REPORT

WASTE MANAGEMENT OF CANADA CORPORATION

WATFORD, ONTARIO

TWIN CREEKS ENVIRONMENTAL CENTRE: 2023 FOURTH QUARTER & ANNUAL MONITORING REPORT VOLUME 2C OF 5 – COMPLIANCE MONITORING APPENDICES J TO S

RWDI #2303459.01

February 28, 2024

SUBMITTED TO

Angela McLachlan
Environmental Compliance Manager
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APPENDIX J:

Gas Monitoring Results

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

Gas Probe Location	% LEL Methane						
	Date						
	17-Jan-23	2-Feb-23	15-Mar-23	21-Apr-23	18-Jul-23	28-Nov-23	14-Dec-23
GP1A	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GP2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GP3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GP4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GP5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GP6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GP7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GP8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GP9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GP10	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	2-Feb-22	6-Apr-22	5-Oct-22	10-Apr-23	3-Oct-23
Laboratory			EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	BV Labs	BV Labs	BV Labs	BV Labs	BV Labs
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	<0.010	<0.010	<0.010	<0.010	<0.010
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	0.22	1.1	0.62	0.17	0.11
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	<10	<1.0	<1.0	<1.0	<1.0	1.5	<1.0	1.7
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	<0.2	<0.2	<0.2	<0.2	<0.2
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	0.8	0.4	0.5	1.0	0.6
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	1.3	2.8	6.4	4.1	4.3
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	0.16	<0.05	<0.05	0.27	0.43
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	<0.1	<0.1	<0.1	0.1	0.4
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	0.2	<0.1	<0.1	0.9	1.0
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	<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	<0.1	<0.1	<0.1	<0.1	<0.1
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	<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	<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	<1000	<1000	<1000	<1000	<1000
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	<20	<20	<20	<20	<20
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	<50	<50	<50	<50	<50
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	<50	<50	<50	<50	<50
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	<50	<50	<50	<50	<50
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	<20	<20	<20	<20	<20
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	<20	<20	<20	<20	<20
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	<200	<200	<200	<200	<200
Monochlorobenzene	ug/L	8000	<4.0		<0.2	<0.4		<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	<0.5	<20	<20	<20	<20	<20
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	<20	<20	<20	<20	<20
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	<20	<20	<20	<20	<20
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	<20	<20	<20	<20	<20
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	<20	<20	<20	<20	<20
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	<0.20	1.3	0.88	1.2	0.36
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	0.32	1.8	1.2	1.6	0.47
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	<0.20	0.23	<0.20	<0.20	<0.20
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	<0.20	<0.20	<0.20	<0.20	<0.20
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	<0.20	<0.20	<0.20	<0.20	<0.20
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	<0.20	<0.20	<0.20	<0.20	<0.20
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	<0.10	<0.10	<0.10	<0.10	<0.10
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	<0.10	<0.10	<0.10	<0.10	<0.10
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	<0.20	<0.20	<0.20	<0.20	<0.20
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	<0.20	<0.20	<0.20	<0.20	<0.20
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	<0.20	<0.20	<0.20	<0.20	<0.20
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	<0.20	<0.20	<0.20	<0.20	<0.20
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	<0.20	<0.20	<0.20	<0.20	<0.20
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	<0.20	<0.20	<0.20	<0.20	<0.20
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	<0.20	<0.20	<0.20	<0.20	<0.20
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	<0.20	4.0	2.3	2.3	1.3
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	<0.20	0.36	<0.20	0.24	0.30
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	<0.20	<0.20	<0.20	<0.20	<0.20

NOTE: 1) 'mg/L denotes milligrams per litre; ug/L denotes microgram per litre.

2) '<' denotes parameter concentration is some concentration less than the laboratory reportable detection limit (RDL).

3) BV Labs denotes chemical analytical testing was completed by Bureau Veritas.

APPENDIX K2:

Laboratory Reports

Your P.O. #: 12285741
Your Project #: 2303459.01
Site#: 900
Site Location: ON07
Your C.O.C. #: TCLF-ASR-APR

Attention: Khalid Hussein - Twin Creeks

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/04/20
Report #: R7595720
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3A1299
Received: 2023/04/12, 08:45

Sample Matrix: Solid
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Cyanide (WAD) in Leachates	1	N/A	2023/04/19	CAM SOP-00457	OMOE 3015 m
Fluoride by ISE in Leachates	1	2023/04/18	2023/04/18	CAM SOP-00449	SM 23 4500-F- C m
Total Metals in TCLP Leachate by ICPMS	1	2023/04/18	2023/04/18	CAM SOP-00447	EPA 6020B m
Nitrate& Nitrite as Nitrogen in Leachate	1	N/A	2023/04/18	CAM SOP-00440	SM 23 4500-NO3I/NO2B
PAH Compounds in Leachate by GC/MS (SIM)	1	2023/04/19	2023/04/19	CAM SOP-00318	EPA 8270E
TCLP - % Solids	1	2023/04/17	2023/04/18	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	1	N/A	2023/04/18	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	1	N/A	2023/04/18	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	1	2023/04/17	2023/04/18	CAM SOP-00430	EPA 1311 m
VOCs in ZHE Leachates	1	2023/04/18	2023/04/18	CAM SOP-00228	EPA 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Your P.O. #: 12285741
Your Project #: 2303459.01
Site#: 900
Site Location: ON07
Your C.O.C. #: TCLF-ASR-APR

Attention: Khalid Hussein - Twin Creeks

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/04/20
Report #: R7595720
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3A1299
Received: 2023/04/12, 08:45

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C3A1299
Report Date: 2023/04/20

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

RESULTS OF ANALYSES OF SOLID

Bureau Veritas ID		VNG653		
Sampling Date		2023/04/10		
COC Number		TCLF-ASR-APR		
	UNITS	ASR	RDL	QC Batch
Charge/Prep Analysis				
Amount Extracted (Wet Weight) (g)	N/A	23	N/A	8611733
Inorganics				
Final pH	pH	5.39		8612269
Leachable Fluoride (F-)	mg/L	0.17	0.10	8613770
Initial pH	pH	8.98		8612269
TCLP - % Solids	%	100	0.2	8611196
TCLP Extraction Fluid	N/A	FLUID 2		8612268
Leachable WAD Cyanide (Free)	mg/L	<0.010	0.010	8613786
Leachable Nitrite (N)	mg/L	0.78	0.10	8613785
Leachable Nitrate (N)	mg/L	<1.0	1.0	8613785
Leachable Nitrate + Nitrite (N)	mg/L	<1.0	1.0	8613785

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3A1299
Report Date: 2023/04/20

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

ELEMENTS BY ATOMIC SPECTROSCOPY (SOLID)

Bureau Veritas ID		VNG653		
Sampling Date		2023/04/10		
COC Number		TCLF-ASR-APR		
	UNITS	ASR	RDL	QC Batch
Metals				
Leachable Arsenic (As)	mg/L	<0.2	0.2	8613637
Leachable Barium (Ba)	mg/L	1.0	0.2	8613637
Leachable Boron (B)	mg/L	4.1	0.1	8613637
Leachable Cadmium (Cd)	mg/L	0.27	0.05	8613637
Leachable Chromium (Cr)	mg/L	0.1	0.1	8613637
Leachable Lead (Pb)	mg/L	0.9	0.1	8613637
Leachable Mercury (Hg)	mg/L	<0.001	0.001	8613637
Leachable Selenium (Se)	mg/L	<0.1	0.1	8613637
Leachable Silver (Ag)	mg/L	<0.01	0.01	8613637
Leachable Uranium (U)	mg/L	<0.01	0.01	8613637

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (SOLID)

Bureau Veritas ID		VNG653		
Sampling Date		2023/04/10		
COC Number		TCLF-ASR-APR		
	UNITS	**ASR**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons				
Leachable Benzo(b)fluoranthene	ug/L	<0.10	0.10	8617068
Leachable Naphthalene	ug/L	2.3	0.20	8617068
Leachable Acenaphthylene	ug/L	<0.20	0.20	8617068
Leachable Acenaphthene	ug/L	<0.20	0.20	8617068
Leachable Fluorene	ug/L	<0.20	0.20	8617068
Leachable Phenanthrene	ug/L	0.24	0.20	8617068
Leachable Anthracene	ug/L	<0.20	0.20	8617068
Leachable Fluoranthene	ug/L	<0.20	0.20	8617068
Leachable Pyrene	ug/L	<0.20	0.20	8617068
Leachable Benzo(a)anthracene	ug/L	<0.20	0.20	8617068
Leachable Chrysene	ug/L	<0.20	0.20	8617068
Leachable Benzo(k)fluoranthene	ug/L	<0.20	0.20	8617068
Leachable Benzo(a)pyrene	ug/L	<0.10	0.10	8617068
Leachable Indeno(1,2,3-cd)pyrene	ug/L	<0.20	0.20	8617068
Leachable Dibenzo(a,h)anthracene	ug/L	<0.20	0.20	8617068
Leachable Benzo(g,h,i)perylene	ug/L	<0.20	0.20	8617068
Leachable 1-Methylnaphthalene	ug/L	1.2	0.20	8617068
Leachable 2-Methylnaphthalene	ug/L	1.6	0.20	8617068
Surrogate Recovery (%)				
Leachable D10-Anthracene	%	108		8617068
Leachable D14-Terphenyl (FS)	%	92		8617068
Leachable D8-Acenaphthylene	%	101		8617068

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (SOLID)

Bureau Veritas ID		VNG653		
Sampling Date		2023/04/10		
COC Number		TCLF-ASR-APR		
	UNITS	ASR	RDL	QC Batch
Volatile Organics				
Leachable Benzene	mg/L	<0.020	0.020	8613929
Leachable Carbon Tetrachloride	mg/L	<0.020	0.020	8613929
Leachable Chlorobenzene	mg/L	<0.020	0.020	8613929
Leachable Chloroform	mg/L	<0.020	0.020	8613929
Leachable 1,2-Dichlorobenzene	mg/L	<0.050	0.050	8613929
Leachable 1,4-Dichlorobenzene	mg/L	<0.050	0.050	8613929
Leachable 1,2-Dichloroethane	mg/L	<0.050	0.050	8613929
Leachable 1,1-Dichloroethylene	mg/L	<0.020	0.020	8613929
Leachable Methylene Chloride(Dichloromethane)	mg/L	<0.20	0.20	8613929
Leachable Methyl Ethyl Ketone (2-Butanone)	mg/L	<1.0	1.0	8613929
Leachable Tetrachloroethylene	mg/L	<0.020	0.020	8613929
Leachable Trichloroethylene	mg/L	<0.020	0.020	8613929
Leachable Vinyl Chloride	mg/L	<0.020	0.020	8613929
Surrogate Recovery (%)				
Leachable 4-Bromofluorobenzene	%	106		8613929
Leachable D4-1,2-Dichloroethane	%	107		8613929
Leachable D8-Toluene	%	86		8613929

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8613929	Leachable 4-Bromofluorobenzene	2023/04/18	107	70 - 130	102	70 - 130	102	%				
8613929	Leachable D4-1,2-Dichloroethane	2023/04/18	101	70 - 130	102	70 - 130	111	%				
8613929	Leachable D8-Toluene	2023/04/18	102	70 - 130	105	70 - 130	89	%				
8617068	Leachable D10-Anthracene	2023/04/19	109	50 - 130	106	50 - 130	104	%				
8617068	Leachable D14-Terphenyl (FS)	2023/04/19	100	50 - 130	98	50 - 130	97	%				
8617068	Leachable D8-Acenaphthylene	2023/04/19	106	50 - 130	102	50 - 130	100	%				
8613637	Leachable Arsenic (As)	2023/04/18	101	80 - 120	100	80 - 120	<0.2	mg/L	NC (1)	35	<0.2	mg/L
8613637	Leachable Barium (Ba)	2023/04/18	103	80 - 120	99	80 - 120	<0.2	mg/L	2.3 (1)	35	<0.2	mg/L
8613637	Leachable Boron (B)	2023/04/18	108	80 - 120	113	80 - 120	<0.1	mg/L	3.9 (1)	35	<0.1	mg/L
8613637	Leachable Cadmium (Cd)	2023/04/18	102	80 - 120	98	80 - 120	<0.05	mg/L	NC (1)	35	<0.05	mg/L
8613637	Leachable Chromium (Cr)	2023/04/18	98	80 - 120	98	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8613637	Leachable Lead (Pb)	2023/04/18	96	80 - 120	97	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8613637	Leachable Mercury (Hg)	2023/04/18	103	80 - 120	104	80 - 120	<0.001	mg/L	NC (1)	35	<0.001	mg/L
8613637	Leachable Selenium (Se)	2023/04/18	101	80 - 120	100	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8613637	Leachable Silver (Ag)	2023/04/18	106	80 - 120	102	80 - 120	<0.01	mg/L	NC (1)	35	<0.01	mg/L
8613637	Leachable Uranium (U)	2023/04/18	102	80 - 120	98	80 - 120	<0.01	mg/L	NC (1)	35	<0.01	mg/L
8613770	Leachable Fluoride (F-)	2023/04/18	82	80 - 120	102	80 - 120	<0.10	mg/L	0.47 (1)	25	<0.10	mg/L
8613785	Leachable Nitrate (N)	2023/04/18	95	80 - 120	106	80 - 120	<1.0	mg/L	NC (1)	20	<1.0	mg/L
8613785	Leachable Nitrate + Nitrite (N)	2023/04/18	97	80 - 120	106	80 - 120	<1.0	mg/L	NC (1)	20	<1.0	mg/L
8613785	Leachable Nitrite (N)	2023/04/18	105	80 - 120	105	80 - 120	<0.10	mg/L	NC (1)	20	<0.10	mg/L
8613786	Leachable WAD Cyanide (Free)	2023/04/19	92	80 - 120	100	80 - 120	<0.0020	mg/L	NC (1)	20	<0.010	mg/L
8613929	Leachable 1,1-Dichloroethylene	2023/04/18	100	70 - 130	96	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable 1,2-Dichlorobenzene	2023/04/18	88	70 - 130	101	70 - 130	<0.050	mg/L	NC (1)	30		
8613929	Leachable 1,2-Dichloroethane	2023/04/18	98	70 - 130	99	70 - 130	<0.050	mg/L	NC (1)	30		
8613929	Leachable 1,4-Dichlorobenzene	2023/04/18	100	70 - 130	115	70 - 130	<0.050	mg/L	NC (1)	30		
8613929	Leachable Benzene	2023/04/18	95	70 - 130	94	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable Carbon Tetrachloride	2023/04/18	103	70 - 130	101	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable Chlorobenzene	2023/04/18	98	70 - 130	102	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable Chloroform	2023/04/18	101	70 - 130	100	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable Methyl Ethyl Ketone (2-Butanone)	2023/04/18	113	60 - 140	113	60 - 140	<1.0	mg/L	NC (1)	30		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8613929	Leachable Methylene Chloride (Dichloromethane)	2023/04/18	102	70 - 130	102	70 - 130	<0.20	mg/L	NC (1)	30		
8613929	Leachable Tetrachloroethylene	2023/04/18	93	70 - 130	96	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable Trichloroethylene	2023/04/18	107	70 - 130	107	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable Vinyl Chloride	2023/04/18	97	70 - 130	92	70 - 130	<0.020	mg/L	NC (1)	30		
8617068	Leachable 1-Methylnaphthalene	2023/04/19	99	50 - 130	92	50 - 130	<0.20	ug/L				
8617068	Leachable 2-Methylnaphthalene	2023/04/19	91	50 - 130	84	50 - 130	<0.20	ug/L				
8617068	Leachable Acenaphthene	2023/04/19	101	50 - 130	95	50 - 130	<0.20	ug/L				
8617068	Leachable Acenaphthylene	2023/04/19	100	50 - 130	94	50 - 130	<0.20	ug/L				
8617068	Leachable Anthracene	2023/04/19	105	50 - 130	102	50 - 130	<0.20	ug/L				
8617068	Leachable Benzo(a)anthracene	2023/04/19	97	50 - 130	94	50 - 130	<0.20	ug/L				
8617068	Leachable Benzo(a)pyrene	2023/04/19	92	50 - 130	89	50 - 130	<0.10	ug/L	NC (1)	40		
8617068	Leachable Benzo(b)fluoranthene	2023/04/19	96	50 - 130	94	50 - 130	<0.10	ug/L				
8617068	Leachable Benzo(g,h,i)perylene	2023/04/19	105	50 - 130	102	50 - 130	<0.20	ug/L				
8617068	Leachable Benzo(k)fluoranthene	2023/04/19	100	50 - 130	91	50 - 130	<0.20	ug/L				
8617068	Leachable Chrysene	2023/04/19	101	50 - 130	98	50 - 130	<0.20	ug/L				
8617068	Leachable Dibenzo(a,h)anthracene	2023/04/19	92	50 - 130	90	50 - 130	<0.20	ug/L				
8617068	Leachable Fluoranthene	2023/04/19	104	50 - 130	101	50 - 130	<0.20	ug/L				
8617068	Leachable Fluorene	2023/04/19	100	50 - 130	95	50 - 130	<0.20	ug/L				
8617068	Leachable Indeno(1,2,3-cd)pyrene	2023/04/19	100	50 - 130	97	50 - 130	<0.20	ug/L				
8617068	Leachable Naphthalene	2023/04/19	88	50 - 130	83	50 - 130	<0.20	ug/L				
8617068	Leachable Phenanthrene	2023/04/19	103	50 - 130	99	50 - 130	<0.20	ug/L				

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8617068	Leachable Pyrene	2023/04/19	103	50 - 130	98	50 - 130	<0.20	ug/L				

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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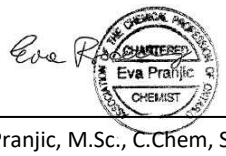
Bureau Veritas Job #: C3A1299
Report Date: 2023/04/20

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285741	CHAIN OF CUSTODY # :
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	TCLF-ASR-APR
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2984 Fax: 519-823-1316	Project Name:	TCLF-ASR-APR	
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com, Jeffery.Cleland@RWDI.c	Location:	Twin Creeks	
				Sampled By:	BEG	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558
Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3
Sewer Use: ☐ Sanitary ☐ Storm Region: _____
☒ Other: site specific (specify)
Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - TCLP Automatic Shredder Residue
1	ASR	10-Apr-23	AM	ASR	N	N	X
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 20-Apr-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

# of Cont.	COMMENTS / TAT COMMENTS
4	
	See lab addendum for analysis.

12-Apr-23 08:45
Patricia Legette
C3A1299
SWP env-1307

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
BEG 11-APR-23 / AM		023/04/12	08:45

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
9/9/10	☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285739
Your Project #: 2303459.01
Site#: 500
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/10/16
Report #: R7863205
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V1488
Received: 2023/10/05, 10:48

Sample Matrix: Solid
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Cyanide (WAD) in Leachates	1	N/A	2023/10/12	CAM SOP-00457	OMOE 3015 m
Fluoride by ISE in Leachates	1	2023/10/12	2023/10/12	CAM SOP-00449	SM 23 4500-F- C m
Total Metals in TCLP Leachate by ICPMS	1	2023/10/12	2023/10/12	CAM SOP-00447	EPA 6020B m
Nitrate& Nitrite as Nitrogen in Leachate	1	N/A	2023/10/16	CAM SOP-00440	SM 23 4500-NO3I/NO2B
PAH Compounds in Leachate by GC/MS (SIM)	1	2023/10/12	2023/10/13	CAM SOP-00318	EPA 8270E
TCLP - % Solids	1	2023/10/11	2023/10/12	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	1	N/A	2023/10/12	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	1	N/A	2023/10/12	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	1	2023/10/12	2023/10/13	CAM SOP-00430	EPA 1311 m
VOCs in ZHE Leachates	1	2023/10/13	2023/10/13	CAM SOP-00228	EPA 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your P.O. #: 12285739
Your Project #: 2303459.01
Site#: 500
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/10/16
Report #: R7863205
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V1488
Received: 2023/10/05, 10:48

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

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Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C3V1488
Report Date: 2023/10/16

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285739
Sampler Initials: JRA

RESULTS OF ANALYSES OF SOLID

Bureau Veritas ID		XFI702		
Sampling Date		2023/10/03		
COC Number		n/a		
	UNITS	**ASR**	**RDL**	**QC Batch**
Charge/Prep Analysis				
Amount Extracted (Wet Weight) (g)	N/A	25	N/A	8975784
Inorganics				
Final pH	pH	5.13		8975699
Leachable Fluoride (F-)	mg/L	0.11	0.10	8975678
Initial pH	pH	8.82		8975699
TCLP - % Solids	%	100	0.2	8972497
TCLP Extraction Fluid	N/A	FLUID 2		8975698
Leachable WAD Cyanide (Free)	mg/L	<0.010	0.010	8975683
Leachable Nitrite (N)	mg/L	0.12	0.10	8975687
Leachable Nitrate (N)	mg/L	1.5	1.0	8975687
Leachable Nitrate + Nitrite (N)	mg/L	1.7	1.0	8975687

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3V1488
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RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
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Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (SOLID)

