

RWDI
Client Project #: 2303459.02
Site Location: TWIN CREEKS
Your P.O. #: 13254248
Sampler Initials: EW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 2

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON	Address:	4510 Rhodes Drive, Suite 530	Project #:	2303459.02
	N0M 2S0		Windsor, ON, N8W 5K5	Project Name:	Twin Creeks
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x 2618 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com; axt@rwdi.com	Sampled By:	EW

18-Jan-24 10:48
Patricia Legette
C417306
J_L AIR-RmTmp

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ PWQO ☐ Table 1 ☐ Table 2 ☐ Table 3 ☐ Sanitary ☐ Storm Region: _____ site specific specify
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23103122	2-Dec-23	1648	TSP	N	N	X	X	1	
2	23103120	2-Dec-23	1588	TSP	N	N	X	X	1	
3	23103121	2-Dec-23	1028	TSP	N	N	X	X	1	
4	23103129	8-Dec-23	1625	TSP	N	N	X	X	1	
5	23103131	8-Dec-23	1641	TSP	N	N	X	X	1	
6	23103130	8-Dec-23	1614	TSP	N	N	X	X	1	
7	23110119	14-Dec-23	1599	TSP	N	N	X	X	1	******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******
8	23103182	14-Dec-23	1627	TSP	N	N	X	X	1	
9	23103183	14-Dec-23	1617	TSP	N	N	X	X	1	
10	23110141	20-Dec-23	1635	TSP	N	N	X	X	1	
11	23110142	20-Dec-23	1630	TSP	N	N	X	X	1	

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: ☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: _____
TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only: Temperature (°C) on Receipt	Laboratory Use Only: Condition of Sample on Receipt
JRA 16-Jan-24	[signature]	10/12/18	1048		☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

Maxxam Analytics Inc 6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 2 of 2

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Suite 530 Windsor, ON, N8W 5K5	Project #:	2303459.02
				Project Name:	Twin Creeks
Phone: 519-849-5810	Fax: 519-849-5811	Phone: 519-823-1311 x 2618	Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Jeffery.Cleland@rwdi.com; axt@rwdi.com	Sampled By:	JRA

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # :

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary site specific
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region: _____
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Sample Volume	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	TSP	Metals (**Contact RWDI prior to metals analysis***)	# of Cont.	COMMENTS / TAT COMMENTS
1	23110143	20-Dec-23	1646	TSP	N	N	X	X	1	
2	23110950	26-Dec-23	1625	TSP	N	N	X	X	1	
3	23110951	26-Dec-23	1615	TSP	N	N	X	X	1	
4	23110952	26-Dec-23	1571	TSP	N	N	X	X	1	
5										
6										
7										
8										
9										
10										
11										

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: _____
TIME Required: _____

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

******Send particulate results to RWDI prior to conducting metals analysis. RWDI will instruct which filter(s) to proceed with metal analysis at that point*******

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
JRA 16-Jan-24			

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
	☐ OK ☐ SIF

White: Maxxam Yellow: Mail Pink: Client

APPENDIX H

RWDI AIR
Ambient TSP Monitoring Field Data Sheet

Sample I.D.	Installation Date	Sample Date	Removal Date	Filter No.	Initial Readings			Final Readings		
					Time of Day	Timer	Delta P (in H_2O)	Time of Day	Timer	Delta P (in H_2O)
WMI-1	27-Dec-22	6-Jan-23	9-Jan-23	22111450	9:14 AM	5976.51	4.3	3:00 PM	6000.52	4.4
WMI-1	10-Jan-23	18-Jan-23	20-Jan-23	22111454	11:30 AM	6001	3.5	10:45 AM	6025	3.6
WMI-1	21-Jan-23	30-Jan-23	2-Feb-23	23011644	9:00 AM	6025	3.5	11:45 AM	6049	3.6
WMI-1	2-Feb-23	11-Feb-23	15-Feb-23	23011656	11:45 AM	6049.01	3.5	11:00 AM	6073.01	3.5
WMI-1	15-Feb-23	23-Feb-23	28-Feb-23	23011663	11:00 AM	6073.02	3.5	10:50 AM	6097.02	3.6
WMI-1	28-Feb-23	7-Mar-23	9-Mar-23	23011683	10:50 AM	6097.03	3.5	10:40 AM	6121.03	3.4
WMI-1	9-Mar-23	19-Mar-23	20-Mar-23	23011634	10:40 AM	6121.08	3.5	12:40 PM	6145.08	3.5
WMI-1	20-Mar-23	31-Mar-23	5-Apr-23	23013180	12:40 PM	6145.11	3.5	10:10 AM	6169.11	3.5
WMI-1	5-Apr-23	12-Apr-23	13-Apr-23	23013154	10:10 AM	6169.12	3.5	10:10 AM	6193.12	3.5
WMI-1	13-Apr-23	24-Apr-23	25-Apr-23	23013195	10:10 AM	6193.13	3.5	1:20 PM	6217.13	3.6
WMI-1	25-Apr-23	6-May-23	11-May-23	23041327	1:20 PM	6217.14	3.5	1:16 PM	6241.14	3.4
WMI-1	11-May-23	18-May-23	19-May-23	23041345	1:16 PM	6241.17	3.5	11:40 AM	6265.17	3.6
WMI-1	19-May-23	30-May-23	1-Jun-23	23041311	11:40AM	6265.34	3.5	11:15AM	6289.34	3.5
WMI-1	1-Jun-23	5-Jun-23	6-Jun-23	23041059	11:16 AM	6289.35	3.5	1:40 PM	6313.35	3.6
WMI-1	6-Jun-22	11-Jun-22	12-Jun-22	23041073	12:00 AM	6313.36	3.5	1:12 PM	6337.36	4
WMI-1	12-Jun-23	17-Jun-23	19-Jun-23	23051293	1:12PM	6337.49	3.5	4:34PM	6361.45	3.2
WMI-1	19-Jun-23	23-Jun-23	24-Jun-23	23052307	4:34PM	6361.57	3.5	12:19PM	6385.57	3.5
WMI-1	24-Jun-23	29-Jun-23	30-Jun-23	23052355	12:19 PM	6385.61	3.5	1:16 PM	6409.61	3.5
WMI-1	30-Jun-23	5-Jul-23	7-Jul-23	23052342	1:16PM	6409.64	3.5	6:00PM	6433.64	3.5
WMI-1	7-Jul-23	11-Jul-23	12-Jul-23	23061285	6:01PM	6433.65	3.5	10:55AM	6457.65	3.5
WMI-1	12-Jul-23	17-Jul-23	18-Jul-23	23062005	2:43 PM	6457.94	3.9	12:52 PM	6481.94	4.2
WMI-1	18-Jul-23	23-Jul-23	24-Jul-23	23052362	12:52PM	6481.97	3.9	1:11 PM	6505.97	3.9
WMI-1	24-Jul-23	29-Jul-23	31-Jul-23	23071092	1:11 PM	6506.01	3.9	11:10 AM	6530.01	3.9
WMI-1	31-Jul-23	4-Aug-23	6-Aug-23	23071606	11:10 AM	6530.02	3.9	12:29 PM	6554.02	4.2
WMI-1	6-Aug-23	10-Aug-23	11-Aug-23	23071611	12:29 PM	6554.09	3.9	11:55 AM	6578.09	4.0
WMI-1	11-Aug-23	16-Aug-23	17-Aug-23	23072268	11:55 AM	6578.1	3.9	11:53 AM	6602.1	3.9
WMI-1	17-Aug-23	22-Aug-23	23-Aug-23	23077273	11:53 AM	6602.13	3.9	1:20 PM	6626.13	2.3
WMI-1	23-Aug-23	28-Aug-23	29-Aug-23	23081076	1:20 PM	6626.1	3.9	2:10 PM	6650.2	5.4
WMI-1	29-Aug-23	3-Sep-23	5-Sep-23	23081610	2:15 PM	6650.27	3.9	3:01 PM	6674.27	3.0
WMI-1	5-Sep-23	9-Sep-23	11-Sep-23	23081618	3:01 PM	6674.33	3.9	1:50 PM	6698.33	4.2
WMI-1	11-Sep-23	12-Sep-23	14-Sep-23	23082511	1:50 PM	6699.56	3.9	1:22 PM	6722.56	3.9
WMI-1	14-Sep-23	15-Sep-23	16-Sep-23	23090674	1:22 PM	6722.56	3.9	11:00 AM	6746.56	4.0
WMI-1	16-Sep-23	21-Sep-23	22-Sep-23	23090675	11:00 AM	6746.57	3.9	1:35 PM	6770.57	3.9
WMI-1	22-Sep-23	27-Sep-23	28-Sep-23	23090662	1:35 PM	6770.59	3.9	12:50 PM	6794.59	3.9
WMI-1	28-Sep-23	3-Oct-23	4-Oct-23	23090693	12:50 PM	6794.59	3.9	12:35 PM	6818.59	3.9
WMI-1	4-Oct-23	15-Oct-23	16-Oct-23	23091129	12:35 PM	6818.6	3.9	2:45 PM	6842.6	3.9
WMI-1	16-Oct-23	27-Oct-23	31-Oct-23	23091481	2:45 PM	6842.65	3.9	2:40 PM	6866.65	3.9
WMI-1	31-Oct-23	8-Nov-23	9-Nov-23	23100607	3:00 PM	6866.99	3.8	4:45 PM	6890.99	3.9
WMI-1	16-Nov-23	20-Nov-23	22-Nov-23	23103117	2:45 PM	6891	3.8	3:35 PM	6915	3.8
WMI-1	22-Nov-23	2-Dec-23	7-Dec-23	23103122	3:35 PM	6915.01	3.8	11:40 AM	6938.97	4.1
WMI-1	7-Dec-23	14-Dec-23	18-Dec-23	23103182	11:40 AM	6939.01	3.8	12:45 PM	6963.01	3.9
WMI-1	21-Dec-23	26-Dec-23	28-Dec-23	23110951	10:25 AM	6963.02	3.8	9:10 AM	6987.02	3.7

Comments:

Calibrated on 6-Oct-22. New setpoint is 4.3 "H2O

Calibrated on 10-Jan-23. New setpoint is 3.5 "H2O

Calibrated on 26-May-23. New setpoint is 3.6 "H2O

Calibrated 12-July-23. New set point 3.9 "H2O

Calibrated 11-Sep-23. New setpoint 3.9 "H2O

Calibrated 31-Oct-23. New setpoint 3.8 "H2O

RWDI AIR
Ambient TSP Monitoring Field Data Sheet

Sample I.D.	Installation Date	Sample Date	Removal Date	Filter No.	Initial Readings			Final Readings		
					Time of Day	Timer	Delta P (in H_2O)	Time of Day	Timer	Delta P (in H_2O)
WMI-2	27-Dec-22	6-Jan-23	10-Jan-23	2211449	10:10 AM	5514.48	3.1	12:40 PM	5538.48	3.1
WMI-2	10-Jan-23	18-Jan-23	20-Jan-23	22111456	4:17 PM	5538.97	4.0	10:30 AM	5562.97	3.8
WMI-2	26-Jan-23	30-Jan-23	2-Feb-23	23011642	1:35 PM	5563.01	4.0	9:50 AM	5587.01	3.9
WMI-2	2-Feb-23	11-Feb-23	15-Feb-23	23011654	9:55 AM	5587.03	4.0	10:35 AM	5611.03	4.2
WMI-2	15-Feb-23	23-Feb-23	28-Feb-23	23011664	10:35 AM	5611.06	4.0	10:30 AM	5635.06	4.2
WMI-2	28-Feb-23	7-Mar-23	9-Mar-23	23011685	10:30 AM	5635.08	4.0	11:20 AM	5659.08	3.8
WMI-2	9-Mar-23	19-Mar-23	20-Mar-23	23011633	11:20 AM	5659.12	4.0	1:50 PM	5683.12	4.0
WMI-2	20-Mar-23	31-Mar-23	5-Apr-23	23013181	1:50 PM	5683.14	4.0	11:15 AM	5707.13	4.1
WMI-2	5-Apr-23	12-Apr-23	13-Apr-23	23013155	11:15 AM	5707.14	4.0	11:30 AM	5731.14	4.0
WMI-2	13-Apr-23	24-Apr-23	25-Apr-23	23013196	11:30 AM	5731.14	4.0	2:15 PM	5755.14	3.9
WMI-2	25-Apr-23	6-May-23	11-May-23	23041325	2:15 PM	5755.16	4.0	12:50 PM	5779.16	3.9
WMI-2	11-May-23	18-May-23	19-May-23	23041347	12:50 PM	5779.19	4.0	11:15 AM	5803.19	4.2
WMI-2	19-May-23	30-May-23	1-Jun-23	23041310	11:15 AM	5803.41	4.0	12:01 PM	5827.41	4.3
WMI-2	1-Jun-23	5-Jun-23	6-Jun-23	23041070	12:02 PM	5827.43	4.0	2:40 PM	5851.43	4.3
WMI-2	6-Jun-23	11-Jun-23	12-Jun-23	23041072	2:40 PM	5851.44	4.0	2:02 PM	5875.44	4.4
WMI-2	12-Jun-23	17-Jun-23	19-Jun-23	23051294	2:02PM	5875.5	4.0	5:27PM	5899.5	3.7
WMI-2	19-Jun-23	23-Jun-23	24-Jun-23	23052309	5:27PM	5899.55	4.0	1:03PM	5917.8	4.1
WMI-2	24-Jun-23	29-Jun-23	30-Jun-23	23052356	1:03PM	5917.87	4.0	2:55PM	5941.87	4.0
WMI-2	30-Jun-23	5-Jun-23	7-Jul-23	23052343	2:55PM	5941.9	4.0	5:00 PM	5965.9	4.0
WMI-2	7-Jul-23	11-Jul-23	12-Jul-23	23061284	5:00PM	5968.18	3.8	1:27PM	5990.18	3.7
WMI-2	12-Jul-23	17-Jul-23	18-Jul-23	23062004	1:27PM	5990.26	3.8	1:34 PM	6014.26	3.8
WMI-2	18-Jul-23	23-Jul-23	24-Jul-23	23062928	1:24PM	6014.32	3.8	2:09 PM	6038.32	3.7
WMI-2	24-Jul-23	29-Jul-23	31-Jul-23	23071091	2:09 PM	6038.39	3.8	12:10 PM	6062.39	3.9
WMI-2	31-Jul-23	4-Aug-23	6-Aug-23	23071607	12:10 PM	6062.4	3.8	11:43 AM	6086.4	4.0
WMI-2	6-Aug-23	10-Aug-23	11-Aug-23	23071612	11:43 AM	6086.47	3.8	11:40 AM	6110.47	3.8
WMI-2	11-Aug-23	16-Aug-23	17-Aug-23	23072270	11:40AM	6110.47	3.8	1:50 PM	6134.48	3.8
WMI-2	17-Aug-23	22-Aug-23	23-Aug-23	23072272	1:50 PM	6134.51	3.8	10:45 AM	6158.51	3.8
WMI-2	23-Aug-23	28-Aug-23	29-Aug-23	23081077	2:00 PM	6158.53	3.8	2:50 PM	6182.53	3.8
WMI-2	29-Aug-23	3-Sep-23	5-Sep-23	23081611	2:50 PM	6182.54	3.8	2:30 PM	6206.54	3.8
WMI-2	5-Sep-23	9-Sep-23	11-Sep-23	23081619	2:30 PM	6206.55	3.8	12:35 PM	6230.55	3.7
WMI-2	14-Sep-23	15-Sep-23	16-Sep-23	23082504	12:35 PM	6230.56	3.8	10:30 AM	6254.56	3.9
WMI-2	16-Sep-23	21-Sep-23	22-Sep-23	23090676	10:30 AM	6254.57	3.8	10:05 AM	6278.57	4.2
WMI-2	22-Sep-23	27-Sep-23	28-Sep-23	23090663	10:05 AM	6278.6	3.8	12:30 PM	6302.6	4.1
WMI-2	28-Sep-23	3-Oct-23	4-Oct-23	23090694	12:31 PM	6302.65	3.8	11:40 AM	6326.65	3.8
WMI-2	4-Oct-23	15-Oct-23	16-Oct-23	23091131	11:40 AM	6326.67	3.8	2:20 PM	6350.67	3.9
WMI-2	16-Oct-23	27-Oct-23	31-Oct-23	23091483	2:20 PM	6350.71	3.8	12:30 PM	6374.71	3.9
WMI-2	31-Oct-23	8-Nov-23	9-Nov-23	23100605	1:00 PM	6375	3.2	4:30 PM	6399	3.3
WMI-2	16-Nov-23	20-Nov-23	22-Nov-23	23103118	2:15 PM	6399.02	3.2	4:15 PM	6423.02	3.2
WMI-2	22-Nov-23	2-Dec-23	7-Dec-23	23103120	4:15 PM	6423.04	3.2	12:20 PM	6447.04	3.2
WMI-2	7-Dec-23	14-Dec-23	18-Dec-23	23110119	12:20 PM	6447.06	3.2	2:45 PM	6471.06	3.3
WMI-2	21-Dec-23	26-Dec-23	28-Dec-23	23110952	11:40 AM	6471.07	3.2	9:50 AM	6495.07	3.0

Comments: Calibrated on 6-Oct-22. New setpoint is 3.9 "H2O
Calibrated on 6-Jan-23. New setpoint is 4.0 "H2O
Calibrated on 25-May-23. New setpoint is 4.5 "H2O
Calibrated on 7-Jul-23. Newset point 3.8 "H2O
Calibrated on 31-Oct-23. New setpoint 3.3 "H2O

