

## APPENDIX J:

### Gas Monitoring Results



**Table J-1**  
**Methane Monitoring Results - Compliance Monitoring**  
**Twin Creeks Environmental Centre**

Gas Probe Location	% LEL Methane						
	Date						
	7-Jan-21	4-Feb-21	5-Mar-21	6-Apr-21	21-Jul-21	17-Nov-21	8-Dec-21
<b>GP1A</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>GP2</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>GP3</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>GP4</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>GP5</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>GP6</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>GP7</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>GP8</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**NOTES:** 1) LEL denotes the lower explosive limit for methane.



## APPENDIX K:

### Automobile Shredder Residue Chemical Results



Table K-1  
Automobile Shredder Residue - General Chemical Results - Compliance Monitoring  
Twin Creeks Environmental Centre

Parameter	Units	O. Reg. 558	Automobile Shredder Residue (ASR)																		
Date			15-Sep-11	6-Dec-11	7-Sep-12	21-Nov-12	7-Mar-12	8-Jun-12	5-Apr-13	7-Jun-16	17-Oct-16	27-Apr-17	11-Oct-17	5-Apr-18	28-Sep-18	4-Apr-19	26-Sep-19	1-Apr-20	22-Sep-20	6-Apr-21	1-Oct-21
Laboratory			EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins
Metals and Inorganics																					
Cyanide (free)	mg/L	20.0	<0.02	<0.02	<0.005	<0.02	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoride	mg/L	150.0	0.46	0.51	0.54	1.07		0.59	0.82	0.52	0.30	0.35	0.24	0.72	0.44	0.34	0.43	0.51	<0.10	0.3	0.49
NO2 + NO3 as N	mg/L	1000	4.08	0.20	<0.10	0.15	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<1.0	<1.0
Arsenic	mg/L	2.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	0.001	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Barium	mg/L	100.0	0.7	0.5	0.7	0.6	0.4	0.9	0.5	0.52	<1	<1	0.95	0.57	0.477	0.68	0.68	0.56	0.8	1.05	0.91
Boron	mg/L	500.0	0.6	0.6	1.4	0.8	1.5	0.6	<1	1.10	1.6	1.2	2.3	0.9	1.14	1.2	1.6	1.2	0.5	1.2	2.5
Cadmium	mg/L	0.5	0.08	<0.005	0.463	<0.1	0.09	0.13	<0.1	0.09	0.187	0.088	0.088	0.079	0.135	0.145	0.128	0.089	0.230	0.131	0.124
Chromium	mg/L	5.0	<0.05	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	0.0008	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead	mg/L	5.0	<0.1	0.07	0.13	0.01	0.16	0.070	<0.05	0.04	0.08	0.03	0.04	0.04	0.253	0.06	0.04	0.03	1.06	0.46	0.06
Mercury	mg/L	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00008	0.00007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	mg/L	1.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	0.0004	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Silver	mg/L	5.0	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	mg/L	10.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Volatile Organic Compounds (VOCs)																					
Methyl Ethyl Ketone (MEK)	ug/L	200000	<20	<50	40	<20	<20	<10	<10	<10	<10	<10	<10	<10	<10	<10	30	<10	<10	<10	<10
1,1-dichloroethylene	ug/L	1400	<1		<0.5	<1	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-dichlorobenzene	ug/L	20000	<0.8	<2	<0.4	<0.8	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,2-dichloroethane	ug/L	500	<0.4	<1	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.6	<0.2	<0.2	<0.2
1,4-dichlorobenzene	ug/L	500	<0.8	<2	<0.4	<0.8	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Benzene	ug/L	500	<1	<5	<0.05	<1	<1	<0.05	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5
Carbon Tetrachloride	ug/L	500	<1	<5	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dichloromethane	ug/L	5000	<8.0		<4.0	<8.0		<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Monochlorobenzene	ug/L	8000	<4.0		<0.2	<0.4		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	3000	<0.6	2	<0.3	<0.6	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Trichloroethylene	ug/L	5000	<0.6	2	<0.3	<0.6	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Vinyl Chloride	ug/L	200.0	<4	1	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chloroform	ug/L	10000	<1	2	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Semi-Volatile Organic Compounds (SVOC's)																					
1-methylnaphthalene	ug/L			0.50	0.20	1.29	1.21	0.15	0.20	0.5	<0.1	0.2	0.4	<1	<0.1	0.2	<0.1	0.3	0.2	<0.1	0.2
2-methylnaphthalene	ug/L			0.60	0.20	1.83	1.78	0.26	0.20	0.7	<0.1	0.3	0.6	<1	<0.1	0.2	<0.1	0.3	0.6	<0.1	0.2
Acenaphthene	ug/L			<0.2	0.2	0.21	0.1	<0.05	<0.1	0.2	<0.1	0.2	0.2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	0.6	<0.1
Acenaphthylene	ug/L			<0.2	0.2	0.06	0.02	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	ug/L			<0.2	0.2	0.38	0.05	<0.05	<0.1	<0.1	0.1	0.4	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Benzo(a)anthracene	ug/L			<0.2	0.2	<0.01	<0.01	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	ug/L	1.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	0.14	<0.01	<0.01
Benzo(b)fluoranthene	ug/L			<0.2	0.2	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	ug/L			<0.2	0.2	<0.02	<0.02	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	ug/L			<0.2	0.2	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	ug/L			<0.2	0.2	<0.02	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	0.06	<0.05	0.09	<0.05
Dibenzo(a,h)anthracene	ug/L			<0.2	0.2	<0.02	<0.02	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	ug/L			0.3	0.2	0.21	0.08	0.13	0.3	0.3	0.1	<0.1	0.3	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	ug/L			<0.2	0.2	0.45	0.12	<0.05	<0.1	0.2	0.1	0.2	0.1	<1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	ug/L			<0.2	0.2	<0.02	<0.02	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	ug/L			0.8	0.2	3.19	0.6	0.11	<0.1	0.6	0.1	0.2	0.4	<1	0.2	0.3	<0.1	0.5	0.4	<0.1	0.5
Phenanthrene	ug/L			1	0.2	0.81	0.17	0.21	0.6	0.3	0.2	0.1	0.2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Pyrene	ug/L			0.2	0.2	0.17	0.05	0.10	0.2	<0.1	<0.1	<0.1	0.2	<1	0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

NOTE: 1) mg/L denotes milligrams per litre; ug/L denotes microgram per litre.  
2) <1 denotes parameter concentration is some concentration less than the laboratory reportable detection limit (RDL).

## APPENDIX K2:

### Laboratory Reports



**Certificate of Analysis**

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1950911  
Date Submitted: 2021-04-08  
Date Reported: 2021-04-23  
Project: 2101781-1000  
COC #: 872276

Page 1 of 9

---

**Dear Brent Langille:**

**Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).**

Report Comments:

APPROVAL: \_\_\_\_\_

Addrine Thomas, Inorganics Supervisor

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: <http://www.cala.ca/scopes/2602.pdf>.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1950911  
Date Submitted: 2021-04-08  
Date Reported: 2021-04-23  
Project: 2101781-1000  
COC #: 872276

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1550795 R347 2021-04-06 ASR
Group	Analyte	MRL	Units	Guideline	
Anions	F	0.10	mg/L	LQC 150.0	0.30
General Chemistry	Cyanide (free)	0.05	mg/L	LQC 20.0	<0.05
Leachate	REG 558 Leach				Y
	Zero Headspace Extraction				Y
Mercury	Hg	0.001	mg/L	LQC 0.1	<0.001
Metals	Ag	0.01	mg/L	LQC 5	<0.01
	As	0.02	mg/L	LQC 2.5	<0.02
	B	0.1	mg/L	LQC 500.0	1.2
	Ba	0.01	mg/L	LQC 100.0	1.05
	Cd	0.008	mg/L	LQC 0.5	0.131
	Cr	0.05	mg/L	LQC 5.0	<0.05
	Pb	0.01	mg/L	LQC 5.0	0.46
	Se	0.02	mg/L	LQC 1.0	<0.02
	U	0.01	mg/L	LQC 10.0	<0.01
Moisture	Moisture-Humidite	0.1	%		24.0
Others	NO2 + NO3 as N	1.0	mg/L	LQC 1000	<1.0
PAH	1-methylnaphthalene	0.1	ug/L		<0.1
	2-methylnaphthalene	0.1	ug/L		<0.1
	Acenaphthene	0.1	ug/L		0.6
	Acenaphthylene	0.1	ug/L		<0.1
	Anthracene	0.1	ug/L		<0.1
	Benzo(a)anthracene	0.1	ug/L		<0.1
	Benzo(a)pyrene	0.01	ug/L	LQC 1.0	<0.01
	Benzo(b)fluoranthene	0.05	ug/L		<0.05
	Benzo(g,h,i)perylene	0.1	ug/L		<0.1

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1950911  
Date Submitted: 2021-04-08  
Date Reported: 2021-04-23  
Project: 2101781-1000  
COC #: 872276

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1550795 R347 2021-04-06 ASR
Group	Analyte	MRL	Units	Guideline	
PAH	Benzo(k)fluoranthene	0.05	ug/L		<0.05
	Chrysene	0.05	ug/L		0.09
	Dibenzo(a,h)anthracene	0.1	ug/L		<0.1
	Fluoranthene	0.1	ug/L		<0.1
	Fluorene	0.1	ug/L		<0.1
	Indeno(1,2,3-c,d)pyrene	0.1	ug/L		<0.1
	Naphthalene	0.1	ug/L		<0.1
	Phenanthrene	0.1	ug/L		<0.1
	Pyrene	0.1	ug/L		<0.1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L	LQC 300	<0.1
VOCs Surrogates	1,2-dichloroethane-d4	0	%		116
	4-bromofluorobenzene	0	%		107
	Toluene-d8	0	%		101
Volatiles	1,1-dichloroethylene	0.5	ug/L	LQC 1400	<0.5
	1,2-dichlorobenzene	0.4	ug/L	LQC 20000	<0.4
	1,2-dichloroethane	0.2	ug/L	LQC 500	<0.2
	1,4-dichlorobenzene	0.4	ug/L	LQC 500	<0.4
	Benzene	0.5	ug/L	LQC 500	<0.5
	Carbon Tetrachloride	0.2	ug/L	LQC 500	<0.2
	Chloroform	0.5	ug/L	LQC 10000	<0.5
	Dichloromethane	4.0	ug/L	LQC 5000	<4.0
	Methyl Ethyl Ketone (MEK)	10	ug/L	LQC 200000	<10
	Monochlorobenzene	0.5	ug/L	LQC 8000	<0.5
	Tetrachloroethylene	0.3	ug/L	LQC 3000	<0.3
	Trichloroethylene	0.3	ug/L	LQC 5000	<0.3

Guideline = REG 558

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1950911  
Date Submitted: 2021-04-08  
Date Reported: 2021-04-23  
Project: 2101781-1000  
COC #: 872276

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1550795 R347 2021-04-06 ASR
Group	Analyte	MRL	Units	Guideline	
Volatiles	Vinyl Chloride	0.2	ug/L	LQC 200	<0.2

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1950911  
Date Submitted: 2021-04-08  
Date Reported: 2021-04-23  
Project: 2101781-1000  
COC #: 872276

### QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 398586 <b>Analysis/Extraction Date</b> 2021-04-16 <b>Analyst</b> C M <b>Method</b> P 8270			
Methlynaphthalene, 1-	<0.1 ug/L	102	50-140
Methlynaphthalene, 2-	<0.1 ug/L	104	50-140
Acenaphthene	<0.1 ug/L	100	50-140
Acenaphthylene	<0.1 ug/L	98	50-140
Anthracene	<0.1 ug/L	102	50-140
Benz[a]anthracene	<0.1 ug/L	102	50-140
Benzo[a]pyrene	<0.01 ug/L	88	50-140
Benzo[b]fluoranthene	<0.05 ug/L	97	50-140
Benzo[ghi]perylene	<0.1 ug/L	110	50-140
Benzo[k]fluoranthene	<0.05 ug/L	104	50-140
Chrysene	<0.05 ug/L	108	50-140
Dibenz[a h]anthracene	<0.1 ug/L	104	50-140
Fluoranthene	<0.1 ug/L	102	50-140
Fluorene	<0.1 ug/L	100	50-140
Indeno[1 2 3-cd]pyrene	<0.1 ug/L	104	50-140
Naphthalene	<0.1 ug/L	98	50-140

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range



## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1950911  
Date Submitted: 2021-04-08  
Date Reported: 2021-04-23  
Project: 2101781-1000  
COC #: 872276

### QC Summary

Analyte	Blank	QC % Rec	QC Limits
Phenanthrene	<0.1 ug/L	100	50-140
Pyrene	<0.1 ug/L	100	50-140
<b>Run No</b> 398828 <b>Analysis/Extraction Date</b> 2021-04-15 <b>Analyst</b> AET <b>Method</b> C SM4500-FC			
F	<0.10 mg/L	106	90-110
<b>Run No</b> 398833 <b>Analysis/Extraction Date</b> 2021-04-15 <b>Analyst</b> AET <b>Method</b> SM4500-CNC/MOE E3015			
Cyanide (CN-)	<0.005 mg/L	101	75-125
<b>Run No</b> 398837 <b>Analysis/Extraction Date</b> 2021-04-14 <b>Analyst</b> R R <b>Method</b> ASTM 2216			
Moisture-Humidite			80-120
REG 558 Leach			
Zero Headspace Extraction			
<b>Run No</b> 398873 <b>Analysis/Extraction Date</b> 2021-04-15 <b>Analyst</b> SKH <b>Method</b> M SM3112B-3500B			
Mercury	<0.001 mg/L	81	76-123
<b>Run No</b> 398874 <b>Analysis/Extraction Date</b> 2021-04-15 <b>Analyst</b> SKH <b>Method</b> C SM4500-NO3-F			
NO2 + NO3 as N	<1.0 mg/L	95	

Guideline = REG 558

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1950911  
Date Submitted: 2021-04-08  
Date Reported: 2021-04-23  
Project: 2101781-1000  
COC #: 872276

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 398951 <b>Analysis/Extraction Date</b> 2021-04-16 <b>Analyst</b> Z S <b>Method</b> EPA 200.8			
Silver	<0.01 mg/L	120	70-130
Arsenic	<0.02 mg/L	103	70-130
Boron (total)	<0.1 mg/L	79	70-130
Barium	<0.01 mg/L	116	70-130
Cadmium	<0.008 mg/L	122	70-130
Chromium Total	<0.05 mg/L	122	70-130
Lead	<0.01 mg/L	117	70-130
Selenium	<0.02 mg/L	113	70-130
Uranium	<0.01 mg/L	107	70-130
<b>Run No</b> 399052 <b>Analysis/Extraction Date</b> 2021-04-16 <b>Analyst</b> QL <b>Method</b> EPA 8081B			
Polychlorinated Biphenyls	<0.1 ug/L	83	60-140
<b>Run No</b> 399394 <b>Analysis/Extraction Date</b> 2021-04-23 <b>Analyst</b> YH <b>Method</b> EPA 8260			
Dichloroethylene, 1,1-	<0.5 ug/L	100	60-130
Dichlorobenzene, 1,2-	<0.4 ug/L	99	60-130
Dichloroethane, 1,2-	<0.2 ug/L	101	60-130

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1950911  
Date Submitted: 2021-04-08  
Date Reported: 2021-04-23  
Project: 2101781-1000  
COC #: 872276

### **QC Summary**

Analyte	Blank	QC % Rec	QC Limits
Dichlorobenzene, 1,4-	<0.4 ug/L	97	60-130
Benzene	<0.5 ug/L	96	60-130
Carbon Tetrachloride	<0.2 ug/L	98	60-130
Chloroform	<0.5 ug/L	100	60-130
Methylene Chloride	<4.0 ug/L	117	60-130
Methyl Ethyl Ketone	<10 ug/L	100	60-130
Chlorobenzene	<0.5 ug/L	95	60-130
Tetrachloroethylene	<0.3 ug/L	89	60-130
Trichloroethylene	<0.3 ug/L	93	60-130
Vinyl Chloride	<0.2 ug/L	90	60-130

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

**Certificate of Analysis**

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1950911  
Date Submitted: 2021-04-08  
Date Reported: 2021-04-23  
Project: 2101781-1000  
COC #: 872276

---

***Sample Comment Summary***

Sample ID: 1550795 ASR Metals analysis performed on aqua-regia digest of sample material.
---

**Guideline = REG 558****\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

**Certificate of Analysis**

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964139  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-14  
Project: 2101781-1000  
COC #: 881008

Page 1 of 8

---

**Dear Brent Langille:**

**Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).**

Report Comments:

APPROVAL: \_\_\_\_\_  
Yasna Hassanabadi, Organics Technician

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: <http://www.cala.ca/scopes/2602.pdf>.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964139  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-14  
Project: 2101781-1000  
COC #: 881008

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1587474 R347 2021-10-01 ASR
Group	Analyte	MRL	Units	Guideline	
Anions	F	0.10	mg/L	LQC 150.0	0.49
	NO2 + NO3 as N	1.0	mg/L	LQC 1000	<1.0
General Chemistry	Cyanide (free)	0.05	mg/L	LQC 20.0	<0.05
Leachate	REG 558 Leach				y
	Zero Headspace Extraction				y
Mercury	Hg	0.001	mg/L	LQC 0.1	<0.001
Metals	Ag	0.01	mg/L	LQC 5	<0.01
	As	0.02	mg/L	LQC 2.5	<0.02
	B	0.1	mg/L	LQC 500.0	2.5
	Ba	0.01	mg/L	LQC 100.0	0.91
	Cd	0.008	mg/L	LQC 0.5	0.124
	Cr	0.05	mg/L	LQC 5.0	<0.05
	Pb	0.01	mg/L	LQC 5.0	0.06
	Se	0.02	mg/L	LQC 1.0	<0.02
	U	0.01	mg/L	LQC 10.0	<0.01
Moisture	Moisture-Humidite	0.1	%		18.5
PAH	1-methylnaphthalene	0.1	ug/L		0.2
	2-methylnaphthalene	0.1	ug/L		0.2
	Acenaphthene	0.1	ug/L		<0.1
	Acenaphthylene	0.1	ug/L		<0.1
	Anthracene	0.1	ug/L		0.1
	Benzo(a)anthracene	0.1	ug/L		<0.1
	Benzo(a)pyrene	0.01	ug/L	LQC 1.0	<0.01
	Benzo(b)fluoranthene	0.05	ug/L		<0.05
	Benzo(g,h,i)perylene	0.1	ug/L		<0.1

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964139  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-14  
Project: 2101781-1000  
COC #: 881008

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1587474 R347  2021-10-01 ASR
Group	Analyte	MRL	Units	Guideline	
PAH	Benzo(k)fluoranthene	0.05	ug/L		<0.05
	Chrysene	0.05	ug/L		<0.05
	Dibenzo(a,h)anthracene	0.1	ug/L		<0.1
	Fluoranthene	0.1	ug/L		<0.1
	Fluorene	0.1	ug/L		<0.1
	Indeno(1,2,3-c,d)pyrene	0.1	ug/L		<0.1
	Naphthalene	0.1	ug/L		0.5
	Phenanthrene	0.1	ug/L		0.1
	Pyrene	0.1	ug/L		<0.1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L	LQC 300	<0.1
VOCs Surrogates	1,2-dichloroethane-d4	0	%		97
	4-bromofluorobenzene	0	%		85
	Toluene-d8	0	%		91
Volatiles	1,1-dichloroethylene	0.5	ug/L	LQC 1400	<0.5
	1,2-dichlorobenzene	0.4	ug/L	LQC 20000	<0.4
	1,2-dichloroethane	0.2	ug/L	LQC 500	<0.2
	1,4-dichlorobenzene	0.4	ug/L	LQC 500	<0.4
	Benzene	0.5	ug/L	LQC 500	<0.5
	Carbon Tetrachloride	0.2	ug/L	LQC 500	<0.2
	Chloroform	0.5	ug/L	LQC 10000	<0.5
	Dichloromethane	4.0	ug/L	LQC 5000	<4.0
	Methyl Ethyl Ketone (MEK)	10	ug/L	LQC 200000	<10
	Monochlorobenzene	0.5	ug/L	LQC 8000	<0.5
	Tetrachloroethylene	0.3	ug/L	LQC 3000	<0.3
	Trichloroethylene	0.3	ug/L	LQC 5000	<0.3

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964139  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-14  
Project: 2101781-1000  
COC #: 881008

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1587474 R347 2021-10-01 ASR
Group	Analyte	MRL	Units	Guideline	
Volatiles	Vinyl Chloride	0.2	ug/L	LQC 200	<0.2

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range



# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964139  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-14  
Project: 2101781-1000  
COC #: 881008

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 409760 <b>Analysis/Extraction Date</b> 2021-10-13 <b>Analyst</b> C M <b>Method</b> P 8270			
Methlynaphthalene, 1-	<0.1 ug/L	100	50-140
Methlynaphthalene, 2-	<0.1 ug/L	98	50-140
Acenaphthene	<0.1 ug/L	86	50-140
Acenaphthylene	<0.1 ug/L	78	50-140
Anthracene	<0.1 ug/L	84	50-140
Benz[a]anthracene	<0.1 ug/L	78	50-140
Benzo[a]pyrene	<0.01 ug/L	74	50-140
Benzo[b]fluoranthene	<0.05 ug/L	111	50-140
Benzo[ghi]perylene	<0.1 ug/L	70	50-140
Benzo[k]fluoranthene	<0.05 ug/L	92	50-140
Chrysene	<0.05 ug/L	87	50-140
Dibenz[a h]anthracene	<0.1 ug/L	76	50-140
Fluoranthene	<0.1 ug/L	80	50-140
Fluorene	<0.1 ug/L	84	50-140
Indeno[1 2 3-cd]pyrene	<0.1 ug/L	76	50-140
Naphthalene	<0.1 ug/L	86	50-140

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964139  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-14  
Project: 2101781-1000  
COC #: 881008

### QC Summary

Analyte	Blank	QC % Rec	QC Limits
Phenanthrene	<0.1 ug/L	78	50-140
Pyrene	<0.1 ug/L	82	50-140
<b>Run No</b> 410013 <b>Analysis/Extraction Date</b> 2021-10-08 <b>Analyst</b> AA <b>Method</b> EPA 1311/O. Reg 347			
REG 558 Leach			
Zero Headspace Extraction			
<b>Run No</b> 410015 <b>Analysis/Extraction Date</b> 2021-10-08 <b>Analyst</b> AA <b>Method</b> ASTM 2216			
Moisture-Humidite			80-120
<b>Run No</b> 410053 <b>Analysis/Extraction Date</b> 2021-10-08 <b>Analyst</b> YH <b>Method</b> EPA 8260			
Dichloroethylene, 1,1-	<0.5 ug/L	100	60-130
Dichlorobenzene, 1,2-	<0.4 ug/L	99	60-130
Dichloroethane, 1,2-	<0.2 ug/L	101	60-130
Dichlorobenzene, 1,4-	<0.4 ug/L	97	60-130
Benzene	<0.5 ug/L	96	60-130
Carbon Tetrachloride	<0.2 ug/L	98	60-130
Chloroform	<0.5 ug/L	100	60-130
Methylene Chloride	<4.0 ug/L	117	60-130

Guideline = REG 558

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964139  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-14  
Project: 2101781-1000  
COC #: 881008

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
Methyl Ethyl Ketone	<10 ug/L	100	60-130
Chlorobenzene	<0.5 ug/L	95	60-130
Tetrachloroethylene	<0.3 ug/L	89	60-130
Trichloroethylene	<0.3 ug/L	93	60-130
Vinyl Chloride	<0.2 ug/L	90	60-130
<b>Run No</b> 410095 <b>Analysis/Extraction Date</b> 2021-10-08 <b>Analyst</b> Z S <b>Method</b> SM4500-CNC/MOE E3015			
Cyanide (CN-)	<0.05 mg/L	99	75-125
<b>Run No</b> 410142 <b>Analysis/Extraction Date</b> 2021-10-08 <b>Analyst</b> AsA <b>Method</b> SM2320,2510,4500H/F			
F	<0.10 mg/L	103	90-110
<b>Run No</b> 410148 <b>Analysis/Extraction Date</b> 2021-10-09 <b>Analyst</b> SWS <b>Method</b> SM 4110			
NO <sub>2</sub> + NO <sub>3</sub> as N	<0.10 mg/L		
<b>Run No</b> 410153 <b>Analysis/Extraction Date</b> 2021-10-12 <b>Analyst</b> AaN <b>Method</b> EPA 200.8			
Silver	<0.01 mg/L	110	70-130
Arsenic	<0.02 mg/L	102	70-130
Boron (total)	<0.1 mg/L	83	70-130

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964139  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-14  
Project: 2101781-1000  
COC #: 881008

### QC Summary

Analyte	Blank	QC % Rec	QC Limits
Barium	<0.01 mg/L	98	70-130
Cadmium	<0.008 mg/L	102	70-130
Chromium Total	<0.05 mg/L	102	70-130
Lead	<0.01 mg/L	95	70-130
Selenium	<0.02 mg/L	115	70-130
Uranium	<0.01 mg/L	80	70-130
<b>Run No</b> 410181 <b>Analysis/Extraction Date</b> 2021-10-12 <b>Analyst</b> AaN <b>Method</b> M SM3112B-3500B			
Mercury	<0.001 mg/L	104	76-123
<b>Run No</b> 410298 <b>Analysis/Extraction Date</b> 2021-10-14 <b>Analyst</b> R G <b>Method</b> EPA 8081B			
Polychlorinated Biphenyls	<0.1 ug/L	116	60-140

Guideline = REG 558

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## APPENDIX L:

Construction Details



TABLE L1:  
Warwick D&O – October 1997 | Drawings





WASTE SYSTEMS (WARWICK) LIMITED

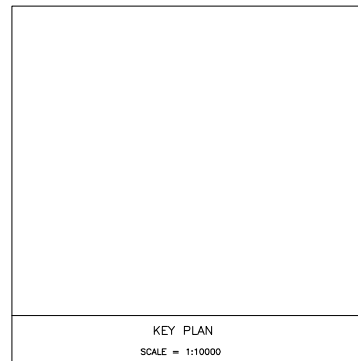
WARWICK TOWNSHIP LANDFILL SITE

LOCATED IN  
WARWICK TOWNSHIP  
COUNTY OF LAMBTON

DEVELOPMENT AND OPERATION PLANS

DRAWING INDEX

917300-300	TITLE SHEET
917300-301	EXISTING CONDITIONS - PROPERTY
917300-302	EXISTING CONDITIONS - SITE - SEPTEMBER 1995
917300-303	EXISTING CONDITIONS - NORTH
917300-304	EXISTING CONDITIONS - SOUTH
917300-305	EXISTING LEACHATE COLLECTORS AND CUT-OFF WALL
917300-306	FINAL CONTOURS - NORTH
917300-306A	LANDSCAPE & PLANTING PLAN - NORTH (100% COMPLETE)
917300-306B	LANDSCAPE & PLANTING PLAN - NORTH (75% COMPLETE)
917300-307	FINAL CONTOURS - SOUTH
917300-307A	LANDSCAPE & PLANTING PLAN - SOUTH (100% COMPLETE)
917300-307B	LANDSCAPE & PLANTING PLAN - SOUTH (25% COMPLETE)
917300-307C	LANDSCAPE & PLANTING PLAN - SOUTH (50% COMPLETE)
917300-308	BASE CONTOURS - NORTH
917300-309	BASE CONTOURS - SOUTH
917300-310	STORMWATER MANAGEMENT - NORTH
917300-311	STORMWATER MANAGEMENT - SOUTH
917300-312	SEDIMENTATION POND DETAILS
917300-313	PHASING PLAN
917300-314	SECTION A-A AND SECTION B-B
917300-315	SECTION C-C AND SECTION D-D
917300-316	SECTION E-E
917300-317	SECTION F-F, G-G, AND H-H
917300-318	DETAILS



KEY PLAN  
SCALE = 1:10000

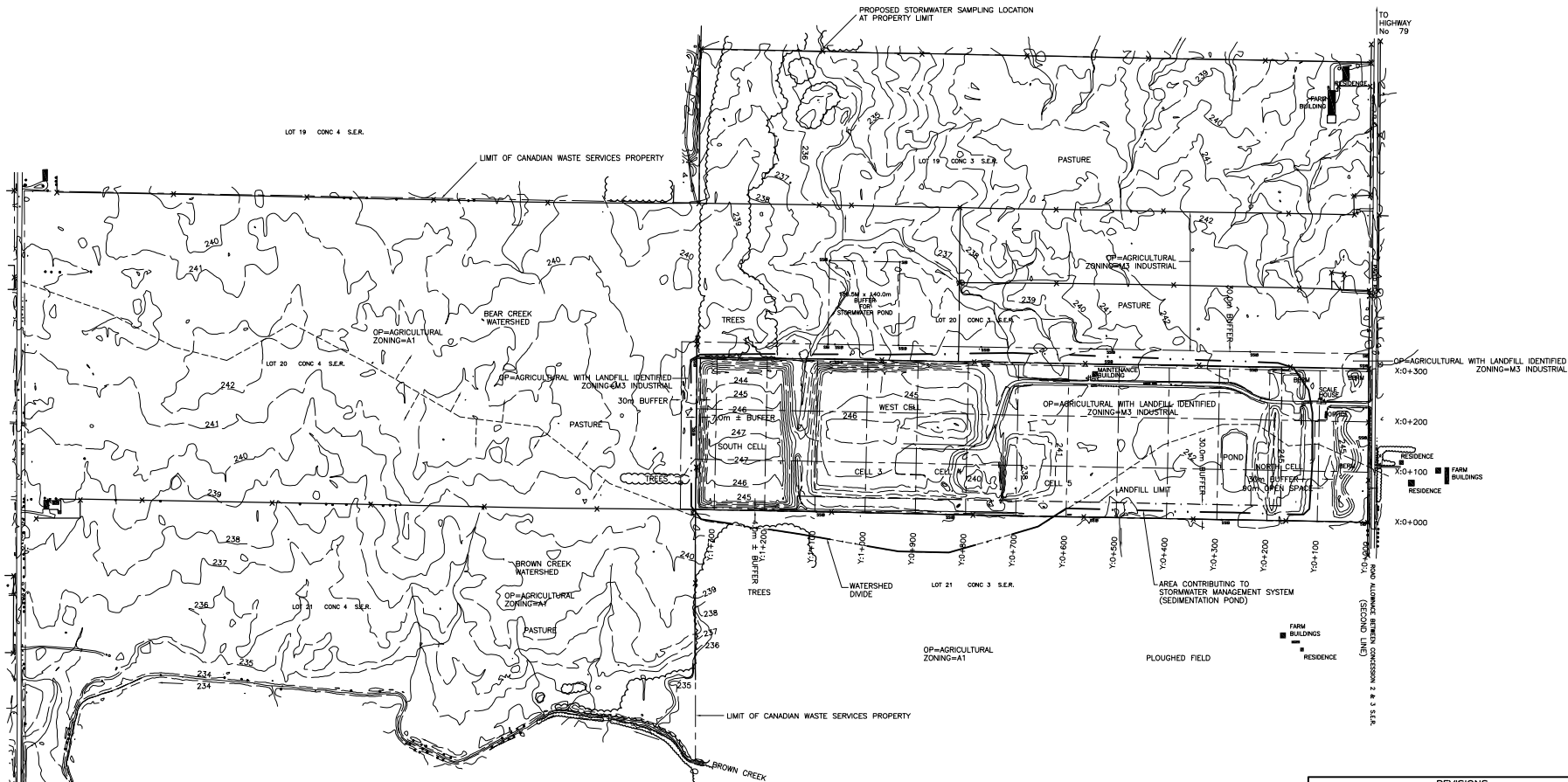
REVISIONS		
Date	Description	By
JAN 97	DRAWING INDEX REVISED TO INCLUDE 306B, 307B & 307C	T.C.G.
DEC 95	GENERAL REVISIONS	J.E.A.
APRIL 94	REVISED PLANS TO MOORE COMMENTS	J.E.A.



HENDERSON, PADDON ENVIRONMENTAL INC.  
ENVIRONMENTAL ENGINEERS & SCIENTISTS  
OWEN SOUND ♦ GUELPH ♦ BLIND RIVER ♦ PORT ELGIN

WARWICK TOWNSHIP LANDFILL  
TITLE SHEET

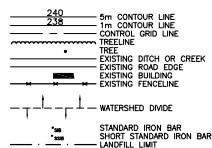
CLIENT:			
LAIDLAW WASTE SYSTEMS (WARWICK) LTD			
Design: J.E.A.	Scale: N/A		
Drawn: J.E.A.	Date: FEBRUARY 1993		
Trace: F.C.F.	Approved:		
Checked: F.C.F.	Design Engineer:		
DRAWING No.	917300 - 300		



#### NOTES:

- 1) EXISTING CONTOURS AND DETAIL WAS DETERMINED BY AERIAL MAPPING ON JUNE 1 1992, AND WAS SUPPLIED BY MARSHALL MACLEIN MORGAN CONSULTING LIMITED.
- 2) CONTROL GRID IS BASED UPON THE NORTHEAST LIMIT OF THE PROPERTY AS THE BASELINE OF THE GRID. THE Y GRID RUNS PARALLEL TO THE EAST PROPERTY LINE.
- 3) CONTOUR INTERVAL SHOWN ON THIS PLAN IS 1.0m.

#### LEGEND:



REVISIONS		
Date	Description	By
JAN 02/97	ADDED BUFFER FOR STORMWATER POND	T.C.G.
DEC 95	GENERAL REVISIONS	J E A
APRIL 94	REVISED PLANS TO MOORE COMMENTS	J E A



HENDERSON, PADDON ENVIRONMENTAL INC.  
ENVIRONMENTAL ENGINEERS & SCIENTISTS  
OWEN SOUND • GUELPH • BLIND RIVER • PORT ELGIN

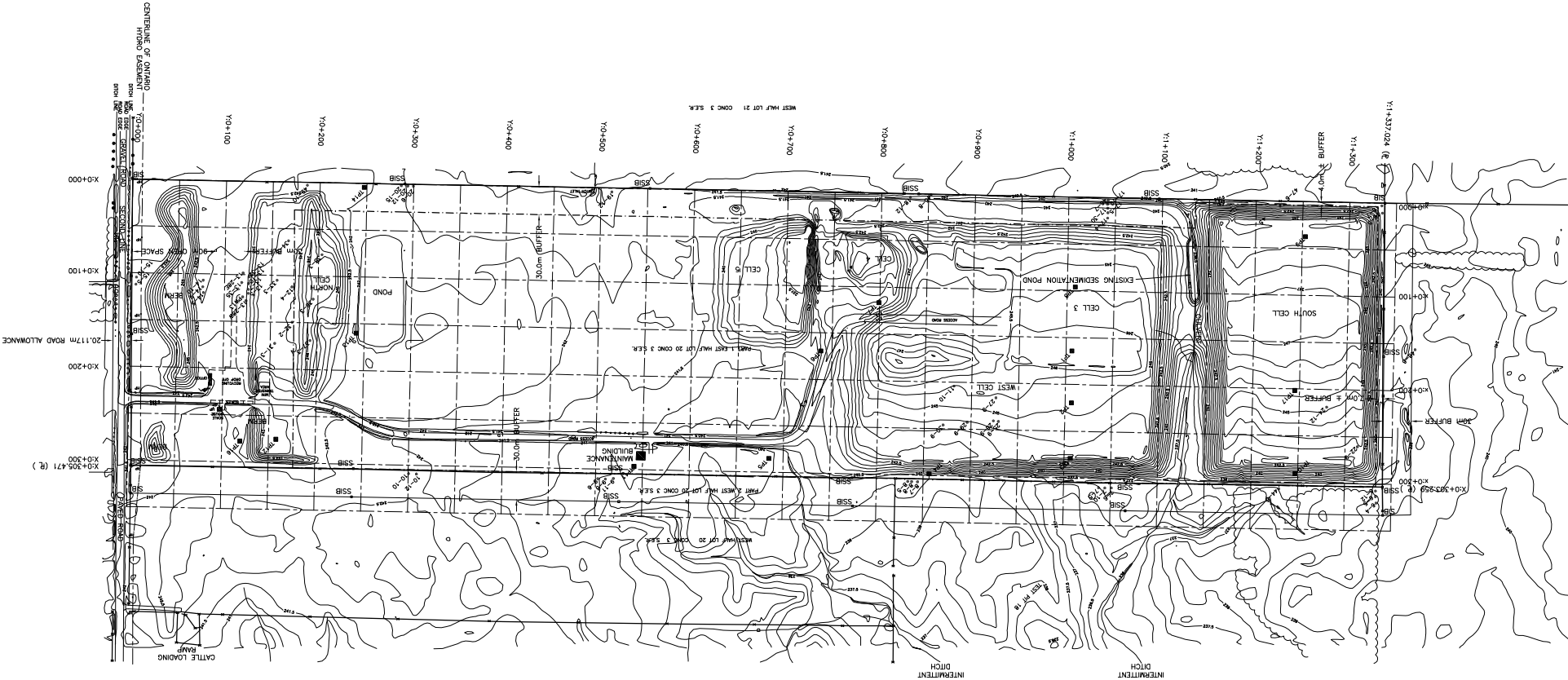
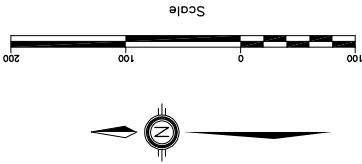
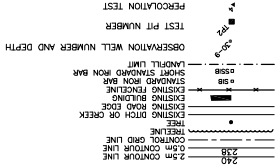
#### WARWICK LANDFILL EXISTING CONDITIONS – PROPERTY

CLIENT: CANADIAN WASTE SERVICES INC.	
Design: J E A	Scale: AS SHOWN
Drawn: J E A	Date: SEPTEMBER 1994
Traced: F C F	Approved:
Checked: F C F	Design Engineer
DRAWING No.	91730D – 301



- NOTES:
- 1) EXISTING CONTOURS AND DETAIL WAS DETERMINED BY AERIAL MAPPING ON JUNE 1 1992, AND WAS SUPPLIED BY HENDERSON PADDOON ENVIRONMENTAL INC.
  - 2) CONTROL GRID IS BASED UPON THE NORTHWEST CORNER OF THE BUILDING AS SHOWN ON THIS PLAN IS 0.5m.
  - 3) CONTOUR INTERVAL SHOWN ON THIS PLAN IS 0.5m.

LEGEND:



REVISIONS	DATE	BY

DESCRIPTION	DATE	BY

**HENDERSON, PADDOON ENVIRONMENTAL INC.**

**ENVIRONMENTAL ENGINEERS & SCIENTISTS**

OWEN SOUND ♦ QUELPH ♦ BLIND RIVER ♦ PORT ELGIN

**WARWICK LANDFILL**

**EXISTING CONDITIONS - SITE**

CLIENT: **LAIDLAW WASTE SYSTEMS LTD.**

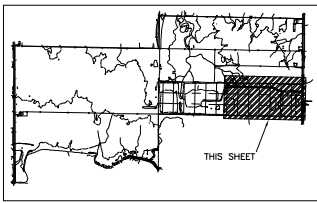
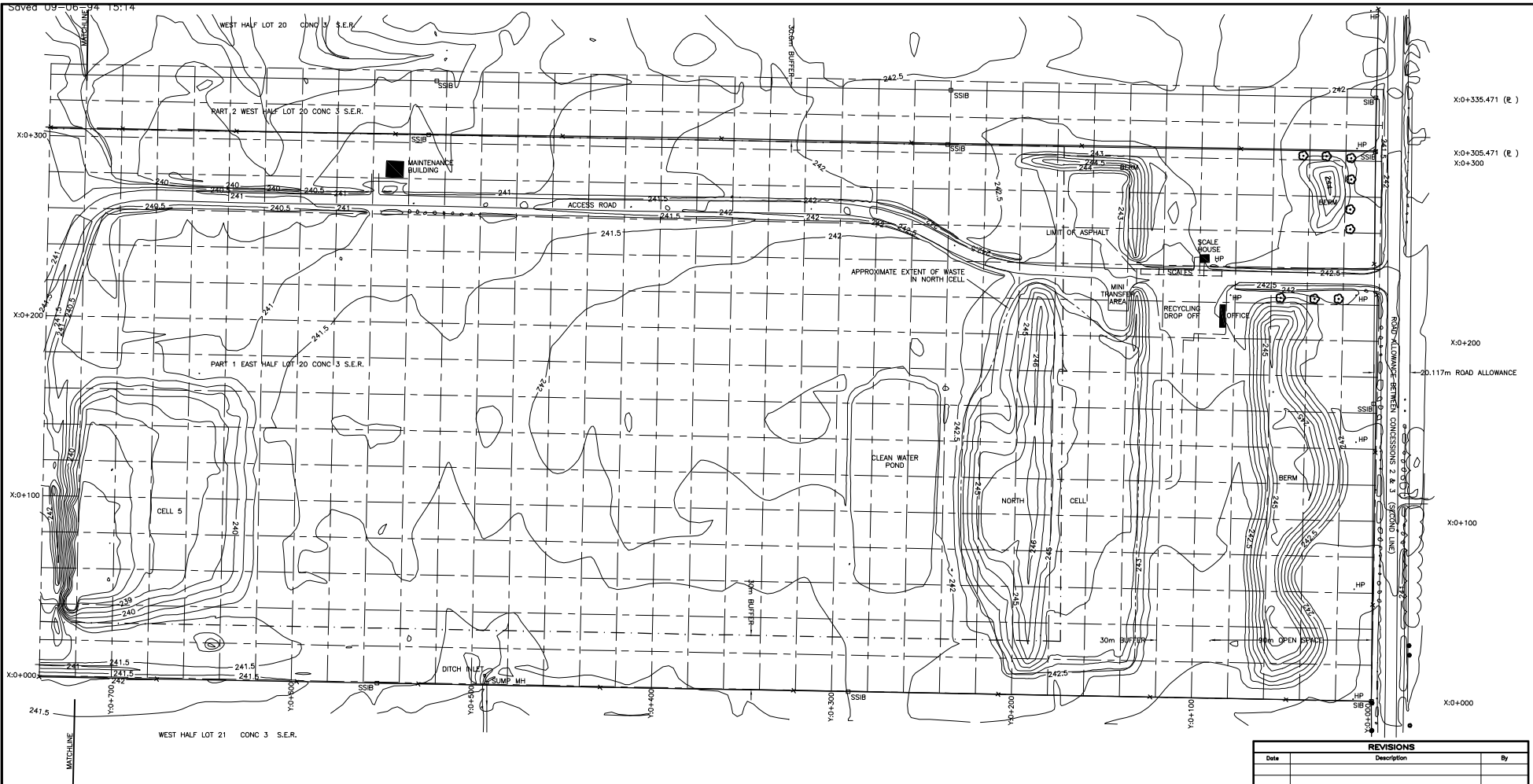
DESIGNER: **AS SHOWN**

DATE: **SEPTEMBER 1994**

DESIGNED: **F C F**

DRAWING NO.: **91730D - 302**





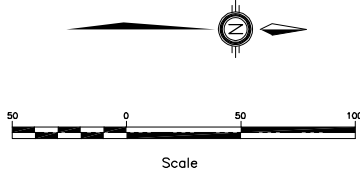
KEY PLAN

NOTES:

- 1) EXISTING CONTOURS AND DETAIL WAS DETERMINED BY AERIAL MAPPING ON JUNE 1 1992, AND WAS SUPPLIED BY MARSHALL MACKLIN MONAGHAN CONSULTING LIMITED.
- 2) CONTROL GRID IS BASED UPON THE NORTHEAST LIMIT OF THE PROPERTY AS THE BASELINE OF THE GRID. THE Y GRID RUNS PARALLEL TO THE EAST PROPERTY LINE.
- 3) CONTOUR INTERVAL SHOWN ON THIS PLAN IS 0.5m

LEGEND:

- 240 2.5m CONTOUR LINE
- 238 0.5m CONTOUR LINE
- CONTROL GRID LINE
- TREELINE
- TREE
- EXISTING DITCH OR CREEK
- EXISTING ROAD EDGE
- EXISTING BUILDING
- EXISTING FENCELINE
- STANDARD IRON BAR
- SHORT STANDARD IRON BAR
- LANDFILL LIMIT



REVISIONS		
Date	Description	By

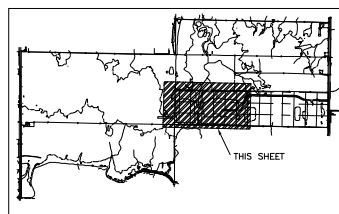
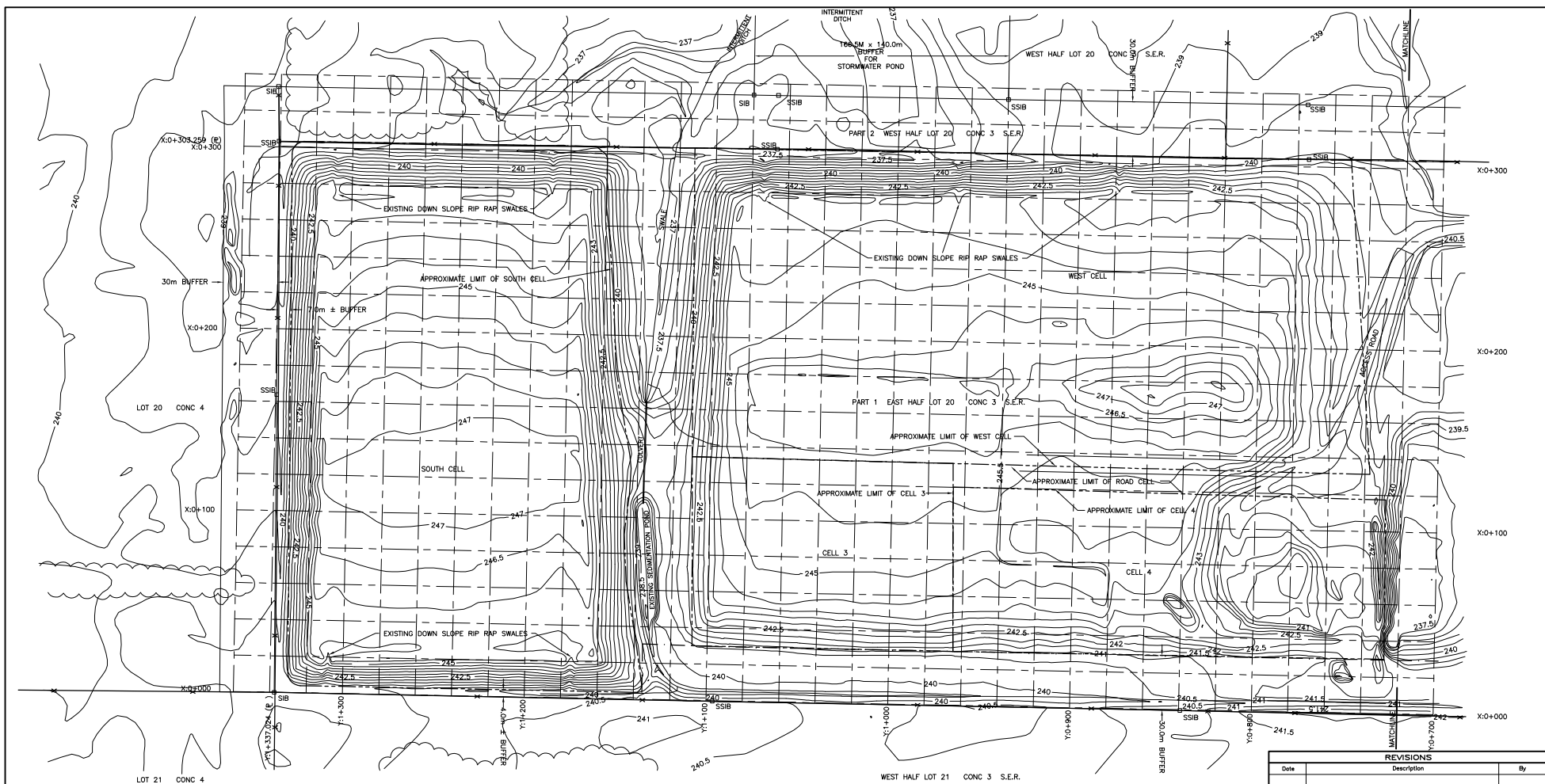
 **HENDERSON, PADDON ENVIRONMENTAL INC.**  
ENVIRONMENTAL ENGINEERS & SCIENTISTS  
OWEN SOUND ♦ GUELPH ♦ BLIND RIVER ♦ PORT ELGIN

**WARWICK LANDFILL**  
**EXISTING CONDITIONS – NORTH**

CLIENT: **CANADIAN WASTE SERVICES INC.**

Design: <b>J E A</b>	Scale: <b>AS SHOWN</b>
Drawn: <b>J E A</b>	Date: <b>SEPTEMBER 1994</b>
Trace: <b>J E A</b>	Approved: <b>J E A</b>
Checked: <b>F C F</b>	Design Engineer: <b>J E A</b>

DRAWING No. **917300 – 303**



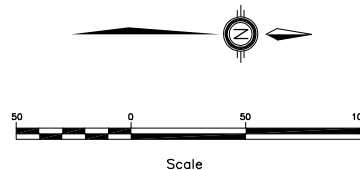
KEY PLAN

#### NOTES:

- 1) EXISTING CONTOURS AND DETAIL WAS DETERMINED BY AERIAL MAPPING ON JUNE 1 1992, AND WAS SUPPLIED BY MARSHALL MACLEIN MONAGHAN CONSULTING LIMITED.
- 2) CONTROL GRID IS BASED UPON THE NORTHEAST LIMIT OF THE PROPERTY AS THE BASELINE OF THE GRID. THE Y GRID RUNS PARALLEL TO THE EAST PROPERTY LINE.
- 3) CONTOUR INTERVAL SHOWN ON THIS PLAN IS 0.5m

#### LEGEND:

- 240 2.5m CONTOUR LINE
- 238 0.5m CONTOUR LINE
- CONTROL GRID LINE
- TREE LINE
- EXISTING DITCH OR CREEK
- EXISTING ROAD EDGE
- EXISTING BUILDING
- EXISTING FENCELINE
- STANDARD IRON BAR
- SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- APPROXIMATE CELL LIMITS



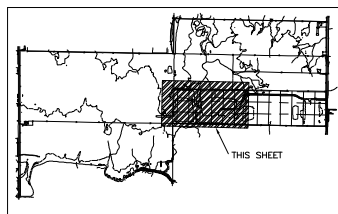
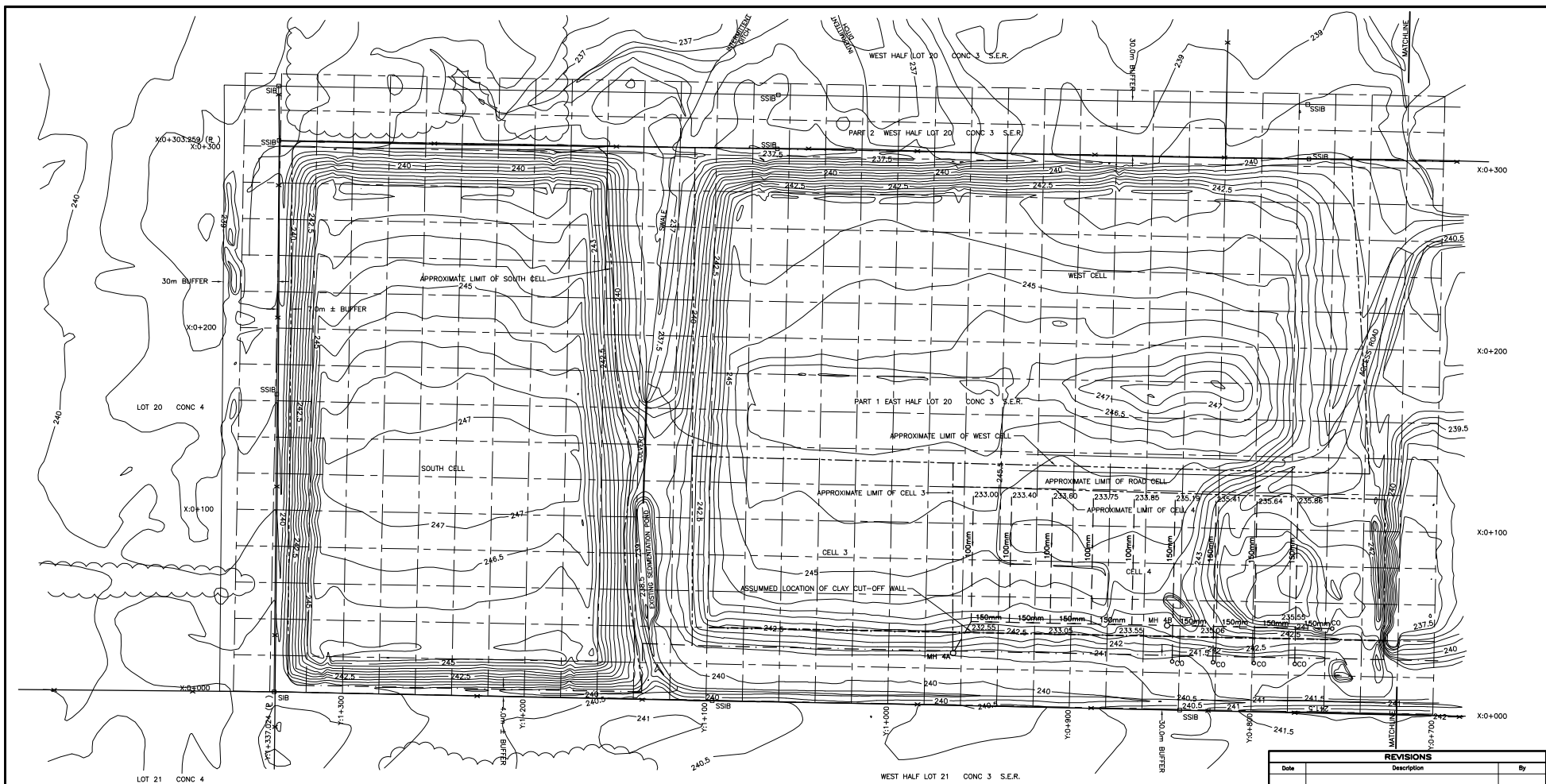
REVISIONS		
Date	Description	By
JAN 02/97	ADDED BUFFER FOR STORMWATER POND	T.C.G.



HENDERSON, PADDON ENVIRONMENTAL INC.  
ENVIRONMENTAL ENGINEERS & SCIENTISTS  
OWEN SOUND ♦ GUELPH ♦ BLIND RIVER ♦ PORT ELGIN

### WARWICK LANDFILL EXISTING CONDITIONS - SOUTH

CLIENT:		CANADIAN WASTE SERVICES INC.	
Design: J E A	Drawn: J E A	Scale: AS SHOWN	Date: SEPTEMBER 1994
Tracked: F C F	Approved: F C F	Design Engineer	
DRAWING No.		917300 - 304	



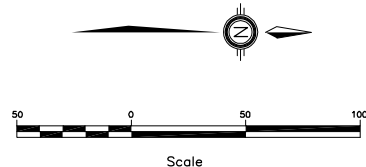
KEY PLAN

**NOTES:**

- 1) EXISTING CONTOURS AND DETAIL WAS DETERMINED BY AERIAL MAPPING ON JUNE 1 1992, AND WAS SUPPLIED BY MARSHALL MACLEIN MONAGHAN CONSULTING LIMITED.
- 2) CONTROL GRID IS BASED UPON THE NORTHEAST LIMIT OF THE PROPERTY AS THE BASELINE OF THE GRID. THE Y GRID RING PARALLEL TO THE EAST PROPERTY LINE.
- 3) CONTOUR INTERVAL SHOWN ON THIS PLAN IS 0.5m.
- 4) LOCATION OF EXISTING LEACHATE COLLECTORS AND CUT-OFF WALL IN SOUTH HALF OF CELL 4 IS "AS DESIGNED" BY WATER AND EARTH SCIENCE ASSOCIATES LIMITED.
- 5) LOCATION OF EXISTING LEACHATE COLLECTORS AND CUT-OFF WALL IN NORTH HALF OF CELL 4 IS "AS DESIGNED" BY HENDERSON PADDON ENVIRONMENTAL INC.

**LEGEND:**

- 240 2.5m CONTOUR LINE
- 238 0.5m CONTOUR LINE
- CONTROL GRID LINE
- TREE
- EXISTING DITCH OR CREEK
- EXISTING ROAD EDGE
- EXISTING BUILDING
- EXISTING FENCELINE
- STANDARD IRON BAR
- SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- ASSUMED LIMIT OF CELLS
- 150mm --- EXISTING LEACHATE COLLECTOR AND SIZE
- 232.55 --- PROPOSED LEACHATE COLLECTOR INVERTS
- CLAY CUT-OFF WALL
- CO --- LEACHATE COLLECTOR CLEAN OUT
- MH --- LEACHATE COLLECTOR MANHOLE



REVISIONS		
Date	Description	By
APRIL 94	REVISED PLANS TO MOEE COMMENTS	J. E. A.

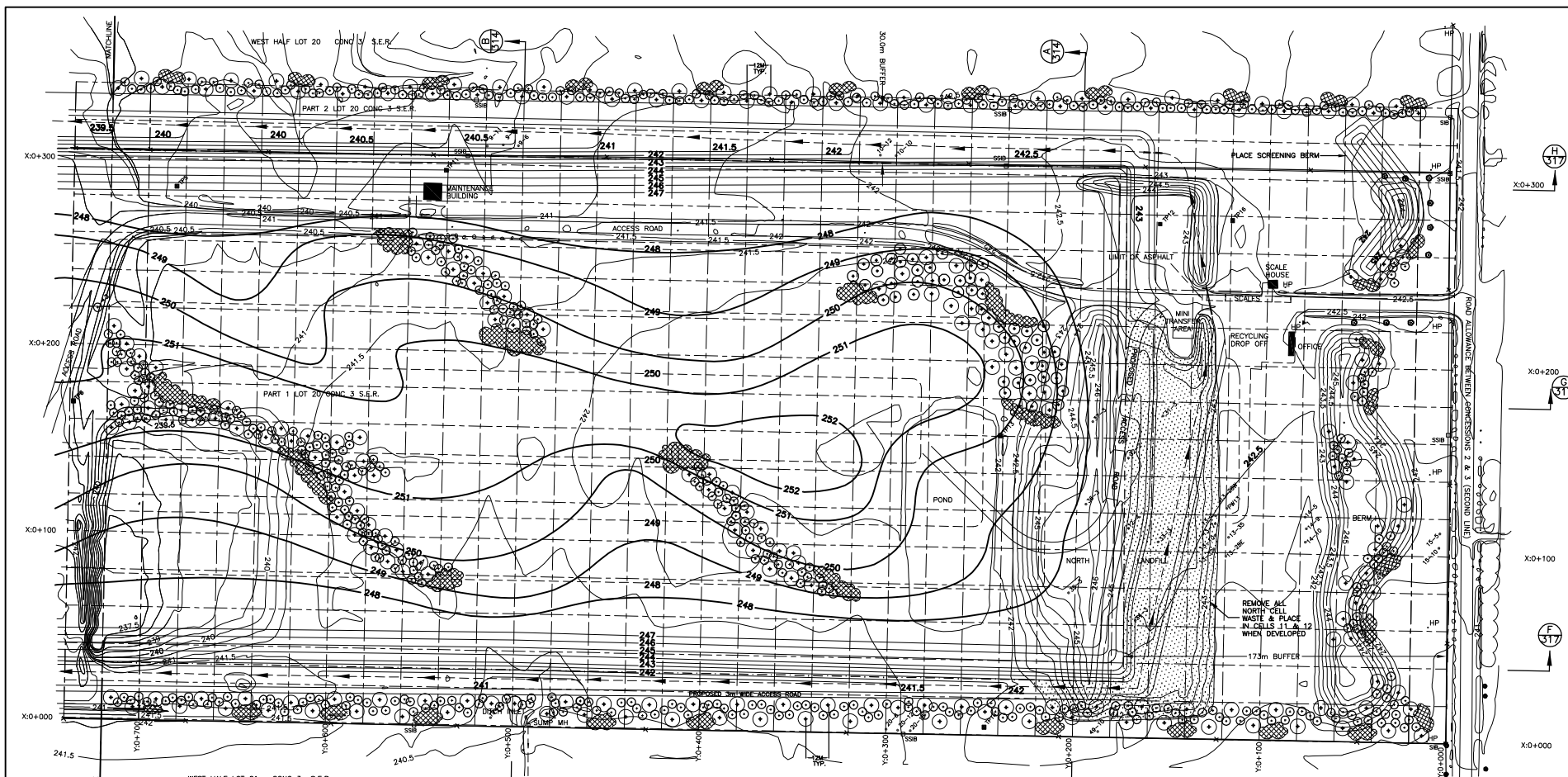


**HENDERSON, PADDON ENVIRONMENTAL INC.**  
**ENVIRONMENTAL ENGINEERS & SCIENTISTS**  
 OWEN SOUND ♦ GUELPH ♦ BLIND RIVER ♦ PORT ELGIN

**WARWICK LANDFILL**  
**EXISTING LEACHATE COLLECTOR AND**  
**CUT-OFF WALL**

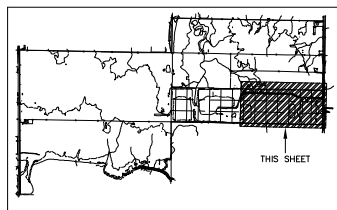
CLIENT:	
CANADIAN WASTE SERVICES INC.	
Design: J E A	Scale: AS SHOWN
Drawn: J E A	Date: SEPTEMBER 1994
Traced:	Approved:
Checked: F C F	Design Engineer
DRAWING No. 91730D - 305	





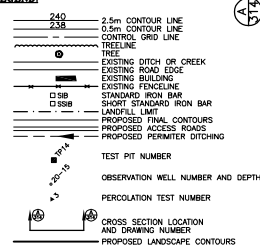
# PLANT LIST

SYMBOL	QUANT.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
415		LARGE HARDWOOD DECIDUOUS TREES				
		FRAXINUS AMERICANA	WHITE ASH	45mm col.	B.R.	
		FRAXINUS NIGRA	BLACK ASH	45mm col.	B.R.	
		ACER SACCHARINUM	SUGAR MAPLE	45mm col.	B.R.	
		ACER RUBRUM	RED MAPLE	45mm col.	B.R.	
		ACER SACCHARINUM	SILVER MAPLE	45mm col.	B.R.	
		QUERCUS MACROCARPA MICHX.	BUR OAK	45mm col.	B.R.	
179		MEDIUM SOFTWOOD DECIDUOUS TREES				
		TILIA AMERICANA	BASSWOOD	45mm col.	B.R.	
		POPULUS TREMULOIDES MICHX.	TREMULING ASPEN	45mm col.	B.R.	
		POPULUS BALSAMIFERA	BALSAM POPLAR	45mm col.	B.R.	
880		LARGE SHRUBS				
		CRATAEGUS	HAWTHORN	1m ht.	B.R.	MULTI STEM
		RHUS TYPHINA	STAGHORN SUMAC	1m ht.	B.R.	MULTI STEM
		RHIVANUS ALNIFOLIA	BUCKTHORN	1m ht.	B.R.	MULTI STEM
4800		SHRUBS				
		RHUS AROMATICA	FRAGRANT SUMAC	0.6m ht.	B.R.	
		CORNUS	DOGWOOD	0.6m ht.	B.R.	



KEY PLAN

## LEGEND:



Scale

FEB 12/97	REVISED FINAL CONTOURS FOR NORTH CELL WASTE MOVEMENT	F.C.F.
DEC 20/96	REVISED FINAL CONTOURS TO INDICATE PERCENTAGE LANDSCAPED	F.C.F.
DATE	DESCRIPTION	BY
REVISIONS		

## Salmona Partnership INC.

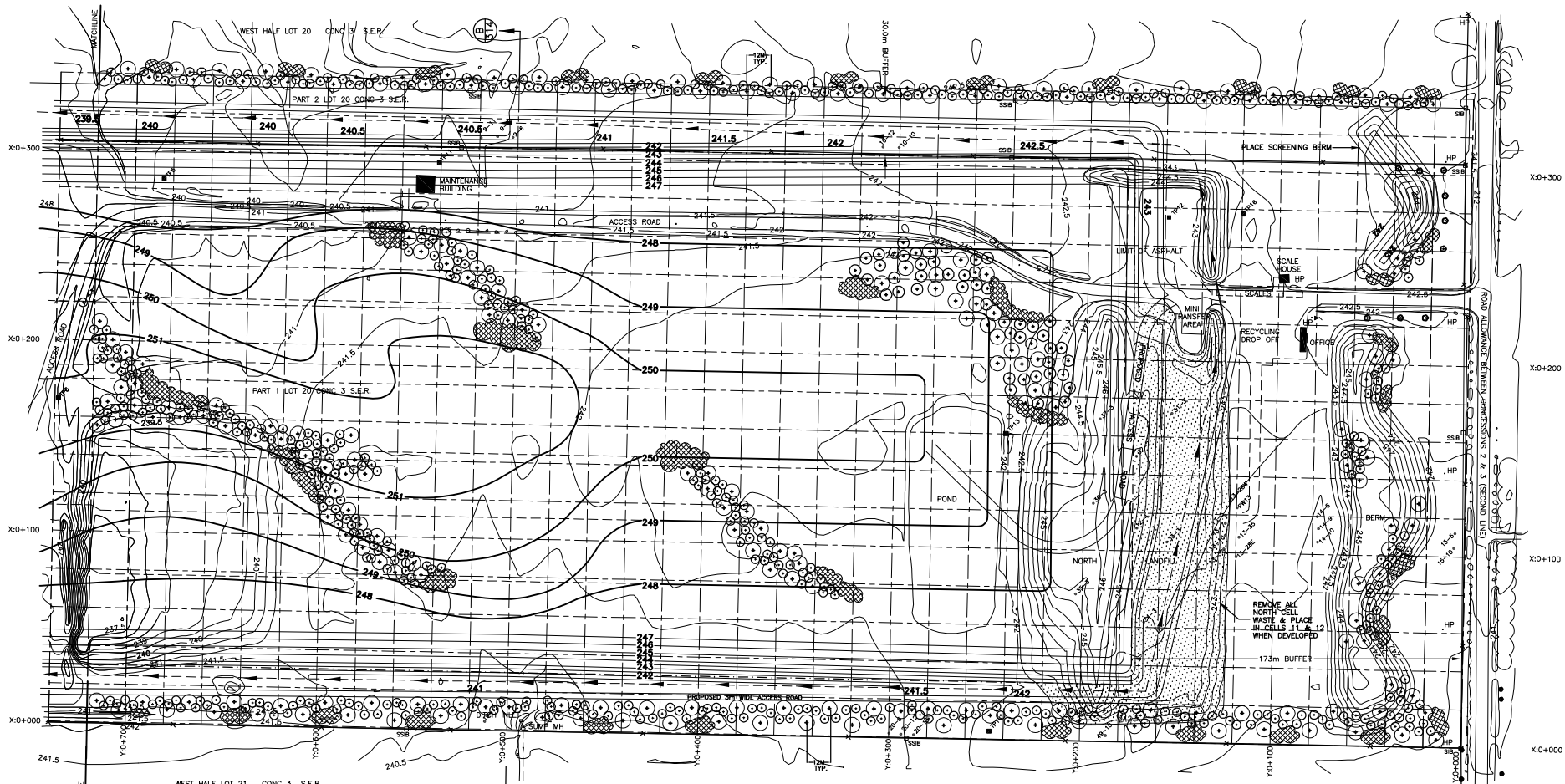
Site Plan  
Consultants & Urban Design  
Landscape Architects  
Environmental Planners  
Suite 800  
1000 Highway 104  
Winnipeg, Ontario  
R2H 1A8  
Tel: (204) 588-4375  
Fax: (204) 588-4376

NOTE: Contractor is to check and verify all dimensions and conditions on the project, and is immediately report any discrepancies to the landscape architect before proceeding with the work.