Bureau Veritas ID		XFI702		
Sampling Date		2023/10/03		
COC Number		n/a		
	UNITS	ASR	RDL	QC Batch
Metals				
Leachable Arsenic (As)	mg/L	<0.2	0.2	8975555
Leachable Barium (Ba)	mg/L	0.6	0.2	8975555
Leachable Boron (B)	mg/L	4.3	0.1	8975555
Leachable Cadmium (Cd)	mg/L	0.43	0.05	8975555
Leachable Chromium (Cr)	mg/L	0.4	0.1	8975555
Leachable Lead (Pb)	mg/L	1.0	0.1	8975555
Leachable Mercury (Hg)	mg/L	<0.001	0.001	8975555
Leachable Selenium (Se)	mg/L	<0.1	0.1	8975555
Leachable Silver (Ag)	mg/L	<0.01	0.01	8975555
Leachable Uranium (U)	mg/L	<0.01	0.01	8975555

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285739
Sampler Initials: JRA

SEMI-VOLATILE ORGANICS BY GC-MS (SOLID)

Bureau Veritas ID		XFI702		
Sampling Date		2023/10/03		
COC Number		n/a		
	UNITS	**ASR**	**RDL**	**QC Batch**
Polyaromatic Hydrocarbons				
Leachable Benzo(b)fluoranthene	ug/L	<0.10	0.10	8976129
Leachable Naphthalene	ug/L	1.3	0.20	8976129
Leachable Acenaphthylene	ug/L	<0.20	0.20	8976129
Leachable Acenaphthene	ug/L	<0.20	0.20	8976129
Leachable Fluorene	ug/L	<0.20	0.20	8976129
Leachable Phenanthrene	ug/L	0.30	0.20	8976129
Leachable Anthracene	ug/L	<0.20	0.20	8976129
Leachable Fluoranthene	ug/L	<0.20	0.20	8976129
Leachable Pyrene	ug/L	<0.20	0.20	8976129
Leachable Benzo(a)anthracene	ug/L	<0.20	0.20	8976129
Leachable Chrysene	ug/L	<0.20	0.20	8976129
Leachable Benzo(k)fluoranthene	ug/L	<0.20	0.20	8976129
Leachable Benzo(a)pyrene	ug/L	<0.10	0.10	8976129
Leachable Indeno(1,2,3-cd)pyrene	ug/L	<0.20	0.20	8976129
Leachable Dibenzo(a,h)anthracene	ug/L	<0.20	0.20	8976129
Leachable Benzo(g,h,i)perylene	ug/L	<0.20	0.20	8976129
Leachable 1-Methylnaphthalene	ug/L	0.36	0.20	8976129
Leachable 2-Methylnaphthalene	ug/L	0.47	0.20	8976129
Surrogate Recovery (%)				
Leachable D10-Anthracene	%	104		8976129
Leachable D14-Terphenyl (FS)	%	100		8976129
Leachable D8-Acenaphthylene	%	103		8976129

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285739
Sampler Initials: JRA

VOLATILE ORGANICS BY GC/MS (SOLID)

Bureau Veritas ID		XFI702		
Sampling Date		2023/10/03		
COC Number		n/a		
	UNITS	ASR	RDL	QC Batch
Volatile Organics				
Leachable Benzene	mg/L	<0.020	0.020	8978583
Leachable Carbon Tetrachloride	mg/L	<0.020	0.020	8978583
Leachable Chlorobenzene	mg/L	<0.020	0.020	8978583
Leachable Chloroform	mg/L	<0.020	0.020	8978583
Leachable 1,2-Dichlorobenzene	mg/L	<0.050	0.050	8978583
Leachable 1,4-Dichlorobenzene	mg/L	<0.050	0.050	8978583
Leachable 1,2-Dichloroethane	mg/L	<0.050	0.050	8978583
Leachable 1,1-Dichloroethylene	mg/L	<0.020	0.020	8978583
Leachable Methylene Chloride(Dichloromethane)	mg/L	<0.20	0.20	8978583
Leachable Methyl Ethyl Ketone (2-Butanone)	mg/L	<1.0	1.0	8978583
Leachable Tetrachloroethylene	mg/L	<0.020	0.020	8978583
Leachable Trichloroethylene	mg/L	<0.020	0.020	8978583
Leachable Vinyl Chloride	mg/L	<0.020	0.020	8978583
Surrogate Recovery (%)				
Leachable 4-Bromofluorobenzene	%	103		8978583
Leachable D4-1,2-Dichloroethane	%	97		8978583
Leachable D8-Toluene	%	86		8978583

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3V1488
Report Date: 2023/10/16

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285739
Sampler Initials: JRA

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	14.0°C

Sample XFI702 [ASR] : Sample container submitted with headspace. Analysis performed with client consent.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8976129	Leachable D10-Anthracene	2023/10/13	104	50 - 130	113	50 - 130	106	%				
8976129	Leachable D14-Terphenyl (FS)	2023/10/13	98	50 - 130	104	50 - 130	107	%				
8976129	Leachable D8-Acenaphthylene	2023/10/13	106	50 - 130	106	50 - 130	102	%				
8978583	Leachable 4-Bromofluorobenzene	2023/10/13	106	70 - 130	106	70 - 130	103	%				
8978583	Leachable D4-1,2-Dichloroethane	2023/10/13	89	70 - 130	92	70 - 130	97	%				
8978583	Leachable D8-Toluene	2023/10/13	107	70 - 130	107	70 - 130	87	%				
8975555	Leachable Arsenic (As)	2023/10/12	98	80 - 120	99	80 - 120	<0.2	mg/L	NC (1)	35	<0.2	mg/L
8975555	Leachable Barium (Ba)	2023/10/12	101	80 - 120	100	80 - 120	<0.2	mg/L	6.8 (1)	35	<0.2	mg/L
8975555	Leachable Boron (B)	2023/10/12	102	80 - 120	102	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8975555	Leachable Cadmium (Cd)	2023/10/12	97	80 - 120	97	80 - 120	<0.05	mg/L	NC (1)	35	<0.05	mg/L
8975555	Leachable Chromium (Cr)	2023/10/12	97	80 - 120	100	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8975555	Leachable Lead (Pb)	2023/10/12	95	80 - 120	96	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8975555	Leachable Mercury (Hg)	2023/10/12	96	80 - 120	99	80 - 120	<0.001	mg/L	NC (1)	35	<0.001	mg/L
8975555	Leachable Selenium (Se)	2023/10/12	100	80 - 120	100	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8975555	Leachable Silver (Ag)	2023/10/12	93	80 - 120	97	80 - 120	<0.01	mg/L	NC (1)	35	<0.01	mg/L
8975555	Leachable Uranium (U)	2023/10/12	101	80 - 120	100	80 - 120	<0.01	mg/L	NC (1)	35	<0.01	mg/L
8975678	Leachable Fluoride (F-)	2023/10/12	74 (2)	80 - 120	94	80 - 120	<0.10	mg/L	13 (1)	25	<0.10	mg/L
8975683	Leachable WAD Cyanide (Free)	2023/10/12	70 (2)	80 - 120	93	80 - 120	<0.0020	mg/L	NC (1)	20	<0.010	mg/L
8975687	Leachable Nitrate (N)	2023/10/16	85	80 - 120	97	80 - 120	<1.0	mg/L	NC (1)	20	<1.0	mg/L
8975687	Leachable Nitrate + Nitrite (N)	2023/10/16	88	80 - 120	99	80 - 120	<1.0	mg/L	NC (1)	20	<1.0	mg/L
8975687	Leachable Nitrite (N)	2023/10/16	102	80 - 120	107	80 - 120	<0.10	mg/L	NC (1)	20	<0.10	mg/L
8976129	Leachable 1-Methylnaphthalene	2023/10/13	98	50 - 130	95	50 - 130	<0.20	ug/L				
8976129	Leachable 2-Methylnaphthalene	2023/10/13	89	50 - 130	86	50 - 130	<0.20	ug/L				
8976129	Leachable Acenaphthene	2023/10/13	110	50 - 130	106	50 - 130	<0.20	ug/L				
8976129	Leachable Acenaphthylene	2023/10/13	110	50 - 130	109	50 - 130	<0.20	ug/L				
8976129	Leachable Anthracene	2023/10/13	106	50 - 130	117	50 - 130	<0.20	ug/L				
8976129	Leachable Benzo(a)anthracene	2023/10/13	97	50 - 130	107	50 - 130	<0.20	ug/L				
8976129	Leachable Benzo(a)pyrene	2023/10/13	104	50 - 130	99	50 - 130	<0.10	ug/L	NC (1)	40		
8976129	Leachable Benzo(b)fluoranthene	2023/10/13	98	50 - 130	108	50 - 130	<0.10	ug/L				
8976129	Leachable Benzo(g,h,i)perylene	2023/10/13	108	50 - 130	126	50 - 130	<0.20	ug/L				

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8976129	Leachable Benzo(k)fluoranthene	2023/10/13	116	50 - 130	109	50 - 130	<0.20	ug/L				
8976129	Leachable Chrysene	2023/10/13	106	50 - 130	100	50 - 130	<0.20	ug/L				
8976129	Leachable Dibenzo(a,h)anthracene	2023/10/13	106	50 - 130	123	50 - 130	<0.20	ug/L				
8976129	Leachable Fluoranthene	2023/10/13	112	50 - 130	108	50 - 130	<0.20	ug/L				
8976129	Leachable Fluorene	2023/10/13	110	50 - 130	107	50 - 130	<0.20	ug/L				
8976129	Leachable Indeno(1,2,3-cd)pyrene	2023/10/13	100	50 - 130	117	50 - 130	<0.20	ug/L				
8976129	Leachable Naphthalene	2023/10/13	103	50 - 130	98	50 - 130	<0.20	ug/L				
8976129	Leachable Phenanthrene	2023/10/13	108	50 - 130	109	50 - 130	<0.20	ug/L				
8976129	Leachable Pyrene	2023/10/13	100	50 - 130	102	50 - 130	<0.20	ug/L				
8978583	Leachable 1,1-Dichloroethylene	2023/10/13	92	70 - 130	88	70 - 130	<0.020	mg/L	NC (1)	30		
8978583	Leachable 1,2-Dichlorobenzene	2023/10/13	94	70 - 130	94	70 - 130	<0.050	mg/L	NC (1)	30		
8978583	Leachable 1,2-Dichloroethane	2023/10/13	79	70 - 130	81	70 - 130	<0.050	mg/L	NC (1)	30		
8978583	Leachable 1,4-Dichlorobenzene	2023/10/13	103	70 - 130	106	70 - 130	<0.050	mg/L	NC (1)	30		
8978583	Leachable Benzene	2023/10/13	89	70 - 130	88	70 - 130	<0.020	mg/L	NC (1)	30		
8978583	Leachable Carbon Tetrachloride	2023/10/13	98	70 - 130	94	70 - 130	<0.020	mg/L	NC (1)	30		
8978583	Leachable Chlorobenzene	2023/10/13	101	70 - 130	99	70 - 130	<0.020	mg/L	NC (1)	30		
8978583	Leachable Chloroform	2023/10/13	97	70 - 130	95	70 - 130	<0.020	mg/L	NC (1)	30		
8978583	Leachable Methyl Ethyl Ketone (2-Butanone)	2023/10/13	84	60 - 140	89	60 - 140	<1.0	mg/L	NC (1)	30		
8978583	Leachable Methylene Chloride (Dichloromethane)	2023/10/13	111	70 - 130	110	70 - 130	<0.20	mg/L	NC (1)	30		
8978583	Leachable Tetrachloroethylene	2023/10/13	102	70 - 130	97	70 - 130	<0.020	mg/L	NC (1)	30		
8978583	Leachable Trichloroethylene	2023/10/13	102	70 - 130	99	70 - 130	<0.020	mg/L	NC (1)	30		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8978583	Leachable Vinyl Chloride	2023/10/13	96	70 - 130	93	70 - 130	<0.020	mg/L	NC (1)	30		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Bureau Veritas Job #: C3V1488
Report Date: 2023/10/16

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285739
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Cristina Carriere, Senior Scientific Specialist

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Maxxam Analytics Inc

6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:	
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #	
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285741
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01
				Project Name:	TCLF-ASR-OCT
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2984 Fax: 519-823-1316	Location:	Twin Creeks
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com; Jeffery.Cleland@RWDI	Sampled By:	JRA

MAXXAM JOB NUMBER:

CHAIN OF CUSTODY # : TCLF-ASR-OCT

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

[ ] MISA [ ] PWQO [ ] Reg. 558
Reg. 153: [ ] Table 1 [ ] Table 2 [ ] Table 3
Sewer Use: [ ] Sanitary [ ] Storm Region
[x] Other: site specific (specify)
Report Criteria on C of A ? [n]

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLP Automatic Shredder Residue TCLP - TCLS	# of Cont.	COMMENTS / TAT COMMENTS
1	ASR	3-Oct-23	PM	ASR	N	N	X	3	
2									
3									
4									See lab addendum for analysis.
5									
6									
7									
8									
9									
10									
11									
12									

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT: [x] 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
[ ] 1 day [ ] 2 days [ ] 3 days
DATE Required: 12-Oct-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

05-Oct-23 10:48
Patricia Legette
C3V1488
SWP ENV-1687

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Temperature (°C) on Receipt	Condition of Sample on Receipt
JRA 04-Oct-23 / AM	[illegible]	23/10/05	10:48	4/1/3/1/5	[ ] OK [ ] SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

On Ice

APPENDIX L:

Construction Details

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

LAIDLAW

WASTE SYSTEMS (WARWICK) LIMITED

WARWICK TOWNSHIP LANDFILL SITE

LOCATED IN
WARWICK TOWNSHIP
COUNTY OF LAMBTON

DEVELOPMENT AND OPERATION PLANS

DRAWING INDEX

KEY PLAN
SCALE = 1:10000

REVISIONS

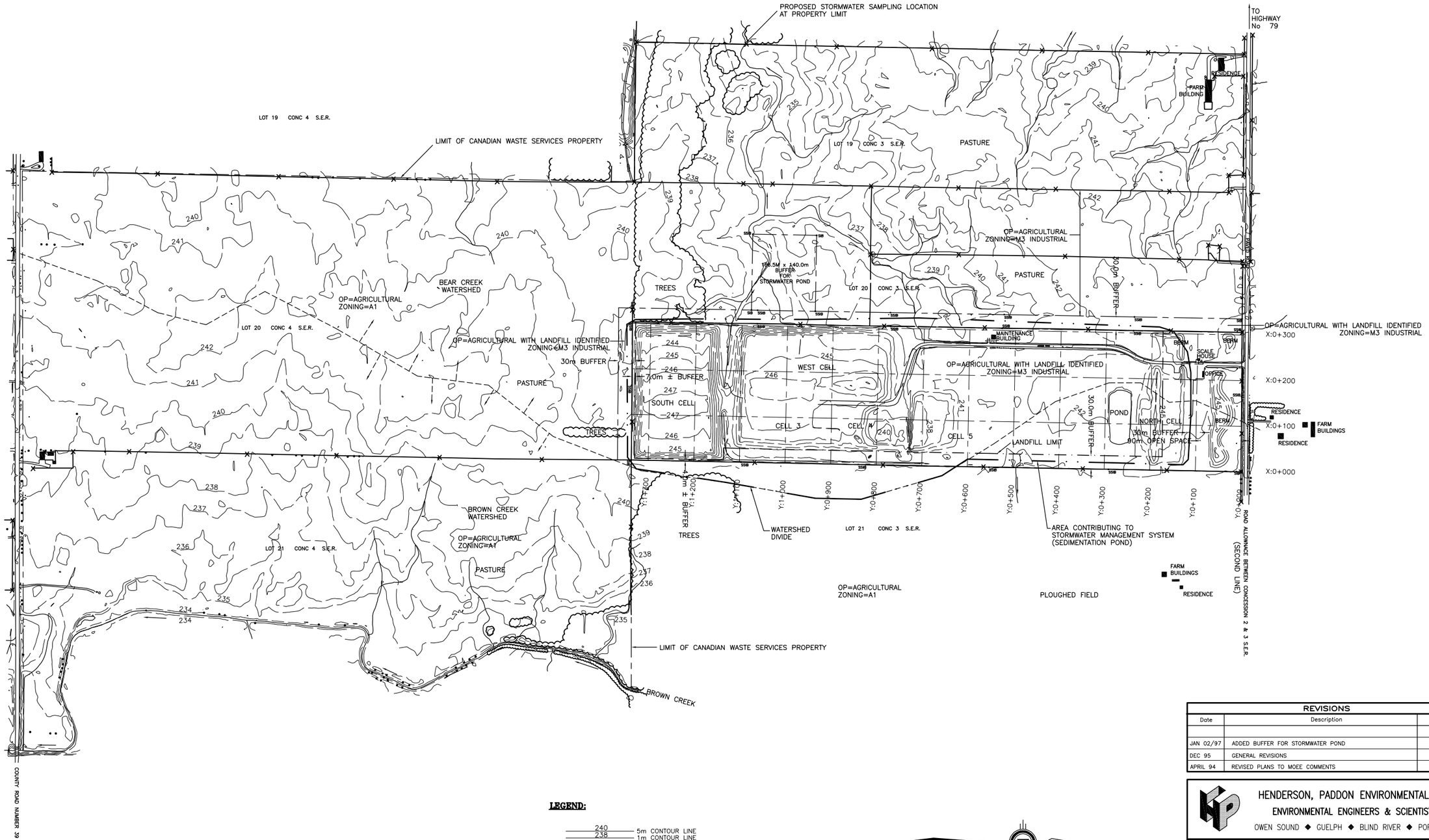
Date	Description	By
JAN 97	DRAWING INDEX REVISED TO INCLUDE 306B, 307B & 307C	T.C.G.
DEC 95	GENERAL REVISIONS	J.E.A.
APRIL 94	REVISED PLANS TO MOEE COMMENTS	J.E.A.

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
Traced:	Approved: Design Engineer
Checked: F.C.F.	
DRAWING No.	91730D – 300



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 1.0m

LEGEND:

- 240 — 5m CONTOUR LINE
- 238 — 1m CONTOUR LINE
- CONTROL GRID LINE
- TREELINE
- TREE
- EXISTING DITCH OR CREEK
- EXISTING ROAD EDGE
- EXISTING BUILDING
- EXISTING FENCELINE
- WATERSHED DIVIDE
- SSB — STANDARD IRON BAR
- SSB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT

200 0 200 400

Scale

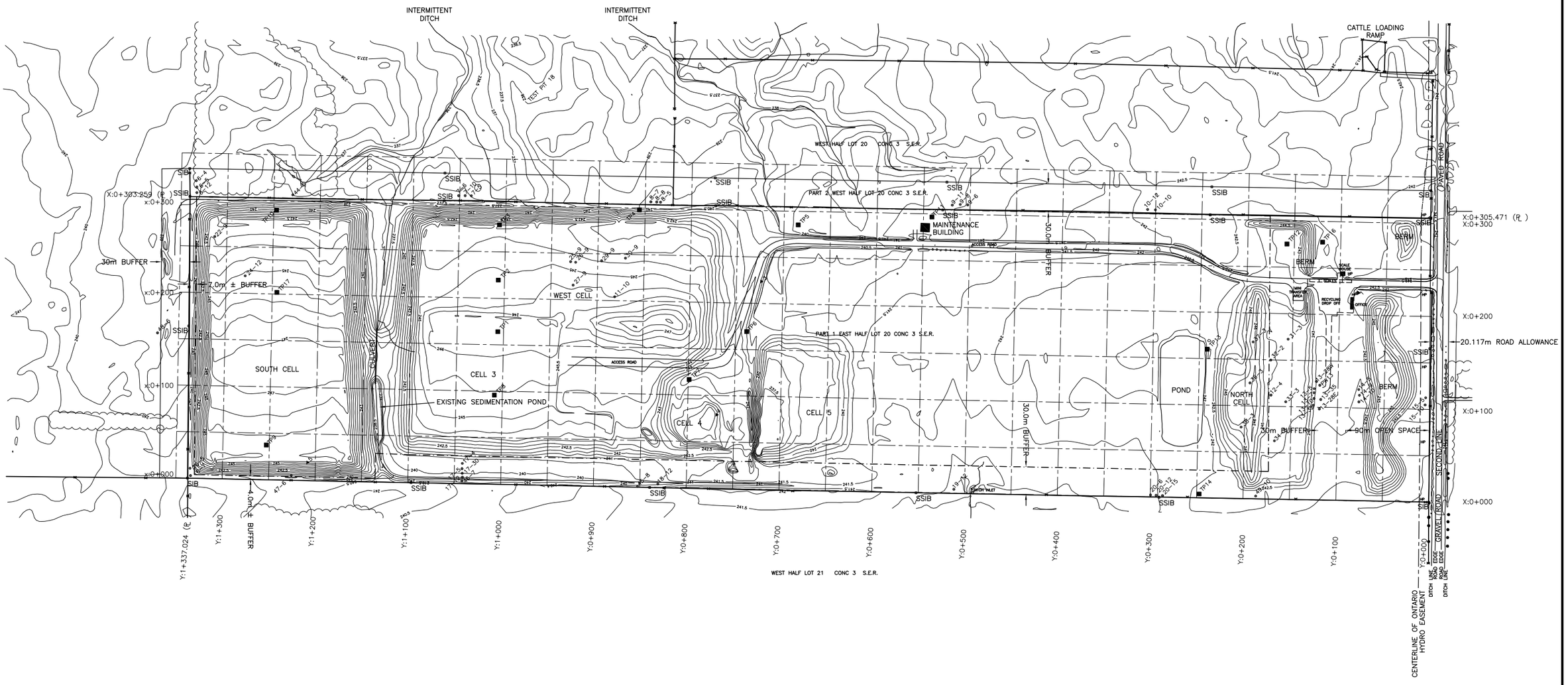
REVISIONS		
Date	Description	By
JAN 02/97	ADDED BUFFER FOR STORMWATER POND	T.C.G.
DEC 95	GENERAL REVISIONS	J E A
APRIL 94	REVISED PLANS TO MOEE COMMENTS	J E A