RWDI AIR
Ambient TSP Monitoring Field Data Sheet

Sample I.D.	Installation Date	Sample Date	Removal Date	Filter No.	Initial Readings			Final Readings		
					Time of Day	Timer	Delta P (in H_2O)	Time of Day	Timer	Delta P (in H_2O)
WMI-3	10-Jan-23	12-Jan-23	16-Jan-23	22111463	3:14 PM	8483.58	3.7	12:35PM	8507.58	3.7
WMI-3	16-Jan-23	24-Jan-23	26-Jan-23	22111466	12:35PM	8507.59	3.7	1:30 PM	8531.59	3.8
WMI-3	26-Jan-23	5-Feb-23	7-Feb-23	22111480	1:30 PM	8531.61	3.7	9:55 AM	8555.61	3.7
WMI-3	7-Feb-23	17-Feb-23	20-Feb-23	23011653	9:55 AM	8555.62	3.7	11:40 AM	8579.62	3.7
WMI-3	20-Feb-23	1-Mar-23	2-Mar-23	23011679	11:40 AM	8579.63	3.7	11:40 AM	8603.63	3.7
WMI-3	2-Mar-23	13-Mar-23	16-Mar-23	23011629	11:40 AM	8603.64	3.7	11:30 AM	8627.64	3.7
WMI-3	16-Mar-23	25-Mar-23	27-Mar-23	23013176	11:30 AM	8627.65	3.7	12:10 PM	8651.65	3.3
WMI-3	27-Mar-23	6-Apr-23	10-Apr-23	23013146	12:10 PM	8651.67	3.7	12:20 PM	8675.67	4.2
WMI-3	10-Apr-23	18-Apr-23	20-Apr-23	23013192	12:20 PM	8675.7	3.7	12:45 PM	8699.7	3.8
WMI-3	20-Apr-23	30-Apr-23	1-May-23	23021312	12:45 PM	8699.7	3.7	11:20 AM	8723.7	3.9
WMI-3	1-May-23	12-May-23	16-May-23	23041338	11:20 AM	8723.72	3.7	11:54 AM	8747.72	3.8
WMI-3	16-May-23	24-May-23	25-May-23	23041096	11:56 AM	8747.76	3.7	2:00 PM	8771.76	3.7
WMI-3	26-May-23	2-Jun-23	4-Jun-23	23041098	2:20 PM	8771.86	3.8	9:55 AM	8795.86	3.8
WMI-3	4-Jun-23	8-Jun-23	9-Jun-23	23041066	9:55 AM	8795.88	3.8	3:56 PM	8819.88	3.8
WMI-3	9-Jun-23	14-Jun-23	15-Jun-23	23051283	2:56 PM	8819.92	3.8	12:15 PM	8843.92	3.7
WMI-3	15-Jun-23	20-Jun-23	21-Jun-23	23051298	12:15 PM	8843.93	3.8	12:25 PM	8867.93	3.6
WMI-3	21-Jun-23	26-Jun-23	27-Jun-23	23052317	12:25 PM	8867.95	3.8	3:15 PM	8891.91	3.8
WMI-3	27-Jun-23	2-Jul-23	4-Jul-23	23052333	3:15PM	8891.99	3.8	7:40 PM	8909.82	3.2
WMI-3	4-Jul-23	8-Jul-23	10-Jul-23	23052366	7:17PM	8909.95	4.2	3:44 PM	8934.14	4.2
WMI-3	10-Jul-23	14-Jul-23	16-Jul-23	23061292	3:44 PM	8934.22	4.1	2:15 PM	8958.22	4.1
WMI-3	1-Jul-23	20-Jul-23	21-Jul-23	23062921	2:15 PM	8958.23	4.1	8:00 AM	8982.23	4.0
WMI-3	21-Jul-23	26-Jul-23	27-Jul-23	23062937	8:00 AM	8982.24	4.1	1:29 PM	9006.24	4.6
WMI-3	27-Jul-23	1-Aug-23	2-Aug-23	23062946	1:30 PM	9006.34	4.1	2:35 PM	9030.34	4.3
WMI-3	2-Aug-23	7-Aug-23	8-Aug-23	23071662	2:35 PM	9030.36	4.1	2:00 PM	9054.36	4.3
WMI-3	8-Aug-23	13-Aug-23	14-Aug-23	23071666	2:00 PM	9054.38	4.1	1:24 PM	9078.38	4.3
WMI-3	14-Aug-23	19-Aug-23	21-Aug-23	23072276	1:54 PM	9078.49	4.0	1:08 PM	9102.48	4.0
WMI-3	21-Aug-23	25-Aug-23	27-Aug-23	23081071	4:58 PM	9102.58	4.0	3:10 PM	9126.58	4.2
WMI-3	27-Aug-23	31-Aug-23	1-Sep-23	23081086	3:10 PM	9126.59	4.0	12:00 PM	9150.59	4.0
WMI-3	1-Sep-23	6-Sep-23	7-Sep-23	23081096	12:00 PM	9150.6	4.0	11:40 AM	9174.6	4.1
WMI-3	7-Sep-23	12-Sep-23	14-Sep-23	23081067	11:40 AM	9174.63	4.0	2:06 PM	9198.63	4.0
WMI-3	14-Sep-23	18-Sep-23	19-Sep-23	23032521	2:06 PM	9198.64	4.0	12:36 PM	9222.64	4.0
WMI-3	19-Sep-23	24-Sep-23	26-Sep-23	23083009	12:36 PM	9222.65	4.0	2:16 PM	9246.65	4.1
WMI-3	26-Sep-23	30-Sep-23	2-Oct-23	23090671	2:16 PM	9246.67	4.0	12:51 PM	9270.67	4.0
WMI-3	2-Oct-23	9-Oct-23	11-Oct-23	23091126	12:51 PM	9270.68	4.0	3:10 PM	9294.68	4.0
WMI-3	11-Oct-23	21-Oct-23	23-Oct-23	23091473	3:10 PM	9294.69	4.0	11:17 AM	9318.69	4.0
WMI-3	23-Oct-23	2-Nov-23	7-Nov-23	23100610	1:35 PM	9318.98	3.9	12:50 PM	9342.98	4.0
WMI-3	7-Nov-23	14-Nov-23	16-Nov-23	23100619	12:50 PM	9343	3.9	11:50 AM	9367	4.1
WMI-3	16-Nov-23	26-Nov-23	30-Nov-23	23103108	11:50 AM	9367.01	3.9	3:20 PM	9391.01	4.0
WMI-3	30-Nov-23	8-Dec-23	11-Dec-23	23103131	3:20 PM	9391.02	3.9	2:39 PM	9415.02	4.2
WMI-3	11-Dec-23	20-Dec-23	21-Dec-23	23110142	2:39 PM	9415.05	3.9	11:50 AM	9439.05	3.9

Comments: Calibrated on 6-Oct-22. New setpoint is 3.7 "H2O
Calibrated on 10-Jan-23. New setpoint is 3.7 "H2O
Calibrated on 25-May-23. New setpoint is 3.8 "H2O
Calibrated on 7-Jul-23. New setpoint is 4.0 "H2O
Calibrated on 31-Oct-23. New setpoint 3.9 "H2O

RWDI AIR
Ambient TSP Monitoring Field Data Sheet

Sample I.D.	Installation Date	Sample Date	Removal Date	Filter No.	Initial Readings			Final Readings		
					Time of Day	Timer	Delta P (in H_2O)	Time of Day	Timer	Delta P (in H_2O)
WMI-4	27-Dec-22	6-Jan-23	11-Jan-23	22111448	9:55 AM	7763.8	3.8	2:00PM	7787.8	3.9
WMI-4	11-Jan-23	18-Jan-23	20-Jan-23	22111455	2:30 PM	7788.31	4.1	11:30 AM	7812.31	4.1
WMI-4	26-Jan-23	30-Jan-23	2-Feb-23	23011643	2:05 PM	7812.3	4.1	11:10 AM	7836.3	4.2
WMI-4	2-Feb-23	11-Feb-23	15-Feb-23	23011655	11:10 AM	7836.31	4.1	11:45 AM	7860.31	4.2
WMI-4	15-Feb-23	23-Feb-23	28-Feb-23	23011665	11:45 AM	7860.32	4.1	10:10 AM	7884.32	4.2
WMI-4	28-Feb-23	7-Mar-23	9-Mar-23	23011684	10:10 AM	7884.33	4.1	10:00 AM	7908.33	4.2
WMI-4	9-Mar-23	19-Mar-23	20-Mar-23	23011632	10:00 AM	7908.35	4.1	1:20 PM	7932.35	4.1
WMI-4	20-Mar-23	31-Mar-23	5-Apr-23	23013179	1:20 PM	7932.38	4.1	10:30 AM	7956.38	4.1
WMI-4	5-Apr-23	12-Apr-23	13-Apr-23	23013156	10:30 AM	7956.38	4.1	10:55 AM	7980.38	4.5
WMI-4	13-Apr-23	24-Apr-23	25-Apr-23	23013194	10:55 AM	7980.39	4.1	1:50 PM	8004.39	4.1
WMI-4	25-Apr-23	6-May-23	11-May-23	23041326	1:35 PM	8004.4	4.1	12:30 PM	8028.4	4.2
WMI-4	11-May-23	18-May-23	19-May-23	23041346	12:30 PM	8028.44	4.1	10:35 AM	8052.44	4.1
WMI-4	19-May-23	30-May-23	1-Jun-23	23041309	10:35 AM	8052.68	4.1	12:45PM	8076.68	3.6
WMI-4	1-Jun-23	5-Jun-23	6-Jun-23	23041071	12:45 PM	8076.71	4.1	2:15 PM	8100.71	4.3
WMI-4	6-Jun-23	11-Jun-23	12-Jun-23	23041074	12:15 PM	8100.75	4.1	12:20 PM	8124.75	4.2
WMI-4	12-Jun-23	17-Jun-23	19-Jun-23	23051292	12:20PM	8124.82	4.1	1:04PM	8148.82	4.1
WMI-4	19-Jun-23	23-Jun-23	24-Jun-23	23052308	1:20PM	8148.85	4.1	11:25 AM	8172.85	4.0
WMI-4	23-Jun-23	29-Jun-23	30-Jun-23	23052354	11:25AM	8172.94	4.1	12:19PM	8196.94	4.1
WMI-4	30-Jun-23	5-Jul-23	6-Jul-23	23052341	12:19PM	8196.99	4.1	9:45AM	8220.99	4.1
WMI-4	7-Jul-23	11-Jul-23	12-Jul-23	23061283	1:23 PM	5212.79	3.6	12:42PM	5236.79	0.0
WMI-4	16-Jul-23	17-Jul-23	18-Jul-23	23062919	1:55PM	5261.05	4.3	11:52 AM	5285.05	4.3
WMI-4	21-Jul-23	23-Jul-23	24-Jul-23	23062935	8:55AM	5309	4.3	12:23 PM	5333	4.3
WMI-4	27-Jul-23	29-Jul-23	31-Jul-23	23062047	11:50 AM	5357.18	4.3	11:40 AM	5381.18	4.2
WMI-4	2-Aug-23	4-Aug-23	6-Aug-23	23071613	1:25 PM	5405.25	4.3	10:36 AM	5429.25	3.3
WMI-4	8-Aug-23	10-Aug-23	11-Aug-23	23071663	1:45 PM	5453.35	4.3	11:20 AM	5477.35	4.7
WMI-4	14-Aug-23	16-Aug-23	17-Aug-23	23072271	11:56 AM	5501.49	4.3	11:05 AM	5525.49	4.3
WMI-4	21-Aug-23	22-Aug-23	23-Aug-23	23080277	11:37 AM	5549.58	4.3	11:02 AM	5573.58	4.5
WMI-4	27-Aug-23	28-Aug-23	29-Aug-23	23081088	2:45 PM	5597.68	4.3	1:30 PM	5621.68	4.3
WMI-4	29-Aug-23	3-Sep-23	5-Sep-23	23081620	10:55 AM	8221.25	3.9	11:39 AM	8245.25	3.8
WMI-4	5-Sep-23	9-Sep-23	11-Sep-23	23081066	11:39 AM	8245.27	3.9	12:05 PM	8269.27	3.8
WMI-4	14-Sep-23	15-Sep-23	16-Sep-23	23082512	12:05 PM	8269.28	3.9	10:10 AM	8293.28	4.1
WMI-4	16-Sep-23	21-Sep-23	22-Sep-23	23090678	10:10 AM	8293.32	3.9	9:50 AM	8317.32	3.9
WMI-4	22-Sep-23	27-Sep-23	28-Sep-23	23090664	9:50 AM	8317.34	3.9	12:04 PM	8341.34	4.1
WMI-4	28-Sep-23	3-Oct-23	4-Oct-23	23091118	12:04 PM	8341.36	3.9	11:20 AM	8365.36	3.8
WMI-4	4-Oct-23	15-Oct-23	16-Oct-23	23091130	11:20 AM	8365.37	3.9	3:15 PM	8365.38	3.9
WMI-4	16-Oct-23	27-Oct-23	31-Oct-23	23091482	3:15 PM	8365.76	3.8	12:05 PM	8389.76	3.8
WMI-4	31-Oct-23	8-Nov-23	9-Nov-23	23100606	12:05 PM	8389.81	3.8	4:10 PM	8413.81	3.8
WMI-4	16-Nov-23	20-Nov-23	22-Nov-23	23103119	2:30 PM	8413.83	3.8	4:00 PM	8437.83	3.9
WMI-4	22-Nov-23	2-Dec-23	7-Dec-23	23103121	4:00 PM	8437.85	3.8	11:10 AM	8452.46	4.4
WMI-4	7-Dec-23	14-Dec-23	18-Dec-23	23103183	11:10 AM	8452.49	3.8	1:05 PM	8476.49	3.8
WMI-4	18-Dec-23	26-Dec-23	28-Dec-23	23110950	11:05 AM	8476.52	3.8	9:35 AM	8500.52	3.8

Comments: Calibrated on 6-Oct-22. New setpoint is 3.8 "H2O
Calibrated on 11-Jan-23. New setpoint is 4.1 "H2O
Calibrated on 25-May-23. New setpoint is 3.7 "H2O
Calibrated on 1-Sep-23. New setpoint is 3.9 "H2O
Calibrated on 23-Oct-23. New setpoint is 3.8 "H2O

RWDI AIR
Ambient TSP Monitoring Field Data Sheet

Sample I.D.	Installation Date	Sample Date	Removal Date	Filter No.	Initial Readings			Final Readings		
					Time of Day	Timer	Delta P (in H_2O)	Time of Day	Timer	Delta P (in H_2O)
WMI-5	4-Jan-23	12-Jan-23	16-Jan-23	22111451	11:50 AM	7672.63	3.5	12:55PM	7696.63	3.5
WMI-5	16-Jan-23	24-Jan-23	26-Jan-23	22111464	12:5PM	7696.64	3.4	10:00 AM	7720.64	3.4
WMI-5	26-Jan-23	5-Feb-23	7-Feb-23	23011641	10:00 AM	7720.65	3.4	11:05 AM	7744.65	3.4
WMI-5	7-Feb-23	17-Feb-23	20-Feb-23	23011651	11:05 AM	7744.66	3.4	10:34 AM	7768.66	3.6
WMI-5	20-Feb-23	1-Mar-23	2-Mar-23	23011680	10:34 AM	7768.67	3.4	10:35 AM	7792.67	3.6
WMI-5	2-Mar-23	13-Mar-23	16-Mar-23	23011631	10:35 AM	7792.71	3.4	10:20 AM	7816.71	3.5
WMI-5	16-Mar-23	25-Mar-23	27-Mar-23	23013178	10:15 AM	7816.72	3.2	10:45 AM	7840.72	3.4
WMI-5	27-Mar-23	6-Apr-23	10-Apr-23	23013144	10:45 AM	7840.72	3.5	12:00 PM	7864.72	3.5
WMI-5	10-Apr-23	18-Apr-23	20-Apr-23	23013193	12:50 PM	7864.73	3.5	10:50 AM	7888.73	3.5
WMI-5	20-Apr-23	30-Apr-23	1-May-23	23021313	10:50 AM	7888.74	3.5	10:35 AM	7912.74	3.7
WMI-5	1-May-23	12-May-23	16-May-23	23041337	10:35 AM	7912.75	3.5	12:47 PM	7936.75	3.6
WMI-5	16-May-23	24-May-23	25-May-23	23041095	12:50 PM	7936.78	3.5	11:00 AM	7960.78	3.5
WMI-5	26-May-23	2-Jun-23	4-Jun-23	23041097	11:10 AM	7960.96	3.5	9:00 AM	7984.96	3.8
WMI-5	4-Jun-23	8-Jun-23	9-Jun-23	23041062	9:00AM	7984.97	3.5	2:38PM	8008.97	3.5
WMI-5	9-Jun-23	14-Jun-23	15-Jun-23	23051285	2:38 PM	8009	3.5	11:15 AM	8033	3.4
WMI-5	15-Jun-23	20-Jun-23	21-Jun-23	23051299	11:15 AM	8033.01	3.5	1:35 PM	8057.01	3.5
WMI-5	21-Jun-23	26-Jun-23	27-Jun-23	23052316	1:35 PM	8057.02	3.5	2:18PM	8081.02	3.6
WMI-5	27-Jun-23	2-Jul-23	4-Jul-23	23052361	2:18PM	8081.12	3.5	6:20PM	8105.12	3.5
WMI-5	4-Jul-23	8-Jul-23	10-Jul-23	23052365	6:20PM	8105.18	3.5	3:00PM	8129.18	3.5
WMI-5	10-Jul-23	14-Jul-23	16-Jul-23	23061294	3:00 PM	8129.42	3.5	2:35 PM	8153.42	3.8
WMI-5	16-Jul-23	20-Jul-23	21-Jul-23	23062920	2:35 PM	8153.43	3.6	8:20 AM	8177.43	3.8
WMI-5	21-Jul-23	26-Jul-23	27-Jul-23	23062936	8:20 AM	8177.45	3.6	12:44 PM	8201.45	4.1
WMI-5	27-Jul-23	1-Aug-23	2-Aug-23	23062945	12:44 PM	8201.57	3.6	2:10 PM	8225.57	3.6
WMI-5	2-Aug-23	7-Aug-23	8-Aug-23	23071661	2:10 PM	8225.57	3.6	2:25 PM	8249.57	3.8
WMI-5	8-Aug-23	13-Aug-23	14-Aug-23	23071667	2:25 PM	8249.58	3.6	12:41 PM	8273.58	3.6
WMI-5	14-Aug-23	19-Aug-23	21-Aug-23	23072275	1:16 PM	8273.66	3.5	12:22 PM	8297.66	3.4
WMI-5	21-Aug-23	25-Aug-23	27-Aug-23	23081070	4:29 PM	8297.81	3.5	3:40 PM	8321.81	3.8
WMI-5	27-Aug-23	31-Aug-23	1-Sep-23	23081087	3:40 PM	8321.81	4.0	12:25 PM	8345.81	3.8
WMI-5	1-Sep-23	6-Sep-23	7-Sep-23	23081097	12:25 PM	8345.87	4.0	12:05 PM	8369.87	4.0
WMI-5	7-Sep-23	12-Sep-23	14-Sep-23	23081065	12:05 PM	8369.88	4.0	1:33 PM	8399.88	4.0
WMI-5	14-Sep-23	18-Sep-23	19-Sep-23	23082522	1:33 PM	8393.9	4.0	1:15 PM	8417.9	4.4
WMI-5	19-Sep-23	24-Sep-23	26-Sep-23	23090679	1:15 PM	8417.92	4.0	2:38 PM	8441.92	4.2
WMI-5	26-Sep-23	30-Sep-23	2-Oct-23	23090672	2:41 PM	8441.96	4.0	1:12 PM	8465.96	3.8
WMI-5	2-Oct-23	9-Oct-23	11-Oct-23	23091127	1:15 PM	8465.99	4.0	3:35 PM	8489.99	3.8
WMI-5	11-Oct-23	21-Oct-23	23-Oct-23	23091472	3:35 PM	8490	4.0	11:33 AM	8514	4.2
WMI-5	23-Oct-23	2-Nov-23	7-Nov-23	23100608	2:30 PM	8514.31	3.5	12:00 PM	8538.31	3.5
WMI-5	7-Nov-23	14-Nov-23	16-Nov-23	23100620	11:55 AM	8538.34	3.5	10:35 AM	8562.34	3.6
WMI-5	16-Nov-23	26-Nov-23	30-Nov-23	23103109	10:35 AM	8562.35	3.5	2:25 PM	8586.35	3.6
WMI-5	30-Nov-23	8-Dec-23	11-Dec-23	23103130	2:25 PM	8586.36	3.5	1:58 PM	8610.36	3.5
WMI-5	11-Dec-23	20-Dec-23	21-Dec-23	23110141	1:58 PM	8610.37	3.5	10:30 AM	8634.37	3.5