Project Title	WARWICK LANDFILL	Date	DEC. 8, 1995	Issued	
Sheet Description	LANDSCAPE AND PLANTING PLAN NORTH	Job Number	17796	Drawn By	SF
Scale	1 : 1000	Created By		DT	
Sheet Number	917300-306A				

100% LANDSCAPING COMPLETED



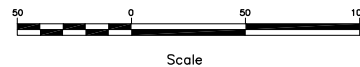
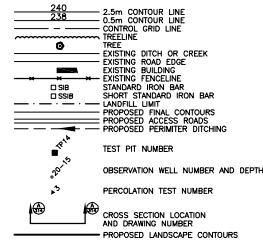


WEST HALF LOT 21 CONC 3 S.E.R.

#### PLANT LIST

SYMBOL	QUANT.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
●	415	<b>LARGE HARDWOOD DECIDUOUS TREES</b>				
		FRAXINUS AMERICANA	WHITE ASH	45mm col.	B.R.	
		FRAXINUS NIGRA	BLACK ASH	45mm col.	B.R.	
		ACER SACCHARUM	SUGAR MAPLE	45mm col.	B.R.	
		ACER RUBRUM	RED MAPLE	45mm col.	B.R.	
		ACER SACCHARINUM	SILVER MAPLE	45mm col.	B.R.	
○	179	<b>MEDIUM SOFTWOOD DECIDUOUS TREES</b>				
		TILIA AMERICANA	BASSWOOD	45mm col.	B.R.	
		POPULUS TREMILOIDES MICHX.	TREMULOIDES ASPEN	45mm col.	B.R.	
		POPULUS BALSAIFERA	BALSAM POPLAR	45mm col.	B.R.	
○	880	<b>LARGE SHRUBS</b>				
		CRATAEGUS	HAWTHORN	1m ht.	B.R.	MULTI STEM
		RHUS TYPHINA	STAGHORN SUMAC	1m ht.	B.R.	MULTI STEM
		RHAMNUS ALNIFOLIA	BUCKTHORN	1m ht.	B.R.	MULTI STEM
●	4800	<b>SHRUBS</b>				
		RHUS AROMATICA	FRAGRANT SUMAC	0.6m ht.	B.R.	
		CORNUS	DOGWOOD	0.6m ht.	B.R.	

#### LEGEND:



FEB 12/97	REVISED FINAL CONTOURS FOR NORTH CELL WASTE MOVEMENT	F.C.F.
DEC 20/96	REVISED FINAL CONTOURS TO INDICATE PERCENTAGE LANDSCAPED	F.C.F.
DATE	DESCRIPTION	BY
REVISIONS		

#### Salmona Partnership I.R.C.

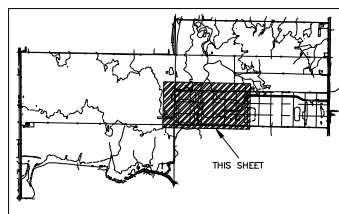
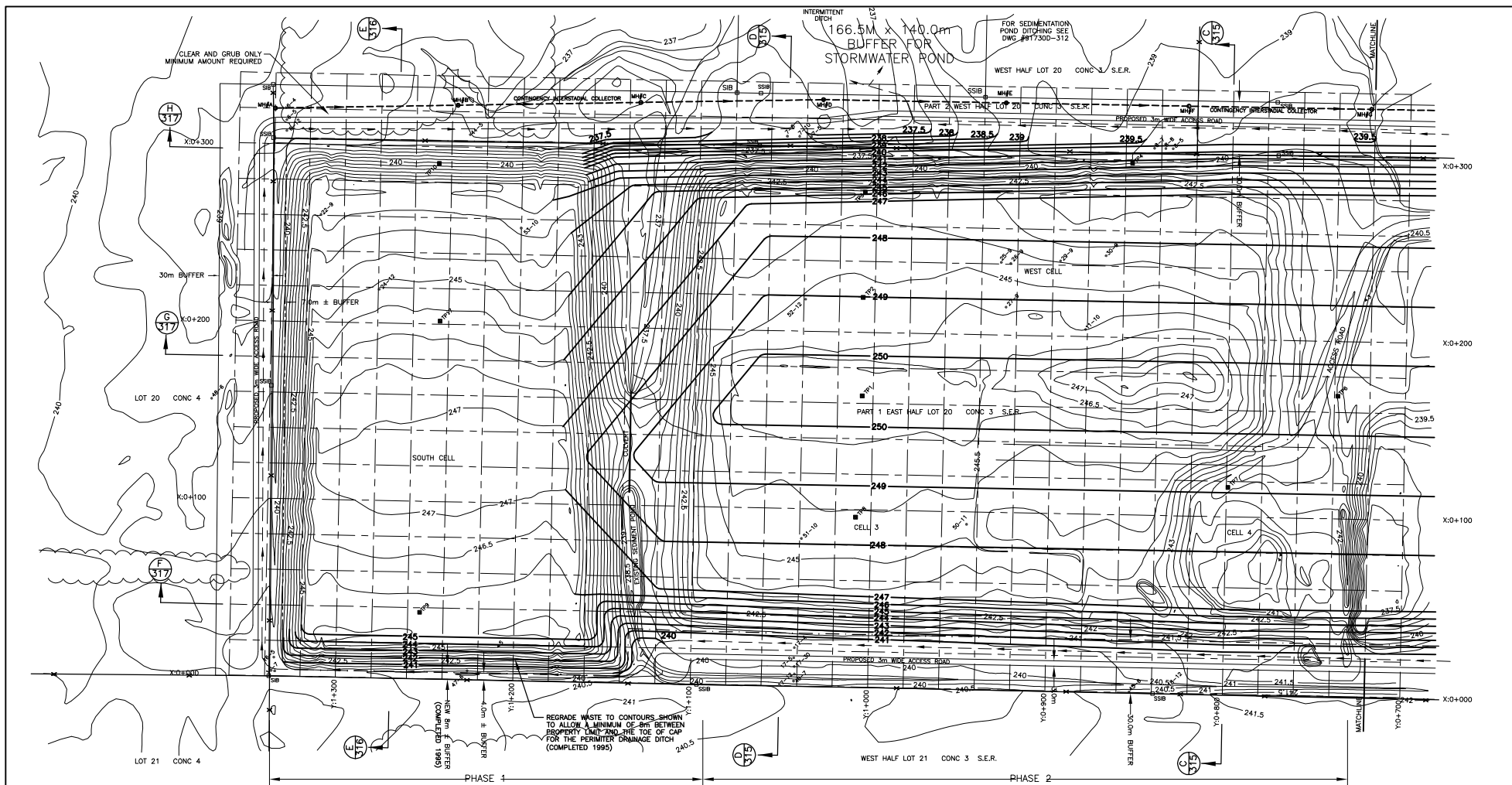
Site Plan  
Concept & Urban Design  
Landscape Plan  
Environmental Plans

Project Title  
**WARWICK LANDFILL**  
Sheet Description  
**LANDSCAPE AND PLANTING PLAN NORTH**  
75% LANDSCAPING COMPLETED

NOTE: Contractor is to check and verify all dimensions and conditions on the project, and is immediately report any discrepancies to the landscape architect before proceeding with the work.

DATE  
DEC. 8, 1995  
1795  
Scale  
1 : 1000  
Sheet Number  
91730D-306B





KEY PLAN

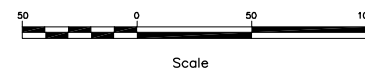
#### NOTES:

- 1) EXISTING CONTOURS AND DETAIL WAS DETERMINED BY AERIAL MAPPING ON JUNE 1 1995, AND WAS SUPPLIED BY MARSHALL MACKLIN MONAGHAN CONSULTING LIMITED.
- 2) CONTROL GRID IS BASED UPON THE NORTHEAST LIMIT OF THE PROPERTY AS THE BASELINE OF THE GRID. THE Y GRID RUNS PARALLEL TO THE EAST PROPERTY LINE.
- 3) CONTOUR INTERVAL SHOWN ON THIS PLAN IS 0.5M



#### LEGEND:

- 240 2.5m CONTOUR LINE
- 238 0.5m CONTOUR LINE
- CONTROL GRID LINE
- TRELLINE
- EXISTING DITCH OR CREEK
- EXISTING ROAD EDGE
- EXISTING BUILDING
- EXISTING FENCELINE
- STANDARD IRON BAR
- SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- PROPOSED FINAL CONTOURS
- PROPOSED PERIMETER DITCHING
- PROPOSED ACCESS ROAD
- LOCATION OF CROSS SECTION
- TEST PIT NUMBER
- OBSERVATION WELL NUMBER AND DEPTH
- PERCOLATION TEST NUMBER
- CONTINGENCY INTERSTADIAL DRAIN



Scale

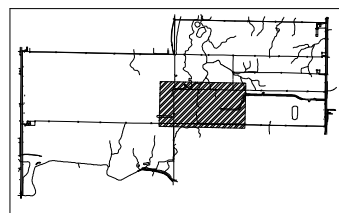
REVISIONS		
Date	Description	By
JAN 2/97	ADDED OWS 50-11, 51-10, 52-12 & 53-10 & BUFFER FOR STORMWATER POND	T.C.G.
DEC 95	GENERAL REVISIONS	J.E.A.



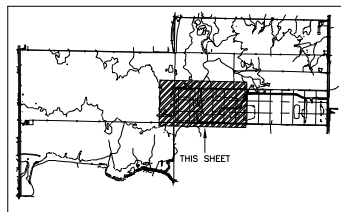
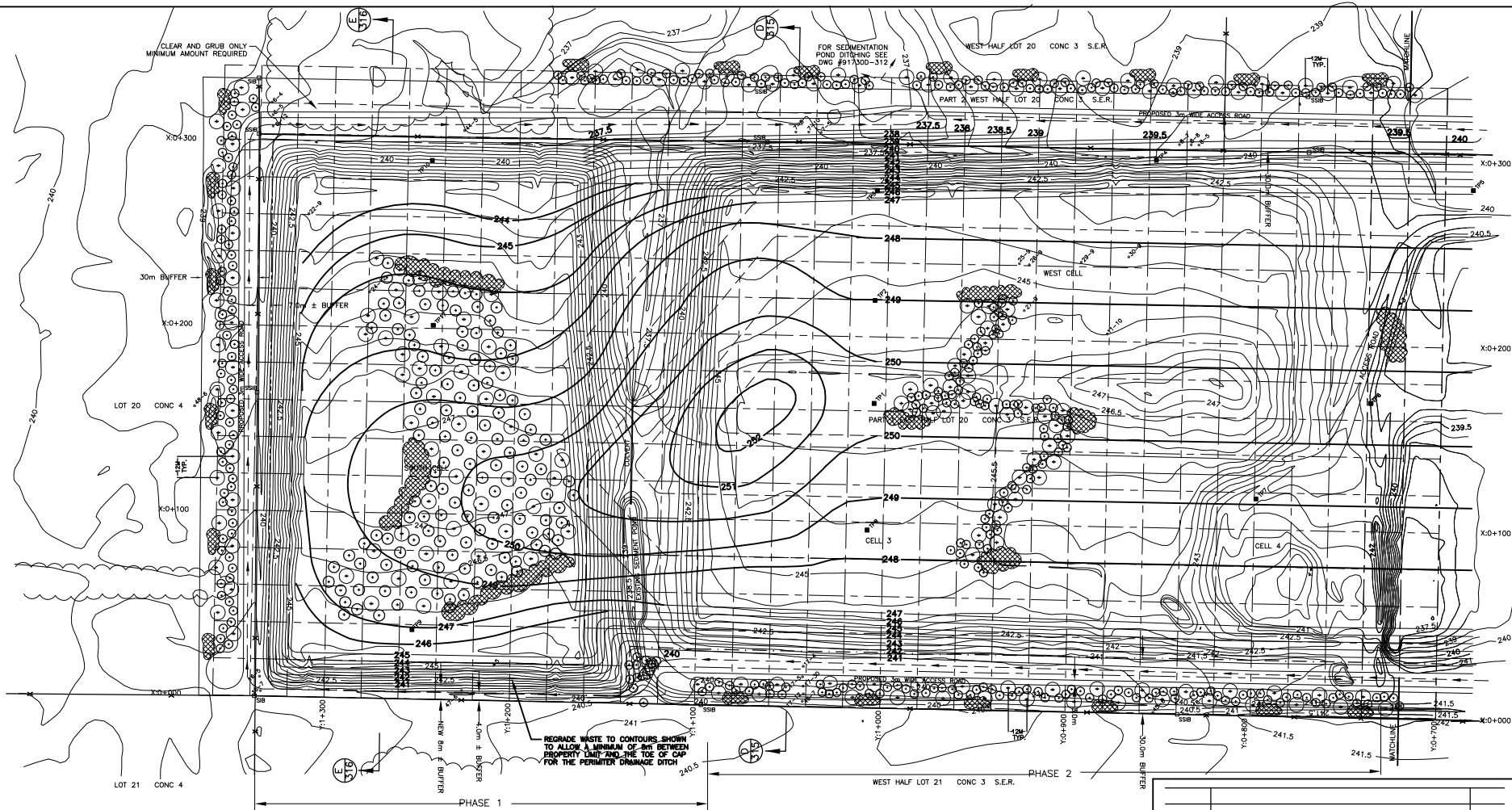
HENDERSON, PADDON ENVIRONMENTAL INC.  
ENVIRONMENTAL ENGINEERS & SCIENTISTS  
OWEN SOUND ♦ GUELPH ♦ BLIND RIVER ♦ PORT ELGIN

### WARWICK LANDFILL FINAL CONTOURS - SOUTH

CLIENT: CANADIAN WASTE SERVICES INC.			
Design: J. E. A.	Scale: AS SHOWN		
Drawn: J. E. A.	Date: SEPTEMBER 1994		
Traced: J. C. F.	Approved:		
Checked: F. C. F.	Design Engineer:		
DRAWING No.	91730D - 307		



DEC 20/96	REVISED FINAL CONTOURS TO INDICATE PERCENTAGE LANDSCAPED		F.C.F.
DATE	DESCRIPTION		BY
REVISIONS			
<p><b>Salmona <i>Partnership</i></b> INC.</p> <ul style="list-style-type: none"> <li>- Site Planers</li> <li>- Consultants &amp; Utility Design</li> <li>- Measurements</li> <li>- Landscape Architects</li> <li>- Civil/Structural Engineers</li> </ul> <p>Suite 800 20 Appleby Green Circle Alameda, CA 94601 Tel. (415) 548-4375 Fax: (415) 548-4376</p>			
<p><b>Project Title</b> WARWICK LANDFILL</p> <p><b>Sheet Description</b> LANDSCAPE AND PLANTING PLAN SOUTH</p> <p>100% LANDSCAPING COMPLETED</p>		<p><b>NOTE:</b> Contractor is to check and verify all dimensions and conditions on the project, and is immediately report any discrepancies to the landscape architect before proceeding with the work.</p>	
<p><b>Date</b> DEC. 6, 1996</p> <p><b>Job Number</b> 17796</p> <p><b>Scale</b> 1" = 1000'</p> <p><b>Sheet Number</b> 91730A</p>		<p><b>Issued</b> SF</p> <p><b>Drawn By</b> BT</p> <p><b>Checked By</b> DT</p> <p><b>Number</b> 307A</p>	

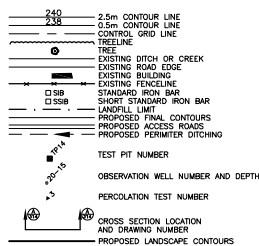


KEY PLAN

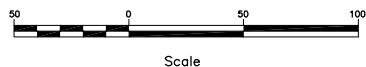
#### NOTES:

- EXISTING CONTOURS AND DETAIL WAS DETERMINED BY AERIAL MAPPING ON JUNE 1 1992, AND WAS SUPPLIED BY MARSHALL MACLIN MONAHAN CONSULTING LIMITED.
- CONTROL GRID IS BASED UPON THE NORTHEAST LIMIT OF THE PROPERTY AS THE BASELINE OF THE GRID. THE Y GRID RUNS PARALLEL TO THE EAST PROPERTY LINE.
- CONTOUR INTERVAL SHOWN ON THIS PLAN IS 0.5m

#### LEGEND:



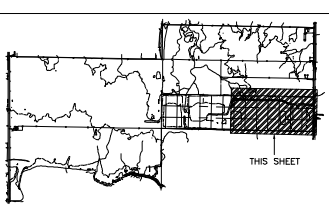
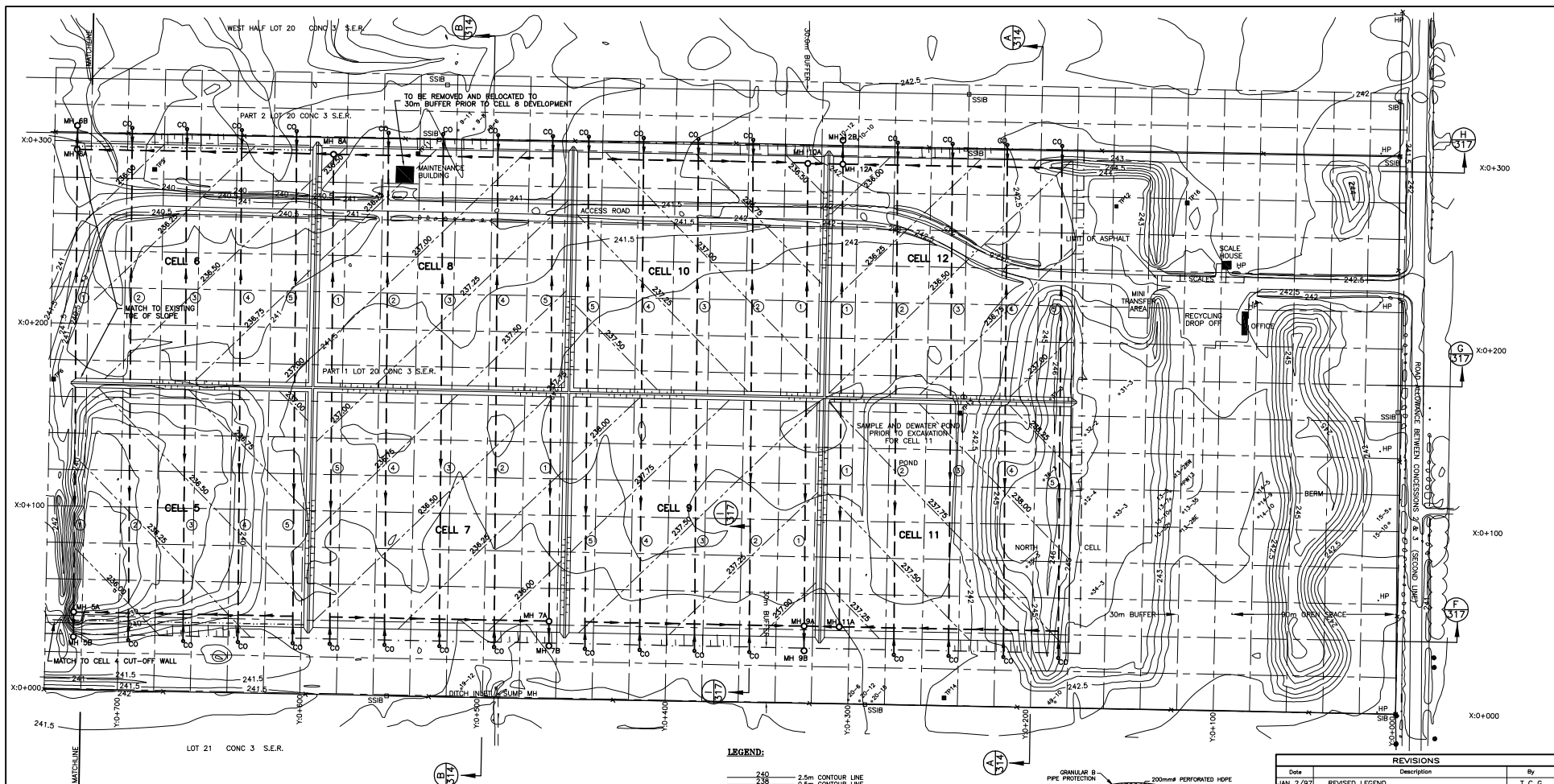
- LARGE HARDWOOD DECIDUOUS TREES
  - MEDIUM SOFTWOOD DECIDUOUS TREES
  - LARGE SHRUBS
  - SHRUBS
- SEE 917300-306A FOR PLANT LIST



Scale

DEC 20/96	REVISED FINAL CONTOURS TO INDICATE PERCENTAGE LANDSCAPED	F.C.F.
DATE	DESCRIPTION	BY
REVISIONS		
<p align="center"><b>Salmona Partnership</b></p> <p>• Site Planner • Consultants in Urban Design • Landscape Planner • Landscape Architects • Environmental Planners</p> <p align="right">Suite 800 10 Kingsbridge Green Circle Burnaby, B.C. Canada V5H 3M6 Tel: (604) 588-0375 Fax: (604) 588-0376</p>		
<p>NOTE: Contractor is to check and verify all dimensions and conditions on the project, and is immediately report any discrepancies to the landscape architect before proceeding with the work.</p>		
Project Title	Date	Issued
WARWICK LANDFILL	DEC. 8, 1995	
Sheet Number	Drawn By	
1796	SF	
Scale	Checked By	
1 : 1000	DT	
Sheet Number	917300-307B	
25% LANDSCAPING COMPLETED		





KEY PLAN

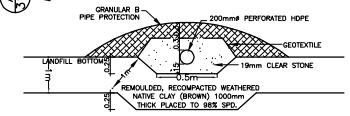
TABLE OF LEACHATE COLLECTOR INVERTS

CELL	RUN	EAST INVERT	WEST INVERT	HEADER INVERT	CELL	RUN	EAST INVERT	WEST INVERT	HEADER INVERT
5	1	236.37	236.96	236.37	9	1	236.82	237.44	236.82
	2	235.59	236.13	235.59		2	236.87	237.59	236.87
	3	235.87	236.28	235.87		3	237.12	237.74	237.12
	4	235.82	236.43	235.82		4	237.17	237.89	237.17
	5	235.95	236.56	235.95		5	237.42	238.04	237.42
6	1	235.92	235.29	235.92	10	1	236.99	236.36	236.99
	2	236.02	235.44	236.02		2	237.14	236.51	237.14
	3	236.22	235.59	236.22		3	237.29	236.66	237.29
	4	236.37	235.74	236.37		4	237.44	236.81	237.44
	5	236.52	235.89	236.52		5	237.59	236.96	237.59
7	1	235.85	236.44	235.85	11	1	237.06	237.68	237.06
	2	235.97	236.56	235.97		2	237.11	237.83	237.11
	3	236.12	236.71	236.12		3	237.36	237.98	237.36
	4	236.22	236.89	236.22		4	237.51	238.13	237.51
	5	236.42	237.04	236.42		5	237.66	238.28	237.66
8	1	237.18	236.55	236.55	12	1	236.43	236.80	236.43
	2	237.23	236.70	236.70		2	236.58	236.95	236.58
	3	237.33	236.80	236.80		3	236.73	237.10	236.73
	4	237.48	236.95	236.95		4	236.88	237.25	236.88
	5	237.63	237.00	237.00		5	237.03	237.40	237.03

NOTE: LEACHATE COLLECTOR RUNS NUMBER 1 AND 2 IN CELL 5 WERE NOT INSTALLED DURING CONSTRUCTION AND MANHOLES 5A AND 5B WERE RELOCATED TO RUN NUMBER 3

LEGEND:

- 240 2.5m CONTOUR LINE
- 238 0.5m CONTOUR LINE
- CONTROL GRID LINE
- TREELINE
- EXISTING DITCH OR CREEK
- EXISTING ROAD EDGE
- EXISTING BUILDING
- EXISTING FENCELINE
- STANDARD IRON BAR
- SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- PROPOSED BOTTOM CONTOURS
- TOP OF REMOULDED CLAY
- PROPOSED CLAY BERMS
- PROPOSED LEACHATE COLLECTOR
- COLLECTOR RUN NUMBER IN TABLE
- EXISTING CLAY CUT-OFF WALL
- TEST PIT NUMBER
- OBSERVATION WELL NUMBER AND DEPTH
- PERCOLATION TEST NUMBER
- CROSS SECTION LOCATION AND DRAWING REFERENCE
- CD LEACHATE COLLECTOR CLEAN OUT
- MH LEACHATE COLLECTOR MANHOLE



LEACHATE COLLECTOR DETAIL  
N.T.S.

NOTES:

- EXISTING CONTOURS AND DETAIL WAS DETERMINED BY AERIAL MAPPING ON JUNE 1 1992 AND WAS SUPPLIED BY MARSHALL MACLIN MONAHAN CONSULTING LIMITED.
- CONTROL GRID IS BASED UPON THE NORTHEAST LIMIT OF THE PROPERTY AS THE BASELINE OF THE GRID. THE Y GRID RUNS PARALLEL TO THE EAST PROPERTY LINE.
- CONTOUR INTERVAL SHOWN ON THIS PLAN IS 0.5m
- LEACHATE COLLECTOR SLOPE = 0.5%



REVISIONS		
Date	Description	By
JAN 2/97	REVISED LEGEND	T C G
DEC 95	GENERAL REVISIONS	J E A
JUNE 95	REVISED PLANS TO MOORE COMMENTS	J E A
APRIL 94	REVISED PLANS TO MOORE COMMENTS	J E A

**HENDERSON, PADDON ENVIRONMENTAL INC.**  
ENVIRONMENTAL ENGINEERS & SCIENTISTS  
OWEN SOUND ♦ GUELPH ♦ BLIND RIVER ♦ PORT ELGIN

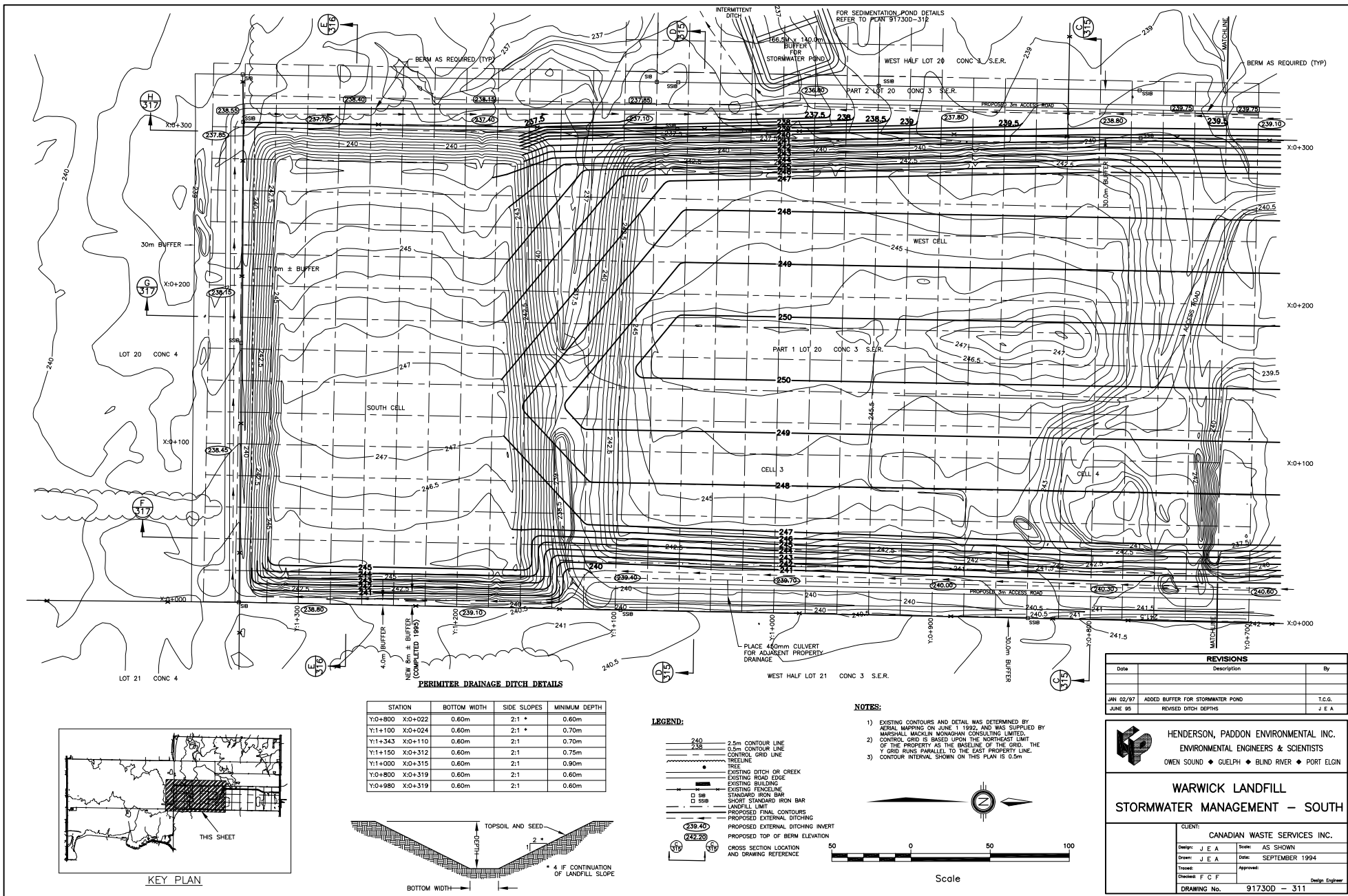
**WARWICK LANDFILL  
BASE CONTOURS - NORTH**

CLIENT: CANADIAN WASTE SERVICES INC.	
Design: J E A	Scale: AS SHOWN
Drawn: J E A	Date: SEPTEMBER 1994
Traced:	Approved:
Checked: F C F	Design Engineer:
DRAWING No. 917300 - 308	



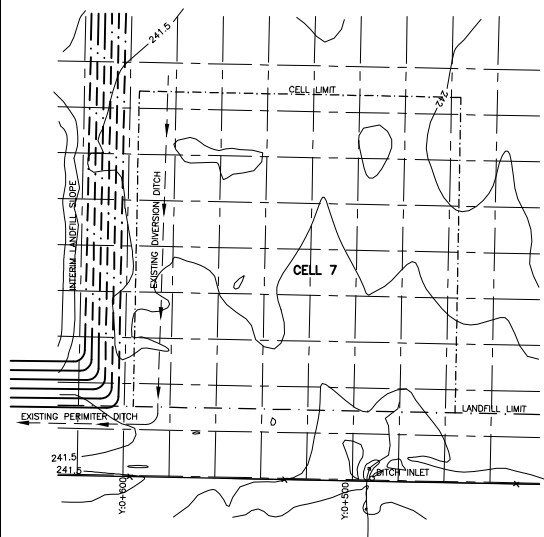




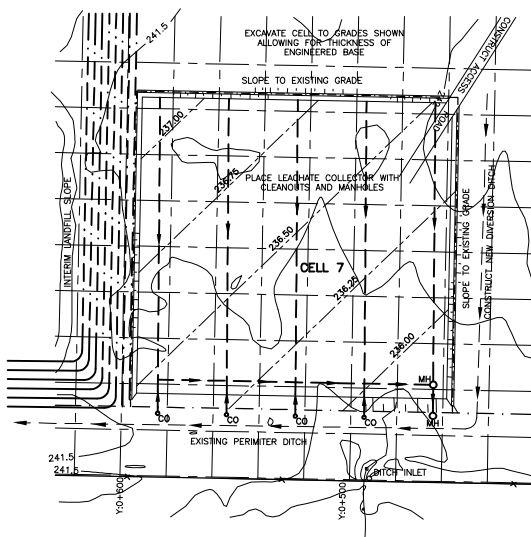




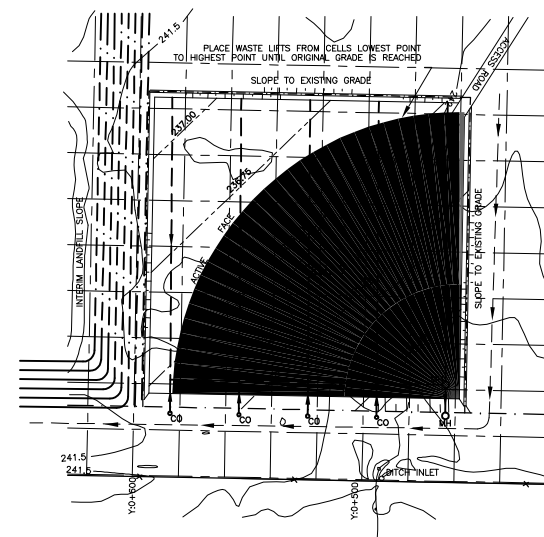




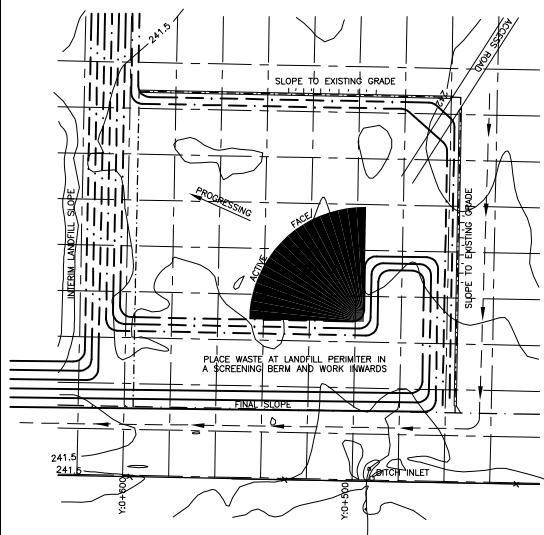
1) TYPICAL CELL CONDITIONS PRIOR TO DEVELOPMENT



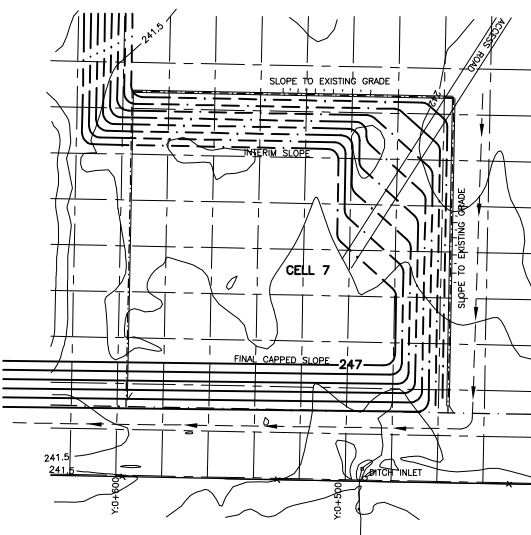
2) CELL CONSTRUCTION



3) PLACING FIRST WASTE LIFT IN NEW CELL



4) PLACING WASTE ABOVE GRADE



5) NEARING CELL CLOSURE

**LEGEND:**

- 240 5m CONTOUR LINE
- 238 1m CONTOUR LINE
- CONTROL GRID LINE
- EXISTING DITCH OR CREEK
- EXISTING FENCELINE
- LANDFILL LIMIT
- PROPOSED BOTTOM CONTOURS
- PROPOSED CLAY BEAMS
- PROPOSED LEACHATE COLLECTOR
- PROPOSED CLAY CUT-OFF WALL
- PROPOSED INTERIOR CONTOURS
- CO — PROPOSED LEACHATE COLLECTOR CLEANOUT
- MHO — PROPOSED LEACHATE MANHOLE



Scale

REVISIONS		
Date	Description	By
JAN 2/97	REVISED LEGEND	T.C.G.
DEC 95	GENERAL REVISIONS	J.E.A.

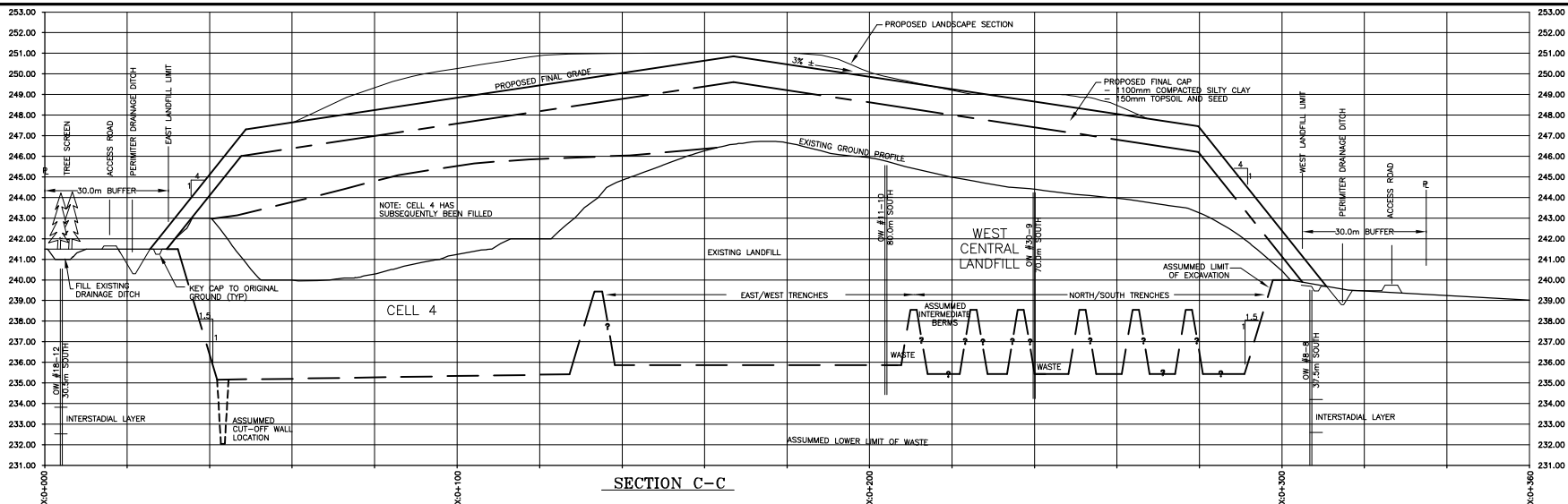


**HENDERSON, PADDOON ENVIRONMENTAL INC.**  
**ENVIRONMENTAL ENGINEERS & SCIENTISTS**  
 OWEN SOUND ♦ GUELPH ♦ BLIND RIVER ♦ PORT ELGIN

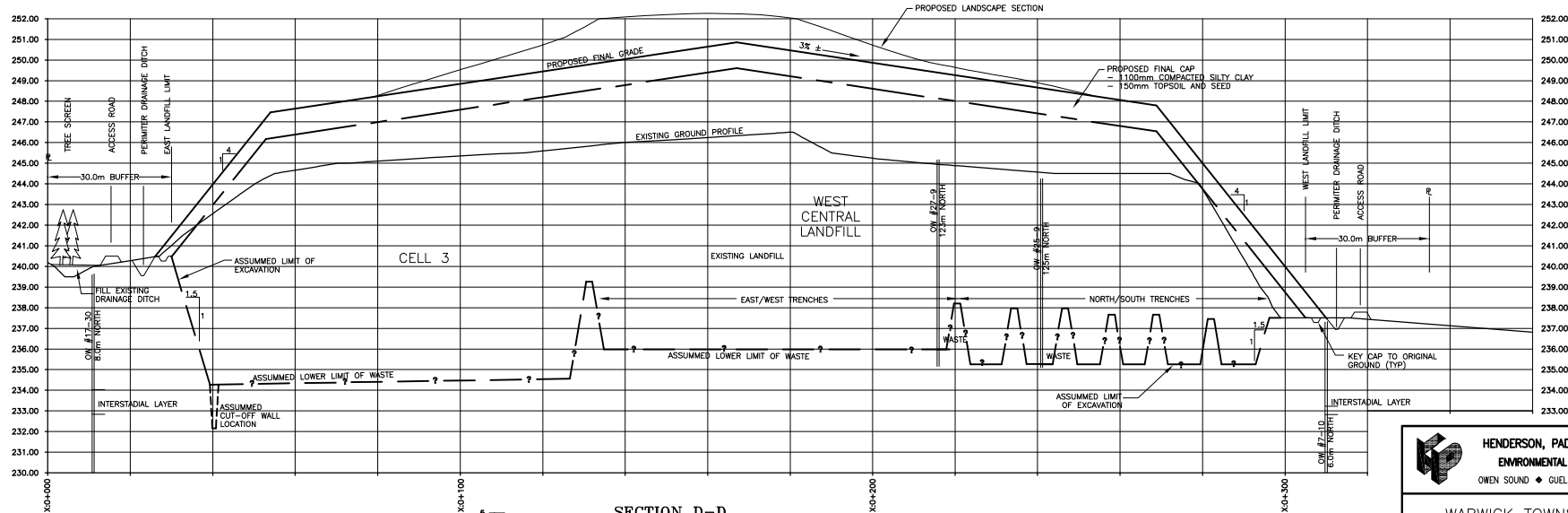
**WARWICK TOWNSHIP LANDFILL  
 PHASING PLAN**

CLIENT: <b>CANADIAN WASTE SERVICES INC.</b>	
Design: <b>J.E.A.</b>	Scale: <b>AS SHOWN</b>
Drawn: <b>J.E.A.</b>	Date: <b>FEBRUARY 1993</b>
Prepared: <b>F.E.F.</b>	Approved:
Checked:	Design Engineer:
DRAWING No. <b>91730D - 313</b>	

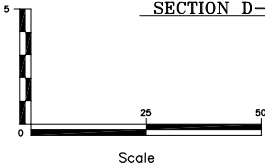




SECTION C-C



SECTION D-D

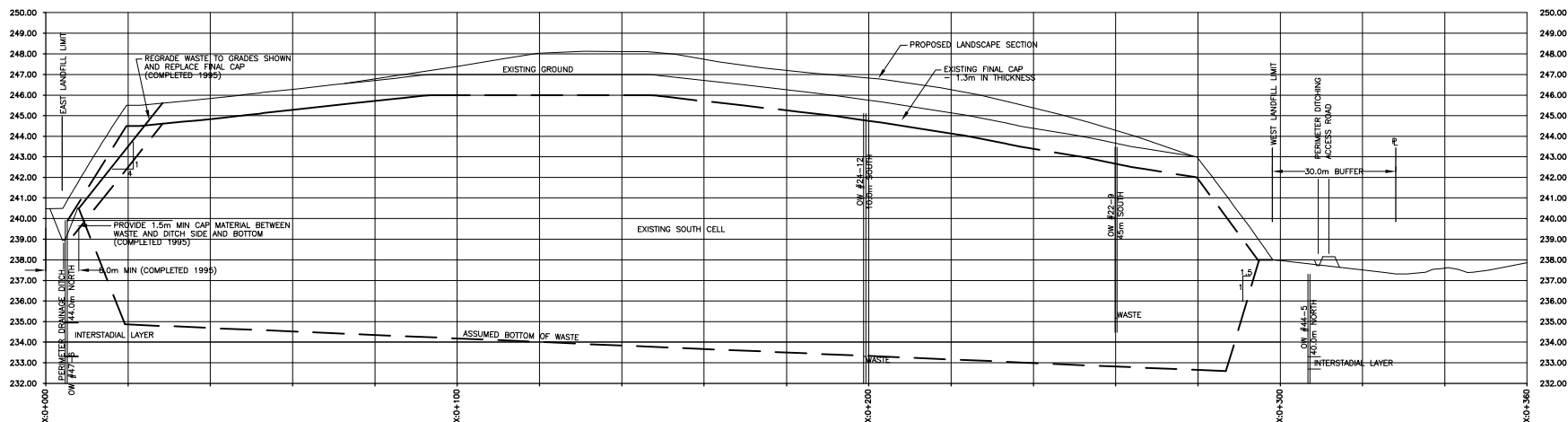


REVISIONS		
Date	Description	By
DEC 95	GENERAL REVISIONS	J E A

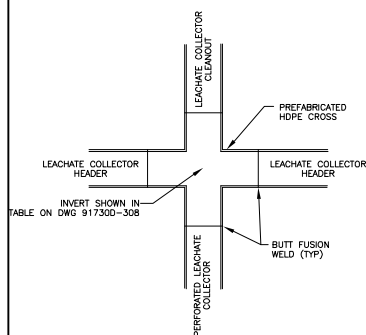
**HENDERSON, PADDON ENVIRONMENTAL INC.**  
**ENVIRONMENTAL ENGINEERS & SCIENTISTS**  
 OWEN SOUND ♦ GUELPH ♦ BLIND RIVER ♦ PORT ELGIN

**WARWICK TOWNSHIP LANDFILL**  
**SECTION C-C AND SECTION D-D**

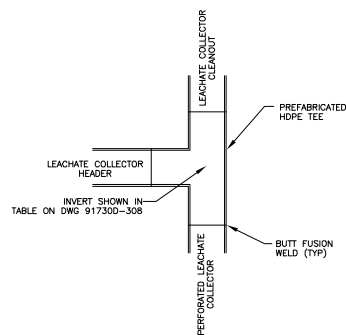
<b>CLIENT:</b> CANADIAN WASTE SERVICES INC.	
<b>Design:</b> J.E.A. <b>Drawing:</b> J.E.A. <b>Trace:</b> J.E.A. <b>Check:</b> F.C.F.	<b>Scale:</b> AS SHOWN <b>Date:</b> FEBRUARY 1993 <b>Approved:</b> <b>Design Engineer:</b>
<b>DRAWING No. 917300 - 315</b>	



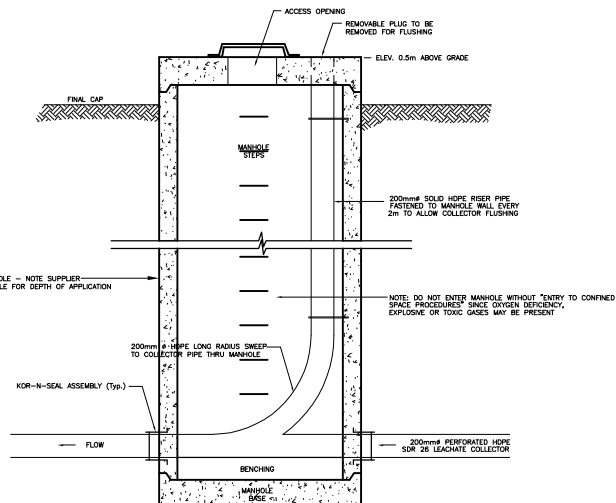
SECTION E-E



LEACHATE COLLECTOR CROSS DETAIL  
TYPICAL FOR COLLECTOR RUNS 2 TO 4



LEACHATE COLLECTOR TEE DETAIL  
TYPICAL FOR COLLECTOR RUN 5



CLEANOUT MANHOLE - CELL 3S - DETAIL  
SCALE: 1 : 25

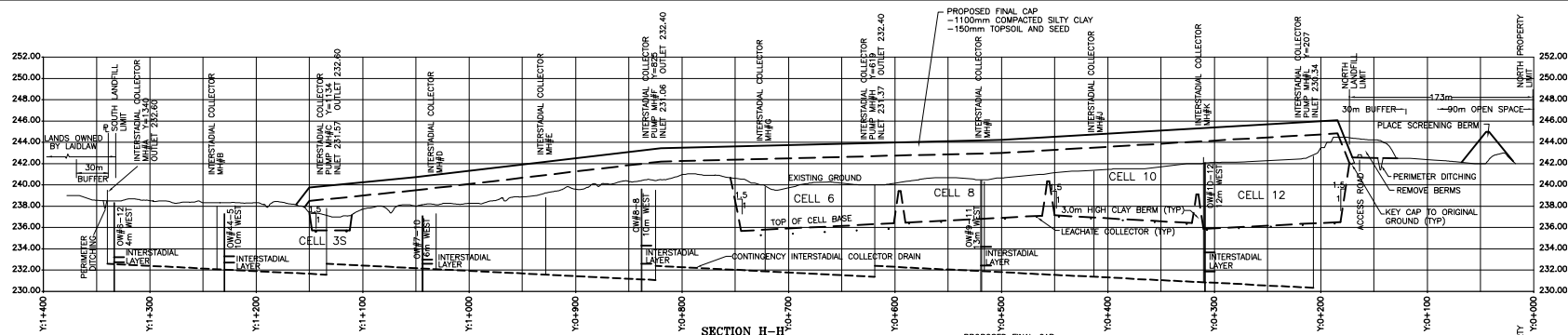
REVISIONS		
Date	Description	By
JAN/97	NOTATION RE. EAST BUFFER & DITCHING	T C G
DEC 95	GENERAL REVISIONS	J E A
JUNE 95	ADDED DETAILS	J E A



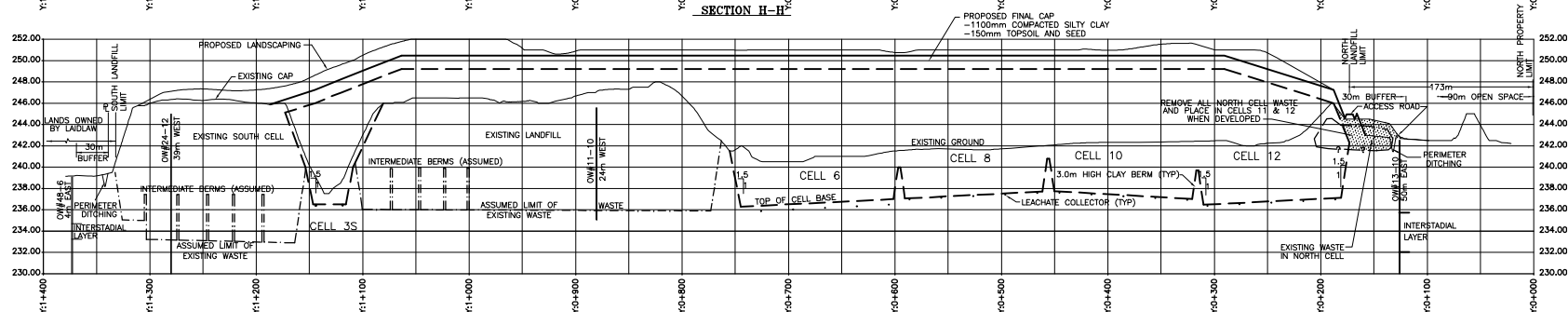
HENDERSON, PADDON ENVIRONMENTAL INC.  
ENVIRONMENTAL ENGINEERS & SCIENTISTS  
OWEN SOUND ♦ GUELPH ♦ BLIND RIVER ♦ PORT ELGIN

## WARWICK LANDFILL SECTION E-E AND DETAILS

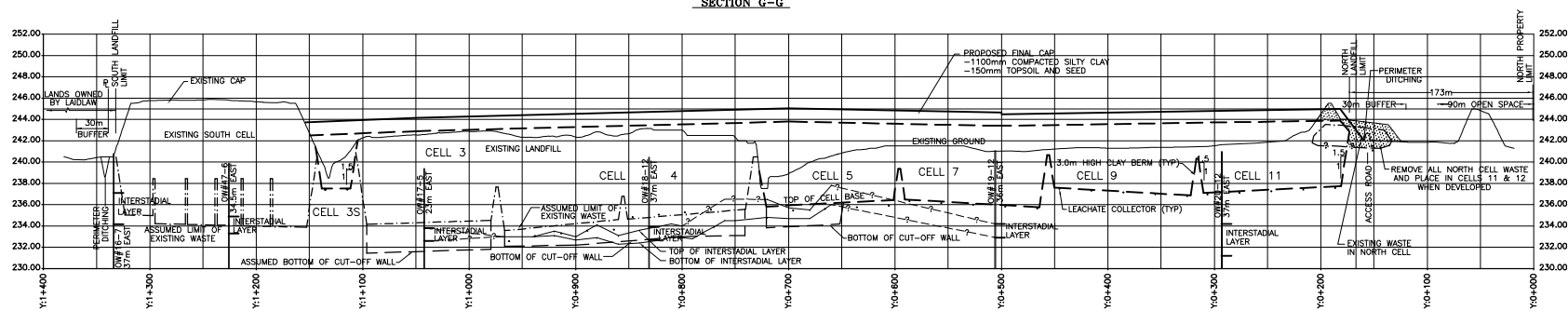
CLIENT:			
CANADIAN WASTE SERVICES INC.			
Design: J E A	Scale: AS SHOWN		
Drawn: J E A	Date: SEPTEMBER 1994		
Traced:	Approved:		
Checked: F C F	Design Engineer:		
Drawing No.	917300 - 316		



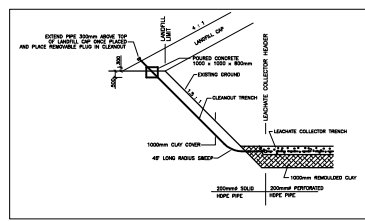
SECTION H-H<sup>8</sup>



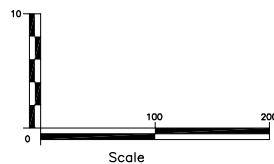
SECTION G-G



**SECTION F-F**



**SECTION I-I**  
CLEANOUT DETAIL (INT)



NOTE: INTERSTADIAL LAYER FROM Y:0+968 TO Y:0+660  
ON SECTION F-F TAKEN FROM GEOLOGICAL CELL WALL MAPPING

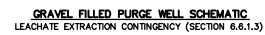
REVISIONS		
Date	Description	By
FEB 12/97	REVISED FINAL CONTOURS FOR NORTH CELL WASTE MOVEMENT	F C F
DEC 95	GENERAL REVISIONS	J E A
JUNE 95	REVISED TO MOEE COMMENTS	J E A
APRIL 94	REVISED TO MOEE COMMENTS	J E A



HENDERSON, PADDON ENVIRONMENTAL INC.  
ENVIRONMENTAL ENGINEERS & SCIENTISTS  
OWEN SOUND ♦ BLIND RIVER

WARWICK TOWNSHIP LANDFILL  
SECTIONS F-F, G-G, H-H AND I-I

CLIENT:		CANADIAN WASTE SERVICES INC.	
Design:	J E A	Scale:	AS SHOWN
Drawn:	J E A	Date:	SEPTEMBER 1994
Traced:		Approved:	
Checked:	F C F		Design: Engin
DRAWING No.		91730D - 317	



Design: J.E.A.	Scale: N/A
Drawn: J.E.A.	Date: SEPTEMBER 1994
Traced:	Approved:
Checked: F.C.F.	
DRAWING No. 91730D - 318 <span style="float: right;">Design Eng</span>	

TABLE L2:  
2008 D&O Drawings



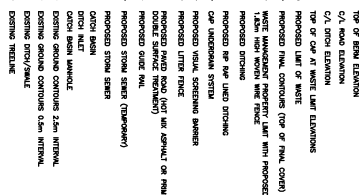


## **LIST OF DRAWINGS**

Drawing 111	Proposed Final Contours and Stormwater Management Plan
Drawing 112	Landfill Bottom Contours (Top of Primary Gravel Layer)
Drawing 113	Landfill Perimeter Sections
Drawing 114	Landfill Perimeter Sections
Drawing 115	Leachate Collection Sump Details
Drawing 116	Primary Leachate Collection System
Drawing 117	Secondary Leachate Collection System
Drawing 118	Landfill Sections
Drawing 119	Landfill Perimeter Sections
Drawing 120	Landfill Perimeter Sections
Drawing 125	Leachate Collection Sump Details\
Drawing 25R-9125	Plan of Survey of: Lot 20, Part of Lot 19, Concession 3, S.E.R., Lot 20, Part of Lots 19 and 21, Concession 4, S.E.R., Geographic Township of Warwick, Township of Warwick, County of Lambton, Deposited May 1, 2006, Prepared by Monteith and Sutherland Ltd., Sarnia, File No. 440, Plan File No. D-897
106716-127	Plan Poplar Irrigation Area

## **GAS MANAGEMENT DRAWINGS PREPARED BY COMCOR ENVIRONMENTAL LIMITED**

G101	Existing Site Conditions
G102	Vertical Well Gas Collection System Layout
G103	Horizontal Gas Collectors System Layout
G104	Vertical & Horizontal Well Schedules
G105	Compressed Air Piping Layout
G111	Plan & Profile – North Header Sta 0+000 to 0+820
G112	Plan & Profile – North Header Sta 0+820 to 1+640
G113	Plan & Profile – North Header Sta 1+640 to 2+460
G114	Plan & Profile – North Header Sta 2+460 to 3+280
G115	Plan & Profile – North Header Sta 3+280 to 4+082.49
G131	LFG Plant Area – Plan & Details
G132	LFG Plant – Plan & Details
G133	LFG Plant – Exterior Elevations
G134	LFG Plant – Part Plan & Sections
G161	Trench Details
G162	System Details
G163	System Details
G164	System Details



TOP OF 1" SQUARE STANDARD HORN BEAM LOCATED AT GRID POINT 0+012.830W, 0+298.87S

1. TRADING PARTNERS SHOWN ON THIS MAP ARE BASED ON FIELD SURVEY DATA TO AUGUST 22, 2003 BY HICKSON, PHOON, AND ASSOCIATES AND 1987 AERIAL PHOTOGRAPHY DATED BY STATE SURVEY DATED OCTOBER 1997.
2. COUNTY ROAD 73, APPROPRIATES AT SITE ACCESS :
  - SOUTHERN RD LEFT TURN LANE
  - NORTHERN RD RIGHT TURN OCCUPATION LANE
  - NORTHERN RD OCCUPATION LANE
  - ILLUSTRATE SITE ACCESS AREA

NOTES

**HENDERSON PADDON**  
& ASSOCIATES LIMITED  
CIVIL & ENVIRONMENTAL ENGINEERING CONSULTANTS  
OWEN SOUND • THE BLUE MOUNTAINS • GRIFFIN • HAWKER

Tel (519) 376-7612 Fax (519) 376-8008  
HPA JOB # 105718

DWN BY: T C G      DATE: DEC 21 07  
CHK BY: F C F      SCALE: SEE BAR SCALE

WASTE MANAGEMENT OF CANADA CORP.

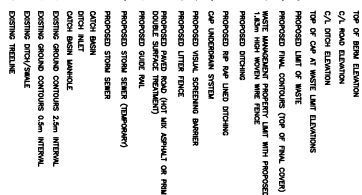
DRAWING NO.      105716-111

PROPOSED FINAL CONTOURS AND  
STORMWATER MANAGEMENT PLAN

**WARWICK LANDFILL**  
WATFORD ONTARIO

**WM.**  
**WASTE MANAGEMENT**

111 SHEET



TOP OF 1" SQUARE STANDARD HORN BEAM LOCATED AT GRID POINT 0+012.830M, 0+298.875

1. TRADING PARTIES SHOWN ON THIS MAP ARE BASED ON FIELD SURVEY DATA TO AUGUST 22, 2003 BY HICKSON PRODUCE AND ASSOCIATES AND 1987 AERIAL PHOTOGRAPHY SUPPLIED BY BUREAU OF LAND MANAGEMENT. SURVEYING LIMITED DATED OCTOBER 1997.
2. COUNTY ROAD 73, APPROPRIATIONS AT SITE ACCESS :
  - SOUTHERN END LEFT TURN LANE
  - NORTHERN END RIGHT TURN OCCUPATION LANE
  - NORTHERN END OCCUPATION LANE
  - ILLUSTRANT SITE ACCESS AREA

NOTES:

**HENDERSON PADDON**  
& ASSOCIATES LIMITED  
CIVIL & ENVIRONMENTAL ENGINEERING CONSULTANTS  
OWEN SOUND • THE BLUE MOUNTAINS • GRACEY • HAWKER

Tel (519) 376-7612 Fax (519) 376-8008  
HPA JOB # 105718

DWN BY: T C G      DATE: DEC 21 07  
CHK BY: F C F      SCALE: SEE BAR SCALE

WASTE MANAGEMENT OF CANADA CORP.