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:		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 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
- SIB — STANDARD IRON BAR
- SSIB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- OBSERVATION WELL NUMBER AND DEPTH
- TEST PIT NUMBER
- PERCOLATION TEST

N

100 0 100 200

Scale

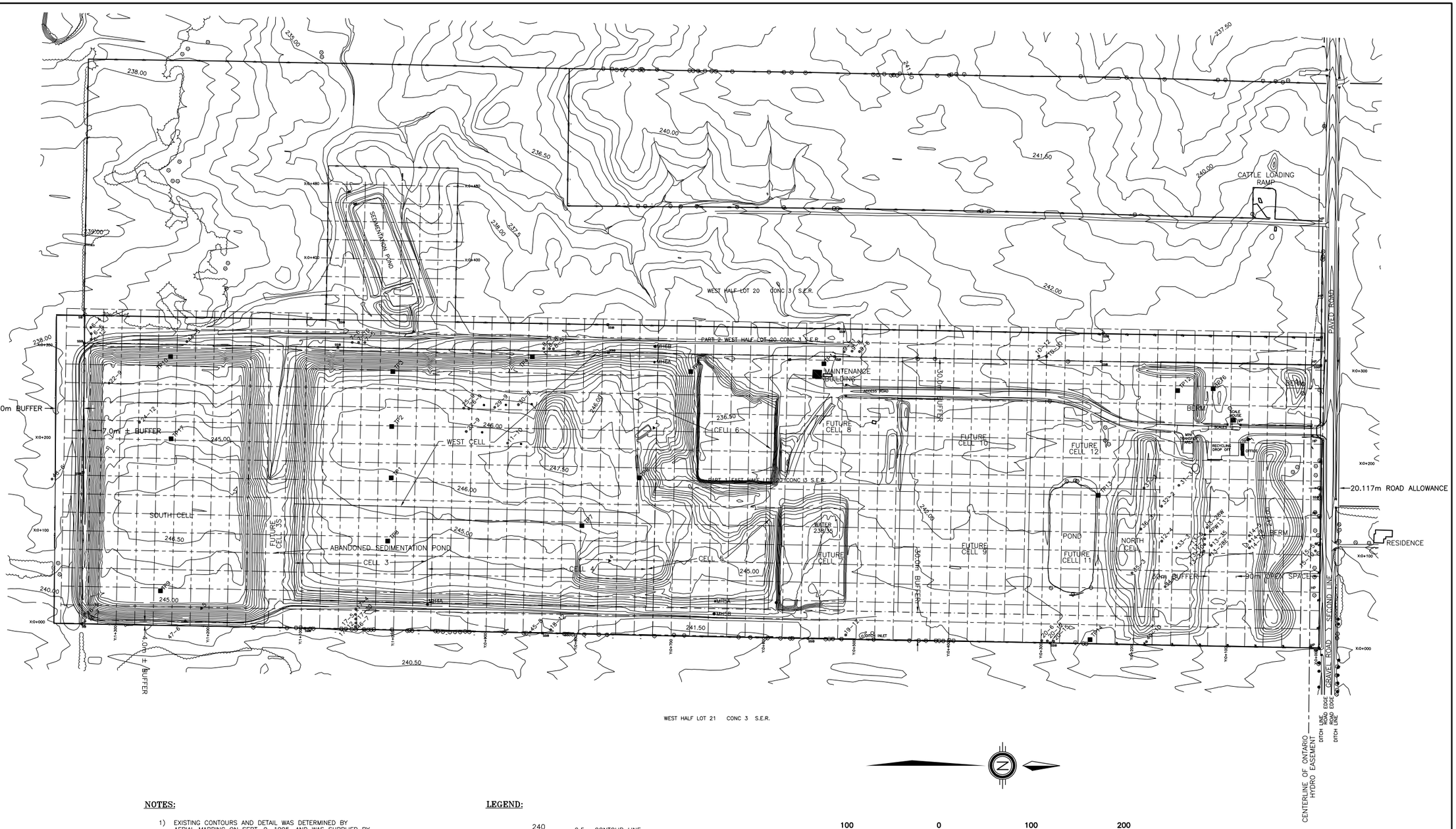
REVISIONS		
Date	Description	By

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

WARWICK LANDFILL
EXISTING CONDITIONS – SITE

CLIENT: **LAIDLAW WASTE SYSTEMS LTD.**

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 – 302



Scale

NOTES:

1) EXISTING CONTOURS AND DETAIL WAS DETERMINED BY AERIAL MAPPING ON SEPT. 9, 1995, AND WAS SUPPLIED BY INTERRA INFORMATION TECHNOLOGIES
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
▫ SIB	STANDARD IRON BAR
▫ SSIB	SHORT STANDARD IRON BAR
— · —	LANDFILL LIMIT
● 30–9	OBSERVATION WELL NUMBER AND DEPTH
■ TP2	TEST PIT NUMBER
▶ 4	PERCOLATION TEST

REVISIONS		
Date	Description	By

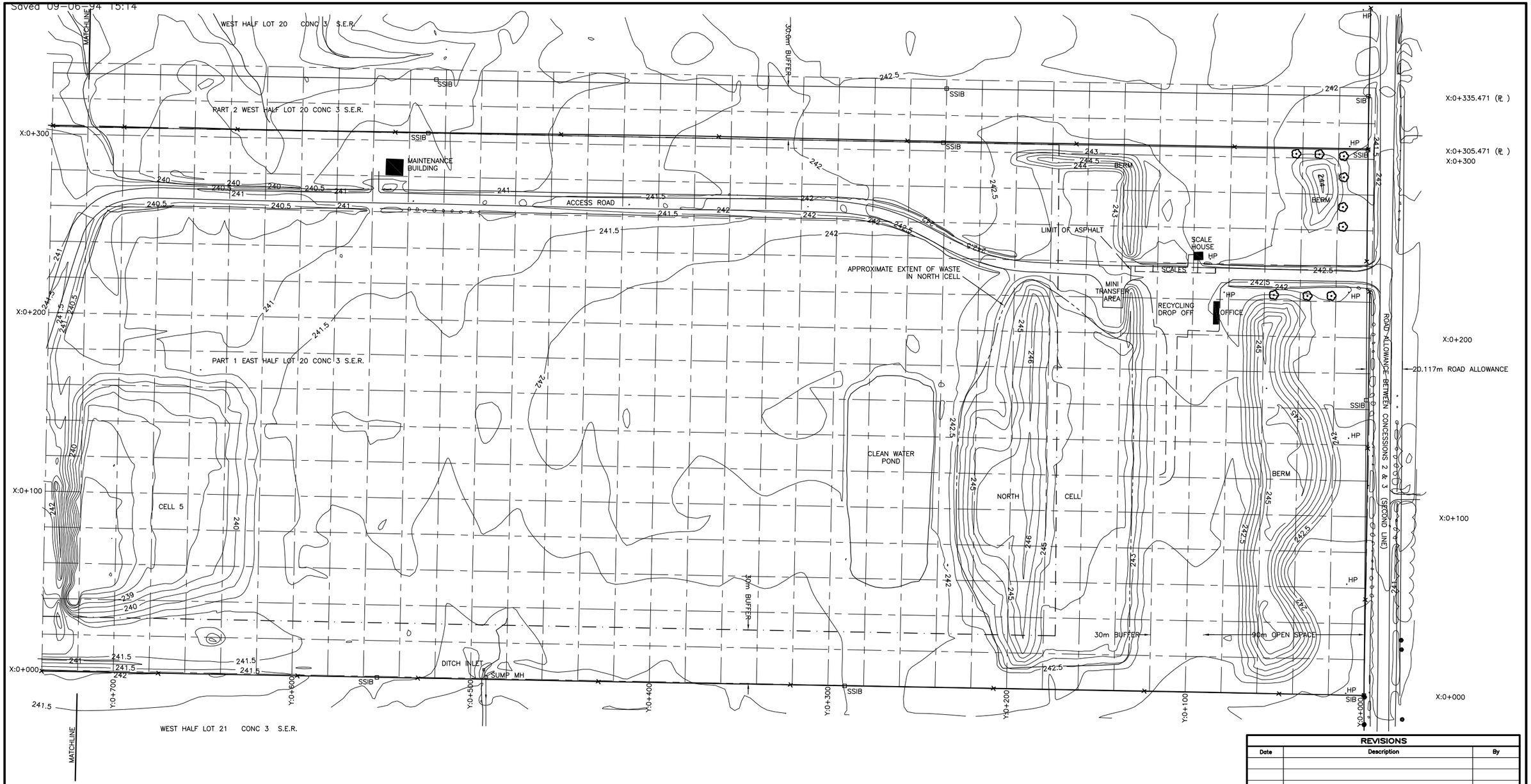
HENDERSON, PADDON ENVIRONMENTAL INC.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
OWEN SOUND ◆ GUELPH ◆ BLIND RIVER ◆ PORT ELGIN

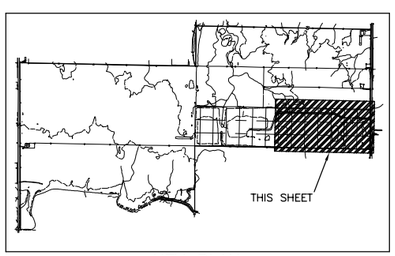
WARWICK LANDFILL
EXISTING CONDITIONS – SITE
SEPTEMBER 1995

CLIENT:
CANADIAN WASTE SERVICES INC.

Design: J E A	Scale: SEE BAR SCALE
Drawn: J E A	Date: DECEMBER 19, 1995
Traced:	Approved:
Checked: F C F	Design Engineer
DRAWING No.	91730D – 302A

Saved 09-06-94 15:14





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
- SIB — STANDARD IRON BAR
- SSIB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT

N

50 0 50 100

Scale

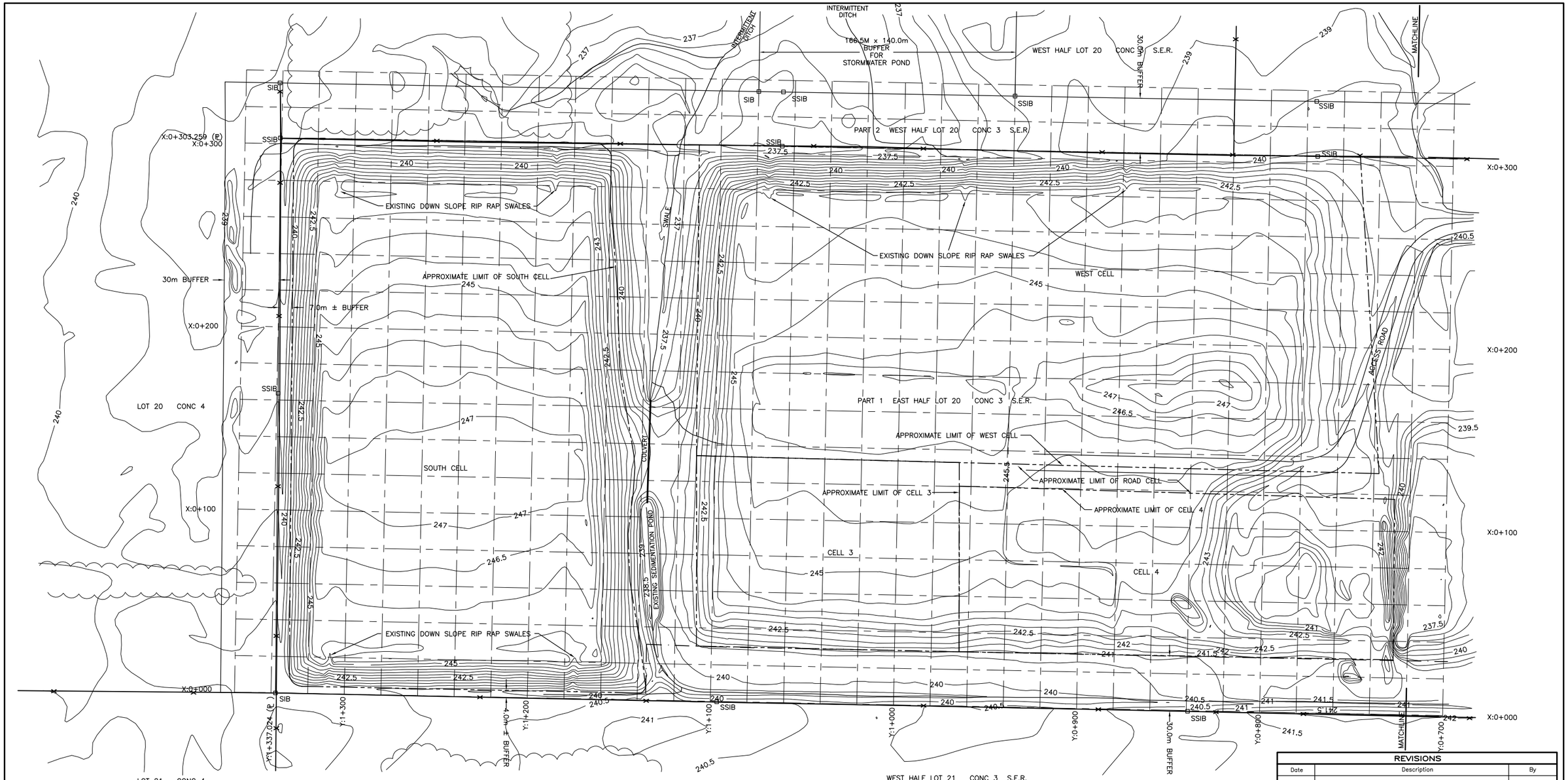
REVISIONS		
Date	Description	By

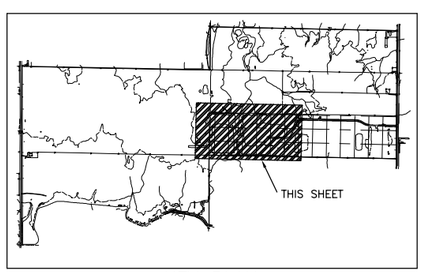
HENDERSON, PADDON ENVIRONMENTAL INC.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
OWEN SOUND ◆ GUELPH ◆ BLIND RIVER ◆ PORT ELGIN

WARWICK LANDFILL
EXISTING CONDITIONS – NORTH

CLIENT: **CANADIAN WASTE SERVICES INC.**

Design: J E A	Scale: AS SHOWN
Drawn: J E A	Date: SEPTEMBER 1994
Traced:	Approved:
Checked: F C F	Design Engineer
DRAWING No.	91730D – 303





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
- SIB — STANDARD IRON BAR
- SSIB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- APPROXIMATE CELL LIMITS

N

50 0 50 100

Scale

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

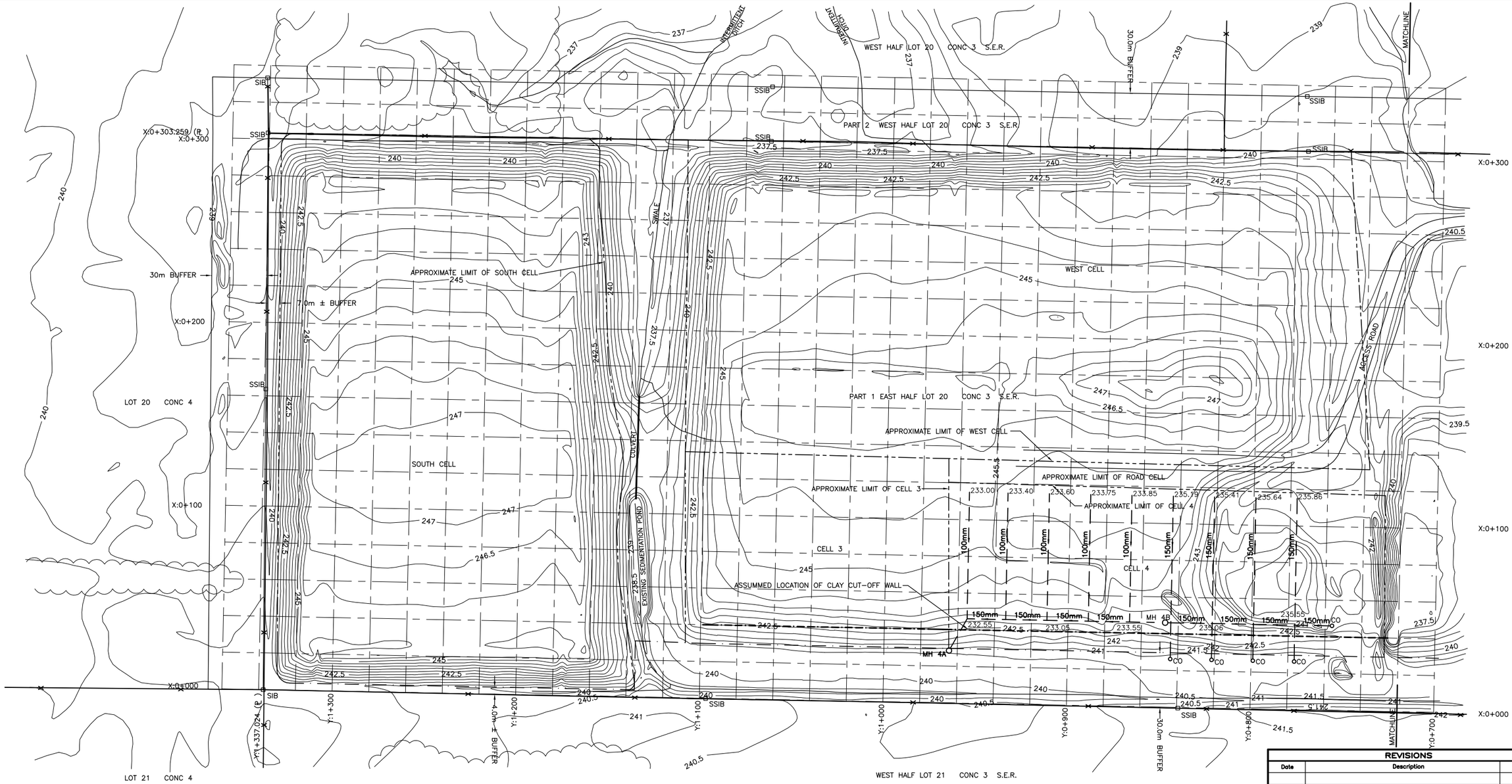
WARWICK LANDFILL
EXISTING CONDITIONS – SOUTH

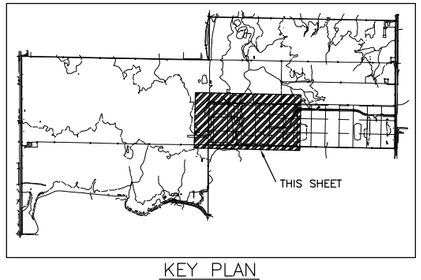
REGISTERED PROFESSIONAL ENGINEER
F.C. FORD
PROVINCE OF ONTARIO

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 – 304





KEY PLAN

NOTES:

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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
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
- TREELINE
- TREE
- EXISTING DITCH OR CREEK
- EXISTING ROAD EDGE
- EXISTING BUILDING
- EXISTING FENCELINE
- □ SIB — STANDARD IRON BAR
- □ SSIB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- ASSUMMED 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

N

50 0 50 100

Scale

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

WEST HALF LOT 20 CONC 3 S.E.R.

MATCHLINE

PART 2 LOT 20 CONC 3 S.E.R.

30.0m BUFFER

CONTINGENCY INTERSTADIAL COLLECTOR

PROPOSED 3m WIDE ACCESS ROAD

PLACE SCREENING BERM

ACCESS ROAD

LIMIT OF ASPHALT

SCALE HOUSE

SCALES

MINI TRANSFER AREA

RECYCLING DROP OFF

OFFICE

ROAD ALLOWANCE BETWEEN CONCESSIONS 2 & 3 (SECOND LINE)

SAMPLE AND DEWATER POND PRIOR TO LANDFILLING IN CELL

PART 1 LOT 20 CONC 3 S.E.R.