Comments: Calibrated on 6-Oct-22. New setpoint is 3.5 "H2O
Calibrated on 10-Jan-23. New setpoint is 3.4 "H2O
Calibrated on 25-May-23. New setpoint is 3.5 "H2O
Calibrated on 12-Jul-23. New setpoint is 3.5 "H2O
Calibrated on 31-Oct-23. New setpoint us 3.5 "H2O

RWDI AIR
Ambient TSP Monitoring Field Data Sheet

Sample I.D.	Installation Date	Sample Date	Removal Date	Filter No.	Initial Readings			Final Readings		
					Time of Day	Timer	Delta P (in H_2O)	Time of Day	Timer	Delta P (in H_2O)
WMI-6	4-Jan-23	12-Jan-23	16-Jan-23	22111452	2:00 PM	4779.36	3.5	1:30 PM	4779.38	3.5
WMI-6	16-Jan-23	24-Jan-23	26-Jan-23	22111465	1:30 PM	4779.38	3.5	2:05 PM	4803.38	3.5
WMI-6	26-Jan-23	5-Feb-23	7-Feb-23	23011640	2:05 AM	4803.38	3.5	10:30 AM	4827.38	3.4
WMI-6	7-Feb-23	17-Feb-23	20-Feb-23	23011652	10:50 AM	4827.39	3.5	11:15 AM	4851.39	3.6
WMI-6	20-Feb-23	1-Mar-23	2-Mar-23	23011678	11:15 AM	4851.4	3.5	11:10 AM	4875.4	3.5
WMI-6	2-Mar-23	13-Mar-23	16-Mar-23	23011630	11:10 AM	4875.42	3.5	11:00 AM	4899.42	3.6
WMI-6	16-Mar-23	25-Mar-23	27-Mar-23	23013177	11:00 AM	4899.43	3.5	11:30 AM	4923.43	3.5
WMI-6	27-Mar-23	6-Apr-23	10-Apr-23	23013145	11:30 AM	4923.44	3.5	11:30 AM	4947.44	3.5
WMI-6	10-Apr-23	18-Apr-23	20-Apr-23	23013191	11:30 AM	4947.46	3.5	11:30 AM	4971.46	3.5
WMI-6	20-Apr-23	30-Apr-23	1-May-23	23021311	11:30 AM	4971.47	3.5	11:05 AM	4995.47	3.8
WMI-6	1-May-23	12-May-23	16-May-23	23041336	11:05AM	4995.48	3.5	1:41 PM	5019.48	3.7
WMI-6	16-May-23	24-May-23	25-May-23	23041094	1:42 PM	5019.51	3.5	11:10 AM	5043.51	3.4
WMI-6	26-May-23	2-Jun-23	4-Jun-23	23041300	11:30 AM	5043.71	3.5	9:30 AM	5067.71	3.7
WMI-6	4-Jun-23	9-Jun-23	9-Jun-23	23041067	9:30AM	5067.72	3.5	1:21PM	5091.72	3.7
WMI-6	9-Jun-23	14-Jun-23	15-Jun-23	23051284	1:21 PM	5091.78	3.5	11:45 AM	5115.78	3.5
WMI-6	15-Jun-23	20-Jun-23	21-Jun-23	23051300	11:45 AM	5115.79	3.5	11:55 AM	5139.79	3.0
WMI-6	21-Jun-23	26-Jun-23	27-Jun-23	23052318	11:55AM	5139.83	3.5	1:31 PM	5163.83	4.0
WMI-6	27-Jun-23	2-Jul-23	4-Jul-23	23052332	1:31PM	5164	3.5	2:40PM	5188	3.3
WMI-6	4-Jul-23	8-Jul-23	10-Jul-23	23052367	2:40PM	5188.72	3.6	1:23PM	5212.72	3.3
WMI-6	10-Jul-23	14-Jul-23	16-Jul-23	23061295	12:42 PM	5237.04	4.3	1:55 PM	5261.04	4.3
WMI-6	18-Jul-23	20-Jul-23	21-Jul-23	23062927	11:52 AM	5285.1	4.3	8:55 AM	5309	4.3
WMI-6	24-Jul-23	26-Jul-23	27-Jul-23	23071090	12:23PM	5333.03	4.3	11:50 AM	5357.03	4.2
WMI-6	31-Jul-23	1-Aug-23	2-Aug-23	23071608	11:40 AM	5381.24	4.3	1:25 PM	5405.24	4.3
WMI-6	6-Aug-23	7-Aug-23	8-Aug-23	23071668	10:36 AM	5429.33	4.3	1:45 PM	5453.33	4.1
WMI-6	11-Aug-23	13-Aug-23	14-Aug-23	23072269	11:20 AM	5477.39	4.3	11:56 AM	5501.39	3.9
WMI-6	17-Aug-23	19-Aug-23	21-Aug-23	23072284	11:05 AM	5525.53	4.3	11:37 AM	5549.53	4.2
WMI-6	23-Aug-23	25-Aug-23	27-Aug-23	23081081	11:02 AM	5573.64	4.3	2:45 PM	5597.64	4.2
WMI-6	29-Aug-23	31-Aug-23	1-Sep-23	23081095	1:32 PM	5621.69	4.3	11:00 AM	5645.69	3.8
WMI-6	1-Sep-23	6-Sep-23	7-Sep-23	23081064	11:00 AM	5645.72	4.3	10:40 AM	5669.72	4.8
WMI-6	7-Sep-23	12-Sep-23	14-Sep-23	23082514	10:40 AM	5669.74	4.3	12:40PM	5693.74	4.3
WMI-6	14-Sep-23	18-Sep-23	19-Sep-23	23082520	12:40PM	5693.75	4.3	1:51 PM	5717.75	4.3
WMI-6	19-Sep-23	24-Sep-23	26-Sep-23	23090677	1:51 PM	5717.76	4.3	1:34 PM	5741.76	4.3
WMI-6	26-Sep-23	30-Sep-23	2-Oct-23	23090673	1:34 PM	5741.77	4.3	12:25 PM	5765.77	4.3
WMI-6	2-Oct-23	9-Oct-23	11-Oct-23	23091128	12:25 PM	5765.78	4.3	3:00 PM	5789.78	4.3
WMI-6	11-Oct-23	21-Oct-23	23-Oct-23	23091474	3:00 PM	5789.79	4.3	11:00 AM	5813.79	4.3
WMI-6	23-Oct-23	2-Nov-23	7-Nov-23	23100611	11:55 AM	5814.17	3.8	12:35 PM	5838.17	3.9
WMI-6	7-Nov-23	14-Nov-23	16-Nov-23	23100618	12:35 PM	5838.2	3.8	11:00 AM	5862.2	3.9
WMI-6	16-Nov-23	26-Nov-23	30-Nov-23	23103110	11:00 AM	5862.21	3.8	2:50 PM	5886.21	3.9
WMI-6	30-Nov-23	8-Dec-23	11-Dec-23	23103129	2:50 PM	5886.23	3.8	1:38 PM	5910.22	3.8
WMI-6	11-Dec-23	20-Dec-23	21-Dec-23	23110143	1:38 PM	5910.23	3.8	11:00 AM	5934.23	3.8

Comments: Calibrated on 27-Oct-22. New setpoint is 4.2 "H2O
Calibrated on 11-Jan-23. New setpoint is 3.5 "H2O
Calibrated on 25-May-23. New setpoint is 3.5 "H2O
Calibrated on 7-July-23. New setpoint is 3.6 "H2O
Calibrated on 12-Jul-23. New setpoint is 4.3 "H2O
Calibrated on on 31-Oct-23. New setpoint is 3.8 "H2O

APPENDIX I

APPENDIX I1

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

On April 26, 2023, we received PM_{10} results from Bureau Veritas regarding the particulate weights from the April 12, 2023 sampling event. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. On May 4, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the April 12, 2023 sampling event. On April 26, 2023 and May 4, 2023, the results were entered and assessed, and it was found that there was one (1) measured TSP concentration in excess of the 24-hour AAQC and one (1) measured PM_{10} concentration in excess of the 24-hour AAQC on the April 12, 2023 sampling date. Attached is the Exceedance Form (PIBS 5354e) for your reference. Below is a summary of the events.

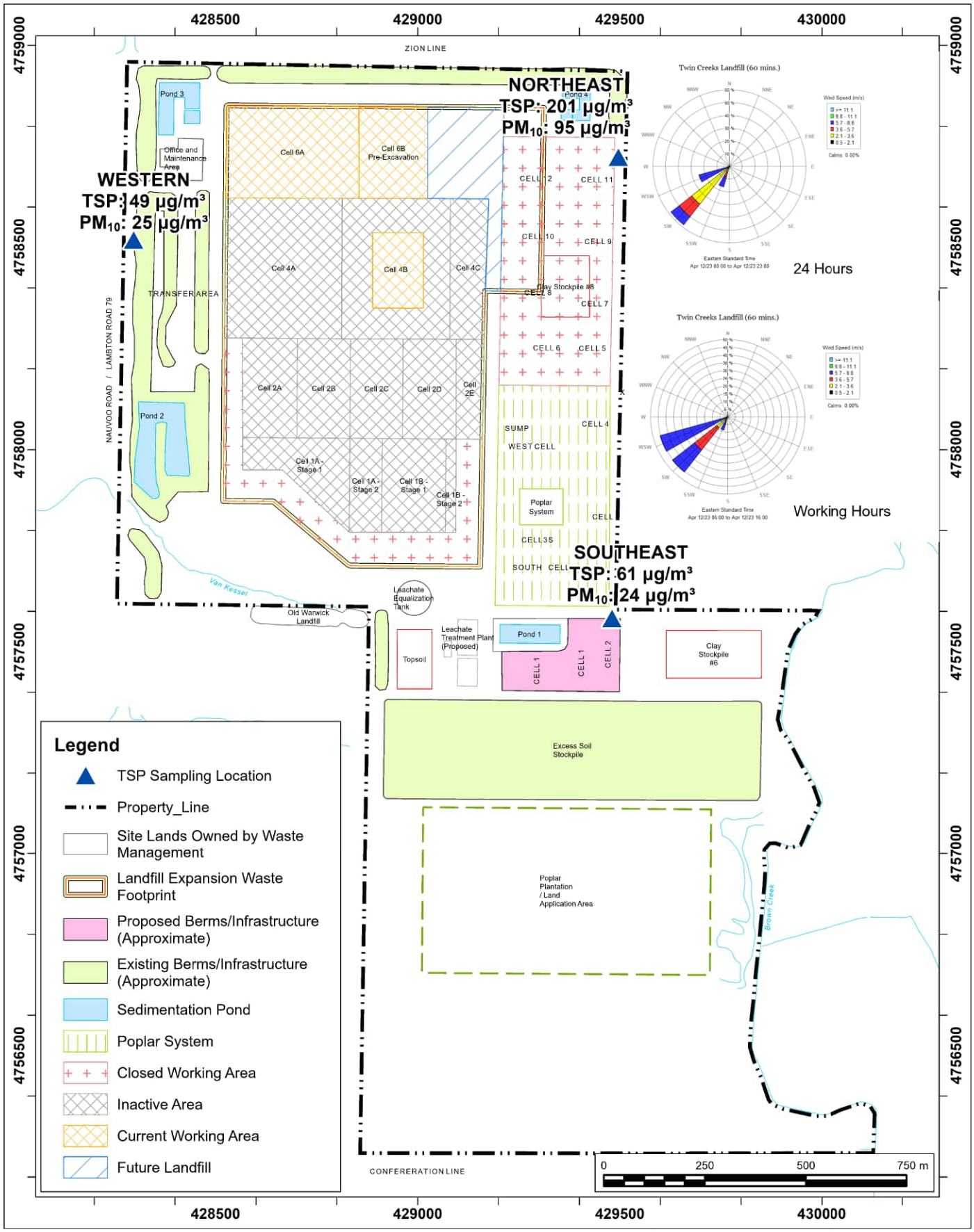
<u>April 12, 2023</u>

On Wednesday April 12, 2023, there was one (1) exceedance of the TSP 24-hour AAQC and one (1) exceedance of the PM_{10} 24-hour AAQC, which both occurred at the Northeast onsite TSP samplers. Attached is Figure 1, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the April 12th sampling date.

1. The measured TSP concentration at the Northeast sampler was 201 ug/m^3, the Southeast sampler was 61 ug/m^3 and the Western sampler was 49 ug/m^3. The measured PM_{10} concentration at the Northeast sampler was 95 ug/m^3, the Southeast sampler was 24 ug/m^3 and the Western sampler was 25 ug/m^3. During the 24-hour period, the wind was predominantly from the SSW to WSW; wind speeds ranged from 9 to 32 km/h and wind gusts reached a maximum of 46 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the SW to WSW. During this timeframe, the Northeast samplers were downwind of the haul routes from where clay material was excavated, just East of the Cell 6B pre-excavation, and hauled to Cell 4C and Cell 6A for daily/interim clay cover associated with the pre-construction activities for Cell 6B. The Northeast samplers were also downwind to the landfilling operations within Cells 4C.
3. Watering and sweeping activities for dust control purposes for the landfilling operations did take place on this date.
4. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the SSW to WSW during the operating hours of the site, which placed the Northeast samplers location downwind of the daily/interim clay cover hauling activities associated with the Cell 6B pre-construction activities and the landfill operations. Therefore, the TSP and PM10 exceedances, with concentrations of 201 ug/m3 and 95 ug/m3, measured on-site at the Northeast sampler dominantly originated from daily/interim clay cover hauling activities associated with the Cell 6B pre-construction activities, with contributions from off-site activities/sources as measured at the crosswind and upwind samplers (Southeast sampler at 61 ug/m3 and Western sampler at 49 ug/m3, for TSP respectively and Southeast sampler at 24 ug/m3 and Western sampler at 25 ug/m3, for PM10 respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: April 12, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1
Approx. Scale:	1:13,000
Date Revised:	May 8, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) May 10, 2023	Date Exceedednce Determined April 26, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

9488-AMPH4Y	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	December 19, 2020 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	12/03/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 December 19, 2020)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*
Am	10/05/2023

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast Sampler	12/03/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (Northeastern Sampler)	N/A	Hi-Vol	201	24	120	Visability	AAQC	167.5%
2	PM10 (Northeastern Sampler)	N/A	Hi-Vol	95	24	50	Health	AAQC	190.0%
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX I2

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

On June 23, 2023, we received TSP and PM_{10} results from Bureau Veritas regarding the particulate weights from the May 12, 2023 sampling event. On June 26, 2023, the results were entered and assessed, and it was found that there was three (3) measured TSP concentration in excess of the 24-hour AAQC and three (3) measured PM_{10} concentration in excess of the 24-hour AAQC on the May 12, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference. Below is a summary of the events.