DRAWING NO.      105716-111

PROPOSED FINAL CONTOURS AND  
STORMWATER MANAGEMENT PLAN

**WARWICK LANDFILL**  
WATFORD ONTARIO

**WM.**  
**WASTE MANAGEMENT**

111 SHEET

[illegible]

LANDFILL BOTTOM CONTOURS  
(TOP OF PRIMARY GRAVEL)

WARWICK LANDFILL  
WATFORD ONTARIO

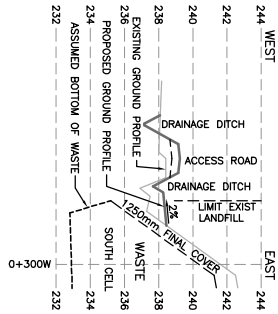
**WM.**  
**WASTE MANAGEMENT**

**HENDERSON PADDON**  
**& ASSOCIATES LIMITED**  
 CIVIL & ENVIRONMENTAL ENGINEERING CONSULTANTS  
 OWEN SOUND • THE BLUE MOUNTAINS • GRIMSBY • INNOVEX

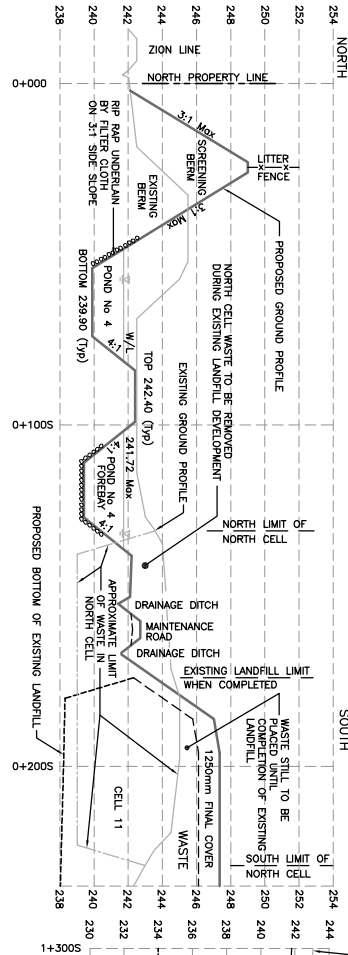
Tel: (519) 376-7612 Fax: (519) 376-8008  
 HPA JOB # 105716

COPYRIGHT © HENDERSON PADDON AND ASSOCIATES LIMITED

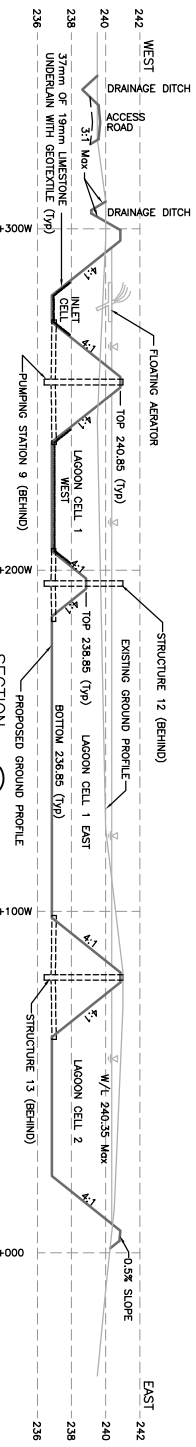
SECTION G  
GRID LINE 1+300S



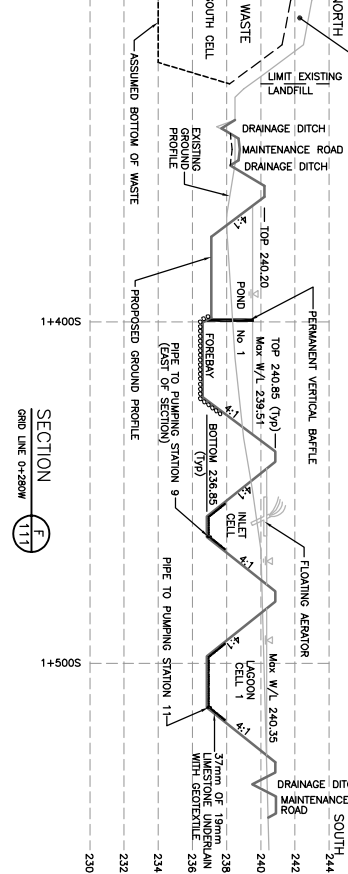
SECTION E  
GRID LINE 0+140W



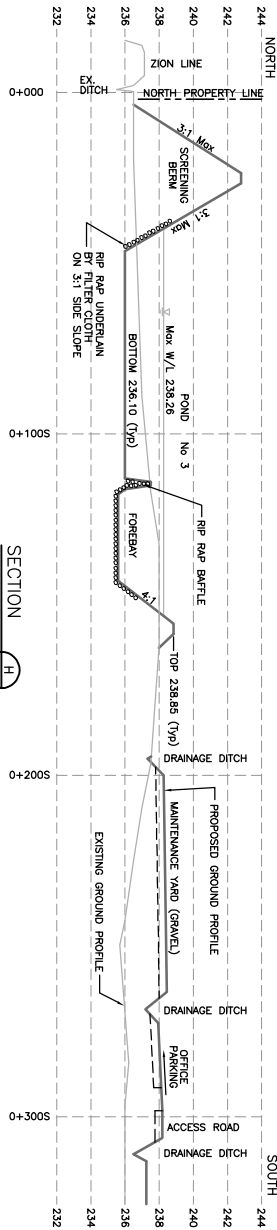
SECTION D  
GRID LINE 1+400S



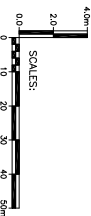
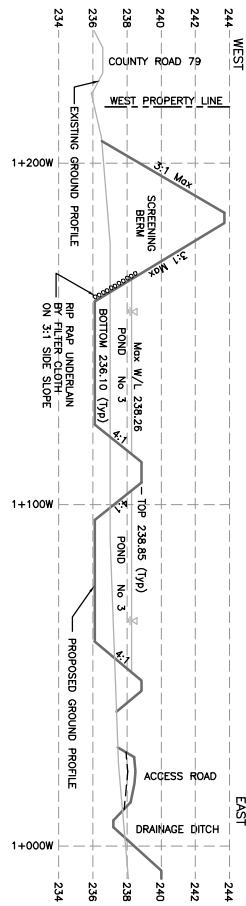
SECTION F  
GRID LINE 0+280W

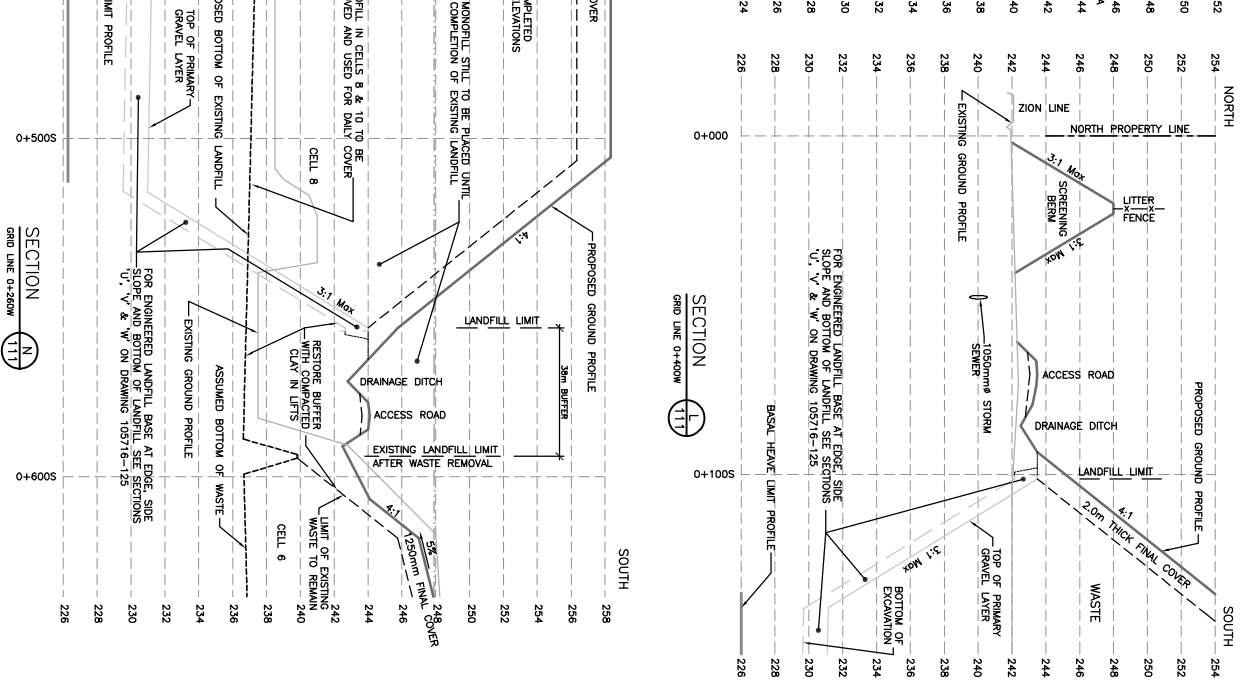
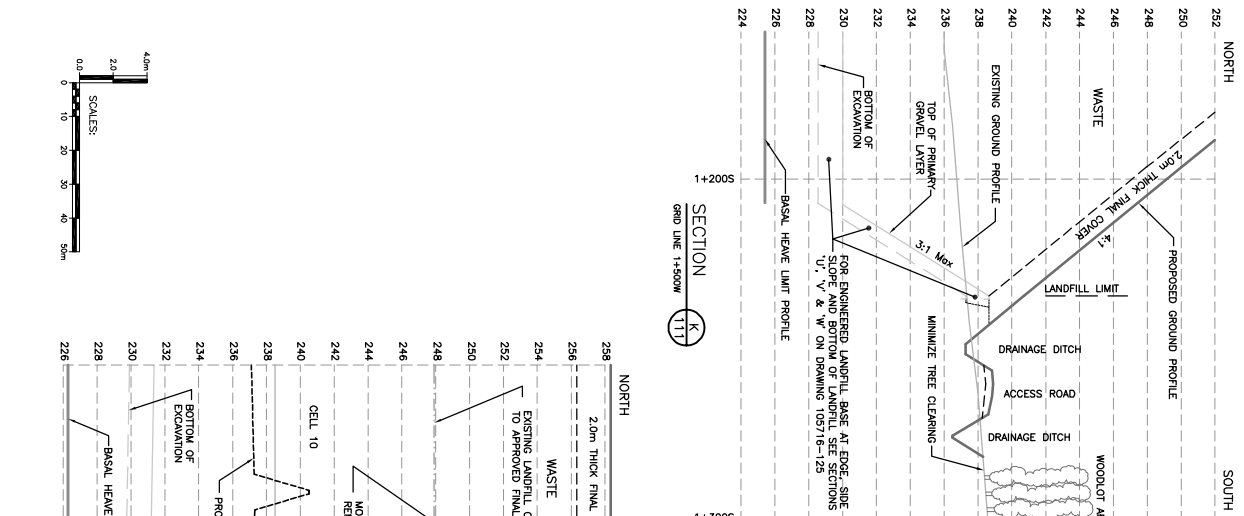
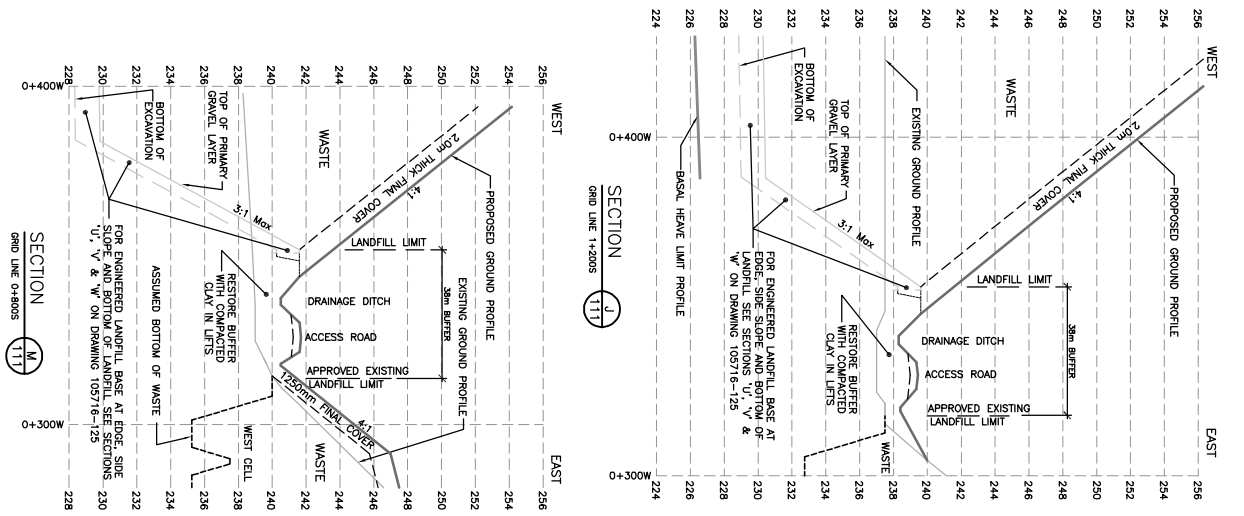


SECTION H  
GRID LINE 1+070W



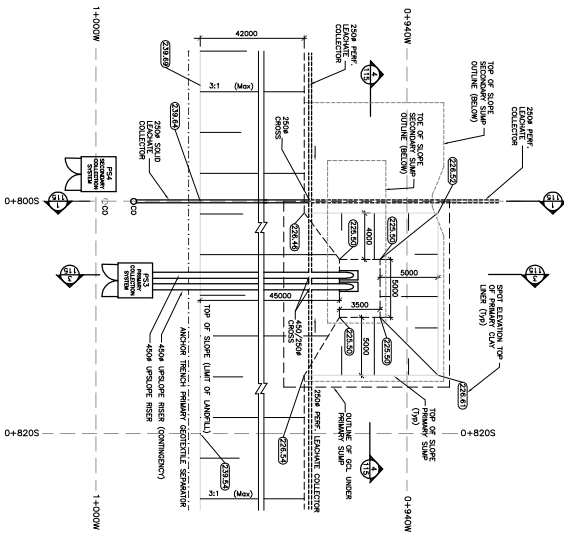
SECTION I  
GRID LINE 0+100S



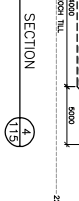
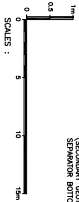
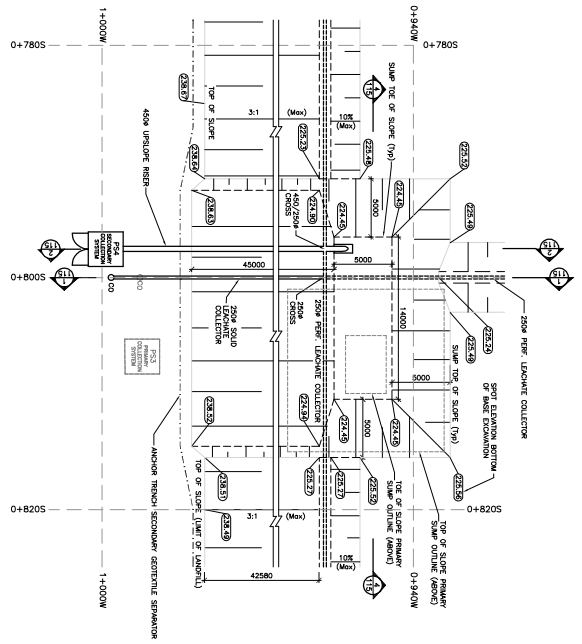




PRIMARY LEACHATE COLLECTION SYSTEM  
SUMP 2 PLAN



SECONDARY LEACHATE COLLECTION SYSTEM  
SUMP 2 PLAN



REVISION / ISSUE	DATE	BY	CHKD

[illegible]

1. LOCAL THICKENING OF PRIMARY GRAVEL ABOVE LEACHATE COLLECTOR PIPES IS NOT REFLECTED ON CONTOURS SHOWN ON THIS PLAN.



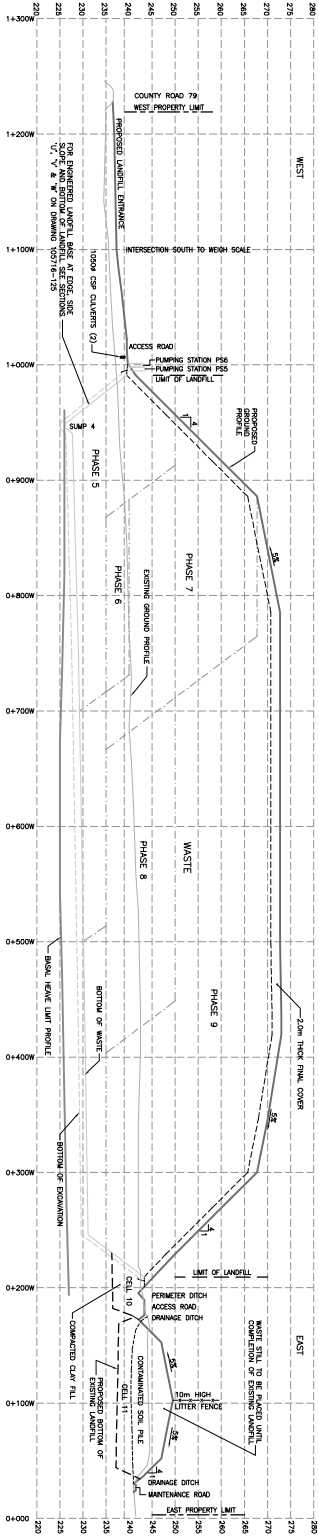
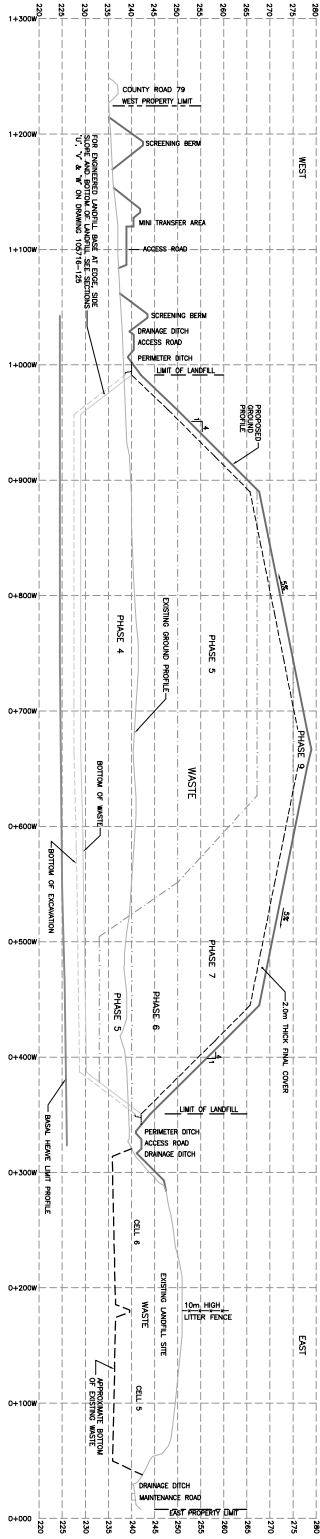
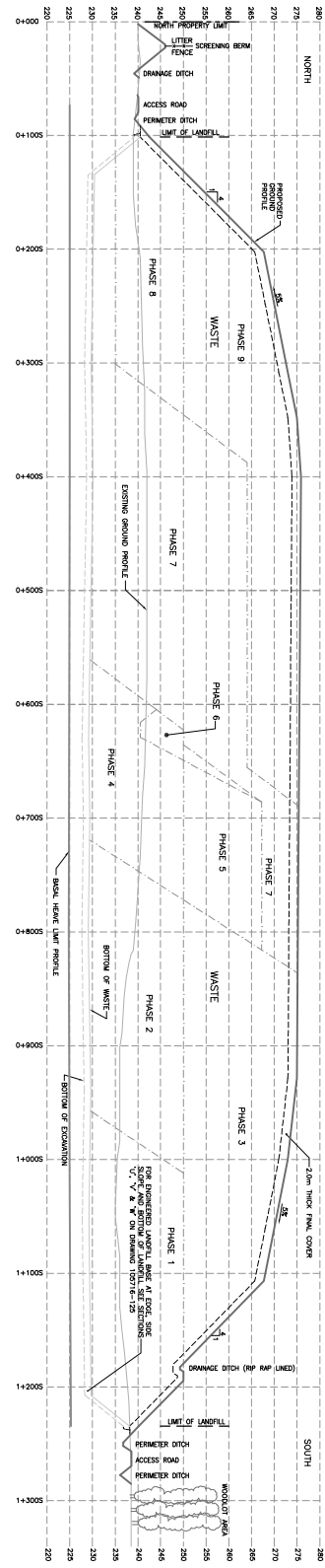
[illegible]

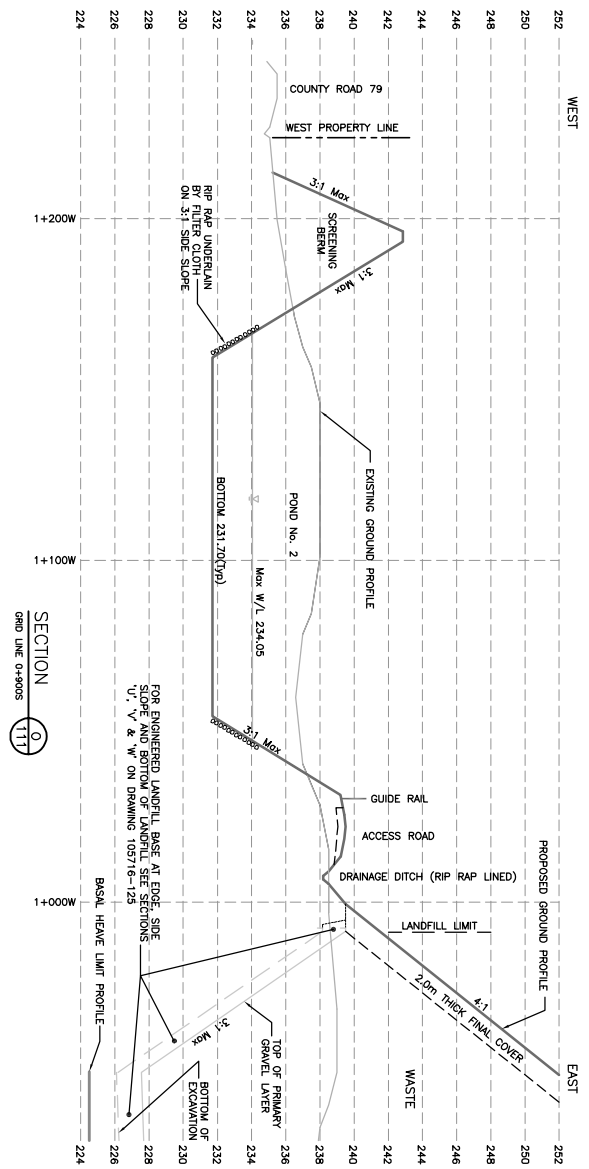
PROPOSED SECONDARY  
LEACHATE COLLECTION SYSTEM

WARWICK LANDFILL  
WATFORD ONTARIO

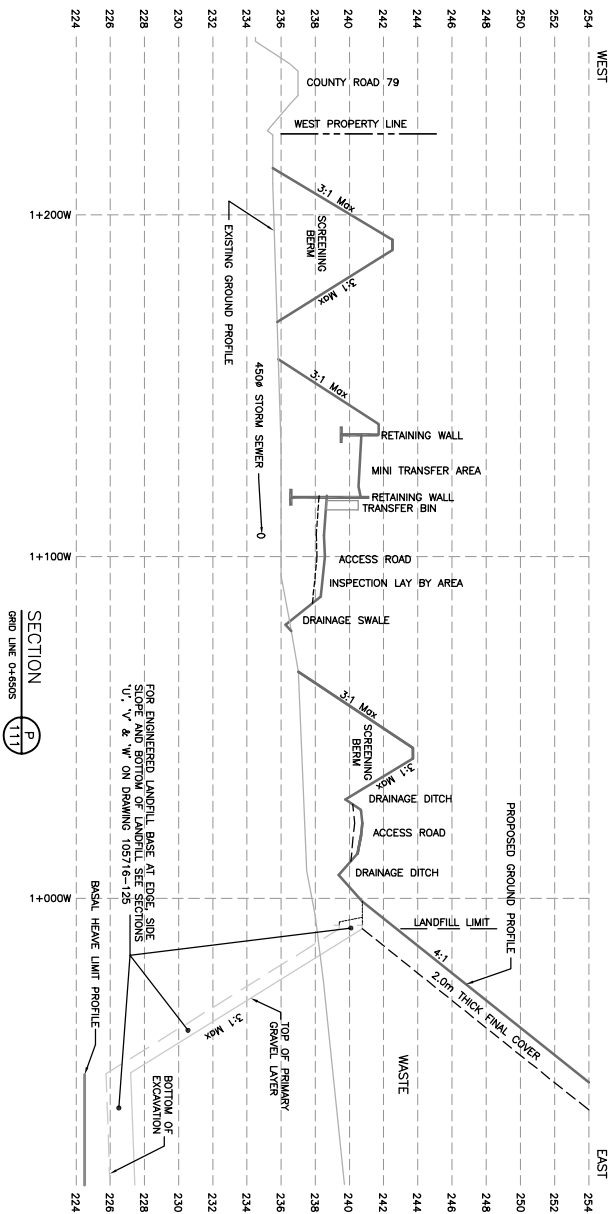


**HENDERSON PADDON**  
& ASSOCIATES LIMITED  
CIVIL & ENVIRONMENTAL ENGINEERING CONSULTANTS  
ORION SOUND • THE BLUE MOUNTAINS • CRIBSBY • HAWOVER  
Tels (519) 376-7812 Fax (519) 376-8008  
HPA JOB # 105718

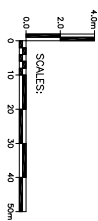




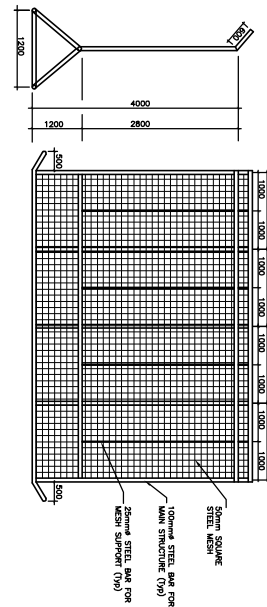
SECTION 117  
GRID LINE 0+805

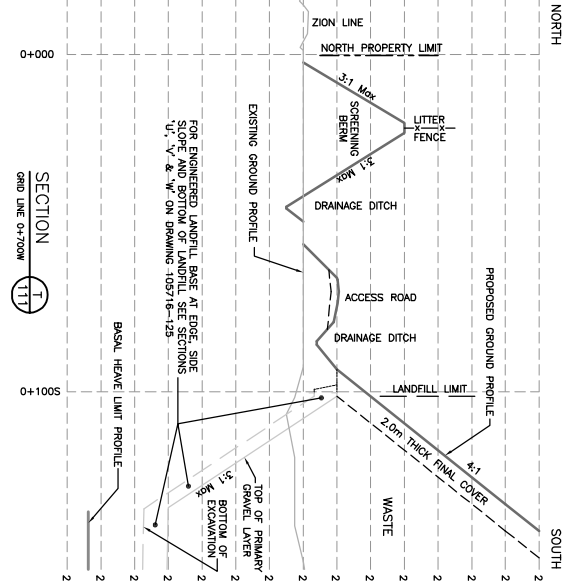
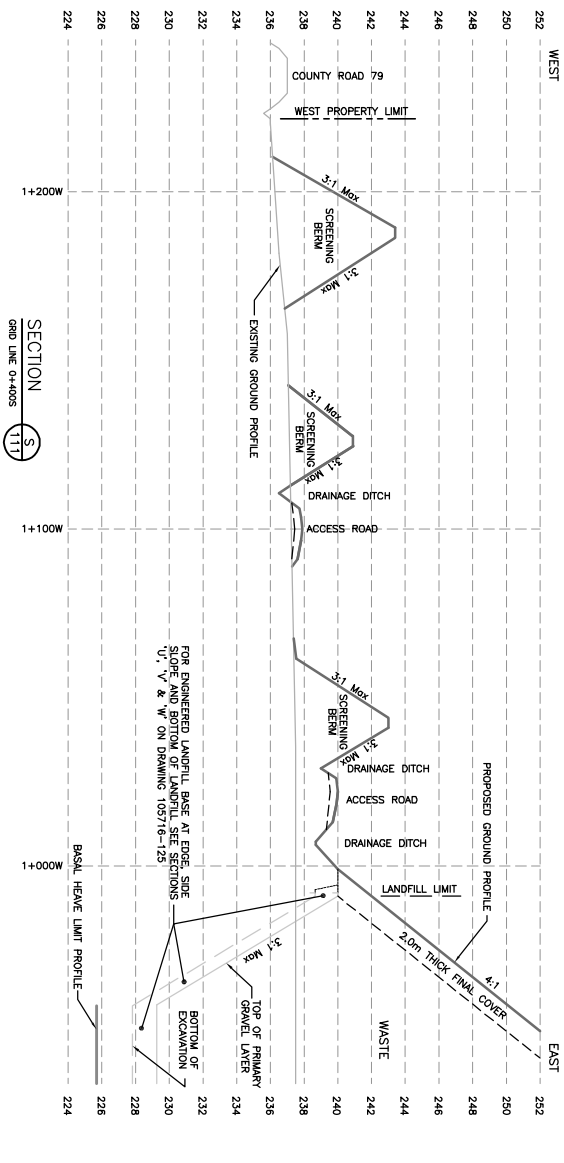
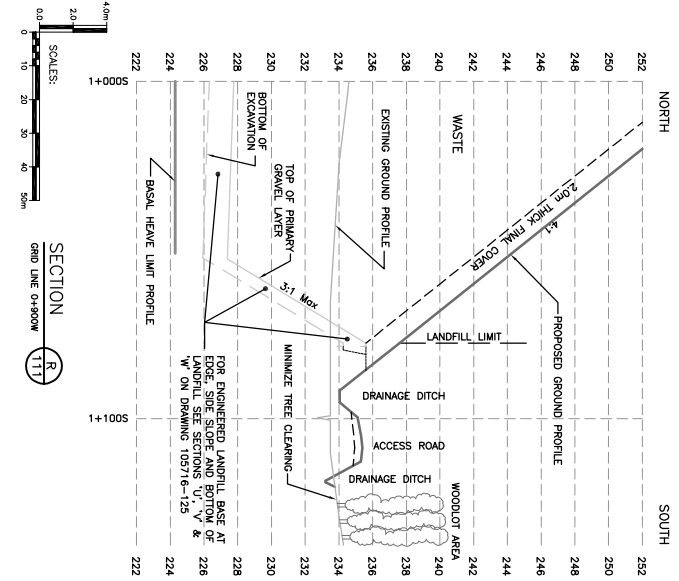
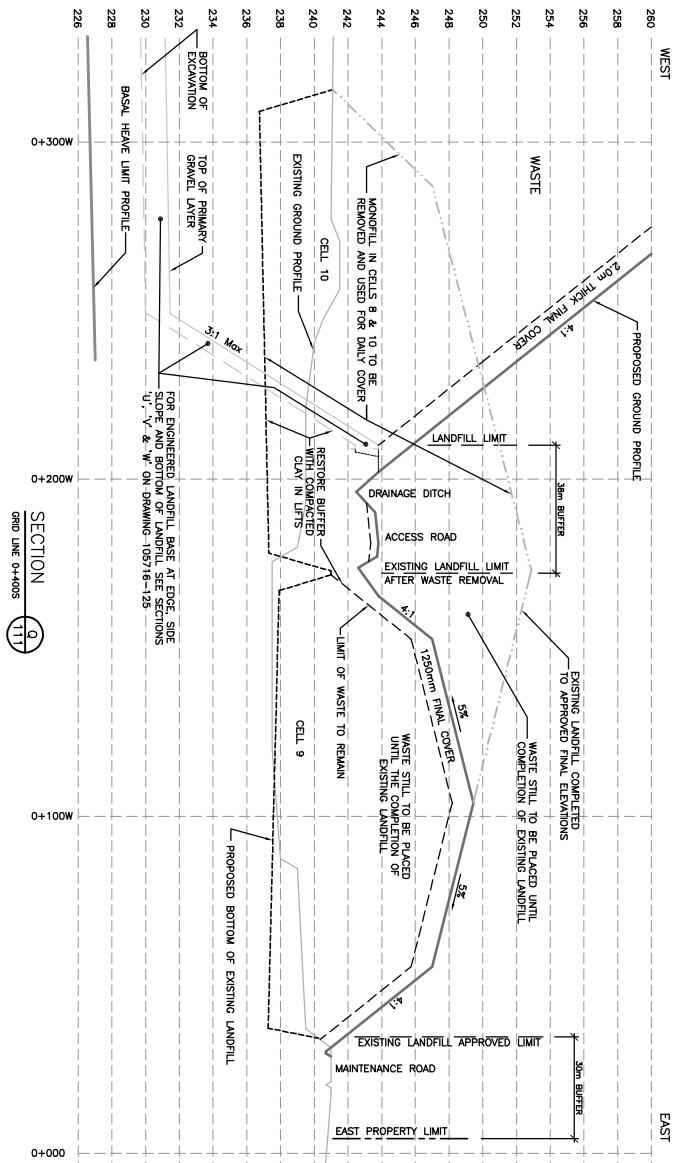


SECTION 117  
GRID LINE 0+650S



PORTABLE LITTER FENCE  
M/S





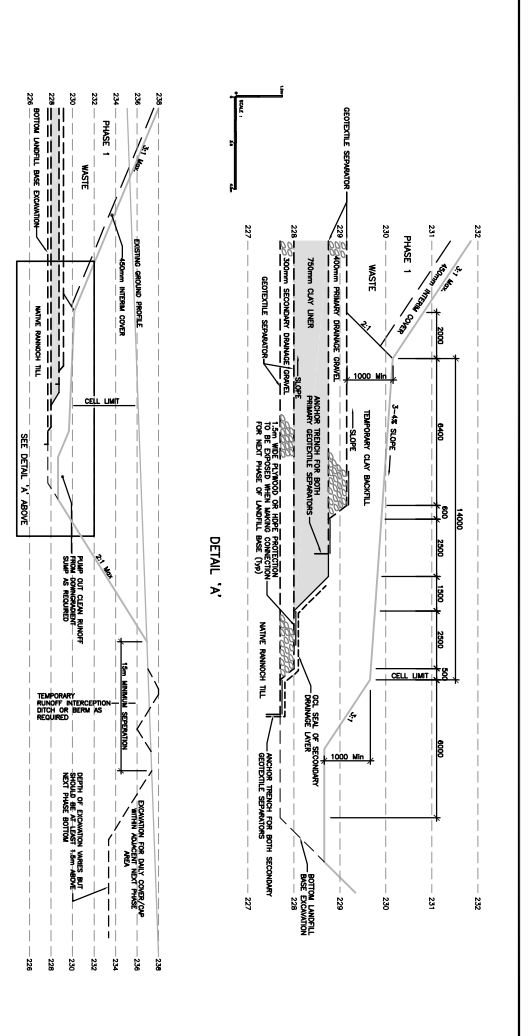
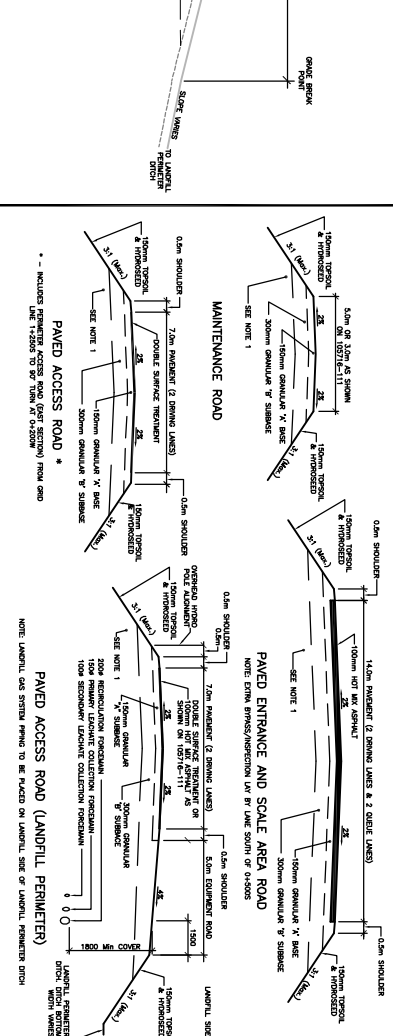
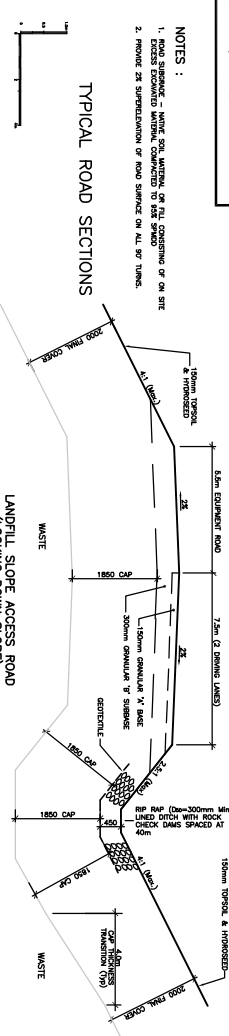
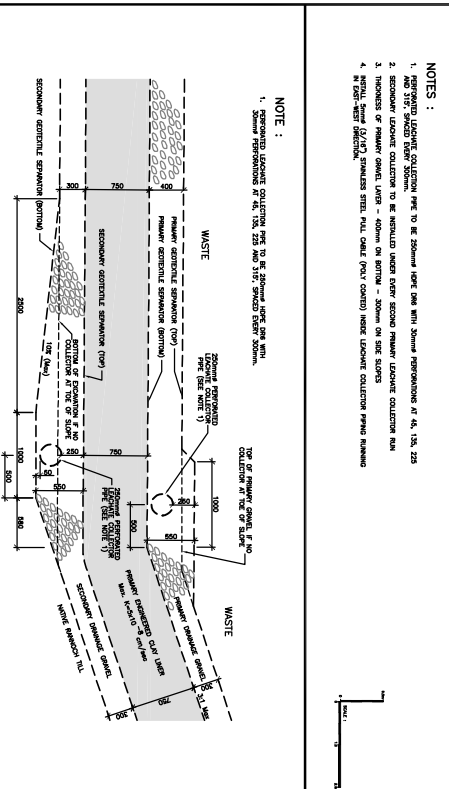
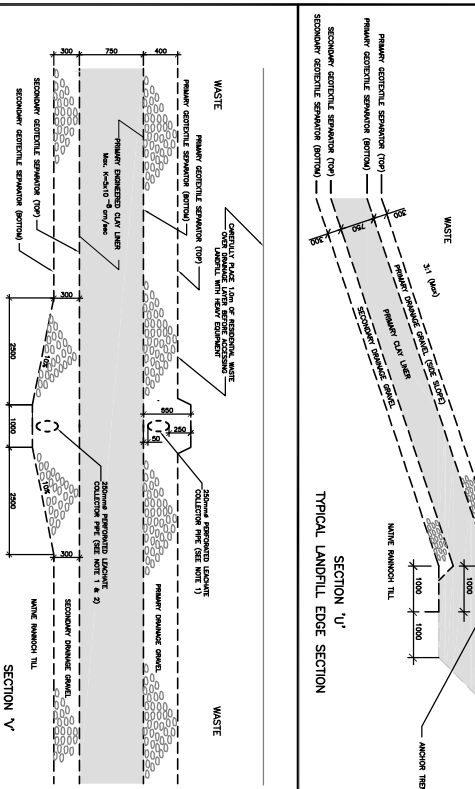
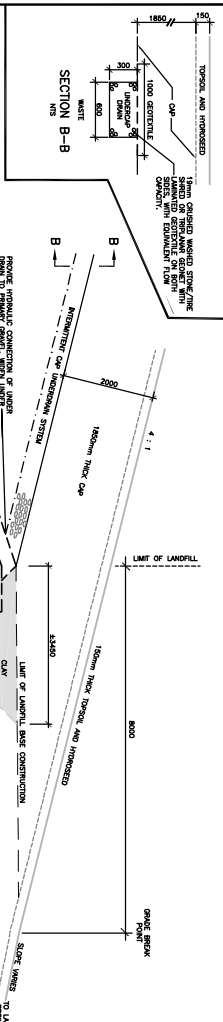
[illegible]



TABLE L-3

TCEC 2021 CQA CQC Liner System Summary - Final





4510 Rhodes Drive | Suite 530  
Windsor, ON N8W 5K5  
Canada

Tel: +1.519.823.1311  
Fax: +1.519.823.1316  
E-mail: [solutions@rwdi.com](mailto:solutions@rwdi.com)

August 4, 2021

Mr. Wayne Jenken  
Waste Management of Canada Corporation  
5768 Nauvoo Road  
Watford, Ontario N0M2S0

**Re: CQA/CQC Liner System Summary Report (Cell 4C)  
2021 Twin Creeks Environmental Centre Expansion Contract 106716S  
Twin Creeks Environmental Centre  
RWDI Reference No. 2102205, 1000**

**Email:** [wjenken@wm.com](mailto:wjenken@wm.com)

Dear Mr. Jenken,

**RWDI AIR Inc. (RWDI)** is pleased to provide this Construction Quality Assurance and Construction Quality Control (CQA/CQC) Cell 4C Liner System Summary Report to Waste Management of Canada Corporation (WM) for the 2021 Twin Creek Environmental Centre Expansion Contract 106716S. This letter report is written in conformance with Conditions 4.6 and 4.11 of the Amended Environmental Compliance Approval (ECA) No. A032203, dated December 19, 2020 (Waste ECA).

## 1. INTRODUCTION

The Twin Creeks Environmental Centre (Site) is owned and operated by WM, and is located in Part Lots 19 and 20, Concession 2, south of Egremont Road (SER) and Part Lots 20 to 22, Concession 4 SER, in the Township of Warwick, Lambton County, Ontario (Site). The Site is operated and being expanded in conformance with the Ministry of Environment, Conservation and Parks (MECP) approved landfill design in the Development and Operations Plan Volumes 1 through 3 (Henderson Paddon & Associates, March 2008).

The Liner System was constructed and CQA/CQC inspected for conformance with design details from April 19 to August 3, 2021. It is noted that Cell 4C, is the third stage (sub-cell) of Cell 4, with the full Cell 4 being comprised of full stages 4A through 4C. The CQA/CQC program for the Cell 4C Liner System was completed in conformance with the following documents.

- Twin Creeks Environmental Centre Expansion Contract 106716S, Landfill Base Preparation, Cell 4C (WSP, January 2021) (2021 Tender).
- Amended ECA for Waste No. A032203, dated December 19, 2020 (MECP).
- Amended Permit to Take Water (PTTW) No.4430-8PLMKV, dated January 17, 2012, for the removal of surface water from four (4) Sedimentation Ponds and the dewatering of the Secondary Drainage Layer (SDL) for the Expansion Site (MECP).
- ECA for Air No. 9488-AMPH4Y, dated July 6, 2017 (MECP).
- Amended ECA for Industrial Sewage Works No. 2403-BE6LZ4, dated August 21, 2019 (MECP).
- Evaluation of Liner Test Pad – Geotechnical CQA/CQC Program letter (Jagger Hims, a Division of GENIVAR Consultants LP, July 2009): Required per Geotechnical CQA/CQC Program noted below.





- Waste Management of Canada Corporation Twin Creeks Landfill Use of Geonet for Secondary Drainage Layer (Henderson Paddon & Associates, January 2009: Item 55 of Schedule A of the Waste ECA.
- Development & Operations Plan – Warwick Landfill Volumes 1 through 3 (Henderson Padden & Associates, March 2008): Items 66, 67, and 68 of Schedule A of the Waste ECA.
- Geotechnical CQA/CQC Program for Landfill Liner System letter (Jagger Hims Limited, March 2007): Part of Items 30 and 31 of Schedule A of the Waste ECA.

## 2. LINER SYSTEM

### 2.1 Liner System Conceptual Layout

The Liner System for Cell 4C comprised an area of approximately 3.03 hectares and consisted of the following layers.

➤ **First (Bottom) Layer:**

- Secondary Liner (SL), which is the native clayey silt to silty clay soil at the Site (unsuitable material, such as silty sand and/or cobbles, where was encountered, was removed and replaced with select liner grade soil per remoulded and compacted clayey silt to silty clay soil per the requirements for the Primary Liner).

➤ **Second Layer:**

- Secondary Drainage Layer (SDL), which consists of geonet (geosynthetic grid that has a boxed tri-planer structure with geotextile attached to the top and bottom) across the top of the SL that gravity drains to drainage trenches that are backfilled over the geonet with high density polyethylene (HDPE) pipe embedded in drainage stone overlain with non-woven geotextile fabric.

➤ **Third Layer:**

- Primary Liner (PL), which is constructed on top of the SDL and consists of remoulded and compacted clayey silt to silty clay soil with a minimum design thickness of 0.8 metre (it is noted that the Site is approved with a 0.75 m thick PL, the additional 0.05 m is added for PL protection purposes from drying effects during construction).

➤ **Fourth (Top) Layer:**

- Primary Drainage Layer (PDL), which overlays the PL and consists of drainage stone that directs leachate by gravity to HDPE pipes within the drainage stone. Non-woven geotextile fabric is below and above the PDL.



## 2.2 Location and Slope Details

Cell 4C has a western limit at Site survey-control gridline 0+473W, and is north of Cell 2D/2E, with a southern limit at an approximate connection of the two cells along the Site survey-control gridline 0+701S. The northern extent of Cell 4C is along Site survey-control gridline 0+401.5S approximately between Site survey-control gridlines 0+395W and 0+473W and along Site survey-control gridline 0+557.2S approximately between Site survey-control gridlines 0+350W and 0+395W. The east limit of Cell 4C is at Site survey-control gridline 0+395W approximately between Site survey-control gridlines 0+401.5S and 0+557.2S and at Site survey-control gridline 0+350W approximately between Site survey-control gridlines 0+557.2S and 0+701S. The approximate east limit of 0+350W, approximately between Site survey-control gridlines 0+557.2S and 0+701S, is represented by the approved east limit of Expansion Site waste footprint, but by design does not follow the Site survey-control gridline. Actual north, east, south, and west limits for each layer of the Liner System are different due to the connection methodology of cell to cell (ie Cell 2 to Cell 4) or from cell stage to cell stage (ie. Cell 4A to Cell 4B and Cell 4B to Cell 4C). The aforementioned coordinates are the boundary limits for the PL. Cross-sectional details for cell to cell connection are presented in Section D on Drawing C4-311 of the 2021 Tender, while Cross-sectional details for cell stage to cell stage connection are presented in Section G on Drawing C4-312 of the 2021 Tender. The SL and PL generally slope upward in a saw-tooth pattern from the low point at approximately Site survey-control gridline 0+630S and approximately Site survey-control gridline 0+473W at 0.5% with a slope trend 45° to the Site survey-control gridline system.

A temporary clayey soil seal was placed over each layer of the eastern limits approximately between gridlines 0+401.5S and 0+557.2S and over each layer of the northern limits approximately between gridlines 0+350W and 0+395W, as well as 0+401.5S and 0+557.2S of the Cell 4C Liner System. In the future, this temporary clayey soil seal will be progressively removed for the connection of each layer to the Cell 6 Liner System. A similar clayey soil seal was previously placed over the eastern limit of Cell 4B, which was progressively removed to tie in each layer of the liner system for Cell 4C.

In addition to the above-noted clay seals, a seal was also installed along the northern limit of Cell 2D/2E, which was partially removed to expose the PL for connection of the PL of Cell 2D/2E to Cell 4C. A similar clayey soil seal was placed over the northern limit of Cell 4C, which will be removed in the future for connection of the PL of Cell 6.

The SL is naturally connected between Cell 2D/2E to Cell 4C. The SDL and PDL for Cell 2D/2E to Cell 4C were not connected, in accordance with Items 75 to 77 of Schedule A of the Waste ECA. As-built temporary clay seal grades are detailed on Drawing AC-1106.



## 3. CQA/CQC INSPECTIONS

### 3.1 General Considerations

Similar to previous CQA/CQC Programs for the Cell 1A Stages 1 and 2, Cell 1B Stages 1 and 2, Cell 2A, Cell 2B, Cell 2C, Cell 2D, Cell 2E, Cell 4A Stages 1 and 2, and Cell 4B Stages 1 and 2, the CQA/CQC Program for Cell 4C accounted for failing material inspection results in accordance with USEPA recommendations for maximum allowable percentages of outliers due to the variable nature of liner material, as well as part of Items 30 and 31 of Schedule A of the Waste ECA. The USEPA notes that typical deviations range from 5% to 10% depending on the assessment parameter. It is noted that there were no failed inspection results for the compacted clay liner for Cell 4C.

### 3.2 Secondary Liner

#### 3.2.1 Basal Uplift Assessment

After excavation of large areas of soil to the top of SL elevation grades along the foot-print of Cell 4C, Basal Uplift Assessment was initiated on April 26, 2021 and April 30, 2021. The survey points were re-measured for vertical and lateral location on April 27, 2021 and April 30, 2021, respectively. This time-frame was equal to or greater than the required minimum of 24 hours between surveys.

Survey assessment shots were completed at a frequency of approximately 32.7 shots per hectare, which is greater than the minimum 5 shots per hectare, per the requirements of the QA/QC Program of Item 23.5, Division 5 of the Contract No. 106716S. The frequency of shots taken amounted to approximately 32.7 shots per hectare, based on a cell floor area of approximately 3.03 hectares.

Each of the 99 survey points showed no indication of Basal Uplift (>30 mm uplift) from initial to the follow-up assessments. The data for each of the survey points for the initial to the follow-up assessments were essentially the same and are representative of minor variances attributed to the instrument and site survey control accuracy. Therefore, the results do not represent an upheaval or subsidence of soil but represent instrument/site control accuracy limitations.

In summary, the Basal Uplift Assessment for the base excavation of Cell 4C was completed as required and there was no indication of Basal Uplift.

Vertical elevations of the top of the SL were of acceptable tolerances (within 30 mm). Survey results are maintained on file. As-built SL surface grades are detailed on Drawing AC-1102.

#### 3.2.2 Unsuitable Material Removal

The floor and the slope of the SL of Cell 4C were inspected for sand lenses, as well as cobbles in excess of 100 mm in diameter. Unsuitable material (sand) was not encountered within the SL of Cell 4C. Protruding cobbles



greater than 100 mm in diameter were removed from the surface of the SL as required. Finish grade of the SL was successfully achieved by grading and smooth drum roller finishing.

### 3.3 Drainage Layers

As detailed in **Section 2.1**, the SDL and the PDL are generally constructed as detailed below.

- Secondary Drainage Layer (SDL), which consists of geonet (geosynthetic grid that has a boxed tri-planer structure with geotextile attached to the top and bottom) across the top of the SL that gravity drains to drainage trenches that are backfilled over the geonet with high density polyethylene (HDPE) pipe embedded in drainage stone overlain with non-woven geotextile fabric.
- Primary Drainage Layer (PDL), which overlays the PL and consists of drainage stone that directs leachate by gravity to HDPE pipes within the drainage stone. Non-woven geotextile fabric is below and above the PDL.

#### 3.3.1 Geonet Results

The geonet placed on the top of the SL was manufactured and supplied by GSE Environmental LLC of Houston, Texas, USA. GSE Environmental completed the QA/QC testing on the geonet product, with findings verified by the design engineer (WSP) that indicated that material satisfied or was better than the minimum specifications detailed in the following summary. Laboratory test reports are maintained on file.

##### **Geonet Characteristics:**

Property	Test Method	Units	Specification
Thickness (Min)	ASTM D 5199	mils (mm)	330 (8.4) ± 10%
Tensile Strength Ratio (Min)	ASTM D 7179	lbs/in (kN/m)	80 (14)
Density (Range)	ASTM D 792	g/cm <sup>3</sup>	0.94-0.96
Melt Flow Index (Max)	ASTM D 1238	g/10 min	1.0
Carbon Black Content (Range)	ASTM D 4218	%	2-3



**Geonet Composite Characteristics:**

Property	Test Method	Units	Specification
Ply Adhesion (Min)	ASTM D 7005	lbs/in (g/in)	1.0 (454)
Transmissivity (Min)	ASTM D 4716	m <sup>2</sup> /sec	2.0 X 10 <sup>-3</sup> @ 0.1 Gradient

**Geotextile Characteristics:**

Property	Test Method	Units	Specification
Mullen Burst Strength (Min)	ASTM D 3786	kPa (psi)	2,900 (420)
Grab Tensile Strength (Min)	ASTM D 4632	N (lbs)	900 (202)
Puncture Resistance (Min)	ASTM D 4833	N (lbs)	500 (112)
Apparent Opening Size (Max)	ASTM D 4751	mm (U.S. Sieve)	0.21 (70)
Trapezoid Tear Strength (Min)	ASTM D 4533	N (lbs)	350 (79)
UV Resistance (500 hrs)	ASTM D 4355	%	70%
Mass (Min)	ASTM D 5261	g/m <sup>2</sup> (oz/yd <sup>2</sup> )	350 (10.2)

### 3.3.2 Geonet Placement

The geonet was installed by under the direction of All Season Excavating of Watford, ON (ASE). The geonet rolls were placed on the sideslope portion of the SL in an east to west trend from the top of slope to approximately Site survey-control gridline 0+392W. For the floor of the SL, the geonet rolls were placed on the floor of the SL in Cell 4C. The geonet was placed in a south to north trend from approximately Site survey-control gridline 0+402S to 0+698S and between approximately Site survey-control gridline 0+392W +470W.

In Cell 4C, the geonet core was zip-tied together as required at 1.5 m (roll length) 0.6 m (roll width) spacing or less with the geonet overlapped approximately 75 to 100 mm along the roll length and approximately 300 mm along the roll width (ends). The geotextile of the geonet was sewn with a two-thread, double-lock stitch typically with a 75 to 100 mm overlap. Areas of geonet that were patched were repaired in general accordance with manufacturer's recommendations. The northern and southern limit of the geonet were enveloped (0.3 m underside and 0.6 m topside) with geotextile or sewn shut to prevent inward movement of fine soil.

The degree of wrinkling was assessed and approved by CQA/CQC personnel prior to coverage of the SDL with the clayey soil of the PL.

In summary, the geonet was placed as required with proper orientation of the length of the rolls being at 45° to the slope trend of the SL (excavation base) floor and the side slope with seams properly overlapped, zip-tied, and sewn.



### 3.3.3 Geotextile Results

The geotextile was manufactured by GSE Environmental LLC of Houston, Texas, USA. Internal QA/QC of the material was completed by GSE Environmental LLC with results that were verified by the design engineer (WSP) to have met or be of superior quality than design specifications, which are detailed below. Laboratory test reports are maintained on file.

#### Geotextile Characteristics:

Property	Test method	Units	Specification
Mullen Burst Strength (Min)	ASTM D 3786	kPa	2,900
Tensile Strength (Min)	ASTM D 4632	N	900
Puncture Resistance (Min)	ASTM D 4833	N	500
Apparent Opening Size (Max)	ASTM D 4751	mm	0.21
Trapezoid Tear Strength (Min)	ASTM D 4533	N	350
UV Resistance (500 hrs)	ASTM D 4355	%	70%
Permittivity (Min)	ASTM D 4491	sec <sup>-1</sup>	0.2
Mass (Min)	ASTM D 5261	g/m <sup>2</sup>	350

### 3.3.4 Geotextile Placement

The geotextile was installed under the direction of ASE. The geotextile was placed above the SDL collection/drainage trenches, below and above the remolded and recompact clayey soil as it was completed as well as above the PDL beginning approximately along the south Site survey-control gridline 0+701S of Cell 4C working toward the approximate north Site survey-control gridline of 0+405S. The geotextile above the SDL collection/drainage trenches was placed in a continuous length beginning on the east top of slope limit of Cell 4C to the east limit of Cell 4B, with an east to west trend. In addition, for the SDL collection line trenches, the geotextile was placed over the drainage stone parallel to the trenches for two roll widths to cover the trench top. The geotextile was not placed with an apparent directional trend throughout the base of Cell 4C. The geotextile was sewn with a two-thread, double-lock stitch typically with a 75 mm overlap.

In summary, the geotextile was placed as required with proper orientation of the length of the rolls being at 45° to the slope trend of the SL (excavation base) floor, as well as seams properly overlapped and sewn. The degree of wrinkling was assessed and approved by CQA/CQC personnel prior to coverage of the SDL with the clayey soil of the PL, and coverage of the PL with the drainage stone of the PDL.

The sewn seam strength was completed by CTT Group of Quebec, CAN for each of the geotextile layers (top of SDL, as well as bottom and top of PDL). Test results indicated that sewn seam strength is notably stronger



than the required minimum of 90% of the tear strength of the geotextile. Laboratory test reports are maintained on file.

### **3.3.5 Drainage Stone Gradation Results**

The drainage stone was supplied by Blythe Dale Sand and Gravel, Embro, ON, CAN (approximately 5,100m<sup>3</sup>, was on-Site remaining from the 2020 purchase). The QA/QC service for the drainage stone gradation was completed by Golder Associates Ltd. of London, ON, CAN and results were verified to meet or be of superior quality than the design specifications. Laboratory test reports are maintained on file. The gradation results for the drainage stone were better than the minimum project specifications, which in-turn is better than the requirements noted in Condition 7.15 of the Waste ECA. Samples were collected and tested at a frequency of every 2,000 cubic metres, for seven (7) samples total to date for the stone in the SDL and PDL. Project specifications are noted below.

- D<sub>75</sub> of 37 mm min.
- D<sub>8</sub> of 19 mm min.
- Uniformity coefficient ( $C_u = D_{60}/D_{10}$ ) of 1.8 max.
- 0.8% of the material was finer than the 0.075 mm particle size (i.e. passing the #200 sieve).

### **3.3.6 Drainage Stone Placement**

The drainage stone was placed by ASE in accordance to design requirements, which satisfy and were better than noted in Conditions 7.16 and 7.17 of the Waste ECA. Continuous supervision by CQA/CQC personnel noted that approximately 50 mm of drainage stone was placed below, and 300 mm of drainage stone was placed above, the HDPE collection pipes in the SDL and PDL.

The drainage stone was protected from clay contamination from vehicle tracking during placement. As the drainage stone was being placed, the drainage stone was visually inspected for particle crushing/cracking that could be attributed to construction practice. No evidence of significant crushing/cracking of concern was observed.

In summary, the drainage stone was placed as required. As-built drawings for the SDL and PDL are appended as Drawings AC-1103 and AC-1105, respectively.

### **3.3.7 HDPE Collector Pipe Characteristics**

The HDPE collector pipes were installed by CG as required for both the SDL and PDL. The HDPE pipe was 250 mm diameter dimension ratio 6 (DR6) product. The collector pipe across the base of the SDL and PDL was factory perforated. Perforations were orientated in accordance to Condition 7.14 of the Waste ECA, and have the following characteristics.

- 19 mm diameter perforations.
- Perforations at 45°, 135°, 225°, and 315°.
- Perforations spaced at 300 mm intervals.



### 3.3.8 HDPE Collector Pipe Placement

The HDPE collector pipes were heat-fusion welded and dragged into place. The connection of the pipes between Cell 4B Stage 2 and Cell 4C were completed with the existing sleeve-fit connection after removal of the Leachate Collector Temporary Cleanouts installed in 2020. The connection of the two (2) SDL pipes that run along approximate gridlines 0+459S, and 0+516S and the five (5) PDL pipes that run along approximate gridlines 0+430.5S, 0+459S, 0+487S, 0+516S, and 0+544.5S between Cell 4C and future Cell 6 will also be completed with a sleeve-fit connection. Temporary Cleanouts were installed for these seven (7) pipes during construction of the temporary clayey soil seal along the eastern limit of the Cell 4C Liner System and will be removed during future Cell 6 construction. Pipes were placed with the required drainage stone below/above them as noted in the Leachate Collector Pipe Connection Detail on Drawing C4-313 of the 2021 Tender. The slope of the pipes, along the floor component of the SDL and PDL, was verified to be approximately 0.5%.

The stainless steel pull cable, to facilitate closed-circuit television (CCTV) access, was installed in each HDPE pipe for each the SDL and PDL, as required.

## 3.4 Clayey Soil Borrow Material

Clayey silt to silty clay that was used to construct the PL of Cell 4C was excavated from the borrow area of Cell 4C during 2020 construction activities. Laboratory test reports are maintained on file.

### 2020:

Parameter	Average Test Result	Test Result Range
<b>Atterberg Limits</b>	WL: 39%, WP: 19%; Ip: 20%	WL: 37 to 42%, WP: 18 to 20%, Ip: 19 to 22%
<b>Particle Size Distribution</b>	Clay: 44%, Silt: 51%, Sand: 5%, Gravel: 0%	Clay: 43 to 45%, Silt: 48 to 52%, Sand: 3 to 7%, Gravel: 0 to 2%
<b>Hydraulic Conductivity</b>	$1.95 \times 10^{-8}$ cm/s	$1.9$ to $2.0 \times 10^{-8}$ cm/s
<b>Compaction Curve</b>	SPMDD: 1,645 kg/m <sup>3</sup> Optimum Moisture: 20%	SPMDD: 1,626 to 1,659 kg/m <sup>3</sup> Optimum Moisture: 19 to 22%
<b>Water Content</b>	18%	16 to 20%

The aforementioned listed information is based on the 2020 borrow area sampling programs, which were carried out at the frequencies as noted below.

Description	Frequency
<b>Atterberg Limits, Particle Size Distribution and Compaction Curve</b>	1 test per 5,000 m <sup>3</sup>
<b>Hydraulic Conductivity</b>	1 test per 10,000 m <sup>3</sup>
<b>Water Content</b>	1 test per 2,000 m <sup>3</sup>





### **3.5 Remoulded & Compacted Clayey Soil Liner**

The PL was continuously inspected by CQA/CQC personnel during placement. Key inspection activities included the following tasks.

- Pre-processing activities of the liner soil in the borrow material pile.
- Oversight of loose lift placement.
- Liner soil quality.
- Compaction methodology and testing.

#### **3.5.1 Pre-processing Activities of the Liner Soil**

The select clayey liner soil in the borrow material pile required the addition of water to meet the required 1 to 3% greater than optimum moisture content range (see moisture and compaction details in Section 3.4).

Water was added as part of liner soil conditioning to the liner borrow material pile through water truck hauling from the four sedimentation ponds around Site, the temporary stormwater storage area located north of Cell 4C, as well as the SDL of Cell 2 (Pumping Station 4) and Cell 4A (Pumping Station 6). This addition of water facilitated hydration and created an overall uniform product within the liner borrow material pile. Prior to loading and trucking clayey liner soil material to be placed in loose lifts for Cell 4C construction, the clayey liner soil material was then marginally hydrated to adjust for factors such as weather and any inconsistent pockets of clayey liner soil material that were encountered.

When encountered, cobbles greater than 100 mm in diameter were removed from the liner soil before the liner soil was transferred for PL construction.

#### **3.5.2 Loose Lift Placement**

Loose lifts were inspected during placement to verify that cobbles greater than 100 mm in diameter were not present in the soil. Where encountered, cobbles greater than 100 mm were removed prior to soil compaction. Also, inspections were completed to make sure that dry soil clods greater than 100 mm were not present. Lifts were also surveyed to make sure they were not placed too thick to inhibit proper lift to lift kneading during compaction.

Loose lifts were placed by dozers. Off-road trucks end-dumped the liner soil at the edge of the cell at select locations and then the dozers spread the soil at the required thickness for each lift. Loose lifts were placed from the east, and west boundaries of Cell 4C. The underlying geonet and geotextile were observed during placement activities and were noted to not slip or roll (wave) unacceptably along the floor.

Loose lifts were placed at approximately 150 mm thick and compacted to 100 mm thick. One exception was for the first loose lift, which was placed at 300 mm thick and compacted to approximately 200 mm. The thicker first lift is placed to prevent damage to the underlying SDL from the feet of the sheepsfoot compactor.



It is noted the first and last lift of soil liners are classified as sacrificial lifts to serve as protection lifts to the inner lifts of the constructed liner.

Subsequent lifts were not placed until the underlying lift was approved by CQA/CQC personnel such that an adequate lift was constructed and that proper lift to lift kneading would occur. Where a leading edge of a completed section of liner was connected to a new section of liner, the connection was completed in a stair-step fashion, with each step length approximately 3-times the compacted lift height.

At the connection of Cell 2D/2E to Cell 4C, the liner of Cell 4C was stair stepped/extended up and into the northern limit of the liner of Cell 2D/2E. See Section D on Drawing C4-311 of the 2021 Tender for cross-section details for this connection.

At the connection of Cell 4B Stage 2 to Cell 4C, the liner of Cell 4C was stair stepped and extended into the liner of Cell 4B Stage 2. See Section G on Drawing C4-312 of the 2021 Tender for cross-section details for this connection.

### 3.5.3 Liner Soil Quality

The clayey soil liner material was also assessed during loose lift placement for select geotechnical quality components to verify the findings from the borrow material sampling program detailed in **Section 3.4**. Sample parameter and frequencies are noted below.

Parameter (ASTM Reference Method)	Test Frequency
<b>Atterberg Limits (ASTM D-4318)</b>	1 test per 800 m <sup>3</sup>
<b>Particle Size Distribution (ASTM D-422)</b>	1 test per 800 m <sup>3</sup>
<b>Water Content (ASTM D-2216, D-4643)</b>	1 test per 800 m <sup>3</sup>
<b>Compaction Curve (ASTM D-698)</b>	1 test per 5,000 m <sup>3</sup>

Considering the aforementioned sampling program, summarized below are the select geotechnical quality results for the clayey soil material used to construct the PL for Cell 4C.

Parameter	Average Test Result	Test Result Range
<b>Atterberg Limits</b>	W <sub>L</sub> : 42%, W <sub>p</sub> : 21%, I <sub>p</sub> : 22%	W <sub>L</sub> : 39 to 45%, W <sub>p</sub> : 19 to 21%, I <sub>p</sub> : 19 to 25%
<b>Particle Size Distribution</b>	Clay 43%, Silt 52%, Sand 5%, Gravel: 0%	Clay: 40 to 48%, Silt: 48 to 55%, Sand: 3 to 7%, Gravel: 0 to 2%
<b>Water Content</b>	24%	21 to 28%
<b>Compaction Curve</b>	SPMDD: 1,669 kg/m <sup>3</sup> Optimum Moisture: 19 %	SPMDD: 1,646 to 1,684 kg/m <sup>3</sup> Optimum Moisture: 18 to 20%

In summary, the soil quality sampling program for the PL for Cell 4C noted that the material was suitable for use in construction of a liner. Furthermore, the results were generally consistent with the borrow material sampling findings for 2020. The average standard Proctor value for the 2021 Cell 4C samples was slightly



greater than the 2020 Stockpile 7 borrow material value. A target Proctor value of 1661 kg/m<sup>3</sup> and associated moisture of 19.5 (or 20) % were used as the targets for the 2021 compacted liner. The 2020 and 2021 standard Proctor and moisture values are well within the historical range for the liner material for the Expansion Site (2009 to 2021). Laboratory test reports are maintained on file.

### 3.5.4 Compaction Methodology & Results

As discussed in **Section 3.5.2**, the liner is constructed in loose lifts, and then compacted. Compaction typically kneads the full loose lift thickness, as well as compresses the loose lift by 33% in thickness. The PL is a minimum of 800 mm thick, therefore, with a first compacted lift of 200 mm thick and subsequent lifts compacted to 100 mm thick, for a total of 7 lifts. Each lift was surveyed for thickness control, with less than 5% of the elevations deviating by more than the 30 mm tolerance. Loose lifts were compacted with a sheepsfoot compactor with 100 mm long feet. Each lift was assessed for the required number of compactor passes (six passes) over a given location at a minimum frequency of three times per lift per hectare. Full sheepsfoot penetration was noted, as well as the drum roll depressed into the lift by another approximately 10 to 20 mm. Through these two observations it was concluded that each lift was kneaded into the underlying lift.

The PL was constructed in a continuous fashion to prevent desiccation to underlying lifts. The final lift was left slightly high (thicker), such that if desiccation were to occur it would be confined in this additional material and the upper sacrificial lift (lift 7) of the liner. Where a lift would be left overnight, the lift was inspected for proper moisture before the subsequent lift was added over top. If a lift was left exposed for longer than 24 hours (over weekends) the material was hydrated at a frequency such that the lift did not desiccate (more frequent during dry hot days, less frequent during cool cloudy days). Where a lift, or lifts, were unsuitable (too dry or too wet) this material was removed and replaced with new properly conditioned liner material per the above-noted methodology and in a stair-step fashion as detailed in **Section 3.5.2** for each leading face.

No areas of ponded water were present on the surface of a lift prior to subsequent lift placement. Where ponded water occurred, the undesirable material was pushed to the edge of the liner limit until it dried sufficiently to be used in construction.

Infield CQA/CQC testing of the PL was generally performed in a spatially representative manner across each lift of the liner floor and side wall, as determined by the field personnel.

Parameter (ASTM reference method)	Test Frequency
<b>Rapid Density and Water Content Tests (ASTM D-2922)</b>	13 tests per hectare per lift
<b>Water Content Test (ASTM D-2216)</b>	2 tests per hectare per lift
<b>Density Test (ASTM D-2167)</b>	1 test per hectare per lift

As discussed, the clayey soil liner material was compacted to a minimum of 98% of the standard Proctor maximum dry density (SPMDD) at 1 to 3% above optimum moisture content. The target standard Proctor density of 1,661 kg/m<sup>3</sup> was used during clay compaction, based on the historical Proctor results and slightly higher than the 2020 average of 1645 kg/m<sup>3</sup> for the borrow material stockpile. Similarly, the 2020 moisture



value of 20% was used for the target moisture based on the 2020 average for the borrow material stockpile. In situ testing of compaction was completed using a nuclear densitometer, and the density and water content results, as measured in the field, are summarized below for the 279 compaction tests taken for Cell 4C. It is noted that this is 3 more tests than the required quantity for Cell 4C (276 tests required).

Parameter	Measured Dry Density (kg/m <sup>3</sup> )	Measured Moisture (%)	Compaction (%)
Average	1,643	21	99
Maximum	1,702	23	100+
Minimum	1,620	20	98

Water content tests (ASTM D-2216) and density tests (ASTM D-2167) were completed as required for both the as-placed liner material and for the borrow piles. Laboratory results for 2021 were consistent and within the historical range for the 2020 laboratory results for the borrow area.

The rapid field density and water content tests obtained with the nuclear densitometer were relatively reflective of the 2020 laboratory results for the borrow area and are therefore, accurate as collected and are representative of actual conditions. The 2020 and 2021 standard Proctor and moisture values are well within the historical range for the liner material for the Expansion Site (2009 to 2021). As discussed in **Section 3.1**, where the target field compaction and/or moisture readings indicated rework of the liner was required, the rework was verified to meet the desired specifications.

In summary, the above field testing indicated that the liner soil was constructed at the acceptable compaction and moisture content for optimum placement. As-built PL surface grades are detailed on Drawing AC-1104.

### 3.6 Hydraulic Conductivity

The fundamental evaluation of the overall effectiveness of a clayey soil liner to contain liquid is to complete hydraulic conductivity testing. The hydraulic conductivity testing results of the Cell 4C clayey soil liner verified that the compaction and moisture of the soil during placement were at the ideal relationship to prevent micro-scale features (fractures and void spaces), which would facilitate liquid movement. Therefore, the liner of Cell 4C will effectively contain liquid.

The required design hydraulic conductivity for the liner is  $5.0 \times 10^{-8}$  cm/sec. This is to be assessed via collecting undisturbed samples using Shelby tube samples inserted into the constructed clayey liner, and performing laboratory hydraulic conductivity testing (ASTM D1857 and D-5084) at a rate of two times per hectare of finished liner.



Mr. Wayne Jenken  
Waste Management of Canada Corporation  
RWDI#2102205, 1000  
August 4, 2021

A total of six Shelby tube samples were collected from Cell 4C, which satisfied the required testing frequency. Laboratory hydraulic conductivity results ranged from  $1.3$  to  $2.5 \times 10^{-8}$  cm/sec, with an average of  $1.7 \times 10^{-8}$  cm/sec.