POND

PROPOSED ACCESS ROAD

NORTH LANDFILL

BERM

REMOVE ALL NORTH CELL WASTE & PLACE IN CELLS 11 & 12 WHEN DEVELOPED

173m BUFFER

PROPOSED 3m WIDE ACCESS ROAD

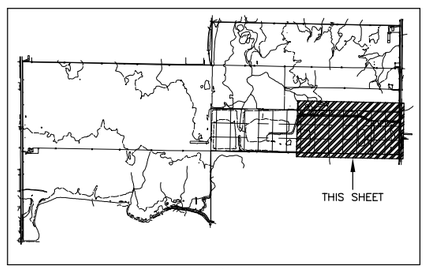
DITCH INLET

SUMP MH

EXCAVATE EXISTING NORTH WASTE MOUND AND LANDFILL WASTE CONCURRENTLY WITH INCOMING WASTE IN ACTIVE FACE

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

PHASE 3



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
- SIB — STANDARD IRON BAR
- SSIB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- PROPOSED FINAL CONTOURS
- PROPOSED ACCESS ROADS
- PROPOSED PERIMITER DITCHING
- TP14 — TEST PIT NUMBER
- 20-15 — OBSERVATION WELL NUMBER AND DEPTH
- 3 — PERCOLATION TEST NUMBER
- CROSS SECTION LOCATION AND DRAWING NUMBER
- CONTINGENCY INTERSTADIAL DRAIN

N

50 0 50 100

Scale

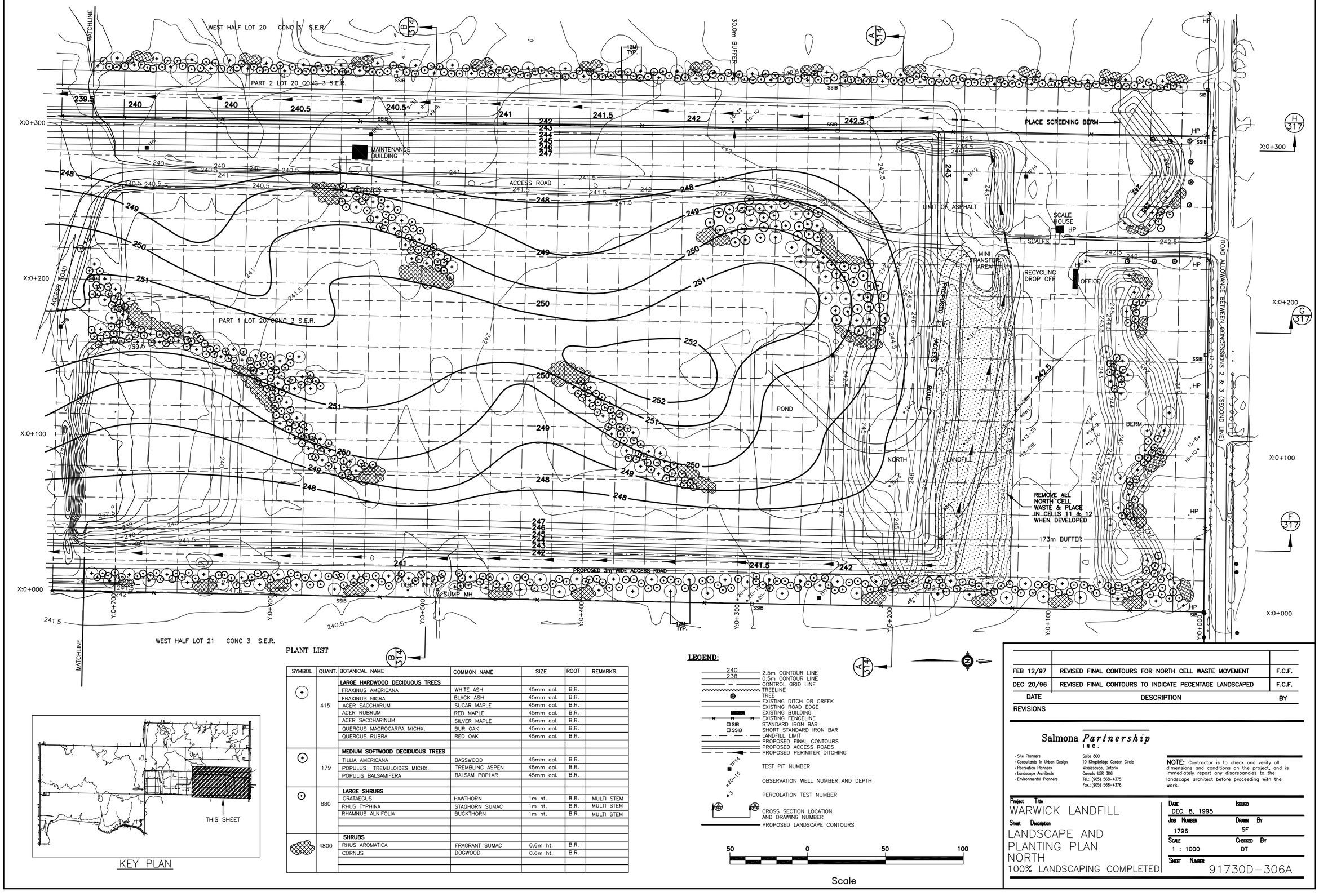
REVISIONS		
Date	Description	By
FEB 12/97	REVISED FINAL CONTOURS FOR NORTH CELL WASTE MOVEMENT	F.C.F.
JAN 7\97	REMOVED MAINTENANCE BUILDING	T.C.G.
DEC 95	GENERAL REVISIONS	J.E.A.

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

WARWICK LANDFILL
FINAL CONTOURS – 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.	91730D – 306



KEY PLAN

PLANT LIST

SYMBOL	QUANT.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
		LARGE HARDWOOD DECIDUOUS TREES				
	415	FRAXINUS AMERICANA	WHITE ASH	45mm cal.	B.R.	
		FRAXINUS NIGRA	BLACK ASH	45mm cal.	B.R.	
		ACER SACCHARUM	SUGAR MAPLE	45mm cal.	B.R.	
		ACER RUBRUM	RED MAPLE	45mm cal.	B.R.	
		ACER SACCHARINUM	SILVER MAPLE	45mm cal.	B.R.	
		QUERCUS MACROCARPA MICHX.	BUR OAK	45mm cal.	B.R.	
		QUERCUS RUBRA	RED OAK	45mm cal.	B.R.	
		MEDIUM SOFTWOOD DECIDUOUS TREES				
	179	TILLIA AMERICANA	BASSWOOD	45mm cal.	B.R.	
		POPULUS TREMULOIDES MICHX.	TREMBLING ASPEN	45mm cal.	B.R.	
		POPULIS BALSAMIFERA	BALSAM POPLAR	45mm cal.	B.R.	
		LARGE SHRUBS				
	880	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
		SHRUBS				
	4800	RHUS AROMATICA	FRAGRANT SUMAC	0.6m ht.	B.R.	
		CORNUS	DOGWOOD	0.6m ht.	B.R.	

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
- SIB — STANDARD IRON BAR
- SSIB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- PROPOSED FINAL CONTOURS
- PROPOSED ACCESS ROADS
- PROPOSED PERIMITER DITCHING
- TP14 — TEST PIT NUMBER
- 20-15 / 4.3 — OBSERVATION WELL NUMBER AND DEPTH
- PERCOLATION TEST NUMBER
- A314 / N1 — CROSS SECTION LOCATION AND DRAWING NUMBER
- PROPOSED LANDSCAPE CONTOURS

50 0 50 100

Scale

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

REVISIONS

Salmona *Partnership* INC.

- Site Planners
- Consultants in Urban Design
- Recreation Planners
- Landscape Architects
- Environmental Planners

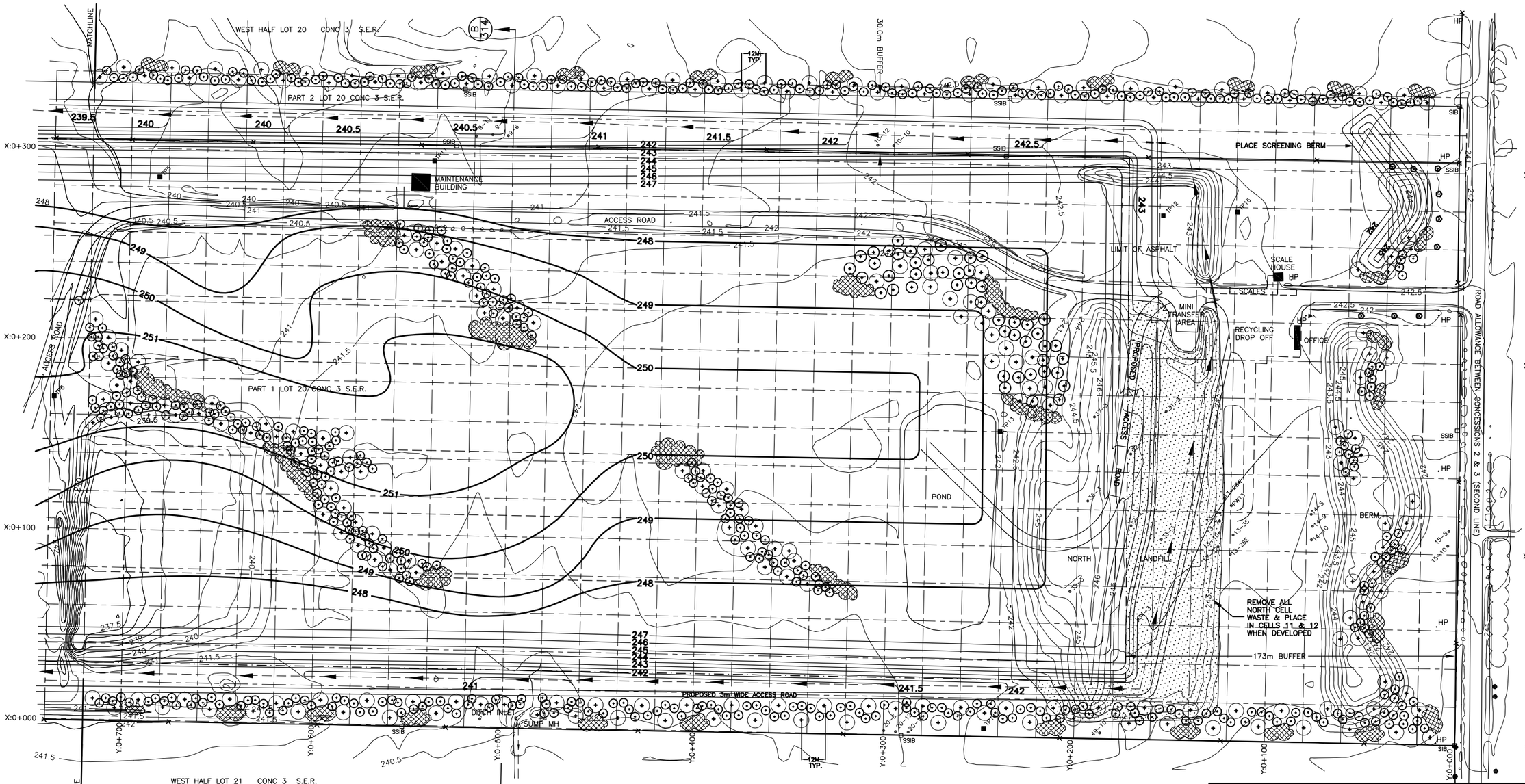
Suite 800
10 Kingsbridge Garden Circle
Mississauga, Ontario
Canada L5R 3K6
Tel.: (905) 568-4375
Fax.: (905) 568-4376

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

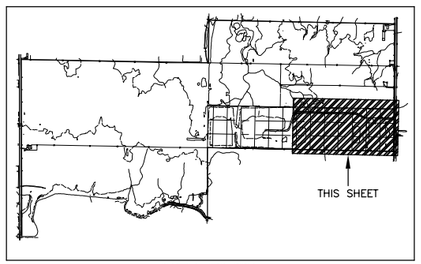
Sheet Description
LANDSCAPE AND PLANTING PLAN NORTH
100% LANDSCAPING COMPLETED

Date Issued	DEC. 8, 1995
Job Number	1796
Drawn By	SF
Scale	1 : 1000
Checked By	DT
Sheet Number	91730D-306A



PLANT LIST

SYMBOL	QUANT.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
		LARGE HARDWOOD DECIDUOUS TREES				
	415	FRAXINUS AMERICANA	WHITE ASH	45mm cal.	B.R.	
		FRAXINUS NIGRA	BLACK ASH	45mm cal.	B.R.	
		ACER SACCHARUM	SUGAR MAPLE	45mm cal.	B.R.	
		ACER RUBRUM	RED MAPLE	45mm cal.	B.R.	
		ACER SACCHARINUM	SILVER MAPLE	45mm cal.	B.R.	
		QUERCUS MACROCARPA MICHX.	BUR OAK	45mm cal.	B.R.	
		QUERCUS RUBRA	RED OAK	45mm cal.	B.R.	
		MEDIUM SOFTWOOD DECIDUOUS TREES				
	179	TILLIA AMERICANA	BASSWOOD	45mm cal.	B.R.	
		POPULUS TREMULOIDES MICHX.	TREMBLING ASPEN	45mm cal.	B.R.	
		POPULIS BALSAMIFERA	BALSAM POPLAR	45mm cal.	B.R.	
		LARGE SHRUBS				
	880	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
		SHRUBS				
	4800	RHUS AROMATICA	FRAGRANT SUMAC	0.6m ht.	B.R.	
		CORNUS	DOGWOOD	0.6m ht.	B.R.	



KEY PLAN

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
- SIB — STANDARD IRON BAR
- SSIB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- PROPOSED FINAL CONTOURS
- PROPOSED ACCESS ROADS
- PROPOSED PERIMITER DITCHING
- TP14 — TEST PIT NUMBER
- 20-15 / 5 — OBSERVATION WELL NUMBER AND DEPTH
- PERCOLATION TEST NUMBER
- CROSS SECTION LOCATION AND DRAWING NUMBER
- PROPOSED LANDSCAPE CONTOURS

50 0 50 100

Scale

DATE	DESCRIPTION	BY
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.

REVISIONS

Salmona *Partnership* INC.

- Site Planners
- Consultants in Urban Design
- Recreation Planners
- Landscape Architects
- Environmental Planners

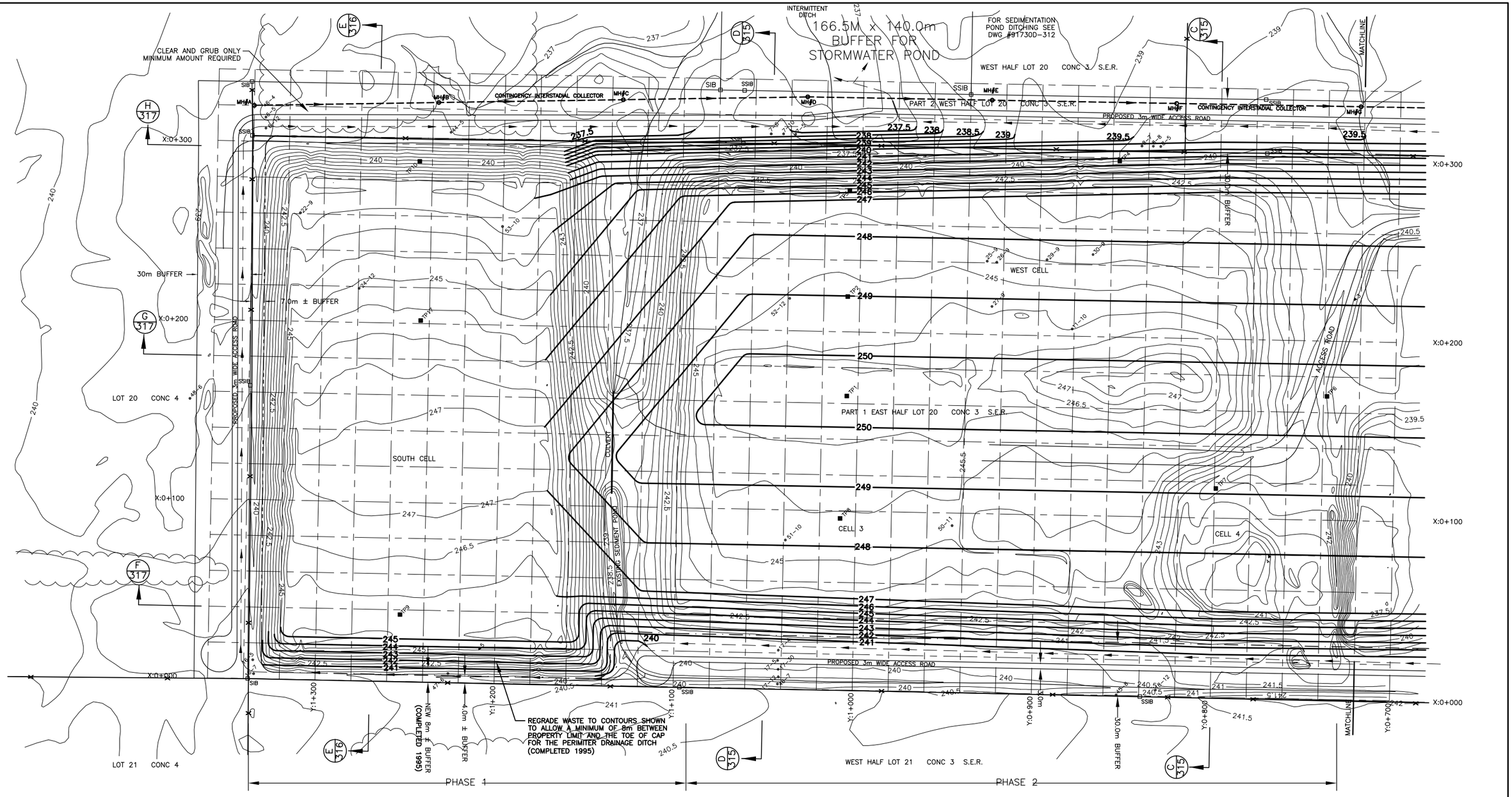
Suite 800
10 Kingsbridge Garden Circle
Mississauga, Ontario
Canada L5R 3K6
Tel.: (905) 568-4375
Fax.: (905) 568-4376

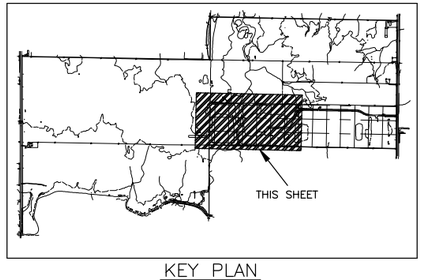
NOTE: Contractor is to check and verify all dimensions and conditions on the project, and is immediately report any discrepancies to the landscape architect before proceeding with the work.

Project Title
WARWICK LANDFILL

Sheet Description
LANDSCAPE AND PLANTING PLAN NORTH
75% LANDSCAPING COMPLETED

Date Issued	DEC. 8, 1995
Job Number	1796
Drawn By	SF
Scale	1 : 1000
Checked By	DT
Sheet Number	91730D-306B





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
- SIB — STANDARD IRON BAR
- SSIB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- PROPOSED FINAL CONTOURS
- PROPOSED PERIMITER DITCHING
- PROPOSED ACCESS ROAD
- LOCATION OF CROSS SECTION
- TP14 — TEST PIT NUMBER
- 20-15 — OBSERVATION WELL NUMBER AND DEPTH
- 4.5 — PERCOLATION TEST NUMBER
- CONTINGENCY INTERSTADIAL DRAIN

50 0 50 100

Scale

REVISIONS

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

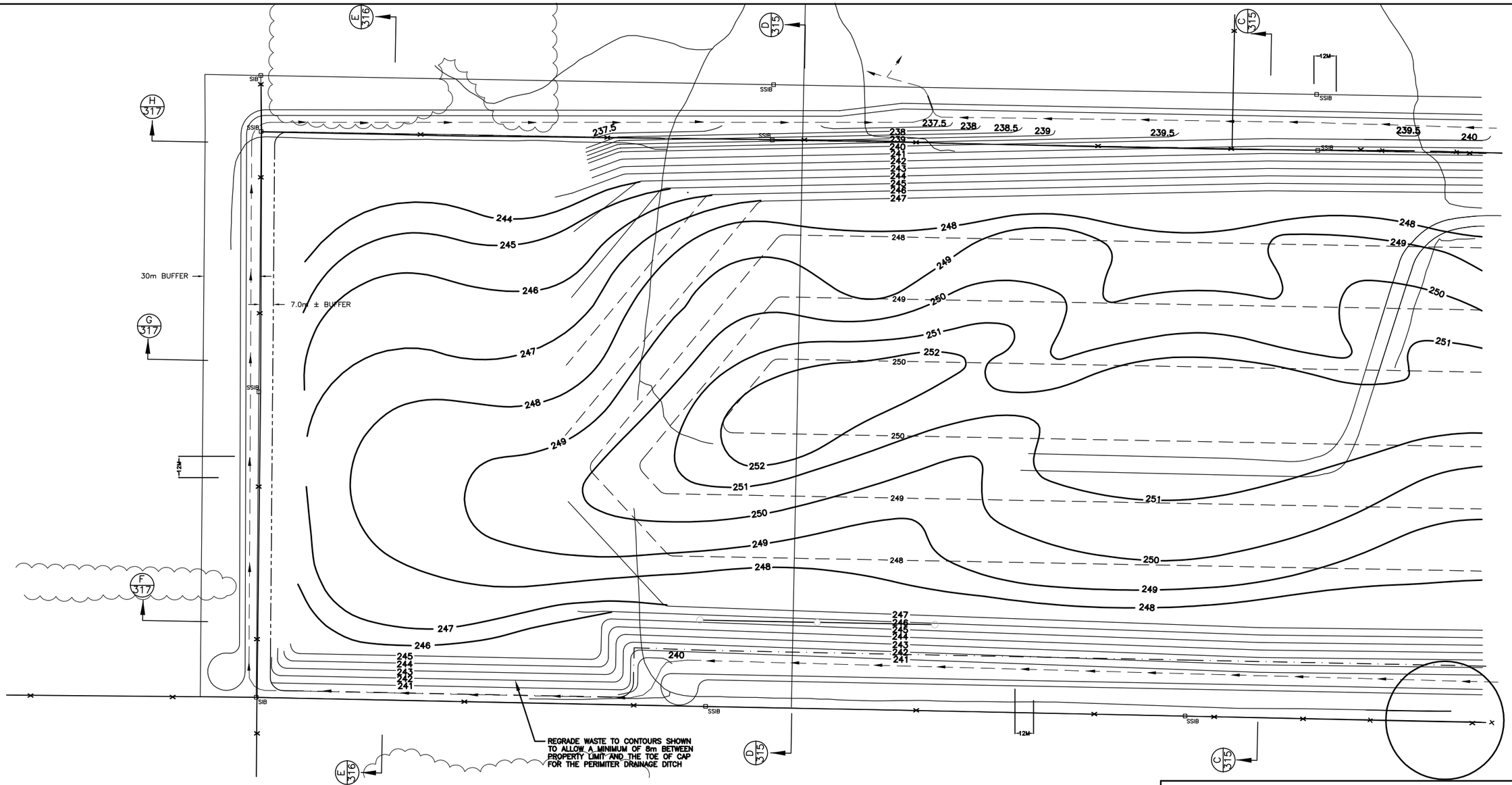
HENDERSON, PADDON ENVIRONMENTAL INC.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
OWEN SOUND ◆ GUELPH ◆ BLIND RIVER ◆ PORT ELGIN

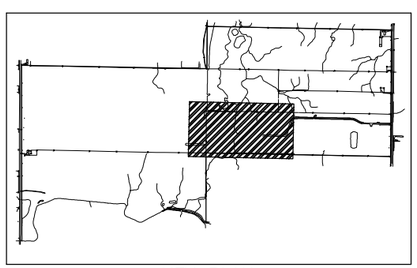
WARWICK LANDFILL
FINAL CONTOURS – SOUTH

CLIENT: CANADIAN WASTE SERVICES INC.