<u>May 12, 2023</u>

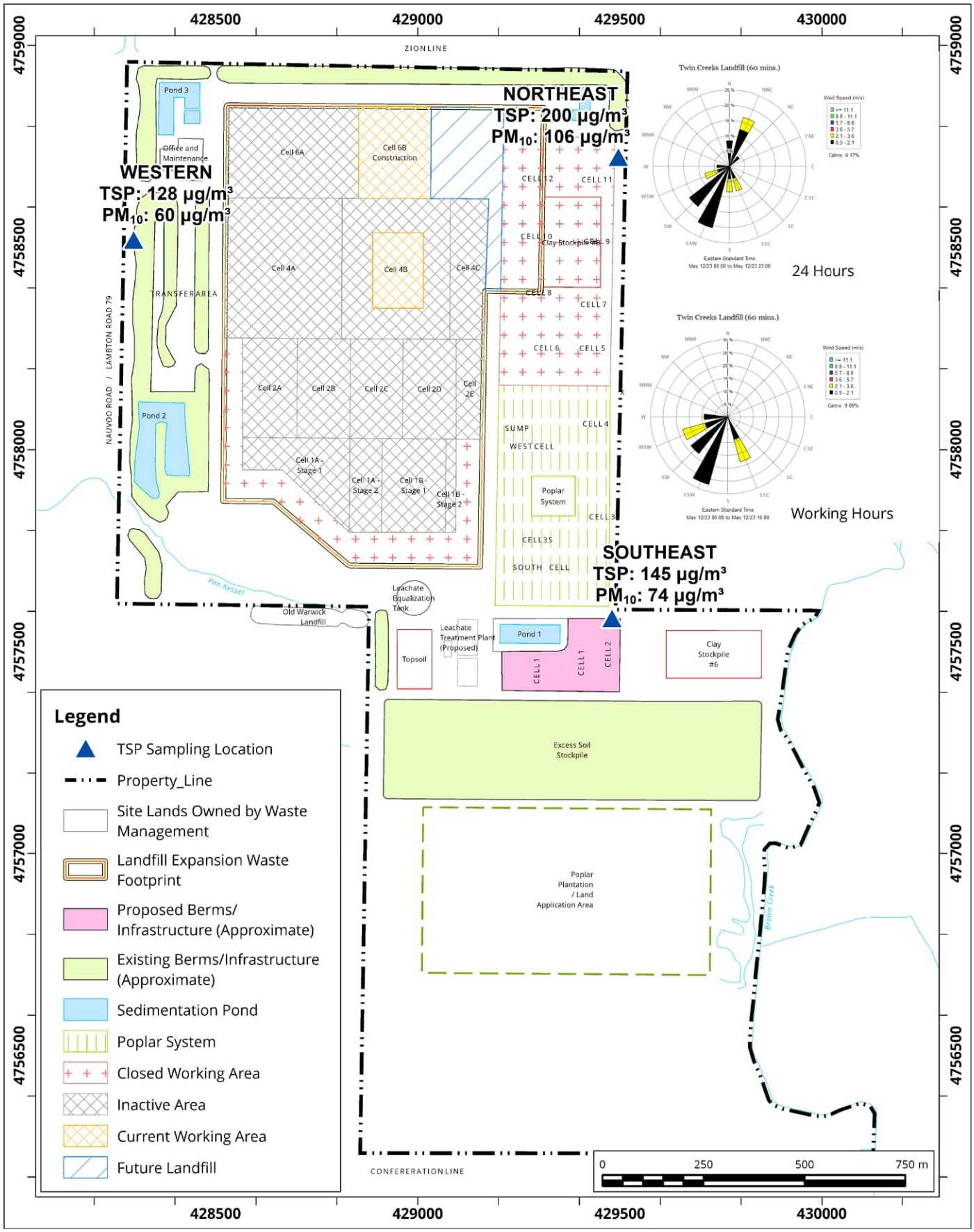
On Friday May 12, 2023, there were three (3) exceedances of the TSP 24-hour AAQC and three (3) exceedances of the PM_{10} 24-hour AAQC, which occurred at the Northeast, Southeast and Western onsite TSP and PM_{10} samplers. Attached is Figure 1, which presents windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the May 12 sampling date.

1. The measured TSP concentration at the Northeast sampler was 200 ug/m^3, the Southeast sampler was 145 ug/m^3 and the Western sampler was 128 ug/m^3. The measured PM_{10} concentration at the Northeast sampler was 106 ug/m^3, the Southeast sampler was 74 ug/m^3 and the Western sampler was 60 ug/m^3. During the 24-hour period, the wind was predominantly from the SSE to WSW, and N to NNE; wind speeds ranged from 2 to 10 km/h and wind gusts reached a maximum of 18 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the SSW to W and SSE. During this timeframe, the Northeast samplers were dominantly downwind of the haul routes from where clay material was excavated from Cell 6B and hauled to Cell 4B for daily cover. During this time, the Northeast sampler was also in immediate vicinity of the drainage layer gravel stockpiling activities related to the Cell 6B construction.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
5. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the SSW to W and SSE during the operating hours of the site, which placed the Northeast sampler location downwind of the hauling activities associated with the Cell 6B construction and downwind to the landfill operations. The western and southeast samplers were upwind of both the hauling activities associated with the Cell 6B construction and landfill operations which indicates that the concentration at these samplers are more influenced by the background air quality than onsite air quality.

Therefore, the TSP and PM_{10} exceedances, with concentrations of 200 ug/m^3 and 145 ug/m^3, measured on-site at the Northeast sampler dominantly originated from Cell 6B construction activities, with contributions from off-site activities/sources as measured at the crosswind and upwind samplers (Southeast sampler at 61 ug/m^3 and Western sampler at 49 ug/m^3, for TSP respectively and Southeast sampler at 24 ug/m^3 and Western sampler at 25 ug/m^3, for PM_{10} respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: May 12, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1
Approx. Scale:	1:13,000
Date Revised:	Jul 7, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) July 7, 2023	Date Exceedednce Determined June 26, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

9488-AMPH4Y	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	December 19, 2020 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	12/05/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 December 19, 2020)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast, Southeast, and West Samplers	12/05/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (Northeast Sampler)	N/A	Hi-Vol	200	24	120	Visability	AAQC	166.7%
2	PM10 (Northeast Sampler)	N/A	Hi-Vol	106	24	50	Health	AAQC	212.0%
3	TSP (Southeast Sampler)	N/A	Hi-Vol	145	24	120	Visability	AAQC	120.8%
4	PM10 (Southeast Sampler)	N/A	Hi-Vol	74	24	50	Health	AAQC	148.0%
5	TSP (West Sampler)	N/A	Hi-Vol	128	24	120	Visability	AAQC	106.7%
6	PM10 (West Sampler)	N/A	Hi-Vol	60	24	50	Health	AAQC	120.0%
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX I3

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

On June 23, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the May 18, 2023 sampling event. On June 26, 2023, the results were entered and assessed, and it was found that there was one (1) measured TSP concentration in excess of the 24-hour AAQC and one (1) measured PM_{10} concentration in excess of the 24-hour AAQC on the May 18, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference. Below is a summary of the events.

<u>May 18, 2023</u>

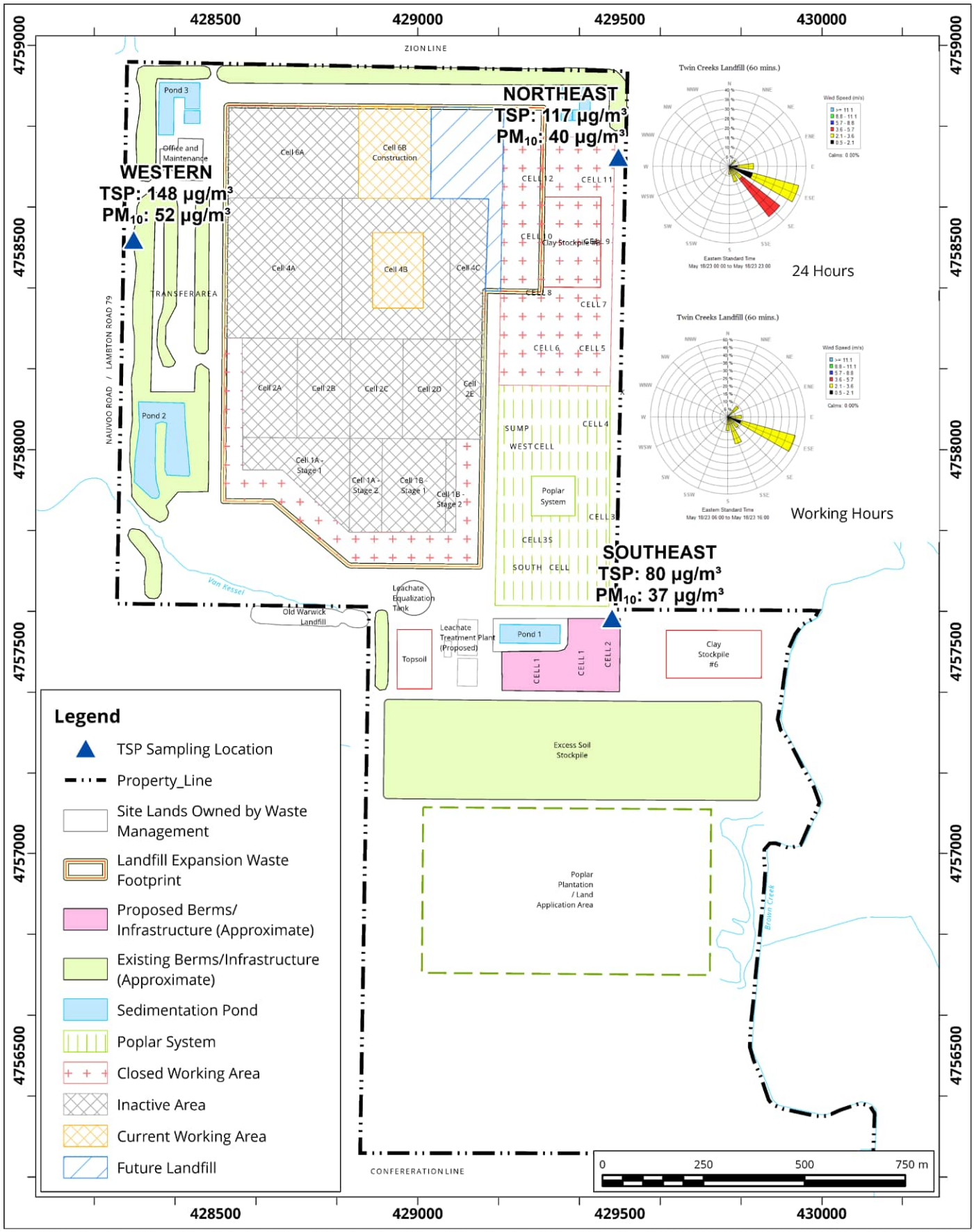
On Thursday May 18, 2023, there was one (1) exceedances of the TSP 24-hour AAQC and one (1) exceedance of the PM_{10} 24-hour AAQC, which occurred at the West onsite TSP and PM_{10} samplers. Attached is Figure 1, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the May 18 sampling date.

1. The measured TSP concentration at the West sampler was 148 ug/m^3, the Northeast sampler was 117 ug/m^3 and the Southeast sampler was 80 ug/m^3. The measured PM_{10} concentration at the West sampler was 52 ug/m^3, the Northeast sampler was 40 ug/m^3 and the Southeast sampler was 37 ug/m^3. During the 24-hour period, the wind was predominantly from the E to SE; wind speeds ranged from 3 to 19 km/h and wind gusts reached a maximum of 27 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the ESE and SSE. During this timeframe, the Western samplers were dominantly downwind of topsoil being placed on the side slopes of Cell 4A.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
5. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the ESE and SSE during the operating hours of the site, which placed the Western sampler location dominantly downwind of the topsoil being placed on the side slopes of Cell 4A.

Therefore, the TSP and PM_{10} exceedances, with concentrations of 148 ug/m^3 and 52 ug/m^3, measured on-site at the Western sampler dominantly originated from construction activities, with contributions from off-site activities/sources as measured at the crosswind and upwind samplers (Northeast sampler at 117 ug/m^3 and Southeast sampler at 80 ug/m^3, for TSP respectively and Northeast sampler at 40 ug/m^3 and Southeast sampler at 37 ug/m^3, for PM_{10} respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: May 18, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1
Approx. Scale:	1:13,000
Date Revised:	Jul 7, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

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1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) July 7, 2023	Date Exceedednce Determined June 26, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

9488-AMPH4Y	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	December 19, 2020 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	18/05/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 December 19, 2020)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
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3									
4									
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Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
West Sampler	18/05/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (West Sampler)	N/A	Hi-Vol	148	24	120	Visability	AAQC	123.4%
2	PM10 (West Sampler)	N/A	Hi-Vol	52	24	50	Health	AAQC	104.7%
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**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX I4

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

On June 23, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the May 24, 2023 sampling event. On June 26, 2023, the results were entered and assessed, and it was found that there was two (2) measured TSP concentration in excess of the 24-hour AAQC and two (2) measured PM_{10} concentration in excess of the 24-hour AAQC on the May 24, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference. Below is a summary of the events.

<u>May 24, 2023</u>

On Wednesday May 24, 2023, there was two (2) exceedances of the TSP 24-hour AAQC and two (2) exceedances of the PM_{10} 24-hour AAQC, which occurred at the Northeast and Southeast onsite TSP and PM_{10} samplers. Attached is Figure 1, which presents windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

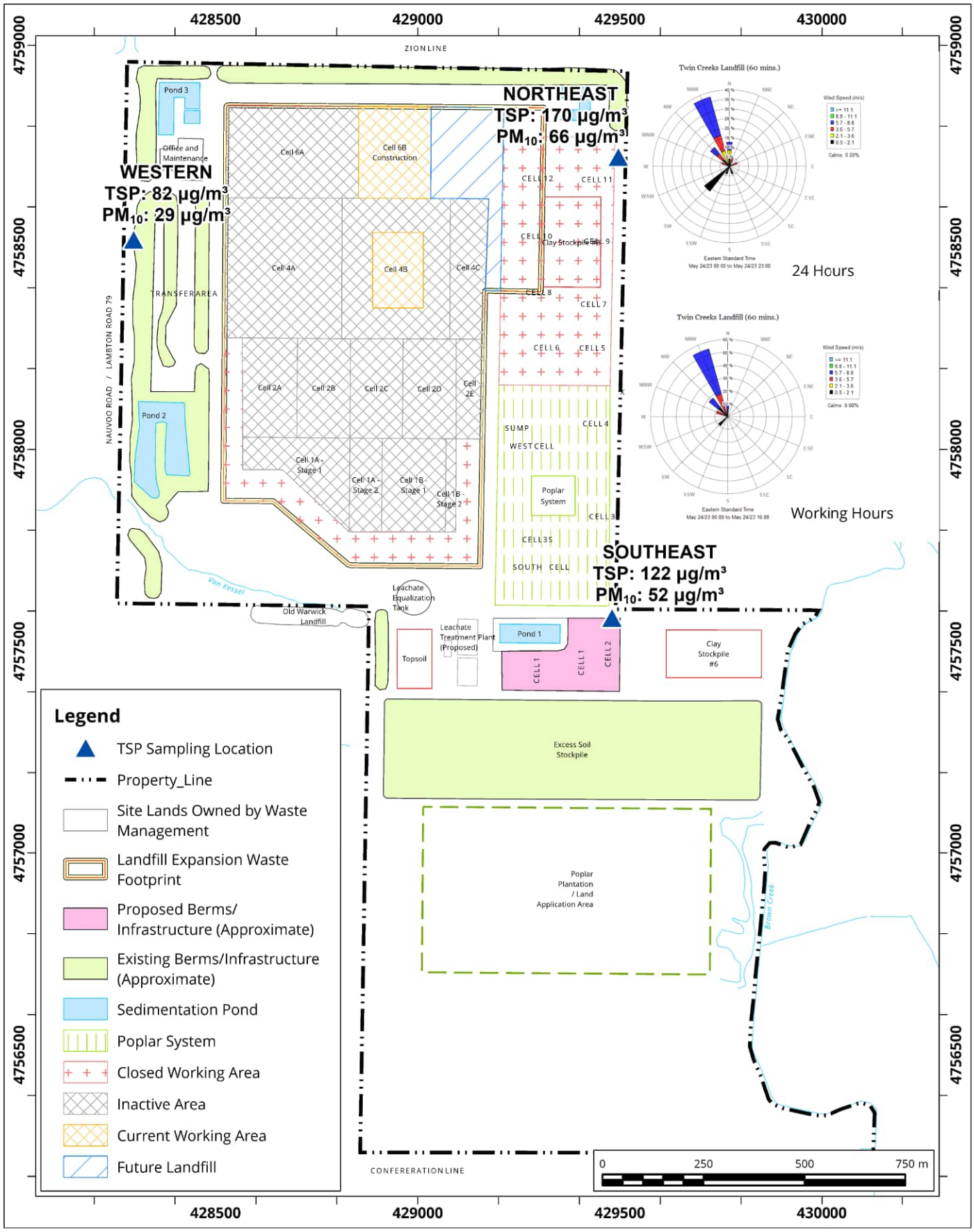
The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the May 24 sampling date.

1. The measured TSP concentration at the Northeast sampler was 170 ug/m^3 and the Southeast sampler was 122 ug/m^3. The measured PM_{10} concentration at the Northeast sampler was 66 ug/m^3 and the Southeast sampler was 52 ug/m^3. During the 24-hour period, the wind was predominantly from the NW to N, and SW; wind speeds ranged from 2 to 25 km/h and wind gusts reached a maximum of 42 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the NW to NNW. During this timeframe, the Southeast sampler was dominantly downwind of the haul routes from where clay material was excavated from Cell 6B and hauled to Cell 4B for daily cover.
3. Clay liner soil from stockpile 8 was being hauled to Cell 6B for liner construction. During this time, the Northeast sampler was immediate vicinity of the drainage layer gravel stockpiling activities related to the Cell 6B construction.
4. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
5. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
6. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the NW to NNW during the operating hours of the site, which placed the Southeast sampler location dominantly downwind of the hauling activities associated with the Cell 6B construction activities and downwind to the landfill operations. The northeast and western samplers were crosswind of both the hauling activities associated with the Cell 6B construction and landfill operations

and downwind of potential offsite contributions which indicates that the concentration at these samplers is more influenced by the background air quality rather than onsite air quality.