In summary, each of the hydraulic conductivity tests of the PL of Cell 4C satisfied and were below the design requirement of a minimum of  $5.0 \times 10^{-8}$  cm/sec.

## 4. CLOSURE

In closure we note that Liner System for Cell 4C was constructed in conformance with relevant documents with acceptable CQA/CQC results. Cell 4C is acceptable for receipt of waste.

We trust that this CQA/CQC Cell 4C Liner System Summary Report is sufficient for your needs. Please contact us with any questions that you may have.

Yours very truly,

Prepared By:

**RWDI**

Brent J. Langille, B.Sc., P.Geo.  
Strategic Director | Principal  
519-567-0205

Reviewed By:

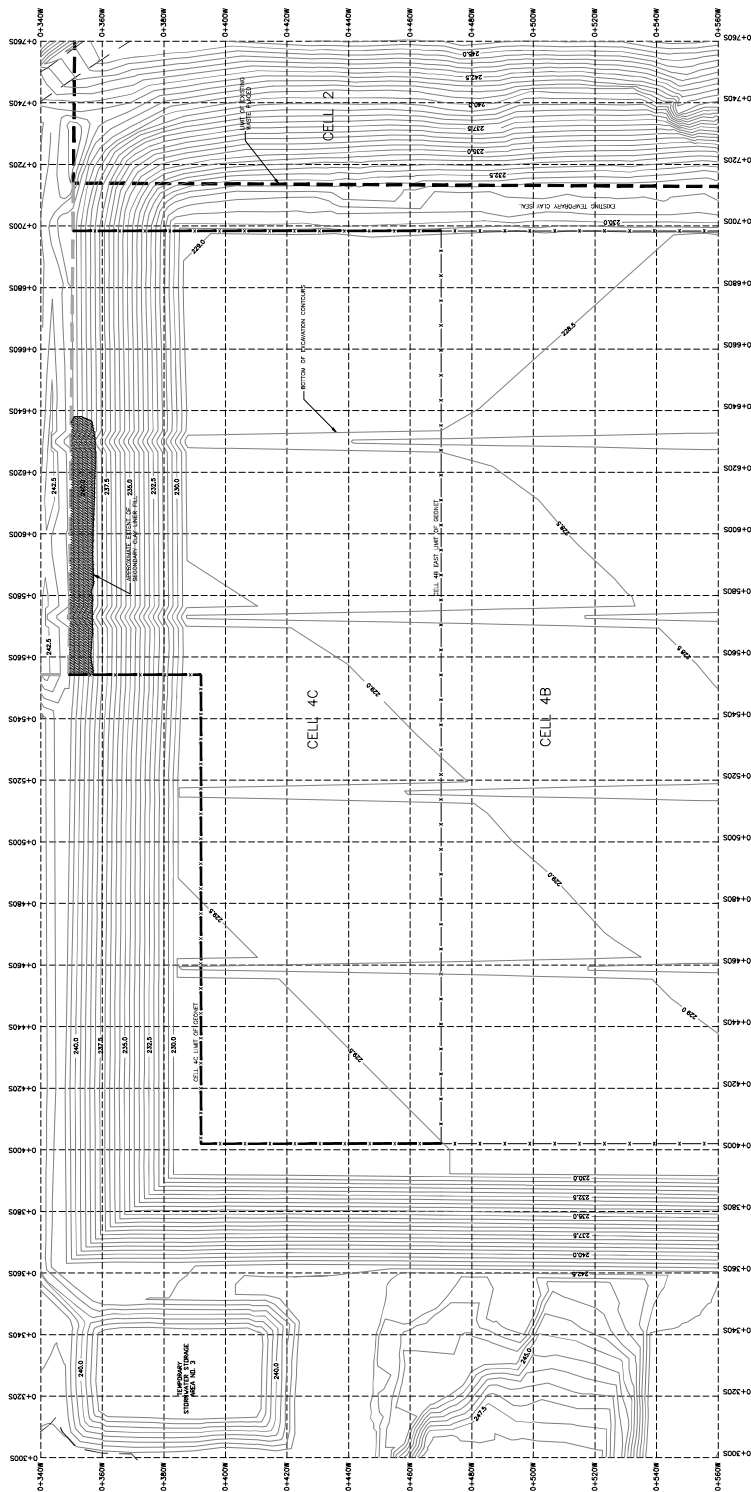
**GHD Limited**

Bruce Polan, M.A.Sc., P.Eng.  
Geotechnical Engineer - Associate  
519-884-0510

**Attachments:** Drawings AC-1102 to AC-1106

cc: Mr. John McDonald - WM  
Ms. Angela McLachlan – WM  
Mr. Peter Brodzikowski – WSP  
Mr. Tesfaye Gebrezghi – MECP  
Mr. Pierre Adrien – MECP  
Ms. Nicole Does – MECP  
Mr. Khalid Hussein - RWDI

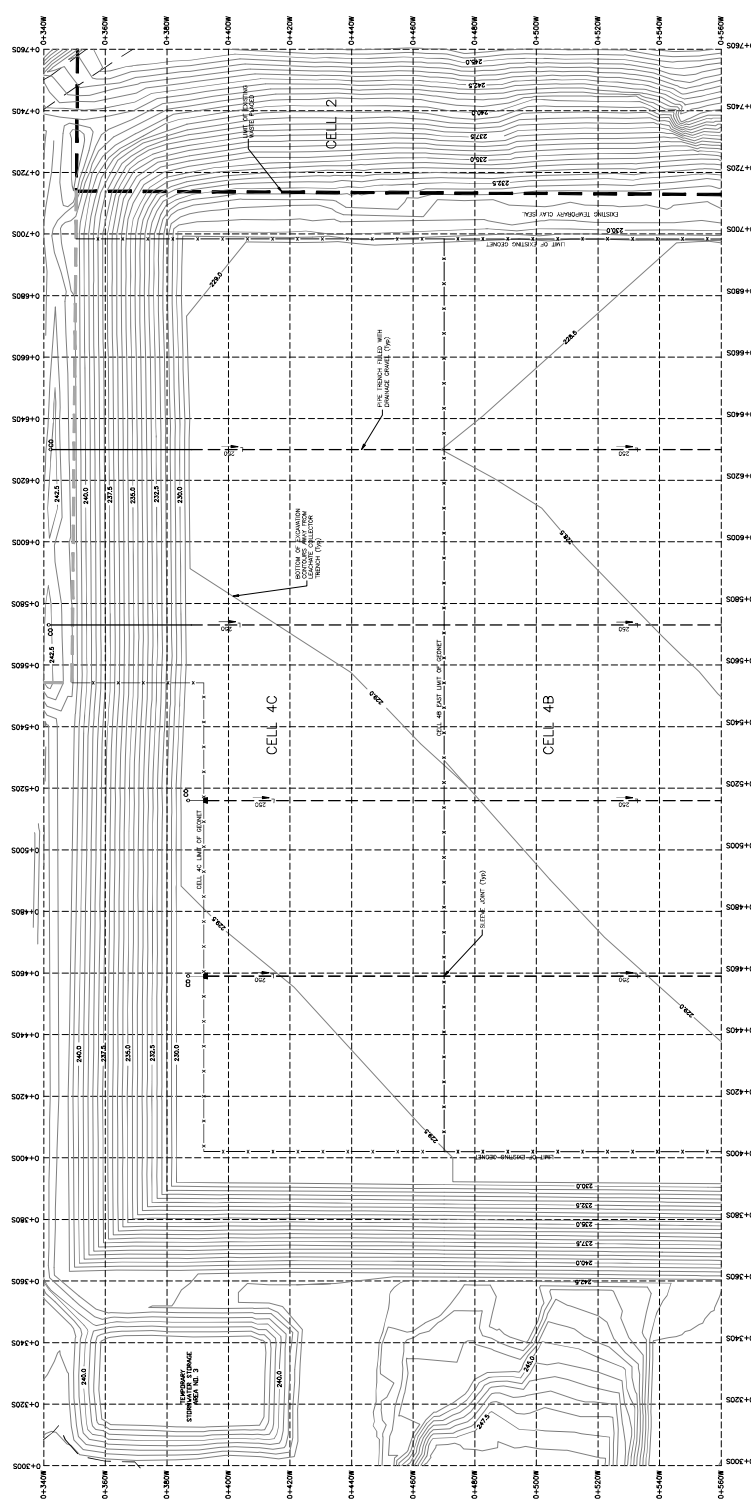
# ATTACHMENTS



"AS CONSTRUCTED"

[illegible]

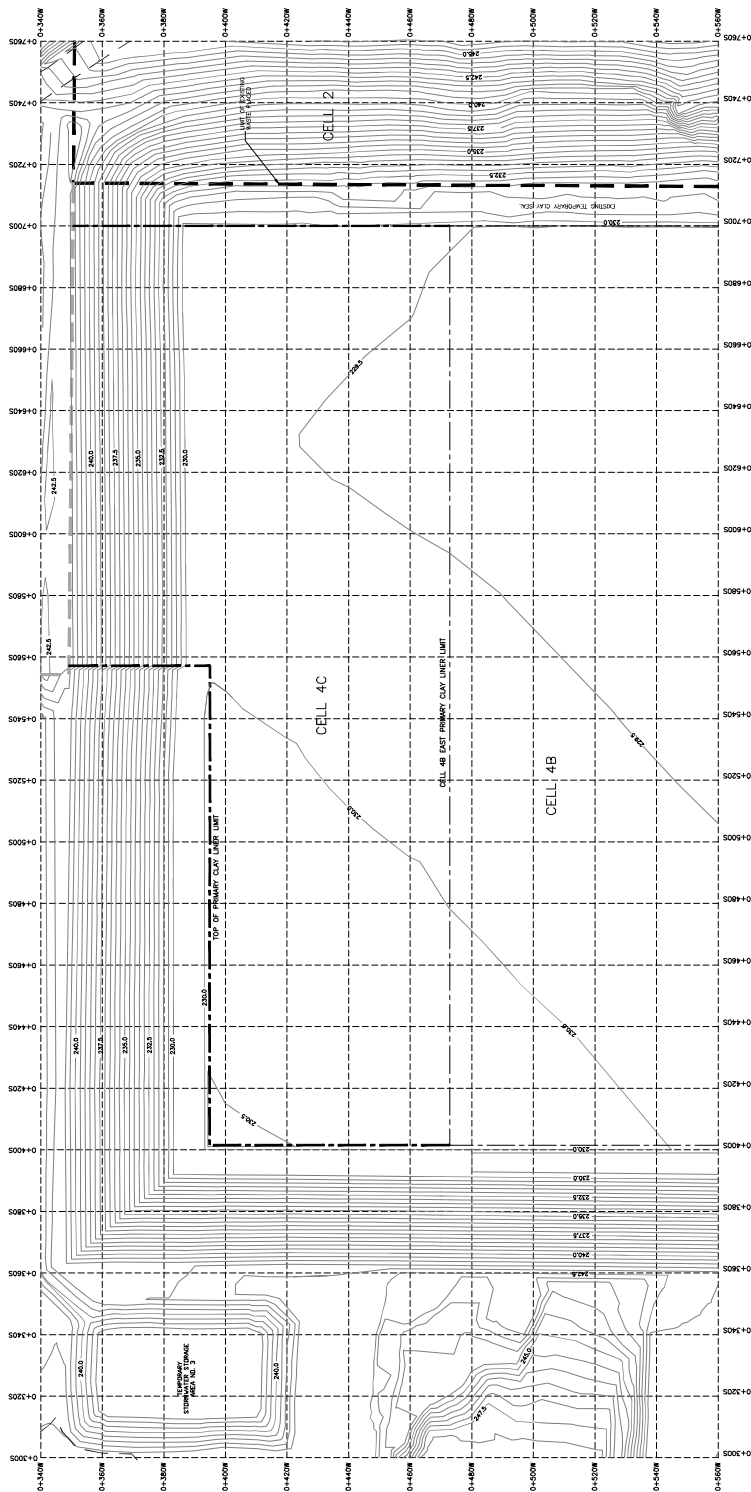
SCALE : 1:750



## AS CONSTRUCTED"

[illegible]



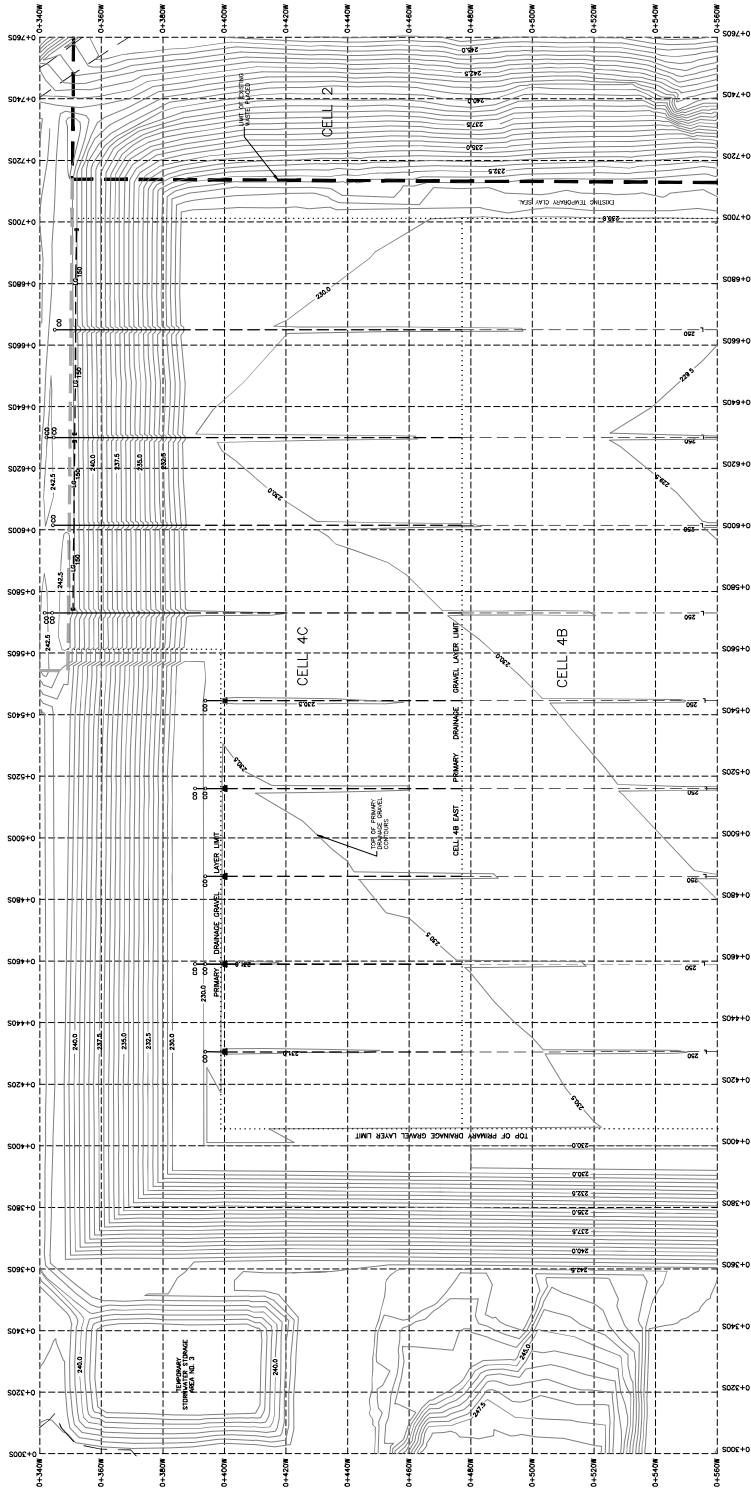


"AS CONSTRUCTED"

[illegible]

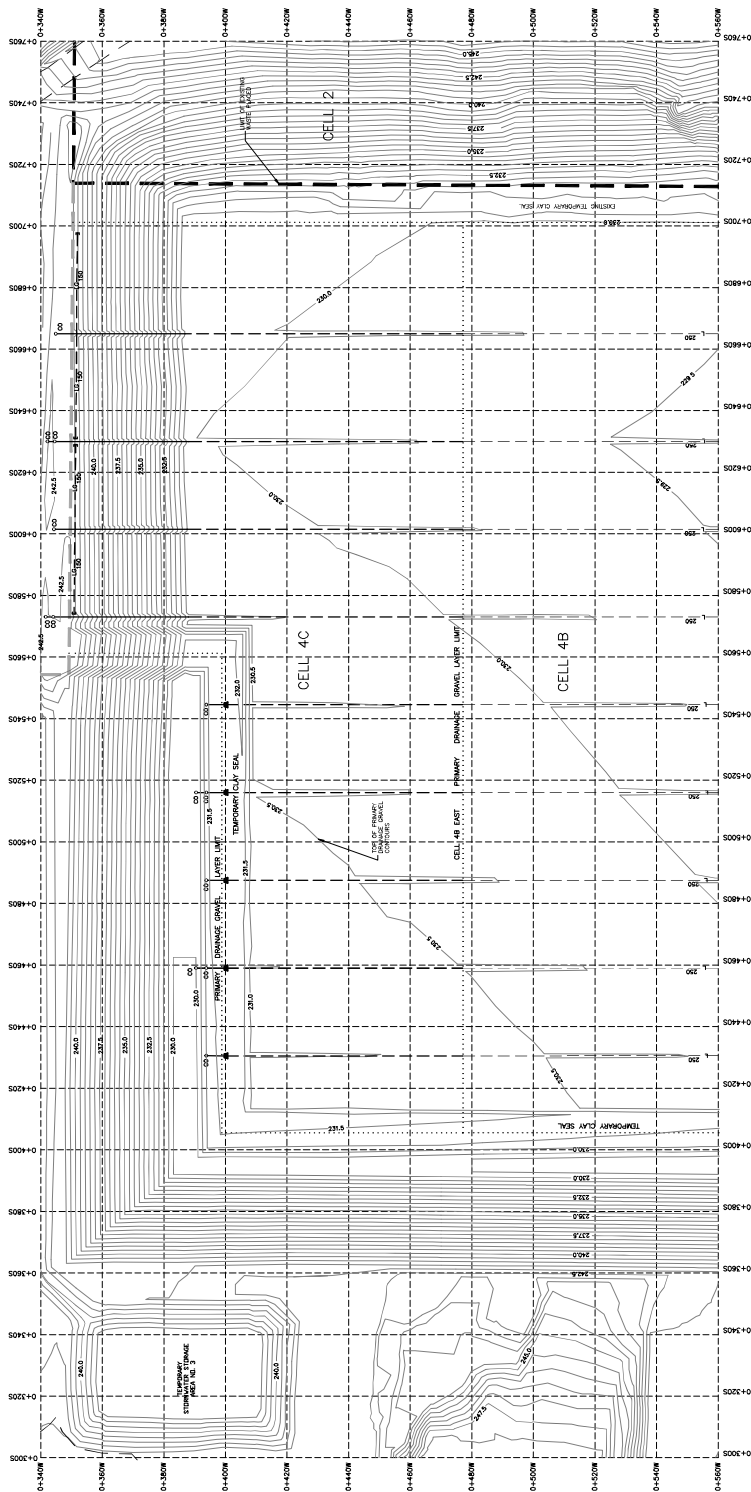
SCALE : 1:750

"AS CONSTRUCTED"



SCALE: 1"=50'

DATE  
REVISION / ISSUE  
DESCRIPTION



"AS CONSTRUCTED"

[illegible]

SCALE : 1:750

## APPENDIX M:

Monitoring Well and Gas Probe Status



No wells were decommissioned or replaced in 2021.

## APPENDIX N:

MECP Field Inspection Reports & Response Letters



**Ministry of the Environment,  
Conservation and Parks**

Southwestern Region  
Drinking Water Compliance  
Sarnia District Office  
1094 London Rd  
Sarnia ON N7S 1P1  
Fax: (519) 336-4280  
Tel: (519) 336-4030

**Ministère de l'Environnement, de la  
Protection de la nature et des  
Parcs**

Direction régionale du Sud-Ouest  
1094 London Rd  
Sarnia ON N7S 1P1  
Télécopieur: (519) 336-4280  
Tél: (519) 336-4030



March 31, 2021

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

To Angela McLachlan,

**RE:** Q4 Inspection Report  
5768 Nauvoo Rd Watford  
Warwick, County of Lambton

Reference Number 5378-BYQKCA

Please find attached the fourth quarter (Q4) 2020/21 Solid Non-Hazardous Waste Disposal Site inspection report, which covers the reporting period of December 1, 2020 to February 28, 2021. The inspection was completed by the Ministry of the Environment, Conservation and Parks as part of the Sarnia District Office 2020/21 planned inspection program. Note that these quarterly inspections are based on the Ministry's fiscal year (April-March) instead of the calendar year.

Thank you, and don't hesitate to contact me if you have any questions or concerns.  
Yours truly,

A handwritten signature in black ink that reads "Nicole Does". The signature is fluid and cursive, with the first name "Nicole" and last name "Does" clearly distinguishable.

---

Nicole Does  
Senior Environmental Officer  
Sarnia District Office

File Storage Number: SI-LA-WA-CO3 100



## Solid Non-Hazardous Waste Disposal Site Inspection Report

<b>Client:</b>	Waste Management of Canada Corporation Mailing Address: 5768 Nauvoo Rd, Warwick, Ontario, Canada, N0M 2S0 Physical Address: 5768 Nauvoo Rd, Warwick, Township, County of Lambton, Ontario, Canada, N0M 2S0 Telephone: (519)849-5811, email: wjenken@wm.com Client #: 4140-BK9PQA, Client Type: Corporation, NAICS: 111421		
<b>Inspection Site Address:</b>	Twin Creeks Environmental Centre Address: 5768 Nauvoo Rd Watford, Warwick, Township, County of Lambton, N0M 2S0 District Office: Sarnia GeoReference: Map Datum: NAD83, Zone: 17, Accuracy Estimate: 1-10 metres eg. Good Quality GPS, Method: GPS, UTM Easting: 429390, UTM Northing: 4758620, , Site #: 0470-4L8R85		
<b>Contact Name:</b>	Angela McLachlan	<b>Title:</b>	Environmental Compliance Manager
<b>Contact Telephone:</b>	519-849-5810 ext	<b>Contact Fax:</b>	-
<b>Last Inspection Date:</b>	2020/11/30		
<b>Inspection Start Date:</b>	2020/12/01	<b>Inspection Finish Date:</b>	2021/02/28
<b>Region:</b>	Southwestern		

### 1.0 INTRODUCTION

Ontario has a comprehensive legislative and regulatory framework to ensure that wastes are managed in an environmentally safe manner. Through the Environmental Protection Act (EPA) and accompanying regulations, the Ministry of the Environment, Conservation and Parks (the Ministry) has established a cradle to grave management system, which governs the collection, storage, transportation, and disposal of waste.

Landfill sites require an Environmental Compliance Approval (ECA) issued by the Ministry in order to dispose of waste in Ontario. An ECA imposes conditions related to development, operation, and closure of the site. In order to assess compliance with these requirements, the Ministry is committed to conducting proactive inspections of waste disposal sites.

As part of the Sarnia District Office's 2020/21 inspection program, an inspection was conducted at the Twin Creeks Landfill in Warwick Township. Twin Creeks Landfill is currently owned and operated by Waste Management. The Site is approved under ECA No. A032203 to accept municipal, industrial, commercial, and institutional solid non-hazardous waste, including non-hazardous contaminated soils, generated within the Province of Ontario.

The focus of this inspection is to assess the Company's operation of the Site against the terms and conditions of its Ministry approvals and with the requirements of applicable environmental legislation, regulations, and guidelines. This report also summarizes the findings of the weekly inspections conducted at the Site during the fourth quarter (Q4) of 2020/2021 fiscal year (FY), covering the period of December 1, 2020 to February 28, 2021.



During the months of December, January and February there were a total of 13 weekly inspections completed. The purpose of these weekly inspections was to assess the Company's efforts towards preventing, minimizing and mitigating off-site impacts resulting from their operations such as odours, litter, noise and dust. The dates of these inspections were:

- Wednesday, December 2
- Monday, December 7
- Thursday, December 17
- Wednesday, December 23
- Tuesday, December 29
- Wednesday, January 6
- Thursday, January 14
- January 18-23 (virtual inspection only)
- January 25-31 (virtual inspection only)
- February 1-7 (virtual inspection only)
- Thursday, February 11
- Wednesday, February 17
- Friday, February 26

**NOTE:** These inspections were limited in scope due to the government's health and safety recommendations and restrictions in response to the outbreak of COVID-19 in Ontario. See the individual inspection reports for more details.

#### Weekly Inspection Summary:

Potential Impacts:	# of Q4 Off-Site Observations:	# of Q4 Complaints:
Odour	9	4
Dust/Muddy Conditions	4	0
Noise	2	0
Litter	5	0

Majority of the off-Site odours detected by the undersigned officer were beside the landfill on Nauvoo Rd./Zion Rd., and not on any private residences or within the community of Watford.

Of the 4 odour complaints received by the Company in Q4, three (3) of them were received in the evening by the same caller from their residence in north Watford, near the Watford Arena. The other complaint was received in the morning by a caller who said they could smell the landfill as they drove down Nauvoo Rd., but not at their residence. All complaints were reported to the Ministry within 24 hours and were responded to by the Company in accordance with Section 11 of ECA No. A032203.

Dust and/or muddy conditions were observed by the landfill entrance and on Nauvoo Rd. from truck traffic during some of the inspections. It was mitigated by the Company through regular sweeping.

When the undersigned officer observed off-Site litter during some of the inspections, the Company was notified and responded accordingly. The Company is reminded that in accordance with the Litter BMP which is required under condition 6.39 of ECA No. A032203, off-Site litter must be cleaned up promptly and regularly. No litter complaints were received during Q4. The Company is obligated under condition 6.38 to respond to litter complaints within one day.

## 2.0 INSPECTION OBSERVATIONS

### **Certificate of Approval Number(s):**

#### **WASTE DISPOSAL SITE:**

Consolidated ECA No. A032203, dated December 19, 2020

For the operation of a 101.8-hectare landfilling area with a total site area of 301 hectares, accepting only municipal and ICI solid non-hazardous waste generated within Ontario. The site is approved to receive 1,400,000 tonnes per year.

#### **AIR:**

ECA No. 4155-BMCLZ8, dated March 3, 2020

Approved to install and operate:

- four enclosed flare systems;
- emergency diesel generators to provide back-up power as needed;
- a 50kW diesel generator to provide regular power to the south fill area leachate pumping system; and
- exhaust fans, exhaust louvers, and aeration tanks exhausting to the atmosphere from the leachate treatment facility.

#### **INDUSTRIAL SEWAGE:**

ECA No. 2403-BE6LZ4, dated August 21, 2019

Issued for the establishment of a leachate collection, treatment, and disposal facility as well as a stormwater management facility to service the Site.

#### **PERMIT TO TAKE WATER (PTTW):**

ECA No. 4430-8PLMKV, dated January 17, 2012

Issued for dewatering at the Site and industrial activities such as road watering to reduce dust. On-Site water taking locations include:

- stormwater management ponds 1, 2, 3, and 4
- Secondary Drainage Layer (SDL)
- four pumping stations, PS2, PS4, PS6, PS8.

The PTTW expired on April 15, 2020; however, a renewal application was received on December 27, 2019 and is still currently under review by the Ministry. Since the application was submitted more than 90 days prior to the expiry date, the existing permit continues to be in effect until the Ministry issues a decision.

## 2.1 FINANCIAL ASSURANCE:

### **Specifics:**

Financial Assurance (FA) is required for private sector landfill sites under Ontario Regulation 232/98, in order to ensure that funds are available for site closure, post-closure care, and contingencies in the event that the site owner cannot or does not carry out their obligations under the ECA.

Section 2.0 of ECA A032203 addresses financial assurance requirements for the Site. The Company is required to submit a re-evaluation of the FA amount every four years, which must consider any changes to the Site or environmental conditions and must account for any changes of the inflation and interest (discount) rates.

The next FA re-evaluation is required to be submitted on March 31, 2024. The Company is currently in compliance with their FA requirements.

## **2.2 APPROVED AREA OF THE SITE:**

### **Specifics:**

The Site is approved for the use and operation of a 101.8-hectare landfilling area with a total Site area of 301 hectares. During Q4 of FY 2020/2021, the Company deposited waste in Cell 4A and 4B of the Expansion Site, which is within the approved landfill footprint. Vertical gas extraction wells were installed and connected in Cell 4A. Pre-excavation activities were being completed in Q4 for Cell 4C which is scheduled to start accepting waste in 2021 once the landfill liner system is installed.

The Company is also considering a vertical expansion within the existing footprint of the landfill and has initiated the environmental assessment process. Public consultation is a required component of this process and there will be opportunities for the public to comment on the proposal. Currently, the Company is preparing the Terms of Reference.

## **2.3 APPROVED CAPACITY:**

### **Specifics:**

Condition 6.6 of ECA A032203 authorizes the Company to receive up to a maximum of **1,400,000 tonnes** of waste per year (including contaminated soil) for disposal at the Site.

According to the tonnage reports provided by the Company, monthly totals for Q4 are as follows:

December 2020 - 120258.77 tonnes

January 2021 - 100744.10 tonnes

February 2021 - 86,041.15 tonnes

The Site has received a total calendar year amount of 1,330,443.87 tonnes of waste in 2020, which is 95% of their yearly capacity limit.

## **2.4 ACCESS CONTROL:**

### **Specifics:**

ECA A032203 requires the following to be in place at the Site:

- The entire Site enclosed with a 6 foot high wire woven fence.
- The Site entrance and exit gates must be locked and secured against access by unauthorized persons, during non-operational hours .
- Access to and exit from the Site for the transportation of waste must (under normal circumstances) be only permitted from Country Road 79 (Nauvoo Road).

- A sign must be displayed at the main entrance/exit to the Site, detailing:
  1. Name of the Site and Owner
  2. ECA number
  3. Name of the Operator
  4. Hours of operation
  5. Approved and prohibited waste types
  6. Warning against unauthorized access
  7. Telephone number for complaints
  8. 24/7 emergency telephone number (if different from above)
  9. Warning against dumping outside the Site.

**Compliance Comments:**

No concerns or issues with access control were identified during the weekly inspections in Q4 FY 2020/2021.

**2.5 COVER MATERIAL:**

**Specifics:**

Condition 6.47 of ECA No. A032203 outlines the requirements for daily, intermediate, and final cover.

Daily Cover:

The working face must be covered with at least 15cm of soil or approved alternative cover material.

Intermittent Cover:

In areas where landfilling is temporarily stopped for six months or more, at least 30 cm of soil cover or approved alternative cover material is required.

Approved alternative material for daily and interim cover includes contaminated soil, woodchips, Automobile Shredder Residue (ASR), tarps, or any other cover material approved by the Director.

Final Cover:

In completed landfill areas, at least 1.85 m of cover soil and then at least 15cm of topsoil is required.

**Compliance Comments:**

During Q4, the following daily covers were used at the working face, according to the MECP weekly inspection reports and Company reporting:

- ASR
- Woodchips
- Tarps
- Soil

During all on-Site unannounced weekly inspections, daily cover was observed to be available near the active face. No after-hour site visits were conducted. The virtual weekly inspection which covered the week of February 1 - February 7 focused on daily cover requirements, including the submission of daily photos of the active face at the end of each operating day. No compliance issues were identified.

According to condition 6.52, samples of the ASR are to be taken semi-annually (spring and fall) and are to meet the specifications of non-hazardous waste under O. Reg. 347. The sample results from spring and fall 2020 were in compliance according to the quarterly/annual report.

According to condition 6.57, samples of contaminated soils shall be taken quarterly and submitted for analysis of Reg. 347 Schedule IV Inorganics, VOCs, PAHs and PCBs. The Company's Q4 sample was taken on October 8th and the results satisfied the daily cover requirements and was classified as non-hazardous. This is consistent with all quarterly sample results reported in 2020.

**2.6 WASTE BURNING:****Specifics:**

Condition 6.19 of ECA No. A032203 prohibits the burning of waste. No evidence of waste burning was observed during the weekly inspections.

**2.7 GROUNDWATER/SURFACEWATER IMPACT:****Specifics:**

The following Site-specific approvals outline the requirements for groundwater/surfacewater monitoring:

**Industrial Sewage ECA No. 2403-BE6LZ4:**

- Specifies operation, monitoring and reporting requirements related to storm/surface water, ground water, leachate, leachate treatment plant effluent, and treated effluent storage pond monitoring programs.

**Waste Disposal Site ECA No. A032203:**

- Condition 13.6 requires Monitoring programs to be carried out for groundwater, surface water, and landfill gas in accordance with the Environmental Monitoring Plan (EMP), listed as Item 39 and Appendix H of Item 68 of Schedule "A".

**Compliance Comments:**

The various monitoring programs identified above are routinely assessed for compliance. The Ministry follows-up on all trigger level exceedance notifications, and reviews the quarterly and annual monitoring reports.

The 2020 Fourth Quarter ("Q4") Monitoring Report was submitted with the 2020 Annual Report to the Ministry on February 26, 2021. The Company's quarterly reports are reported by calendar year and are required by Condition 15.4 of ECA No. A032203 and Condition 12.3 of ECA No. 2403-BE6LZ4. Their Q4 reporting period reflects all monitoring completed between October 1 and December 31, 2020.

**Groundwater:**

Semi-annual monitoring events take place in the spring and fall. Due to the ongoing chloride trigger concentration exceedance in monitoring well OW81-7 during routine and verification sampling events, the Company plans to submit a request to the Ministry to remove chloride as a Primary Leachate Indicator List (PLIL) parameter at this monitoring location. At the same time or prior to the submission of this request, the Company must provide the requests to the Township of Warwick, the WPLC and WIFN, in accordance with Condition 13.11 of ECA No. A032203.

The original routine sample, first verification and second verification sample were 210 mg/L (May 11, 2020), 250 mg/L (July 22, 2020), and 210 mg/L (November 3, 2020). The trigger concentration is currently 116mg/L. RWDI believes that chloride concentrations are elevated as a result of nearby road salting activities along Nauvoo Road and is not attributed to landfill leachate related impacts.

Based on the 2020 groundwater sampling results, the concentrations of the PLIL parameters (chloride, nitrate, boron) satisfied the relevant trigger concentrations, with the exception of OW81-7, as noted above. Most of the long-term concentration trends compared to the background concentrations of chloride, boron and nitrate indicate consistent to fluctuating concentrations, with some exceptions which are discussed in the 2020 Annual Report. No trends of concerns were identified by RWDI.

Based on the 2020 groundwater sampling results, the concentrations of the Secondary Leachate Indicator List (SLIL) parameters satisfied the relevant trigger concentrations, with the exception of lead in monitoring well OW60-4 during the spring monitoring event. It should be noted that on October 2, 2019, the Ministry approved the removal of lead as a trigger mechanism from the SLIP parameters for this well, as it was agreed by RWDI and the Ministry Hydrogeologist that the elevated concentrations were not indicative of leachate impacts from the landfill. The Company is however still required to sample for lead at OW60-4.

RWDI concluded in the 2020 Annual Report that overall, no unacceptable landfill leachate or operations effect were shown in groundwater quality in 2020.

### **Surfacewater:**

Surfacewater monitoring was completed on November 14 & 15, 2020 as part of the quarterly monitoring program in accordance with the EMP. A Letter of Notification was sent to the Ministry on November 26, 2020 due to a trigger concentration exceedance of boron in monitoring station SP2 and zinc in monitoring station SS1. The verification sampling was conducted that same day on November 26 which confirmed the boron exceedance. Biomonitoring was also completed which consists of analysing the surface waters toxicity to rainbow trout and *daphnia magna*. RWDI concluded that the chemical and biological results were acceptable which indicated that the surface water quality was acceptable for discharge.

Long term concentration trends for surfacewater PLIL parameters (chloride, boron, unionized ammonia, zinc, nickel, phenols, and chromium) indicate both consistent and fluctuating concentrations over time as reported by RWDI. No surfacewater concerns were noted and RWDI concluded that overall no unacceptable landfill leachate or operations effect was shown in the surfacewater quality in 2020.

### **AIR QUALITY:**

The Company is also required to monitor air quality at and around the Site, in accordance with ECA No. A032203, as follows:

- Condition 13.8 requires that Air Quality, Dust, Hydrocarbon, and Volatile Organic Carbon monitoring be undertaken in accordance with Items 85 on Schedule "A" (Ambient Air Quality Monitoring Plan).
- Condition 13.9 requires that air quality monitoring be conducted in accordance with the canister method (USEPA TO-14/15).

### **Compliance Comments:**

The Company has developed an Ambient Air Quality Monitoring Program (AAQMP) in order to satisfy the conditions above.

Total Hydrocarbons (THC) surface monitoring takes place in a grid formation across the entire capped landfill, including the poplar system area. Sampling took place in June and September of 2020 and did not take place in Q4. There were two locations within the 2020 routine monitoring events that required repairs due to elevated THC levels. The Company responded by repairing both areas. The locations were both resurveyed and the ground level THC readings were below the target level.

Volatile Organic Compounds (VOCs) were collected in the summer months of July, August and September of 2020 during operating hours around the Site's fence line. No VOC monitoring was conducted in Q4. All concentrations measured in 2020 were below their respective air quality standards.

Total Suspended Particulate (TSP) is sampled at 3 fixed locations around the landfill footprint. No further TSP exceedances were reported in Q4 2020. There were a total of 13 exceedances of the TSP air quality standard under O. Reg. 419 in 2020. The Company reported that most of these exceedances can be attributed to cell 4B construction activities. The Company has applied for an increase in their water taking quantities under their PTTW to further assist with dust suppression methods on-Site and have also hired a new contractor for the continued construction of the cells who is anticipated to work more cooperatively with the Company to minimize dust generation caused by construction activities.

Metals are analyzed on the highest filter TSP concentration out of every four samples per location. All of the 58 samples collected in 2020 for metals were reported to be below their respective air quality standards as outlined in O. Reg. 419.

### **NOISE:**

Condition 13.10 of ECA No. A032203 requires that noise monitoring be undertaken at the Site in accordance with the Environmental Noise Monitoring Program. Sound levels are recorded and analysed at 4 on-Site monitors (M1-M4) located around the perimeter of the Site for a minimum of a one month period per quarter.

Summary of 2020 results (taken from the 2020 Annual Report):

Monitor	Number of Events Exceeding Limit				Percentage of Time Noise Levels > 3 dB Above Limit when Site is Open	Percentage of Time Noise Levels > 3 dB Above Limit when Site is Closed
	Landfill Operating		Landfill Closed			
	<= 3 dB above Limit	> 3 dB above Limit	<= 3 dB above Limit	> 3 dB above Limit		
M1	172	27	215	174	5.1%	15.2%
M2	4	7	13	29	1.3%	2.5%
M3	12	8	27	31	1.5%	2.7%
M4	2	2	5	6	0.4%	0.5%

**Note:** RWDI stated that sound level increases of 3dB or less are considered imperceptible, or insignificant, as indicated in the Noise Guidelines for Landfill Sites. Therefore any exceedances of 3 or less dB above the limits would be unnoticeable to the human ear.

Excess sound levels at M1 occurred during Q3 and Q4 and are attributable to landfill construction and equipment maintenance activities. Excess sound levels at M2 occurred in Q2 and are attributable to landfill liner construction. Excess sound levels at M3 occurred during Q2 and Q3 and are attributable to agricultural activities and UTV pass-bys, and not by landfilling activities. Excess sound levels at M4 occurred during Q1 and are attributable to landfill construction activities.

No complaints related to noise were received in 2020.

## 2.8 LEACHATE CONTROL SYSTEM:

### Specifics:

#### Leachate in the Existing Landfill:

The leachate collection system in the existing landfill consists of:

- Three finger drains in the South Fill Area;
- Pumping sump in the West Central Cell near monitoring station OW-29;
- Two parallel waste underdrains in Cell 3S (north of the South Fill Area); and
- Waste underdrains in the Northern part of Cell 5 and in Cells 4, 6, 7, 8, 9, 10 and 11.

The waste under-drains direct leachate to a perimeter collection system which is then automatically pumped to the leachate equalization tank.

#### Leachate in the Expansion Site:

A leachate collection system has been installed in Cell 1, Cell 2 and Cell 4 of the expansion site. The leachate level in the primary drainage layer of these cells is currently controlled by automated Pump Station 1 (PS1), Pump Station 3 (PS3) and Pump Station 5 (PS5). Leachate is transferred from the Primary Drainage Layer (PDL) to the leachate equalization tank. The Secondary Drainage Layer (SDL) is controlled by PS2, PS4, and PS6. The trigger for implementation of groundwater contingency measures for the Expansion Site is the loss of hydraulic containment. This occurs when leachate levels within the PDL are higher than the surrounding groundwater elevations.

ECA No. A032203 condition 7.18 requires that a hydraulic trap be developed and maintained beneath the expansion area and that the leachate head on the landfill liner does not exceed 300 mm. Condition 14.1 requires additional groundwater level monitoring if the leachate level elevation in any of the following pumping station wells rise above their respective trigger level:

PS1 - 232.7 mASL

PS3 - 232.6 mASL

PS5 - 232.8 mASL

PS7 - 233.4 mASL (*not yet installed*)

#### Off-Site Leachate Disposal:

According to reports provided by the Company, 4293.14 mt of leachate was hauled off-site in December 2020, 3744 mt in January 2021, and 3453.86 mt in February 2021 for disposal from both the existing landfill and the expansion site. Leachate is hauled off-Site for treatment and disposal at the Chatham Water Pollution Control Plant in Ontario.

According to the Annual Report, in 2020 a total of 38,972.22m<sup>3</sup> of leachate was shipped off-Site.

#### Poplar Tree Leachate Irrigation System:

The Company has established a drip irrigation system which supplies leachate to a stand of Poplar System ("PS"). The poplars are located on top of a portion of the existing landfill and have been operable since September 27, 2017. The PS is only utilized on a seasonal basis when the trees can actively uptake the leachate.



ECA No. A032203 has a number of monitoring requirements related to the PS included soil monitoring, visual assessments, leachate monitoring, tree tissue monitoring and surface water monitoring. The PS was operational in the 2020 growing season.

According to the Annual Report, in 2020 a total of 10,823.17m<sup>3</sup> of leachate was irrigated onto the PS during the 2020 growing season.

#### **Leachate Monitoring:**

Leachate quality from the Equalization Tank is assessed quarterly, with an extended list of parameters assessed semi-annually (spring and fall). The Equalization Tank represents leachate quality from PS1 (Cell 1), PS3 (Cell 3) and PS5 (Cell 4A) of the Expansion Site, automated maintenance holes in the Existing Site, and condensate from the gas collection system. Industrial Sewage ECA No. 2403-BE6LZ4 outlines the full requirements for leachate quality monitoring and reporting for the Site.

#### **Compliance Comments:**

No leachate seeps were identified by the undersigned officer or reported by the Company in Q4.

Leachate levels were assessed against the shallow groundwater table and ground surface in May and November 2020 within the Existing Site. In November, leachate elevations were higher than the local groundwater levels within the northern portion of Cell 4, Cell 6, the West Cell (Sump), and the South Cell. Leachate elevations within the eastern and western cells were generally lower than the surrounding ground surface with one exception occurring in the West Cell (Sump) in November. This however did not represent a concern from RWDI based on the acceptable groundwater and surfacewater quality monitoring results and the fact that no leachate seeps were observed along the side slopes by RWDI throughout the year. Continued leachate extraction by automated pumping from the West and South Cell is expected to further reduce the leachate mound.

In the Expansion Site, leachate levels within PS1, PS3, and PS5 satisfied the trigger limits of Condition 14.1 in 2020. There were however several occurrences where there were short-term exceedances of the 300mm limit in Condition 7.18 after precipitation events, site power outages and/or maintenance and malfunctions. Follow-up to these events took place as a result of the Q3 inspection report and is still in progress.

## **2.9 METHANE GAS CONTROL SYSTEM:**

#### **Specifics:**

Gas produced by the landfill is managed by the on-Site gas collection and flaring system. A portion of the gas is conveyed from the landfill to a neighbouring property for heating purposes of a large greenhouse, on an as-needed basis. The remaining gas is sent to one of the two existing flares on-Site.

#### **Waste ECA # A032203:**

- Condition 7.10 and 13.6 requires the gas control system to be managed and monitored as specified in the Development & Operations Plan and the EMP.
- Condition 14.8 states that if landfill gas concentrations exceed 10% LEL (Lower Explosive Limit) during monitoring, the Company is to undertake additional monitoring to determine if the elevated levels are landfill related.
- The ECA requires the Company to report all landfill gas monitoring to the Ministry on a quarterly and annually basis.

**Air ECA # 4155-BMCLZ8:**

- Condition 1 of the ECA, requires notification to the District Manager one month prior to the expected installation date of each of the four enclosed flare systems.
- Condition 2 (3) of the ECA, requires the Company to use a Continuous Emission Monitoring System to ensure each flare operates with a minimum temperature of 875 degrees Celsius at a point representing a minimum retention time of 0.7 second, at all times when the landfill gas incineration is in progress.

**Compliance Comments:**

Landfill gas monitoring is completed monthly from November to April and in July at gas probes GP1A to GP8. Methane gas was not detected within any of the gas probes in 2020.

No issues with the gas control system were reported by the Company in Q4. No concerns or issues were noted by the undersigned officer during weekly inspections in Q4.

**2.10 OTHER WASTES:****Specifics:**

During Q4, there was no evidence of wastes other than solid non-hazardous wastes being deposited at the Site.

**3.0 REVIEW OF PREVIOUS NON-COMPLIANCE ISSUES**

No outstanding issues of non-compliance were identified for the Site in Q4.

**4.0 SUMMARY OF INSPECTION FINDINGS (HEALTH/ENVIRONMENTAL IMPACT)**

**Was there any indication of a known or anticipated human health impact during the inspection and/or review of relevant material, related to this Ministry's mandate?**

No

**Specifics:**

**Was there any indication of a known or anticipated environmental impact during the inspection and/or review of relevant material ?**

No

**Specifics:**

**Was there any indication of a known or suspected violation of a legal requirement during the inspection and/or review of relevant material which could cause a human health impact or environmental impairment ?**

No

**Specifics:**

**Was there any indication of a potential for environmental impairment during the inspection and/or the review of relevant material ?**

No

**Specifics:**

**Was there any indication of minor administrative non-compliance?**

No

**Specifics:**

## 5.0 ACTION(S) REQUIRED

No additional actions are required as a result of this inspection report.

## 6.0 OTHER INSPECTION FINDINGS

-

## 7.0 INCIDENT REPORT

Not Applicable

## 8.0 ATTACHMENTS

### PREPARED BY:

Environmental Officer:

Name:

Nicole Does

District Office:

Sarnia District Office

Date:

2021/03/26

Signature



### REVIEWED BY:

District Supervisor:

Name:

Mary Jane Corda

District Office:

Sarnia District Office

Date:

2021/03/30

Signature:



File Storage Number:

SI-LA-WA-CO3 100

### Note:

"This inspection report does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they may apply to this facility. It is, and remains, the responsibility of the owner and/or the operating authority to ensure compliance with all applicable legislative and regulatory requirements"

We want to hear from you. Please tell us about the quality of your interaction with our staff. You can provide feedback at 1-888-745-8888.



Twin Creeks Environmental Centre  
5768 NAUVOO RD, WARWICK, ON, N0M 2S0

## Inspection Report

System Number:	0470-4L8R85
Inspection Start Date:	03/01/2021
Inspection End Date:	08/18/2021
Inspected By:	Nicole Does
Badge #:	1932

A handwritten signature in black ink that reads "Nicole Does".

---

(signature)

### **NON-COMPLIANCE/NON-CONFORMANCE ITEMS**

This should not be construed as a confirmation of full compliance with all potential applicable legal requirement and BMPs. These inspection findings are limited to the components and/or activities that were assessed, and the legislative framework(s) that were applied. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

If you have any questions related to this inspection, please contact the undersigned Provincial Officer.

## INSPECTION DETAILS

This section includes all questions that were assessed during the inspection.

**Ministry Program: Regulated Activity:** WASTE : Landfills

Question ID	NOL 1		
Question	Question Type	Legislative Requirement	
Does the Open landfill site have an Environmental Compliance Approval (ECA)?	Legislative	EPA   27   (1)	
Observation			
Yes			
Landfill sites require an Environmental Compliance Approval (ECA) issued by the Ministry under the Environmental Protection Act in order to dispose of waste in Ontario. An ECA imposes conditions related to development, operation, and closure of the site. In order to assess compliance with these requirements, the Ministry is committed to conducting proactive inspections of waste disposal sites.			
As part of the Sarnia District Office's 2021/22 inspection program, an inspection was conducted at the Twin Creeks Landfill (the Site) in Warwick Township.			
The focus of this inspection was to assess the Company's operation of the Site against the terms and conditions of its Ministry approvals and with the requirements of applicable environmental legislation, regulations, and guidelines. This report also summarizes the findings of the weekly inspections conducted at the Site during the first quarter (Q1) of 2021/2022 fiscal year (FY), covering the period of March 1 to May 31, 2021.			
The Site has the following Ministry approvals:			
WASTE DISPOSAL SITE:			
ECA No. A032203, dated December 19, 2020			
- For the operation of a 101.8-hectare landfilling area with a total site area of 301 hectares, accepting only municipal, industrial, commercial, institutional solid non-hazardous waste generated within Ontario, including non-hazardous contaminated soil. The site is approved to receive 1,400,000 tonnes per year.			
AIR:			
ECA No. 4155-BMCLZ8, dated March 3, 2020			
Approved to install and operate:			
- four enclosed flare systems;			
- emergency diesel generators to provide back-up power as needed;			
- a 50kW diesel generator to provide regular power to the south fill area leachate pumping system; and			

- exhaust fans, exhaust louvres, and aeration tanks exhausting to the atmosphere from the leachate treatment facility.

**INDUSTRIAL SEWAGE:**

ECA No. 2403-BE6LZ4, dated August 21, 2019

- Issued for the establishment of a leachate collection, treatment, and disposal facility as well as a stormwater management facility to service the Site.

**PERMIT TO TAKE WATER (PTTW):**

ECA No. 4430-8PLMKV, dated January 17, 2012

Issued for dewatering at the Site and industrial activities such as road watering to reduce dust. On-Site water taking locations include:

- stormwater management ponds 1, 2, 3, and 4
- Secondary Drainage Layer (SDL)
- four pumping stations, PS2, PS4, PS6, PS8.

The PTTW expired on April 15, 2020; however, a renewal application was received on December 27, 2019 and is still currently under review by the Ministry. Since the application was submitted more than 90 days prior to the expiry date, the existing permit continues to be in effect until the Ministry issues a decision.

Question ID	NOL 3		
Question		Question Type	Legislative Requirement
Does the holder of the landfill ECA own the entire site?		Information	EPA   27   (1), EPA   O. Reg. 232/98   3
Observation			
Yes This Site is owned and operated by Waste Management of Canada Corporation (The Company).			

Question ID	NOL 2		
Question		Question Type	Legislative Requirement
Is this landfill on Crown land?		Information	Not Applicable
Observation			
No			

<b>Question ID</b>	NOL 4		
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>	
Does the landfill have a Contaminant Attenuation Zone	Information	Not Applicable	

(CAZ)?		
<b>Observation</b>		
No		

<b>Question ID</b>	NOL 12	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Does the landfill have a large enough Buffer Area as specified in the ECA or Regulation 232/98?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes		

<b>Question ID</b>	NOL 13	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Are access roads and on-site roads provided so that vehicles hauling waste to and on the site may travel readily on any day under all normal weather conditions?	Information	EPA   27   (1)
<b>Observation</b>		
Yes Access to and exit from the Site for the transportation of waste is permitted from Country Road 79 (Nauvoo Road). No issues with on-Site road access were identified in Q1.		

<b>Question ID</b>	NOL 14	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is site access limited to times when an attendant is on duty?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes An attendant is always on duty at the Site during operating hours.		

<b>Question ID</b>	NOL 15	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Does the site only receive waste from within its approved service area?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes The Site is approved to receive waste from within the province of Ontario.  During the inspection, a number of scale tickets and waste acceptance records were requested for several days throughout Q1. According to the reviewed scale tickets provided by the Company on the select dates, all waste originated from within Ontario.		



The Site is approved for the use and operation of a 101.8-hectare landfilling area with a total Site area of 301 hectares. During Q1 of FY 2020/2021, the Company deposited waste in Cell 4B of the Expansion Site. Also ongoing was the construction of the landfill liner system in Cell 4C and pre-excavation construction activities within Cell 6A, which are all within the approved landfill footprint.

Condition 6.6 of ECA No. A032203 authorizes the Company to receive up to a maximum of 1,400,000 tonnes of waste per year (including contaminated soil) for disposal at the Site. According to the tonnage reports provided by the Company, monthly totals for Q1 are as follows:  
March 2021 - 128738.24 tonnes  
April 2021 - 123426.77 tonnes  
May 2021 - 116047.91 tonnes

So far in 2021 (as of the end of May) the Site has received a total of 544,998.17 tonnes of waste, which is approximately 40% of their yearly capacity limit.

<b>Question ID</b>	NOL 16	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the site required to have a ground water monitoring program by the ECA?	Information	Not Applicable
<b>Observation</b>		
<p>Yes</p> <p>The following Site-specific approvals outline the requirements for groundwater monitoring:</p> <ul style="list-style-type: none"> <li>- Industrial Sewage ECA No. 2403-BE6LZ4: Specifies operation, monitoring and reporting requirements related to storm/surface water, ground water, leachate, leachate treatment plant effluent, and treated effluent storage pond monitoring programs.</li> <li>- Waste Disposal Site ECA No. A032203: Condition 13.6 requires monitoring programs to be carried out for groundwater, surface water, and landfill gas in accordance with the Environmental Monitoring Plan (EMP), listed as Item 39 and Appendix H of Item 68 of Schedule "A".</li> </ul> <p>Groundwater monitoring is completed semi-annually in the spring and fall as per the EMP.</p>		

<b>Question ID</b>	NOL 17	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the site implementing the groundwater monitoring program as required by the ECA?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>The Company documents the results of the required monitoring programs in quarterly and annual</p>		

reports which are routinely reviewed by the Ministry for compliance purposes.

The 2021 First Quarter ("Q1") Monitoring Report was submitted to the Ministry on May 21, 2021. The Company's quarterly reports are reported by calendar year and are required by Condition 15.4 of ECA No. A032203 and Condition 12.3 of ECA No. 2403-BE6LZ4. Their Q1 reporting period reflects all monitoring completed between January 1 and March 31, 2021, and is being reviewed as part of this inspection.

Since groundwater monitoring is completed semi-annually in the spring and fall, it was not required during the Company's Q1 monitoring period. The next monitoring event will occur in May 2021 for their Q2 monitoring period. The results of the May 2021 monitoring event will be reviewed in the Ministry's next quarterly inspection report.

Question ID	NOL 20		
Question		Question Type	Legislative Requirement
Is there ongoing abatement to address any concerns the ministry has with the ground water monitoring?		Information	Not Applicable
Observation			
No			

<b>Question ID</b>	NOL 21		
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>	
Is the site required to manage leachate by the ECA?	Information	Not Applicable	
<b>Observation</b>			
Yes			
The Site is required to manage leachate in accordance with the Industrial Sewage ECA No. 2403-BE6LZ4 and Waste ECA No. A032203.			
Leachate Collection - Existing Site:			
This consists of:			
<ul style="list-style-type: none"><li>- Three finger drains in the South Fill Area;</li><li>- Pumping sump in the West Central Cell near monitoring station OW-29;</li><li>- Two parallel waste underdrains in Cell 3S (north of the South Fill Area); and</li><li>- Waste underdrains in the Northern part of Cell 5 and in Cells 4, 6, 7, 8, 9, 10 and 11.</li></ul>			
The waste under-drains direct leachate to a perimeter collection system which is then automatically pumped to the leachate equalization tank.			
Leachate Collection - Expansion Site:			
A leachate collection system has been installed in Cell 1, Cell 2 and Cell 4. The leachate level in the primary drainage layer of these cells is currently controlled by automated Pump Station 1 (PS1), Pump Station 3 (PS3) and Pump Station 5 (PS5). Leachate is transferred from the Primary Drainage Layer (PDL) to the leachate equalization tank. The Secondary Drainage Layer (SDL) is controlled by PS2, PS4, and PS6. The trigger for implementation of groundwater contingency			

measures for the Expansion Site is the loss of hydraulic containment. This occurs when leachate levels within the PDL are higher than the surrounding groundwater elevations.

**Poplar Tree Leachate Irrigation System:**

The Company has established a drip irrigation system which supplies leachate to a stand of poplar trees, known as the Poplar System ("PS"). The poplars are located on top of a portion of the existing landfill and have been operable since September 27, 2017. The PS is only utilized on a seasonal basis when the trees can actively uptake the leachate.

There are a number of monitoring requirements related to the PS including soil monitoring, visual assessments, leachate monitoring, tree tissue monitoring and surface water monitoring. The PS was operational as of May 17th for the 2021 growing season.

**Off-Site Leachate Disposal:**

The remaining leachate produced from both the existing and expansion site is hauled off-Site for treatment and disposal at the Chatham Water Pollution Control Plant in Ontario. According to reports provided by the Company, 4629.38 mt of leachate was hauled off-site in March 2021, 4056.46 mt in April 2021, and 2492.95 mt in May 2021 for disposal.

<b>Question ID</b>	NOL 22	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the landfill implementing the procedures required by the ECA to manage leachate?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Leachate liquid levels are monitored semi-annually in May and November for the Existing Site. Since the Company reports in calendar quarters (Q1: January - March), no leachate levels were presented in the Q1 report.</p> <p>For the Expansion Site, ECA No. A032203 condition 7.18 requires that a hydraulic trap be developed and maintained beneath the expansion area and that the leachate head on the landfill liner does not exceed 300 mm. Condition 14.1 also requires additional groundwater level monitoring if the leachate level elevation in any of the following pumping station wells rise above their respective trigger level:</p> <p>PS1 - 232.7 mASL  PS3 - 232.6 mASL  PS5 - 232.8 mASL  PS7 - 233.4 mASL (not yet installed)</p> <p>During the Company's Q1 monitoring period (Jan. - March) leachate levels remained below their trigger elevations, as outlined in Condition 14.1.</p> <p>The leachate levels in the pumping stations remained below the maximum leachate head limit (300 mm) in Q1, with the exception of PS3 from January 3 to 5, 2021 and from January 10 to 12, 2021. The elevated leachate levels on these days are due to temporary system shutdowns in order to complete corrective repairs to the electrical control system to prevent damage as a result of</p>		

power interruptions/surges from Hydro-One. The D&O Report mentions certain operational situations where the leachate levels may temporarily exceed this limit. However in response to the Ministry's 2020 Q3 Inspection Report, the Company has made an effort to reduce the number of exceedances that occur and has created and implemented a contingency plan for occurrences such as this. It includes a visual and electronic notification system which notifies the operators when levels are near to 300 mm. This allows them to identify the cause of increasing levels and implement remedial measures as listed in the D&O Report, if levels are of concern.

According to the Company's Q1 Report, the leachate elevations in the Expansion Site were below the historical groundwater elevations and therefore was hydraulically contained.

During one of the Ministry's weekly inspections during the Q1 fiscal year - March to May, three small leachate seeps along the south slope of the Expansion Site were observed. These seeps were localized and did not visually appear to have impacted any surface water features. The Company remediated the seeps as per the procedures in the D&O Report.

Question ID	NOL 23		
Question	Question Type	Legislative Requirement	
Are samples taken to monitor leachate quality?	Legislative	EPA   27   (1), EPA   O. Reg. 232/98   26	
Observation			
Yes Leachate quality from the Equalization Tank is assessed quarterly, with an extended list of parameters assessed semi-annually (spring and fall). The Equalization Tank represents leachate quality from PS1 (Cell 1), PS3 (Cell 3) and PS5 (Cell 4A) of the Expansion Site, automated maintenance holes in the Existing Site, and condensate from the gas collection system. Industrial Sewage ECA No. 2403-BE6LZ4 outlines the full requirements for leachate quality monitoring and reporting for the Site.			

Question ID	NOL 24		
Question		Question Type	Legislative Requirement
Is the ministry concered with the leachate quality?		Information	Not Applicable
Observation			
No During the Company's Q1 monitoring period, leachate quality was assessed on January 12, 2021. No concerns for leachate quality were mentioned. The results were consistent with historical monitoring results for the relevant constituents. The results of the monitoring in May 2021 of the extended list of parameters will be discussed in the next quarterly Ministry inspection report.			

<b>Question ID</b>	NOL 25		
<b>Question</b>	<b>Question</b>	<b>Legislative</b>	

	Type	Requirement
Is there ongoing abatement to address any concerns the ministry has with the leachate monitoring?	Information	Not Applicable
<b>Observation</b>		
No		

<b>Question ID</b>	NOL 26	
Question	Question Type	Legislative Requirement
Is the site required to manage landfill gas by the ECA?	Information	Not Applicable
<b>Observation</b>		
<p>Yes</p> <p>Gas produced by the landfill is managed by the on-Site gas collection and flaring system. A portion of the gas is conveyed from the landfill to a neighbouring property for heating purposes of a large greenhouse, on an as-needed basis. The remaining gas is sent to one of the two existing flares on-Site.</p> <p>Waste ECA No. A032203:</p> <ul style="list-style-type: none"> <li>- Condition 7.10 and 13.6 requires the gas control system to be managed and monitored as specified in the D&amp;O Report and the EMP.</li> <li>- Condition 14.8 states that if landfill gas concentrations exceed 10% LEL (Lower Explosive Limit) during monitoring, the Company is to undertake additional monitoring to determine if the elevated levels are landfill related.</li> <li>- The ECA requires the Company to report all landfill gas monitoring to the Ministry on a quarterly and annually basis.</li> </ul> <p>Air ECA No. 4155-BMCLZ8:</p> <ul style="list-style-type: none"> <li>- Describes the notifications, operation, maintenance, performance and record keeping requirements for the flaring system.</li> <li>- Notably, condition 2 (c) requires the Company to use a Continuous Emission Monitoring System to ensure each flare operates with a minimum temperature of 875 degrees Celsius at a point representing a minimum retention time of 0.7 second, at all times when the landfill gas incineration is in progress.</li> </ul>		

<b>Question ID</b>	NOL 27	
Question	Question Type	Legislative Requirement
Is the site implementing the landfill gas management requirements in the ECA?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Landfill gas monitoring is completed monthly from November to April and in July at gas probes GP1A to GP8. Methane gas was not detected within any of the gas probes in January, February or March 2021.</p>		

The Ministry did not identify any issues with the gas collection system in Q1. The Company however reported an issue on April 28, 2021, due to a damaged gas collection well in Cell 4A which was struck by heavy machinery, and was identified when increases in oxygen levels in the flaring system was observed. Since the Company cannot shut off individual wells, a group of 11 other wells in addition to the damaged well were temporarily shut off to avoid further oxygen level increases to the flare. The damaged well was repaired and all wells were back online by April 30, 2021. Within this timeframe, no odour complaints were received, however on April 29th Officer N. Does detected landfill gas odours downwind of the Site within the community of Watford. It was recommended that as a contingency for future incidents, the materials needed to repair a damaged well should be readily available at the Site in order to avoid wait times in ordering and receiving the materials once the incident has already occurred.

Question ID	NOL 29		
Question		Question Type	Legislative Requirement
Is the ministry concerned with landfill gas at this site?		Information	Not Applicable
Observation			
No			

Question ID	NOL 30		
Question		Question Type	Legislative Requirement
Is there ongoing abatement to address any concerns the ministry has with landfill gas at this site?		Information	Not Applicable
Observation			
No			

Question ID	NOL 31		
Question	Question Type	Legislative Requirement	
Is the site required to have a surface water monitoring program by the ECA?	Information	Not Applicable	
Observation			
Yes			
The following Site-specific approvals outline the requirements for surfacewater monitoring:			
- Industrial Sewage ECA No. 2403-BE6LZ4: Specifies operation, monitoring and reporting requirements related to storm/surface water, ground water, leachate, leachate treatment plant effluent, and treated effluent storage pond monitoring programs.			
- Waste Disposal Site ECA No. A032203: Condition 13.6 requires Monitoring programs to be carried out for groundwater, surface water, and landfill gas in accordance with the Environmental Monitoring Plan (EMP), listed as Item 39			

and Appendix H of Item 68 of Schedule "A".

The Company conducts quarterly surface water monitoring following precipitation events of greater than 10 mm in a 24-hour period.

<b>Question ID</b>	NOL 32	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the site implementing the surface water monitoring program as required by the ECA?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Surfacewater samples were collected on March 26, 2021 at monitoring stations SS1, SS10, SS16, SP1, SP2, SP3, and SP4, following a precipitation event of greater than 10 mm between 8:00 AM on March 25 to 8:00 AM on March 26.</p>		

<b>Question ID</b>	NOL 34	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Are there water quality concerns with the results of the samples that have been tested?	Information	Not Applicable
<b>Observation</b>		
<p>No</p> <p>The quality of the surfacewater monitoring results satisfied the associated trigger concentrations, with a few exceptions:</p> <ul style="list-style-type: none"> <li>- At SS1, the concentrations of boron (0.7 mg/L), nickel (1.6 mg/L), total chromium (1.1 mg/L), and zinc (2.7 mg/L) exceeded their trigger concentrations of boron (0.20 mg/L), nickel (0.025 mg/L), total chromium (0.028 mg/L), and zinc (0.060 mg/L). According to RWDI this is attributed to nearby road construction activities which have caused a temporary increase in erosional effects as the work requires the removal of established vegetation and straw-bale check dams that would normally aid in erosion control. It was also noted in the Company's Q1 report that the majority of rainfall occurred in a 12 hour period and while sampling, causing an increase in turbidity which was visible and confirmed through measurement at the time of sampling.</li> <li>- At SP2, the concentrations of boron (0.21 mg/L) slightly exceeded its trigger concentration (0.20 mg/L) and was also attributed to be due to increased erosional effects from nearby road construction which included the re-surfacing and re-grading of the side slopes of the roadside drainage ditches.</li> </ul> <p>In summary, these concentrations of nickel, chromium, and zinc are above their historical ranges for surfacewater. It is expected to return to within historical ranges after the completion of the nearby road construction activities, vegetation remediation and the re-installment of the straw-bale check dams within the surface water drainage ditches. Thus, RWDI does not interpret these monitoring results to be a landfill leachate effect.</p>		



RWDI noted that the Company will continue their efforts in installing additional straw-bale check dams at various locations within the surface water drainage network, including upstream of SS1 and SP2. Officer N. Does followed up with Company Representative John McDonald about the additional straw-bale check dams and he confirmed that they are in place.