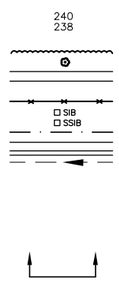
Design:	J E A	Scale:	AS SHOWN
Drawn:	J E A	Date:	SEPTEMBER 1994
Traced:		Approved:	
Checked:	F C F		Design Engineer

DRAWING No. 91730D – 307





KEY PLAN



DATE	DESCRIPTION	BY
DEC 20/96	REVISED FINAL CONTOURS TO INDICATE PECENTAGE LANDSCAPED	F.C.F.

REVISIONS

Salmona Partnership INC.

- Site Planners
- Consultants in Urban Design
- Recreation Planners
- Landscape Architects
- Environmental Planners

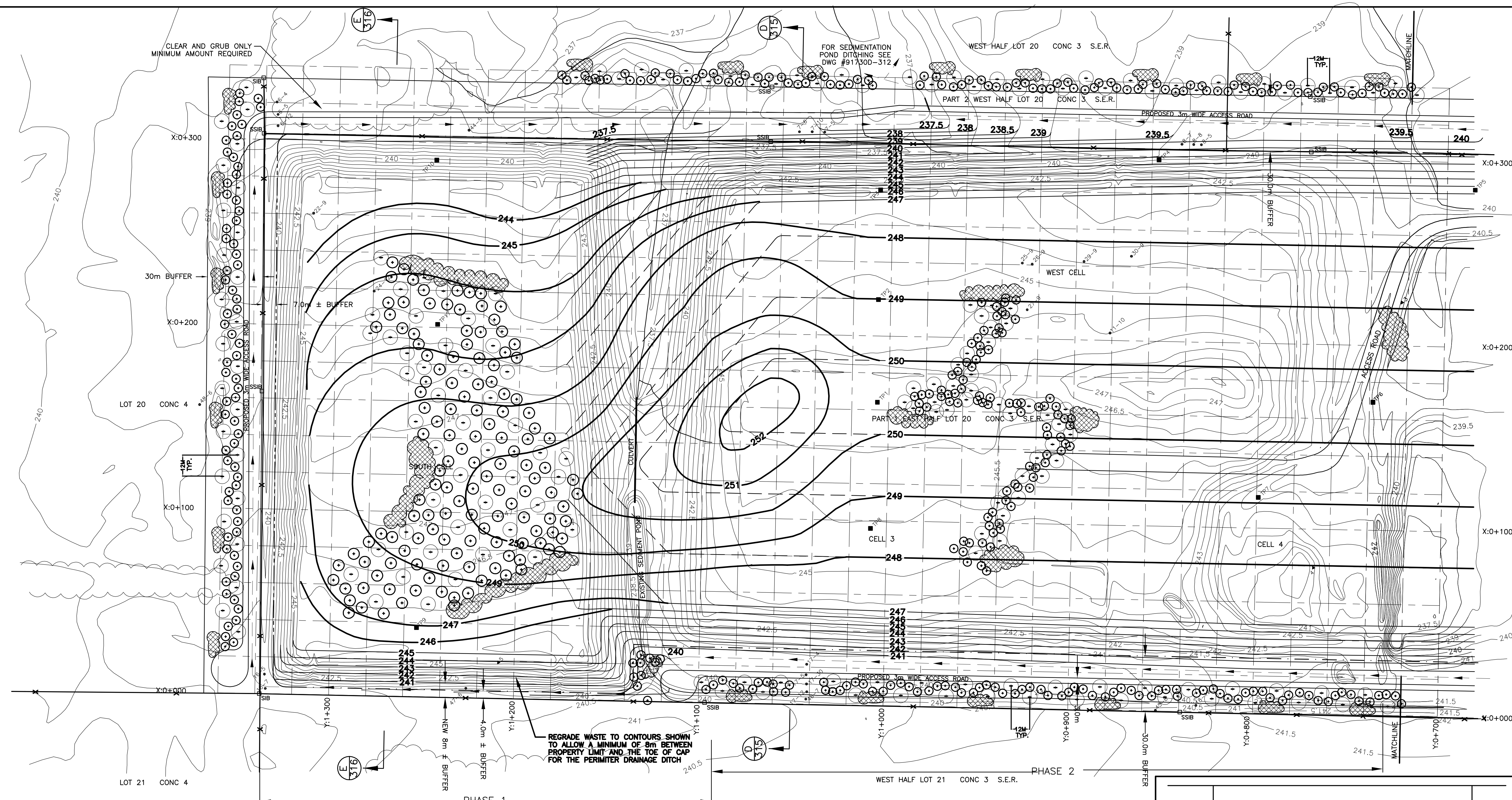
Suite 800
10 Kingsbridge Garden Circle
Mississauga, Ontario
Canada L5R 3K6
Tel.: (905) 568-4375
Fax.: (905) 568-4376

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

Sheet Description
LANDSCAPE AND PLANTING PLAN SOUTH
100% LANDSCAPING COMPLETED

Date Issued	DEC. 8, 1995
Job Number	1796
Drawn By	SF
Scale	1 : 1000
Checked By	DT
Sheet Number	91730D-307A



NOTES:

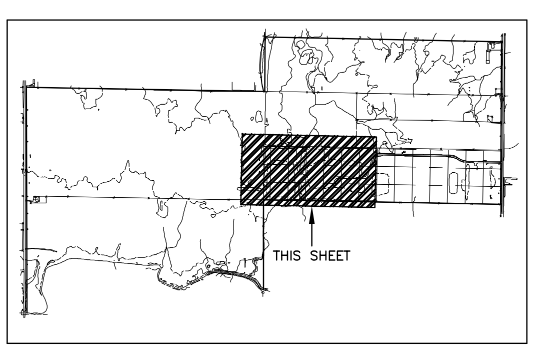
1) EXISTING CONTOURS AND DETAIL WAS DETERMINED BY AERIAL MAPPING ON JUNE 1 1992, AND WAS SUPPLIED BY MARSHALL MACKLIN MONAGHAN CONSULTING LIMITED.
2) CONTROL GRID IS BASED UPON THE NORTHEAST LIMIT OF THE PROPERTY AS THE BASELINE OF THE GRID. THE Y GRID RUNS PARALLEL TO THE EAST PROPERTY LINE.
3) CONTOUR 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
- SIB — STANDARD IRON BAR
- SSIB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- PROPOSED FINAL CONTOURS
- PROPOSED ACCESS ROADS
- PROPOSED PERIMITER DITCHING
- TP14 — TEST PIT NUMBER
- 20–15 — OBSERVATION WELL NUMBER AND DEPTH
- 3 — PERCOLATION TEST NUMBER
- CROSS SECTION LOCATION AND DRAWING NUMBER
- PROPOSED LANDSCAPE CONTOURS

- LARGE HARDWOOD DECIDUOUS TREES
- MEDIUM SOFTWOOD DECIDUOUS TREES
- LARGE SHRUBS
- SHRUBS

SEE 91730D-306A FOR PLANT LIST



KEY PLAN

Scale 50 0 50 100

DATE	DESCRIPTION	BY
DEC 20/96	REVISED FINAL CONTOURS TO INDICATE PERCENTAGE LANDSCAPED	F.C.F.

REVISIONS

Salmona *Partnership* INC.
• Site Planners • Consultants in Urban Design • Recreation Planners • Landscape Architects • Environmental Planners
Suite 800, 10 Kingsbridge Garden Circle, Mississauga, Ontario, Canada L5R 3K6, Tel.: (905) 568-4375, Fax.: (905) 568-4376

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Project Title: WARWICK LANDFILL	Date: DEC. 8, 1995 / Issued:
Sheet Description: LANDSCAPE AND PLANTING PLAN SOUTH 25% LANDSCAPING COMPLETED	Job Number: 1796 / Drawn By: SF
	Scale: 1 : 1000 / Checked By: DT
	Sheet Number: 91730D-307B

CLEAR AND GRUB ONLY
MINIMUM AMOUNT REQUIRED

FOR SEDIMENTATION
POND DITCHING SEE
DWG #91730D-312

WEST HALF LOT 20 CONC 3 S.E.R.

PART 2 WEST HALF LOT 20 CONC 3 S.E.R.

PROPOSED 3m WIDE ACCESS ROAD

12M TYP.

MATCHLINE

X:0+300

X:0+200

X:0+100

X:0+000

30m BUFFER

7.0m ± BUFFER

LOT 20 CONC 4

PROPOSED 3m WIDE ACCESS ROAD

WEST CELL

PART 1 EAST HALF LOT 20 CONC 3 S.E.R.

CELL 3

CELL 4

EXISTING SEDIMENT POND

CULVERT

PROPOSED 3m WIDE ACCESS ROAD

NEW 8m ± BUFFER

4.0m ± BUFFER

REGRADE WASTE TO CONTOURS SHOWN TO ALLOW A MINIMUM OF 8m BETWEEN PROPERTY LIMIT AND THE TOE OF CAP FOR THE PERIMITER DRAINAGE DITCH

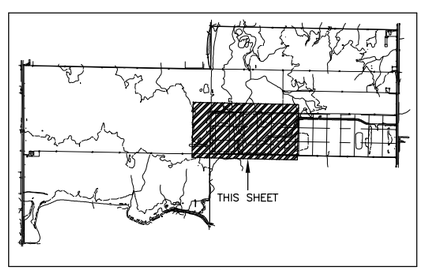
LOT 21 CONC 4

PHASE 1

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

PHASE 2

30.0m BUFFER



KEY PLAN

NOTES:

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LEGEND:

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- TREELINE
- TREE
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- EXISTING ROAD EDGE
- EXISTING BUILDING
- EXISTING FENCELINE
- SIB — STANDARD IRON BAR
- SSIB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- PROPOSED FINAL CONTOURS
- PROPOSED ACCESS ROADS
- PROPOSED PERIMITER DITCHING
- TP14 — TEST PIT NUMBER
- 20-15 — OBSERVATION WELL NUMBER AND DEPTH
- 3 — PERCOLATION TEST NUMBER
- CROSS SECTION LOCATION AND DRAWING NUMBER
- PROPOSED LANDSCAPE CONTOURS

- LARGE HARDWOOD DECIDUOUS TREES
- MEDIUM SOFTWOOD DECIDUOUS TREES
- LARGE SHRUBS
- SHRUBS

SEE 91730D-306A FOR PLANT LIST

50 0 50 100

Scale

DATE	DESCRIPTION	BY
DEC 20/96	REVISED FINAL CONTOURS TO INDICATE PERCENTAGE LANDSCAPED	F.C.F.

REVISIONS

Salmona Partnership INC.

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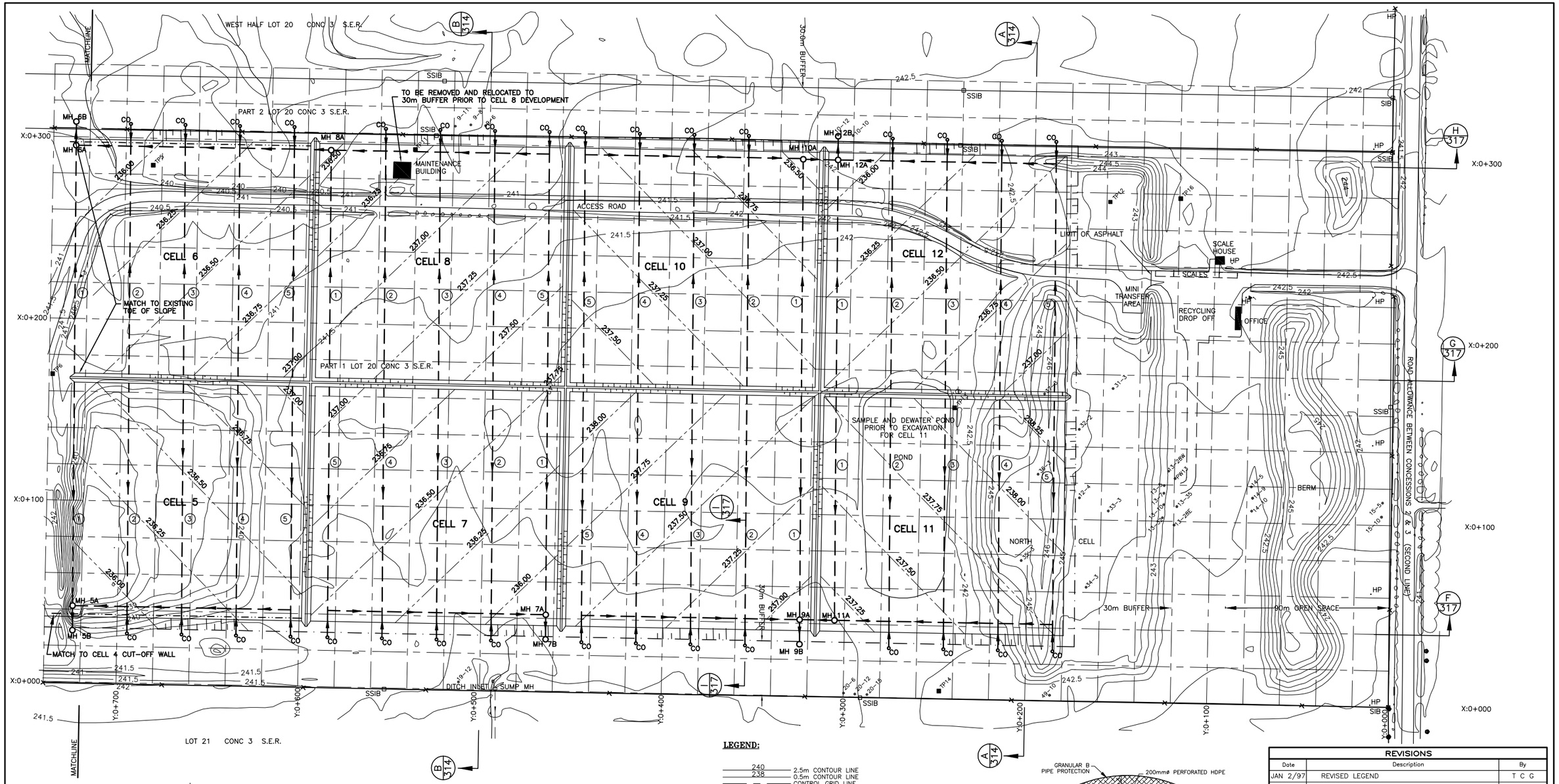
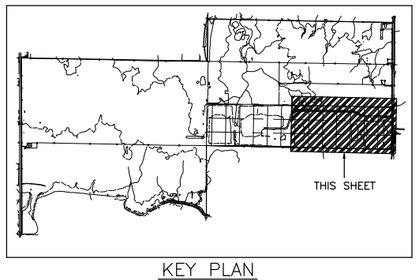
Project Title
WARWICK LANDFILL

Sheet Description
LANDSCAPE AND PLANTING PLAN SOUTH
50% LANDSCAPING COMPLETED

Date Issued	DEC. 8, 1995
Job Number	1796
Drawn By	SF
Scale	1 : 1000
Checked By	DT
Sheet Number	91730D-307C





KEY PLAN

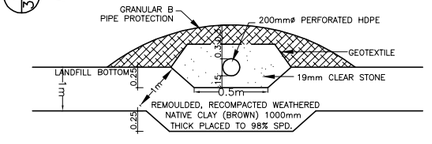
TABLE OF LEACHATE COLLECTOR INVERTS

CELL	RUN	EAST INVERT	WEST INVERT	HEADER INVERT	CELL	RUN	EAST INVERT	WEST INVERT	HEADER INVERT
5	1	235.37	235.98	235.37	9	1	236.82	237.44	236.82
	2	235.52	236.13	235.52		2	236.97	237.59	236.97
	3	235.67	236.28	235.67		3	237.12	237.74	237.12
	4	235.82	236.43	235.82		4	237.27	237.89	237.27
	5	235.95	236.56	235.95		5	237.42	238.04	237.42
6	1	235.92	235.29	235.29	10	1	236.99	236.36	236.36
	2	236.07	235.44	235.44		2	237.14	236.51	236.51
	3	236.22	235.59	235.59		3	237.29	236.66	236.66
	4	236.37	235.74	235.74		4	237.44	236.81	236.81
	5	236.52	235.89	235.89		5	237.59	236.96	236.96
7	1	235.82	236.44	235.82	11	1	237.06	237.68	237.06
	2	235.97	236.59	235.97		2	237.21	237.83	237.21
	3	236.12	236.74	236.12		3	237.36	237.98	237.36
	4	236.27	236.89	236.27		4	237.51	238.13	237.51
	5	236.42	237.04	236.42		5	237.66	238.28	237.66
8	1	237.03	236.40	236.40	12	1	236.43	235.80	235.80
	2	237.18	236.55	236.55		2	236.58	235.95	235.95
	3	237.33	236.70	236.70		3	236.73	236.10	236.10
	4	237.48	236.85	236.85		4	236.88	236.25	236.25
	5	237.63	237.00	237.00		5	237.03	236.40	236.40

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 / 238 — 2.5m CONTOUR LINE / 0.5m CONTOUR LINE
- CONTROL GRID LINE
- TREELINE
- TREE
- EXISTING DITCH OR CREEK
- EXISTING ROAD EDGE
- EXISTING BUILDING
- EXISTING FENCELINE
- SIB / SSIB — STANDARD IRON BAR / SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- PROPOSED BOTTOM CONTOURS – TOP OF REMOULDED CLAY
- PROPOSED CLAY BERMS
- PROPOSED LEACHATE COLLECTOR
- 3 — COLLECTOR RUN NUMBER IN TABLE
- EXISTING CLAY CUT-OFF WALL
- TP1-4 — TEST PIT NUMBER
- 20-15 — OBSERVATION WELL NUMBER AND DEPTH
- 3 — PERCOLATION TEST NUMBER
- A 314 — CROSS SECTION LOCATION AND DRAWING REFERENCE
- CO — LEACHATE COLLECTOR CLEAN OUT
- MH — LEACHATE COLLECTOR MANHOLE



LEACHATE COLLECTOR DETAIL
N.T.S.