Therefore, the TSP and PM_{10} exceedances, with concentrations of 170 ug/m^3 and 66 ug/m^3, measured on-site at the Northeast sampler and 122 ug/m^3 and 52 ug/m^3, measured on-site at the Southeast sampler dominantly originated from hauling activities associated with the Cell 6B construction activities, and from off-site activities/sources as measured at the crosswind sampler (Western sampler at 82 ug/m^3, for TSP and 29 ug/m^3, for PM_{10}).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: May 24, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1
Approx. Scale:	1:13,000
Date Revised:	Jul 7, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) July 7, 2023	Date Exceedednce Determined June 26, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	24/05/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
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Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast and Southeast Samplers	24/05/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (Northeast Sampler)	N/A	Hi-Vol	170	24	120	Visability	AAQC	141.6%
2	PM10 (Northeast Sampler)	N/A	Hi-Vol	66	24	50	Health	AAQC	132.0%
3	TSP (Southeast Sampler)	N/A	Hi-Vol	122	24	120	Visability	AAQC	101.7%
4	PM10 (Southeast Sampler)	N/A	Hi-Vol	52	24	50	Health	AAQC	104.0%
5									
6									
7									
8									
9									
10									
11									
12									
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20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX I5

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information regarding air quality monitoring exceedances during the month of June and early July. Associated laboratory results were received within the last 14 days and below you will find a summary for each event in chronological order.

On July 10, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the June 2, 2023 sampling event. On July 11, 2023, the results were entered and assessed, and it was found that there were two (2) measured TSP concentrations in excess of the 24-hour AAQC and two (2) measured PM_{10} concentration in excess of the 24-hour AAQC on the June 2, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference.

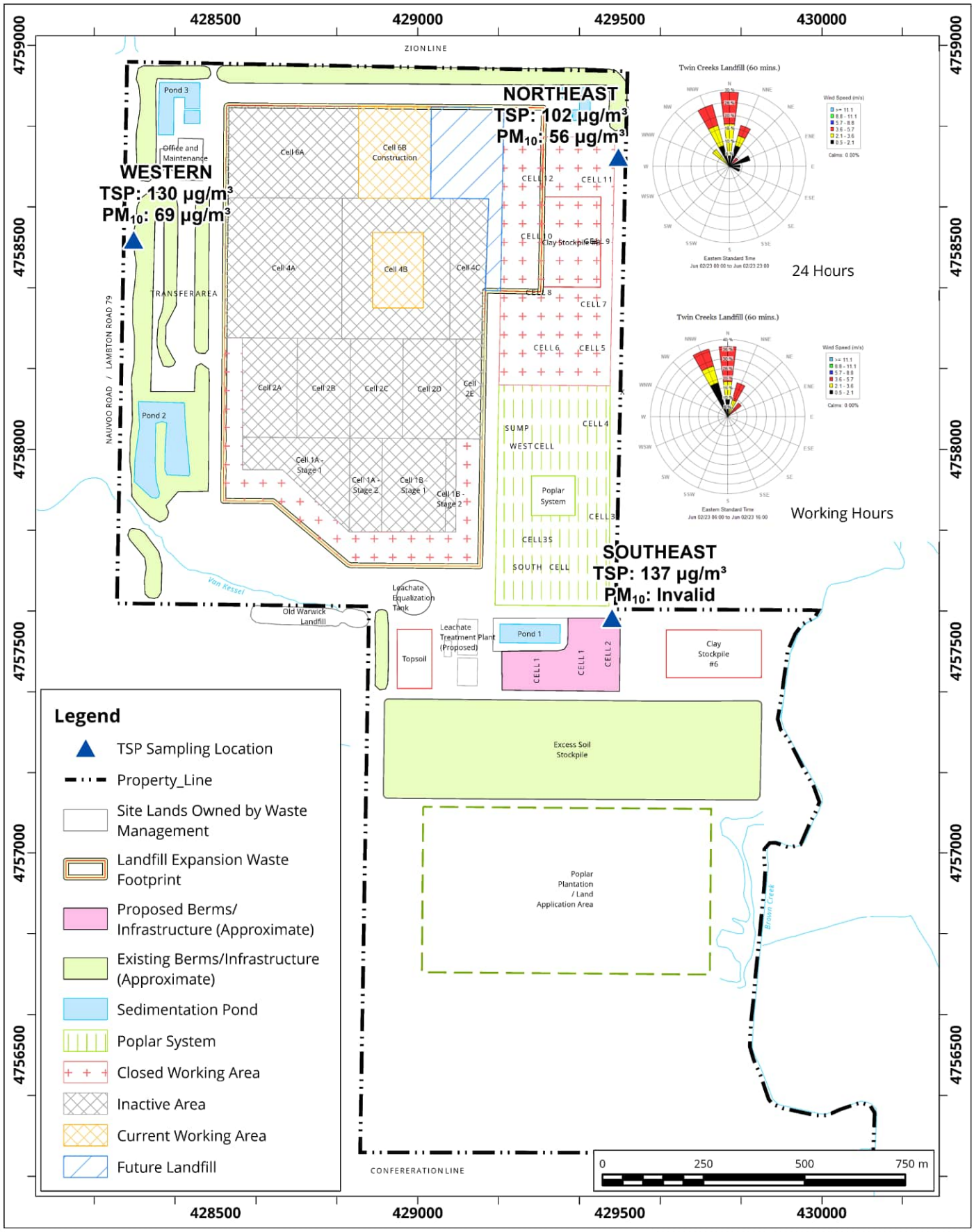
On Friday June 2, 2023, there were two (2) exceedances of the TSP 24-hour AAQC and two (2) exceedance of the PM_{10} 24-hour AAQC. The two (2) exceedances of the TSP 24-hour AAQC occurred at the West and Southeast onsite TSP samplers. The two (2) exceedances of the PM_{10} 24-hour AAQC occurred at the West and Northeast onsite PM_{10} samplers. Attached is Figure 1, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the June 2 sampling date.

1. The measured TSP concentration at the West sampler was 130 ug/m^3, the Northeast sampler was 102 ug/m^3 , and the Southeast sampler was 137 ug/m^3. The measured PM_{10} concentration at the West sampler was 69 ug/m^3 and the Northeast sampler was 56 ug/m^3. The PM_{10} sample at the Southeast sampler was Invalid. During the 24-hour period, the wind was predominantly from the NW to NE; wind speeds ranged from 3 to 20 km/h and wind gusts reached a maximum of 33 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the NNW and NE. During this timeframe, the Western samplers were crosswind, the Southeast sampler was downwind, and the Northeast sampler was upwind of the Cell 6B excavation, Cell 6B clay liner construction, and the hauling of clay material for daily cover to Cell 4B.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
5. The site was operating normally for landfilling activities.
6. On the date of June 2, 2023, there were severe wildfires in Canada which significantly impacted the Southern Ontario region's air quality with smoke. Exceptionally high levels of particulate matter were observed in the air across the region. It is likely that this high background level of particulate matter affected all of the samples on this date.

In summary, the wind conditions were dominantly from the NNW and NE during the operating hours of the site, which placed the Western sampler locations crosswind, the Southeast sampler location downwind, and the Northeast sampler location upwind, of Cell 6B excavation, Cell 6B clay liner construction, and the hauling of clay material for daily cover to Cell 4B. Therefore, the TSP exceedance with a concentration of 137 ug/m^3 measured

on-site at the Southeast sampler, dominantly originated from construction activities, with contributions from off-site activities/sources as measured at the crosswind and upwind samplers. (Western sampler at 130 ug/m^3 and Northeast sampler at 102 ug/m^3, for TSP, respectively, and Northeast sampler at 56 ug/m^3 for PM_{10}). The TSP and PM_{10} exceedances with concentrations of 130 ug/m^3 and 69 ug/m^3 measured on-site at the Western samplers, and the PM_{10} exceedance with a concentration of 56 ug/m^3 measured on-site at the Northeast sampler, originated from off-site activities/sources as measured at the crosswind and upwind samplers.



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 2, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1
Approx. Scale:	1:13,000
Date Revised:	Jul 7, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) July 21, 2023	Date Exceedednce Determined July 11, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	02/06/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast, Southeast and West Samplers	02/06/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (West Sampler)	N/A	Hi-Vol	130	24	120	Visability	AAQC	108%
2	PM10 (West Sampler)	N/A	Hi-Vol	69	24	50	Health	AAQC	138%
3	TSP (Southeast Sampler)	N/A	Hi-Vol	137	24	120	Visability	AAQC	114%
4	PM10 (Northeast Sampler)	N/A	Hi-Vol	56	24	50	Health	AAQC	112%
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX I6

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

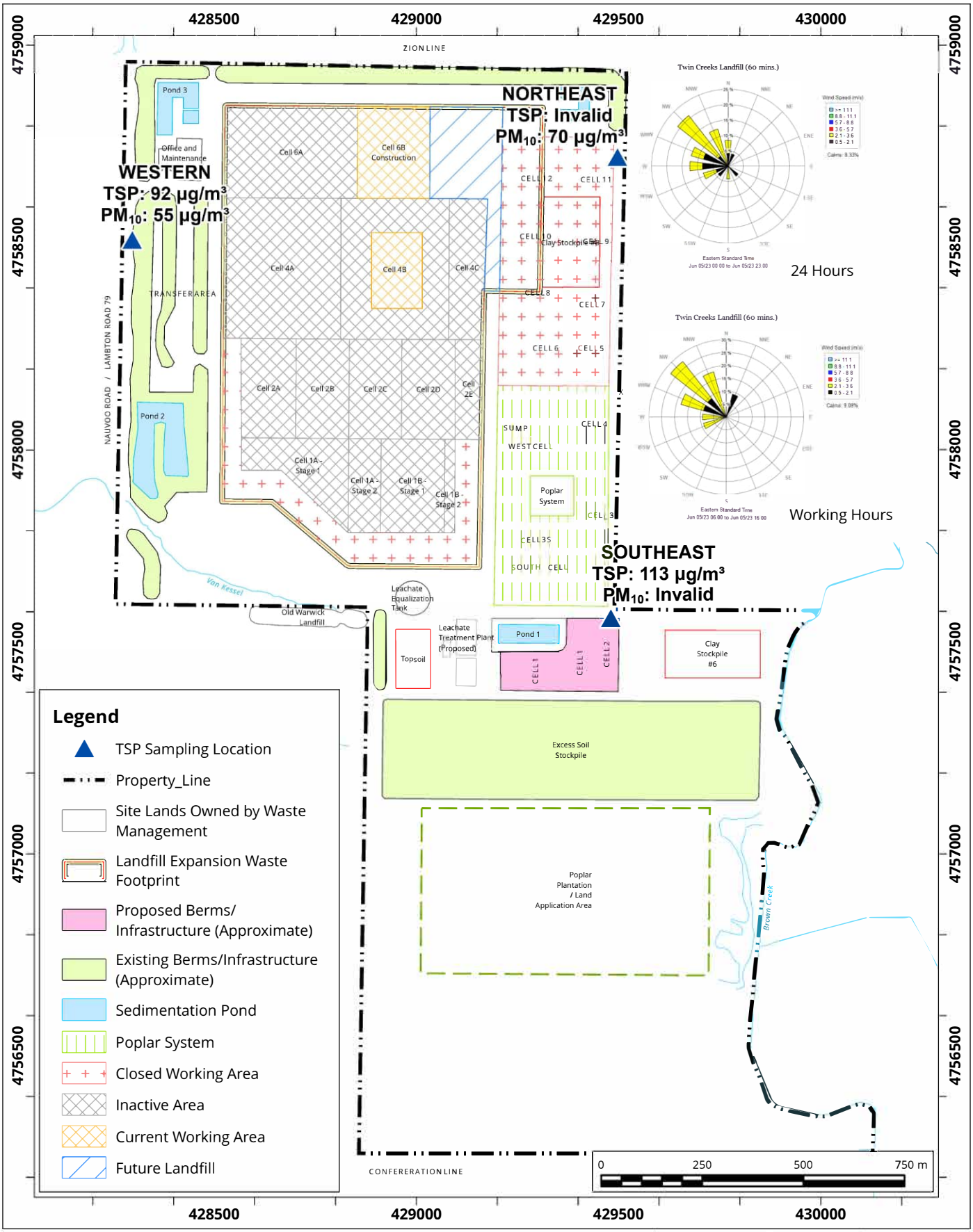
On July 17, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the June 5, 2023 sampling event. On July 18, 2023, the results were entered and assessed, and it was found that there were two (2) measured PM_{10} concentrations in excess of the 24-hour AAQC on the June 5, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference.

On Monday June 5, 2023, there were two (2) exceedances of the PM_{10} 24-hour AAQC, which occurred at the Northeast and West onsite PM_{10} samplers. Attached is Figure 2, which presents the windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 2 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the June 5 sampling date.

1. The measured TSP concentration at the Northeast sampler was invalid, the West sampler was 92 ug/m^3 and the Southeast sampler was 113 ug/m^3. The measured PM_{10} concentration at the Northeast sampler was 70 ug/m^3, the West sampler was 55 ug/m^3 and the Southeast sampler was invalid. During the 24-hour period, the wind was predominantly from the WSW to N; wind speeds ranged from 1 to 12 km/h and wind gusts reached a maximum of 21 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the WSW to NNW and NNE. During this timeframe, the Northeast and West samplers were crosswind and upwind of Cell 6B excavation, Cell 6B clay liner construction, and the hauling of clay material for daily cover to Cell 4B. It is likely that the exceedances originated from off-site activities/sources and background concentrations.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
5. The site was operating normally for landfilling activities.
6. On the date of June 5, 2023, there were severe wildfires in Canada which significantly impacted the Southern Ontario region's air quality with smoke. Exceptionally high levels of particulate matter were observed in the air across the region. It is likely that this high background level of particulate matter affected all of the samples on this date.

In summary, the wind conditions were dominantly from the WSW to NNW and NNE during the operating hours of the site, which placed the Western sampler location upwind and the Northeast sampler crosswind of the Cell 6B excavation, Cell 6B clay liner construction, and the hauling of clay material for daily cover to Cell 4B. Therefore, the PM_{10} exceedances, with concentrations of 70 ug/m^3 and 55 ug/m^3, measured on-site at the Northeast and Western samplers dominantly originated from off-site activities/sources and background concentrations as measured at the crosswind and upwind samplers (West sampler at 92 ug/m^3 and Southeast sampler at 113 ug/m^3, for TSP respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 5, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1		
Approx. Scale:	1:13,000		
Date Revised:	Jul 20, 2023		

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

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1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed)	Date Exceedednce Determined
July 21, 2023	July 18, 2023
District Office: Sarnia District Office	Fax Number: (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification	Business Name
Angela McLachlan	Waste Management of Canada Corporation

North American Industry Classification System (NAICS) Code	Business Activity Description (*a description of the business endeavour, this may include products sold, services provided, equipment used, etc.*)
562210	Waste Disposal Site

Site Name	MOE District Office
Twin Creeks Environmental Centre	Sarnia District Office

Address Information:

Site Address - Street information (*address that has civic numbering and street information includes street number, name, type and direction*)	Unit Identifier (*i.e. suite or apartment number*)
5768 Nauvoo Road	

Survey Address (*used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory*)

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information (*includes any additional information to clarify applicants' physical location*)

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No — If No, please provide the following:

Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply)*:

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	05/06/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur *(select all that apply)*:

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
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22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast and West Sampler	05/06/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	PM10 (Northeast Sampler)	N/A	Hi-Vol	70	24	50	Health	AAQC	140%
2	PM10 (West Sampler)	N/A	Hi-Vol	55	24	50	Health	AAQC	110%
3									
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21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX I7

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information regarding air quality monitoring exceedances during the month of June and early July. Associated laboratory results were received within the last 14 days and below you will find a summary for each event in chronological order.

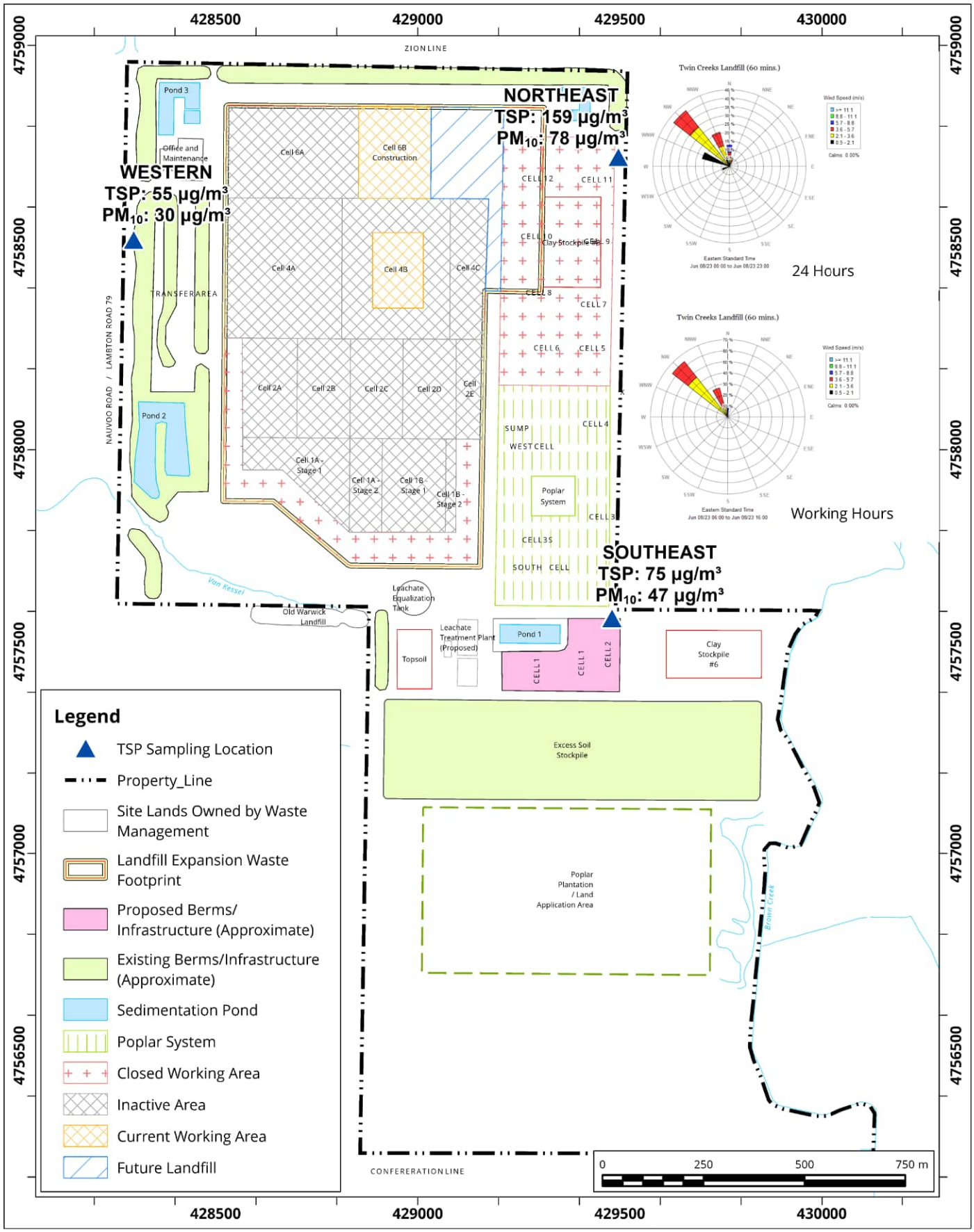
On July 10, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the June 8, 2023 sampling event. On July 12, 2023, the results were entered and assessed, and it was found that there was one (1) measured TSP concentration in excess of the 24-hour AAQC and one (1) measured PM_{10} concentration in excess of the 24-hour AAQC on the June 8, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference.