As required, verification sampling was completed on April 9, 2021 for SS1 and SP2, which showed acceptable biological results indicating that the surface water quality does not pose a detrimental effect to aquatic life and that it is of acceptable quality for continued discharge.

Volatile organic compound (VOC) and semi-volatile organic compound (SVOC) were also sampled during this monitoring event. During the verification monitoring on April 9th, SVOC phenol was detected at SS1 at a concentration of 0.63 µg/L, above the laboratory reportable detection limit (RDL) of 0.5 µg/L. The last time phenols were detected at this monitoring station was in 2008. Since there does not appear to be a concentration trend for phenols, RWDI deems the 2021 concentration to be insignificant. There is no trigger concentration for this parameter.

<b>Question ID</b>	NOL 35	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is there ongoing abatement to address any concerns the ministry has with the surface water monitoring?	Information	Not Applicable
<b>Observation</b>		
No		

<b>Question ID</b>	NOL 36	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is proper equipment available for the compaction of waste and applying cover material?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes The proper equipment for waste compaction and daily cover application is observed during the Ministry's weekly on-Site inspections.		

<b>Question ID</b>	NOL 37	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the landfill able to accurately determine the amount of waste received?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes The Site has an entrance and exit scale and records all incoming waste volumes. Tonnage tracking reports are also sent to the Ministry on a monthly basis and yearly waste quantities are summarized in the annual reports.		



--

Question ID	NOL 38		
Question		Question Type	Legislative Requirement
Are all disposal operations at the site adequately and continually supervised?		Legislative	EPA   27   (1)
Observation			
Yes			

Question ID	NOL 39		
Question		Question Type	Legislative Requirement
Does the landfill operator have a site inspection program as required by the ECA?		Information	Not Applicable
Observation			
Yes Section 9 of ECA # A032203 contains daily, weekly and monthly inspection and record keeping requirements for the general operation and maintenance of the Site. These records are periodically requested by the Company during weekly inspections and are assessed for compliance. No issues or concerns have been identified with the frequency or details of site inspections.			

Question ID	NOL 40		
Question		Question Type	Legislative Requirement
Does the landfill operator have a procedure in place to address issues identified by staff during the site inspection?		Legislative	EPA   27   (1)
Observation			
Yes These procedures are documented in the D&O Report and BMP Plans.			

Question ID	NOL 41		
Question	Question Type	Legislative Requirement	
Is the waste being compacted adequately?	Legislative	EPA	27   (1)
Observation			
Yes Compactors are regularly observed in operation at the active working face during weekly on-Site inspections.			

<b>Question ID</b>	NOL 42	
<b>Question</b>	<b>Question</b>	<b>Legislative</b>

	Type	Requirement
Is Daily cover applied to the waste at the end of each working day or as otherwise specified in the ECA?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Condition 6.47 of ECA No. A032203 outlines the requirements for daily, intermediate, and final cover.</p> <p>Daily Cover: The working face must be covered with at least 15cm of soil or approved alternative cover material.</p> <p>Intermittent Cover: In areas where landfilling is temporarily stopped for six months or more, at least 30 cm of soil cover or approved alternative cover material is required.</p> <p>Final Cover: In completed landfill areas, at least 1.85 m of cover soil and then at least 15cm of topsoil is required.</p> <p>The Company reports that daily cover is adequately applied at the end of each working day. No after-hour site visits were conducted during Q1. Stockpiles of daily cover were regularly observed on-Site near the active working face during operating hours while conducting the weekly inspections. The following cover material was observed and/or reported to be used by the Company in Q1:</p> <ul style="list-style-type: none"> <li>- Automobile Shredder Residue (ASR)</li> <li>- Soil</li> <li>- Contaminated Soil</li> <li>- Woodchips</li> <li>- Tarps</li> </ul> <p>According to condition 6.52, samples of the ASR are to be taken semi-annually (spring and fall) and are to meet the specifications of non-hazardous waste under O. Reg. 347. The sample results from spring 2021 will be reviewed in the Ministry's Q2 inspection report.</p> <p>According to condition 6.57, samples of contaminated soils shall be taken quarterly and submitted for analysis of Reg. 347 Schedule IV Inorganics, VOCs, PAHs and PCBs. The Company's Q1 sample was taken on March 16, 2021 and the results satisfied the daily cover requirements and was classified as non-hazardous.</p>		

<b>Question ID</b>	NOL 43	
Question	Question Type	Legislative Requirement
Are procedures implemented to control rodents or other animals and insects at the site?	Legislative	EPA   27   (1)
<b>Observation</b>		

Yes

Condition 6.32 of ECA No. A032203 states that the Site shall be operated and maintained such that vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance.

Procedures for pest control are listed in the Company's D&O Report. Predator Bird Services Inc. is on-Site from Monday to Friday. They use a combination of noise makers, whistlers and a bird of prey (a falcon or hawk) to deter non native species from populating the landfill and surrounding area. Orkin is also on-Site monthly to maintain the prescribed plan for traps and baiting.

No concerns or issues with pest control were identified during Q1.

<b>Question ID</b>	NOL 44	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is site access restricted by use of a gate, fence, or physical barrier when the site is not operating?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>ECA No. A032203 requires the following to be in place at the Site:</p> <ul style="list-style-type: none"> <li>- The entire Site enclosed with a 6 foot high wire woven fence.</li> <li>- The Site entrance and exit gates must be locked and secured against access by unauthorized persons during non-operational hours.</li> <li>- Access to and exit from the Site for the transportation of waste must (under normal circumstances) be only permitted from Country Road 79 (Nauvoo Road).</li> <li>- A sign must be displayed at the main entrance/exit to the Site, detailing: <ul style="list-style-type: none"> <li>-Name of the Site and Owner</li> <li>-ECA number</li> <li>-Name of the Operator</li> <li>-Hours of operation</li> <li>-Approved and prohibited waste types</li> <li>-Warning against unauthorized access</li> <li>-Telephone number for complaints</li> <li>-24/7 emergency telephone number (if different from above)</li> <li>-Warning against dumping outside the Site.</li> </ul> </li> </ul> <p>No concerns or issues with access control were identified during the weekly inspections in Q1 FY 2021/2022, however a complaint regarding Site access concerns was received on May 13, 2021 by a member of the public. It was reported that as they were passing by on May 3rd at 11:30 PM, the Site entrance gates were open. The Company confirmed that they were not operating at the time but that authorized personnel were present at the Site to conduct maintenance. For safety and compliance purposes with Condition 6.28 of the ECA, the Company was reminded that unless personnel can visually monitor and control the entrance at all times while on-site afterhours, the gates should be closed and locked while they are there so that unauthorized persons cannot enter the Site.</p>		

Question ID	NOL 45		
Question	Question Type	Legislative Requirement	
Is the waste disposal area adequately screened from public view?	Legislative	EPA   27   (1)	
Observation	Yes There are 7 meter high perimeter berms vegetated with trees along Zion Ln. and Nauvoo Rd. in order to block the public's view of the landfill.		

Question ID	NOL 46		
Question		Question Type	Legislative Requirement
Are daily records of site operations available at the site for at least the past 2 years or as otherwise required by the ECA?		Legislative	EPA   27   (1), EPA   O. Reg. 232/98   21
Observation			
Yes Condition 1.22 and 9.8 of ECA No. A032203 state that all records required by the ECA are to be retained at the Site for a minimum of two years.			

Question ID	NOL 47		
Question		Question Type	Legislative Requirement
Has the annual operations report been submitted to MECP or available on site as required by the ECA?		Legislative	EPA   27   (1)
Observation			
Yes The 2020 Annual Report was submitted on February 26, 2021 in accordance with condition 15.6 and 15.7 of ECA No. A032203. The Company is also required to submit quarterly reports in accordance with condition 15.4 and 15.5. The first quarterly (Q1) report for 2021 was submitted on May 21, 2021.			

Question ID	NOL 48		
Question		Question Type	Legislative Requirement
Is scavenging being prevented?		Legislative	EPA   27   (1), EPA   O. Reg. 232/98   23
Observation			
Yes Condition 6.33 of ECA No. A032203 states that the Company shall ensure that there is no scavenging as defined by O. Reg. 347 at the Site. "Scavenging" is defined by the uncontrolled removal of reusable material from waste at a waste disposal site.			

The Site is secure during non-operating hours and there have been no reported incidents or evidence of scavenging during the Ministry's on-Site weekly inspections.

<b>Question ID</b>	NOL 51	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the landfill only accepting the types of waste that they are approved to receive?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>The Site is approved to accept municipal, industrial, commercial, and institutional solid non-hazardous waste, including non-hazardous contaminated soils, generated within the Province of Ontario.</p> <p>No non-compliances with waste types were identified during the review of the scale tickets and waste acceptance records provided by the Company for the purposes of this inspection.</p>		

<b>Question ID</b>	NOL 52	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Does the landfill have a waste refusal procedure in place to manage waste that arrives at the site that the site is not approved the accept?	Information	Not Applicable
<b>Observation</b>		
<p>Yes</p> <p>In accordance with Condition 9.5 the Company must keep records in a daily log book of all refusal of waste shipments, the reason(s) for refusal, and the origin of the waste, if known. The Company has their own Waste Verification, Acceptance and Rejection Procedure and records rejection events by filling out a 'Waste Discrepancy Form'.</p> <p>The Company reported that there were no waste load rejections in their calendar Q1 2021 (January-March).</p>		

<b>Question ID</b>	NOL 54	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Does the landfill have a procedure in place to address and document spills and fires?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Procedures for spills, fires and other emergencies are outlined in the D&amp;O Report.</p> <p>Condition 12 of ECA No. A032203 also lists requirements regarding emergency situations: - in the event of a fire or discharge of a contaminant to the environment, the Company shall</p>		

contact the Spills Action Centre (SAC) and the Sarnia District Office forthwith.

- a written report shall be submitted to the District Manager within 3 days of the incident, outlining the nature of the incident, remedial measures taken and measures taken to prevent future occurrences.
- the Company shall ensure that adequate fire fighting and contingency spill clean-up equipment is available as per Item 66 of Schedule A and that emergency response personnel are familiar with its use and location.

During the inspection the Company confirmed that emergency response personnel are familiar with the use and location of the emergency equipment. A variety of heavy equipment is available including a back hoe, rock truck, excavator, sweepers, water truck, as well as a spill kit which is located at the scale. The Company says this information is reviewed annually at a minimum.

A fire at the active face occurred during non-operating hours on March 3, 2021. The Company reported it to SAC forthwith and contacted Officer N. Does the following morning. The fire was thought to be caused by lithium batteries that were inappropriately placed within waste classified as solid non-hazardous. The fire was extinguished by the Fire Department and Site operators within approximately 2.5 hours using douse water and clay. All douse water was contained within the leachate collection system. No off-Site impacts were reported by the Fire Department or the Company. Officer N. Does was on-Site the following morning and did not observe any off-Site impacts. No complaints were received in relation to this incident. Afterwards the Company submitted a written report to the Ministry. The measures taken to prevent future occurrences included sending communication to internal/external clients advising of hazards of certain waste types and held a debrief with the operators to review the Site's waste acceptance and rejection procedures.

Question ID	NOL 55		
Question		Question Type	Legislative Requirement
Does the landfill have emergency contingency plan as required by the ECA?		Legislative	EPA   27   (1)
Observation			
Yes The Emergency Response Plan is included in the D&O Report.			

Question ID	NOL 56		
Question		Question Type	Legislative Requirement
Is there an ECA condition requiring financial assurance?		Information	Not Applicable
Observation			
Yes Financial Assurance (FA) is required for private sector landfill sites under Ontario Regulation 232/98, in order to ensure that funds are available for site closure, post-closure care, and contingencies in the event that the site owner cannot or does not carry out their obligations under the ECA.			

Condition 2.0 of ECA No. A032203 addresses FA requirements for the Site. The Company is required to submit a re-evaluation of the FA amount every four years. The next re-evaluation is required to be submitted on March 31, 2024.

Question ID	NOL 57		
Question		Question Type	Legislative Requirement
Has the financial assurance been submitted, as specified in the ECA?		Legislative	EPA   27   (1)
Observation			
Yes The Company is currently in compliance with their FA requirements.			

<b>Question ID</b>	NOL 59		
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>	
Does the landfill have a procedure in place to address complaints?	Legislative	EPA   27   (1)	
<b>Observation</b>			
Yes			
The Company's complaint procedure is listed in the D&O Report. Responses to complaints related to dust, odour, and litter are also described in the Best Management Practices (BMP) Plans for the Site.			
The following complaint procedure is required by Condition 11 of ECA No. A032203:			
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 changes 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 All complaints received by the Owner are to be reported within twenty-four (24) hours of receipt to the District Manager, the Township of Warwick, the Environmental Inspector and WIFN. Complaints shall be reported to the WPLC at the next WPLC meeting.

Question ID	NOL 60		
Question	Question Type	Legislative Requirement	
Has the landfill operator addressed the complaints to the satisfaction of the ministry?	Legislative	EPA   27   (1)	
Observation			
Yes			
There were 4 complaints received during this inspection review period of March - May 2021 related to litter, dirt track-out, and site access.			
All complaints were reported to the Ministry within 24 hours and were responded to by the Company in accordance with Condition 11.			

Question ID	NOL 61		
Question		Question Type	Legislative Requirement
Has the landfill operator developed a Design and Operations Manual?		Information	EPA   27   (1)
Observation			
Yes A Design and Operations (D&O) Report was prepared by Henderson Paddon & Associates Limited, dated March 2008, and is listed as Items 66-68 of Schedule A under ECA No. A032203.			

Question ID	NOL 62		
Question		Question Type	Legislative Requirement
Is the Design and Operations Manual up to date?		Information	Not Applicable
Observation			
Yes			

<b>Question ID</b>	NOL 63		
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>	
Does the landfill operator have training procedures for site personnel?	Legislative	EPA   27   (1)	



<b>Observation</b>
Yes The Company has their own training procedure. Training requirements for employees are described under condition 10.1 of ECA No. A032203.

Question ID	NOL 64	
Question	Question Type	Legislative Requirement
Is the landfill operator following the established training procedures?	Legislative	EPA   27   (1)
Observation		
Yes Employees must provide proof of training to the Ministry upon request. Proof of training of the two most recent employees and a summary of the training procedures was provided by the Company upon request for the purpose of this inspection. No issues with training records were identified upon review.		

Question ID	NOL 65		
Question		Question Type	Legislative Requirement
Has the Certificate of Requirement been registered on Title?		Legislative	EPA   27   (1)
Observation			
Yes			

Question ID	949100		
Question	Question Type	Legislative Requirement	
Were the inspection questions sufficient to address other identified non-compliance items?	Legislative	Not Applicable	
Observation			
AIR QUALITY & NOISE:			
Condition 13.8 of ECA No. A032203 requires that Air Quality, Dust, Hydrocarbon, and Volatile Organic Carbon monitoring be undertaken in accordance with the Ambient Air Quality Monitoring Plan.			
Total Suspended Particulate (TSP) is sampled at 3 fixed locations around the landfill footprint. TSP samples are taken on a 6-day interval from October - May and taken on a 3-day interval from June - September. The TSP monitoring results for the Company's Q1 (Jan. - March) were reviewed and no exceedances were reported. There were however two exceedances reported on May 10th at the northeast sampler (123 ug/m3) and southeast sampler (134 ug/m3). Based on the wind direction at the time, it is likely that the TSP at the SE sampler originated from cell construction and the TSP at the NE sampler from cell construction and other potential off-Site			

sources. There was also one exceedance reported on May 16th at the SE sampler (125 ug/m<sup>3</sup>), attributed to off-Site sources based on wind direction and the landfill not being in operation at the time.

Metals are analyzed on the highest filter TSP concentration out of every four samples per location. All Q1 samples collected for metals were below their air quality standards as outlined in O. Reg. 419.

Condition 13.10 requires noise monitoring to be undertaken at the Site in accordance with the Environmental Noise Monitoring Program. Sound levels are recorded and analysed at 4 on-Site monitors (M1-M4) located around the perimeter of the Site for a minimum of a 1 month period per quarter.

During operating hours the measured hourly sound levels at M2 and M4 did not exceed their corresponding sound level limits. The measured hourly sound levels at M1 exceeded its corresponding sound level limit on 15 occasions and at M3 on 11 occasions. Majority of these exceedances were less than or equal to 3dB over the limit. RWDI notes that sound level increases of 3dB or less are considered imperceptible, or insignificant, as indicated in the Noise Guidelines for Landfill Sites. Therefore any exceedances of 3 or less dB above the limits would be unnoticeable to the human ear.

Of the results at M1 and M3 that were over 3 dB above the limits, RWDI conducted further investigation and concluded that landfilling was not the cause of the exceedances.

#### WEEKLY INSPECTIONS:

During the months of March, April and May 2021 there were a total of 13 weekly inspections completed.

The purpose of these weekly inspections was to assess the Company's efforts towards preventing, minimizing and mitigating off-site impacts resulting from their operations such as odours, litter, noise and dust. Some of these inspections were limited in scope due to Ontario's COVID-19 response.

Landfill related odours were detected directly downwind of the Site during 9/13 inspections, and were generally characterized as light to moderate. No odour complaints were received during Q1.

Dust was observed during 8/13 inspections, mainly due to truck track-out onto Nauvoo Rd. On a couple occasions dust was observed on Zion Ln. due to pre-excavation construction activities occurring in Cell 6A. The Company was continuously requested to sweep and/or water when dusty road conditions were observed. Dust management measures were reviewed during the inspections to ensure the Dust BMP Plan was implemented. The contractors working on cell construction controlled their dust production through use of irrigation lines installed on the east haul Rd. as well as their own water trucks.

Off-Site litter was observed during 12 out of 13 inspections. These observations consisted of windblown litter and/or ASR track-out from waste haulers onto Nauvoo Rd. During the months of spring there were several high wind events which caused excessive litter on and off-Site. Required

action items from some of the weekly inspection reports were issued to the Company to ensure that they took additional measures to prevent and remediate litter impacts within a timely manner. The Company kept the impacted property owners informed, which consisted mainly of farm fields, and coordinated clean-up times prior to the commencement of agricultural field work. No complaints from nearby property owners were received during this time. One complaint was received from a member of the public as they drove down Zion Ln. and observed blowing litter. The Company responded by dispatching employees that weekend to pick up the litter. The Company has since caught up with the management of windblown litter both on and off-Site, and windblown litter has not been observed off-Site since April 29th.

The Company has used ASR for years as an alternative daily cover material, however during Q1 the track-out from trucks had become more problematic than usual. The Company also uses a mix of ASR and woodchips for temporary roads within the active face in order to provide safe access to the tipping face for waste haulers. They have implemented several measures at the Site to minimize the issue, including:

- Written notices to all haulers to inspect their trucks prior to leaving the site
- Provided a waste bin near the exit for haulers to pick out waste stuck in vehicle wheels prior to exiting
- Required haulers to take a longer route within the Site to encourage ASR to fall off prior to exiting
- Implemented a spotter during peak traffic times to ensure trucks are inspecting their tires
- Hired an additional operator to increase frequency of sweeping and picking
- Instead of mixing, ASR will be layered underneath the woodchips so it minimizes the amount of ASR getting caught in truck tires

Concerns for cleanliness and visual deterrents along Nauvoo Rd. have been raised by the WLPC members during recent quarterly meetings. Further Ministry enforcement action may be taken if the recently implemented preventative measures do not reduce track-out off-Site. This will be summarized in the next quarterly inspection report.



Twin Creeks Environmental Centre  
5768 NAUVOO RD, WARWICK, ON, N0M 2S0

## Inspection Report

System Number:	0470-4L8R85
Inspection Start Date:	06/01/2021
Inspection End Date:	10/18/2021
Inspected By:	Nicole Does
Badge #:	1932

A handwritten signature in black ink that reads "Nicole Does".

---

(signature)

### **NON-COMPLIANCE/NON-CONFORMANCE ITEMS**

This should not be construed as a confirmation of full compliance with all potential applicable legal requirement and BMPs. These inspection findings are limited to the components and/or activities that were assessed, and the legislative framework(s) that were applied. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

If you have any questions related to this inspection, please contact the undersigned Provincial Officer.

## INSPECTION DETAILS

This section includes all questions that were assessed during the inspection.

**Ministry Program: Regulated Activity: WASTE : Landfills**

Question ID	NOL 1		
Question	Question Type	Legislative Requirement	
Does the Open landfill site have an Environmental Compliance Approval (ECA)?	Legislative	EPA   27   (1)	
Observation			
Yes			
Landfill sites require an Environmental Compliance Approval (ECA) issued by the Ministry under the Environmental Protection Act in order to dispose of waste in Ontario. An ECA imposes conditions related to development, operation, and closure of the site. In order to assess compliance with these requirements, the Ministry is committed to conducting proactive inspections of waste disposal sites.			
As part of the Sarnia District Office's 2021/22 inspection program, an inspection was conducted at the Twin Creeks Landfill (the Site) in Warwick Township, which is owned and operated by Waste Management of Canada Corporation (The Company).			
The focus of this inspection was to assess the Company's operation of the Site against the terms and conditions of its Ministry approvals and with the requirements of applicable environmental legislation, regulations, and guidelines. This report also summarizes the findings of the weekly inspections conducted at the Site during the second quarter (Q2) of 2021/2022 fiscal year (FY), covering the period of June 1 to August 31, 2021.			
The Site has the following Ministry approvals:			
WASTE DISPOSAL SITE:			
ECA No. A032203, dated December 19, 2020			
- For the operation of a 101.8-hectare landfilling area with a total site area of 301 hectares, accepting only municipal, industrial, commercial, institutional solid non-hazardous waste generated within Ontario, including non-hazardous contaminated soil. The site is approved to receive 1,400,000 tonnes per year.			
AIR:			
ECA No. 4155-BMCLZ8, dated March 3, 2020			
Approved to install and operate:			
- four enclosed flare systems;			
- emergency diesel generators to provide back-up power as needed;			
- a 50kW diesel generator to provide regular power to the south fill area leachate pumping system; and			

- exhaust fans, exhaust louvres, and aeration tanks exhausting to the atmosphere from the leachate treatment facility.

**INDUSTRIAL SEWAGE:**

ECA No. 2403-BE6LZ4, dated August 21, 2019

- Issued for the establishment of a leachate collection, treatment, and disposal facility as well as a stormwater management facility to service the Site.

**PERMIT TO TAKE WATER (PTTW):**

ECA No. 4430-8PLMKV, dated January 17, 2012

Issued for dewatering at the Site and industrial activities such as road watering to reduce dust. On-Site water taking locations include:

- stormwater management ponds 1, 2, 3, and 4
- secondary drainage layer (SDL)
- four pumping stations, PS2, PS4, PS6, PS8.

The PTTW expired on April 15, 2020; however, a renewal application was received on December 27, 2019 and is still currently under review by the Ministry. Since the application was submitted more than 90 days prior to the expiry date, the existing permit continues to be in effect until the Ministry issues a decision.

Question ID	NOL 4		
Question		Question Type	Legislative Requirement
Does the landfill have a Contaminant Attenuation Zone (CAZ)?		Information	Not Applicable
Observation			
No			

Question ID	NOL 12		
Question		Question Type	Legislative Requirement
Does the landfill have a large enough Buffer Area as specified in the ECA or Regulation 232/98?		Legislative	EPA   27   (1)
Observation			
Yes			

<b>Question ID</b>	NOL 13	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Are access roads and on-site roads provided so that vehicles hauling waste to and on the site may travel readily on any day under all normal weather conditions?	Information	EPA   27   (1)
<b>Observation</b>		

Yes  
Access to and exit from the Site for the transportation of waste is permitted from Country Road 79 (Nauvoo Road). No issues with on-Site road access were identified in Q2.

Question ID	NOL 14		
Question		Question Type	Legislative Requirement
Is site access limited to times when an attendant is on duty?		Legislative	EPA   27   (1)
Observation			
Yes An attendant is always on duty at the Site during operating hours.			

Question ID	NOL 15		
Question	Question Type	Legislative Requirement	
Does the site only receive waste from within its approved service area?	Legislative	EPA   27   (1)	
Observation			
<p>Yes</p> <p>The Site is approved to receive waste from within the province of Ontario.</p> <p>During the inspection, a number of scale tickets and waste acceptance records were reviewed within Q2 (June-August). According to the reviewed scale tickets provided by the Company on the select dates, all waste originated from within Ontario.</p> <p>The Site is approved for the use and operation of a 101.8-hectare landfilling area with a total Site area of 301 hectares. During Q2, the Company deposited waste in Cell 4B and 4C of the Expansion Site. Also ongoing was the pre-excavation construction activities within Cell 6A, which is within the approved landfill footprint.</p> <p>Condition 6.6 of ECA No. A032203 authorizes the Company to receive up to a maximum of 1,400,000 tonnes of waste per year (including contaminated soil) for disposal at the Site.</p> <p>According to the tonnage reports provided by the Company, monthly totals for Q2 are as follows: June 2021 - 119,130.76 tonnes July 2021 - 119,821.28 tonnes August 2021 - 132,163.47 tonnes</p> <p>So far in the 2021 calendar year (as of the end of August) the Site has received a total of 926,115.08 tonnes of waste, which is approximately 66% of their yearly capacity limit.</p>			

<b>Question ID</b>	NOL 16		
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>	



Is the site required to have a ground water monitoring program by the ECA?	Information	Not Applicable
<b>Observation</b>		
<p>Yes</p> <p>The following Site-specific approvals outline the requirements for groundwater monitoring:</p> <ul style="list-style-type: none"> <li>- Industrial Sewage ECA No. 2403-BE6LZ4: Specifies operation, monitoring and reporting requirements related to storm/surface water, ground water, leachate, leachate treatment plant effluent, and treated effluent storage pond monitoring programs.</li> <li>- Waste Disposal Site ECA No. A032203: Condition 13.6 requires monitoring programs to be carried out for groundwater, surface water, and landfill gas in accordance with the Environmental Monitoring Plan (EMP), listed as Item 39 and Appendix H of Item 68 of Schedule "A".</li> </ul> <p>Groundwater monitoring is completed semi-annually in the spring and fall as per the EMP.</p>		

<b>Question ID</b>	NOL 17	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the site implementing the groundwater monitoring program as required by the ECA?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>The Company documents the results of the required monitoring programs in quarterly and annual reports which are routinely reviewed by the Ministry for compliance purposes.</p> <p>The 2021 Second Quarter ("Q2") Monitoring Report was submitted to the Ministry on August 27, 2021. The Company's quarterly reports are reported by calendar year and are required by Condition 15.4 of ECA No. A032203 and Condition 12.3 of ECA No. 2403-BE6LZ4. Their Q2 reporting period reflects all monitoring completed between April 1 and June 30, 2021, and was reviewed as part of this inspection.</p> <p>The spring (semi-annual) groundwater sampling was completed between May 18 and 21, 2021. RWDI reported that the analytical results of the groundwater monitoring wells generally satisfied the relevant trigger concentrations, with some exceptions at certain monitoring well locations, including:</p> <ul style="list-style-type: none"> <li>- OW60-8 - Dichloromethane concentration of 0.13mg/L (trigger concentration - 0.010mg/L). This does not trigger verification monitoring as dichloromethane is a secondary leachate indicator list (SLIL) parameter. This concentration is not a concern according to RWDI as the primary leachate indicators (chloride, boron and ammonia) were not detected at elevated concentrations. Furthermore, OW60-8 is further away from the waste than monitoring well nests OW16 and OW68 which showed acceptable groundwater quality results. Dichloromethane has been detected intermittently at different monitoring well locations historically with no established pattern. This</li> </ul>		

parameter will continue to be evaluated over time for possible trends of concern.

- OW60-4 - Lead concentration of 0.008mg/L (trigger concentration is 0.002mg/L). Lead was removed as a trigger assessment and from the SLIL in accordance with MECP authorization dated October 2, 2020.

- OW79-7 - Chloride concentration of 140mg/L (trigger concentration is 116mg/L). RWDI states that chloride at this location is attributed to an off-Site source and is not subject to verification monitoring in accordance with MECP authorization. This was granted in correspondence from the MECP dated November 23 and December 12, 2011 pursuant to condition 13.11 of ECA No. A032203.

- OW80-3 Chloride concentration of 160mg/L (trigger concentration is 106mg/L) & OW80-6 Chloride concentration of 190mg/L (trigger concentration is 116mg/L). These locations are influenced by road salting effects along Nauvoo Road and are not subject to verification monitoring in accordance with MECP authorization granted in 2010.

- OW81-7 - Chloride concentration of 220mg/L (trigger concentration is 116mg/L). Similar to wells OW80-3 and OW80-6, RWDI attributes the chloride concentrations to road salting effects, given it's proximity to Nauvoo Road and the flow of the groundwater moving towards the landfill. Verification sampling was initiated on June 9, 2021. The chloride concentration for the verification sampling event was 260mg/L and was again attributed to road salting effects along Nauvoo Road. An Alternate Source Evaluation was completed which confirmed the accuracy of the initial results. Per Figure 3 of the EMP, RWDI states that a request will be sent to the MECP to remove the trigger assessment for chloride at monitoring well OW81-7. This was also mentioned in the Company's 2020 Q3 Report. During this inspection, an estimated timeline was requested for the submission of this request. RWDI stated that the estimated date of submission will be December 2021.

During the spring 2021 sampling event, VOCs within the groundwater monitoring wells satisfied their respective trigger concentrations, with the exception of dichloromethane as mentioned above.

Question ID	NOL 19		
Question		Question Type	Legislative Requirement
Is the ministry concerned with the results of the samples that have been tested?		Information	Not Applicable
Observation			
No			

<b>Question ID</b>	NOL 20		
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>	
Is there ongoing abatement to address any concerns the	Information	Not Applicable	

ministry has with the ground water monitoring?		
<b>Observation</b>		
No		

<b>Question ID</b>	NOL 21	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the site required to manage leachate by the ECA?	Information	Not Applicable
<b>Observation</b>		
<p>Yes</p> <p>The Site is required to manage leachate in accordance with the Industrial Sewage ECA No. 2403-BE6LZ4 and Waste ECA No. A032203.</p> <p>Leachate Collection - Existing Site:</p> <p>This consists of:</p> <ul style="list-style-type: none"> <li>- Three finger drains in the South Fill Area;</li> <li>- Pumping sump in the West Central Cell near monitoring station OW-29;</li> <li>- Two parallel waste underdrains in Cell 3S (north of the South Fill Area); and</li> <li>- Waste underdrains in the Northern part of Cell 5 and in Cells 4, 6, 7, 8, 9, 10 and 11.</li> </ul> <p>The waste under-drains direct leachate to a perimeter collection system which is then automatically pumped to the leachate equalization tank.</p> <p>Leachate Collection - Expansion Site:</p> <p>A leachate collection system has been installed in Cell 1, Cell 2 and Cell 4. The leachate level in the primary drainage layer of these cells is currently controlled by automated Pump Station 1 (PS1), Pump Station 3 (PS3) and Pump Station 5 (PS5). Leachate is transferred from the Primary Drainage Layer (PDL) to the leachate equalization tank. The Secondary Drainage Layer (SDL) is controlled by PS2, PS4, and PS6. The trigger for implementation of groundwater contingency measures for the Expansion Site is the loss of hydraulic containment. This occurs when leachate levels within the PDL are higher than the surrounding groundwater elevations.</p> <p>Poplar Tree Leachate Irrigation System:</p> <p>The Company has established a drip irrigation system which supplies leachate to a stand of poplar trees, known as the Poplar System ("PS"). The poplars are located on top of a portion of the existing landfill and have been operable since September 27, 2017. The PS is only utilized on a seasonal basis when the trees can actively uptake the leachate.</p> <p>There are a number of monitoring requirements under Condition 8.7 of ECA No. A032203 related to the PS including soil monitoring, visual assessments, leachate monitoring, tree tissue monitoring and surface water monitoring. The PS was operational as of May 17th for the 2021 growing season.</p> <p>Off-Site Leachate Disposal:</p> <p>The remaining leachate produced from both the existing and expansion site is hauled off-Site for treatment and disposal at the Chatham Water Pollution Control Plant in Ontario. According to reports provided by the Company, 2941.59 mt of leachate was hauled off-site in June 2021,</p>		

3288.84 mt in July 2021, and 2300.24 mt in August 2021 for disposal.

<b>Question ID</b>	NOL 22	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the landfill implementing the procedures required by the ECA to manage leachate?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Existing Site:</p> <p>Leachate liquid levels are monitored semi-annually in May and November for the Existing Site. Since the Company reports in calendar quarters (Q2: April - June), the May leachate levels were presented in the Q2 report and were completed on May 17, 2021.</p> <p>Hydraulic containment of the leachate in the Existing Site was generally maintained, with some exceptions as stated in the Q2 Report at the eastern portion of Cells 6, 8, 11, the West Cell, and the western portion of the South Cell. However, compliance with the Existing Site is based on groundwater and surfacewater quality, which RWDI says was acceptable based on the spring 2021 sampling events. No leachate seeps in the Existing Site were observed by the MECP so far in 2021.</p> <p>Expansion Site:</p> <p>For the Expansion Site, ECA No. A032203 condition 7.18 requires that a hydraulic trap be developed and maintained beneath the expansion area and that the leachate head on the landfill liner does not exceed 300 mm. Condition 14.1 also requires additional groundwater level monitoring if the leachate level elevation in any of the following pumping station wells rise above their respective trigger level:</p> <p>PS1 - 232.7 mASL PS3 - 232.6 mASL PS5 - 232.8 mASL PS7 - 233.4 mASL (not yet installed)</p> <p>During the Company's Q2 monitoring period (April - June) leachate levels remained below their trigger elevations, as outlined in Condition 14.1. The leachate levels in the pumping stations also remained below the maximum leachate head limit (300 mm), as outlined in Condition 7.18, according to Table 9 of the Company's Q2 Report. In response to concerns raised in the MECP Q3 2020/21 inspection report regarding reoccurring exceedances of the 300 mm limit, the Company has since submitted and implemented the Expansion Landfill Leachate Level Contingency Plan (RWDI, April 30, 2021) which has shown to have improved compliance with Condition 7.18.</p> <p>RWDI reported that the leachate elevations within Cell 1, 2, and 4 were below the historical groundwater elevation in the active aquitard and the interstadial silt and sand groundwater flow systems and was therefore hydraulically contained.</p> <p>During the Ministry's weekly inspections in the Q2 fiscal year (June to August), two small</p>		

leachate seeps were observed, one on the west slope and one on the south slope of the expansion site. These seeps were localized and did not visually appear to have impacted any surface water features. The Company remediated the seeps as per the procedures in the D&O Report.

<b>Question ID</b>	NOL 23	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Are samples taken to monitor leachate quality?	Legislative	EPA   27   (1), EPA   O. Reg. 232/98   26
<b>Observation</b>		
<p>Yes Existing Site:</p> <p>Leachate in the existing site was sampled for quality purposes on May 18, 2021, and was generally consistent with their respective historical results and reasonable for the age and type of waste, according to RWDI.</p> <p>Expansion Site:</p> <p>Leachate quality is assessed annually in May at the leachate pumping stations. Leachate quality from the Equalization Tank is assessed quarterly, with an extended list of parameters assessed semi-annually (spring and fall). The Equalization Tank represents leachate quality from PS1 (Cell 1), PS3 (Cell 3) and PS5 (Cell 4A) of the Expansion Site, automated maintenance holes in the Existing Site, and condensate from the gas collection system. Industrial Sewage ECA No. 2403-BE6LZ4 outlines the full requirements for leachate quality monitoring and reporting for the Site.</p> <p>During the Company's Q2 monitoring period, the extended list of parameters for leachate quality in the equalization tank and pumping stations were assessed on May 18 and 19, 2021. No concerns for leachate quality were noted. The results were consistent with historical monitoring results for the relevant constituents. Some parameters were noted to be above their respective historical upper concentration limit, however according to RWDI, some concentration increases are expected as the waste matures.</p> <p>Poplar System (PS):</p> <p>Weekly monitoring of the electrical conductivity is required. The measured readings during the Company's Q2 monitoring period indicated that the leachate irrigation was not unacceptably affecting soil quality. Soil quality sampling, leaf tissue analyses and crop inspection are required annually in the fall. Monthly sampling of irrigation quality is also required and RWDI stated the results generally satisfied the target loading concentrations and that leachate should not unacceptably affect tree health, which was confirmed through visual tree health observations. RWDI also conducted visual assessments once per month of undergrowth, ponding water, and tree health. The ECA also requires daily inspections for ponded water or saturated soil during irrigation. An RWDI representative is present on-Site every day during irrigation. Detailed reporting of the PS is required in the annual monitoring report.</p>		

During the weekly inspection on June 23rd, leachate runoff was occurring from an area of the PS which was in operation at the time. The Company was requested to immediately turn off the impacted leachate irrigation zone, which was completed by the RWDI representative present on-Site at the time. No leachate runoff was observed or expected to have gone off-Site at the time of the inspection. The runoff appeared to be coming from a localized area that had minimal healthy-looking poplar trees. RWDI was requested to inspect all the piping within the PS to ensure areas with no trees or dead trees were not receiving irrigation. RWDI completed the inspection on July 26, 2021 and reported that approximately 10-20% of the PS does not have trees. They confirmed that until replacement trees and solid irrigation lines can be sourced and installed in those areas, the relevant irrigation lines will not be utilized and control valves have been put in the closed position as of July 29th. Within the weekly inspection report the Company was reminded of the compliance requirements related to the operation, contingencies and reporting of the PS. No further issues or concerns with the operation of the PS have been identified.

<b>Question ID</b>	NOL 24		
<b>Question</b>		<b>Question Type</b>	<b>Legislative Requirement</b>
Is the ministry concered with the leachate quality?		Information	Not Applicable
<b>Observation</b>			
No			

<b>Question ID</b>	NOL 25		
<b>Question</b>		<b>Question Type</b>	<b>Legislative Requirement</b>
Is there ongoing abatement to address any concerns the ministry has with the leachate monitoring?		Information	Not Applicable
<b>Observation</b>			
No			

Question ID	NOL 26		
Question		Question Type	Legislative Requirement
Is the site required to manage landfill gas by the ECA?		Information	Not Applicable
Observation			
<p>Yes</p> <p>Gas produced by the landfill is managed by the on-Site gas collection and flaring system. A portion of the gas is conveyed from the landfill to a neighbouring property for heating purposes of a large greenhouse, on an as-needed basis. The remaining gas is sent to one of the two existing flares on-Site.</p> <p>Waste ECA No. A032203:</p> <ul style="list-style-type: none"><li>- Condition 7.10 and 13.6 requires the gas control system to be managed and monitored as specified in the D&amp;O Report and the EMP.</li><li>- Condition 14.8 states that if landfill gas concentrations exceed 10% LEL (Lower Explosive</li></ul>			

Limit) during monitoring, the Company is to undertake additional monitoring to determine if the elevated levels are landfill related.  
- The Company must report all landfill gas monitoring to the Ministry on a quarterly and annually basis.

Air ECA No. 4155-BMCLZ8:

- Describes the notifications, operation, maintenance, performance and record keeping requirements for the flaring system.
- Notably, condition 2 (c) requires the Company to use a Continuous Emission Monitoring System to ensure each flare operates with a minimum temperature of 875 degrees Celsius at a point representing a minimum retention time of 0.7 second, at all times when the landfill gas incineration is in progress.

<b>Question ID</b>	NOL 27	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the site implementing the landfill gas management requirements in the ECA?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Landfill gas monitoring is completed monthly from November to April and in July at gas probes GP1A to GP8. Methane gas was not detected within any of the gas probes in April, according to the Company's Q2 Report (April-June).</p> <p>The temperatures of the flares are checked during the unannounced weekly inspections to ensure they are operating above 875 degrees Celsius.</p> <p>There were no major issues or deficiencies of the gas collection system observed during the weekly inspections or reported by the Company during the Q2 fiscal 2021/22 (June - August).</p> <p>Total Hydrocarbon (THC) surface monitoring is conducted in the spring and fall in accordance with the AAQMP, required by Condition 13.8 of ECA No. A032203. It consists of a walk-over survey of the final capped landfill area using a handheld THC analyzer. Elevated THC concentrations are indicators of the escape of possible landfill gas in certain areas. One area of elevated THC concentration was detected, which was repaired by the Company on June 25, 2021. Verification monitoring was completed on August 6, 2021 which confirmed that the repairs were successful.</p>		

<b>Question ID</b>	NOL 29	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the ministry concerned with landfill gas at this site?	Information	Not Applicable
<b>Observation</b>		
No		



<b>Question ID</b>	NOL 30	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is there ongoing abatement to address any concerns the ministry has with landfill gas at this site?	Information	Not Applicable
<b>Observation</b>		
No		

<b>Question ID</b>	NOL 31	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the site required to have a surface water monitoring program by the ECA?	Information	Not Applicable
<b>Observation</b>		
<p>Yes</p> <p>The following Site-specific approvals outline the requirements for surfacewater monitoring:</p> <p>- Industrial Sewage ECA No. 2403-BE6LZ4: Specifies operation, monitoring and reporting requirements related to storm/surface water, ground water, leachate, leachate treatment plant effluent, and treated effluent storage pond monitoring programs.</p> <p>- Waste Disposal Site ECA No. A032203: Condition 13.6 requires monitoring programs to be carried out for groundwater, surface water, and landfill gas in accordance with the Environmental Monitoring Plan (EMP), listed as Item 39 and Appendix H of Item 68 of Schedule "A".</p> <p>The Company conducts quarterly surface water monitoring following precipitation events of greater than 10 mm in a 24-hour period.</p>		

Question ID	NOL 32		
Question	Question Type	Legislative Requirement	
Is the site implementing the surface water monitoring program as required by the ECA?	Legislative	EPA   27   (1)	
Observation			
Yes Following precipitation events of greater than 10 mm in a 24-hour period, surfacewater samples were collected on June 3, 2021 at monitoring stations SS1, SP3, and SP4 and on June 25, 2021 at monitoring station SP2. On both occasions samples were not able to be taken at SS10, SS16, and SP1 due lack of flowing conditions. All surfacewater sampling results satisfied the relevant trigger concentrations except for the concentration of boron ( 0.31 mg/L) above its respective trigger concentration (0.2 mg/L) at monitoring station SP2. As a result verification sampling was required and was completed on July 9, 2021, which showed a decrease in boron concentration. The			



biological results indicated that the water quality did not pose a detrimental effect to aquatic life and was of acceptable quality for continued discharge. RWDI attributes the elevated boron concentration to erosional effects of the nearby road and drainage construction activities, and not due to landfill leachate effects. Construction of this area was fully completed as of September 2021. RWDI also noted that the laboratory and field chemical constituent concentrations were within the historical range for boron at this monitoring station.

During this surfacewater monitoring event, the PS monitoring stations were sampled as well, although only station SS14B was collected due to lack of flowing conditions at SS14A and SS15A. based on the results and historical trends, RWDI stated that runoff from the Existing Site did not negatively affect the downstream water quality. It is noted however that since 2018, periodic elevated concentrations of the PLIL parameters boron, ammonia and chloride were detected at some of the PS monitoring stations, although there are no observable concentration patterns/trends to indicate a concern at this time.

As part of the routine surfacewater sampling event, VOCs and SVOCs were sampled and analysed as well and were all below the laboratory reportable detection limits, except for the SVOC parameter phenol (3.7ug/L) at monitoring station SP4. A concentration trend does not appear to be occurring for phenol and RWDI interprets this result as non-significant at this time. There are no trigger concentrations for SVOC parameters.

The routine annual spring biomonitoring of surface water was also completed in June 2021 at monitoring stations SS1, SP3, SP4, and SP2. The results showed that there was not a potential for detrimental effects to aquatic life in the discharge water.

Question ID	NOL 35		
Question		Question Type	Legislative Requirement
Is there ongoing abatement to address any concerns the ministry has with the surface water monitoring?		Information	Not Applicable
Observation			
No			

Question ID	NOL 36		
Question		Question Type	Legislative Requirement
Is proper equipment available for the compaction of waste and applying cover material?		Legislative	EPA   27   (1)
Observation			
Yes The proper equipment for waste compaction and daily cover application is observed during the Ministry's weekly on-Site inspections.			

<b>Question ID</b>	NOL 37		
--------------------	--------	--	--

Question	Question Type	Legislative Requirement
Is the landfill able to accurately determine the amount of waste received?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>The Site has an entrance and exit scale and records all incoming waste volumes. Tonnage tracking reports are also sent to the Ministry on a monthly basis and yearly waste quantities are summarized in the annual reports.</p>		

<b>Question ID</b>	NOL 38	
Question	Question Type	Legislative Requirement
Are all disposal operations at the site adequately and continually supervised?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes		

<b>Question ID</b>	NOL 39	
Question	Question Type	Legislative Requirement
Does the landfill operator have a site inspection program as required by the ECA?	Information	Not Applicable
<b>Observation</b>		
<p>Yes</p> <p>Section 9 of ECA # A032203 contains daily, weekly and monthly inspection and record keeping requirements for the general operation and maintenance of the Site. These records are periodically requested by the Company during weekly inspections and are assessed for compliance. No issues or concerns have been identified with the frequency or details of site inspections.</p>		

<b>Question ID</b>	NOL 40	
Question	Question Type	Legislative Requirement
Does the landfill operator have a procedure in place to address issues identified by staff during the site inspection?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>These procedures are documented in the D&amp;O Report and BMP Plans.</p>		

<b>Question ID</b>	NOL 41	
Question	Question Type	Legislative Requirement
Is the waste being compacted adequately?	Legislative	EPA   27   (1)

<b>Observation</b>
<p>Yes</p> <p>Compactors are regularly observed in operation at the active working face during weekly on-Site inspections.</p>

<b>Question ID</b>	NOL 42	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is Daily cover applied to the waste at the end of each working day or as otherwise specified in the ECA?	Legislative	EPA   27   (1), EPA   O. Reg. 232/98   7
<b>Observation</b>		
<p>Yes</p> <p>Condition 6.47 of ECA No. A032203 outlines the requirements for daily, intermediate, and final cover.</p> <p>Daily Cover: The working face must be covered with at least 15cm of soil or approved alternative cover material.</p> <p>Intermittent Cover: In areas where landfilling is temporarily stopped for six months or more, at least 30 cm of soil cover or approved alternative cover material is required.</p> <p>Final Cover: In completed landfill areas, at least 1.85 m of cover soil and then at least 15cm of topsoil is required.</p> <p>The Company reports that daily cover is adequately applied at the end of each working day. No after-hour site visits were conducted during Q1. Stockpiles of daily cover were regularly observed on-Site near the active working face during operating hours while conducting the weekly inspections. The following cover material was observed and/or reported to be used by the Company in Q2:</p> <ul style="list-style-type: none"> <li>- Automobile Shredder Residue (ASR)</li> <li>- Soil</li> <li>- Contaminated Soil</li> <li>- Woodchips</li> <li>- Tarps</li> </ul> <p>According to condition 6.52, samples of the ASR are to be taken semi-annually (spring and fall) and are to meet the specifications of non-hazardous waste under O. Reg. 347. A sample of ASR material was collected on April 6, 2021 and results indicated that it met the specifications and was classified as non-hazardous.</p> <p>According to condition 6.57, samples of contaminated soils shall be taken quarterly and submitted for analysis of Reg. 347 Schedule IV Inorganics, VOCs, PAHs and PCBs. The Company's Q2</p>		

sample was taken on May 5, 2021 and the results satisfied the daily cover requirements and was classified as non-hazardous.

<b>Question ID</b>	NOL 43	
Question	Question Type	Legislative Requirement
Are procedures implemented to control rodents or other animals and insects at the site?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Condition 6.32 of ECA No. A032203 states that the Site shall be operated and maintained such that vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance.</p> <p>Procedures for pest control are listed in the Company's D&amp;O Report. Predator Bird Services Inc. is on-Site from Monday to Friday. They use a combination of noise makers, whistlers and a bird of prey (a falcon or hawk) to deter non native species from populating the landfill and surrounding area. Orkin is also on-Site monthly to maintain the prescribed plan for traps and baiting.</p> <p>No concerns or issues with pest control were identified during Q2.</p>		

<b>Question ID</b>	NOL 44	
Question	Question Type	Legislative Requirement
Is site access restricted by use of a gate, fence, or physical barrier when the site is not operating?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>ECA No. A032203 requires the following to be in place at the Site:</p> <ul style="list-style-type: none"> <li>- The entire Site enclosed with a 6 foot high wire woven fence.</li> <li>- The Site entrance and exit gates must be locked and secured against access by unauthorized persons during non-operational hours.</li> <li>- Access to and exit from the Site for the transportation of waste must (under normal circumstances) be only permitted from Country Road 79 (Nauvoo Road).</li> <li>- A sign must be displayed at the main entrance/exit to the Site, detailing: <ul style="list-style-type: none"> <li>-Name of the Site and Owner</li> <li>-ECA number</li> <li>-Name of the Operator</li> <li>-Hours of operation</li> <li>-Approved and prohibited waste types</li> <li>-Warning against unauthorized access</li> <li>-Telephone number for complaints</li> <li>-24/7 emergency telephone number (if different from above)</li> <li>-Warning against dumping outside the Site.</li> </ul> </li> </ul>		

No concerns or issues with access control were identified during the weekly inspections in Q2.

<b>Question ID</b>	NOL 45	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the waste disposal area adequately screened from public view?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes There are 7 meter high perimeter berms vegetated with trees along Zion Ln. and Nauvoo Rd. in order to block the public's view of the landfill. No complaints of public view were received.		

<b>Question ID</b>	NOL 46	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Are daily records of site operations available at the site for at least the past 2 years or as otherwise required by the ECA?	Legislative	EPA   27   (1), EPA   O. Reg. 232/98   21
<b>Observation</b>		
Yes Condition 1.22 and 9.8 of ECA No. A032203 state that all records required by the ECA are to be retained at the Site for a minimum of two years.		

<b>Question ID</b>	NOL 47	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Has the annual operations report been submitted to MECP or available on site as required by the ECA?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes The 2020 Annual Report was submitted on February 26, 2021 in accordance with condition 15.6 and 15.7 of ECA No. A032203. The Company is also required to submit quarterly reports in accordance with condition 15.4 and 15.5. The second quarterly (Q2) report for 2021 was submitted on August 27, 2021.		

<b>Question ID</b>	NOL 48	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is scavenging being prevented?	Legislative	EPA   27   (1), EPA   O. Reg. 232/98   23
<b>Observation</b>		
Yes		

Condition 6.33 of ECA No. A032203 states that the Company shall ensure that there is no scavenging as defined by O. Reg. 347 at the Site. "Scavenging" is defined by the uncontrolled removal of reusable material from waste at a waste disposal site.

The Site is secure during non-operating hours and there have been no reported incidents or evidence of scavenging during the Ministry's on-Site weekly inspections.

Question ID	NOL 51		
Question		Question Type	Legislative Requirement
Is the landfill only accepting the types of waste that they are approved to receive?		Legislative	EPA   27   (1)
Observation			
Yes			
The Site is approved to accept municipal, industrial, commercial, and institutional solid nonhazardous waste, including non-hazardous contaminated soils, generated within the Province of Ontario.			
No non-compliances with waste types were identified during the review of the scale tickets and waste acceptance records provided by the Company for the purposes of this inspection.			

Question ID	NOL 52		
Question	Question Type	Legislative Requirement	
Does the landfill have a waste refusal procedure in place to manage waste that arrives at the site that the site is not approved the accept?	Information	Not Applicable	
Observation			
Yes In accordance with Condition 9.5 the Company must keep records in a daily log book of all refusal of waste shipments, the reason(s) for refusal, and the origin of the waste, if known. The Company has their own Waste Verification, Acceptance and Rejection Procedure and records rejection events by filling out a 'Waste Discrepancy Form'.			

Question ID	NOL 54		
Question		Question Type	Legislative Requirement
Does the landfill have a procedure in place to address and document spills and fires?		Legislative	EPA   27   (1)
Observation			
Yes Procedures for spills, fires and other emergencies are outlined in the D&O Report.  Condition 12 of ECA No. A032203 also lists requirements regarding emergency situations:			

- in the event of a fire or discharge of a contaminant to the environment, the Company shall contact the Spills Action Centre (SAC) and the Sarnia District Office forthwith.
- a written report shall be submitted to the District Manager within 3 days of the incident, outlining the nature of the incident, remedial measures taken and measures taken to prevent future occurrences.
- the Company shall ensure that adequate fire fighting and contingency spill clean-up equipment is available as per Item 66 of Schedule A and that emergency response personnel are familiar with its use and location.

The Company confirmed that emergency response personnel are familiar with the use and location of the emergency equipment. A variety of heavy equipment is available including a back hoe, rock truck, excavator, sweepers, water truck, as well as a spill kit which is located at the scale. The Company says this information is reviewed annually at a minimum.

Question ID	NOL 55		
Question		Question Type	Legislative Requirement
Does the landfill have emergency contingency plan as required by the ECA?		Legislative	EPA   27   (1)
Observation			
Yes The Emergency Response Plan is included in the D&O Report.			

Question ID	NOL 56		
Question	Question Type	Legislative Requirement	
Is there an ECA condition requiring financial assurance?	Information	Not Applicable	
Observation			
<p>Yes</p> <p>Financial Assurance (FA) is required for private sector landfill sites under Ontario Regulation 232/98, in order to ensure that funds are available for site closure, post-closure care, and contingencies in the event that the site owner cannot or does not carry out their obligations under the ECA.</p> <p>Condition 2.0 of ECA No. A032203 addresses FA requirements for the Site. The Company is required to submit a re-evaluation of the FA amount every four years. The next re-evaluation is required to be submitted on March 31, 2024.</p>			

Question ID	NOL 57		
Question		Question Type	Legislative Requirement
Has the financial assurance been submitted, as specified in the ECA?		Legislative	EPA   27   (1)
Observation			

Yes  
The Company is currently in compliance with their FA requirements.

<b>Question ID</b>	NOL 59	
Question	Question Type	Legislative Requirement
Does the landfill have a procedure in place to address complaints?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>The Company's complaint procedure is listed in the D&amp;O Report. Responses to complaints related to dust, odour, and litter are also described in the Best Management Practices (BMP) Plans for the Site.</p> <p>The following complaint procedure is required by Condition 11 of ECA No. A032203:</p> <p>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:</p> <p>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 changes from normal operations, types of waste loads (including source) and other on Site activities;</p> <p>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</p> <p>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.</p> <p>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.</p> <p>11.3 All complaints received by the Owner are to be reported within twenty-four (24) hours of receipt to the District Manager, the Township of Warwick, the Environmental Inspector and WIFN. Complaints shall be reported to the WPLC at the next WPLC meeting.</p>		

<b>Question ID</b>	NOL 61	
Question	Question Type	Legislative Requirement
Has the landfill operator developed a Design and Operations Manual?	Information	EPA   27   (1)



<b>Observation</b>
Yes A Design and Operations (D&O) Report was prepared by Henderson Paddon & Associates Limited, dated March 2008, and is listed as Items 66-68 of Schedule A under ECA No. A032203.

Question ID	NOL 63	
Question	Question Type	Legislative Requirement
Does the landfill operator have training procedures for site personnel?	Legislative	EPA   27   (1)
Observation		
Yes The Company has their own training procedure. Training requirements for employees are described under condition 10.1 of ECA No. A032203.		

Question ID	NOL 64	
Question	Question Type	Legislative Requirement
Is the landfill operator following the established training procedures?	Legislative	EPA   27   (1)
Observation		
Yes Employees must provide proof of training to the Ministry upon request. Proof of training was not reviewed as part of this inspection.		

Question ID	NOL 65		
Question		Question Type	Legislative Requirement
Has the Certificate of Requirement been registered on Title?		Legislative	EPA   27   (1)
Observation			
Yes			

Question ID	949100		
Question		Question Type	Legislative Requirement
Were the inspection questions sufficient to address other identified non-compliance items?		Legislative	Not Applicable
Observation			
AIR QUALITY & NOISE:  Condition 13.8 of ECA No. A032203 requires that Air Quality, Dust, Hydrocarbon, and Volatile Organic Carbon monitoring be undertaken in accordance with the Ambient Air Quality			

#### Monitoring Plan.

Total Suspended Particulate (TSP) is sampled at 3 fixed locations around the landfill footprint. TSP samples are taken on a 6-day interval from October - May and taken on a 3-day interval from June - September. Between the fiscal Q2 of June 1 and August 31, 2021, one TSP exceedance was reported, which occurred on June 24th at the southeast sampler at a concentration of 126 ug/m<sup>3</sup>. It is likely that this concentration originated from the on-Site Cell 6 pre-excavation soil placement within the Excess Soil Stockpile and select clay liner Stockpile No. 6, as the sampler was downwind of these activities at the time. It was mentioned that dust suppression activities that day temporarily halted as the contractor's water source had to be re-located from stormwater pond 2 to pond 3.

Metals are analyzed on the highest filter TSP concentration out of every four samples per location. All Q2 samples collected for metals were below their air quality standards as outlined in O. Reg. 419.

Condition 13.10 requires noise monitoring to be undertaken at the Site in accordance with the Environmental Noise Monitoring Program. Sound levels are recorded and analysed at 4 on-Site monitors (M1-M4) located around the perimeter of the Site for a minimum of a 1 month period per quarter.

According to the Company's Q2 Report (April - June), during operating hours the measured hourly sound levels at M1 exceeded its corresponding sound level limit on 65 occasions, at M2 on 18 occasions, on M3 on 7 occasions, and on M4 on 3 occasions. Majority of these exceedances were less than or equal to 3dB over the limit. RWDI notes that sound level increases of 3dB or less are considered imperceptible, or insignificant, as indicated in the Noise Guidelines for Landfill Sites. Therefore any exceedances of 3 or less dB above the limits would be unnoticeable to the human ear.

Landfill construction activities at Cell 6 is the likely cause of on-Site related noise exceedances at M1 and M2. It was noted that this pattern at M1 has been observed historically. RWDI stated that none of the noise exceedances at the monitors are attributable to landfilling activity in Q2.

#### WEEKLY INSPECTIONS:

During fiscal Q2, there were a total of 13 weekly inspections completed on the following dates:

- June 1, 7, 16, 23, 29
- July 9, 15, 21, 26
- August 4, 10, 18, 23

The purpose of these weekly inspections was to assess the Company's efforts towards preventing, minimizing and mitigating off-site impacts resulting from their operations such as odours, litter, noise and dust. Some of these inspections were limited in scope due to Ontario's COVID-19 response. As of June 16, 2021, the Ministry resumed on-Site inspections.

Landfill related odours were detected directly downwind of the Site during 9/13 inspections. 11 odour complaints were received within Q2, 8 of which were received between August 17 - 20 and attributed to several odorous waste loads received at the Site. The Company responded by adding

more soil cover material to the loads and moving the tipper to ensure the areas where these loads were placed were not consistently being disturbed by other waste filling activities. The odour suppression unit was also in operation downwind of the odours on several occasions.

Dust was observed during only 3/13 inspections, mainly due to truck track-out onto Nauvoo Road. Dust suppression measures including sweeping and watering were often observed during the inspections, done either by the Company or the construction contractor. No dust-related complaints were received.

Off-Site litter was observed during 12/13 inspections, all related to the presence of Automobile Shredder Residue (ASR) on the shoulder of Nauvoo Road. 2 ASR-related complaints were received. The implemented operational measures to minimize ASR from leaving the Site have not been effective, based on the weekly inspection observations. The June 23rd weekly inspection report requested an abatement plan for the prevention of off-Site ASR litter. This plan was submitted by the Company on August 6th. It stated that they had started investigating potential additional measures, and if they deem necessary, will plan to either initiate the procurement of equipment for a truck cleaning operation or initiate the process of an ECA amendment for an alternative cover material by December 31, 2021. MECP response to this abatement plan and further actions taken will be discussed in the next quarterly inspection report.

<b>Question ID</b>	NOL 60	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Has the landfill operator addressed the complaints to the satisfaction of the ministry?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>There were 14 complaints received during this inspection review period of June - August 2021 related to odour and ASR track-out, as discussed in the previous question (question ID 949100).</p> <p>All complaints were reported to the Ministry within 24 hours and were responded to by the Company in accordance with Condition 11 of ECA No. A032203.</p>		



Twin Creeks Environmental Centre  
5768 NAUVOO RD, WARWICK, ON, N0M 2S0

## Inspection Report

System Number: 0470-4L8R85  
Inspection Start Date: 09/01/2021  
Inspection End Date: 01/12/2022  
Inspected By: Nicole Does  
Badge #: 1932

A handwritten signature in cursive script that reads "Nicole Does".

---

(signature)

### **NON-COMPLIANCE/NON-CONFORMANCE ITEMS**

This should not be construed as a confirmation of full compliance with all potential applicable legal requirement and BMPs. These inspection findings are limited to the components and/or activities that were assessed, and the legislative framework(s) that were applied. It remains the responsibility of the owner to ensure compliance with all applicable legislative and regulatory requirements.

If you have any questions related to this inspection, please contact the signed Provincial Officer.

## INSPECTION DETAILS

This section includes all questions that were assessed during the inspection.

**Ministry Program: Regulated Activity:** WASTE : Landfills

Question ID	NOL 1		
Question	Question Type	Legislative Requirement	
Does the Open landfill site have an Environmental Compliance Approval (ECA)?	Legislative	EPA   27   (1)	
Observation			
<p>Yes</p> <p>Landfill sites require an Environmental Compliance Approval (ECA) issued by the Ministry under the Environmental Protection Act in order to dispose of waste in Ontario. An ECA imposes conditions related to development, operation, and closure of the site. In order to assess compliance with these requirements, the Ministry is committed to conducting proactive inspections of waste disposal sites.</p> <p>As part of the Sarnia District Office's 2021/22 inspection program, an inspection was conducted at the Twin Creeks Landfill (the Site) in Warwick Township, which is owned and operated by Waste Management of Canada Corporation (The Company).</p> <p>The focus of this inspection was to assess the Company's operation of the Site against the terms and conditions of its Ministry approvals and with the requirements of applicable environmental legislation, regulations, and guidelines. This report also summarizes the findings of the weekly inspections conducted at the Site during the third quarter (Q3) of 2021/2022 fiscal year (FY), covering the period of September 1 to November 30, 2021.</p> <p>The Site has the following Ministry approvals:</p> <p><b>WASTE DISPOSAL SITE:</b> ECA No. A032203, dated December 19, 2020</p> <ul style="list-style-type: none"><li>- For the operation of a 101.8-hectare landfilling area with a total site area of 301 hectares, accepting only municipal, industrial, commercial, institutional solid non-hazardous waste generated within Ontario, including non-hazardous contaminated soil. The site is approved to receive 1,400,000 tonnes per year.</li></ul> <p><b>AIR:</b> ECA No. 4155-BMCLZ8, dated March 3, 2020</p> <p>Approved to install and operate:</p> <ul style="list-style-type: none"><li>- four enclosed flare systems;</li><li>- emergency diesel generators to provide back-up power as needed;</li><li>- a 50kW diesel generator to provide regular power to the south fill area leachate pumping system; and-</li><li>exhaust fans, exhaust louvres, and aeration tanks exhausting to the atmosphere from the leachate treatment facility.</li></ul>			

**INDUSTRIAL SEWAGE:**

ECA No. 2403-BE6LZ4, dated August 21, 2019

- Issued for the establishment of a leachate collection, treatment, and disposal facility as well as a stormwater management facility to service the Site.

**PERMIT TO TAKE WATER (PTTW):**

No. 4682-BLJRYJ, dated November 8, 2021

Issued for dewatering at the Site and industrial activities such as road watering to reduce dust. On-Site water taking locations include:

- stormwater management ponds 1, 2, 3, and 4
- secondary drainage layer (SDL)
- four pumping stations, PS2, PS4, PS6, PS8.

<b>Question ID</b>	NOL 2	
Question	Question Type	Legislative Requirement
Is this landfill on Crown land?	Information	Not Applicable
<b>Observation</b>		
No		

<b>Question ID</b>	NOL 4	
Question	Question Type	Legislative Requirement
Does the landfill have a Contaminant Attenuation Zone (CAZ)?	Information	Not Applicable
<b>Observation</b>		
No		

<b>Question ID</b>	NOL 12	
Question	Question Type	Legislative Requirement
Does the landfill have a large enough Buffer Area as specified in the ECA or Regulation 232/98?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes		

<b>Question ID</b>	NOL 13	
Question	Question Type	Legislative Requirement
Are access roads and on-site roads provided so that vehicles hauling waste to and on the site may travel readily on any day under all normal weather conditions?	Information	EPA   27   (1)
<b>Observation</b>		

Yes  
Access to and exit from the Site for the transportation of waste is permitted from Country Road 79 (Nauvoo Road). No issues with on-Site road access were identified in Q3 (Sept. - Nov. 2021).

Question ID	NOL 14		
Question		Question Type	Legislative Requirement
Is site access limited to times when an attendant is on duty?		Legislative	EPA   27   (1)
Observation			
Yes An attendant is always on duty at the Site during operating hours.			

Question ID	NOL 15		
Question	Question Type	Legislative Requirement	
Does the site only receive waste from within its approved service area?	Legislative	EPA   27   (1)	
Observation			
Yes			
The Site is approved to receive waste from within the province of Ontario.			
During the inspection, a number of scale tickets and waste acceptance records were reviewed within Q3 (Sept. - Nov. 2021). According to the reviewed scale tickets provided by the Company on the select dates, all waste originated from within Ontario.			
The Site is approved for the use and operation of a 101.8-hectare landfilling area with a total Site area of 301 hectares. During Q3, the Company deposited waste in Cell 4B and 4C of the Expansion Site. Also ongoing was the pre-excavation construction activities within Cell 6A, which is within the approved landfill footprint.			
Condition 6.6 of ECA No. A032203 authorizes the Company to receive up to a maximum of 1,400,000 tonnes of waste per year (including contaminated soil) for disposal at the Site.			
According to the tonnage reports provided by the Company, monthly totals for Q3 are as follows:			
September 2021 - 155,201.93 tonnes			
October 2021 - 140,149.99 tonnes			
November 2021 - 106,854.36 tonnes			
So far in the 2021 calendar year (as of the end of November) the Site has received a total of 1,328,606.72 tonnes of waste, which is approximately 95% of their yearly capacity limit. In late November the Company reached out to the Ministry to discuss the possibility of submitting an emergency ECA amendment request in order to increase their yearly capacity limit. This was reportedly due to the increase in waste production across Ontario in the past year attributed to the start up/shutdowns of the economy due to COVID-19. The Ministry discussed the specific criteria the Company must meet in order for an approval to be considered for an emergency amendment.			



Based on these discussions, the Company decided not to apply for an emergency amendment and instead continues to reduce their incoming waste throughout November and December in order to stay within their current yearly capacity limit of 1,400,000 tonnes.