NOTES:

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3) CONTOUR INTERVAL SHOWN ON THIS PLAN IS 0.5m
4) LEACHATE COLLECTOR SLOPE = 0.5%

50 0 50 100
Scale

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

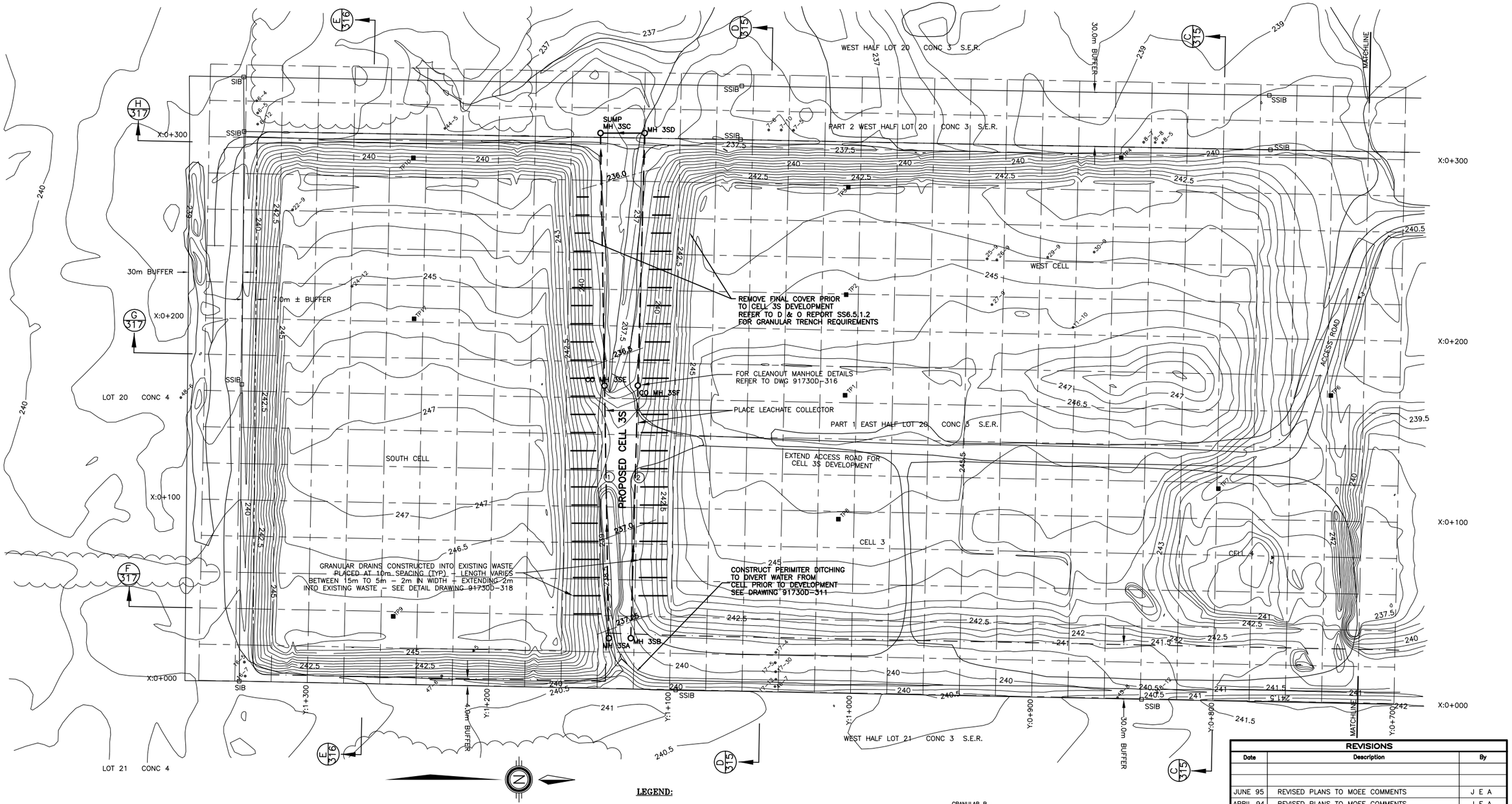
HENDERSON, PADDON ENVIRONMENTAL INC.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
OWEN SOUND ◆ GUELPH ◆ BLIND RIVER ◆ PORT ELGIN

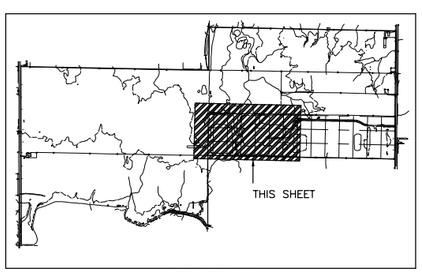
WARWICK LANDFILL
BASE CONTOURS – NORTH

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. 91730D – 308





KEY PLAN

TABLE OF LEACHATE COLLECTOR INVERTS

CELL	RUN	EAST INVERT	WEST INVERT
3S	1	237.15	235.75
	2	237.20	235.80
MH 3SD	SOUTH INVERT 235.75		
MH 3SC	NORTH INVERT 235.67		
MH 3SC	BOTTOM OF SUMP 234.37		
CO MH 3SE	CENTERLINE INVERT 236.45		
CO MH 3SF	CENTERLINE INVERT 236.50		

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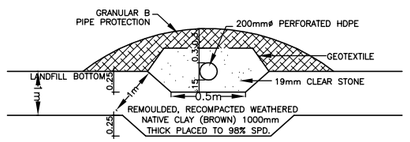
4) LEACHATE COLLECTOR SLOPE = 0.5%

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
- SIB / SSIB — STANDARD IRON BAR / SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- PROPOSED BASE CONTOURS
- CROSS SECTION LOCATION AND DRAWING REFERENCE
- PROPOSED LEACHATE COLLECTOR
- COLLECTOR RUN NUMBER IN TABLE
- TP14 — TEST PIT NUMBER
- 20-15 — OBSERVATION WELL NUMBER AND DEPTH
- 3 — PERCOLATION TEST NUMBER



LEACHATE COLLECTOR DETAIL
N.T.S.

50 0 50 100
Scale

REVISIONS

Date	Description	By
JUNE 95	REVISED PLANS TO MOEE COMMENTS	J E A
APRIL 94	REVISED PLANS TO MOEE COMMENTS	J E A

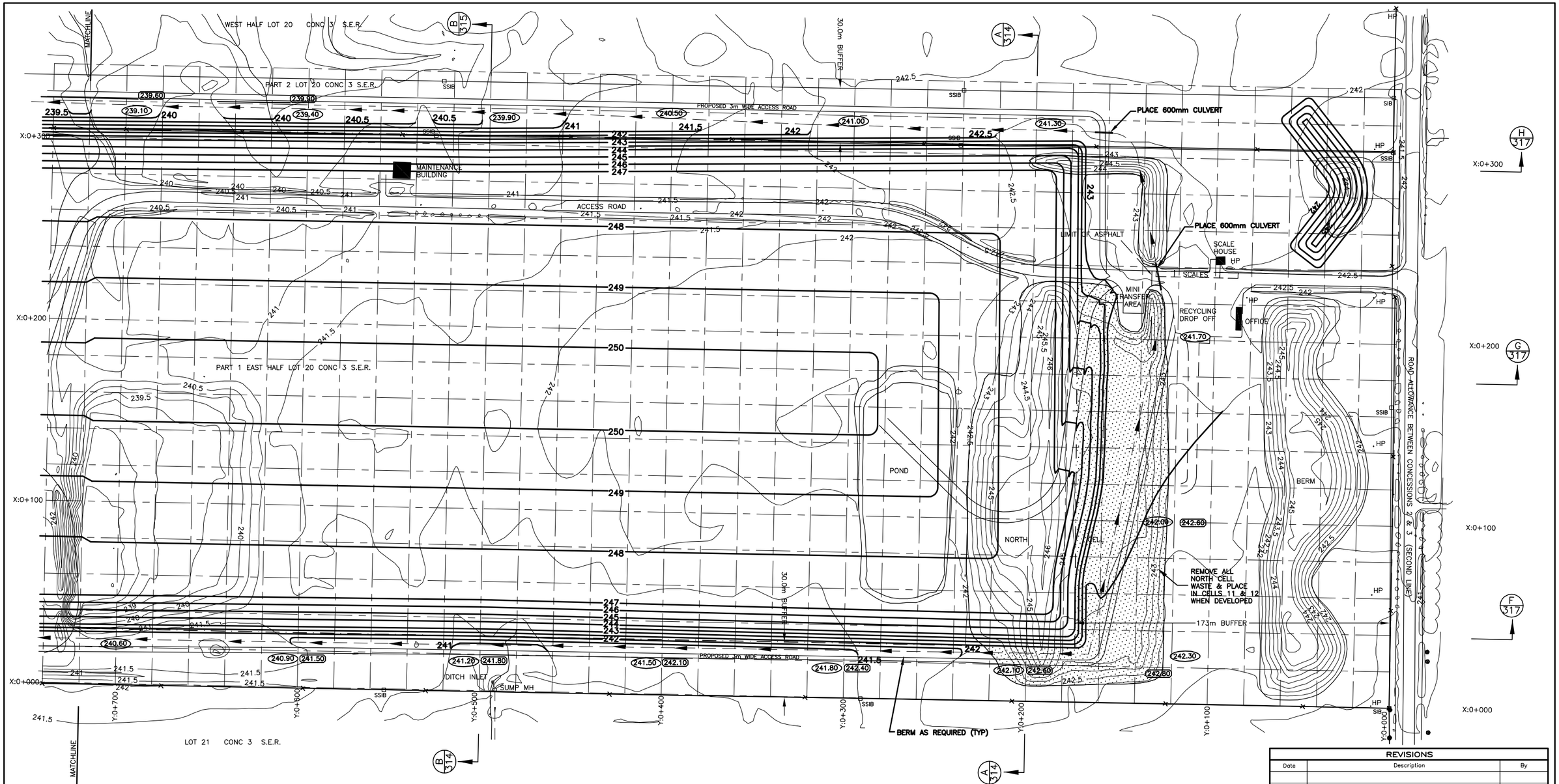
HENDERSON, PADDON ENVIRONMENTAL INC.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
OWEN SOUND ◆ GUELPH ◆ BLIND RIVER ◆ PORT ELGIN

WARWICK LANDFILL
BASE CONTOURS – SOUTH

CLIENT: CANADIAN WASTE SERVICES INC.

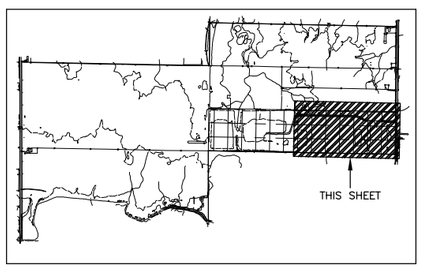
Design:	J.E.A.	Scale:	AS SHOWN
Drawn:	J.E.A.	Date:	SEPTEMBER 1994
Traced:		Approved:	
Checked:	F.C.F.		Design Engineer

DRAWING No. 91730D – 309

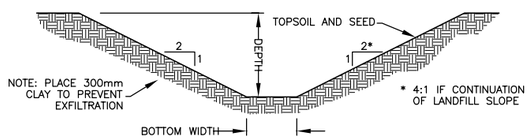


PERIMITER DRAINAGE DITCH DETAILS

STATION		BOTTOM WIDTH	SIDE SLOPES	MINIMUM DEPTH
Y:0+125	X:0+027	0.60m	2:1 *	0.50m
Y:0+500	X:0+025	0.60m	2:1 *	0.50m
Y:0+700	X:0+025	0.60m	2:1 *	0.50m
Y:0+123	X:0+200	0.60m	2:1 *	0.50m
Y:0+200	X:0+314	0.60m	2:1 *	0.50m
Y:0+500	X:0+318	0.60m	2:1 *	0.50m
Y:0+700	X:0+318	0.60m	2:1 *	0.50m



KEY PLAN



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- CONTROL GRID LINE
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- EXISTING ROAD EDGE
- EXISTING BUILDING
- EXISTING FENCELINE
- SIB — STANDARD IRON BAR
- SSIB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- 241.50 — PERIMITER DITCH INVERT
- 242.20 — TOP OF BERM ELEVATION
- A 315 / A 316 — CROSS SECTION LOCATION AND DRAWING REFERENCE
- PERIMITER DRAINAGE DITCH

NOTES:

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3) CONTOUR INTERVAL SHOWN ON THIS PLAN IS 0.5m

N

50 0 50 100

Scale

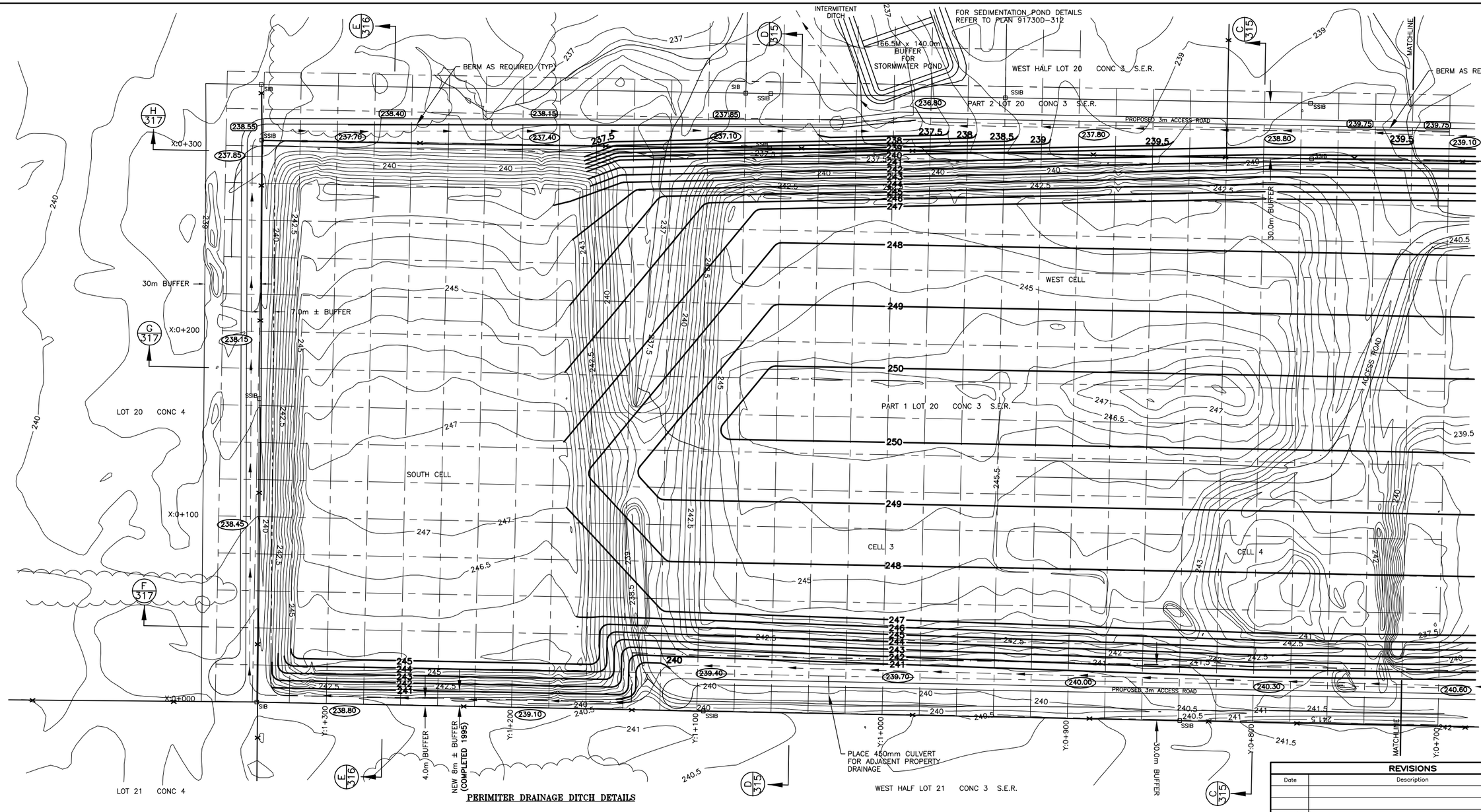
REVISIONS		
Date	Description	By
FEB 12/97	REVISED FINAL CONTOURS FOR NORTH CELL WASTE MOVEMENT	F.C.F.
JUNE 95	REVISED DITCH GRADES	J E A

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

WARWICK LANDFILL
STORMWATER MANAGEMENT – NORTH

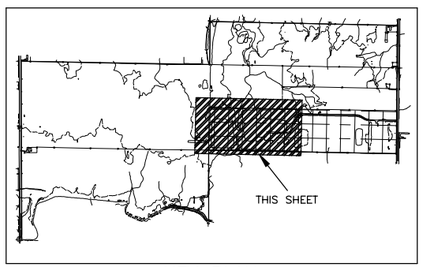
CLIENT: CANADIAN WASTE SERVICES INC.

Design: J E A	Scale: AS SHOWN
Drawn: J E A	Date: SEPTEMBER 1994
Traced:	Approved:
Checked: F C F	Design Engineer
DRAWING No.	91730D – 310

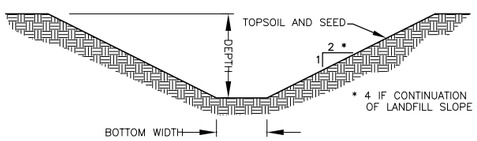


PERIMITER DRAINAGE DITCH DETAILS

STATION	BOTTOM WIDTH	SIDE SLOPES	MINIMUM DEPTH
Y:0+800 X:0+022	0.60m	2:1 *	0.60m
Y:1+100 X:0+024	0.60m	2:1 *	0.70m
Y:1+343 X:0+110	0.60m	2:1	0.70m
Y:1+150 X:0+312	0.60m	2:1	0.75m
Y:1+000 X:0+315	0.60m	2:1	0.90m
Y:0+800 X:0+319	0.60m	2:1	0.60m
Y:0+980 X:0+319	0.60m	2:1	0.60m



KEY PLAN



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- CONTROL GRID LINE
- TREELINE
- TREE
- EXISTING DITCH OR CREEK
- EXISTING ROAD EDGE
- EXISTING BUILDING
- EXISTING FENCELINE
- SIB — STANDARD IRON BAR
- SSIB — SHORT STANDARD IRON BAR
- LANDFILL LIMIT
- PROPOSED FINAL CONTOURS
- PROPOSED EXTERNAL DITCHING
- 239.40 — PROPOSED EXTERNAL DITCHING INVERT
- 242.20 — PROPOSED TOP OF BERM ELEVATION
- C 315 / C 315 — CROSS SECTION LOCATION AND DRAWING REFERENCE

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N

50 0 50 100

Scale

REVISIONS

Date	Description	By
JAN 02/97	ADDED BUFFER FOR STORMWATER POND	T.C.G.
JUNE 95	REVISED DITCH DEPTHS	J E A

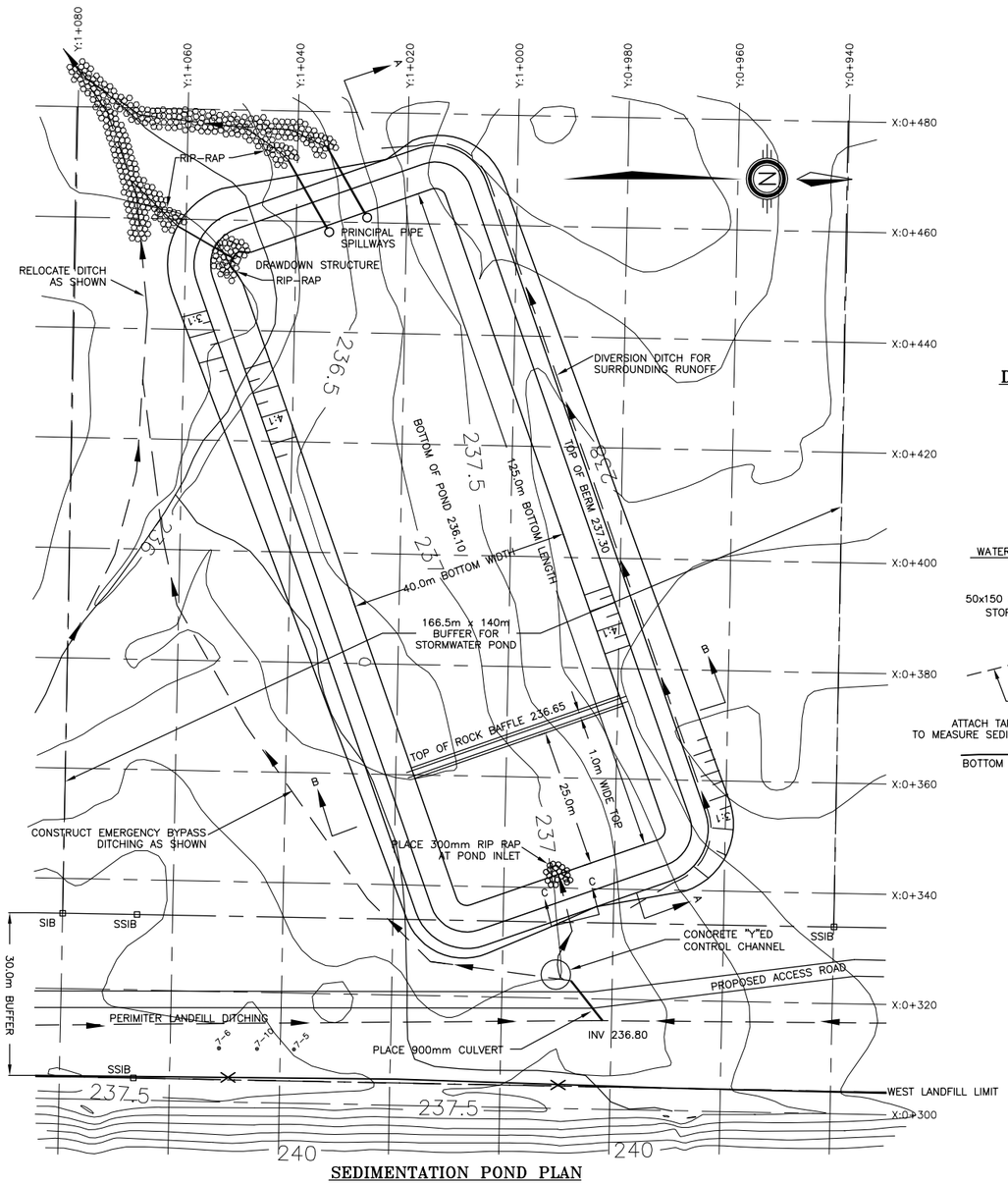
HENDERSON, PADDON ENVIRONMENTAL INC.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
OWEN SOUND ◆ GUELPH ◆ BLIND RIVER ◆ PORT ELGIN

WARWICK LANDFILL
STORMWATER MANAGEMENT – SOUTH

CLIENT: CANADIAN WASTE SERVICES INC.