On Thursday June 8, 2023, there was one (1) exceedances of the TSP 24-hour AAQC and one (1) exceedance of the PM_{10} 24-hour AAQC, which occurred at the Northeast onsite TSP and PM_{10} samplers. Attached is Figure 3, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 3 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the June 8 sampling date.

1. The measured TSP concentration at the Northeast sampler was 159 ug/m^3, the West sampler was 55 ug/m^3 and the Southeast sampler was 75 ug/m^3. The measured PM_{10} concentration at the Northeast sampler was 78 ug/m^3, the West sampler was 30 ug/m^3 and the Southeast sampler was 47 ug/m^3. During the 24-hour period, the wind was predominantly from the WNW to N; wind speeds ranged from 4 to 21 km/h and wind gusts reached a maximum of 35 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the NW to NNW. During this timeframe, the Northeast samplers were downwind of the construction haul route transporting gravel material, from a gravel stockpile just east of Pond 4, to Cell 6B.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
5. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the NW to NNW during the operating hours of the site, which placed the Northeast sampler location downwind of the construction activities onsite. Therefore, the TSP and PM_{10} exceedances, with concentrations of 159 ug/m^3 and 78 ug/m^3, measured on-site at the Northeast sampler partially originated from construction activities, with contributions from off-site activities/sources as measured at the downwind and upwind samplers (West sampler at 55 ug/m^3 and Southeast sampler at 75 ug/m^3, for TSP respectively and West sampler at 30 ug/m^3 and Southeast sampler at 47 ug/m^3, for PM_{10} respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 8, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 3
Approx. Scale:	1:13,000
Date Revised:	Jul 20, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) July 21, 2023	Date Exceedednce Determined July 12, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	08/06/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur *(select all that apply)*:

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
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22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast Sampler	08/06/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (Northeast Sampler)	N/A	Hi-Vol	159	24	120	Visability	AAQC	133%
2	PM10 (Northeast Sampler)	N/A	Hi-Vol	78	24	50	Health	AAQC	156%
3									
4									
5									
6									
7									
8									
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10									
11									
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21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX I8

Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information regarding air quality monitoring exceedances during the month of June and early July. Associated laboratory results were received within the last 14 days and below you will find a summary for each event in chronological order.

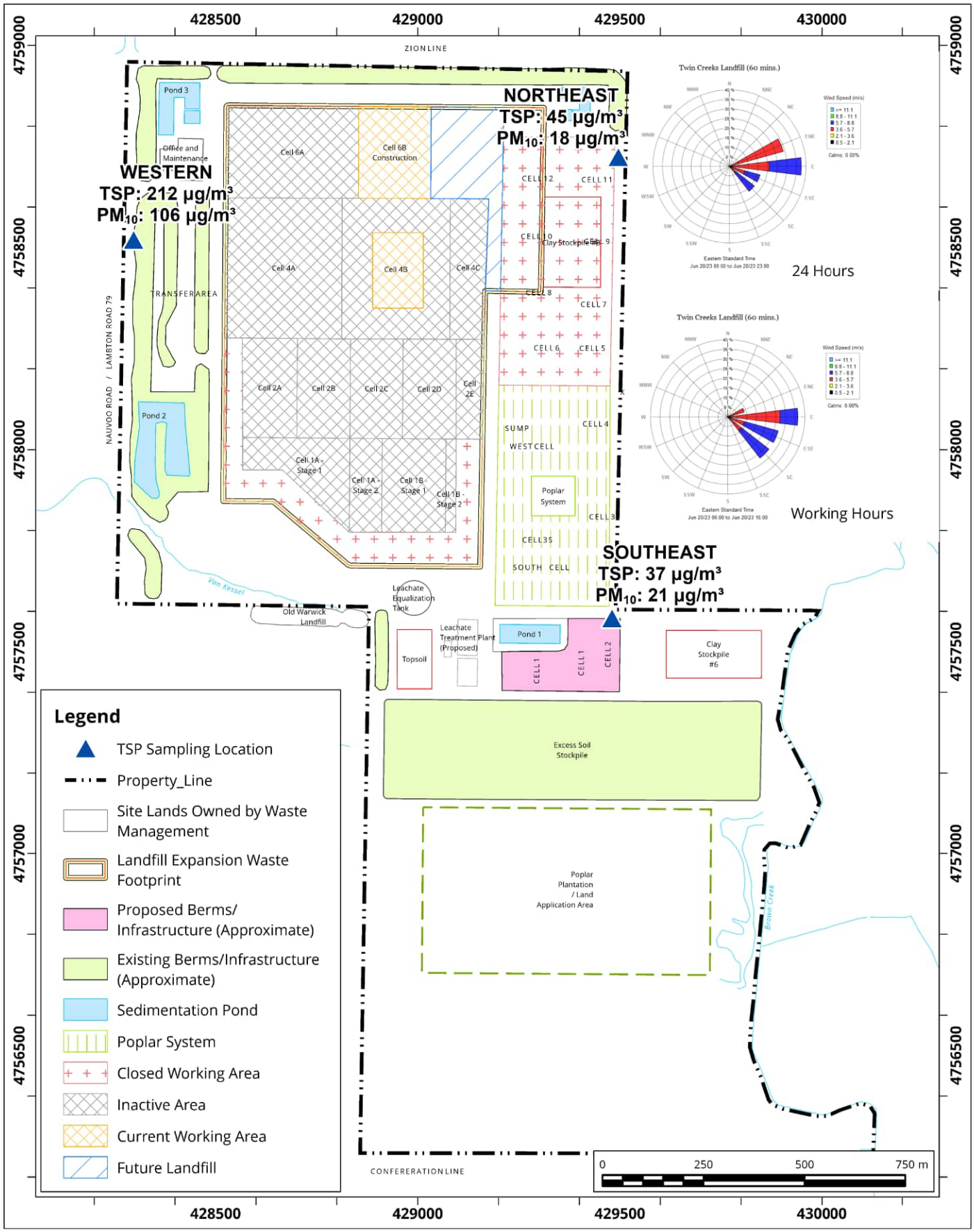
On July 10, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the June 20, 2023 sampling event. On July 12, 2023, the results were entered and assessed, and it was found that there was one (1) measured TSP concentration in excess of the 24-hour AAQC and one (1) measured PM_{10} concentration in excess of the 24-hour AAQC on the June 20, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference.

On Tuesday June 20, 2023, there was one (1) exceedances of the TSP 24-hour AAQC and one (1) exceedance of the PM_{10} 24-hour AAQC, which occurred at the West onsite TSP and PM_{10} samplers. Attached is Figure 4, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 4 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the June 20 sampling date.

1. The measured TSP concentration at the West sampler was 212 ug/m^3, the Northeast sampler was 45 ug/m^3 and the Southeast sampler was 37 ug/m^3. The measured PM_{10} concentration at the West sampler was 106 ug/m^3, the Northeast sampler was 18 ug/m^3 and the Southeast sampler was 21 ug/m^3. During the 24-hour period, the wind was predominantly from the ENE to SE; wind speeds ranged from 14 to 25 km/h and wind gusts reached a maximum of 34 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the ENE to SE. During this timeframe, the Western samplers were downwind of gravel operations from the gravel stockpile with the haul routes for liner stone being placed on Cell 6B upwind of the sampler.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. Watering for dust control purposes for the hauling activities associated with the Cell 6B construction occurred on this date.
5. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the ENE to SE during the operating hours of the site, which placed the Western sampler location downwind of the gravel being placed on Cell 6B. Therefore, the TSP and PM_{10} exceedances, with concentrations of 212 ug/m^3 and 106 ug/m^3, measured on-site at the Western sampler originated from construction activities, with contributions from off-site activities/sources as measured at the crosswind and upwind samplers (Northeast sampler at 45 ug/m^3 and Southeast sampler at 37 ug/m^3, for TSP respectively and Northeast sampler at 18 ug/m^3 and Southeast sampler at 21 ug/m^3, for PM_{10} respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 20, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 4
Approx. Scale:	1:13,000
Date Revised:	Jul 20, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed) July 21, 2023	Date Exceedednce Determined July 12, 2023
District Office Sarnia District Office	Fax Number (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification Angela McLachlan	Business Name Waste Management of Canada Corporation
North American Industry Classification System (NAICS) Code 562210	Business Activity Description *(a description of the business endeavour, this may include products sold, services provided, equipment used, etc.)* Waste Disposal Site
Site Name Twin Creeks Environmental Centre	MOE District Office Sarnia District Office

Address Information:

Site Address - Street information *(address that has civic numbering and street information includes street number, name, type and direction)* 5768 Nauvoo Road	Unit Identifier *(i.e. suite or apartment number)*

Survey Address *(used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory)*

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information *(includes any additional information to clarify applicants' physical location)*

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No

If No, please provide the following:	Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
	Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	20/06/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
West Sampler	20/06/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (West Sampler)	N/A	Hi-Vol	212	24	120	Visability	AAQC	177%
2	PM10 (West Sampler)	N/A	Hi-Vol	106	24	50	Health	AAQC	212%
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX I9

June 29, 2023

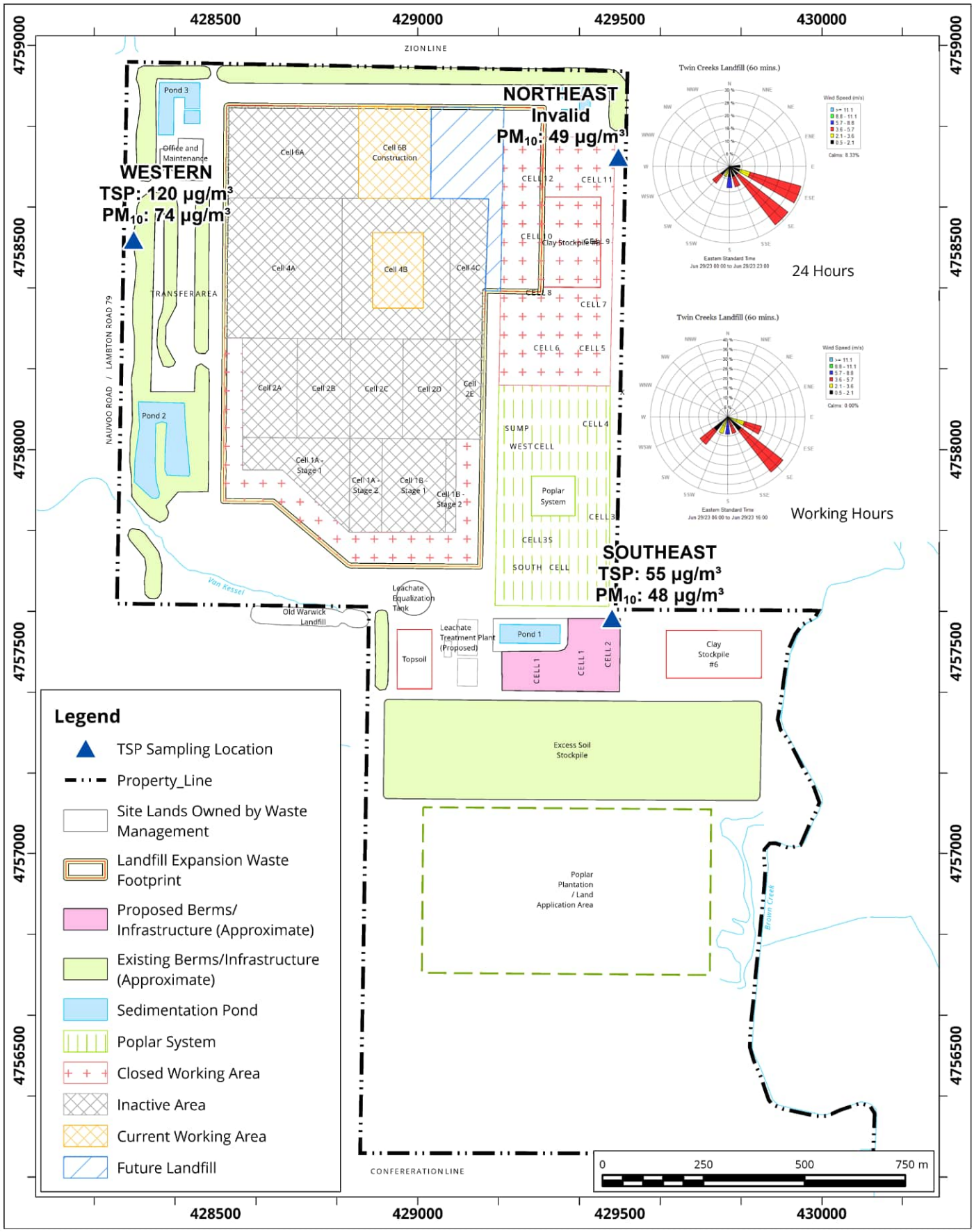
On July 20, 2023, we received TSP results from Bureau Veritas regarding the particulate weights from the June 29, 2023 sampling event. On July 20, 2023, the results were entered and assessed, and it was found that there was one (1) measured PM_{10} concentration in excess of the 24-hour AAQC on the June 29, 2023 sampling date. Monitoring for PM10 has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference.

On Thursday June 29, 2023, there was one (1) exceedance of the PM_{10} 24-hour AAQC, which occurred at the West onsite PM_{10} samplers. Attached is Figure 7, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 7 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the June 29 sampling date.

1. The measured TSP concentration at the West sampler was 120 ug/m^3, the Northeast sampler was invalid and the Southeast sampler was 55 ug/m^3. The measured PM_{10} concentration at the West sampler was 74 ug/m^3, the Northeast sampler was 49 ug/m^3 and the Southeast sampler was 48 ug/m^3. During the 24-hour period, the wind was predominantly from the ESE to S and the SW; wind speeds ranged from 1 to 21 km/h and wind gusts reached a maximum of 32 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the ESE to SW. During this timeframe, the West samplers were partially downwind of Cell 6B clay seal construction.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. Watering for dust control purposes associated with the Cell 6B construction was deemed to not be necessary due to the minimal hauling activities occurring in Cell 6B on this date.
5. The site was operating normally for landfilling activities.
6. On the date of June 29, 2023, there were severe wildfires in Canada which significantly impacted the Southern Ontario region's air quality with smoke. Exceptionally high levels of particulate matter were observed in the air across the region. It is likely that this high background level of particulate matter affected all of the samples on this date.