<b>Question ID</b>	NOL 16	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the site required to have a ground water monitoring program by the ECA?	Information	Not Applicable
<b>Observation</b>		
<p>Yes</p> <p>The following Site-specific approvals outline the requirements for groundwater monitoring:</p> <ul style="list-style-type: none"> <li>- Industrial Sewage ECA No. 2403-BE6LZ4: Specifies operation, monitoring and reporting requirements related to storm/surface water, ground water, leachate, leachate treatment plant effluent, and treated effluent storage pond monitoring programs.</li> <li>- Waste Disposal Site ECA No. A032203: Condition 13.6 requires monitoring programs to be carried out for groundwater, surface water, and landfill gas in accordance with the Environmental Monitoring Plan (EMP), listed as Item 39 and Appendix H of Item 68 of Schedule "A".</li> </ul> <p>Groundwater monitoring is completed semi-annually in the spring and fall as per the EMP.</p>		

<b>Question ID</b>	NOL 17	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the site implementing the groundwater monitoring program as required by the ECA?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>The Company documents the results of the required monitoring programs in quarterly and annual reports which are routinely reviewed by the Ministry for compliance purposes.</p> <p>The 2021 Third Quarter ("Q3") Monitoring Report was submitted to the Ministry on November 29, 2021. The Company's quarterly reports are reported by calendar year and are required by Condition 15.4 of ECA No. A032203 and Condition 12.3 of ECA No. 2403-BE6LZ4. Their Q3 reporting period reflects all monitoring completed between July 1 and September 30, 2021, and was reviewed as part of this inspection.</p> <p>Since groundwater monitoring is conducted semi annually in the spring and fall, no monitoring results were presented in the Company's Q3 report. The fall monitoring event took place in November 2021 and will be included in the Company's next quarterly report.</p>		

<b>Question ID</b>	NOL 20	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is there ongoing abatement to address any concerns the ministry has with the ground water monitoring?	Information	Not Applicable
<b>Observation</b>		
No		

<b>Question ID</b>	NOL 21	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the site required to manage leachate by the ECA?	Information	Not Applicable
<b>Observation</b>		
<p>Yes</p> <p>The Site is required to manage leachate in accordance with the Industrial Sewage ECA No. 2403-BE6LZ4 and Waste ECA No. A032203.</p> <p>Leachate Collection - Existing Site:</p> <p>This consists of:</p> <ul style="list-style-type: none"> <li>- Three finger drains in the South Fill Area;</li> <li>- Pumping sump in the West Central Cell near monitoring station OW-29;</li> <li>- Two parallel waste underdrains in Cell 3S (north of the South Fill Area); and</li> <li>- Waste underdrains in the Northern part of Cell 5 and in Cells 4, 6, 7, 8, 9, 10 and 11.</li> </ul> <p>The waste under-drains direct leachate to a perimeter collection system which is then automatically pumped to the leachate equalization tank.</p> <p>Leachate Collection - Expansion Site:</p> <p>A leachate collection system has been installed in Cell 1, Cell 2 and Cell 4. The leachate level in the primary drainage layer of these cells is currently controlled by automated Pump Station 1 (PS1), Pump Station 3 (PS3) and Pump Station 5 (PS5). Leachate is transferred from the Primary Drainage Layer (PDL) to the leachate equalization tank. The Secondary Drainage Layer (SDL) is controlled by PS2, PS4, and PS6. The trigger for implementation of groundwater contingency measures for the Expansion Site is the loss of hydraulic containment. This occurs when leachate levels within the PDL are higher than the surrounding groundwater elevations.</p> <p>Poplar Tree Leachate Irrigation System:</p> <p>The Company has established a drip irrigation system which supplies leachate to a stand of poplar trees, known as the Poplar System ("PS"). The poplars are located on top of a portion of the existing landfill and have been operable since September 27, 2017. The PS is only utilized on a seasonal basis when the trees can actively uptake the leachate.</p> <p>There are a number of monitoring requirements under Condition 8.7 of ECA No. A032203 related to the PS including soil monitoring, visual assessments, leachate monitoring, tree tissue monitoring and surface water monitoring. The PS was shut down for the season prior to October 16th, 2021.</p>		

**Off-Site Leachate Disposal:**

The remaining leachate produced from both the existing and expansion site is hauled off-Site for treatment and disposal at the Chatham Water Pollution Control Plant in Ontario. According to reports provided by the Company, 3457.73 mt of leachate was hauled off-site in September 2021, 3961.87 mt in October 2021, and 5230.89 mt in November 2021 for disposal. Due to the high amounts of precipitation received in November and the opening of Cell 4C, increased amounts of leachate was produced, forcing the Company to ship higher quantities of leachate off-Site.

Question ID	NOL 22		
Question	Question Type	Legislative Requirement	
Is the landfill implementing the procedures required by the ECA to manage leachate?	Legislative	EPA   27   (1)	
Observation			
<p>Yes</p> <p>Existing Site:</p> <p>Leachate liquid levels are monitored semi-annually in May and November for the Existing Site. Since the Company reports in calendar quarters (Q3: July - September), no leachate levels were presented within the Q3 Report.</p> <p>Expansion Site:</p> <p>For the Expansion Site, ECA No. A032203 condition 7.18 requires that a hydraulic trap be developed and maintained beneath the expansion area and that the leachate head on the landfill liner does not exceed 300 mm. Condition 14.1 also requires additional groundwater level monitoring if the leachate level elevation in any of the following pumping station wells rise above their respective trigger level:</p> <p>PS1 - 232.7 mASL</p> <p>PS3 - 232.6 mASL</p> <p>PS5 - 232.8 mASL</p> <p>PS7 - 233.4 mASL (not yet installed)</p> <p>According to Table 5 of the Company's Q3 monitoring period (July - September), leachate levels remained below their trigger elevations, as outlined in Condition 14.1. The leachate levels in the pumping stations also remained below the maximum leachate head limit (300 mm), as outlined in Condition 7.18, with the exception of PS3 on September 25 - 27th, and PS5 on September 25 - 30th. No explanation was provided for these exceedances, however the Environmental Monitoring Plan (EMP) mentions that temporary exceedances of this limit may occur during landfill construction after precipitation events.</p> <p>RWDI reported that the leachate elevations within Cell 1, 2, and 4 were below the historical groundwater elevation in the active aquitard and the interstadial silt and sand groundwater flow systems and was therefore hydraulically contained.</p> <p>During the Ministry's weekly inspections in the Q3 fiscal year (September - November), one leachate seep was observed on September 3rd, on the south slope of Cell 1, beside the ramped</p>			

haul road leading up to Cell 3. During the inspection the Company was requested to repair the seep as per the corrective actions stated in the D&O Report. The leachate seep was localized and small however it did reach part of the stormwater drainage ditch which was dry at the time. Photos of the repairs were sent to the undersigned officer that day, and no surfacewater impacts were observed or reported.

<b>Question ID</b>	NOL 23	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Are samples taken to monitor leachate quality?	Legislative	EPA   27   (1), EPA   O. Reg. 232/98   26
<b>Observation</b>		
<p>Yes Existing Site:</p> <p>Leachate quality is assessed annually in May for manholes within the Existing Site and the leachate pumping stations of the Expansion Site.</p> <p>Expansion Site:</p> <p>Leachate quality from the equalization tank is assessed quarterly, with an extended list of parameters assessed semi-annually (May and November). The Equalization Tank represents leachate quality from PS1 (Cell 1), PS3 (Cell 3) and PS5 (Cell 4A) of the Expansion Site, automated maintenance holes in the Existing Site, and condensate from the gas collection system. No concerns for leachate quality were noted for the Q3 field results collected on August 11, 2021. They were consistent with historical monitoring results for the relevant constituents.</p> <p>Poplar System (PS):</p> <p>The PS is authorized to operate from May 1 - Oct. 15th. During the irrigation season, irrigation liquid quality is sampled monthly in consideration of the application rates to the trees. During the Company's Q3 monitoring period, the irrigation liquid generally satisfied the target loading concentrations and should not have unacceptably affected the tree health. The results were compared to the CCME Irrigation Water Guidelines as well as the target leachate concentrations for irrigation loading, listed within Schedule A of ECA No. A032203. A number of parameters exceeded the target concentrations in August and September. The August sample was however reportedly taken in error, prior to full dilution of the source leachate with water/weaker strength leachate, and thus does not accurately reflect the quality of irrigation liquid applied to the trees. Further interpretation of the sampling results are expected to be provided in the 2021 Annual Report.</p> <p>Weekly monitoring of the electrical conductivity is required during the operation of the PS. The measured readings indicated that the leachate irrigation was not unacceptably affecting soil quality.</p> <p>Soil quality sampling, leaf tissue analyses and crop inspection are required annually in the fall and</p>		

took place in September 2021. The soil sample results of metals and other inorganic constituent concentrations generally showed consistency with the heterogeneity of soils, with the exception of medium/high-level sodium adsorption ratios (SAR) in zones 1, 2 and 3. This is attributable to the elevated sodium levels in comparison to historical ranges, and will be discussed in more detail in the 2021 Annual Report. No issues or concerns from RWDI with the tree tissue analysis were reported. The annual tree and leaf inspection results were as expected for the ages of the trees.

RWDI also conducts visual assessments once per month of undergrowth, ponding water, and tree health. The assessments did not indicate any stresses to tree health due to leachate irrigation, the undergrowth was seasonally mature, and no surfacewater ponding was observed.

Question ID	NOL 25		
Question		Question Type	Legislative Requirement
Is there ongoing abatement to address any concerns the ministry has with the leachate monitoring?		Information	Not Applicable
Observation			
No			

Question ID	NOL 26	
Question	Question Type	Legislative Requirement
Is the site required to manage landfill gas by the ECA?	Information	Not Applicable
Observation		
<p>Yes</p> <p>Gas produced by the landfill is managed by the on-Site gas collection and flaring system. A portion of the gas is conveyed from the landfill to a neighbouring property for heating purposes of a large greenhouse, on an as-needed basis. The remaining gas is sent to one of the two existing flares on-Site.</p> <p>Waste ECA No. A032203:</p> <ul style="list-style-type: none"><li>- Condition 7.10 and 13.6 requires the gas control system to be managed and monitored as specified in the D&amp;O Report and the EMP.</li><li>- Condition 14.8 states that if landfill gas concentrations exceed 10% LEL (Lower Explosive Limit) during monitoring, the Company is to undertake additional monitoring to determine if the elevated levels are landfill related.</li><li>- The Company must report all landfill gas monitoring to the Ministry on a quarterly and annually basis.</li></ul> <p>Air ECA No. 4155-BMCLZ8:</p> <ul style="list-style-type: none"><li>- Describes the notifications, operation, maintenance, performance and record keeping requirements for the flaring system.</li><li>- Notably, condition 2 (c) requires the Company to use a Continuous Emission Monitoring System to ensure each flare operates with a minimum temperature of 875 degrees Celsius at a point representing a minimum retention time of 0.7 second, at all times when the landfill gas</li></ul>		

incineration is in progress.

<b>Question ID</b>	NOL 27	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the site implementing the landfill gas management requirements in the ECA?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Landfill gas monitoring is completed monthly from November to April and in July at gas probes GP1A to GP8. Methane gas was not detected within any of the gas probes in July, according to the Company's Q3 Report (July - September).</p> <p>Total Hydrocarbon (THC) surface monitoring is conducted in the spring and fall in accordance with the Ambient Air Quality Monitoring Plan (AAQMP), required by Condition 13.8 of ECA No. A032203. Results from the fall monitoring will be presented in the Company's Q4 Report.</p> <p>The temperatures of the flares are checked during the unannounced weekly inspections to ensure they are operating above 875 degrees Celsius.</p> <p>During the Q3 fiscal 2021/22 (Sept. - Nov.) the Company reported some minor deficiencies with the landfill gas collection system, including some power outages and damaged vertical well casings within Cell 4B, which were releasing gas and causing odours to migrate off-Site. Several odour complaints were received within Nov. 29 - Dec. 1 in relation to landfill gas odours from cell 4B wells, which were not yet connected to the collection system. On November 30th the Company reported that temporary repairs had been completed to the damaged well casings as they wait for the new parts that were ordered to arrive. The Company is undergoing a review of the well raising process as it has been identified as the most significant cause for casing damage. Landfill gas wells should be properly sealed to avoid the escape of gas into the air.</p>		

<b>Question ID</b>	NOL 29	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the ministry concerned with landfill gas at this site?	Information	Not Applicable
<b>Observation</b>		
No		

<b>Question ID</b>	NOL 30	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is there ongoing abatement to address any concerns the ministry has with landfill gas at this site?	Information	Not Applicable
<b>Observation</b>		
No The undersigned officer continues to monitor the Company's ongoing progress as they work		

voluntarily to repair the well casings in Cell 4B in order to minimize landfill odours off-Site.

<b>Question ID</b>	NOL 31	
Question	Question Type	Legislative Requirement
Is the site required to have a surface water monitoring program by the ECA?	Information	Not Applicable
<b>Observation</b>		
<p>Yes</p> <p>The following Site-specific approvals outline the requirements for surfacewater monitoring:</p> <ul style="list-style-type: none"> <li>- Industrial Sewage ECA No. 2403-BE6LZ4: Specifies operation, monitoring and reporting requirements related to storm/surface water, ground water, leachate, leachate treatment plant effluent, and treated effluent storage pond monitoring programs.</li> <li>- Waste Disposal Site ECA No. A032203: Condition 13.6 requires monitoring programs to be carried out for groundwater, surface water, and landfill gas in accordance with the Environmental Monitoring Plan (EMP), listed as Item 39 and Appendix H of Item 68 of Schedule "A".</li> </ul> <p>The Company conducts quarterly surface water monitoring following precipitation events of greater than 10 mm in a 24-hour period.</p>		

<b>Question ID</b>	NOL 32	
Question	Question Type	Legislative Requirement
Is the site implementing the surface water monitoring program as required by the ECA?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Following precipitation events of greater than 10 mm in a 24-hour period, routine surfacewater samples were collected on July 9, 2021 at monitoring stations SS10, SS1, SP1, SP3, and SP4. Routine sampling for SP2 took place on July 30th. A sample from SS16 was not collected due to lack of flowing conditions. The relevant trigger concentrations for these samples were satisfied, with the following exception:</p> <ul style="list-style-type: none"> <li>- SS1 boron (0.26mg/L) was higher than its trigger concentration (0.20mg/L). A verification sample was collected on July 30th, which showed identical results. RWDI attributes these elevated boron levels to soil erosion effects due to Street C construction activities, and not as a result of landfill leachate. The biological results indicated that the water quality did not pose a detrimental effect to aquatic life and was of acceptable quality for continued discharge.</li> <li>- To address the erosion effects related to construction activities in this area, the additional straw check dams within the surfacewater drainage ditch are still in place. It was noted during the</li> </ul>		



weekly inspections that the ponds require sediment removal in accordance with the D&O Report and Industrial Sewage ECA, especially SWM pond 2 which appears to be impacted the most by the erosional effects of nearby construction. Sediment removal is a regular maintenance need to ensure the ponds have adequate capacity to control the quantity and quality of surfacewater leaving the Site. Required action items were issued to the Company in response to the Nov. 23rd weekly inspection to complete the required pond maintenance.

As part of the routine surfacewater sampling event, VOCs and SVOCs were sampled and analysed as well and were all below the laboratory reportable detection limits.

The Poplar System (PS) monitoring stations SS14A, SS14B and SS15A were sampled as well as part of the routine quarterly monitoring event and as part of the storm monitoring requirements, following receiving greater than 25 mm of precipitation in a 24-hour period on Sept. 8th and 23rd. Based on the results and historical trends, RWDI stated that runoff from the Existing Site did not negatively affect the downstream water quality. It is noted however that since 2018, periodic elevated concentrations of the PLIL parameters boron, ammonia and chloride were detected at some of the PS monitoring stations, although there are still no observable concentration patterns/trends to indicate a concern at this time.

Question ID	NOL 34		
Question		Question Type	Legislative Requirement
Are there water quality concerns with the results of the samples that have been tested?		Information	Not Applicable
Observation			
No			

Question ID	NOL 35		
Question		Question Type	Legislative Requirement
Is there ongoing abatement to address any concerns the ministry has with the surface water monitoring?		Information	Not Applicable
Observation			
No			

Question ID	NOL 36		
Question		Question Type	Legislative Requirement
Is proper equipment available for the compaction of waste and applying cover material?		Legislative	EPA   27   (1)
Observation			
Yes The proper equipment for waste compaction and daily cover application was observed during the Ministry's weekly on-Site inspections.			



--

<b>Question ID</b>	NOL 37	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the landfill able to accurately determine the amount of waste received?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>The Site has an entrance and exit scale and records all incoming waste volumes. Tonnage tracking reports are also sent to the Ministry on a monthly basis and yearly waste quantities are summarized in the annual reports.</p>		

<b>Question ID</b>	NOL 38	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Are all disposal operations at the site adequately and continually supervised?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes		

<b>Question ID</b>	NOL 39	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Does the landfill operator have a site inspection program as required by the ECA?	Information	Not Applicable
<b>Observation</b>		
<p>Yes</p> <p>Section 9 of ECA # A032203 contains daily, weekly and monthly inspection and record keeping requirements for the general operation and maintenance of the Site. These records are periodically requested by the Company during weekly inspections and are assessed for compliance. No issues or concerns have been identified with the frequency or details of site inspections.</p>		

<b>Question ID</b>	NOL 40	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Does the landfill operator have a procedure in place to address issues identified by staff during the site inspection?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>These procedures are documented in the D&amp;O Report and BMP Plans.</p>		

<b>Question ID</b>	NOL 41	
--------------------	--------	--

Question	Question Type	Legislative Requirement
Is the waste being compacted adequately?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Compactors are regularly observed in operation at the active working face during weekly on-Site inspections.</p>		

<b>Question ID</b>	NOL 42	
Question	Question Type	Legislative Requirement
Is Daily cover applied to the waste at the end of each working day or as otherwise specified in the ECA?	Legislative	EPA   27   (1), EPA   O. Reg. 232/98   7
<b>Observation</b>		
<p>Yes</p> <p>Condition 6.47 of ECA No. A032203 outlines the requirements for daily, intermediate, and final cover.</p> <p>Daily Cover: The working face must be covered with at least 15cm of soil or approved alternative cover material.</p> <p>Intermittent Cover: In areas where landfilling is temporarily stopped for six months or more, at least 30 cm of soil cover or approved alternative cover material is required.</p> <p>Final Cover: In completed landfill areas, at least 1.85 m of cover soil and then at least 15cm of topsoil is required.</p> <p>The Company reports that daily cover is adequately applied at the end of each working day. No after-hour site visits were conducted during Q3. Stockpiles of daily cover were regularly observed on-Site near the active working face during operating hours while conducting the weekly inspections. The following cover material was observed and/or reported to be used by the Company in Q3:</p> <ul style="list-style-type: none"> <li>- Automobile Shredder Residue (ASR)</li> <li>- Soil</li> <li>- Contaminated Soil</li> <li>- Woodchips</li> <li>- Tarps</li> </ul> <p>According to condition 6.57, samples of contaminated soils shall be taken quarterly and submitted for analysis of Reg. 347 Schedule IV Inorganics, VOCs, PAHs and PCBs. The Company's Q3 sample was collected on August 12, 2021 and the results satisfied the daily cover requirements and was classified as non-hazardous.</p>		

ASR was a commonly used daily cover material at the Site, however due to the ongoing issues with ASR track-out from the Site, further enforcement action was initiated by the undersigned officer. On September 28, 2021 the Company was presented with a draft Provincial Officer's Order for the purpose of preparing and submitting a detailed abatement plan to prevent ASR from leaving the Site and causing a nuisance, as described in condition 6.32 of ECA A032203. The Company was given time to provide comments on the draft Order prior it's issuance. The Company responded by submitting a voluntary abatement plan to cease the acceptance of ASR as cover material by November 15, 2021, and not to resume the use of ASR until a preventative measure is implemented, such as a truck wash station or an alternative cover material. The undersigned officer accepted this voluntary plan in lieu of issuing the draft Order at the time. The Company has so far complied with this plan and is no longer using ASR as a daily cover material. They are in the process of investigating alternative cover material options, including a differently processed type of ASR which would not get caught in truck wheels and to which would still meet the requirements of conditions 6.48 - 6.52 of ECA A032203.

<b>Question ID</b>	NOL 43	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Are procedures implemented to control rodents or other animals and insects at the site?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Condition 6.32 of ECA No. A032203 states that the Site shall be operated and maintained such that vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance. Procedures for pest control are listed in the Company's D&amp;O Report. Predator Bird Services Inc. is on-Site from Monday to Friday during regular operating hours. They use a combination of noise makers, whistlers and a bird of prey (a falcon or hawk) to deter non native species from populating the landfill and surrounding area. Orkin is also on-Site monthly to maintain the prescribed plan for traps and baiting.</p> <p>No concerns or issues with pest control were identified during Q3.</p>		

<b>Question ID</b>	NOL 44	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is site access restricted by use of a gate, fence, or physical barrier when the site is not operating?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>ECA No. A032203 requires the following to be in place at the Site:</p> <ul style="list-style-type: none"> <li>- The entire Site enclosed with a 6 foot high wire woven fence.</li> <li>- The Site entrance and exit gates must be locked and secured against access by unauthorized persons during non-operational hours.</li> <li>- Access to and exit from the Site for the transportation of waste must (under normal</li> </ul>		

circumstances) be only permitted from Country Road 79 (Nauvoo Road).

- A sign must be displayed at the main entrance/exit to the Site, detailing:

-Name of the Site and Owner

-ECA number

-Name of the Operator

-Hours of operation

-Approved and prohibited waste types

-Warning against unauthorized access

-Telephone number for complaints

-24/7 emergency telephone number (if different from above)

-Warning against dumping outside the Site.

No concerns or issues with access control were identified during the weekly inspections in Q3.

Question ID	NOL 45		
Question		Question Type	Legislative Requirement
Is the waste disposal area adequately screened from public view?		Legislative	EPA   27   (1)
Observation			
Yes There are 7 meter high perimeter berms vegetated with trees along Zion Ln. and Nauvoo Rd. in order to block the public's view of the landfill. No complaints of public view were received.			

Question ID	NOL 46		
Question		Question Type	Legislative Requirement
Are daily records of site operations available at the site for at least the past 2 years or as otherwise required by the ECA?		Legislative	EPA   27   (1), EPA   O. Reg. 232/98   21
Observation			
Yes Condition 1.22 and 9.8 of ECA No. A032203 state that all records required by the ECA are to be retained at the Site for a minimum of two years.			

Question ID	NOL 47		
Question		Question Type	Legislative Requirement
Has the annual operations report been submitted to MECP or available on site as required by the ECA?		Legislative	EPA   27   (1)
Observation			
Yes The 2020 Annual Report was submitted on February 26, 2021 in accordance with condition 15.6 and 15.7 of ECA No. A032203. The Company is also required to submit quarterly reports in			

accordance with condition 15.4 and 15.5. The third quarterly (Q3) report for 2021 was submitted on November 29, 2021.

<b>Question ID</b>	NOL 48	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is scavenging being prevented?	Legislative	EPA   27   (1), EPA   O. Reg. 232/98   23
<b>Observation</b>		
<p>Yes</p> <p>Condition 6.33 of ECA No. A032203 states that the Company shall ensure that there is no scavenging as defined by O. Reg. 347 at the Site. "Scavenging" is defined by the uncontrolled removal of reusable material from waste at a waste disposal site.</p> <p>The Site is secure during non-operating hours and there have been no reported incidents or evidence of scavenging during the Ministry's on-Site weekly inspections.</p>		

<b>Question ID</b>	NOL 51	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the landfill only accepting the types of waste that they are approved to receive?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>The Site is approved to accept municipal, industrial, commercial, and institutional solid non-hazardous waste, including non-hazardous contaminated soils, generated within the Province of Ontario.</p> <p>No non-compliances with waste types were identified during the review of the scale tickets and waste acceptance records provided by the Company for the purposes of this inspection.</p> <p>On October 1, 2021 the Company reported to the Ministry that the York Regional Police were conducting an investigation within Cell 4B and 4C and had identified the presence of human remains. The investigation lasted a few weeks and during this timeframe there was an area of landfilled waste in Cell 4C that was excavated and requested by the police to be left undisturbed. During the Ministry's Oct. 7th weekly inspection, it was requested that the Company provide written contingency measures by October 8th to address the potential for off-Site impacts that could result from leaving waste uncovered, such as odour, windblown litter, and birds. Measures were provided as requested, however no issues related to the excavated areas were identified during the investigation.</p>		

<b>Question ID</b>	NOL 52	
<b>Question</b>	<b>Question</b>	<b>Legislative</b>

	Type	Requirement
Does the landfill have a waste refusal procedure in place to manage waste that arrives at the site that the site is not approved the accept?	Information	Not Applicable
<b>Observation</b>		
<p>Yes</p> <p>In accordance with Condition 9.5 the Company must keep records in a daily log book of all refusal of waste shipments, the reason(s) for refusal, and the origin of the waste, if known. The Company has their own Waste Verification, Acceptance and Rejection Procedure and records rejection events by filling out a 'Waste Discrepancy Form'.</p>		

<b>Question ID</b>	NOL 53	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
is the waste refusal procedure being followed?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes		

<b>Question ID</b>	NOL 54	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Does the landfill have a procedure in place to address and document spills and fires?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Procedures for spills, fires and other emergencies are outlined in the D&amp;O Report.</p> <p>Condition 12 of ECA No. A032203 also lists requirements regarding emergency situations:</p> <ul style="list-style-type: none"> <li>- in the event of a fire or discharge of a contaminant to the environment, the Company shall contact the Spills Action Centre (SAC) and the Sarnia District Office forthwith.</li> <li>- a written report shall be submitted to the District Manager within 3 days of the incident, outlining the nature of the incident, remedial measures taken and measures taken to prevent future occurrences.</li> <li>- the Company shall ensure that adequate fire fighting and contingency spill clean-up equipment is available as per Item 66 of Schedule A and that emergency response personnel are familiar with its use and location.</li> </ul> <p>The Company confirmed that emergency response personnel are familiar with the use and location of the emergency equipment. A variety of heavy equipment is available including a back hoe, rock truck, excavator, sweepers, water truck, as well as a spill kit which is located at the scale. The Company says this information is reviewed annually at a minimum.</p> <p>On October 7, 2021 a small fire occurred on Cell 4B. The fire was extinguished by the Fire Department and all douse water was contained within the leachate collection system. They</p>		

estimated the impacted area to be approximately 350m<sup>2</sup>. Landfill operators also applied additional clay to the impacted area. No off-Site impacts or complaints were reported. The incident was reported to SAC and the Company submitted a written report in accordance with Condition 12 on October 7th. They identified and contacted the hauler who emptied a small "ash-like" load in that area earlier who was the likely cause of the fire. The Company also debriefed their operators on the incident.

<b>Question ID</b>	NOL 55	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Does the landfill have emergency contingency plan as required by the ECA?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes The Emergency Response Plan is included in the D&O Report.		

<b>Question ID</b>	NOL 56	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is there an ECA condition requiring financial assurance?	Information	Not Applicable
<b>Observation</b>		
Yes Financial Assurance (FA) is required for private sector landfill sites under Ontario Regulation 232/98, in order to ensure that funds are available for site closure, post-closure care, and contingencies in the event that the site owner cannot or does not carry out their obligations under the ECA.  Condition 2.0 of ECA No. A032203 addresses FA requirements for the Site. The Company is required to submit a re-evaluation of the FA amount every four years. The next re-evaluation is required to be submitted on March 31, 2024.		

<b>Question ID</b>	NOL 57	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Has the financial assurance been submitted, as specified in the ECA?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes The Company is currently in compliance with their FA requirements.		

<b>Question ID</b>	NOL 59	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>

Does the landfill have a procedure in place to address complaints?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>The Company's complaint procedure is listed in the D&amp;O Report. Responses to complaints related to dust, odour, and litter are also described in the Best Management Practices (BMP) Plans for the Site.</p> <p>The following complaint procedure is required by Condition 11 of ECA No. A032203:</p> <p>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:</p> <p>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 changes from normal operations, types of waste loads (including source) and other on Site activities;</p> <p>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</p> <p>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.</p> <p>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.</p> <p>11.3 All complaints received by the Owner are to be reported within twenty-four (24) hours of receipt to the District Manager, the Township of Warwick, the Environmental Inspector and WIFN. Complaints shall be reported to the WPLC at the next WPLC meeting.</p>		

<b>Question ID</b>	NOL 61	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Has the landfill operator developed a Design and Operations Manual?	Information	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>A Design and Operations (D&amp;O) Report was prepared by Henderson Paddon &amp; Associates Limited, dated March 2008, and is listed as Items 66-68 of Schedule A under ECA No. A032203.</p> <p>The D&amp;O Report requires minor updates to be made, which the Company plans to address during their next ECA amendment application with regards to a proposed vertical landfill expansion.</p>		



<b>Question ID</b>	NOL 63	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Does the landfill operator have training procedures for site personnel?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>The Company has their own training procedure. Training requirements for employees are described under condition 10.1 of ECA No. A032203.</p>		

<b>Question ID</b>	NOL 64	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Is the landfill operator following the established training procedures?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>Employees must provide proof of training to the Ministry upon request. Proof of training was not reviewed as part of this inspection.</p>		

<b>Question ID</b>	NOL 65	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Has the Certificate of Requirement been registered on Title?	Legislative	EPA   27   (1)
<b>Observation</b>		
Yes		

<b>Question ID</b>	949100	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Were the inspection questions sufficient to address other identified non-compliance items?	Legislative	Not Applicable
<b>Observation</b>		
<p>AIR QUALITY &amp; NOISE:</p> <p>Condition 13.8 of ECA No. A032203 requires that Air Quality, Dust, Hydrocarbon, and Volatile Organic Carbon monitoring be undertaken in accordance with the Ambient Air Quality Monitoring Plan.</p> <p>Total Suspended Particulate (TSP) is sampled at 3 fixed locations around the landfill footprint. TSP samples are taken on a 6-day interval from October - May and taken on a 3-day interval from June - September. Between the fiscal Q3 of September 1 and November 31, 2021, no TSP</p>		

exceedances were reported.

Metals are analyzed on the highest filter TSP concentration out of every four samples per location. All Q3 samples collected for metals were below their air quality standards as outlined in O. Reg. 419.

Condition 13.10 requires noise monitoring to be undertaken at the Site in accordance with the Environmental Noise Monitoring Program. Sound levels are recorded and analysed at 4 on-Site monitors (M1-M4) located around the perimeter of the Site for a minimum of a 1 month period per quarter.

According to the Company's Q3 Report (July - September), during operating hours the measured hourly sound levels at M1 exceeded its corresponding sound level limit on 94 occasions, at M2 on 7 occasions, at M3 on 6 occasions, and on M4 on 1 occasion. A lot of these exceedances were less than or equal to 3dB over the limit. RWDI notes that sound level increases of 3dB or less are considered imperceptible, or insignificant, as indicated in the Noise Guidelines for Landfill Sites. Therefore any exceedances of 3 or less dB above the limits would be unnoticeable to the human ear.

The duration and characteristics of the M1 exceedances were similar to historical trends, and are attributed to vehicle traffic on Nauvoo Road. The other monitor's measured sound level exceedances of over 3 dB of the limit were attributed to lawn mowing. RWDI stated that none of the noise exceedances at the monitors are attributable to landfilling activity.

#### WEEKLY INSPECTIONS:

During fiscal Q3, there were a total of 14 weekly inspections completed on the following dates:

- September 3, 8, 13, 24, 28
- October 7, 12, 20, 27
- November 2, 10, 15, 23, 30

The purpose of these weekly inspections was to assess the Company's efforts towards preventing, minimizing and mitigating off-site impacts resulting from their operations such as odours, litter, noise and dust.

Off-Site landfill related odours (refuse and/or gas) were detected directly downwind of the Site during 13/14 inspections. 12 odour complaints were received within Q3. Of those complaints, 4 were received between Sept. 1st - 3rd and were attributed to odorous disposal loads and power outage issues causing the landfill gas flare to shut down. Another 3 of those complaints were received on Nov 29th, and were attributed to the ongoing landfill gas well issues on Cell 4B.

Off-Site dust was observed during 6/14 inspections, due to truck track-out onto Nauvoo Road. Dust suppression measures including sweeping and watering were often observed during the inspections, done either by the Company or the construction contractor. No dust-related complaints were received.

Off-Site litter was observed during 13/14 inspections, all related to the presence of Automobile

Shredder Residue (ASR) on the shoulder of Nauvoo Road. 3 ASR-related complaints were received. As previously discussed (Question ID - NOL 42), as of November 15, 2021 the Company is no longer using ASR as daily cover material.

<b>Question ID</b>	NOL 60	
<b>Question</b>	<b>Question Type</b>	<b>Legislative Requirement</b>
Has the landfill operator addressed the complaints to the satisfaction of the ministry?	Legislative	EPA   27   (1)
<b>Observation</b>		
<p>Yes</p> <p>There were a total of 15 complaints received during this inspection review period of September - November 2021 related to odour and ASR track-out, as discussed in the WEEKLY INSPECTIONS section above (Question ID - 949100).</p> <p>All complaints were reported to the Ministry within 24 hours and were responded to by the Company in accordance with Condition 11 of ECA No. A032203.</p>		

## APPENDIX O:

Quarterly Contaminated Soil Analytical Results





## APPENDIX O2:

### Laboratory Reports



**Certificate of Analysis**

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1949592  
Date Submitted: 2021-03-18  
Date Reported: 2021-03-26  
Project: 2101781-1000  
COC #: 871417

Page 1 of 9

---

**Dear Brent Langille:**

**Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).**

Report Comments:

APPROVAL:

---

Sarah Horner, Inorganics Technician

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: <http://www.cala.ca/scopes/2602.pdf>.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1949592  
Date Submitted: 2021-03-18  
Date Reported: 2021-03-26  
Project: 2101781-1000  
COC #: 871417

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1546873 R347 2021-03-16 Cont Soil
Group	Analyte	MRL	Units	Guideline	
Anions	F	0.10	mg/L	LQC 150.0	0.18
General Chemistry	Cyanide (free)	0.05	mg/L	LQC 20.0	<0.05
Leachate	REG 558 Leach				Y
	Zero Headspace Extraction				y
Mercury	Hg	0.001	mg/L	LQC 0.1	<0.001
Metals	Ag	0.01	mg/L	LQC 5	<0.01
	As	0.02	mg/L	LQC 2.5	<0.02
	B	0.1	mg/L	LQC 500.0	0.1
	Ba	0.01	mg/L	LQC 100.0	1.10
	Cd	0.008	mg/L	LQC 0.5	0.009
	Cr	0.05	mg/L	LQC 5.0	<0.05
	Pb	0.01	mg/L	LQC 5.0	<0.01
	Se	0.02	mg/L	LQC 1.0	<0.02
	U	0.01	mg/L	LQC 10.0	<0.01
Moisture	Moisture-Humidite	0.1	%		34.1
Others	NO2 + NO3 as N	1.0	mg/L	LQC 1000	<1.0
PAH	1-methylnaphthalene	0.1	ug/L		<0.1
	2-methylnaphthalene	0.1	ug/L		<0.1
	Acenaphthene	0.1	ug/L		<0.1
	Acenaphthylene	0.1	ug/L		<0.1
	Anthracene	0.1	ug/L		<0.1
	Benzo(a)anthracene	0.1	ug/L		<0.1
	Benzo(a)pyrene	0.01	ug/L	LQC 1.0	<0.01
	Benzo(b)fluoranthene	0.05	ug/L		<0.05
	Benzo(g,h,i)perylene	0.1	ug/L		<0.1

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range



# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1949592  
Date Submitted: 2021-03-18  
Date Reported: 2021-03-26  
Project: 2101781-1000  
COC #: 871417

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1546873 R347  2021-03-16 Cont Soil
Group	Analyte	MRL	Units	Guideline	
PAH	Benzo(k)fluoranthene	0.05	ug/L		<0.05
	Chrysene	0.05	ug/L		<0.05
	Dibenzo(a,h)anthracene	0.1	ug/L		<0.1
	Fluoranthene	0.1	ug/L		<0.1
	Fluorene	0.1	ug/L		<0.1
	Indeno(1,2,3-c,d)pyrene	0.1	ug/L		<0.1
	Naphthalene	0.1	ug/L		<0.1
	Phenanthrene	0.1	ug/L		<0.1
	Pyrene	0.1	ug/L		<0.1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L	LQC 300	<0.1
VOCs Surrogates	1,2-dichloroethane-d4	0	%		118
	4-bromofluorobenzene	0	%		96
	Toluene-d8	0	%		100
Volatiles	1,1-dichloroethylene	0.5	ug/L	LQC 1400	<0.5
	1,2-dichlorobenzene	0.4	ug/L	LQC 20000	<0.4
	1,2-dichloroethane	0.2	ug/L	LQC 500	1.7
	1,4-dichlorobenzene	0.4	ug/L	LQC 500	<0.4
	Benzene	0.5	ug/L	LQC 500	<0.5
	Carbon Tetrachloride	0.2	ug/L	LQC 500	<0.2
	Chloroform	0.5	ug/L	LQC 10000	0.5
	Dichloromethane	4.0	ug/L	LQC 5000	<4.0
	Methyl Ethyl Ketone (MEK)	10	ug/L	LQC 200000	<10
	Monochlorobenzene	0.5	ug/L	LQC 8000	0.9
	Tetrachloroethylene	0.3	ug/L	LQC 3000	<0.3
	Trichloroethylene	0.3	ug/L	LQC 5000	<0.3

Guideline = REG 558

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1949592  
Date Submitted: 2021-03-18  
Date Reported: 2021-03-26  
Project: 2101781-1000  
COC #: 871417

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1546873 R347 2021-03-16 Cont Soil
Group	Analyte	MRL	Units	Guideline	
Volatiles	Vinyl Chloride	0.2	ug/L	LQC 200	<0.2

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1949592  
Date Submitted: 2021-03-18  
Date Reported: 2021-03-26  
Project: 2101781-1000  
COC #: 871417

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 208523 <b>Analysis/Extraction Date</b> 2021-03-25 <b>Analyst</b> C M <b>Method</b> EPA 8081B			
Polychlorinated Biphenyls	<0.1 ug/L	77	60-140
<b>Run No</b> 396914 <b>Analysis/Extraction Date</b> 2021-03-24 <b>Analyst</b> C M <b>Method</b> P 8270			
Methlynaphthalene, 1-	<0.1 ug/L	76	50-140
Methlynaphthalene, 2-	<0.1 ug/L	70	50-140
Acenaphthene	<0.1 ug/L	72	50-140
Acenaphthylene	<0.1 ug/L	68	50-140
Anthracene	<0.1 ug/L	74	50-140
Benz[a]anthracene	<0.1 ug/L	80	50-140
Benzo[a]pyrene	<0.01 ug/L	63	50-140
Benzo[b]fluoranthene	<0.05 ug/L	81	50-140
Benzo[ghi]perylene	<0.1 ug/L	76	50-140
Benzo[k]fluoranthene	<0.05 ug/L	96	50-140
Chrysene	<0.05 ug/L	82	50-140
Dibenz[a h]anthracene	<0.1 ug/L	72	50-140
Fluoranthene	<0.1 ug/L	80	50-140

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1949592  
Date Submitted: 2021-03-18  
Date Reported: 2021-03-26  
Project: 2101781-1000  
COC #: 871417

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
Fluorene	<0.1 ug/L	70	50-140
Indeno[1 2 3-cd]pyrene	<0.1 ug/L	76	50-140
Naphthalene	<0.1 ug/L	70	50-140
Phenanthrene	<0.1 ug/L	78	50-140
Pyrene	<0.1 ug/L	80	50-140
<b>Run No</b> 397647 <b>Analysis/Extraction Date</b> 2021-03-23 <b>Analyst</b> R R <b>Method</b> ASTM 2216			
Moisture-Humidite			80-120
REG 558 Leach			
<b>Run No</b> 397702 <b>Analysis/Extraction Date</b> 2021-03-24 <b>Analyst</b> Z S <b>Method</b> SM4500-CNC/MOE E3015			
Cyanide (CN-)	<0.05 mg/L	104	75-125
<b>Run No</b> 397794 <b>Analysis/Extraction Date</b> 2021-03-25 <b>Analyst</b> SKH <b>Method</b> M SM3112B-3500B			
Mercury	<0.001 mg/L	91	76-123
<b>Run No</b> 397796 <b>Analysis/Extraction Date</b> 2021-03-25 <b>Analyst</b> K B <b>Method</b> EPA 200.8			
Silver	<0.01 mg/L	100	70-130
Arsenic	<0.02 mg/L	98	70-130

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1949592  
Date Submitted: 2021-03-18  
Date Reported: 2021-03-26  
Project: 2101781-1000  
COC #: 871417

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
Boron (total)	<0.1 mg/L	78	70-130
Barium	<0.01 mg/L	101	70-130
Cadmium	<0.008 mg/L	105	70-130
Chromium Total	<0.05 mg/L	102	70-130
Lead	<0.01 mg/L	98	70-130
Selenium	<0.02 mg/L	108	70-130
Uranium	<0.01 mg/L	91	70-130
<b>Run No</b> 397797 <b>Analysis/Extraction Date</b> 2021-03-25 <b>Analyst</b> AET <b>Method</b> SM2320,2510,4500H/F			
F	<0.10 mg/L	106	90-110
<b>Run No</b> 397805 <b>Analysis/Extraction Date</b> 2021-03-25 <b>Analyst</b> SKH <b>Method</b> C SM4500-NO3-F			
NO2 + NO3 as N	<1.0 mg/L	111	
<b>Run No</b> 397831 <b>Analysis/Extraction Date</b> 2021-03-25 <b>Analyst</b> AET <b>Method</b> EPA 1311/O. Reg 347			
Zero Headspace Extraction			
<b>Run No</b> 397847 <b>Analysis/Extraction Date</b> 2021-03-26 <b>Analyst</b> YH <b>Method</b> EPA 8260			
Dichloroethylene, 1,1-	<0.5 ug/L	100	60-130

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1949592  
Date Submitted: 2021-03-18  
Date Reported: 2021-03-26  
Project: 2101781-1000  
COC #: 871417

### QC Summary

Analyte	Blank	QC % Rec	QC Limits
Dichlorobenzene, 1,2-	<0.4 ug/L	99	60-130
Dichloroethane, 1,2-	<0.2 ug/L	101	60-130
Dichlorobenzene, 1,4-	<0.4 ug/L	97	60-130
Benzene	<0.5 ug/L	96	60-130
Carbon Tetrachloride	<0.2 ug/L	98	60-130
Chloroform	<0.5 ug/L	100	60-130
Methylene Chloride	<4.0 ug/L	117	60-130
Methyl Ethyl Ketone	<10 ug/L	100	60-130
Chlorobenzene	<0.5 ug/L	95	60-130
Tetrachloroethylene	<0.3 ug/L	89	60-130
Trichloroethylene	<0.3 ug/L	93	60-130
Vinyl Chloride	<0.2 ug/L	90	60-130

Guideline = REG 558

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

**Certificate of Analysis**

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1949592  
Date Submitted: 2021-03-18  
Date Reported: 2021-03-26  
Project: 2101781-1000  
COC #: 871417

---

***Sample Comment Summary***

Sample ID: 1546873   Cont Soil   Metals analysis performed on aqua-regia digest of sample material.
---

**Guideline = REG 558****\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

**Certificate of Analysis**

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1952822  
Date Submitted: 2021-05-07  
Date Reported: 2021-05-14  
Project: 2101781-1000  
COC #: 873398

Page 1 of 9

---

**Dear Brent Langille:**

**Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).**

Report Comments:

APPROVAL:

---

Sarah Horner, Inorganics Technician

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: <http://www.cala.ca/scopes/2602.pdf>.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.



# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1952822  
Date Submitted: 2021-05-07  
Date Reported: 2021-05-14  
Project: 2101781-1000  
COC #: 873398

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1555841 R347  2021-05-05 Cont Soil
Group	Analyte	MRL	Units	Guideline	
Anions	F	0.10	mg/L	LQC 150.0	0.34
General Chemistry	Cyanide (free)	0.05	mg/L	LQC 20.0	<0.05
Leachate	REG 558 Leach				Y
	Zero Headspace Extraction				Y
Mercury	Hg	0.001	mg/L	LQC 0.1	<0.001
Metals	Ag	0.01	mg/L	LQC 5	<0.01
	As	0.02	mg/L	LQC 2.5	<0.02
	B	0.1	mg/L	LQC 500.0	<0.1
	Ba	0.01	mg/L	LQC 100.0	0.40
	Cd	0.008	mg/L	LQC 0.5	<0.008
	Cr	0.05	mg/L	LQC 5.0	<0.05
	Pb	0.01	mg/L	LQC 5.0	<0.01
	Se	0.02	mg/L	LQC 1.0	<0.02
	U	0.01	mg/L	LQC 10.0	<0.01
Moisture	Moisture-Humidite	0.1	%		16.1
Others	NO2 + NO3 as N	1.0	mg/L	LQC 1000	<1.0
PAH	1-methylnaphthalene	0.1	ug/L		<0.1
	2-methylnaphthalene	0.1	ug/L		<0.1
	Acenaphthene	0.1	ug/L		<0.1
	Acenaphthylene	0.1	ug/L		<0.1
	Anthracene	0.1	ug/L		<0.1
	Benzo(a)anthracene	0.1	ug/L		<0.1
	Benzo(a)pyrene	0.01	ug/L	LQC 1.0	<0.01
	Benzo(b)fluoranthene	0.05	ug/L		<0.05
	Benzo(g,h,i)perylene	0.1	ug/L		<0.1

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1952822  
Date Submitted: 2021-05-07  
Date Reported: 2021-05-14  
Project: 2101781-1000  
COC #: 873398

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1555841 R347  2021-05-05 Cont Soil
Group	Analyte	MRL	Units	Guideline	
PAH	Benzo(k)fluoranthene	0.05	ug/L		<0.05
	Chrysene	0.05	ug/L		<0.05
	Dibenzo(a,h)anthracene	0.1	ug/L		<0.1
	Fluoranthene	0.1	ug/L		<0.1
	Fluorene	0.1	ug/L		<0.1
	Indeno(1,2,3-c,d)pyrene	0.1	ug/L		<0.1
	Naphthalene	0.1	ug/L		<0.1
	Phenanthrene	0.1	ug/L		<0.1
	Pyrene	0.1	ug/L		<0.1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L	LQC 300	<0.1
VOCs Surrogates	1,2-dichloroethane-d4	0	%		116
	4-bromofluorobenzene	0	%		82
	Toluene-d8	0	%		109
Volatiles	1,1-dichloroethylene	0.5	ug/L	LQC 1400	<0.5
	1,2-dichlorobenzene	0.4	ug/L	LQC 20000	<0.4
	1,2-dichloroethane	0.2	ug/L	LQC 500	<0.2
	1,4-dichlorobenzene	0.4	ug/L	LQC 500	<0.4
	Benzene	0.5	ug/L	LQC 500	<0.5
	Carbon Tetrachloride	0.2	ug/L	LQC 500	<0.2
	Chloroform	0.5	ug/L	LQC 10000	<0.5
	Dichloromethane	4.0	ug/L	LQC 5000	<4.0
	Methyl Ethyl Ketone (MEK)	10	ug/L	LQC 200000	<10
	Monochlorobenzene	0.5	ug/L	LQC 8000	<0.5
	Tetrachloroethylene	0.3	ug/L	LQC 3000	<0.3
	Trichloroethylene	0.3	ug/L	LQC 5000	<0.3

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1952822  
Date Submitted: 2021-05-07  
Date Reported: 2021-05-14  
Project: 2101781-1000  
COC #: 873398

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1555841 R347 2021-05-05 Cont Soil
Group	Analyte	MRL	Units	Guideline	
Volatiles	Vinyl Chloride	0.2	ug/L	LQC 200	<0.2

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1952822  
Date Submitted: 2021-05-07  
Date Reported: 2021-05-14  
Project: 2101781-1000  
COC #: 873398

### QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 399763 <b>Analysis/Extraction Date</b> 2021-05-13 <b>Analyst</b> C M <b>Method</b> P 8270			
Methlynaphthalene, 1-	<0.1 ug/L	110	50-140
Methlynaphthalene, 2-	<0.1 ug/L	86	50-140
Acenaphthene	<0.1 ug/L	96	50-140
Acenaphthylene	0.2 ug/L	94	50-140
Anthracene	<0.1 ug/L	100	50-140
Benz[a]anthracene	<0.1 ug/L	98	50-140
Benzo[a]pyrene	<0.01 ug/L	96	50-140
Benzo[b]fluoranthene	<0.05 ug/L	94	50-140
Benzo[ghi]perylene	<0.1 ug/L	84	50-140
Benzo[k]fluoranthene	<0.05 ug/L	102	50-140
Chrysene	<0.05 ug/L	97	50-140
Dibenz[a h]anthracene	<0.1 ug/L	86	50-140
Fluoranthene	<0.1 ug/L	98	50-140
Fluorene	<0.1 ug/L	98	50-140
Indeno[1 2 3-cd]pyrene	<0.1 ug/L	88	50-140
Naphthalene	0.6 ug/L	94	50-140

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1952822  
Date Submitted: 2021-05-07  
Date Reported: 2021-05-14  
Project: 2101781-1000  
COC #: 873398

### QC Summary

Analyte	Blank	QC % Rec	QC Limits
Phenanthrene	<0.1 ug/L	96	50-140
Pyrene	<0.1 ug/L	98	50-140
<b>Run No</b> 400346 <b>Analysis/Extraction Date</b> 2021-05-11 <b>Analyst</b> YH <b>Method</b> EPA 8260			
Dichloroethylene, 1,1-	<0.5 ug/L	100	60-130
Dichlorobenzene, 1,2-	<0.4 ug/L	99	60-130
Dichloroethane, 1,2-	<0.2 ug/L	101	60-130
Dichlorobenzene, 1,4-	<0.4 ug/L	97	60-130
Benzene	<0.5 ug/L	96	60-130
Carbon Tetrachloride	<0.2 ug/L	98	60-130
Chloroform	<0.5 ug/L	100	60-130
Methylene Chloride	<4.0 ug/L	117	60-130
Methyl Ethyl Ketone	<10 ug/L	100	60-130
Chlorobenzene	<0.5 ug/L	95	60-130
Tetrachloroethylene	<0.3 ug/L	89	60-130
Trichloroethylene	<0.3 ug/L	93	60-130
Vinyl Chloride	<0.2 ug/L	90	60-130

Guideline = REG 558

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1952822  
Date Submitted: 2021-05-07  
Date Reported: 2021-05-14  
Project: 2101781-1000  
COC #: 873398

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 400388 <b>Analysis/Extraction Date</b> 2021-05-10 <b>Analyst</b> MW <b>Method</b> ASTM 2216			
Moisture-Humidite			80-120
REG 558 Leach			
Zero Headspace Extraction			
<b>Run No</b> 400396 <b>Analysis/Extraction Date</b> 2021-05-11 <b>Analyst</b> SKH <b>Method</b> M SM3112B-3500B			
Mercury	<0.001 mg/L	90	76-123
<b>Run No</b> 400461 <b>Analysis/Extraction Date</b> 2021-05-12 <b>Analyst</b> Z S <b>Method</b> EPA 200.8			
Silver	<0.01 mg/L	100	70-130
Arsenic	<0.02 mg/L	106	70-130
Boron (total)	<0.1 mg/L	94	70-130
Barium	<0.01 mg/L	98	70-130
Cadmium	<0.008 mg/L	103	70-130
Chromium Total	<0.05 mg/L	99	70-130
Lead	<0.01 mg/L	98	70-130
Selenium	<0.02 mg/L	117	70-130
Uranium	<0.01 mg/L	88	70-130

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1952822  
Date Submitted: 2021-05-07  
Date Reported: 2021-05-14  
Project: 2101781-1000  
COC #: 873398

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 400548 <b>Analysis/Extraction Date</b> 2021-05-13 <b>Analyst</b> SKH <b>Method</b> C SM4500-NO3-F			
NO2 + NO3 as N	<1.0 mg/L	103	
<b>Run No</b> 400570 <b>Analysis/Extraction Date</b> 2021-05-13 <b>Analyst</b> SWS <b>Method</b> SM2320,2510,4500H/F			
F	<0.10 mg/L	101	90-110
<b>Run No</b> 400621 <b>Analysis/Extraction Date</b> 2021-05-14 <b>Analyst</b> QL <b>Method</b> EPA 8081B			
Polychlorinated Biphenyls	<0.1 ug/L	94	60-140
<b>Run No</b> 400638 <b>Analysis/Extraction Date</b> 2021-05-14 <b>Analyst</b> Z S <b>Method</b> SM4500-CNC/MOE E3015			
Cyanide (CN-)	<0.05 mg/L	93	75-125

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

**Certificate of Analysis**

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 9199022889  
Invoice to: Waste Management of Canada Corp

Report Number: 1952822  
Date Submitted: 2021-05-07  
Date Reported: 2021-05-14  
Project: 2101781-1000  
COC #: 873398

---

***Sample Comment Summary***

Sample ID: 1555841   Cont Soil   Metals analysis performed on aqua-regia digest of sample material.
---

**Guideline = REG 558****\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range



**Certificate of Analysis**

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1960018  
Date Submitted: 2021-08-13  
Date Reported: 2021-08-20  
Project: 2101781-1000  
COC #: 878176

Page 1 of 9

---

**Dear Brent Langille:**

**Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).**

Report Comments:

APPROVAL:

---

Sarah Horner, Inorganics Technician

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: <http://www.cala.ca/scopes/2602.pdf>.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1960018  
Date Submitted: 2021-08-13  
Date Reported: 2021-08-20  
Project: 2101781-1000  
COC #: 878176

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1575906 R347  2021-08-12 Cont Soil
Group	Analyte	MRL	Units	Guideline	
Anions	F	0.10	mg/L	LQC 150.0	0.25
General Chemistry	Cyanide (free)	0.05	mg/L	LQC 20.0	<0.05
Leachate	REG 558 Leach				y
	Zero Headspace Extraction				y
Mercury	Hg	0.001	mg/L	LQC 0.1	<0.001
Metals	Ag	0.01	mg/L	LQC 5	<0.01
	As	0.02	mg/L	LQC 2.5	<0.02
	B	0.1	mg/L	LQC 500.0	<0.1
	Ba	0.01	mg/L	LQC 100.0	0.50
	Cd	0.008	mg/L	LQC 0.5	<0.008
	Cr	0.05	mg/L	LQC 5.0	<0.05
	Pb	0.01	mg/L	LQC 5.0	0.01
	Se	0.02	mg/L	LQC 1.0	<0.02
	U	0.01	mg/L	LQC 10.0	<0.01
Moisture	Moisture-Humidite	0.1	%		8.99
Others	NO2 + NO3 as N	1.0	mg/L	LQC 1000	<1.0
PAH	1-methylnaphthalene	0.1	ug/L		<0.1
	2-methylnaphthalene	0.1	ug/L		<0.1
	Acenaphthene	0.1	ug/L		<0.1
	Acenaphthylene	0.1	ug/L		<0.1
	Anthracene	0.1	ug/L		<0.1
	Benzo(a)anthracene	0.1	ug/L		<0.1
	Benzo(a)pyrene	0.01	ug/L	LQC 1.0	<0.01
	Benzo(b)fluoranthene	0.05	ug/L		<0.05
	Benzo(g,h,i)perylene	0.1	ug/L		<0.1

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1960018  
Date Submitted: 2021-08-13  
Date Reported: 2021-08-20  
Project: 2101781-1000  
COC #: 878176

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1575906 R347  2021-08-12 Cont Soil
Group	Analyte	MRL	Units	Guideline	
PAH	Benzo(k)fluoranthene	0.05	ug/L		<0.05
	Chrysene	0.05	ug/L		<0.05
	Dibenzo(a,h)anthracene	0.1	ug/L		<0.1
	Fluoranthene	0.1	ug/L		<0.1
	Fluorene	0.1	ug/L		<0.1
	Indeno(1,2,3-c,d)pyrene	0.1	ug/L		<0.1
	Naphthalene	0.1	ug/L		<0.1
	Phenanthrene	0.1	ug/L		<0.1
	Pyrene	0.1	ug/L		<0.1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L	LQC 300	<0.1
VOCs Surrogates	1,2-dichloroethane-d4	0	%		95
	4-bromofluorobenzene	0	%		86
	Toluene-d8	0	%		115
Volatiles	1,1-dichloroethylene	0.5	ug/L	LQC 1400	<0.5
	1,2-dichlorobenzene	0.4	ug/L	LQC 20000	<0.4
	1,2-dichloroethane	0.2	ug/L	LQC 500	<0.2
	1,4-dichlorobenzene	0.4	ug/L	LQC 500	<0.4
	Benzene	0.5	ug/L	LQC 500	<0.5
	Carbon Tetrachloride	0.2	ug/L	LQC 500	<0.2
	Chloroform	0.5	ug/L	LQC 10000	<0.5
	Dichloromethane	4.0	ug/L	LQC 5000	<4.0
	Methyl Ethyl Ketone (MEK)	10	ug/L	LQC 200000	<10
	Monochlorobenzene	0.5	ug/L	LQC 8000	<0.5
	Tetrachloroethylene	0.3	ug/L	LQC 3000	<0.3
	Trichloroethylene	0.3	ug/L	LQC 5000	<0.3

Guideline = REG 558

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1960018  
Date Submitted: 2021-08-13  
Date Reported: 2021-08-20  
Project: 2101781-1000  
COC #: 878176

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1575906 R347 2021-08-12 Cont Soil
Group	Analyte	MRL	Units	Guideline	
Volatiles	Vinyl Chloride	0.2	ug/L	LQC 200	<0.2

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1960018  
Date Submitted: 2021-08-13  
Date Reported: 2021-08-20  
Project: 2101781-1000  
COC #: 878176

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 406009 <b>Analysis/Extraction Date</b> 2021-08-20 <b>Analyst</b> C M <b>Method</b> P 8270			
Methlynaphthalene, 1-	<0.1 ug/L	106	50-140
Methlynaphthalene, 2-	<0.1 ug/L	104	50-140
Acenaphthene	<0.1 ug/L	96	50-140
Acenaphthylene	<0.1 ug/L	88	50-140
Anthracene	<0.1 ug/L	96	50-140
Benz[a]anthracene	<0.1 ug/L	80	50-140
Benzo[a]pyrene	<0.01 ug/L	103	50-140
Benzo[b]fluoranthene	<0.05 ug/L	67	50-140
Benzo[ghi]perylene	<0.1 ug/L	94	50-140
Benzo[k]fluoranthene	<0.05 ug/L	119	50-140
Chrysene	<0.05 ug/L	105	50-140
Dibenz[a h]anthracene	<0.1 ug/L	92	50-140
Fluoranthene	<0.1 ug/L	88	50-140
Fluorene	<0.1 ug/L	96	50-140
Indeno[1 2 3-cd]pyrene	<0.1 ug/L	92	50-140
Naphthalene	<0.1 ug/L	96	50-140

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1960018  
Date Submitted: 2021-08-13  
Date Reported: 2021-08-20  
Project: 2101781-1000  
COC #: 878176

### QC Summary

Analyte	Blank	QC % Rec	QC Limits
Phenanthrene	<0.1 ug/L	90	50-140
Pyrene	<0.1 ug/L	88	50-140
<b>Run No</b> 406832 <b>Analysis/Extraction Date</b> 2021-08-18 <b>Analyst</b> AA <b>Method</b> ASTM 2216			
Moisture-Humidite			80-120
<b>Run No</b> 406834 <b>Analysis/Extraction Date</b> 2021-08-19 <b>Analyst</b> AA <b>Method</b> EPA 1311/O. Reg 347			
REG 558 Leach			
Zero Headspace Extraction			
<b>Run No</b> 406952 <b>Analysis/Extraction Date</b> 2021-08-19 <b>Analyst</b> YH <b>Method</b> EPA 8260			
Dichloroethylene, 1,1-	<0.5 ug/L	100	60-130
Dichlorobenzene, 1,2-	<0.4 ug/L	99	60-130
Dichloroethane, 1,2-	<0.2 ug/L	101	60-130
Dichlorobenzene, 1,4-	<0.4 ug/L	97	60-130
Benzene	<0.5 ug/L	96	60-130
Carbon Tetrachloride	<0.2 ug/L	98	60-130
Chloroform	<0.5 ug/L	100	60-130
Methylene Chloride	<4.0 ug/L	117	60-130

Guideline = REG 558

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1960018  
Date Submitted: 2021-08-13  
Date Reported: 2021-08-20  
Project: 2101781-1000  
COC #: 878176

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
Methyl Ethyl Ketone	<10 ug/L	100	60-130
Chlorobenzene	<0.5 ug/L	95	60-130
Tetrachloroethylene	<0.3 ug/L	89	60-130
Trichloroethylene	<0.3 ug/L	93	60-130
Vinyl Chloride	<0.2 ug/L	90	60-130
<b>Run No</b> 406955 <b>Analysis/Extraction Date</b> 2021-08-20 <b>Analyst</b> SWS <b>Method</b> SM2320,2510,4500H/F			
F	<0.10 mg/L	108	90-110
<b>Run No</b> 406957 <b>Analysis/Extraction Date</b> 2021-08-20 <b>Analyst</b> SKH <b>Method</b> C SM4500-NO3-F			
NO2 + NO3 as N	<1.0 mg/L	93	
<b>Run No</b> 406971 <b>Analysis/Extraction Date</b> 2021-08-20 <b>Analyst</b> AaN <b>Method</b> M SM3112B-3500B			
Mercury	<0.001 mg/L	111	76-123
<b>Run No</b> 407005 <b>Analysis/Extraction Date</b> 2021-08-20 <b>Analyst</b> AaN <b>Method</b> EPA 200.8			
Silver	<0.01 mg/L	80	70-130
Arsenic	<0.02 mg/L	105	70-130
Boron (total)	<0.1 mg/L	90	70-130

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1960018  
Date Submitted: 2021-08-13  
Date Reported: 2021-08-20  
Project: 2101781-1000  
COC #: 878176

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
Barium	<0.01 mg/L	95	70-130
Cadmium	<0.008 mg/L	105	70-130
Chromium Total	<0.05 mg/L	105	70-130
Lead	<0.01 mg/L	95	70-130
Selenium	<0.02 mg/L	115	70-130
Uranium	<0.01 mg/L	80	70-130
<b>Run No</b> 407026 <b>Analysis/Extraction Date</b> 2021-08-20 <b>Analyst</b> R G <b>Method</b> EPA 8081B			
Polychlorinated Biphenyls	<0.1 ug/L	116	60-140
<b>Run No</b> 407027 <b>Analysis/Extraction Date</b> 2021-08-20 <b>Analyst</b> AX <b>Method</b> SM4500-CNC/MOE E3015			
Cyanide (CN-)	<0.05 mg/L	87	75-125

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range



**Certificate of Analysis**

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1960018  
Date Submitted: 2021-08-13  
Date Reported: 2021-08-20  
Project: 2101781-1000  
COC #: 878176

---

***Sample Comment Summary***

Sample ID: 1575906   Cont Soil   Metals analysis performed on aqua-regia digest of sample material.
---

**Guideline = REG 558****\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

**Certificate of Analysis**

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964137  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-13  
Project: 2101781-1000  
COC #: 881007

Page 1 of 8

---

**Dear Brent Langille:**

**Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).**

Report Comments:

APPROVAL:

---

Long Qu, Organics Supervisor

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: <http://www.cala.ca/scopes/2602.pdf>.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964137  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-13  
Project: 2101781-1000  
COC #: 881007

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1587472 R347  2021-10-01 CONT Soil
Group	Analyte	MRL	Units	Guideline	
Anions	F	0.10	mg/L	LQC 150.0	0.25
	NO2 + NO3 as N	10	mg/L	LQC 1000	0.43
General Chemistry	Cyanide (free)	0.05	mg/L	LQC 20.0	<0.05
Leachate	REG 558 Leach				y
	Zero Headspace Extraction				y
Mercury	Hg	0.001	mg/L	LQC 0.1	<0.001
Metals	Ag	0.01	mg/L	LQC 5	<0.01
	As	0.02	mg/L	LQC 2.5	<0.02
	B	0.1	mg/L	LQC 500.0	<0.1
	Ba	0.01	mg/L	LQC 100.0	0.37
	Cd	0.008	mg/L	LQC 0.5	<0.008
	Cr	0.05	mg/L	LQC 5.0	<0.05
	Pb	0.01	mg/L	LQC 5.0	<0.01
	Se	0.02	mg/L	LQC 1.0	<0.02
	U	0.01	mg/L	LQC 10.0	<0.01
Moisture	Moisture-Humidite	0.1	%		9.7
PAH	1-methylnaphthalene	0.1	ug/L		<0.1
	2-methylnaphthalene	0.1	ug/L		<0.1
	Acenaphthene	0.1	ug/L		<0.1
	Acenaphthylene	0.1	ug/L		<0.1
	Anthracene	0.1	ug/L		<0.1
	Benzo(a)anthracene	0.1	ug/L		<0.1
	Benzo(a)pyrene	0.01	ug/L	LQC 1.0	<0.01
	Benzo(b)fluoranthene	0.05	ug/L		<0.05
	Benzo(g,h,i)perylene	0.1	ug/L		<0.1

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964137  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-13  
Project: 2101781-1000  
COC #: 881007

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1587472 R347  2021-10-01 CONT Soil
Group	Analyte	MRL	Units	Guideline	
PAH	Benzo(k)fluoranthene	0.05	ug/L		<0.05
	Chrysene	0.05	ug/L		<0.05
	Dibenzo(a,h)anthracene	0.1	ug/L		<0.1
	Fluoranthene	0.1	ug/L		<0.1
	Fluorene	0.1	ug/L		<0.1
	Indeno(1,2,3-c,d)pyrene	0.1	ug/L		<0.1
	Naphthalene	0.1	ug/L		<0.1
	Phenanthrene	0.1	ug/L		<0.1
	Pyrene	0.1	ug/L		<0.1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L	LQC 300	<0.1
VOCs Surrogates	1,2-dichloroethane-d4	0	%		116
	4-bromofluorobenzene	0	%		98
	Toluene-d8	0	%		128
Volatiles	1,1-dichloroethylene	0.5	ug/L	LQC 1400	<0.5
	1,2-dichlorobenzene	0.4	ug/L	LQC 20000	<0.4
	1,2-dichloroethane	0.2	ug/L	LQC 500	<0.2
	1,4-dichlorobenzene	0.4	ug/L	LQC 500	<0.4
	Benzene	0.5	ug/L	LQC 500	<0.5
	Carbon Tetrachloride	0.2	ug/L	LQC 500	<0.2
	Chloroform	0.5	ug/L	LQC 10000	<0.5
	Dichloromethane	4.0	ug/L	LQC 5000	<4.0
	Methyl Ethyl Ketone (MEK)	10	ug/L	LQC 200000	<10
	Monochlorobenzene	0.5	ug/L	LQC 8000	<0.5
	Tetrachloroethylene	0.3	ug/L	LQC 3000	<0.3
	Trichloroethylene	0.3	ug/L	LQC 5000	<0.3