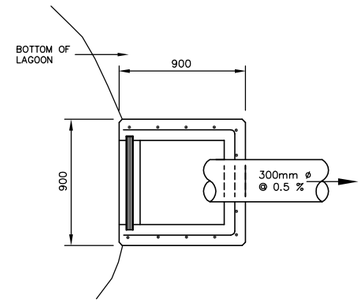
Design:	J E A	Scale:	AS SHOWN
Drawn:	J E A	Date:	SEPTEMBER 1994
Traced:		Approved:	
Checked:	F C F		Design Engineer

DRAWING No. 91730D – 311



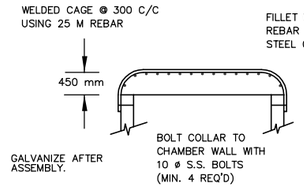
SEDIMENTATION POND PLAN (COMPLETED 1995)

SCALE : 0 10 20 30 m



DRAWDOWN STRUCTURE ~ PLAN

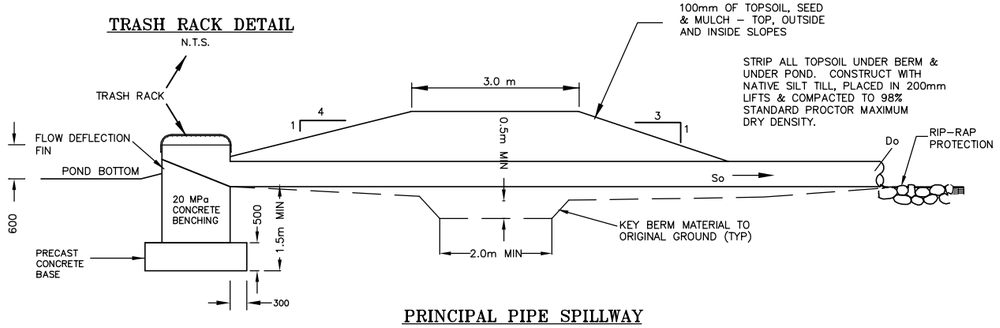
SCALE 1:20



TRASH RACK DETAIL

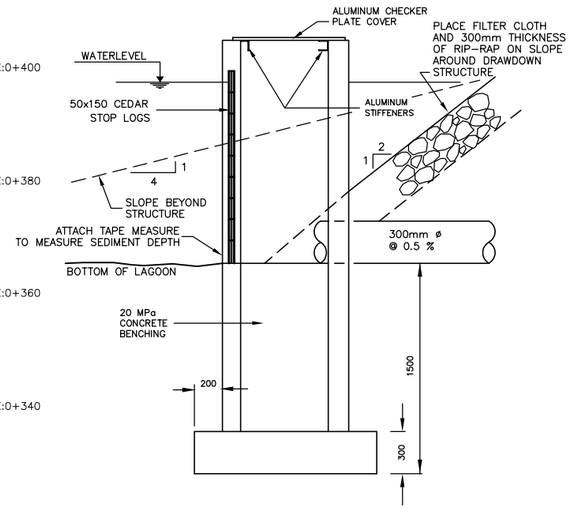
N.T.S.

RISER PIPE	OUTLET PIPE		OUTLET PIPE	SPILLWAY LIP
Dr	Do	So %	MATERIAL	ELEVATION
1-1200 mm	450 mm	0.6 %	PVC	236.70



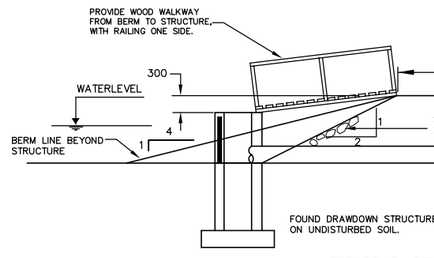
PRINCIPAL PIPE SPILLWAY

SCALE 1:50



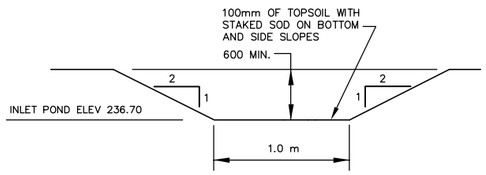
DRAWDOWN STRUCTURE ~ SECTION

SCALE 1:20



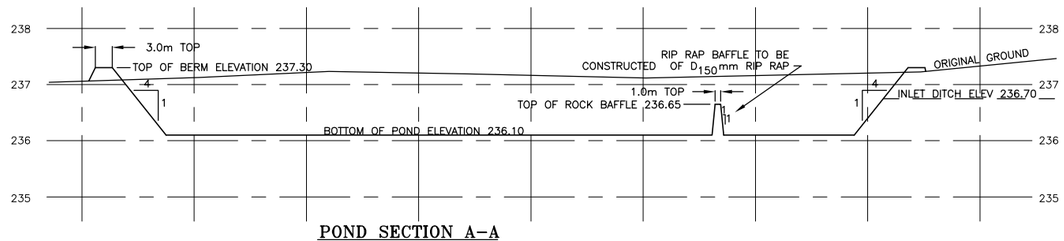
TYPICAL SECTION OF DRAWDOWN STRUCTURE AT BERM

SCALE 1:50



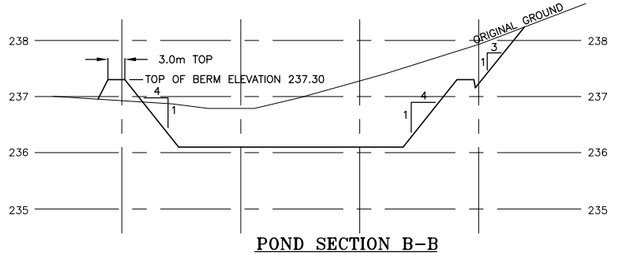
SECTION C-C

NTS



POND SECTION A-A

SCALE 1:500 (hor) 1:50 (vert)



POND SECTION B-B

SCALE 1:500 (hor) 1:50 (vert)

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

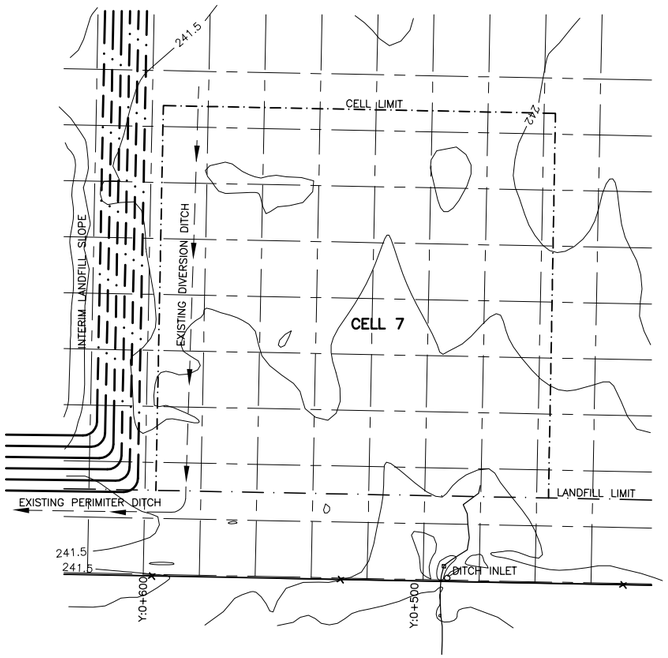
HENDERSON, PADDON ENVIRONMENTAL INC.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
OWEN SOUND ◆ GUELPH ◆ BLIND RIVER ◆ PORT ELGIN

WARWICK LANDFILL
SEDIMENTATION POND DETAILS

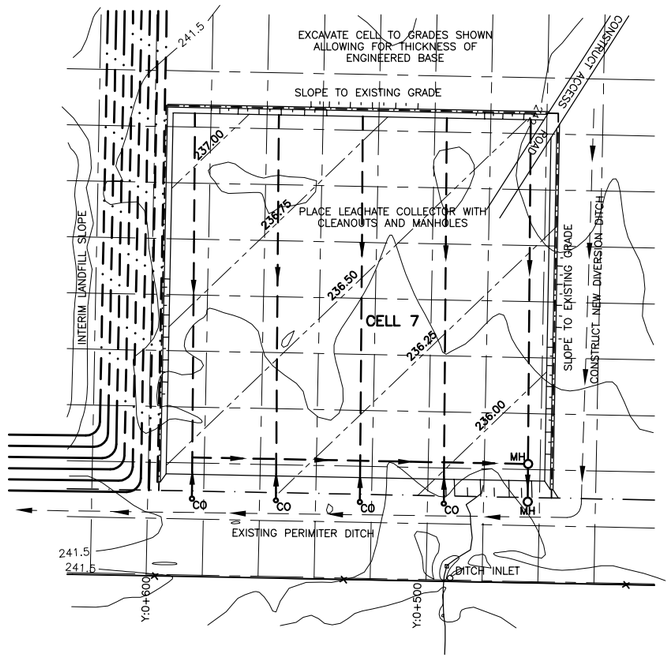
CLIENT: CANADIAN WASTE SERVICES INC.

Design: J E A	Scale: AS SHOWN
Drawn: J E A	Date: SEPTEMBER 1994
Traced:	Approved: Design Engineer
Checked: F C F	

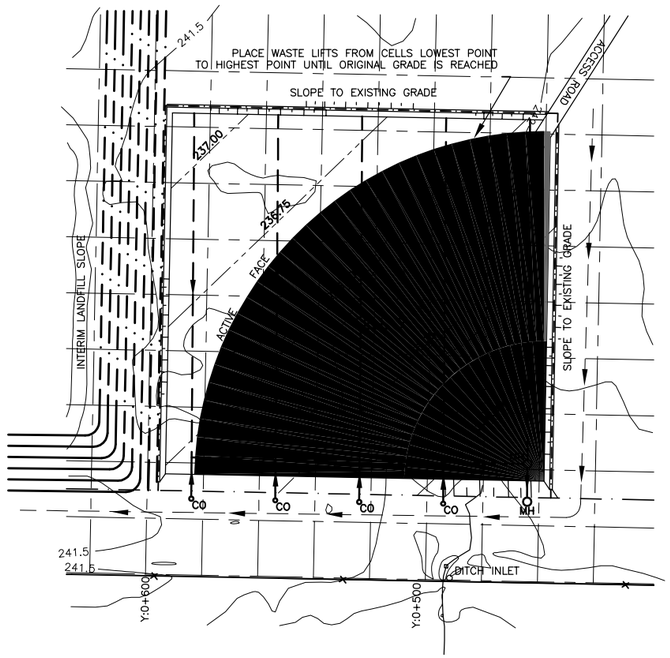
DRAWING No. 91730D - 312



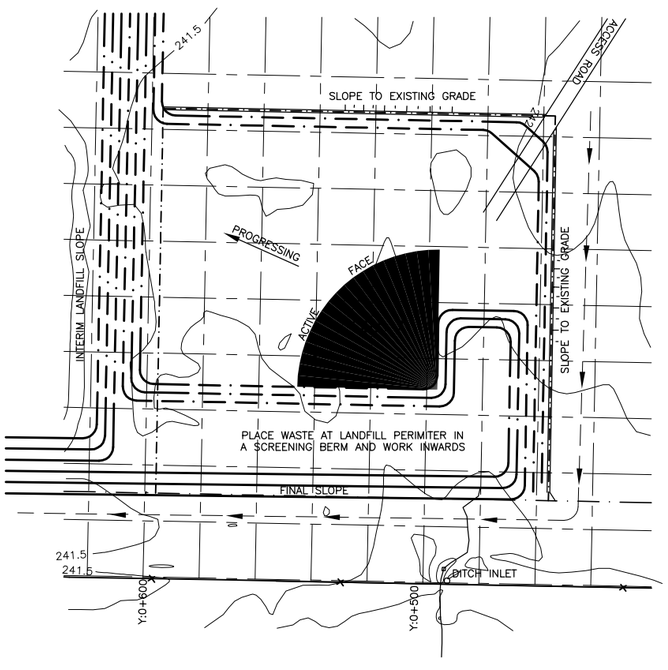
1) TYPICAL CELL CONDITIONS PRIOR TO DEVELOPMENT



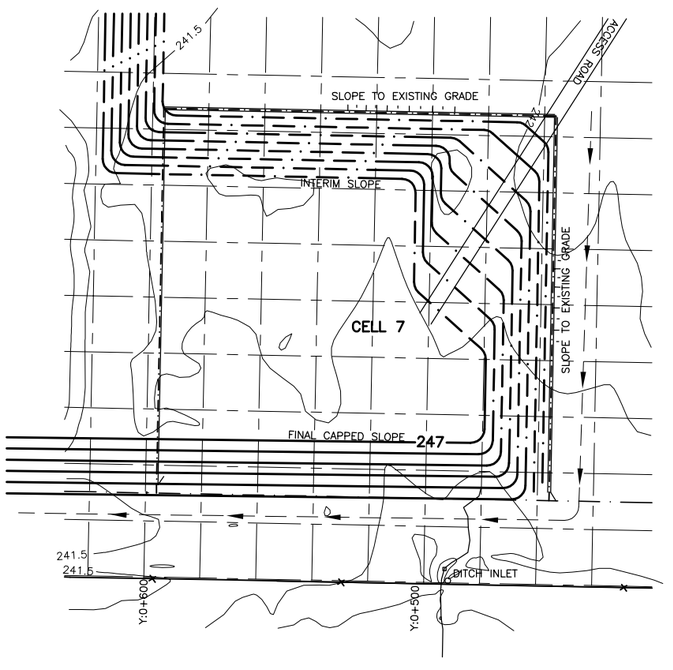
2) CELL CONSTRUCTION



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 BERMS
- PROPOSED LEACHATE COLLECTOR
- PROPOSED CLAY CUT-OFF WALL
- PROPOSED INTERIM CONTOURS
- CO — PROPOSED LEACHATE COLLECTOR CLEANOUT
- MH — PROPOSED LEACHATE MANHOLE

50 0 50 100

Scale

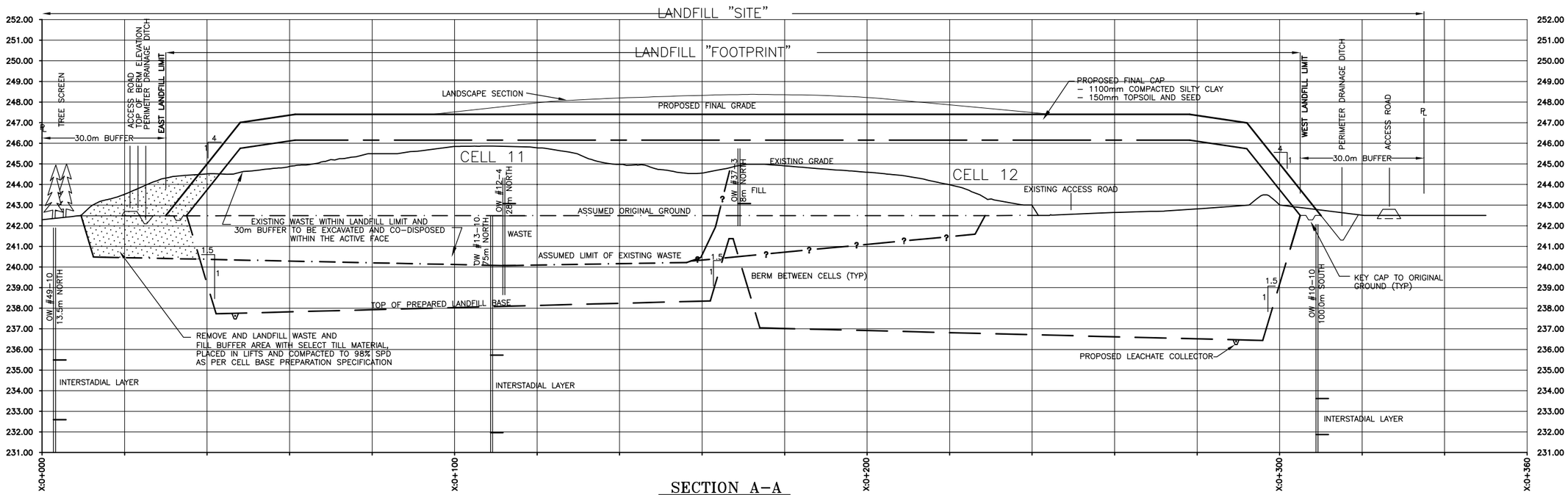
REVISIONS		
Date	Description	By
JAN 2/97	REVISED LEGEND	T C G
DEC 95	GENERAL REVISIONS	J E A

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

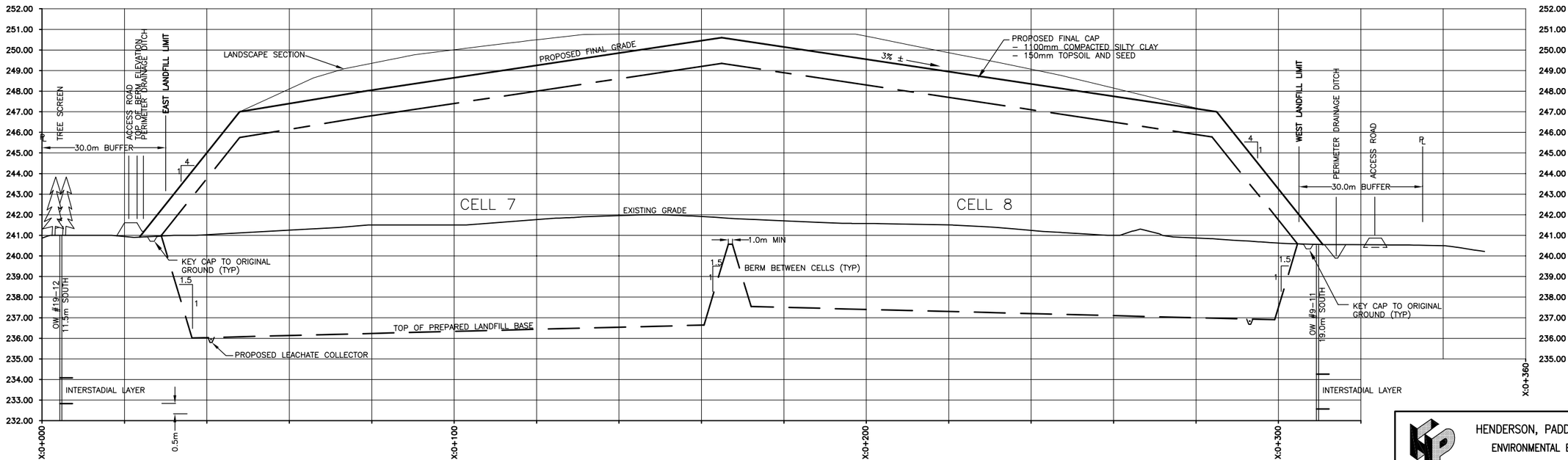
WARWICK TOWNSHIP LANDFILL PHASING PLAN

CLIENT: CANADIAN WASTE SERVICES INC.