In summary, the wind conditions were dominantly from the ESE to SW during the operating hours of the site, which placed the Western sampler location partially downwind of Cell 6B clay seal construction. However, there were significant impacts from wildfire smoke and offsite sources. Therefore, the PM_{10} exceedance, with concentrations of 74 ug/m^3, measured on-site at the Western sampler dominantly originated from off-site activities/sources as measured at the crosswind and upwind samplers (Northeast sampler at 49 ug/m^3 and Southeast sampler at 48 ug/m^3, for PM_{10} respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: June 29, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 7
Approx. Scale:	1:13,000
Date Revised:	Jul 20, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

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3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

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Regulatory Authority

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(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

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30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed)	Date Exceedednce Determined
July 21, 2023	July 20, 2023
District Office: Sarnia District Office	Fax Number: (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification	Business Name
Angela McLachlan	Waste Management of Canada Corporation

North American Industry Classification System (NAICS) Code	Business Activity Description (*a description of the business endeavour, this may include products sold, services provided, equipment used, etc.*)
562210	Waste Disposal Site

Site Name	MOE District Office
Twin Creeks Environmental Centre	Sarnia District Office

Address Information:

Site Address - Street information (*address that has civic numbering and street information includes street number, name, type and direction*)	Unit Identifier (*i.e. suite or apartment number*)
5768 Nauvoo Road	

Survey Address (*used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory*)

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information (*includes any additional information to clarify applicants' physical location*)

Municipality/Unorganized Township	County/District	Postal Code
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Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No — If No, please provide the following:

Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply)*:

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	29/06/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
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16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
West Sampler	29/06/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	PM10 (West Sampler)	N/A	Hi-Vol	74	24	50	Health	AAQC	148.0%
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX I10

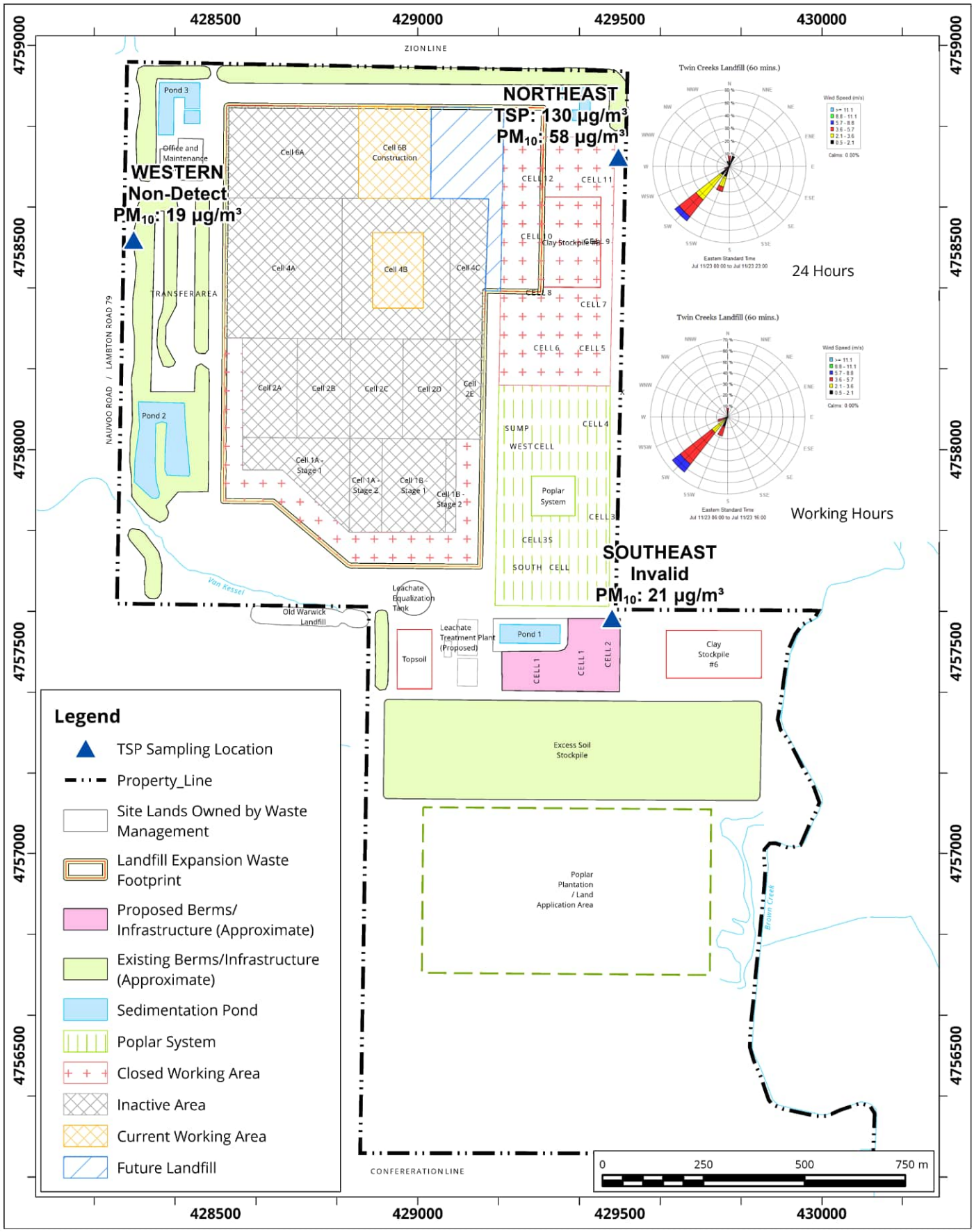
Mike and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

On July 31, 2023, we received the PM10 and TSP results from Bureau Veritas regarding the particulate weights from the July 11, 2023 sampling event. On August 1, 2023, the results were entered and assessed, and it was found that there was one (1) measured TSP concentration in excess of the 24-hour AAQC and one (1) measured PM10 concentration in excess of the 24-hour AAQC on the July 11, 2023 sampling date. Monitoring for PM10 has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached is the Exceedance Form (PIBS 5354e) for your reference. Below is a summary of the events.

<u>July 11, 2023</u>
On Tuesday July 11, 2023, there was one (1) exceedance of the TSP 24-hour AAQC and one (1) exceedance of the PM10 24-hour AAQC, which occurred at the Northeast onsite TSP and PM10 samplers. Attached is Figure 1, which presents windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM10 concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.
The following section summarizes the TSP and PM10 concentrations as well as the onsite conditions during the July 11 sampling date.

1. The measured TSP concentration at the Northeast sampler was 130 ug/m3, the West sampler was below the detection limit and the Southeast sampler was invalid. The measured PM10 concentration at the Northeast sampler was 58 ug/m3, the West sampler was 19 ug/m3 and the Southeast sampler was 21 ug/m3. During the 24-hour period, the wind was predominantly from the SSW to SW; wind speeds ranged from 4 to 22 km/h and wind gusts reached a maximum of 38 km/h.
2. During the operational hours of the facility (7 am to 5 pm EDT), the wind was predominantly coming from the SSW to SW. During this timeframe, the Northeast samplers were downwind and in close proximity to gravel stockpile deliveries.
3. Watering and sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. The site was operating normally for landfilling activities.

In summary, the wind conditions were dominantly from the SSW to SW during the operating hours of the site, which placed the Northeast sampler location downwind of the gravel stockpiling activities associated with future construction work. Therefore, the TSP and PM10 exceedances, with concentrations of 130 ug/m3 and 58 ug/m3, measured on-site at the Northeast sampler originated from construction activities, with contributions from off-site activities/sources as measured at the crosswind and upwind samplers (West sampler at 19 ug/m3 and Southeast sampler at 21 ug/m3, for PM10 respectively).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: July 11, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by: DAJH	Figure: 1
Approx. Scale:	1:13,000
Date Revised:	Aug 9, 2023

Map Document: C:\Users\DAJH\OneDrive - RWDI\Desktop\TWIN GIS\TC exceedance figure.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed)	Date Exceedednce Determined
August 11, 2023	August 1, 2023
District Office: Sarnia District Office	Fax Number: (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification	Business Name
Angela McLachlan	Waste Management of Canada Corporation

North American Industry Classification System (NAICS) Code	Business Activity Description (*a description of the business endeavour, this may include products sold, services provided, equipment used, etc.*)
562210	Waste Disposal Site

Site Name	MOE District Office
Twin Creeks Environmental Centre	Sarnia District Office

Address Information:

Site Address - Street information (*address that has civic numbering and street information includes street number, name, type and direction*)	Unit Identifier (*i.e. suite or apartment number*)
5768 Nauvoo Road	

Survey Address (*used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory*)

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information (*includes any additional information to clarify applicants' physical location*)

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

4155-BMCLZ8	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No — If No, please provide the following:

Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
Dust Management Plan (BMPP)	February 4, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply)*:

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	11/07/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 February 4, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur (*select all that apply*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act*.
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
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18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast Sampler	11/07/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (Northeast Sampler)	N/A	Hi-Vol	130	24	120	Visibility	AAQC	108%
2	PM10 (Northeast Sampler)	N/A	Hi-Vol	58	24	50	Health	AAQC	116%
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX I11

Amanda and Sean, on behalf of Waste Management of Canada Corporation, RWDI AIR Inc. submits the following information.

On January 10, 2024, we received the PM_{10} and TSP results from Bureau Veritas regarding the particulate weights from the October 3, 2023 sampling event. On January 10, 2024, the results were entered and assessed, and it was found that there was one (1) measured TSP concentration in excess of the 24-hour AAQC and two (2) measured PM_{10} concentrations in excess of the 24-hour AAQC on the October 3, 2023 sampling date. Monitoring for PM_{10} has been conducted voluntarily in support of the Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment. Attached are the Exceedance Forms (PIBS 5354e) for your reference. Below is a summary of the events.

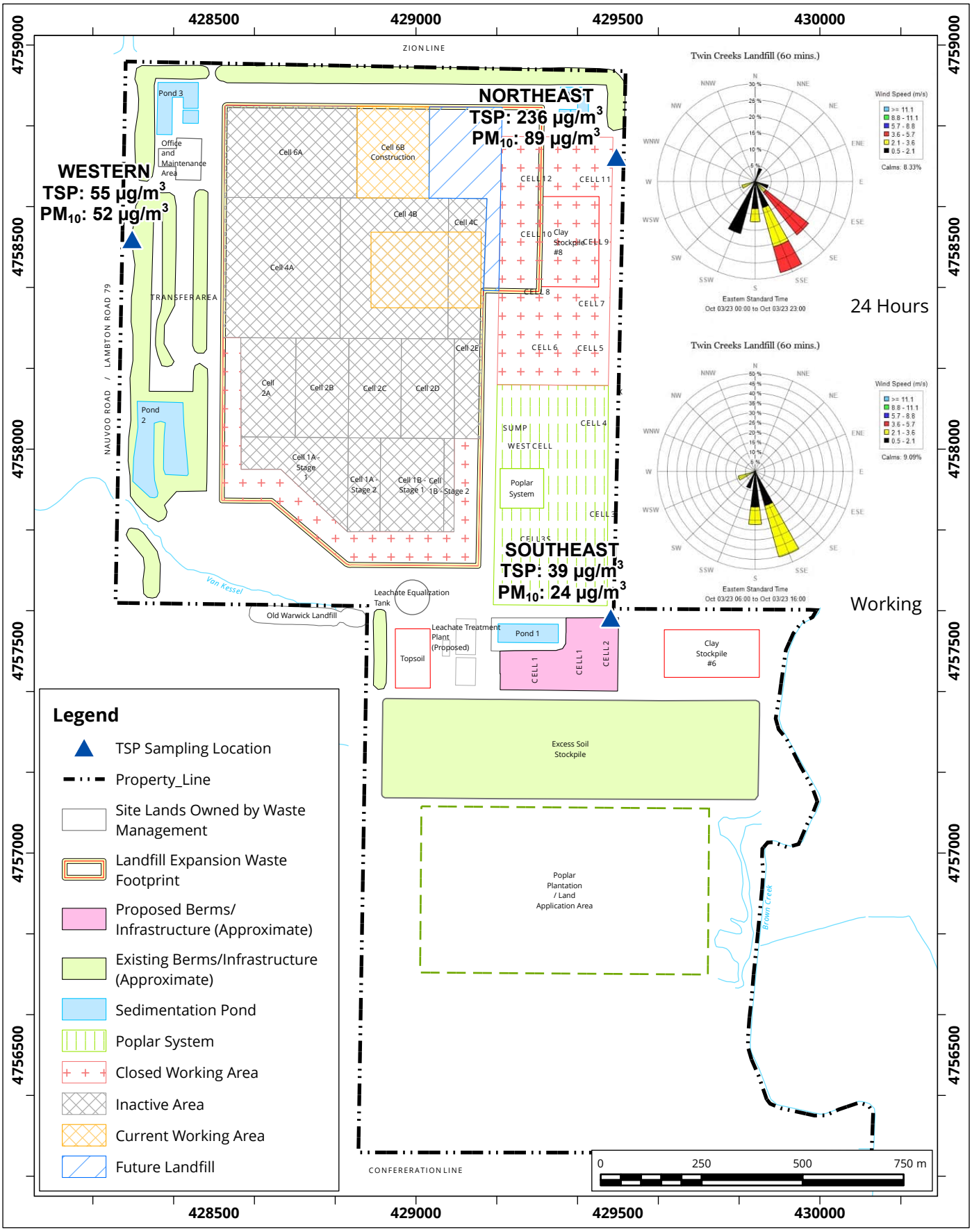
<u>October 3, 2023</u>

On Tuesday October 3, 2023, there was an exceedance of the TSP 24-hour AAQC at the Northeast sampler and an exceedance of the PM_{10} 24-hour AAQC and the Northeast and Western samplers. Attached is Figure 1, which present windroses for the wind conditions during each: 1) the 24-hour sampling date; and 2) the operating time for the site. Figure 1 also displays the measured TSP and PM_{10} concentrations of all samplers during the 24-hour sampling event respectively, and the site plan with a legend depicting active and closed working areas of the landfill.

The following section summarizes the TSP and PM_{10} concentrations as well as the onsite conditions during the October 3 sampling date.

1. The measured TSP concentration at the Northeast sampler was 236 ug/m^3, the West sampler was 55 ug/m^3 and Southeast sampler (site background) was 39 ug/m^3. The measured PM_{10} concentration at the Northeast sampler was 89 ug/m^3, the West sampler was 52 ug/m^3 and the Southeast sampler (site background) was 24 ug/m^3. During the 24-hour period, the wind was predominantly from the SSE, SE and SSW; wind speeds ranged from 1 to 16 km/h and wind gusts reached a maximum of 22 km/h.
2. During the operational hours of the facility (7am to 5pm EDT) the wind was predominantly coming from the SSE to S. During this timeframe, the Northeast sampler location was in close proximity to the (site construction activities) operations related to the drainage layer stone stockpile. During this timeframe, the Western sampler location was crosswind from the haul route and clay capping placement on Cell 4A.
3. Sweeping activities for dust control purposes for the landfilling operations occurred on this date.
4. The site was operating normally for landfilling activities.

In summary, the aforementioned TSP and PM_{10} exceedances, measured on-site at the Northeast TSP, PM_{10} and Western PM_{10} sampler locations originated from site construction activities, with contributions from off-site activities/sources as measured at the site background location (Southeast samplers at 39 ug/m^3 for TSP and 24 ug/m^3 for PM_{10}).



Site Plan Showing Sampling Locations and Wind Rose Sampling Period: October 03, 2023

Map Projection: NAD 1983 UTM Zone 17N

Twin Creeks Environmental Centre - Watford, Ontario

True North

Project #: 2303459

Drawn by:	PIP	Figure:	1
Approx. Scale:	1:13,000		
Date Revised:	Jan 15, 2024		

Map Document: C:\WorkingFolder\Jobs_Guelph_1\P2303459\P2001313_TwinCreeks.aprx

Ontario
Ministry of the Environment

Notification of Exceedence – Regulation 419/05

General Information and Instructions

General Information

Information requested in this notification form is collected under the authority of the *Environmental Protection Act,* R.S.O. 1990 (EPA) and O. Reg. 419/05 and will be used to collect information relating to a measured or modelled air related exceedence as required by s.25(9), s.28(1) and s.30(3) of O. Reg. 419/05. The Ministry of the Environment (MOE) may also request additional information.

1. Questions regarding completion and submission of this notification form should be directed to your local MOE District Office. A list of these District Offices (including fax numbers) is available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/org/op.htm#Reg/Dist. A copy of this form may be acquired through the MOE public web site (www.ene.gov.on.ca) or by contacting any MOE office.

2. For notification under s.25(9) or 28(1), the completed notification form should be faxed, as soon as practicable, to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area in which the facility is located.

3. For notification under s. 30, the completed notification form should be immediately faxed to the local Ministry of Environment (MOE) District Office which has jurisdiction over the area which the facility is located. If the exceedance is determined outside of the business hours of the District Office then the completed notification form should be faxed to the Spills Action Center (1-800-268-6061).

4. Information contained in this notification form may not be considered confidential and may be made available to the public upon request. Information may be claimed as confidential but will be subject to the *Freedom of Information and Protection of Privacy Act* (FOIPPA) and the *EBR*. If you do not claim confidentiality at the time of submitting the information, the Ministry of the Environment may make the information available to the public without further notice to you.

Instructions

This form should be used to notify the MOE of a measured or modeled air related exceedence as required under O. Reg. 419/05. Failure to notify the MOE as required by regulation constitutes an offence under the O. Reg. 419/05 and the EPA.

The generic term "limits" in the context of this form means any numerical Point of Impingement Concentration limit set by the MOE including standards in O. Reg. 419/05 and guidelines provided by the MOE (Ministry POI Limits). For a comprehensive list of MOE POI Limits please refer to the publication titled "Summary of O. Reg. 419/05 Standards, Point of Impingement Guidelines, and Ambient Air Quality Criteria (AAQC's)" available on the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/2424e01.htm. Note that contaminants that have guidelines limits or recommended levels for chemicals with no standard or guideline may be considered "contaminants not listed in any of Schedules 1, 2 and 3 and discharges of the contaminant may cause an adverse effect" as this language appears in O. Reg. 419/05.

This form may be used for notification of exceedences of more than one contaminant; Table 1 (or equvalent) should be completed for each contaminant. If this notification is made pursuant to s. 30 in combination with ss. 25(9) or 28(1) then this form must be submitted immediately in accordance with s.30.

Regulatory Authority

28. (1) A person who discharges or causes or permits the discharge of a contaminant shall, as soon as practicable, notify a provincial officer in writing if,

(a) the person uses an approved dispersion model to predict concentrations of the contaminant that result from the discharges and,
(i) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20, or
(ii) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect;

(b) measurements of air samples indicate that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(c) the contaminant is not listed in any of Schedules 1, 2 and 3 and measurements of air samples indicate that discharges of the contaminant may cause an adverse effect.

25. (9) A person who is required under subsection (8) to complete the update of a report not later than March 31 in a year shall, as soon as practicable after that date, notify a provincial officer in writing if the person has started to use an approved dispersion model with respect to a contaminant for the purpose of completing the update but has not yet complied with section 12, and,

(a) the use of the model indicates that discharges of the contaminant may result in a contravention of section 18, 19 or 20; or

(b) the contaminant is not listed in any of Schedules 1, 2 and 3 and the use of the model indicates that discharges of the contaminant may cause an adverse effect.

30. (1) A person who discharges or causes or permits the discharge of a contaminant listed in Schedule 6 into the air shall comply with subsections (3) and (4) if there is reason to believe, based on any relevant information, that discharges of the contaminant may result in the concentration of the contaminant exceeding the half hour upper risk threshold or other time period upper risk threshold set out for that contaminant in Schedule 6 at a point of impingement.