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964137  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-13  
Project: 2101781-1000  
COC #: 881007

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1587472 R347 2021-10-01 CONT Soil
Group	Analyte	MRL	Units	Guideline	
Volatiles	Vinyl Chloride	0.2	ug/L	LQC 200	<0.2

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964137  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-13  
Project: 2101781-1000  
COC #: 881007

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
<b>Run No</b> 409760 <b>Analysis/Extraction Date</b> 2021-10-13 <b>Analyst</b> C M <b>Method</b> P 8270			
Methlynaphthalene, 1-	<0.1 ug/L	100	50-140
Methlynaphthalene, 2-	<0.1 ug/L	98	50-140
Acenaphthene	<0.1 ug/L	86	50-140
Acenaphthylene	<0.1 ug/L	78	50-140
Anthracene	<0.1 ug/L	84	50-140
Benz[a]anthracene	<0.1 ug/L	78	50-140
Benzo[a]pyrene	<0.01 ug/L	74	50-140
Benzo[b]fluoranthene	<0.05 ug/L	111	50-140
Benzo[ghi]perylene	<0.1 ug/L	70	50-140
Benzo[k]fluoranthene	<0.05 ug/L	92	50-140
Chrysene	<0.05 ug/L	87	50-140
Dibenz[a h]anthracene	<0.1 ug/L	76	50-140
Fluoranthene	<0.1 ug/L	80	50-140
Fluorene	<0.1 ug/L	84	50-140
Indeno[1 2 3-cd]pyrene	<0.1 ug/L	76	50-140
Naphthalene	<0.1 ug/L	86	50-140

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964137  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-13  
Project: 2101781-1000  
COC #: 881007

### QC Summary

Analyte	Blank	QC % Rec	QC Limits
Phenanthrene	<0.1 ug/L	78	50-140
Pyrene	<0.1 ug/L	82	50-140
<b>Run No</b> 410013 <b>Analysis/Extraction Date</b> 2021-10-08 <b>Analyst</b> AA <b>Method</b> EPA 1311/O. Reg 347			
REG 558 Leach			
Zero Headspace Extraction			
<b>Run No</b> 410015 <b>Analysis/Extraction Date</b> 2021-10-08 <b>Analyst</b> AA <b>Method</b> ASTM 2216			
Moisture-Humidite			80-120
<b>Run No</b> 410053 <b>Analysis/Extraction Date</b> 2021-10-08 <b>Analyst</b> YH <b>Method</b> EPA 8260			
Dichloroethylene, 1,1-	<0.5 ug/L	100	60-130
Dichlorobenzene, 1,2-	<0.4 ug/L	99	60-130
Dichloroethane, 1,2-	<0.2 ug/L	101	60-130
Dichlorobenzene, 1,4-	<0.4 ug/L	97	60-130
Benzene	<0.5 ug/L	96	60-130
Carbon Tetrachloride	<0.2 ug/L	98	60-130
Chloroform	<0.5 ug/L	100	60-130
Methylene Chloride	<4.0 ug/L	117	60-130

Guideline = REG 558

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964137  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-13  
Project: 2101781-1000  
COC #: 881007

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
Methyl Ethyl Ketone	<10 ug/L	100	60-130
Chlorobenzene	<0.5 ug/L	95	60-130
Tetrachloroethylene	<0.3 ug/L	89	60-130
Trichloroethylene	<0.3 ug/L	93	60-130
Vinyl Chloride	<0.2 ug/L	90	60-130
<b>Run No</b> 410095 <b>Analysis/Extraction Date</b> 2021-10-08 <b>Analyst</b> Z S <b>Method</b> SM4500-CNC/MOE E3015			
Cyanide (CN-)	<0.05 mg/L	99	75-125
<b>Run No</b> 410142 <b>Analysis/Extraction Date</b> 2021-10-08 <b>Analyst</b> AsA <b>Method</b> SM2320,2510,4500H/F			
F	<0.10 mg/L	103	90-110
<b>Run No</b> 410148 <b>Analysis/Extraction Date</b> 2021-10-09 <b>Analyst</b> SWS <b>Method</b> SM 4110			
NO2 + NO3 as N	<0.10 mg/L		
<b>Run No</b> 410153 <b>Analysis/Extraction Date</b> 2021-10-12 <b>Analyst</b> AaN <b>Method</b> EPA 200.8			
Silver	<0.01 mg/L	110	70-130
Arsenic	<0.02 mg/L	102	70-130
Boron (total)	<0.1 mg/L	83	70-130

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range



# Certificate of Analysis

Client: RWDI Air Inc (WM of Canada)  
4510 Rhodes Drive - Unit 530  
Windsor, ON  
N8W 5K5  
Attention: Mr. Brent Langille  
PO#: 10385185  
Invoice to: Waste Management of Canada Corp

Report Number: 1964137  
Date Submitted: 2021-10-06  
Date Reported: 2021-10-13  
Project: 2101781-1000  
COC #: 881007

## QC Summary

Analyte	Blank	QC % Rec	QC Limits
Barium	<0.01 mg/L	98	70-130
Cadmium	<0.008 mg/L	102	70-130
Chromium Total	<0.05 mg/L	102	70-130
Lead	<0.01 mg/L	95	70-130
Selenium	<0.02 mg/L	115	70-130
Uranium	<0.01 mg/L	80	70-130
<b>Run No</b> 410181 <b>Analysis/Extraction Date</b> 2021-10-12 <b>Analyst</b> AaN <b>Method</b> M SM3112B-3500B			
Mercury	<0.001 mg/L	104	76-123
<b>Run No</b> 410274 <b>Analysis/Extraction Date</b> 2021-10-13 <b>Analyst</b> R G <b>Method</b> EPA 8081B			
Polychlorinated Biphenyls	<0.1 ug/L	94	60-140

**Guideline = REG 558**

**\* = Guideline Exceedence**

Results relate only to the parameters tested on the samples submitted.  
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

## APPENDIX P:

### Complaint Logs



**Table P1**  
**Complaint Log Summary**  
**Twin Creeks Environmental Centre**

Log	Date	Time	Name	Relationship	Type	Location	Wind Direction	Investigation and Corrective Action	Response
1	6-Jan-21	7:22 p.m.	Heather Joosten	Resident	Odour	Residence	WNW	Investigation completed, Manipulation of the intermediate cover earlier in the day in preparation of gas line installation may have disturbed a gas pocket. Vacuum across the collection system increased.	No response at this time.
2	8-Jan-21	6:20 p.m.	Heather Joosten	Resident	Odour	Residence	N	Investigation, weather conditions reviewed, complaint filed.	No response at this time.
3	7-Mar-21	2 p.m.	Heather Joosten	Resident	Litter	Driving on Nauvoo adjacent to Site	NW	Equipment dispatched, Haulers complete on site route.	No response at this time.
4	3-Apr-21	3:21 p.m.	Lucy Jackson	Resident	Litter	Driving on Nauvoo by Zion	SSW	Collectors dispatched as per BMP.	Thanked for call.
5	20-Apr-21	12:57 p.m.	Heather Joosten	Resident	Track Out	Driving on Nauvoo adjacent to Site	N	Equipment dispatched, Haulers complete on site route, additional Operator for Saturday to ensure track out is dealt with at end of day.	Acknowledged.
6	13-May-21	1:20 p.m.	Heather Joosten	Resident	Gates	Driving on Nauvoo adjacent to Site	N/A	No non conformance - authorized personnel on site.	Thank you, will pass information on.
7	11-Jun-21	8:59 a.m.	Betsy Rombouts	Resident	Litter	Driving on Nauvoo adjacent to Site	N/A	OMT dispatched to investigate, identified some fluff, tire shred (possibly not LF related), Sweeper dispatched immediately.	This for attending to this matter. I don't understand why wm isn't more on top of this situation. It's a very unwelcoming site for anyone coming and leaving our community. Also reflects very badly on WM operating integrity, and shows that they have no concern for the community.
8	11-Jun-21	3:22 p.m.	Heather Joosten	Resident	Merge Lane/Tire Debris	Driving on Nauvoo adjacent to Site	N/A	Investigation to identify Hauler and address concerns, continue to advise Haulers of site procedures including importance of North Rd. circle before exiting site, tire check in designated area on site.	Thank you for the response that I don't find satisfactory. The exit from the landfill still remains poorly designed for trucks merging onto Nauvoo Rd and continues to be a hazard for our community safety.
9	2-Aug-21	11:18 a.m.	Chris Sweeney	Resident	Odour	Residence	N	Investigation ongoing, reviewed weather conditions-potentially.	No response at this time.
10 (a)	17-Aug-21	8:04 a.m. re: 7:35 a.m.	Jane Joris	Resident	Odour	Residence	NNE	Investigation, potential for intermittent odours due to wind direction.	No response at this time.
10 (b)	17-Aug-21	12:29 a.m. re: 6:10 a.m.	Cheryl Muslow	Resident	Odour	Residence	NW/NNE	Investigation, weather conditions potentially caused a general lack of dispersion.	No response at this time.
10 (c)	17-Aug-21	4:45 p.m. re: no specific time	Tracey Fisher	Resident	Odour	Residence	Did not provide time	Investigation, weather conditions potentially caused a general lack of dispersion, if more detail could be provided on time going forward.	smell occurred at 8:30 p.m.
11	18-Aug-21	9:02 a.m. re: 7:45 a.m.	Mandy Gosden	Resident	Odour	Residence	NE	Investigation, odour suppression relocated, area of odorous load promptly covered, tipper relocated to minimize potential of reoccurrence.	No response at this time.
12	19-Aug-21	10:38 a.m.	Cheryl Muslow	Resident	Odour	Residence	N/NNE	Investigation, Odour Check-did not detect, deodorizer unit relocated due to wind shift.	No response at this time.
13a	20-Aug-21	8:21 a.m.	Mandy Gosden	Resident	Odour	Residence	ENE	Investigation, odour check-performed, no landfill gas odour detected.	No response at this time.
13b	20-Aug-21	8:23 a.m.	Martina Jackson	Resident	Odour	Residence/Driving on Nauvoo adjacent to Site	ENE	Investigation, odour check performed, no odour detected at residence or front entrance.	No response at this time.
13c	20-Aug-21	10:11 a.m.	Tracey Fisher	Resident	Odour	Residence	NE	Investigation, odour check-mild odour from one load which arrived prior to this notification, follow up - no odours detected, weather conditions review-potential for intermittent odours due to wind direction and inversion.	No response at this time.
14	21-Aug-21	4:44 p.m.	Heather Joosten	Resident	Track Out	Merge Lane	SSW/WSW	Sweeper Operations dispatched Monday morning at 7 a.m.	Thank you for the update, but should have been cleaned up Saturday not left all weekend. Your company needs to be much more attentive to this matter. It is really growing tiresome for our community. We travelled 16 hours on highways this week and did not see a merge lane or road shoulder that look like the one in front of the landfill with all the debris littered about. Better problem solving needs to be done. It should not be formal complaints that make you attentive for a short period of time, then the
15	31-Aug-21	5:39 p.m.	Martina Jackson	Resident	Odour	Residence	N	Investigation, Filed, weather conditions reviewed.	No response at this time.
16	1-Sep-21	11:32 a.m.	Mac Parker	Resident	Track Out	Merge Lane	N/A	Investigation, minimal fluff observed, Sweeper dispatched, corner cleaned.	Make it handier for people to call in-post contact information on Office Door.
17	1-Sep-21	1:22 p.m.	Mac Parker	Resident	Odour	Driving on Nauvoo adjacent to Cemetery	ENE	Potential for intermittent odours due to wind direction, drive by could be Hauler as opposed to Landfill odour, ops managing odorous loads for disposal.	Make it handier for people to call in-post contact information on Office Door.
18 a	1-Sep-21	9:56 p.m.	Martina Jackson	Resident	Odour	Residence	NE	Power outage, Generator started but flare did not light, Gas Tech came to site immediately.	No response at this time.
18 b	1-Sep-21	10:16 p.m.	Cheryl Muslow	Resident	Odour	Residence	NE	Power outage, Generator started but flare did not light, Gas Tech came to site immediately.	No response at this time.
19	3-Sep-21	8:12 p.m.	Martina Jackson	Resident	Odour	Residence/Walk	NNE/ENE	Power outage, Gas tech came to site to investigate, back online by 11 p.m.	No response at this time.
20	15-Sep-21	7:50 p.m.	Jane Joris	Resident	Odour	Residence	NE	Investigation, nothing abnormal to generate odour offsite, weather conditions reviewed, complaint filed.	No response at this time.
21	18-Sep-21	8:35 a.m.	Jane Joris	Resident	Odour	Residence	N	Investigation, nothing abnormal to generate odour offsite, weather conditions reviewed, complaint filed.	No response at this time.
22	26-Sep-21	2:42 p.m.	Mac Parker	Resident	Track Out	Driving on Nauvoo adjacent to Site	N/A	Crew dispatched to pick up items, complaint filed.	Was complaint sent to PLC for their information (advised as per 11.3 "Complaints shall be reported to the WPLC at the next WPLC Meeting").
23	25-Oct-21	7:27 a.m.	Mary Thorne	Resident	Odour	Residence	Various	Sr. DM, DOM, OMT reviewed Logs, multiple sources of non landfill odour identified during investigation, wind direction not consistent at complainant residence throughout duration of complaint.	No response at this time.
24	30-Oct-21	3:26 p.m.	Betsy Rombouts	Resident	Track Out	Driving on Nauvoo adjacent to Site	N/A	DOM investigated, Sweeper dispatched.	No response at this time.
25	22-Nov-21	6:17 p.m.	Stephanie Cattrysse (Verhoeven)	Resident	Odour	Residence	WSW	Investigation, nothing abnormal to generate odour offsite, weather conditions reviewed, complaint filed.	No response at this time.
26	23-Nov-21	5:28 p.m.	Stephanie Cattrysse (Verhoeven)	Resident	Odour	Driving on Nauvoo by Zion	SW	Investigation, nothing abnormal to generate odour offsite, weather conditions reviewed, complaint filed.	No response at this time.
27 (a)	29-Nov-21	5:46 p.m.	Stephanie Cattrysse (Verhoeven)	Resident	Odour	Driving on Nauvoo adjacent to Site	WSW, W	Investigation, well casing with a damaged seal, temp repair completed.	No response at this time.
27 (b)	29-Nov-21	6:06 p.m.	Megan Cattrysse	Resident	Odour	Driving on Nauvoo adjacent to Site	SSE	Investigation, nothing abnormal to generate landfill odour offsite in vicinity of complaint, site personnel no odour on site and to the 402 5:20 p.m., wind direction not consistent with complaint, drive bys can be difficult to substantiate.	Thx. Unfortunately they need to go at the actual time that it happens like from 5 o'clock on because that is when it smells. I'm not sure how they can say it's abnormal when it smells everywhere and comes into the actual town itself.
27 (c)	29-Nov-21	7:59 p.m.	Amanda Gubbels	Township of Warwick	Odour	Township Office/Driving on Nauvoo adjacent to Site	SSE	Investigation, well casing with a damaged seal, temp repair completed.	No response at this time.
28	1-Dec-21	12:30 p.m.	Stephanie Cattrysse (Verhoeven)	Resident	Odour	Driving on Nauvoo adjacent to Site	S	Landfill was operational, DoM went out immediately to investigate no odour detected.	No response at this time.
29	21-Dec-21	8:57 a.m.	Amanda Gubbels	Township of Warwick	Odour	Township Office/Driving on Nauvoo adjacent to Site	S/SSW	Investigation, DoM went out detected slight gas odour Nauvoo and Egermont/947 a.m. no odour detected at 6332 Nauvoo/OS Unit dispatched.	No response at this time.

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-001
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	January 6, 2021 @ 7:22 p.m.
2. Name of Complainant	Heather Joosten
3. Address of Complainant	581 Victoria St.
4. Telephone Number of Complainant	519-200-9194
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): This is an formal complaint. I can smell the landfill at my home - 581 Victoria Street at 7:20pm on Weds January 6 2021	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: WNW
11. Precipitation Type & Amount: N/A	12. Wind Speed: 4 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed.
- Manipulation of the intermediate cover earlier in the day in preparation of gas line installation may have disturbed a gas pocket. Vacuum across the collection system increased.

2. When were these actions taken (date/time): January 6, 2021-7:29 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- Will continue to operate within Conditions of ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	January 8, 2021 @ 8:51 a.m.
--	-----------------------------

Who contacted the complainant (name/title):	AMcLachlan
---	------------

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:

- No Response at this time

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	January 8, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-002
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	January 8, 2021 @ 6:22 p.m.
2. Name of Complainant	Heather Joosten
3. Address of Complainant	581 Victoria St.
4. Telephone Number of Complainant	519-200-9194
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): This is another formal complaint of landfill odour at my home 581 Victoria Street at 6:20 pm	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: N
11. Precipitation Type & Amount: N/A	12. Wind Speed: 11 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed.

2. When were these actions taken (date/time): January 8, 2021-6:31 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- Will continue to operate within Conditions of ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:

January 11, 2021 @ 11:30 a.m.

Who contacted the complainant (name/title): AMcLachlan

How was the complainant contacted?

Email

Complainant Response:

- No response at this time.

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager
Date completed:	January 11, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-003
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	March 7, 2021 @ 2:10 p.m.
2. Name of Complainant	Heather Joosten
3. Address of Complainant	581 Victoria St.
4. Telephone Number of Complainant	519-200-9194
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Litter
8. Nature of complaint (details): The shoulder of the road looks shameful and should not have been left that way for weekend. If the sweeper is broken then brooms work too. That is part of the entrance to our town. Take better care of it.	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: NW
11. Precipitation Type & Amount: N/A	12. Wind Speed: 12 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Operations dispatched equipment to Nauvoo for clean up
- Completed and filed relevant complaint log.
- Weather Conditions reviewed.

2. When were these actions taken (date/time): March 8, 2021-10:30 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- Haulers have been advised to complete an on-site route to reduce track out
- Investigation of potential additional measures

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	March 8, 2021-10:39 a.m.
--	--------------------------

Who contacted the complainant (name/title):	John McDonald-Sr. District Manager
---	------------------------------------

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:

- No Response at this time.

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager
Date completed:	March 8, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-004
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	April 3, 2021 @ 3:21 p.m.
2. Name of Complainant	Lucy Jackson
3. Address of Complainant	419 St. Clair St.
4. Telephone Number of Complainant	519-636-3286
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Litter
8. Nature of complaint (details): When passed by Landfill on Zion could see material, paper, plastic bags blowing.	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: SSW
11. Precipitation Type & Amount: N/A	12. Wind Speed: 30 kmh (53 kmh with gusts)

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Operations notified
- Collectors dispatched as per BMP section 6 Item 6
- Completed and filed relevant complaint log.
- Weather Conditions reviewed.

2. When were these actions taken (date/time): April 3, 2021@ 3:26 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- Continue to comply with BMP for Litter
- Additional BMP measures implemented due to uncharacteristically high number of wind events

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	April 3 @ 3:30 p.m. & April 6 @ 10:37 a.m.
--	---

Who contacted the complainant (name/title):	Angela McLachlan
---	------------------

How was the complainant contacted?	Telephone
------------------------------------	-----------

Complainant Response:

- Thanked for call (April 3)
- No answer on April 5 and no machine

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager

Date completed:	April 6, 2021
-----------------	---------------

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-005
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	April 20, 2021 @ 12:57 p.m.
2. Name of Complainant	Heather Joosten
3. Address of Complainant	581 Victoria St.
4. Telephone Number of Complainant	519-200-9194
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Track Out
8. Nature of complaint (details): Track out from Landfill on Nauvoo Turnout lane. Complainant notified owner of formal complaint filing 3 days later through improper channels.	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: N
11. Precipitation Type & Amount: N/A	12. Wind Speed: 8 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Operations dispatched equipment to Nauvoo for clean up on April 19/21 entire area (including shoulder) cleaned
- Completed and filed relevant complaint log.
- Weather Conditions reviewed.

2. When were these actions taken (date/time): April 19, 2021 @ 0800

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- Haulers have been advised to complete an on-site route to reduce track out
- Please follow proper reporting procedures for complaints
- Additional Staff assigned to Saturday to ensure track out is dealt with at the end of the shift.

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	April 21, 2021 @ 4:11 p.m.
--	----------------------------

Who contacted the complainant (name/title):	Angela McLachlan
---	------------------

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:

- No response at this time

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager

Date completed:	April 21, 2021
-----------------	----------------

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-006
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	May 13, 2021 @ 1:20 p.m. (recd 3:45 p.m.)
2. Name of Complainant	Heather Joosten
3. Address of Complainant	581 Victoria St.
4. Telephone Number of Complainant	519-200-9194
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Gates
8. Nature of complaint (details):	
<p>On May 3, 11:30pm when passing the landfill it was noted that both gates were wide open . There appeared to be no one around. Question is why there is no security guard or camera on the entrance? Is this common practice? Safety?</p>	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: N/A
11. Precipitation Type & Amount: N/A	12. Wind Speed: N/A

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Authorized personnel on site at time.

2. When were these actions taken (date/time): N/A

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- No nonconformance with permit found
- No further action required

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	May 14, 2021 @ 8:25 a.m.
--	--------------------------

Who contacted the complainant (name/title):	John McDonald
---	---------------

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:

- Thank you, the information will be passed along

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager
Date completed:	May 14, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-007
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	June 11, 2021 @ 8:59 a.m.
2. Name of Complainant	Betsy Rombouts
3. Address of Complainant	570 Gold St.
4. Telephone Number of Complainant	519-383-3178
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Litter
8. Nature of complaint (details):	
...a lot of garbage on Nauvoo Rd from the WM laneway all the way to the 402. I seen it there yesterday so obviously not cleaned on a daily basis."	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: ESE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 12 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Operations Manager Trainee dispatched to investigate, identified some fluff from laneway to Zion, couple pieces from Zion and 402, tire shred closer to 402 potentially not landfill related.
- Sweeper dispatched immediately; picker completed from entrance to 402

2. When were these actions taken (date/time): June 11, 2021 @ 9:20 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- continue to follow Litter BMP

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	June 11, 2021 @ 9 a.m. and 4:03 p.m.
--	--------------------------------------

Who contacted the complainant (name/title):	Angela McLachlan
---	------------------

How was the complainant contacted?	Phone
------------------------------------	-------

Complainant Response:

- Thx for attending to this matter. I don't understand why wm isn't more on top of this situation. It's a very unwelcoming site for anyone coming and leaving our community. Also reflects very badly on WM operating integrity, and shows that they have no concern for our community.

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager
Date completed:	June 14, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-008
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	June 11, 2021 @ 3:22 p.m.
2. Name of Complainant	Heather Joosten
3. Address of Complainant	581 Victoria St.
4. Telephone Number of Complainant	519-200-9194
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Merge Lane/Tire Debris
8. Nature of complaint (details):	
<p>Just came by Landfill at 3:05 p.m. A tan coloured transport pulled out not utilizing the merge lane. About halfway to 402 a piece of wood flew out of tires. Thank God I was not too close. You really need to address this problem before something happens.</p>	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: N/A
11. Precipitation Type & Amount: N/A	12. Wind Speed: N/A

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint. Describe: <ul style="list-style-type: none"><li>Investigation to identify Hauler and address concerns</li></ul>
2. When were these actions taken (date/time): June 11, 2021 at 3:45 p.m.
3. What measures have been employed or will be employed to prevent any future reoccurrence? Describe: <ul style="list-style-type: none"><li>Continue to advise Haulers of Site procedures including importance of completion of North Rd. circle before exiting site, tire check in designated area on site.</li></ul>

#### E. FOLLOW-UP

<i>Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.</i>	
Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	June 16, 2021 @ 2:17 p.m. (June 11 @ 3:46 p.m.)
Who contacted the complainant (name/title):	Angela McLachlan
How was the complainant contacted?	Email
Complainant Response: <ul style="list-style-type: none"><li>No response at this time.</li><li>Update response 6/17/2021 9:02 a.m.</li></ul> <p>Thank you for the response that I don't find satisfactory.</p> <p>The exit from the landfill still remains poorly designed for trucks merging onto Nauvoo Rd and continues to be a hazard for our community safety.</p> <p>The debris flying out of truck tires, accumulation of mud and dust littering the road, merge lane and shoulder to 402, is responsibility of CWM as you have the trucks driving over all that to dump their load. Sweeping it up is not the answer, that debris and mud/ dust should Not even make it on the road. It should remain on your site.</p> <p>Perhaps Not using AUTO remenants (ASR) as covering would solve part of the problem.</p> <p>Perhaps having trucks drive over planking to get to dumping area would eliminate it accumulating in the tires.</p> <p>I would appreciate if you could send a written answer to all CWM Liason committee members explaining why tire grids and wheel washing stations won't work on the Twin Creeks Landfill site.</p>	

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	June 16, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-009
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	August 2, 2021 @ 11:18 a.m.
2. Name of Complainant	Chris Sweeney
3. Address of Complainant	5431 Arkona Rd.
4. Telephone Number of Complainant	519-857-5431
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): Could smell Landfill odour at 11:18 a.m.	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: N
11. Precipitation Type & Amount: N/A	12. Wind Speed: 12 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed-potential for intermittent odours due to wind direction

2. When were these actions taken (date/time): August 2, 2021 @ 11:28 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- will continue to operate within conditions of ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:

August 3, 2021 @ 10:58 a.m.

Who contacted the complainant (name/title): AMcLachlan

How was the complainant contacted?

Telephone

Complainant Response:

No answer, left message on machine

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager
Date completed:	August 3, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-010a
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	August 17, 2021 @ 8:04 a.m.
2. Name of Complainant	Jane Joris
3. Address of Complainant	360 Huron St.
4. Telephone Number of Complainant	519-876-2839
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): This morning at 7:35 a.m. a garbage odor was apparent at 360 Huron Street, and at the Watford Tim Horton's at 7:38. This has happened a number of mornings over the past week.	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: NNE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 2 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed- potential for intermittent odours due to wind direction
- Odour check: completed, close to 8 a.m. – no odours detected.
- Landfill was operational at the time of complaint

2. When were these actions taken (date/time): August 17, 2021 @ 8:15 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- will continue to operate within conditions of ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	August 18, 2021 @ 3:04 p.m.
--	-----------------------------

Who contacted the complainant (name/title):	AMcLachlan
---	------------

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:  
No Response at this time.

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager
Date completed:	August 18, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-010b
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	August 17, 2021 @ 12:29 p.m.
2. Name of Complainant	Cheryl Muxlow
3. Address of Complainant	548 McGregor St.
4. Telephone Number of Complainant	N/A
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details):	
<ul style="list-style-type: none"> <li>6:10 a.m. Tuesday, August 17, 2021</li> <li>Woke up to the rotten garbage smell coming from the dump. This is not the first time I have smelt this. What is happening to cause this and what is going to be done to prevent this from happening?</li> <li>Very concerned resident and tax payer.</li> </ul>	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: NW/NNE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 5 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint. Describe: <ul style="list-style-type: none"><li>Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour.</li><li>Reviewed occurrence with operations – Nothing abnormal to generate odour.</li><li>Completed and filed relevant complaint log.</li><li>Weather conditions reviewed-changing weather conditions, potentially caused a general lack of dispersion</li></ul>
2. When were these actions taken (date/time): August 17, 2021 @ 12:36 p.m.
3. What measures have been employed or will be employed to prevent any future reoccurrence? Describe: <ul style="list-style-type: none"><li>Continue to comply with conditions of the ECA</li><li>Please report as soon as possible after detection by calling 519-849-5810</li></ul>

#### E. FOLLOW-UP

<i>Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.</i>	
Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	August 18, 2021 @ 3:41 p.m.
Who contacted the complainant (name/title):	Angela McLachlan (Environmental Compliance Manager)
How was the complainant contacted?	Email
Complainant Response: No Response at this time	

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	August 18, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-010c
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	August 17, 2021 @ 4:45 p.m.
2. Name of Complainant	Tracey Fisher
3. Address of Complainant	408 Bernadette Close
4. Telephone Number of Complainant	Not provided
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): Just wanting to report the terrible rotten garbage smell last evening August 16 and this morning August 17.	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction N/A
11. Precipitation Type & Amount: N/A	12. Wind Speed: N/A

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions review-not able to be completed due to missing information have requested going forward, changing weather conditions, potentially caused a general lack of dispersion on that date.

2. When were these actions taken (date/time): August 17, 2021 @ 5:05 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- will continue to operate within conditions of ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	August 18, 2021 @ 3:50 p.m.
--	-----------------------------

Who contacted the complainant (name/title):	AMcLachlan
---	------------

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:  
No Response at this time.

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	August 18, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-011
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	August 18, 2021 @ 9:02 a.m.
2. Name of Complainant	Mandy Gosden
3. Address of Complainant	5601 Underpass Rd.
4. Telephone Number of Complainant	519-614-4844
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
<b>8. Nature of complaint (details):</b> I would like to file a complaint with the odour of this landfill this morning. It is very bad! 5601 Underpass Road Wednesday, August 18, 2021 Time: 7:45 a.m. Strong odour of gas and garbage smelt from our home on Underpass	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: NE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 8 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed
- Routine Odour Check: detected strong odours on Nauvoo west of Landfill, odour suppression was operational at 6:30 a.m. and relocated at 9 a.m. as conditions changed. Area of odourous load covered promptly, tipper operation relocated to minimize potential of reoccurrence.

2. When were these actions taken (date/time): August 18, 2021 @ 7: 25 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- will continue to operate within conditions of ECA
- Please report as soon as possible after detection by calling 519-849-5810

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	August 18, 2021 @ 3:56 p.m.
--	-----------------------------

Who contacted the complainant (name/title):	AMcLachlan
---	------------

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:  
No Response at this time.

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	August 18, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-012
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	August 19, 2021 @ 10:38 a.m.
2. Name of Complainant	Cheryl Muxlow
3. Address of Complainant	548 McGregor St.
4. Telephone Number of Complainant	N/A
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details):	
<ul style="list-style-type: none"> <li>10:35 a.m. Thursday, August 19/21</li> <li>548 McGregor St Watford</li> <li>Odour of rotten garbage from landfill detected outside.</li> </ul>	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: N/NE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 14 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour.
- Reviewed occurrence with operations – Nothing abnormal to generate odour.
- Completed and filed relevant complaint log.
- Weather conditions reviewed
- Odour Check(s): did not detect
- Deodorizer unit relocated due to wind shift

2. When were these actions taken (date/time): August 19, 2021 @ 11:09 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- Continue to comply with conditions of the ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	August 25, 2021 @ 9:39 a.m.
--	-----------------------------

Who contacted the complainant (name/title):	Angela McLachlan (Environmental Compliance Manager)
---	---

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:  
No Response at this time

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	August 25, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-013a
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	August 20, 2021 @ 8:21 a.m.
2. Name of Complainant	Mandy Gosden
3. Address of Complainant	5601 Underpass Rd.
4. Telephone Number of Complainant	519-849-5601
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): Morning-another day, another smell. Absolutely terrible. We have no central air and keep our windows open for breeze-unfortunately, once again-not happening today. 5601 Underpass Road, Watford August 20, 2021 8:20 a.m. Terrible methane smell	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: 7 a.m. - ENE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 3 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No



#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed
- Odour Check: performed, no landfill gas odour detected

2. When were these actions taken (date/time): August 20, 2021 @ 8:26 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- will continue to operate within conditions of ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	August 25, 2021 @ 9:52 a.m.
--	-----------------------------

Who contacted the complainant (name/title):	AMcLachlan
---	------------

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:  
No Response at this time.

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	August 25, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2020-013b
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	August 20, 2020 @ 8:23 a.m.
2. Name of Complainant	Martina Jackson
3. Address of Complainant	537 Gold St.
4. Telephone Number of Complainant	N/A
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): Rotten garbage smell Aug 20 2021 8:20 537 Gold Street Faint Smell as I approach twin creeks it was intense	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: 7 a.m. ENE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 3 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

b) The suppression system operational?

☒ Yes ☐ No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed
- Odour Check: Odour Check: performed, no odour detected at residence or front entrance

2. When were these actions taken (date/time): August 20, 2021 @ 8:26 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- will continue to operate within conditions of ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:

August 25, 2021 @ 10:02 a.m.

Who contacted the complainant (name/title):

AMcLachlan

How was the complainant contacted?

Email

Complainant Response:  
No Response at this time

#### F. FORM COMPLETION

Form completed by: Name:  
Title:

Angela McLachlan  
Environmental Compliance Manager

Date completed:

August 25, 2021

**COMPLAINT LOG (FO-02)****A. ADMINISTRATIVE**

Complaint Number (year-number, Ex. 2001-001):	2021-013c
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

**B. SUMMARY**

1. Date and Time of Complaint	August 20, 2021 @ 10:11 a.m.
2. Name of Complainant	Tracey Fisher
3. Address of Complainant	408 Bernadette Close
4. Telephone Number of Complainant	Not provided
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): There is a very strong sour garbage smell. On Bernadette Close in Watford this morning at 10 a.m. Thanks	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction NE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 7

**C. INVESTIGATION**

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Odour Check: mild odour from one load which arrived prior to this notification
- Follow Up Odour Check: no odours detected
- Weather Conditions review- potential for intermittent odours due to wind direction and inversion

2. When were these actions taken (date/time): August 20, 2021 @ 10:19 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- will continue to operate within conditions of ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	August 25, 2021 @ 10:08 a.m.
--	------------------------------

Who contacted the complainant (name/title):	AMcLachlan
---	------------

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:  
No Response at this time.

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager
Date completed:	August 25, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-014
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	August 21, 2021 @ 4:44 p.m.
2. Name of Complainant	Heather Joosten
3. Address of Complainant	581 Victoria St.
4. Telephone Number of Complainant	519-200-9194
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Track Out
<b>8. Nature of complaint (details):</b> I went by the landfill at 2:15 and again at 4:38 p.m. Saturday August 21 "Clean up needed on aisle merge lane: Lol. What a disgusting mess to leave for the weekend for our community. Needless to say this is another formal complaint. Running out of patience with this issue.	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: SSW/WSW
11. Precipitation Type & Amount: N/A	12. Wind Speed: 10 kmh/8 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint. Describe: <ul style="list-style-type: none"><li>• Sweeper Operations dispatched Monday morning 7 a.m.</li><li>• Completed and filed relevant complaint log.</li><li>• Weather Conditions reviewed.</li></ul>
2. When were these actions taken (date/time): August 23, 2021 @ 7 a.m.
3. What measures have been employed or will be employed to prevent any future reoccurrence? Describe: <ul style="list-style-type: none"><li>• Will continue to operate under the conditions of the ECA</li></ul>

#### E. FOLLOW-UP

<i>Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.</i>	
Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	August 25, 2021 @ 10:23 a.m.
Who contacted the complainant (name/title):	Angela McLachlan
How was the complainant contacted?	Email
Complainant Response: <ul style="list-style-type: none"><li>• No response at this time</li></ul>	

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	August 25, 2021

**COMPLAINT LOG (FO-02)****A. ADMINISTRATIVE**

Complaint Number (year-number, Ex. 2001-001):	2021-015
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

**B. SUMMARY**

1. Date and Time of Complaint	August 31, 2021 @ 5:39 p.m.
2. Name of Complainant	Martina Jackson
3. Address of Complainant	537 Gold Street
4. Telephone Number of Complainant	N/A
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): <ul style="list-style-type: none"><li>• August 31, 2021</li><li>• 537 Gold Street</li><li>• Windy</li><li>• 5:36 p.m.</li><li>• Terrible smell while kids are playing outside</li></ul>	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: N
11. Precipitation Type & Amount: N/A	12. Wind Speed: 17 kmh

**C. INVESTIGATION**

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint. <ul style="list-style-type: none"><li>• Investigation into possible source of on-site odour-Operations – Nothing abnormal to generate landfill odour offsite.</li><li>• Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite</li><li>• Completed and filed relevant complaint log.</li><li>• Weather Conditions reviewed</li></ul>
2. When were these actions taken (date/time): August 31, 2021 @ 5:49 p.m.
3. What measures have been employed or will be employed to prevent any future reoccurrence? Describe: <ul style="list-style-type: none"><li>• Continue to comply with conditions of the ECA</li></ul>

#### E. FOLLOW-UP

<i>Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.</i>	
Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	September 3, 2021 @ 10:13 a.m.
Who contacted the complainant (name/title):	Angela McLachlan (Environmental Compliance Manager)
How was the complainant contacted?	Email
Complainant Response: No Response at this time	

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	September 3, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-016
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the ECA/Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	September 1, 2021 @ 11:32 a.m.
2. Name of Complainant	Mac Parker
3. Address of Complainant	9077 Egremont Rd.
4. Telephone Number of Complainant	(519) 339-9444
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Track Out
8. Nature of complaint (details): ...Auto Fluff on road (merge lane) and corner of Nauvoo	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: N/A
11. Precipitation Type & Amount: N/A	12. Wind Speed: N/A

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Completed and filed relevant complaint log.
- Ops Supervisor investigated-minimal fluff observed
- Dispatched Sweeper immediately
- corner of Nauvoo and Zion - cleaned

2. When were these actions taken (date/time): September 1, 2021 @ 11:45 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- Continue with sweeping maintenance
- Continue to follow BMPs

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	September 1, 2021 @ 3:25 p.m.
--	-------------------------------

Who contacted the complainant (name/title):	Angela McLachlan
---	------------------

How was the complainant contacted?	Telephone
------------------------------------	-----------

Complainant Response:

Make it handier for people to call in – post contact information on Office Door.

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager

Date completed:	September 1, 2021
-----------------	-------------------

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-017
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the ECA/Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	September 1, 2021 @ 1:22 p.m.
2. Name of Complainant	Mac Parker
3. Address of Complainant	9077 Egremont Rd.
4. Telephone Number of Complainant	(519) 339-9444
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): 12:40 p.m.-SW Of Landfill, Nauvoo and Cemetery, driving by going North smelt stinky garbage	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: ENE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 22

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Completed and filed relevant complaint log.
- Weather Conditions reviewed-potential for intermittent odours due to wind direction
- As a note: drive by could be Hauler odour as opposed to Landfill odour
- Operations managing odourous loads for disposal

2. When were these actions taken (date/time): September 1, 2021 @ 2:24 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- continue to comply with the conditions of the ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	September 1, 2021 @ 3:25 p.m.
--	-------------------------------

Who contacted the complainant (name/title):	Angela McLachlan
---	------------------

How was the complainant contacted?	Telephone
------------------------------------	-----------

Complainant Response:

Make it handier for people to call in – post contact information on Office Door.

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager

Date completed:	September 1, 2021
-----------------	-------------------

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-018a
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	September 1, 2021 @ 9:56 p.m.
2. Name of Complainant	Martina Jackson
3. Address of Complainant	537 Gold Street
4. Telephone Number of Complainant	N/A
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details):	
<ul style="list-style-type: none"> <li>September 1, 2021</li> <li>537 Gold Street</li> <li>9:50 p.m.</li> <li>Methane smell blowing in the windows</li> </ul>	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: NE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 24 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint. <ul style="list-style-type: none"><li>Investigation into possible source of on-site odour-Operations – Nothing abnormal to generate landfill odour offsite.</li><li>Reviewed occurrence with Operations - Gas – Power Outage at 9:30 p.m. Generator started but flare did not light-Gas Tech came to Site immediately</li><li>Completed and filed relevant complaint log.</li><li>Weather Conditions reviewed</li></ul>
2. When were these actions taken (date/time): September 1, 2021 @ 10:03 p.m.
3. What measures have been employed or will be employed to prevent any future reoccurrence? Describe: <ul style="list-style-type: none"><li>Continue to comply with conditions of the ECA</li></ul>

#### E. FOLLOW-UP

<i>Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.</i>	
Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	September 3, 2021 @ 10:25 a.m.
Who contacted the complainant (name/title):	Angela McLachlan (Environmental Compliance Manager)
How was the complainant contacted?	Email
Complainant Response: No Response at this time	

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	September 3, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-018b
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	September 1, 2021 @ 10:16 p.m.
2. Name of Complainant	Cheryl Muxlow
3. Address of Complainant	548 McGregor St.
4. Telephone Number of Complainant	N/A
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details):	
<ul style="list-style-type: none"> <li>Wednesday, Sept 1/21 940 pm. odour detected outside.</li> <li>548 mcgregor st Watford</li> </ul>	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: NE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 26 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint. <ul style="list-style-type: none"><li>• Investigation into possible source of on-site odour-Operations – Nothing abnormal to generate landfill odour offsite.</li><li>• Reviewed occurrence with Operations - Gas – Power Outage at 9:30 p.m. Generator started but flare did not light-Gas Tech came to Site immediately</li><li>• Completed and filed relevant complaint log.</li><li>• Weather Conditions reviewed</li></ul>
2. When were these actions taken (date/time): September 1, 2021 @ 10:03 p.m.
3. What measures have been employed or will be employed to prevent any future reoccurrence? Describe: <ul style="list-style-type: none"><li>• Continue to comply with conditions of the ECA</li></ul>

#### E. FOLLOW-UP

<i>Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.</i>	
Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	September 3, 2021 @ 10:29 a.m.
Who contacted the complainant (name/title):	Angela McLachlan (Environmental Compliance Manager)
How was the complainant contacted?	Email
Complainant Response: No Response at this time	

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	September 3, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-019
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	September 3, 2021 @ 8:12 p.m.
2. Name of Complainant	Martina Jackson
3. Address of Complainant	537 Gold Street
4. Telephone Number of Complainant	N/A
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details):	
<ul style="list-style-type: none"> <li>September 3, 2021</li> <li>8:11 p.m.</li> <li>537 Gold Street</li> <li>Methane smell coming in windows and around while we were out walking from 730 to 8 pm</li> </ul>	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: NNE/ENE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 7/5 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint. <ul style="list-style-type: none"><li>Investigation into possible source of on-site odour-Operations – Nothing abnormal to generate landfill odour offsite.</li><li>Reviewed occurrence with Operations - Gas – Power Outage -Gas Tech came to Site to investigate-system restored to normal operations.</li><li>Completed and filed relevant complaint log.</li><li>Weather Conditions reviewed</li></ul>
2. When were these actions taken (date/time): September 3, 2021 @ 8:27 p.m.
3. What measures have been employed or will be employed to prevent any future reoccurrence? Describe: <ul style="list-style-type: none"><li>Continue to comply with conditions of the ECA</li></ul>

#### E. FOLLOW-UP

<i>Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.</i>	
Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	September 8, 2021@ 3:33 p.m.
Who contacted the complainant (name/title):	Angela McLachlan (Environmental Compliance Manager)
How was the complainant contacted?	Email
Complainant Response: No Response at this time	

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	September 8, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-020
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	September 15, 2021 @ 7:54 p.m.
2. Name of Complainant	Jane Joris
3. Address of Complainant	360 Huron St.
4. Telephone Number of Complainant	519-876-2839
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): This evening at 7:50 p.m. there is a strong odour at 360 Huron Street that smells like the landfill.	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: NNE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 7 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed

2. When were these actions taken (date/time): September 15, 2021 @ 7:56 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- will continue to operate within conditions of ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	September 17, 2021 @ 11:47 a.m.
--	---------------------------------

Who contacted the complainant (name/title):	AMcLachlan
---	------------

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:  
No Response at this time.

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	September 17, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-021
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	September 18, 2021 @ 8:35 a.m.
2. Name of Complainant	Jane Joris
3. Address of Complainant	360 Huron St.
4. Telephone Number of Complainant	519-876-2839
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): This morning at 8 a.m. p.m. there is a strong odour at 360 Huron Street that smells like the landfill.	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: N
11. Precipitation Type & Amount: N/A	12. Wind Speed: 9 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed
- Landfill was operational at the time of complaint

2. When were these actions taken (date/time): September 18, 2021 @ 9:22 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- will continue to operate within conditions of ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	September 20, 2021 @ 2:41 p.m.
--	--------------------------------

Who contacted the complainant (name/title):	AMcLachlan
---	------------

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:  
No Response at this time.

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager

Date completed:	September 20, 2021
-----------------	--------------------

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-022
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the ECA/Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	September 26, 2021 @ 2:42 p.m.
2. Name of Complainant	Mac Parker
3. Address of Complainant	9077 Egremont Rd.
4. Telephone Number of Complainant	(519) 339-9444
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Track Out
8. Nature of complaint (details): ...Another complaint in regards to debris on Navuoo Rd. at 1:30 p.m. Sunday Sept 26 at Landfill entrance. A old work boot and rubber tire pieces with ASR material. Please pass this on to PLC. Will try to send picture. There should be nothing on road from Landfill especially on a weekend. Period.	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: N/A
11. Precipitation Type & Amount: N/A	12. Wind Speed: N/A

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint. Describe: <ul style="list-style-type: none"><li>• Completed and filed relevant complaint log.</li><li>• Crew dispatched to pick items</li></ul>
2. When were these actions taken (date/time): September 26 (27), 2021 @ 2:44 p.m.
3. What measures have been employed or will be employed to prevent any future reoccurrence? Describe: <ul style="list-style-type: none"><li>• Continue to follow BMPs</li></ul>

#### E. FOLLOW-UP

<i>Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.</i>	
Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	September 27 (28), 2021 @ 9:39 a.m. & 12:14 p.m.
Who contacted the complainant (name/title):	Angela McLachlan
How was the complainant contacted?	Telephone
Complainant Response:  No response at this time.	

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	September 28, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-023
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the ECA/Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	October 25, 2021 @ 7:27 a.m.
2. Name of Complainant	Mary Thorne
3. Address of Complainant	4755 Sutorville Road
4. Telephone Number of Complainant	(519) 381-5216
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): ...I am writing to you to complain of the stink here at our farm located in Brooke Alvinston, 4755 Sutorville Road Watford, Ont N0M 2S0.  I finally get to open my windows at night to let in fresh air, BUT no I smell your landfill and it is for sure the same smell when I drive by. We live about 10 to 15 min south west of you dump. Seriously? That is far enough we should not smell it. Two nights in a row. Please do something about it.	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: Various
11. Precipitation Type & Amount: N/A	12. Wind Speed: Various

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint. Describe: <ul style="list-style-type: none"><li>• Sr. District Manager, Disposal Operations Manager, Operations Manager Trainee reviewed Inspection Logs</li><li>• Multiple sources of non-landfill odour identified during investigation</li><li>• Weather Conditions Reviewed – wind direction not consistent at complainant residence throughout duration of complaint.</li></ul>
2. When were these actions taken (date/time): Monday, October 25, 2021 @ 6 a.m.
3. What measures have been employed or will be employed to prevent any future reoccurrence? Describe: <ul style="list-style-type: none"><li>• no action required as Landfill not identified as source of odours</li></ul>

#### E. FOLLOW-UP

<i>Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.</i>	
Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	October 27, 2021 @ 12:45 p.m.
Who contacted the complainant (name/title):	Angela McLachlan
How was the complainant contacted?	Email
Complainant Response:  No response at this time	

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager
Date completed:	October 27, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-024
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	October 30, 2021 @ 3:26 p.m.
2. Name of Complainant	Betsy Rombouts
3. Address of Complainant	570 Gold St.
4. Telephone Number of Complainant	519-383-3178
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Track Out
8. Nature of complaint (details): ...just drove by the landfill site on Nauvoo and seen that there was all kinds of garbage along the road, both sides and even to the south of the landfill entrance. There was several large pieces of garbage, pieces of auto fluff on the middle of the road...."	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: N/A
11. Precipitation Type & Amount: N/A	12. Wind Speed: N/A

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint. Describe: <ul style="list-style-type: none"><li>• Disposal Operations Manager investigated</li><li>• Sweeper dispatched</li></ul>
2. When were these actions taken (date/time): October 31, 2021 @ 1:30 p.m.
3. What measures have been employed or will be employed to prevent any future reoccurrence? Describe: <ul style="list-style-type: none"><li>• continue to follow Litter BMP</li></ul>

#### E. FOLLOW-UP

<i>Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.</i>	
Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	November 4, 2021 @ 10:32 a.m.
Who contacted the complainant (name/title):	Angela McLachlan
How was the complainant contacted?	Phone
Complainant Response: <ul style="list-style-type: none"><li>• No Response at this time</li></ul>	

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	November 4, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-025
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	November 22, 2021 @ 6:17 p.m.
2. Name of Complainant	Stephanie Cattrysse (Verhooven)
3. Address of Complainant	1150 Mullifarry Dr., Adelaide Metcalfe
4. Telephone Number of Complainant	519-636-9587
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): .....past two weeks can smell the same smell, right before bridge on Zion, but tonight can smell at house.	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: WSW
11. Precipitation Type & Amount: N/A	12. Wind Speed: 9 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed
- Operations Manager completed site visit-sources of agricultural odour identified during investigation (8 km)

2. When were these actions taken (date/time): November 22, 2021 @ 6:33 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- continue to comply with the conditions of the ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	November 23, 2021 @ 5:34 p.m.
--	-------------------------------

Who contacted the complainant (name/title):	Angela McLachlan
---	------------------

How was the complainant contacted?	Phone
------------------------------------	-------

Complainant Response:

- no answer left message on phone

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager

Date completed:	November 23, 2021
-----------------	-------------------

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-026
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	November 23, 2021 @ 5:28 p.m.
2. Name of Complainant	Stephanie Cattrysse (Verhooven)
3. Address of Complainant	1150 Mullifarry Dr., Adelaide Metcalfe
4. Telephone Number of Complainant	519-636-9587
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): .....landfill gas odour at 5:30 p.m.from mailbox at Zion to Water Pumping Station just past Peters place...	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: SW
11. Precipitation Type & Amount: N/A	12. Wind Speed: 8 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed
- Drive by can be difficult to substantiate

2. When were these actions taken (date/time): November 23, 2021 @ 5:42 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- continue to comply with the conditions of the ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:

November 25, 2021 @ 11:39 a.m.

Who contacted the complainant (name/title): Angela McLachlan

How was the complainant contacted? Phone

Complainant Response:

- No response at this time

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager
Date completed:	November 25, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-027a
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	November 29, 2021 @ 5:46 p.m.
2. Name of Complainant	Stephanie Cattrysse (Verhooven)
3. Address of Complainant	1150 Mullifarry Dr., Adelaide Metcalfe
4. Telephone Number of Complainant	519-636-9587
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): .....November 29-4:45 p.m. and again now at 5:45 landfill odour complaint on north side of landfill. Reeks of gas so bad I need to cover my mouth and nose to breath. Starts at laneway that is closed off to just past greenhouse...	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: WSW, S
11. Precipitation Type & Amount: N/A & 0.2	12. Wind Speed: 6, 4 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – well casing with a damaged seal identified. Temporary repair completed.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed

2. When were these actions taken (date/time): November 29, 2021 @ 5:47 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- continue to comply with the conditions of the ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:

December 1, 2021 @ 4:35 p.m.

Who contacted the complainant (name/title): Angela McLachlan

How was the complainant contacted? Email

Complainant Response:

- No Response at this time

#### F. FORM COMPLETION

Form completed by: Name: Angela McLachlan  
Title: Environmental Compliance Manager

Date completed: December 1, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-027b
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	November 29, 2021 @ 6:06 p.m.
2. Name of Complainant	Megan Cattrysse
3. Address of Complainant	618 Scenic Dr.
4. Telephone Number of Complainant	519-384-5125
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): .....awful smell at Dump! It is always smelling around 5-7 p.m.....driving by on Nauvoo passing the dump 6 p.m.....	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: SSE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 7 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite in vicinity of complaint.
- Site personnel reported no odour on site and to the 402 at 5:20 p.m.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed- wind direction not consistent with complaint
- Drive by can be difficult to substantiate

2. When were these actions taken (date/time): November 29, 2021 @ 5:47 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- No additional measures required

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:

December 1, 2021 @ 4:46 p.m.

Who contacted the complainant (name/title): Angela McLachlan

How was the complainant contacted? Phone

Complainant Response:

- Thx. Unfortunately they need to go at the actual time that it happens like from 5 o'clock on because that is when it smells.
- I'm not sure how they can say it's abnormal when it smells everywhere and comes into the actual town itself.

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	December 1, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-027c
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	November 29, 2021 @ 7:59 p.m.
2. Name of Complainant	Amanda Gubbels
3. Address of Complainant	Township of Warwick
4. Telephone Number of Complainant	519-849-3926
5. Relationship of Complainant	CAO/Clerk Township
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): It is 7:58 p.m. on Monday night and there is landfill gas odour at the Township Office I've observed here for the last 20 minutes and smell to the odour all the way into Watford....	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: SSE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 9 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – well casing with a damaged seal identified. Temporary repair completed.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed

2. When were these actions taken (date/time): November 29, 2021 @ 5:47 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- continue to comply with the conditions of the ECA

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:	December 1, 2021 @ 4:56 p.m.
--	------------------------------

Who contacted the complainant (name/title):	Angela McLachlan
---	------------------

How was the complainant contacted?	Email
------------------------------------	-------

Complainant Response:

- No Response at this time

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	December 1, 2021

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-028
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	December 1, 2021 @ 12:30 p.m.
2. Name of Complainant	Stephanie Cattrysse (Verhooven)
3. Address of Complainant	1150 Mullifarry Dr., Adelaide Metcalfe
4. Telephone Number of Complainant	519-636-9587
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): .....its 1229 I'm driving along North Egermont Road at Nauvoo Rd and I can smell the landfill.....	
9. Precipitation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	10. Wind Direction: S
11. Precipitation Type & Amount: N/A	12. Wind Speed: 12 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? <span style="float: right;"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</span>	
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Landfill was operational
- DoM went out immediately to investigate no odour detected
- Weather conditions reviewed
- Completed and filed relevant complaint log

2. When were these actions taken (date/time): December 1, 2021 @ 12:30 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- No additional measures required

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:

December 1, 2021 @ 4:35 p.m.

Who contacted the complainant (name/title): Angela McLachlan

How was the complainant contacted? Email

Complainant Response:

- No response at this time

#### F. FORM COMPLETION

Form completed by: Name:	Angela McLachlan
Title:	Environmental Compliance Manager

Date completed:	December 1, 2021
-----------------	------------------

## COMPLAINT LOG (FO-02)

### A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2021-029
Certificate of Approval/Permit Number for site: (If none, go to Section B)	A032203
Does a condition of the C. of A./Permit require this complaint log be (tick those that apply):	
a) Retained on site	<input checked="" type="checkbox"/>
b) Submitted to the Environment Ministry	<input checked="" type="checkbox"/>
c) Summarized for inclusion in a Report (monthly, quarterly, annual)	<input checked="" type="checkbox"/>
<i>Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.</i>	

### B. SUMMARY

1. Date and Time of Complaint	December 21, 2021 @ 8:57 a.m.
2. Name of Complainant	Amanda Gubbels
3. Address of Complainant	Township of Warwick
4. Telephone Number of Complainant	519-849-3926
5. Relationship of Complainant	CAO/Clerk Township
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): When I came into the office this am, I noticed a landfill gas odour on Egremont from just past Quaker to Nauvoo. When I arrived at the office, the odour is detectable here at 6332 Navuoo Rd.	
9. Precipitation: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Wind Direction: S/SSW
11. Precipitation Type & Amount: 1.6 mm	12. Wind Speed: 6/5 kmh

### C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. If yes, describe (Ex. high winds creating litter, unusual waste stream creating odours, etc): N/A	
3. If the site-specific nuisance control equipment/procedures were not operational describe the problem and when it was corrected: N/A	
4. Where the complaint was for odours, was:	
a) An odour suppression system available for use at the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
b) The suppression system operational?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

#### D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.

Describe:

- Investigation into possible source of on-site odour-Operations – Nothing abnormal to generate landfill odour offsite.
- Reviewed occurrence with Operations - Gas – Nothing abnormal to generate landfill odour offsite.
- Completed and filed relevant complaint log.
- Weather Conditions reviewed
- Disposal Operations Manager investigated – 9:45 a.m. slight gas odour Nauvoo and Egermont/9:47 a.m. no odour detected at 6332 Navuoo.

2. When were these actions taken (date/time): December 21, 2021 @ 9:09 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?

Describe:

- Odour Suppression Unit dispatched

#### E. FOLLOW-UP

*Note: where complainant contact information is provided, all complainants must be contacted to provide the details of the investigation, and to describe any corrective/preventative actions taken.*

Date and time complainant was contacted to provide details of the investigation and to describe any corrective and/or preventative measures:

December 27, 2021 @ 1:43 p.m.

Who contacted the complainant (name/title):

Angela McLachlan/Envtal Compl Mgr.

How was the complainant contacted?

Email

Complainant Response:

- No Response at this time

#### F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	December 27, 2021

## APPENDIX Q:

2021 Annual Operations Report



## 2021 ANNUAL OPERATIONS REPORT: PER CONDITION 15.7 OF WASTE ECA NO. A032203

**RWDI AIR Inc.**  
**Consulting Engineers & Scientists**  
4510 Rhodes Drive – Suite 530  
Windsor Ontario Canada N8W 5K5  
T: 519.974.7384  
F: 519.823.1316



# TABLE OF CONTENTS

<b>Q1. ECA NO. A032203 .....</b>	<b>1</b>
Q.1.1 Condition 15.7(a) .....	1
Q.1.2 Condition 15.7(b).....	1
Q.1.3 Condition 15.7(c) .....	2
Q.1.4 Condition 15.7(d).....	2
Q.1.5 Condition 15.7(e) .....	2
Q.1.6 Condition 15.7(f).....	2
Q.1.7 Condition 15.7(g) .....	3
Q.1.8 Condition 15.7(h).....	3
Q.1.9 Condition 15.7(i) .....	3
Q.1.10 Condition 15.7(j).....	3
Q.1.11 Condition 15.7(k).....	3
Q.1.12 Condition 15.7(l) .....	4
Q.1.13 Condition 15.7(m).....	4
Q.1.14 Condition 15.7(n).....	4
Q.1.15 Condition 15.7(o) .....	5
Q.1.16 Condition 15.7(p).....	5
Q.1.17 Condition 15.7(q).....	5
Q.1.18 Condition 15.7(r).....	6
Q.1.19 Condition 15.7(s) .....	6
Q.1.20 Condition 15.7(t).....	7
Q.1.21 Condition 15.7(u) .....	7
Q.1.22 Condition 15.7(v) .....	7
Q.1.23 Condition 15.7(w).....	8



Q.1.24 Condition 15.7(x) .....	8
Q.1.25 Condition 15.7(y) .....	9
Q.1.26 Condition 15.7(z) .....	9
<b>Q.2 AIR ENVIRONMENTAL COMPLIANCE APPROVAL NO. 9488-AMPH4Y.....</b>	<b>9</b>
Q.2.1 Condition 1.....	9
Q.2.2 Condition 2.1.....	9
Q.2.3 Condition 2.2.....	10
Q.2.4 Condition 2.3.....	10
Q.2.5 Conditions 3.1 to 3.13.....	10
Q.2.6 Conditions 4.1 to 4.2 .....	10
Q.2.7 Conditions 5.1 to 5.11 .....	10
Q.2.8 Conditions 6.1 to 6.5.....	10
Q.2.9 Conditions 7.1 to 7.4 .....	11
Q.2.10 Conditions 8.1 and 9.1 .....	11
<b>Q.3 PERMIT TO TAKE WATER NO. 4430-8PLMKV .....</b>	<b>11</b>
<b>Q.4 EAA MONITORING AND ANNUAL REPORTING.....</b>	<b>11</b>
Q.4.1 Condition 5.....	11
Q.4.2 Condition 6.....	12
Q.4.3 Condition 7 .....	12



This Annual Operations Report for the 2021 reporting year for the Waste Management of Canada Corporation's (WM) Twin Creeks Environmental Centre (Site) is submitted as part of Volumes 1 and 2 of the 2021 Fourth Quarter and Annual Monitoring Report (2021 Annual Report) and in accordance with the regulatory approvals noted below.

- Amended Environmental Compliance Approval (ECA) No. A032203, dated December 19, 2020 (Waste ECA).
- Amended ECA for Industrial Sewage Works No. 2403-BE6LZ4, dated August 21, 2019 (Sewage ECA).
- ECA for Air No. 9488-AMPH4Y, dated July 6, 2017 (Air ECA).
- Amended Permit-To-Take-Water (PTTW) No. 4430-8PLMKV, dated January 17, 2012, for the removal of surface water from four (4) Sedimentation Ponds and the dewatering of the Secondary Drainage Layer (SDL) for the Expansion Site.
- PTTW No. 4682-BLJRYJ, dated November 8, 2021, for the removal of surface water from four (4) Sedimentation Ponds and the dewatering of the Secondary Drainage Layer (SDL) for the Expansion Site.
- MECP Letter entitled "Request for Modification to Surface Water Monitoring/Assessment Process at Twin Creeks Landfill, dated February 27, 2014 (2014 MECP Letter).

## Q1. ECA NO. A032203

The following subsections address the annual reporting requirements per Condition 15.7 of the Waste ECA.

### Q.1.1 Condition 15.7(a)

Leachate, groundwater, surface water, and subsurface landfill gas monitoring results for 2021 are discussed in detail in **Sections 1 to 5 of Volume 1** of the 2021 Annual Report. No subsurface landfill gas migration was observed in 2021. Ambient air quality monitoring that was completed is discussed in detail within the Volume 4 of the 2021 Annual Report. Noise monitoring was also completed and is discussed in Volume 5 of the 2021 Annual Report.

### Q.1.2 Condition 15.7(b)

The existing and constructed engineered facilities on the Site during 2021 were effective in their respective functions. Changes to the designs of the existing engineered facilities on the Site or the implementation of remedial measures are not warranted. The implementation of contingency measures was not required in 2021.

Design specifications are provided under Items 66 to 68 in Schedule A of the Waste ECA, namely, the report titled "*Development and Operations Plans – Warwick Landfill Expansion (Volumes 1 to 3)*", as prepared by Henderson Paddon & Associates and dated March 2008 (D&O Report). The D&O Report recognizes that periodic leachate heads in excess of 0.3 metres (m) on the landfill liner (Condition 7.18 of the Waste ECA) will occur after severe precipitation events. Leachate levels within pumping stations PS1, PS3, and PS5 satisfied the cell base 0.3 m head leachate level target elevation in 2021, with exceptions outlined in the following summary.



Leachate levels within PS1, PS3, and PS5 satisfied the aforementioned Waste ECA conditions during 2021. The level sensor within PS3 was determined to be faulty in mid October 2021 and is awaiting replacement. WM notified the Ministry of the Environment, Conservation and Parks (MECP) that the level sensor was faulty, and that WM set the pump in PS3 to run every 10 minutes until the level sensor is replaced. Every 10 minutes the pump will run until no flow is detected in the pump for a total of 10 seconds, thus triggering it to shut off until the start of the next cycle 10 minutes later. The frequent run cycles allow the pump to prevent any significant leachate build up on the cell liner, thus maintaining compliance with requirements of the Waste ECA. The leachate levels at PS3 throughout this time period are noted to be false sensor readings as the pump runs in frequent cycles and the leachate sensor readings would still remain elevated and fluctuating.

Details related to measured maximum level sensor readings for the above dates are provided in **Table F6** of **Appendix F**. Of note, the elevations referenced above satisfied the relevant trigger leachate elevations to maintain hydraulic containment as required (Condition 14.1 of the Waste ECA).

### Q.1.3 Condition 15.7(c)

The expanded Poplar System was operational from May 10 to September 30, 2021. Per the Waste ECA, the last approved day to apply irrigation liquid to the Poplar System is October 15. During 2021, approximately 6,403.03 m<sup>3</sup> of leachate was applied to the expanded Poplar System. Monitoring of the Poplar System in 2021 included the required routine monitoring requirements, in consideration of the operational dates of the system. Details are presented in the **Volume 3** of the 2021 Annual Report.

### Q.1.4 Condition 15.7(d)

Per Condition 8.6(1) of the Waste ECA, the on-Site leachate treatment facility was not constructed or operated in 2021.

### Q.1.5 Condition 15.7(e)

A detailed Site Contour Plan, as prepared by WSP Canada Inc., was updated to late December 2021 and is presented as **Figure Q-1** of Volume 2 of the 2021 Annual Report (WSP Canada Inc. Drawing No. 106716 – DEC 2021).

### Q.1.6 Condition 15.7(f)

During 2021, landfilling of waste and contaminated soil occurred in Cell 4.

### **Q.1.7 Condition 15.7(g)**

During 2021, it is anticipated that landfilling of waste is scheduled to continue to occur in Cell 4. Upon completion of the landfill liner system of Cell 6 (Cell 6A), it is anticipated that landfilling of waste is scheduled to occur in Cell 6A (approximately September 2022). It is also possible that waste filling will occur in Cell 1 and Cell 2 in 2022. Contaminated soil is anticipated to be disposed in the active portions of the Expansion Site. Contaminated soil may also be disposed in Cell 12 of the Existing Site, if a large enough demand for disposal of contaminated soil is required. Cell 12 is currently on idle status. Of note, contaminated soil that is to be disposed in Cell 12 must meet the 10% toxicity characteristic leachate procedure (TCLP) criteria for acceptable disposal into Cell 12. Contaminated soil that is placed on the Expansion Site sideslopes as daily and/or final cover must also meet the 10% TCLP criteria. Contaminated soil used for daily cover is only used where precipitation runoff would not be directed to a surface water drainage course (i.e. an outside sideslope).

### **Q.1.8 Condition 15.7(h)**

During 2022, the Cell 6A pre-excavation activities related to the future construction of the Cell 6A landfill liner system of the Expansion Site were initiated.

### **Q.1.9 Condition 15.7(i)**

Cover placement activities during 2021 consisted of intermediate cover placement on the southern, eastern and western sideslopes of Cell 1 and on the northern, eastern and western sideslopes of Cells 2 during 2021. Cell 4A also received intermediate cover placed along the western and northern sideslopes during 2021. Both Cell 1 and Cell 2 had interim cover placed on the relative “flat-top”.

### **Q.1.10 Condition 15.7(j)**

There are no pre-existing Site facilities of significance to report.

### **Q.1.11 Condition 15.7(k)**

Completed structures and facilities at Twin Creeks Environmental Centre during 2021 consisted of the following.

- Cell 4C landfill liner system of the Expansion Site.
- Cell 6A pre-excavation activities related to the future construction of the Cell 6A landfill liner system.
- installation of the remaining portion of the expansion of the horizontal gas extraction system in Cell 4A that commenced near the end of 2020.

## Q.1.12 Condition 15.7(l)

Planned Site construction activities in 2022 are anticipated to consist of the following.