(2) Without limiting the generality of subsection (1), the reference in that subsection to relevant information includes relevant information from predictions of a dispersion model, including,

(a) an approved dispersion model or other dispersion model; or

(b) a dispersion model that is not used in accordance with this Regulation.

(3) If subsection (1) applies to a discharge, the person who discharged or caused or permitted the discharge of the contaminant shall immediately notify the Director in writing.

Ontario

Ministry of the Environment

Notification of Exceedence – Regulation 419/05

1. Ministry of the Environment District Office Information

Date Form Submitted (Faxed)	Date Exceedednce Determined
January 22, 2024	January 10, 2024
District Office: Sarnia District Office	Fax Number: (519) 336-4280

Supporting information attached? [X] Yes [ ] No

If yes, number of pages: 1

2. Site Information

Name of Person Making the Notification	Business Name
Angela McLachlan	Waste Management of Canada Corporation

North American Industry Classification System (NAICS) Code	Business Activity Description (*a description of the business endeavour, this may include products sold, services provided, equipment used, etc.*)
562210	Waste Disposal Site

Site Name	MOE District Office
Twin Creeks Environmental Centre	Sarnia District Office

Address Information:

Site Address - Street information (*address that has civic numbering and street information includes street number, name, type and direction*)	Unit Identifier (*i.e. suite or apartment number*)
5768 Nauvoo Road	

Survey Address (*used for a rural location specified for a subdivided township, an unsubdivided township or unsurveyed territory*)

Lot and Conc.: used to indicate location within a subdivided township and consists of a lot number and a concession number		Part and Reference: used to indicate location within an unsubdivided township or unsurveyed territory, and consists of a part and a reference plan number indicating the location within that plan. Attach copy of the plan	
Lot	Conc.	Part	Reference Plan

Non Address Information (*includes any additional information to clarify applicants' physical location*)

Municipality/Unorganized Township	County/District	Postal Code
Watford	County of Lambton	N0M 2S0

Geo Reference

Map Datum	Zone	Accuracy Estimate	Geo Referencing Method	UTM Easting	UTM Northing

Certificate of Approval Number (s) – *attach a separate list if more space is required*

6138-CX4NFX	A032203	2403-BE6LZ4

3. Type of Notification: Limit Exceedence – *Table 1 or Table 2 should be completed and submitted with this notification of exceedence.*

[X] This is a notification under Section 28(1) – Notice to Provincial Officer as a result of modelling or measurements relating to an exceedence of: (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [X] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

[ ] This is a notification under Section 25 (9) – Notice to Provincial Officer as a result an update of an Emission Summary and Dispersion Modelling Report (select all that apply)

[ ] Schedule 1 [ ] Schedule 2 [ ] Schedule 3 [ ] POI Guideline [ ] Ambient Air Quality Criteria

[ ] Other Limit (explain): _____

Date that Refinement is anticipated to be complete (dd/mm/yyyy): _____

[ ] This is a notification under Section 30 (3) – Notice to the Director as a result of an exceedence of Upper Risk Thresholds (Schedule 6)

[ ] Yes [ ] No

4. Follow-Up Action

Section 28 Notifications

Will an Abatement Plan be submitted to the Ministry within 30 days of this notice as per s.29?

[ ] Yes

[X] No — If No, please provide the following:

Type of Previously Approved Abatement Plan	Date Approved under s.29 of O. Reg. 419/05 (dd/mm/yyyy)
Dust Management Plan (BMPP)	December 16, 2023 (ECA)

Section 30 (3) Notifications for URT exceedence

Has an Emission Summary and Dispersion Modelling (ESDM) Report been prepared in accordance with s.30(4) and submitted to the Ministry?

[ ] Yes

[ ] No If No, what is the anticipated submission date for the ESDM* (dd/mm/yyyy)? _____

** Note: The ESDM must be submitted within three months of the discharge*

5. Model Based Assessment – *please complete this section if notifying of a modelled exceedence (complete Table 1)*

Was an ESDM Report prepared in accordance with s.26 O. Reg. 419/05?

☐ Yes ☐ No

If yes, was the ESDM Report prepared to fulfill *(select all that apply):*

- ☐ s.22 of O. Reg. 419/05 - Application for Certificate of Approval under section 9 of the *Environmental Protection Act*
- ☐ s.23 of O. Reg. 419/05 - Requirement for Schedule 4 or 5 sector facilities
- ☐ s.24 of O. Reg. 419/05 - Notice issued by Director
- ☐ s.25 of O. Reg. 419/05 - Requirement for updating ESDM Report
- ☐ s.30(4) of O. Reg 419/05 – Required as result of URT exceedence
- ☐ s.32(13) of O. Reg. 419/05 – Required as part of a Request for Alternative Standard
- ☐ Other (please specify): _____

Was the approved dispersion model refined as required by s.12 O. Reg. 419/05 (i.e. operating conditions, emission rates)?

☐ Yes ☐ No

Have you modelled for additional receptor locations other than the maximum POI? *(please include figure showing maximum POI location)*

☐ Yes ☐ No

If Yes, specify additional locations (i.e., land use) at which the exceedence may occur (*select all that apply – please include figure showing additional modelled locations*):

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☐ Other Location (explain): _____

6. Measurement Based Assessment – *please complete this section if notifying of a measured exceedence (Complete Table 2 or equivalent)*

Type of Monitor / Measurement Type	Date of Exceedence (dd/mm/yyyy)	Duration of Exceedence
Hi-Vol Monitor	03/10/2023	24-Hour

Is the monitoring approved by the Ministry of the Environment?

☒ Yes If yes, please describe the approval: Air Quality Monitoring (approved ECA #A032203 December 16, 2023)

☐ No

Monitoring Reference Number: (if available)

Specify the location (i.e., land use) at which the exceedence did occur *(select all that apply)*:

☐ Health Care ☐ Seniors Residence / Long Term Care Facility ☐ Child Care Facility ☐ Educational Facility ☐ Dwelling ☐ Unknown

☐ Location Specified by The Director (explain): _____ ☒ Other Location (explain): Property Line of Facility

7. Statement of Company Official

I, the undersigned hereby declare that, to the best of my knowledge:

- The information contained herein and the information submitted is complete and accurate in every way and I am aware of the penalties against providing false information as per s.184(2) of the *Environmental Protection Act.*
- I have been authorized to act on behalf of the company identified in this form for the purpose of providing this notification of exceedence under O.Reg 419/05 to the Ministry of the Environment
- I have used the most recent notification form (as obtained from the Ministry of the Environment Internet site at http://www.ene.gov.on.ca/envision/gp/index.htm#PartAir or from my local Ministry District Office and I have included all necessary information required by O. Reg. 419/05 and identified on this form.

Name of Signing Authority *(please print)*	Title
Angela McLachlan	Environmental Compliance Manager

Civic Address *(address that has civic numbering and street information includes street number, name, type and direction)*	Unit Identifier *(i.e. suite or apartment number)*
5768 Nauvoo Road	

Delivery Designator:
If signing authority mailing address is a Rural Route, Suburban Service, Mobile Route or General Delivery *(i.e., RR#3)* _____

Municipality	Postal Station	Province/State	Country	Postal Code
Watford		ON	Canada	N0M 2S0

Telephone Number *(including area code & extension)*	Fax Number *(including area code)*	E-mail Address
519-849-5810	519-849-6816	amclachl@wm.com

Signature	Date *(dd/mm/yyyy)*
Am	22/01/2024

Table 1 - Information About Modelled Air Limit Exceedence – Contaminant Information

Location of Maximum POI Concentration (e.g. UTM, street address, etc.)	Land Use at Maximum Point of Impingement (if known)

	Contaminant [a]	CAS [b] Number	Type of Assessment (Air Dispersion Model Used)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC or POI Limit (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC or POI Limit
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

Notes:

(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

Table 2 - Information About Measured Air Limit Exceedence – Contaminant Information

Location of Monitor (Describe)	Date (dd/mm/yyyy)	Time	Sampling Period	Land Use at Monitor
Northeast and Western Samplers	03/10/2023	N/A	24-Hours	Site Property Line

	Contaminant [a]	CAS [b] Number	Type of Assessment (Measurement Method)	Maximum POI [c] Concentration (µg/m³)	Averaging Period (hours)	Current MOE AAQC POI Limi (µg/m³)	Limiting Effect	Schedule (1, 2 or 3)	Percentage of MOE AAQC POI Limit
1	TSP (Northeast Sampler)	N/A	Hi-Vol	236	24	120	Visibility	AAQC	197%
2	PM10 (Northeast Sampler)	N/A	Hi-Vol	89	24	50	Health	AAQC	178%
3	PM10 (Western Sampler)	N/A	Hi-Vol	52	24	50	Health	AAQC	104%
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

**** For additional measurement locations / sampling times, please included additional tables***
***** If you are reporting more than one exceedence, include the time of the exceedence in the contaminant column***

Notes:
(a) Proper Chemical Name should be given (Abbreviations, acronyms, numeric codes, trade names and mixtures NOT ACCEPTABLE).

(b) CAS Number : Chemical Abstracts Services Number (UNIQUE Identifier for a chemical)

(c) POI Concentration : Point of Impingement Concentration

APPENDIX J

Meteorological Station Calibration Data Sheet

Client: WM **Date:** 9-Nov-23
Station ID: Twin Creeks Met **Time:** ~11:30 - 13:20

Installed Equipment

Parameter	Model
Data Logger	CR300
Modem	Bullet LTE
Wind Velocity & Direction	RM Young 05103 S/N 79637
T/RH (as found)	Vaisala HMP155 S/N illegible
T/RH (as left)	Vaisala HMP155 S/N V2950179
Precipitation	Rimco RIM8020 S/N 104130

Windhead Check

Calibrator: RM Young Model 18802 - S/N 4864

Wind Direction (deg from)		Wind Speed (m/s)	
Direction Setpoint	DAS Reading	Speed Setpoint	DAS Reading
0	0.16	0.98m/s(200rpm)	0.98
45	44.8	2.45m/s(500rpm)	2.45
90	89.4	3.92m/s(800rpm)	3.92
135	133.2	5.39m/s(1100rpm)	5.39
180	176.3	6.86m/s(1400rpm)	6.86
225	221.2	9.31m/s(1900rpm)	9.31
270	266.1		
315	313.5		

Criteria Met: Yes

Comments: Meets criteria, recommend potentiometer replacement
Replaced nose cone bearings

Temperature Check

Standard Thermometer: TE-ProCal S/N 0006

As Found
Reference Temperature: 9.0°C DAS Temperature: 8.9°C
As Left
Reference Temperature: 10.5°C DAS Temperature: 10.0°C

Criteria Met: Yes

Comments: Installed new HMP155 T/RH Sensor S/N V2950179

Relative Humidity Check

Standard Humidity Instrument: TE-ProCal S/N 0006

As Found

Reference Humidity:	75.0	DAS Humidity:	74.2

As Left

Reference Humidity:	61.9	DAS Humidity:	63.2

Criteria Met: Yes

Comments: Installed new HMP155 T/RH Sensor S/N V2950179

Precipitation Check

Graduated Cylinder Volume: 250 mL

Instrument Level: Yes

Debris in inlet basin: No

Volume of water poured	325 mL	
Number of tips	49	50 tips expected
Multiplier from Program	0.2	

Criteria Met: Yes

Comments: Replaced heating bulbs

APPENDIX K

WM Twin Creeks Environmental Centre - Summary of Complaints - 2023-ECA A032203

Log	Name	Date	Time	Relationship	Type	Where	Wind Direction	Corrective Action	Response
1	Jackie Rombouts	1/2/2023	2:06 p.m.	Resident	Litter	On Site	N/A	Litter collection focuses on off site litter, then ditches and waterways, then on-site • We had 2 pickers out each day on Dec 28th, 29th and 30th following the snow melt. • This litter was from the litter event on Dec 29th	Complainant followed up 25 hours later, and was concerned that action had not been completed
2a	Judy Duncan	1/22/2023	3:52 p.m.	Resident	Odour	Residence	NNW	WM is currently working on a continuation of a project to seal off penetration points in the Landfill to improve gas capture. The next step is installing gas collection headers to all casings in Cell 4. This project will take some time to complete Connection of gas wells is a scheduled activity based on fill volumes and cell construction. The project is currently on schedule; however, this is a large task, that will take several more weeks to complete	No Response at this time
2b	Theresa Kersey	January 23, 2023 (for 1/22/23)	8:26 a.m.	Resident	Odour (Transient)	Driving by	N	WM is currently working on a continuation of a project to seal off penetration points in the Landfill to improve gas capture. The next step is installing gas collection headers to all casings in Cell 4. This project will take some time to complete Connection of gas wells is a scheduled activity based on fill volumes and cell construction. The project is currently on schedule; however, this is a large task, that will take several more weeks to complete	Thank you for your quick response
3	Megan Cattryesse	3/9/2023	8:04 a.m.	Resident	Odour	Residence	NNE	Potentially the special waste hole, odour dissipated by 8:24 a.m., covered that day	No Response at this time
4	Megan Cattryesse	3/31/2023	5:18 p.m.	Resident	Odour (Transient)	Driving by	SSW	Odour not verified, drive bys can be difficult to substantiate, As info: cover ops were being conducted at the time of the complaint. Gas well project is in final stages- wells currently being balanced.	No Response at this time
5a	Megan Cattryesse	5/10/2023	8:46 p.m.	Resident	Odour	At a Friends Residence	NE	Wind direction verified, at time of complaint wind was shifting from NE to NNE to WNW, verified that cover was adequate as per ECA, Gas system was operational	Thanks for your response.
5b	Jeff Sitlington	5/10/2023	8:57 p.m.	Resident	Odour	Residence	NE	Wind direction verified, at time of complaint wind was shifting from NE to NNE to WNW, verified that cover was adequate as per ECA, Gas system was operational	Thank you for your reply.
6	Jeff Sitlington	5/12/2023	11:18 p.m.	Resident	Odour (Transient)	Town	NE	Wind direction verified, verified that cover was adequate as per ECA, Gas system was operational, Notes: WM employee was on 402 approx. 7ish-detected agricultural activities and odour in area	Thanks for your response.
7	Linda Nugent	5/15/2023	7:35 a.m.	Resident	Odour	Residence	N	Investigation with Operations and Gas - nothing abnormal, landfill was operational at the time, weather conditions reviewed, Notes: WM employee detected mild garbage odour east of Nauvoo along Erie and St. Clair St.	Concerned about increase in odours if the Landfill gets bigger
8	Martina Jackson	5/29/2023	9:38 p.m.	Resident	Odour	Residence	ENE	Investigation with Operations and Gas - nothing abnormal, weather conditions reviewed, completed and filed relevant complaint log	No Response at this time
9	Jackie Rombouts	6/2/2023	8:34 a.m.	Resident	Odour	Bank of Montreal	NNW	Investigation with Operations and Gas - nothing abnormal, Landfill was operational at the time, weather conditions reviewed, completed and filed relevant complaint log, Investigator Notes: WM employee went to investigate-multi odours at that time i.e. exhaust, hot air, did not detect Landfill specifically.	No Response at this time
10	Klaas de Jong	6/24/2023	9:48 a.m.	Resident	Odour	Residence	NW	Investigation, Landfill was operational, Weather conditions reviewed, Flare running at full capacity other than five wells offline to be repaired	No Response at this time
11	Mac Parker	7/10/2023	7:03 p.m.	Resident	Odour (Transient) and ASR	Egremont Rd.	WSW	Investigation, Landfill was operational, Weather conditions reviewed, Sweeper was running at time of complaint	No Response at this time
12	Marliss Koolen	7/18/2023	7:30 a.m.	Resident	Odour	Residence	WSW	Investigation, Landfill was operational, Agricultural odours detected, weather conditions reviewed	No Response at this time
13	Marliss Koolen	8/9/2023	8:44 a.m.	Resident	Odour	Residence	WSW	Investigation, Landfill was operational, weather conditions reviewed.	No Response at this time
14	Megan Cattryesse	8/15/2023	4:10 p.m.	Resident	Odour (Transient)	Driving by/Residence	NNE	Investigation, Flares Running, Landfill operational at time of drive by, heavy rains created a potential for increased odours	No Response at this time
15	Jackie Rombouts	8/22/2023	8:54 p.m.	Resident	Odour	Ballpark	N	Filed, reviewed weather conditions, reminder of proper reporting procedure	Thanked for procedure.
16	Martina Jackson	9/8/2023	12:00 p.m.	Resident	Odour	School/Residence	SSW	Investigation, confirmed during morning perimeter inspection moderate odour at dog park at 8:50 am, other resident did not detect odours at school drop off.	No Response at this time
17	Marilyn Stephens	10/4/2023	11:26 a.m.	Resident	Odour (Transient)	Biking	SE	Investigation Notes: bulk of Watford smelt of agricultural odours at that time, wind direction inconsistent with complaint.	No Response at this time
18	Linda Nugent	11/4/2023	10:42 a.m.	Resident	Odour (Transient)	Driving	SSE	One flare was done, part required, repair completed on Monday	Appreciated response
19	Martina Jackson	11/4/2023	10:30 p.m.	Resident	Odour (Transient)	Driving	ESE	One flare was done, part required, repair completed on Monday	No Response at this time
20a	Jeff Sitlington	12/2/2023	5:22 a.m.	Resident	Odour	Residence	NNE	Gas Plant went down overnight, back online Sat. morning, review of Alert system to Techs	Thanks
20b	Ursula Verberne	12/2/2023	8:57 a.m.	Resident	Odour	Residence	NNE	Gas Plant went down overnight, back online Sat. morning, review of Alert system to Techs	No Response at this time
21	Megan Cattryesse	12/20/2023	5:15 pm and 9:07 p.m.	Resident	Odour (Transient)	Driving By	N/A	One of Flares was down for a few days but is running, takes some time to rebalance the field after an outage	No Response at this time