- Select stages of the expansion of the horizontal gas extraction system in Cell 4.
- Remaining portion of the Cell 6A pre-excavation activities related to the construction of the Cell 6A landfill liner system.
- Construction of the Cell 6A landfill liner system.
- Cell 6B pre-excavation activities related to the future construction of the Cell 6B landfill liner system.
- Widening of Screening Berm 'D' and ditch realignment on the north side of Street 'D' along the north end of the Site.
- Conversion of existing manhole (MH3SB) of leachate collection system within Cell 3S into a leachate pumping station (MH3SB/PS).
- Potential resurfacing of select internal paved roads.

There are no surface water stations scheduled to be constructed or established during the 2022 monitoring period.

## Q.1.13 Condition 15.7(m)

Based on the quarterly GPS surveys conducted by WSP Canada Inc. (Owen Sound, ON) for the Site, the total volume of waste and daily cover material consumed within the Expansion Site during the survey period from December 21, 2020, to December 13, 2021, was approximately 1,471,630 cubic metres (m<sup>3</sup>). This represents approximately 5.6% of the total approved air space volume available for the Existing and Expansion Sites combined (Existing Site: 2,917,371 m<sup>3</sup> + Expansion Site: 23,590,629 m<sup>3</sup>).

## Q.1.14 Condition 15.7(n)

Based on the GPS surveys of the Site completed in 2021, and an estimated daily cover amount of 15% of the total volume of waste plus daily cover (10,744,831 m<sup>3</sup>), approximately 9,133,106 m<sup>3</sup> of waste was placed within the Expansion Site as of December 13, 2021, since landfilling began in late 2009. The total tonnage of waste received at Expansion Site as of December 13, 2021 was approximately 9,343,377 T. For calculating the remaining Site Life for the Twin Creeks Environmental Centre, an approximate calculated waste density of 1,023 kg/m<sup>3</sup> was used (based on average waste density since 2009: 9,343,377 T/9,133,106 m<sup>3</sup> = 1.023 T/m<sup>3</sup>).

Assuming WM will landfill an average of approximately 1,400,000 T of waste per year of the approved 1,400,000 T of waste per year and achieve a waste density of 1,023 kg/m<sup>3</sup>, the remaining landfill Site Life is approximately 9.4 years.

$$\text{Site Life} = \frac{12,845,798 \text{ m}^3}{1,368,493 \text{ m}^3/\text{yr}} = 9.4 \text{ years}$$

In addition, as of December 13, 2021, a total of 13,662,202 m<sup>3</sup> (Existing Site: 2,917,371 m<sup>3</sup> + Expansion Site: 10,744,831 m<sup>3</sup>) of air space (without cap) was consumed of the 26,508,000 m<sup>3</sup> of available air space (without cap). This represents approximately 51.5% of the total approved air space volume available for waste for the Existing and Expansion Sites combined. Therefore, the remaining total approved air space volume available for waste filling is 48.5% of the permitted volume.

### Q.1.15 Condition 15.7(o)

Between January 1 and December 31, 2021, a total of 44,284.83 m<sup>3</sup> of leachate was removed and transported off-Site for treatment and disposal at the Chatham Water Pollution Control Plant or Canflow Environmental Services, while 6,403.03 m<sup>3</sup> was irrigated onto the Poplar system during the 2021 growing season. Details regarding the 2021 Poplar System irrigation activities are discussed in **Volume 3** of the 2021 Annual Report.

Of the 50,687.86 m<sup>3</sup> noted above, the approximate breakdown of leachate source location between the Existing Site and the Expansion Site is 23% (11,479.81 m<sup>3</sup>) and 77% (39,208.05 m<sup>3</sup>), respectively. This breakdown is based on the leachate source distribution noted for the 2021 monitoring period which incorporates the separate approximate volumes of leachate extracted from the Existing Site (41% of area) and Expansion Site (59% of area) for either off-site or on-site treatment as discussed above.

A breakdown of the leachate volume treated in 2021 is presented in **Section 4.1.3 of Volume 1** of the 2021 Annual Report.

### Q.1.16 Condition 15.7(p)

Detailed in **Table Q-1** of Volume 2 of the 2021 Annual Report are the weekly summaries and total annual waste disposed at the Site during 2021. Original commodity reports are maintained on file. The maximum daily tonnage received at the Site during 2021 was on September 10 at 8,974.03 tonnes (T). In 2021, the total amount of waste received at the Site was 1,399,849.06 T, of which 94,319.39 T was contaminated soil and 1,302.94 T was waste from the Township of Warwick public drop off bins.

### Q.1.17 Condition 15.7(q)

Where complaints were received during the 2021 monitoring period, Waste Management completed the required steps in response. 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 Log** includes the above noted steps and is distributed to the MECP and other relevant stakeholders. The relevant **Complaint Logs** are detailed in **Appendix P of Volume 2** of the 2021 Annual Report.

WM received a total of 36 complaints during the 2021 operating period (1 front gates, 9 litter, 26 odour). Of the complaints received, they represented a total of 29 events which occurred on 26 separate days during 2021. Below is a summary of the number of events per quarter in which complaints were received by WM.



Number of Events per Quarter in 2021			
Q1	Q2	Q3	Q4
3	5	14	7

As presented in the summary above, the greatest number of events in which complaints were received by WM in 2021 was during the third quarter operating period.

Of the 29 complaint driven events, 19 of the events were related to odour. Of these 19 odour events, 15 of the events were documented from 10 discrete physical locations such as a residence or commercial building. The other 4 events represent transient (drive-by) occurrences in which the complainant observed an odour while in transit along a road near to the Site. Transient (drive-by) complaints of this nature along roads are identified as not having a negative impact to sensitive receptor locations such as residential or commercial properties near the Site.

WM has reviewed the odour related complaints that were received during the 2021 operating period to assess for any trends and to identify corrective actions, as required. Of the odours that were identified as being related to Site operations, it was determined that the majority of the odours that were associated with the Site were related to temporary power outages to the landfill gas (LFG) collection system or a LFG well observed to be releasing LFG to the atmosphere. In response to each power outage, WM would promptly focus their efforts to regain power to the LFG collection system. In response to each instance where a LFG well was observed to be releasing LFG to the atmosphere, WM would promptly have the LFG well repaired. Further detail is provided in **Section 10 of Volume 1** of the 2021 Annual Report.

### Q.1.18 Condition 15.7(r)

No operational problems were observed during the 2021 monitoring period, other than detailed above for power outages and pump maintenance tasks needed for PS1, PS3, and PS5.

A minor cap repair was undertaken on the Existing Site in response to the total hydrocarbon (THC) Survey completed in the spring of 2021. A follow-up inspection indicated that the repair was effective and THC was no longer detected at elevated concentrations in that area. Details relating to the air quality findings, as well as cap repair is provided in **Section 6.1.1** of Volume 1, and within Volume 4 of the 2021 Annual Report.

### Q.1.19 Condition 15.7(s)

Financial assurances have been provided to the Ministry of the Environment, Conservation and Parks (MECP) Director, as required. Details are maintained on file with WM and the MECP. Per Condition 2.1 of the amended Waste ECA dated December 19, 2020, WM provided financial assurance in a form acceptable to the MECP Director, which by March 31, 2021, was in the amount of \$32,459,985.00, with the next scheduled FA posting adjustment occurring by March 31, 2022.

## Q.1.20 Condition 15.7(t)

Each monitoring well on-Site complies with Ontario Regulation 903. Monitoring wells are labeled, capped, encased in a steel protective casing, and locked. Monitoring wells near vehicle access routes are also marked with 4" X 4" wooden protective/warning posts, which are painted yellow. Monitoring wells were generally noted to be in good condition during the 2021 monitoring period.

It is noted that the groundwater quality at monitoring well OW69-5 at the Site continued to show elevated boron concentrations in 2021. The boron concentrations are interpreted to be an early indication of the bentonite seal moving into the screened interval of the monitoring well. A similar trend of periodic infrequent spikes in boron concentrations is evident at OW46-7, which is also likely a result of bentonite moving into the filter pack of the monitoring well. It is likely that, similar to observations for monitoring well OW58-14, the bentonite seal for these locations is likely moving into the filter screen material of the monitoring well, and as such may require decommissioning and replacement in the future depending on chemical results.

The 2021 monitoring well and gas probe installation/decommissioning status summary is provided in **Appendix M** of **Volume 2** of the 2021 Annual Report. For monitoring wells that were active in 2021, the borehole logs are presented in **Appendix D** and monitoring well construction details are summarized in **Table F-1, Appendix F**, of **Volume 2** of the 2021 Annual Report.

## Q.1.21 Condition 15.7(u)

No additional information was requested from WM by the MECP District Manager or Regional Director.

## Q.1.22 Condition 15.7(v)

The Site was operated from January 1 to December 31, 2021, in conformance with the regulatory approvals noted below.

- Amended Environmental Compliance Approval (ECA) No. A032203, dated December 19, 2020 (Waste ECA).
- Amended ECA for Industrial Sewage Works No. 2403-BE6LZ4, dated August 21, 2019 (Sewage ECA).
- ECA for Air No. 9488-AMPH4Y, dated July 6, 2017 (Air ECA).
- Amended Permit-To-Take-Water (PTTW) No. 4430-8PLMKV, dated January 17, 2012, for the removal of surface water from four (4) Sedimentation Ponds and the dewatering of the Secondary Drainage Layer (SDL) for the Expansion Site.
- PTTW No. 4682-BLJRYJ, dated November 8, 2021, for the removal of surface water from four (4) Sedimentation Ponds and the dewatering of the Secondary Drainage Layer (SDL) for the Expansion Site.
- MECP letter entitled "Request for Modification to Surface Water Monitoring/Assessment Process at Twin Creeks Landfill", dated February 27, 2014, (2014 MECP Letter).

### Q.1.23 Condition 15.7(w)

Inspections at the Site were conducted by WM and/or RWDI in 2021 in accordance with Conditions 6.17, 6.31, 6.32, 7.11, 8.7, 9.1, 9.2, 9.3, and 9.6 of the Waste ECA. No notable issues were observed by WM during 2021. Inspections of the watercourses during each precipitation monitoring event (typically after  $\geq 10$  mm of rain in a 24-hr period between 08:00 and 08:00 hrs) were completed by RWDI and indicated acceptable conditions. Except as discussed above in **Section Q.1.20**, where relevant, monitoring wells and maintenance holes were in acceptable condition. Findings from the MECP monthly inspections are summarized in the MECP Inspection Reports in **Appendix N** of Volume 2 of the 2021 Annual Report.

### Q.1.24 Condition 15.7(x)

During 2021, WM collected 83.17 T of recyclable material as summarized in the following table. The material consisted of recyclable goods such as paper, cardboard, metal, glass, and plastics.

Month	Total Metric Tonnes
January	4.90
February	8.91
March	1.27
April	9.60
May	4.21
June	9.49
July	1.01
August	5.70
September	2.32
October	7.68
November	2.10
December	25.98
<b>Total</b>	<b>83.17</b>

WM also actively uses recycled products on-Site where possible, including crushed building materials for aggregate road base for internal haul roads within the waste disposal cells. No compost material was received, processed, or used at the Site during 2021.



### **Q.1.25 Condition 15.7(y)**

No changes in operations, equipment, or procedures were implemented at the Site during 2021 as a result of corrective actions. The relevant requirements of the Waste, Air, and Sewage ECA's, as well as the PTTW, were satisfied in 2021.

### **Q.1.26 Condition 15.7(z)**

No recommended changes are proposed for the operations of the Site in 2022, with the exception of the implementation of the infrastructure noted in **Section Q.1.12**.

## **Q.2 AIR ENVIRONMENTAL COMPLIANCE APPROVAL NO. 9488-AMPH4Y**

Although the flare became operational on November 18, 2009, the flare was unable to run for more than 4 consecutive days until February 2010, due to the limited gas volume generated from the Existing Site. The Expansion Site was connected to the landfill gas extraction, collection, and flaring system (Gas Facility) in 2012, with horizontal wells that had been installed in Cell 1A – Stage 1 in 2011. Further horizontals were installed and connected in 2012. Additionally, the horizontal gas collection system - Elevation A, within Cell 1B – Stage 1 and 2 was installed in 2013. During 2013 through 2021 the early vertical gas extraction wells were installed progressively through Cell 2A through 4C, with Cell 2A through 4A connected to the landfill gas extraction system. In 2015 and 2017 vertical gas extraction wells were installed in Cell 1, with these wells connected to the landfill gas extraction system. In late 2017 the landfill gas utilization project for redirecting landfill gas to the neighbouring farm for use in its greenhouse operations was completed. Outlined in the following subsections are the requirements for the annual performance reporting per the Air ECA.

### **Q.2.1 Condition 1**

The third enclosed flare system of the Gas Facility was not scheduled for installation in 2021 and therefore, notification to the MECP District Manager one (1) month prior to the expected date of installation was not required in 2021.

### **Q.2.2 Condition 2.1**

Noise emissions from the Gas Facility are detailed in Volume 5 of the 2021 Annual Report and generally comply with the limits set in MECP Publication NPC-205.



### **Q.2.3 Condition 2.2**

Testing of the emergency diesel generators was completed as required between 07:00 and 19:00 hours. Documentation is maintained on file by WM.

### **Q.2.4 Condition 2.3**

The flare was operated at greater than 875°C at a point representing a minimum retention time of 0.7 seconds. Documentation is maintained on file by WM.

### **Q.2.5 Conditions 3.1 to 3.13**

The flare was operated by trained WM personnel in accordance with the Flare Operation Manual. The Flare Operation Manual is maintained at the Gas Facility for reference. Flare operation records are maintained on file by WM.

### **Q.2.6 Conditions 4.1 to 4.2**

The acoustic audit was completed on February 8, 2010, which is prior to the extended completion date of May 3, 2010, per direction from the on-Site MECIP Inspector. An acoustic audit was also completed on June 20, 2013, in consideration of the landfill entering Phase 2 of construction. An acoustic audit was also completed on November 6, 2019, in consideration of the landfill entering Phase 4 of construction.

These audits were completed to satisfy Condition 4.1 of the Amended Environmental Compliance Approval number 9488-AMPH4Y dated July 6, 2017. This condition requires compliance with noise criteria guidelines outlined in Ontario's Ministry of the Environment, Conservation and Parks NPC-205 document, titled "Sound Level Limits for Stationary Sources in Class 1 and 2 Areas (Urban)" (MOE, 1995). The applicable sound level limits at the receptors surrounding the facility are the Class 2 guideline limits as defined in NPC-205 (MOE, 1995). Since the flare is intended to operate 24 hours per day, impacts are assessed against the default night-time criterion of 45 dBA. The newly installed flare was compliant with guideline limits at the surrounding noise-sensitive receptors.

### **Q.2.7 Conditions 5.1 to 5.11**

Required records of the Gas Facility operation are maintained by WM for a minimum of two (2) years. Records are maintained on-Site or are presented in previous years quarterly and annual reports for the Air Quality and Noise Monitoring Programs.

### **Q.2.8 Conditions 6.1 to 6.5**

No complaints were received by WM during 2021 related to the Gas Facility.

## Q.2.9 Conditions 7.1 to 7.4

An application to amend the Air ECA for the Site was not required to be submitted to the MECP in 2021.

## Q.2.10 Conditions 8.1 and 9.1

As the leachate treatment facility was not required to be constructed at the landfill Site per the Waste ECA (Notice No.6, dated April 4, 2014), no source testing was required for 2021.

## Q.3 PERMIT TO TAKE WATER NO. 4430-8PLMKV AND PERMIT TO TAKE WATER NO. 4682-BLJRYJ

Reporting of 2021 water takings is required to be completed for Sedimentation Ponds 1 to 4 and the SDL per PTTW No. 4430-8PLMKV, dated January 17, 2012, and PTTW No. 4682-BLJRYJ, dated November 8, 2021. The water taking information collated for 2021 is submitted electronically to the Water Taking Registry System (WTRS) by March 31 following each calendar period. In 2021, water that was taken from the aforementioned ponds was used mainly for dust control for Cell 6A pre-excavation activities. The water taking volumes in 2021 at the Site satisfied the PTTW requirements and are summarized in **Section 9** of Volume 1 of the 2021 Annual Report.

## Q.4 EAA MONITORING AND ANNUAL REPORTING

In accordance with the Notice of Approval to Proceed with the Undertaking, dated January 15, 2007, in regard to the Environmental Assessment Act (EAA) approval of the Twin Creeks (formerly Warwick) Landfill Expansion, WM provides the following information.

### Q.4.1 Condition 5

The landfill site was operated from January 1 to December 31, 2021, in conformance with the regulatory documents noted below.

- Amended Environmental Compliance Approval (ECA) No. A032203, dated December 19, 2020 (Waste ECA).
- Amended ECA for Industrial Sewage Works No. 2403-BE6LZ4, dated August 21, 2019 (Sewage ECA).
- ECA for Air No. 9488-AMPH4Y, dated July 6, 2017 (Air ECA).
- Amended Permit-To-Take-Water (PTTW) No. 4430-8PLMKV, dated January 17, 2012, for the removal of surface water from four (4) Sedimentation Ponds and the dewatering of the Secondary Drainage Layer (SDL) for the Expansion Site.
- PTTW No. 4682-BLJRYJ, dated November 8, 2021, for the removal of surface water from four (4) Sedimentation Ponds and the dewatering of the Secondary Drainage Layer (SDL) for the Expansion Site.
- MECP letter entitled "Request for Modification to Surface Water Monitoring/Assessment Process at Twin Creeks Landfill", dated February 27, 2014, (2014 MECP Letter).



## Q.4.2 Condition 6

WM maintains copies of annual reports and associated documentation of compliance monitoring activities at the Site.

## Q.4.3 Condition 7

**Table Q-2** of this report and Volume 2 of the 2021 Annual Report provides a summary of the status of mitigation measures under commitment by WM as detailed in Discussion Paper No. 8, dated September 2005. **Tables Q-3** and **Q-4** of Volume 2 of the 2021 Annual Report indicate the status of the monitoring measures and contingency measures referred to in Exhibits 7-1 and 7-2, respectively, of the EA dated September 2005. Therefore, Conditions 5, 6, and 7 of the Site EA were satisfied for the 2021 reporting period.

# TABLES

**Table Q-1**  
**Weekly Waste Tonnage - Twin Creeks Environmental Centre**

**Calendar Year 2021**

Week Start		Week End		Total Metric (tonnes)	Warwick Residents (tonnes)	MSW (tonnes)	Contaminated Soil
January	1	January	3	1,271.62	0.00	1,271.62	0.00
January	4	January	10	27,805.27	25.79	27,779.48	0.00
January	11	January	17	25,141.55	24.04	25,117.51	0.00
January	18	January	24	23,905.99	23.27	23,882.72	0.00
January	25	January	31	22,715.28	22.51	22,692.77	0.00
February	1	February	7	22,616.18	21.67	22,594.51	0.00
February	8	February	14	21,756.32	19.81	21,736.51	0.00
February	15	February	21	17,719.27	19.55	17,699.72	0.00
February	22	February	28	24,033.81	23.40	24,010.41	0.00
March	1	March	7	26,051.71	23.46	26,028.25	0.00
March	8	March	14	27,366.47	25.88	26,858.85	481.74
March	15	March	21	26,423.78	23.70	25,952.47	447.61
March	22	March	28	28,894.80	29.12	28,590.63	275.05
March	29	March	31	20,117.90	14.26	17,408.32	2,695.32
April	1	April	4	9,036.79	12.08	9,024.71	0.00
April	5	April	11	29,205.72	30.75	29,174.97	0.00
April	12	April	18	28,695.08	32.77	28,662.31	0.00
April	19	April	25	28,095.74	27.60	27,641.92	426.22
April	26	April	30	28,523.64	27.00	26,549.70	1,946.94
May	1	May	2	827.76	0.00	827.76	0.00
May	3	May	9	28,559.77	28.00	28,365.48	166.29
May	10	May	16	26,683.97	27.23	26,656.74	0.00
May	17	May	23	27,572.44	27.10	27,545.34	0.00
May	24	May	30	27,190.90	24.58	24,149.18	3,017.14
May	31	May	31	5,322.37	2.39	5,319.98	0.00
June	1	June	6	23,105.37	26.06	22,992.16	87.15
June	7	June	13	28,403.04	26.10	27,921.06	455.88
June	14	June	20	26,925.02	18.39	25,978.15	928.48
June	21	June	27	25,276.88	22.00	25,254.88	0.00
June	28	June	30	15,531.76	17.36	14,809.77	704.63
July	1	July	4	7,698.46	10.93	7,687.53	0.00
July	5	July	11	27,262.74	24.52	27,238.22	0.00
July	12	July	18	28,483.50	29.68	26,828.23	1,625.59
July	19	July	25	27,918.01	22.72	27,065.36	829.93
July	26	July	31	28,596.77	23.39	26,366.50	2,206.88
August	1	August	8	23,605.07	26.08	23,578.99	0.00
August	9	August	15	31,099.81	25.31	28,787.55	2,286.95
August	16	August	22	30,702.72	25.03	29,211.64	1,466.05
August	23	August	29	30,606.74	22.22	28,741.39	1,843.13
August	30	August	31	16,264.64	1.82	11,108.91	5,153.91
September	1	September	5	23,831.90	21.80	16,531.07	7,279.03
September	6	September	12	35,426.50	26.29	24,378.79	11,021.42
September	13	September	19	35,670.20	24.29	28,470.28	7,175.63
September	20	September	26	29,470.41	25.44	25,054.89	4,390.08
September	27	September	30	31,027.61	23.94	22,841.10	8,162.57
October	1	October	3	9,120.52	0.00	6,628.35	2,492.17
October	4	October	10	35,091.96	23.48	28,175.19	6,893.29
October	11	October	17	31,492.99	27.62	23,132.47	8,332.90
October	18	October	24	36,469.37	20.53	28,056.52	8,392.32
October	25	October	31	28,215.56	31.85	27,857.85	325.86
November	1	November	7	26,800.97	31.55	25,090.21	1,679.21
November	8	November	14	26,455.98	26.77	25,609.19	820.02
November	15	November	21	24,843.78	24.29	24,786.56	32.93
November	22	November	28	21,662.96	20.76	21,642.20	0.00
November	29	November	30	7,196.87	2.83	7,194.04	0.00
December	1	December	5	11,955.72	20.96	11,934.76	0.00
December	6	December	12	18,118.11	23.97	17,817.07	277.07
December	13	December	19	16,641.35	27.94	16,613.41	0.00
December	20	December	26	13,646.77	18.85	13,627.92	0.00
December	27	December	31	9,694.87	22.21	9,672.66	0.00
<b>Totals</b>				<b>1,399,849.06</b>	<b>1,302.94</b>	<b>1,304,226.73</b>	<b>94,319.39</b>

Note: Total tonnes is sum of MSW and Contaminated Soil. The Warwick Resident tonnage is already accounted in the MSW value.

**Table Q-2**  
**Mitigation, Monitoring, and Contingency Summary**

Discipline	Mitigation, Monitoring, and Contingency Measure	Comments
<b>Air Quality:</b> <i>Dust</i>	<b>Design and Operation</b>	
	► Increase the watering during dry conditions.	Completed as required
	► Applying material such as encrusting agents to exposed areas (areas without vegetation) to reduce the amount of material that might erode during high wind events (greater than 6.0 m/s).	Completed as required
	► For areas frequently disturbed (for example the daily cover area), apply water or an encrusting agent. The exposed areas should only be moistened. Over watering will increase the leachate production on-site.	Completed as required
	► Post an on-site speed limit of 15 km/h to minimize the amount of dust that becomes airborne from fast vehicle movements.	Completed
	► Use on-site tire clean methods to reduce silt carried by trucks onto internal and external haul routes.	Road finishing reduces tracking. Regular road cleaning
	► Sweeping/washing of roads on external and internal haul routes and paving of road shoulders along key sections of the external route.	Completed as required
	► During heavy construction periods consider increased mitigation efforts such as additional watering of haul routes and exposed areas, use of meteorological information to define appropriate conditions for construction, possible night or winter construction, additional berms around construction areas, sealing of surfaces in areas infrequently disturbed.	Completed as required
	► Construct additional screening berms along the haul route. Placing a berm along the internal haul route should act as a wind block to reduce the effects of the wind on vehicles travelling along the internal haul routes.	Completed
	► Consider providing adverse weather areas for construction and landfilling. The defined area should be landfilled or worked only during high wind events. The area should be located in a position that would supply adequate screening to reduce the wind effects from vehicle travel and materials being handled at the working face. Each expansion phase should allow for an inclement weather area, low-level area. These areas would be at lower elevations, sheltered from north and west winds.	Completed as required
	► Minimize exposed areas.	On-going operations procedure
	<b>Other Measures</b>	
	► Create a complaint log including a list of all dust complaints, dates and times that dust emissions were problematic, the location of the complaint, dominant wind direction and on-site activities that may have caused the complaint.	Completed
	► Install an on-site meteorological station. A meteorological station can be used to provide wind data to validate complaints. This station could help minimize future complaints by relating events to on-site activities and concurrent meteorological conditions.	Completed
	► Prepare a dust mitigation plan outlining all of the dust mitigation and monitoring recommendations.	Completed
	<b>Monitoring</b>	
	► Monitor off-site particulate concentrations, particularly the PM10 and PM2.5 fractions.	Completed per AQMP
	► The monitoring station should also be equipped to measure meteorological parameters such as wind speed and wind direction. This will help determine the impact related to on-site and external haul route activities. The station may also be used to validate the predicted concentrations and determine the relative conservatism within the modeling.	Completed per AQMP

Note: Table based on Appendix D of Discussion Paper #8, dated September 2005.

**Table Q-2**  
**Mitigation, Monitoring, and Contingency Summary**

Discipline	Mitigation, Monitoring, and Contingency Measure	Comments
<b>Air Quality:</b> <i>Vehicle Emissions</i>	<b>Design and Operation</b>	
	No mitigation measures are required.	
	<b>Additional Measures</b>	
	▶ While mitigation is unnecessary, the following good practices may be considered.	
	▪ Minimize the amount of time vehicles are allowed to idle when on-site.	On-going operations procedure
	▪ Process trucks through the scale house as quickly as possible in order to reduce the number of vehicles that are queuing and on-site.	On-going operations procedure
<b>Air Quality:</b> <i>Landfill Gas</i>	▪ Report vehicles that appear to be gross polluters.	On-going operations procedure
	<b>Design and Operation</b>	
	▶ A thick soil cap of 2.0 m (including final cover), as provided in Draft DP#6 Site Characteristics, will provide excellent control of landfill gas emissions.	On-going operations procedure
	<b>Monitoring</b>	
	▶ Regularly inspect the covered landfill areas (existing and future landfill areas) to identify any fissures, cracks or erosion of the soil cover that would allow unmitigated landfill gas to escape directly to the atmosphere. This inspection could be undertaken with the use of a handheld portable flame ionization detector (FID) capable of measuring methane in small quantities.	On-going operations procedure
<b>Air Quality:</b> <i>Combustion</i>  <i>Emissions Landfill Gas Flare</i>	▶ An annual monitoring program for volatile organic compounds at the property line during the worst-case, summer conditions.	Completed
	<b>Design and Operation</b>	
	▶ Although, maximum predicted concentrations from the flare emissions were predicted to be below provincial limits and AAQCs, the following are recommended to maintain the system and minimize emissions.	
	Install a flame out indicator with an automatic shut-off to prevent landfill gas from flowing through the collection system during an upset condition. This control system would minimize potential adverse effects associated with a flare out situation.	Completed
<b>Air Quality:</b> <i>Odour</i>	Progressively install the landfill gas collection system as the working face expands into new areas. This strategy could minimize odour problems and reduce the amount of landfill gas escaping from the landfill.	On-going operations procedure
	<b>Design and Operation</b>	
	▶ Cap completed cells as quickly as possible with final soil to minimize odorous emissions from the landfilled gas.	On-going operations procedure
	▶ Conduct regular inspections of the covered fill areas to identify any fissures, cracks or erosion of the soil cover that would allow landfill gases to escape.	On-going operations procedure
	▶ Progressively expand and activate the landfill gas collection and flaring system to minimize the amount of odorous landfill gas that escapes through the mound.	On-going operations procedure
	▶ Maintain the leachate collection systems, including all manholes and clean outs, under negative pressure to minimize the amount of odorous leachate gases that escape through the system.	Completed as required.

Note: Table based on Appendix D of Discussion Paper #8, dated September 2005.

**Table Q-2**  
**Mitigation, Monitoring, and Contingency Summary**

Discipline	Mitigation, Monitoring, and Contingency Measure	Comments
Air Quality: <i>Odour (Cont'd)</i>	<b>Monitoring</b>	
	<ul style="list-style-type: none"> <li>Develop a monitoring plan, which may include: <ul style="list-style-type: none"> <li>outlining landfill cover inspection intervals.</li> <li>methods of recording odour complaints.</li> <li>log of mitigation work completed.</li> </ul> </li> </ul>	Completed
	<ul style="list-style-type: none"> <li>Develop a reporting system for odour complaints, and relate odour events to local meteorological conditions at the site. This system would allow WM to track and potentially validate odour complaints from the public. This strategy could assist in determining the source of odours and expedite mitigation.</li> </ul>	Completed
Air Quality: <i>Blowing Litter</i>	<b>Design and Operation</b>	
	<ul style="list-style-type: none"> <li>Recommended components of Litter Management Plan for consideration:</li> </ul>	
	<ul style="list-style-type: none"> <li>Install portable litter fences that can be moved around the working face area to capture blowing litter on a day-to-day basis.</li> </ul>	Completed
	<ul style="list-style-type: none"> <li>Install permanent litter fences, downwind of the new proposed phases to capture the blowing litter for the predominant wind directions.</li> <li>Routinely monitor and retrieve blowing litter around the site. This will help to minimize the amount of litter than may leave the site if not captured by the portable or permanent litter fences.</li> </ul>	Completed On-going operations procedure
Agriculture	<ul style="list-style-type: none"> <li>Create an inclement weather area. This area should be designed as an inclement weather area and landfill only during high wind events. The area should be in locations where adequate screening would reduce the effects of the wind on blowing litter at the working face. Each expansion phase should allow for an inclement weather area, low-level area, to be considered.</li> </ul>	On-going operations procedure
	<b>Design and Operations</b>	
	<ul style="list-style-type: none"> <li>During design phase of road alterations, consider agricultural traffic moving along the shoulders of the roadway, avoiding design features that affect this equipment travel.</li> </ul>	Completed
	<b>Monitoring</b>	
	<ul style="list-style-type: none"> <li>Monitor groundwater, wells and surface water for leachate contamination, on an on-going basis.</li> </ul>	On-going
	<ul style="list-style-type: none"> <li>Provide a monitoring program to identify and remove litter from neighbouring farm fields, including a spring and later summer pickup coinciding with most active farm operations.</li> </ul>	On-going operations procedure
	<b>Contingency</b>	
Archaeology and Heritage	<ul style="list-style-type: none"> <li>Any changes in surface water, quality or quantity affecting livestock can be mitigated by providing alternative water sources. This could involve the provision of new wells.</li> </ul>	Will be implemented if required
	<ul style="list-style-type: none"> <li>Any tile drainage impacts or disruption of drainage outlets can be mitigated by installation of new drainage works.</li> </ul>	Will be implemented if required
	<b>Design and Operations</b>	
Archaeology		
	<ul style="list-style-type: none"> <li>Conduct Stage 3 assessment on seven identified sites prior to start of construction. Appropriate mitigation measures must be evaluated and recommended in response to the results of that investigation.</li> </ul>	Completed

Note: Table based on Appendix D of Discussion Paper #8, dated September 2005.



**Table Q-2**  
**Mitigation, Monitoring, and Contingency Summary**

Discipline	Mitigation, Monitoring, and Contingency Measure	Comments
<b>Economics:</b> <i>Community Economics: Impact</i>	<b>Other Measures</b>	
	▶ Property Value Protection Program.	Completed
	▶ Community Information Programs.	On-going
	▶ Develop Financing Model to assure municipality that increased municipal costs will be covered.	Completed
	▶ Continued and expanded use of local suppliers.	On-going
	▶ Support new business that would compliment landfill operation.	On-going
	▶ Provide financial support to local charities/community organizations.	On-going
<b>Hydrogeology</b>	<b>Design and Operations</b>	
	▶ None required beyond the mitigation built into site design components.	Completed
	<b>Monitoring and Contingency</b>	
	▶ Pumping of Secondary Drainage Layer with treatment of water prior to disposal.	Completed as required
<b>Landfill Gas: Explosive Hazard</b>	▶ A full Environmental Monitoring and Contingency Plan will be prepared.	Completed
	<b>Design and Operations</b>	
	▶ Install methane detectors in every on-site building.	Completed as required
	▶ Equip foundations of on-site buildings with passive LFG venting systems.	Completed as construction progresses
	▶ Equip all on-site manholes with appropriate explosive hazard signage.	Completed as construction progresses
	<b>Monitoring</b>	
	▶ Install landfill gas monitoring probes at landfill boundary.	Installations completed per EMP landfill expansion progress
	▶ Regular monitoring program for LFG probes; predetermined methane level would trigger further mitigation activities.	On-going
	<b>Contingency</b>	
<b>Land Use Planning</b>	▶ A full inspection and monitoring plan will be prepared.	Completed
	<b>Design and Operations</b>	
	▶ None required.	
	<b>Other Measures</b>	
	▶ Modify Warwick Official Plan to reflect Provincial land use standards for landfills.	Completed
	▶ Develop a Site Plan Agreement between WM and the Township of Warwick to implement mitigation requirements for any potential impacts of the expansion, and thus guide its development and phasing. The agreement is registered on title and would provide the framework for mitigation measures required during the operating life of the landfill. Revise Zoning Bylaws to be consistent with the agreement.	Completed

Note: Table based on Appendix D of Discussion Paper #8, dated September 2005.

**Table Q-2**  
**Mitigation, Monitoring, and Contingency Summary**

Discipline	Mitigation, Monitoring, and Contingency Measure	Comments
<b>Natural Environment and Resources</b>	<b>Design and Operation</b>	
	▶ Mitigate all stream crossings to maintain baseline flow and down channel characteristics.	Completed as required
	▶ Store treated effluent in a lagoon, discharge to surface water on seasonal and flow-weighted basis so that effluent volume will not exceed 20% of stream flow during periods of discharge, and discharge volume will not exceed channel capacity.	Not Applicable - No discharge of leachate or treated leachate to surface water will occur.
	▶ Use standard procedures for management of erosion and sediment to prevent significant alteration to aquatic environment.	Completed
	▶ Provide additional planting and naturalization on the southern part of the landfill when closed.	To be completed - Poplar System
	▶ Undertake potential for rehabilitation/enhancement riparian work on Brown Creek.	On-going
	▶ Consider options for final use that allow portions of the site to be naturalized or allowed to succeed naturally, or periodically (i.e., once annually or biannually) mowed.	Dog park constructed within south east portion of land in 2013. Public trail enhanced in 2016 and 2017.
	▶ Provide long-term plan to replant forest with native locally indigenous trees and shrubs when the southern part of proposed landfill is closed. Consider initiating this replanting in Phase 5 when the south face has reached its maximum extent.	To be completed
	▶ Plant native locally indigenous species on the berms.	Completed
	▶ Consider the potential for sedimentation ponds to provide habitat for amphibians, water birds, etc.	Completed
	▶ Transplant any False Mermaid-weed and Spotted St. Johns Wort that occur in the proposed landfill footprint, into suitable habitat in the forest area to be protected.	Completed
	▶ Develop a litter management program to minimize garbage blowing into the retained woodlots.	On-going operations procedure
	▶ At the time when the portion of woodlot is removed, salvage useable trees for use as fuel wood.	Completed
	<b>Monitoring</b>	
	▶ Leachate monitoring program to determine any effects on water quality in Bear Creek.	Not Applicable - No discharge of leachate or treated leachate to surface water will occur.
	<b>Contingency</b>	
	▶ If required, additional treatment of leachate prior to release to surface water can be achieved through aeration of lagoon waters.	Not Applicable - No discharge of leachate or treated leachate to surface water will occur.
	▶ Further reduction in potential effects can be achieved with higher dilution (6:1); will require a larger storage lagoon for treated leachate.	Not Applicable - No discharge of leachate or treated leachate to surface water will occur.
	▶ Appropriate spills management protocols to minimize effects of waste, chemical or leachate spills.	On-going operations procedure

Note: Table based on Appendix D of Discussion Paper #8, dated September 2005.

**Table Q-2**  
**Mitigation, Monitoring, and Contingency Summary**

Discipline	Mitigation, Monitoring, and Contingency Measure	Comments
Noise	<b>Design and Operation</b>	
	▶ Erect a perimeter berm or acoustically equivalent barrier of some form around the site as shown on Figure 8-1-ALT 2 (Noise Impact Assessment) at the earliest feasible time in the landfill preparation stage. It should remain in place throughout the life of the landfill.	Completed
	▶ Provide a working berm around the area where landfilling is in progress as shown in each Phase figure and Figure 4 (Noise Impact Assessment).	On-going as landfill expands
	▶ When landfilling in phases 1, 10 and 11 provide maximum feasible barrier effect to protect the closest receptors. In those phases landfilling should start where shown on Figure 8-1-ALT 2, Figure 8-10-ALT 2 and Figure 8-11-ALT 2 and move in the direction specified (Noise Impact Assessment).	On-going
	▶ Noise emission levels from landfilling equipment should not exceed the levels in Table 8-1 (Noise Assessment).	On-going operations procedure.
	▶ Locate site and acoustically shield all wood chipping, tire shredding and crushing of concrete and asphalt so that those operations will not produce noise impacts in excess of the levels predicted.	On-going
	▶ Provide queuing area inside the premises behind a berm, so truck heaters or air conditioners can run without noise impact while waiting.	Completed
	<b>Other Measures</b>	
	▶ Limit any equipment activity, such as removing daily cover to prepare for landfilling or placing daily cover after landfilling during night-time hours, as specified in the Noise Assessment Report. In Phase 11, limit waste receipt times such that no equipment activities at the working face are required during night-time hours.	On-going operations procedure
	▶ Subject any proposed changes to the operating plan or noise sources to review of acoustic implications by an acoustical engineer.	On-going
	▶ Selection of back-up warnings should include the objective of minimal noise impact that is commensurate with safety. If beepers are used it is recommended that they be installed down low to ensure maximum barrier attenuation at distant receptors, and selection of models at the low end of the noise emission range should be considered.	On-going operations procedure
	▶ Consider prohibiting use of engine brakes in specified zones.	Completed
	▶ Implement a maintenance program to ensure minimal unnecessary noise - squeals, bangs, rattles, exhaust -- from vehicles and machinery and from broken road surfaces.	On-going operations procedure
	▶ Provide noise reduction measures where there are predicted exceedances of interior noise guidelines due to increase in traffic; particularly residences along CR79 north of Zion Line. Combined baseline and landfill traffic indicates need for air conditioning and possibly acoustic insulation for closest residences and forced air recommended for residences up to 100 m from road.	To be completed as required

Note: Table based on Appendix D of Discussion Paper #8, dated September 2005.

**Table Q-2**  
**Mitigation, Monitoring, and Contingency Summary**

Discipline	Mitigation, Monitoring, and Contingency Measure	Comments
Social	<b>Impact Management Recommendations:</b>	
	► Property Value Protection Program.	Completed
	► Nuisance compensation payments.	Completed
	► Other nuisance impact measures such as window washing.	Completed as required
	► Community Impact Management Measures such as: ▪ support of economic activity in adjacent Industrial Park. ▪ royalty payment. ▪ complaints/dispute resolution/small claims compensation process.	Part of Community Commitment Agreement (CCA)
	► Monitoring and Community Information Programs.	On-going
	► Consideration of additional impact management suggestions made by community.	On-going
Transportation	<b>Design and Operation</b>	
	► New northbound/eastbound access ramp; County Road 79 at Highway 402.	Completed
	► Lift intersections at off and on ramps of Hwy 402 and County Road 79 to improve sight distances.	Completed
	► Provide for signalization at Highway 402 north on/off at County Road 79.	Not required
	► Southbound left turn lane at CR79 site access.	Completed
	► Northbound right turn lane at CR 79 site access.	Completed
	► Northbound acceleration lane at CR79 site access.	Completed
	► Provide an inspection and cleaning lay-by on-site near the site's egress, where drivers and/or WM employees can safely inspect and clean off (if necessary) any mud picked up while traveling through the site. Visitors to the expanded landfill (both commercial and private) as well as WM will share in this responsibility.	On-going operations procedure
	<b>Other Measures</b>	
	► Reduce speed limit along County Road 79 from just south of Zion Line, southward to Watford.	Completed
Visual	<b>Design and Operation</b>	
	A) <i>Landfill and Site</i>	
	▪ aggressive clean up of blown litter.	On-going operations procedure
	▪ removal of south berm at County Road 39. Replace with evergreen trees (1.5 m o.c.) to include extension along west property line of south property.	Completed
	▪ natural shaping of the ponds should be explored. This would allow for easy incorporation as an amenity for future end use.	Completed
	▪ return berms at vehicular entrances or re-align entrance roads to minimize direct views into the site from Zion Line.	Completed
	▪ site perimeter fencing.	Completed
	▪ gas combustion chamber and equalization storage tank to be painted a dark colour to minimize light reflection.	Completed
	▪ equalization storage tank height to be minimized.	Completed
	▪ County Road 79 berm to be shifted to allow ±10.0 m setback property line and the toe of the berm. The height is to be increased to 7.0 m.	Completed

Note: Table based on Appendix D of Discussion Paper #8, dated September 2005.

**Table Q-2**  
**Mitigation, Monitoring, and Contingency Summary**

Discipline	Mitigation, Monitoring, and Contingency Measure	Comments
Visual (Cont'd)	B) <i>Landscape</i>	
	▪ extend large caliper tree planting ( $\pm 3.0$ m height) along east property line of north property.	Completed
	▪ uniformly planted evergreen and deciduous trees along the Zion Line berm.	Completed
	▪ naturalized planting (woodland extension) for berm along the County Road 79 (refer to Figure 7-45). This will also enhance the gateway approach to the village.	Completed
	▪ evergreen tree installation at the property line of the adjacent cemetery.	Completed
	▪ woodland rehabilitation at southwest corner of expansion area.	Completed
	▪ evergreen trees at gas management and leachate treatment facilities.	To be completed
	▪ naturalization of soil stockpile (outside face).	On-going
	▪ Brown Creek rehabilitation planting.	On-going
	<b>Monitoring</b>	
	► On-going visual impact monitoring program should be considered. Series of photographs would be assessed for discrepancies between built conditions and anticipated conditions defined in the report.	On-going
	<b>Contingency Plans</b>	
	► augmentation of the on-site measures to ensure consistency with design intent.	To be completed
	► additional off-site mitigation options including: ▪ roadside tree planting within the municipal road allowance. ▪ tree planting within private properties. ▪ screen fencing within private properties.	Part of the CCA

Note: Table based on Appendix D of Discussion Paper #8, dated September 2005.

**Table Q-3**  
**Monitoring Measures Summary**

Type of Monitoring	Status	Status
<b>Landfill Operations</b>	Amount of waste/contaminated soil tonnage each day, week, year.	On-going weekly summary in Table Q-1
	Annual (or more frequent) survey of landfill mound.	Completed annually
	Amount of landfill with interim cover, final cap, vegetation.	Documented in Section Q.1.9
	Complaints, action taken, response.	Documented in Section Q.1.17
	New Cells constructed.	Documented in Section Q.1.8
<b>Stormwater Management</b>	On-site Ditches (selected locations).	On-going
	Stormwater Pond Contents.	On-going
	Stormwater Pond Discharge.	On-going
	Downgradient Stream Locations.	On-going
	Upgradient Stream Location (if applicable).	On-going
	At Weather Station on Site.	On-going
	Wind direction and velocity.	On-going
	Precipitation.	On-going
	Temperature.	On-going
<b>Groundwater</b>	Pumping of secondary Drainage Layer with treatment of water prior to disposal.	Will be completed as required.
	A full Environmental Monitoring and Contingency Plan will be prepared.	Completed
<b>Leachate Treatment</b>	Leachate monitoring program to determine any effects on water quality in Bear Creek.	Direct discharge not applicable. Monitoring on-going
<b>Air Quality</b>	Monitor off-site particulate concentrations, particularly the PM10 and PM2.5 fractions.	On-going
	The monitoring station should also be equipped to measure meteorological parameters such as wind speed and wind direction. This will help determine the impact related to on-site and external haul route activities. The station may also be used to validate the predicted concentrations and determine the relative conservatism within the modeling.	Completed
	Regularly inspect the covered landfill areas (existing and future landfill areas) to identify any fissures, cracks or erosion of the soil cover that would allow for unmitigated landfill gas to escape directly to the atmosphere. This inspection could be undertaken with the use of a handheld portable flame ionization detector (FID) capable of measuring methane in small quantities.	Completed
	An annual monitoring program for volatile organic compounds at the property line during the worst-case, summer conditions.	Completed
	Develop a monitoring plan, which may include: <ul style="list-style-type: none"> <li>▪ outlining landfill cover inspection intervals.</li> <li>▪ methods of recording odour complaints.</li> <li>▪ log of mitigation work completed.</li> </ul>	Completed
	Develop a reporting system for odour complaints, and relate odour events to local meteorological conditions at the site. This system would allow WM to track and potentially validate odour complaints from the public. This strategy could assist in determining the source of odours and expedite mitigation.	Completed
<b>Litter</b>	Routine monitoring and retrieving escaped litter.	On-going operations procedure
<b>Gas</b>	Install landfill gas monitoring probes, as required, at landfill boundary.	On-going per EMP as landfill progresses
	Regular monitoring program for LFG probes; predetermined methane level would trigger further mitigation activities.	On-going per EMP as landfill progresses
<b>Agriculture</b>	Monitor groundwater, wells and surface water for leachate contamination, on an on-going basis.	On-going per EMP as landfill progresses
	Provide a monitoring program to identify and remove litter from neighbouring farm fields, including a spring and later summer pickup coinciding with most active farm operations.	On-going operations procedure
<b>Visual</b>	On-going visual impact monitoring program should be considered. Series of photographs would be assessed for discrepancies between built conditions and anticipated conditions.	On-going

Note: Table based on Exhibit 7-1 of Environmental Assessment document, dated September 2005.

**Table Q-4**  
**Contingency Measures Summary**

Contingency Plan	Contingency Plan Details	Status
<b>Leachate-Impacted Groundwater</b>	► Leachate elevation control with waste sumps or trenches.	On-going. No discharge of leachate or treated leachate to surface water will be completed.
	► Groundwater control through use of the Secondary Drainage Layer.	On-going
	► Perimeter leachate interceptor system within the active aquitard.	Will be completed if required.
	► Perimeter cut-off wall.	Will be completed if required.
	► If required, temporary or permanent groundwater supplies would be provided to affected groundwater users.	Will be completed if required.
<b>Contaminated Stormwater</b>	► If confined to a local area, close off ditch and sump out contaminated water into tanker truck for treatment in an on-site leachate treatment plant, or dispose (if suitable) in a treated leachate pond for irrigation on poplar forest, or haul to off-site sewage treatment plant.	Will be completed if required.
	► If stormwater pond is contaminated, do not permit discharge. Pump out and pump or truck for treatment to an on-site leachate treatment plant or dispose (if suitable) in a treated leachate pond for irrigation on a poplar forest or haul to an off-site sewage treatment plant.	Will be completed if required.
<b>Emergency Spill Response-Waste Truck on Public Road</b>	► Have a crew trained on notification and clean up procedures so workers and equipment can attend to local waste spill.	Completed.
	► Cooperate with local officials (e.g., police, road crews, environment officials, etc.).	Will be completed if required.
	► Prevent contact with ditches and watercourses and retrieve from vulnerable locations.	Will be completed if required.
	► Clean up spilled material into roll off or appropriate containers and remove to landfill.	Will be completed if required.
<b>Emergency Spill Response-Liquids on Public Road</b>	► Have crew trained on notification and clean up procedures so workers and equipment can attend to local waste spill.	Completed.
	► Assemble appropriate protective equipment and containment equipment.	Completed.
	► Contain spill with absorbent material, ponds and berms. Ditch, berm or excavate sump as required to contain spill.	Will be completed if required.
	► Clean up liquid or solids into appropriate leak-proof containers, such as drums or lugger boxes.	Will be completed if required.
	► Dispose to proper facility.	Will be completed if required.
	► If spill is a dangerous chemical or toxic to handle with equipment on site, then contain any escape paths and engage crews skilled in handling hazardous waste.	Will be completed if required.

Note: Table based on Exhibit 7-2 of Environmental Assessment document, dated September 2005.

# FIGURES





## APPENDIX R:

2021 Annual Sewage Works Performance Report



## 2021 ANNUAL SEWAGE WORKS PERFORMANCE REPORT: PER CONDITION 12(3) OF SEWAGE ECA NO. 2403-BE6LZ4

**RWDI AIR Inc.**  
**Consulting Engineers & Scientists**  
4510 Rhodes Drive – Suite 530  
Windsor Ontario Canada N8W 5K5  
T: 519.974.7384  
F: 519.823.1316

## SEWAGE ENVIRONMENTAL COMPLIANCE APPROVAL

The following subsections address the annual performance reporting requirements for the Waste Management of Canada Corporation's Twin Creeks Environmental (Site) per ECA for Industrial Sewage Works No. 3506-7M5PU3, dated July 9, 2009 as amended to February 20, 2013 up until August 20, 2019, as well as ECA for Industrial Sewage Works No. 2403-BE6LZ4 (Condition 12(3)), dated August 21, 2019 – both collectively referred to as "Sewage ECA" in consideration of their relevant approval dates.

### R.1 CONDITION 12(3) (A)

Per Condition 8.6(1) of ECA No. A032203, dated December 19, 2020 (Waste ECA), the on-Site Leachate Treatment Facility was not constructed or operated in 2021. As such, there is no 2021 data to report for the Leachate Treatment Facility.

### R.2 CONDITION 12(3) (B)

For the relevant Works outlined in the Sewage ECA, a summary of the surface water monitoring completed in 2021 and a detailed interpretation of the relevant monitoring results, including a comparison to relevant trigger concentrations, is provided in **Sections 2.4 and 5.3** of Volume 1 of the 2021 Fourth Quarter and Annual Monitoring Report (2021 Annual Report). The Works were effective in managing surface water at the Site during 2021.

### R.3 CONDITION 12(3) (C)

Sedimentation (Stormwater Management) Ponds 1 to 4 were constructed and operational by August 2009. The surface water that discharged from the ponds was generally of acceptable quality during 2021.

During the 2021 operating period, maintenance to the Sedimentation (Stormwater Management) Ponds 1, 2, 3 and 4 was not completed as per the relevant assessment results as the fall of 2021 was too wet to facilitate sediment removal. However, maintenance to Ponds 1, 2, 3, and 4 began in January 2022, when weather was favourable (dry and freezing conditions) and included the removal of sediment build-up from the forebays of each of the sedimentation ponds, as well as the main portion of Pond 1. Improvement maintenance was completed on a portion of the landfill-side, southbound and westbound surface water drainage ditches along the street directly west and south of Cell 1 and Cell 2 of the Expansion Site (Street C). The improvement maintenance included the re-grading of the landfill-side surface water drainage ditches and the installation of a concrete spillway at the lower extent of each ditch leading up to the box culvert below Street C where surface water flows into Pond 2. The improvement maintenance was completed during the re-surfacing of Street C as noted in **Section 5.3.5 of Volume 1** of the 2021 Annual Report.

#### R.4 CONDITION 12(3) (D)

Maintenance on major appurtenances related to the sewage works was not required in 2021.

#### R.5 CONDITION 12(3) (E)

As detailed in **Section R.1**, in accordance with Condition 8.6(1) the Waste ECA, the on-Site Leachate Treatment Facility did not require to be constructed in 2021 and therefore, did not operate during 2021. As such, no quality assurance or quality control (QA/QC) measures with respect to the Leachate Treatment Facility were required in 2021.

Detailed in **Section 3.2 of Volume 1** of the 2021 Annual Report are the QA/QC measures completed for the surface water monitoring for the landfill during 2021. Additionally, **Section 1.4** details the hydrogeologic setting for the Site, including the surface water system, **Section 1.5** presents the water budget for the Site, **Section 2.4** details the surface water sampling completed, **Section 5.3** summarizes the chemical findings of the surface water monitoring program, and **Section 6.1.3** discusses the surface water management for the Site during 2021.

#### R.6 CONDITION 12(3) (F)

As discussed, the Leachate Treatment Facility was not constructed in 2021. Therefore, there was no Leachate Treatment Facility effluent monitoring equipment to calibrate or service. Beyond the placement/re-enforcement of sediment control measures (e.g., straw bale check dams, silt fences), there were no calibration or maintenance activities required to be implemented during 2021 for the Stormwater Management Facility at the Site.

#### R.7 CONDITION 12(3) (G)

As detailed in **Section R.1**, the Leachate Treatment Facility was not constructed in 2021 and therefore, no dry salt cake was generated in 2021.

#### R.8 CONDITION 12(3) (H)

No complaints were received during 2021 related to the Sewage Works.

#### R.9 CONDITION 12(3) (I)

No additional information beyond what is required in the Sewage ECA with respect to the previous or proposed Sewage Works was requested by the Ministry of the Environment, Conservation and Parks (MECP) District Manager during 2021.

## APPENDIX S:

Monitoring and Screening Checklist



## Appendix D-Monitoring and Screening Checklist

### General Information and Instructions

**General Information: The checklist is to be completed, and submitted with the Monitoring Report.**

**Instructions:** A complete checklist consists of:

- (a) a completed and signed checklist, including any additional pages of information which can be attached as needed to provide further details where indicated.
- (b) completed contact information for the Competent Environmental Practitioner (CEP)
- (c) self-declaration that CEP(s) meet(s) the qualifications as set out below and in Section 1.2 of the Technical Guidance Document.

**Definition of Groundwater CEP:**

For groundwater, the CEP must have expertise in hydrogeology and meet one of the following:

- (a) the person holds a licence, limited licence or temporary licence under the *Professional Engineers Act*; or
- (b) the person holds a certificate of registration under the *Professional Geoscientists Act, 2000* and is a practicing member, temporary, member or limited member of the Association of Professional Geoscientists of Ontario. O. Reg. 66/08, s. 2..

**Definition of Surface water CEP:**

A CEP for surface water assessments is a scientist, professional engineer or professional geoscientist as described in (a) and (b) above with demonstrated experience and post-secondary education, either a diploma or degree, in hydrology, aquatic ecology, limnology, aquatic biology, physical geography with specialization in surface water, and/or water resource management.

The type of scientific work that a CEP performs must be consistent with that person's education and experience. If an individual has appropriate training and credentials in both groundwater and surface water and is responsible for both areas of expertise, the CEP may then complete and validate both sections of the checklist.

<b>Monitoring Report and Site Information</b>	
<b>Waste Disposal Site Name</b>	Twin Creeks Environmental Centre
<b>Location (e.g. street address, lot, concession)</b>	5768 Nauvoo Road (Watford)
<b>GPS Location (taken within the property boundary at front gate/ front entry)</b>	NAD 83: Zone 17, 428350E, 4758780N
<b>Municipality</b>	Township of Warwick, County of Lambton
<b>Client and/or Site Owner</b>	Waste Management of Canada Corporation
<b>Monitoring Period (Year)</b>	2021
This Monitoring Report is being submitted under the following:	
<b>Certificate of Approval No.:</b>	Waste ECA No. A032203; Sewage ECA No. 2403-BE6LZ4
<b>Director's Order No.:</b>	
<b>Provincial Officer's Order No.:</b>	
<b>Other:</b>	



Report Submission Frequency	<input type="radio"/> Annual <input checked="" type="radio"/> Other	Specify (Type Here): Quarterly and Annual Reports
The site is:	<input checked="" type="radio"/> Active <input type="radio"/> Inactive <input type="radio"/> Closed	
If closed, specify C of A, control or authorizing document closure date:		Select Date
Has the nature of the operations at the site changed during this monitoring period?	<input type="radio"/> Yes <input checked="" type="radio"/> No	
If yes, provide details:	Type Here	
Have any measurements been taken since the last reporting period that indicate landfill gas volumes have exceeded the MOE limits for subsurface or adjacent buildings? (i. e. exceeded the LEL for methane)	<input type="radio"/> Yes <input checked="" type="radio"/> No	



## Groundwater WDS Verification:

Based on all available information about the site and site knowledge, it is my opinion that:

### Sampling and Monitoring Program Status:

1) The monitoring program continues to effectively characterize site conditions and any groundwater discharges from the site. All monitoring wells are confirmed to be in good condition and are secure:	<input checked="" type="radio"/> Yes <input type="radio"/> No	If no, list exceptions (Type Here):	
2) All groundwater, leachate and WDS gas sampling and monitoring for the monitoring period being reported on was successfully completed as required by Certificate(s) of Approval or other relevant authorizing/control document(s):	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Applicable	If no, list exceptions below or attach information.	
Groundwater Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date	

3) a) Some or all groundwater, leachate and WDS gas sampling and monitoring requirements have been established or defined outside of a ministry C of A, authorizing, or control document.		<div><input type="radio"/> Yes</div> <div><input checked="" type="radio"/> No</div> <div><input type="radio"/> Not Applicable</div>	
b) If yes, the sampling and monitoring identified under 3(a) for the monitoring period being reported on was successfully completed in accordance with established protocols, frequencies, locations, and parameters developed as per the Technical Guidance Document:		<div><input type="radio"/> Yes</div> <div><input type="radio"/> No</div> <div><input checked="" type="radio"/> Not Applicable</div>	If no, list exceptions below or attach additional information.
Groundwater Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date	
4) All field work for groundwater investigations was done in accordance with standard operating procedures as established/outlined per the Technical Guidance Document (including internal/external QA/QC requirements) (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	<div><input checked="" type="radio"/> Yes</div> <div><input type="radio"/> No</div>		

## Sampling and Monitoring Program Results/WDS Conditions and Assessment:

<p>5) The site has an adequate buffer, Contaminant Attenuation Zone (CAZ) and/or contingency plan in place. Design and operational measures, including the size and configuration of any CAZ, are adequate to prevent potential human health impacts and impairment of the environment.</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p>		
<p>6) The site meets compliance and assessment criteria.</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p>	<p>Refer to Section 5.2.3 of the 2021 Fourth Quarter and Annual Monitoring Report.</p>	
<p>7) The site continues to perform as anticipated. There have been no unusual trends/ changes in measured leachate and groundwater levels or concentrations.</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p>		
<p>1) Is one or more of the following risk reduction practices in place at the site:</p> <p>(a) There is minimal reliance on natural attenuation of leachate due to the presence of an effective waste liner and active leachate collection/treatment; or</p> <p>(b) There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or</p> <p>(c) The site meets the following two conditions (typically achieved after 15 years or longer of site operation):</p> <p style="margin-left: 20px;"><i>i.</i> The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and</p> <p style="margin-left: 20px;"><i>ii.</i> Seasonal and annual water levels and water quality fluctuations are well understood.</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p>	<p>Note which practice(s):</p>	<p><input checked="" type="checkbox"/> (a)</p> <p><input type="checkbox"/> (b)</p> <p><input type="checkbox"/> (c)</p>
<p>9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):</p>	<p><input type="radio"/> Yes</p> <p><input checked="" type="radio"/> No</p> <p><input type="radio"/> Not Applicable</p>	<p>Refer to Section 5.2.3 of the 2021 Fourth Quarter and Annual Monitoring Report. An exceedance of the PLIL parameter chloride was observed at OW81-7 and was determined to not be landfill related.</p>	

## Groundwater CEP Declaration:

I am a licensed professional Engineer or a registered professional geoscientist in Ontario with expertise in hydrogeology, as defined in Appendix D under Instructions. Where additional expertise was needed to evaluate the site monitoring data, I have relied on individuals who I believe to be experts in the relevant discipline, who have co-signed the compliance monitoring report or monitoring program status report, and who have provided evidence to me of their credentials.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended), and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories*, or as amended from time to time by the ministry.

If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature and will be rectified for the next monitoring/reporting period. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

## Recommendations:





Based on my technical review of the monitoring results for the waste disposal site:

☒ No changes to the monitoring program are recommended

☐ The following change(s) to the monitoring program is/are recommended:

☒ No Changes to site design and operation are recommended

☐ The following change(s) to the site design and operation is/are recommended:

<b>Name:</b>	Brent J. Langille		
<b>Seal:</b>			
<b>Signature:</b>		<b>Date:</b>	2022/02/28
<b>CEP Contact Information:</b>	Brent J. Langille		
<b>Company:</b>	RWDI AIR Inc.		
<b>Address:</b>	4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5		
<b>Telephone No.:</b>	(519) 823-1311	<b>Fax No. :</b>	(519) 823-1316
<b>E-mail Address:</b>	Brent.Langille@rwdi.com		
<b>Co-signers for additional expertise provided:</b>			
<b>Signature:</b>		<b>Date:</b>	
<b>Signature:</b>		<b>Date:</b>	

## Surface Water WDS Verification:

Provide the name of surface water body/bodies potentially receiving the WDS effluent and the approximate distance to the waterbody (including the nearest surface water body/bodies to the site):

Name (s)	Gilliand-Geerts Drain 'A' - Bear Creek Watershed Brown Creek - Brown Creek Watershed
Distance(s)	The water bodies are adjacent to the landfill property limits.

Based on all available information and site knowledge, it is my opinion that:

### Sampling and Monitoring Program Status:

1) The current surface water monitoring program continues to effectively characterize the surface water conditions, and includes data that relates upstream/background and downstream receiving water conditions:	<input checked="" type="radio"/> Yes <input type="radio"/> No	If no, identify issues (Type Here):
2) All surface water sampling for the monitoring period being reported was successfully completed in accordance with the Certificate(s) of Approval or relevant authorizing/control document(s) (if applicable):	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not applicable (No C of A, authorizing / control document applies)	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date
SS10, SS16, SP1	Could not be sampled in Q2 of 2021 as insufficient flow was observed for sample collection.	Q2
SS16	Could not be sampled in Q3 of 2021 as insufficient flow was observed for sample collection.	Q3
SS10, SS16	Could not be sampled in Q4 of 2021 as insufficient flow was observed for sample collection.	Q4

3) a) Some or all surface water sampling and monitoring program requirements for the monitoring period have been established outside of a ministry C of A or authorizing/control document.		<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Applicable	
b) If yes, all surface water sampling and monitoring identified under 3 (a) was successfully completed in accordance with the established program from the site, including sampling protocols, frequencies, locations and parameters) as developed per the Technical Guidance Document:		<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Applicable	If no, specify below or provide details in an attachment.
Surface Water Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date	
4) All field work for surface water investigations was done in accordance with standard operating procedures, including internal/external QA/QC requirements, as established/ outlined as per the Technical Guidance Document, MOE 2010, or as amended. (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	<input checked="" type="radio"/> Yes <input type="radio"/> No	If no, specify (Type Here):	

## Sampling and Monitoring Program Results/WDS Conditions and Assessment:

5) The receiving water body meets surface water-related compliance criteria and assessment criteria: i.e., there are no exceedances of criteria, based on MOE legislation, regulations, Water Management Policies, Guidelines and Provincial Water Quality Objectives and other assessment criteria (e.g., CWQGs, APVs), as noted in Table A or Table B in the Technical Guidance Document (Section 4.6):

☐ Yes

☒ No

If no, list parameters that exceed criteria outlined above and the amount/percentage of the exceedance as per the table below or provide details in an attachment:

Parameter	Compliance or Assessment Criteria or Background	Amount by which Compliance or Assessment Criteria or Background Exceeded
e.g. Nickel	e.g. C of A limit, PWQO, background	e.g. X% above PWQO
Please refer to Section 5.3 of Volume 1 of the 2021 Fourth Quarter and Annual Monitoring Report.		
6) In my opinion, any exceedances listed in Question 5 are the result of non-WDS related influences (such as background, road salting, sampling site conditions)?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Section 5.3 of Volume 1 of the 2021 Fourth Quarter and Annual Monitoring Report summarizes the surface water monitoring findings.



<p>7) All monitoring program surface water parameter concentrations fall within a stable or decreasing trend. The site is not characterized by historical ranges of concentrations above assessment and compliance criteria.</p>	<p><input type="radio"/> Yes</p> <p><input checked="" type="radio"/> No</p>	<p>Refer to Section 5.3 of Volume 1 of the 2021 Fourth Quarter and Annual Monitoring Report.</p>
<p>8) For the monitoring program parameters, does the water quality in the groundwater zones adjacent to surface water receivers exceed assessment or compliance criteria (e.g., PWQOs, CWQGs, or toxicity values for aquatic biota (APVs)):</p>	<p><input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Not Known</p> <p><input type="radio"/> Not Applicable</p>	<p>Groundwater quality naturally exceeds select surface water trigger concentrations.</p>
<p>9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):</p>	<p><input type="radio"/> Yes</p> <p><input checked="" type="radio"/> No</p> <p><input type="radio"/> Not Applicable</p>	<p>Refer to Section 5.3 of the 2021 Fourth Quarter and Annual Monitoring Report Report. Trigger concentration exceedances were noted in Q1 (at SS1 and SP2), Q2 (at SP2), Q3 (at SS1) and Q4 (at SS1, SP2, and SP3) of 2021. For SS1, SP2, and SP3, during the respective quarters, the required verification monitoring completed in 2021 confirmed the surface water to be of acceptable quality and therefore, contingency plans or remedial actions are not required.</p>

## Surface Water CEP Declaration:

I, the undersigned hereby declare that I am a Competent Environmental Practitioner as defined in Appendix D under Instructions, holding the necessary level of experience and education to design surface water monitoring and sampling programs, conduct appropriate surface water investigations and interpret the related data as it pertains to the site for this monitoring period.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended) and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories*, or as amended from time to time by the ministry.


If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature or will be rectified for future monitoring events. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

Select Date

## Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

<p><input checked="" type="radio"/> No Changes to the monitoring program are recommended</p> <p><input type="radio"/> The following change(s) to the monitoring program is/are recommended:</p>	
<p><input checked="" type="radio"/> No changes to the site design and operation are recommended</p> <p><input type="radio"/> The following change(s) to the site design and operation is/are recommended:</p>	

<b>CEP Signature</b>		
<b>Relevant Discipline</b>	Geology	
<b>Date:</b>	2022/02/28	
<b>CEP Contact Information:</b>	Brent J. Langille	
<b>Company:</b>	RWDI AIR Inc.	
<b>Address:</b>	4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5	
<b>Telephone No.:</b>	(519) 823-1311	
<b>Fax No. :</b>	(519) 823-1316	
<b>E-mail Address:</b>	Brent.Langille@rwdi.com	
<b>Save As</b>		<b>Print Form</b>