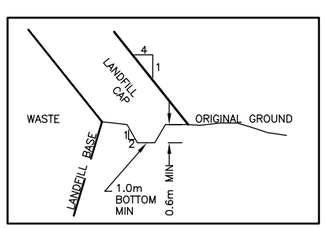
Design: J.E.A.	Scale: AS SHOWN
Drawn: J.E.A.	Date: FEBRUARY 1993
Traced:	Approved:
Checked: F.C.F.	Design Engineer
DRAWING No.	91730D – 313



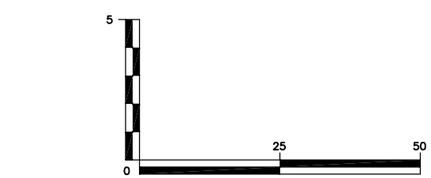
SECTION A–A



SECTION B–B



KEY DETAIL



Scale

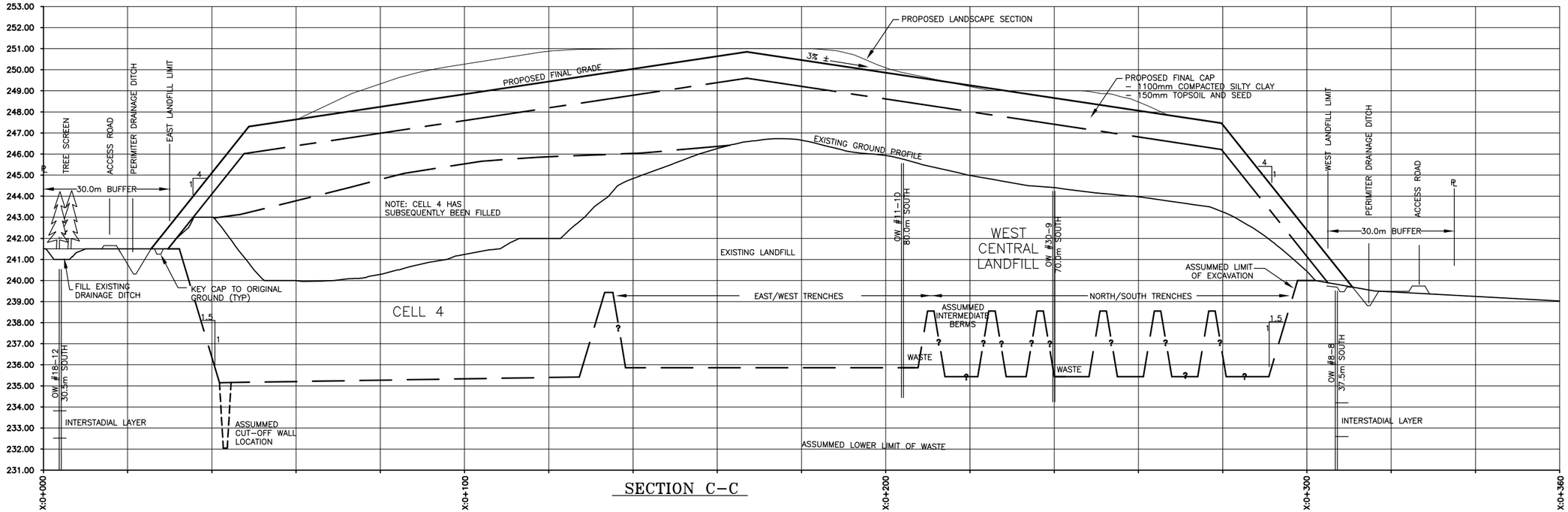
REVISIONS		
Date	Description	By
FEB 12/97	REVISED FINAL CONTOURS FOR NORTH CELL WASTE MOVEMENT	F C F
DEC 95	GENERAL REVISIONS	J E A
JUNE 95	REVISED TO MOEE COMMENTS	J E A
APRIL 94	REVISED TO MOEE COMMENTS	J E A

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

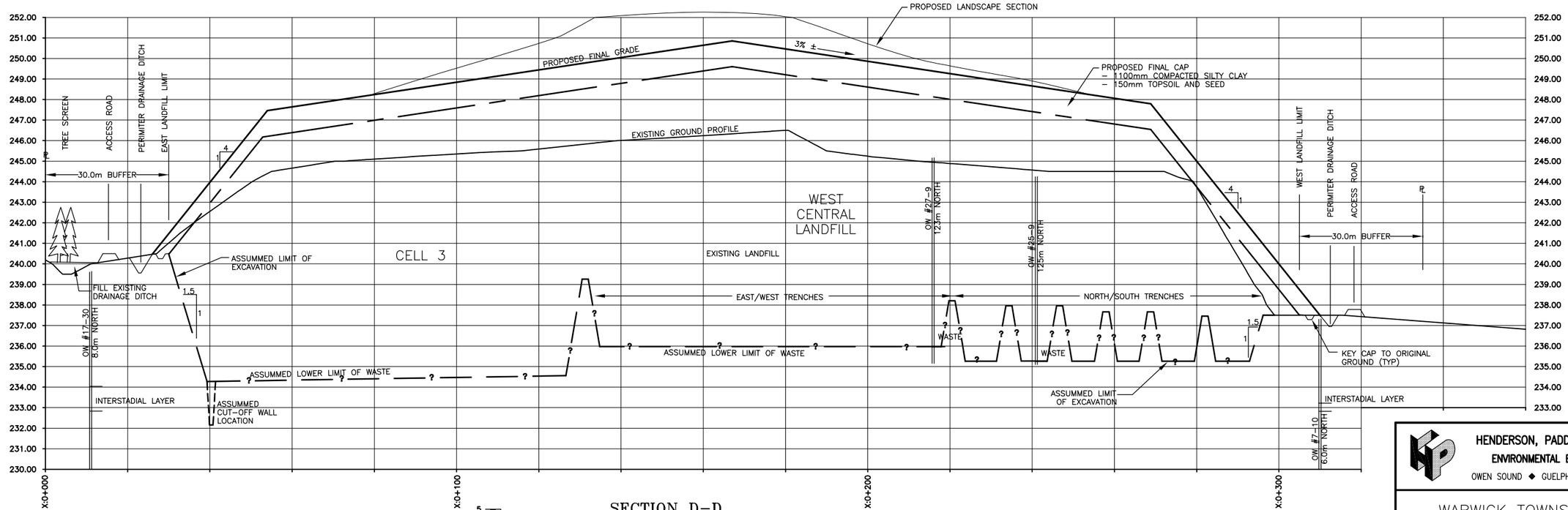
WARWICK LANDFILL
SECTION A–A AND SECTION B–B

CLIENT: CANADIAN WASTE SERVICES INC.

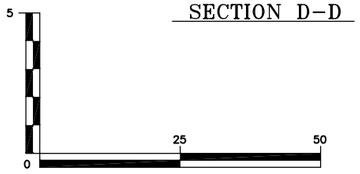
Design: J E A	Scale: AS SHOWN
Drawn: J E A	Date: SEPTEMBER 1994
Traced:	Approved:
Checked: F C F	Design Engineer
DRAWING No.	91730D – 314



SECTION C–C



SECTION D–D



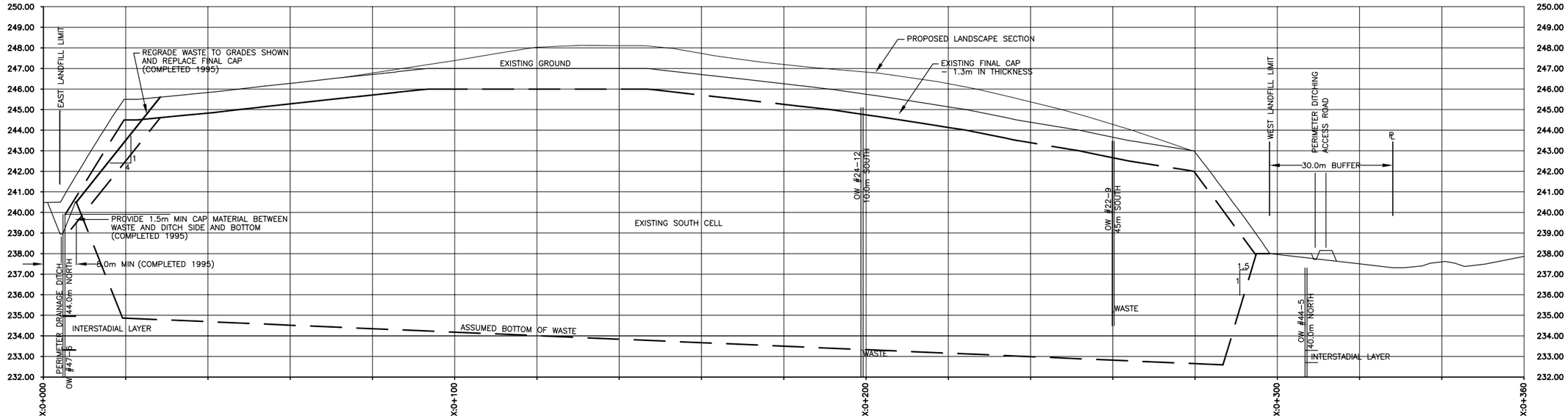
REVISIONS		
Date	Description	By
DEC 95	GENERAL REVISIONS	J E A

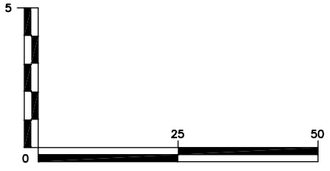
HENDERSON, PADDON ENVIRONMENTAL INC.
ENVIRONMENTAL ENGINEERS & SCIENTISTS
OWEN SOUND ◆ GUELPH ◆ BLIND RIVER ◆ PORT ELGIN

WARWICK TOWNSHIP LANDFILL
SECTION C–C AND SECTION D–D

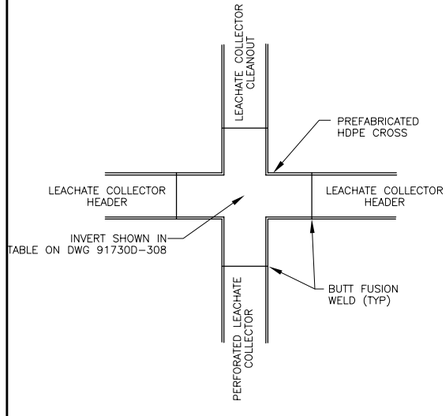
CLIENT: **CANADIAN WASTE SERVICES INC.**

Design: J.E.A.		Scale: AS SHOWN	
Drawn: J.E.A.		Date: FEBRUARY 1993	
Traced:		Approved:	
Checked: F.C.F.			Design Engineer
DRAWING No.	91730D – 315		

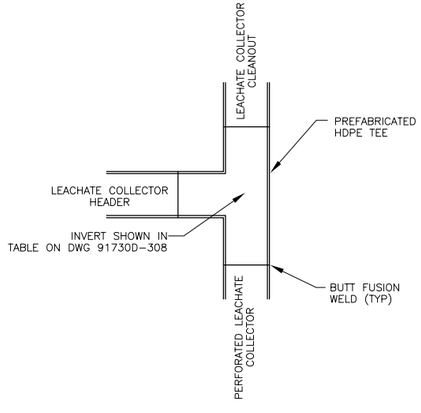




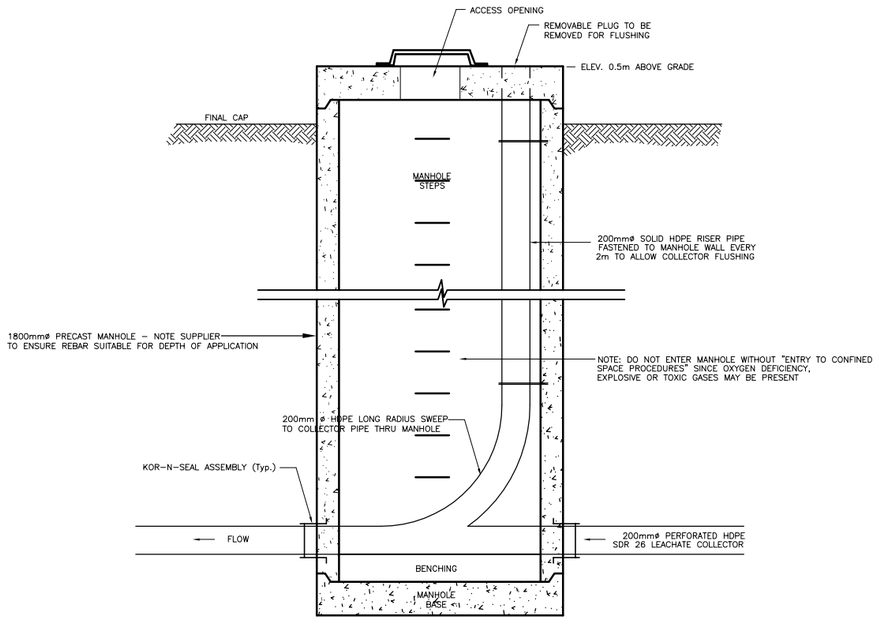
SECTION E-E



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

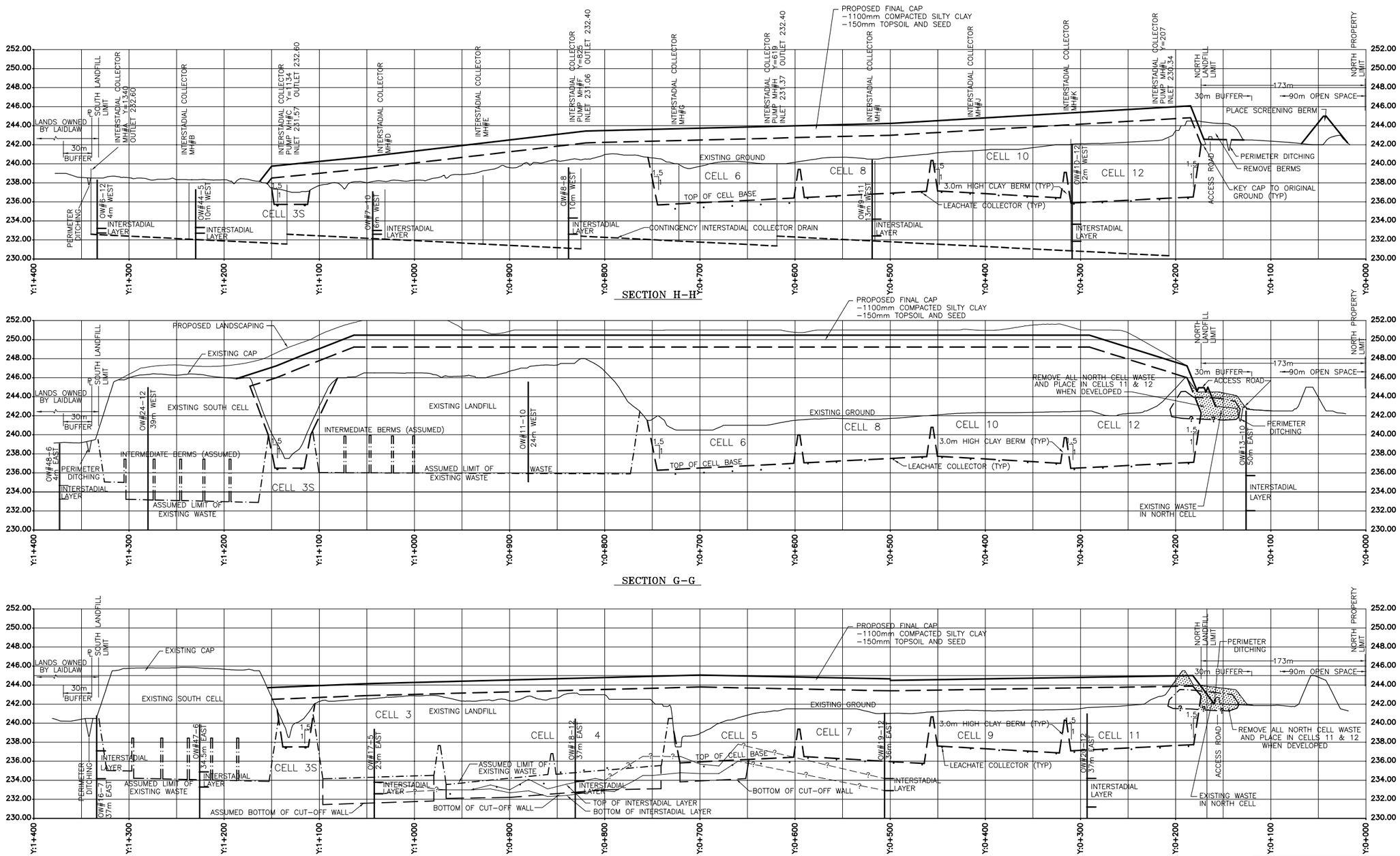
REVISIONS		
Date	Description	By
JAN2/97	NOTATION RE: EAST BUFFER & DITCHING	T C G
DEC 95	GENERAL REVISIONS	J E A
JUNE 95	ADDED DETAILS	J E A

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.	91730D - 316



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

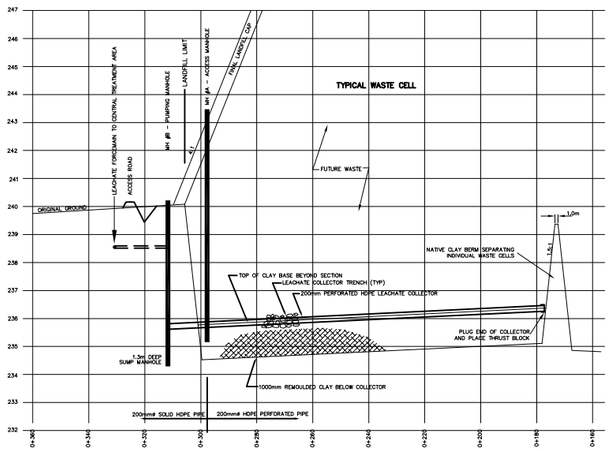
REVISIONS		
Date	Description	By
FEB 12/97	REVISED FINAL CONTOURS FOR NORTH CELL WASTE MOVEMENT	F C F
DEC 95	GENERAL REVISIONS	J E A
JUNE 95	REVISED TO MOEE COMMENTS	J E A
APRIL 94	REVISED TO MOEE COMMENTS	J E A

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

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

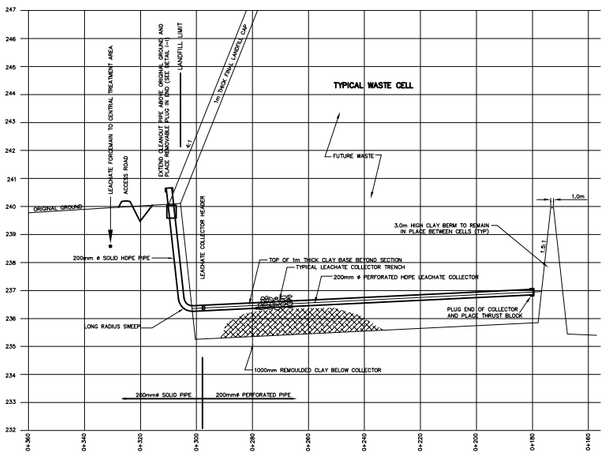
CLIENT: CANADIAN WASTE SERVICES INC.

Design: J E A	Scale: AS SHOWN
Drawn: J E A	Date: SEPTEMBER 1994
Traced:	Approved:
Checked: F C F	Design Engineer
DRAWING No.	91730D – 317



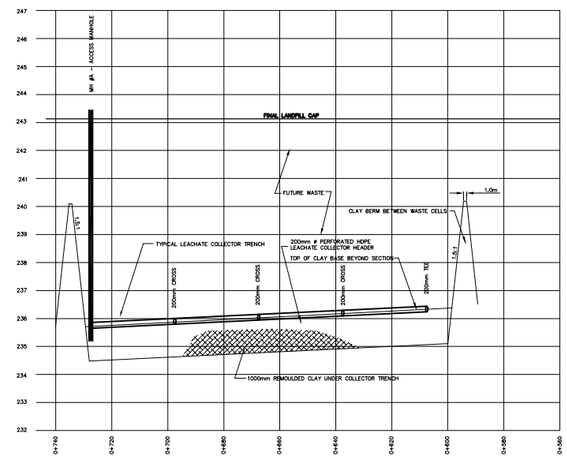
TYPICAL SECTION THRU COLLECTOR AND MANHOLES

SCALE: HOR 1:1000
VERT 1:100



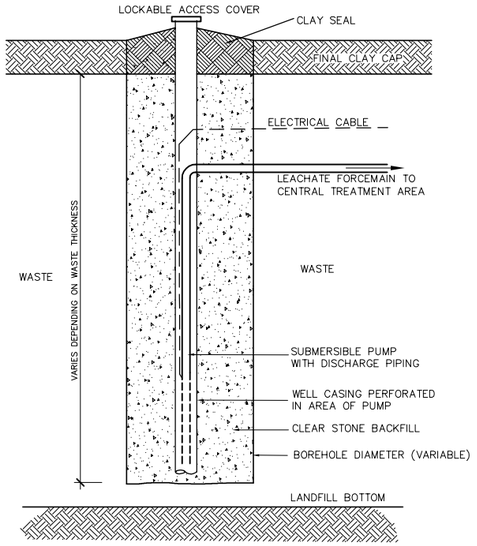
TYPICAL SECTION THRU LEACHATE COLLECTOR AND CLEANOUT

SCALE: HOR 1:1000
VERT 1:100



SECTION ALONG LEACHATE COLLECTOR HEADER

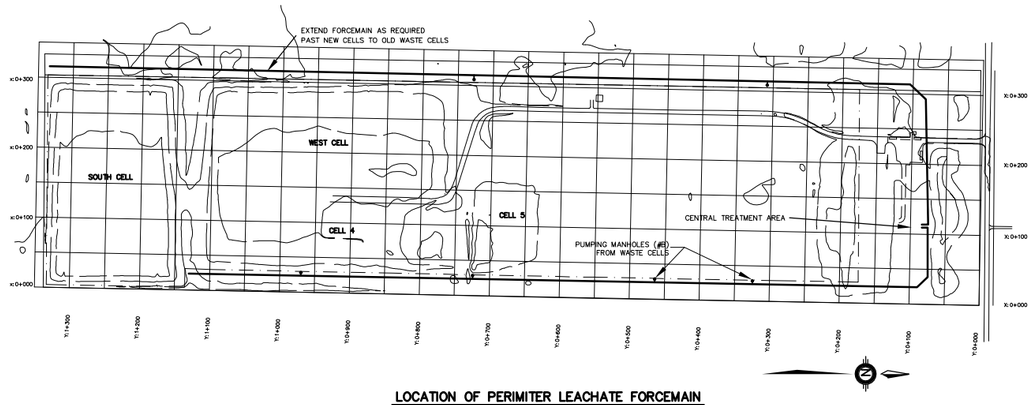
SCALE: HOR 1:1000
VERT 1:100



GRAVEL FILLED PURGE WELL SCHEMATIC

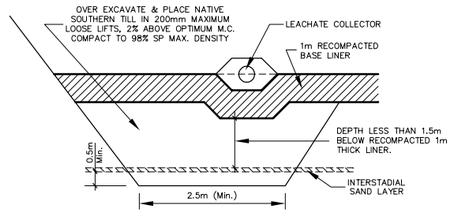
LEACHATE EXTRACTION CONTINGENCY (SECTION 6.6.1.3)

NTS



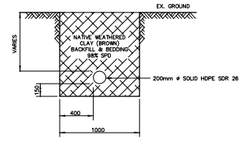
LOCATION OF PERIMITER LEACHATE FORCEMAIN

SCALE: 1:4000



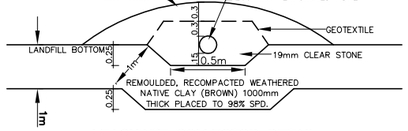
CUTOFF WALL DETAIL (IF REQUIRED)

N.T.S.



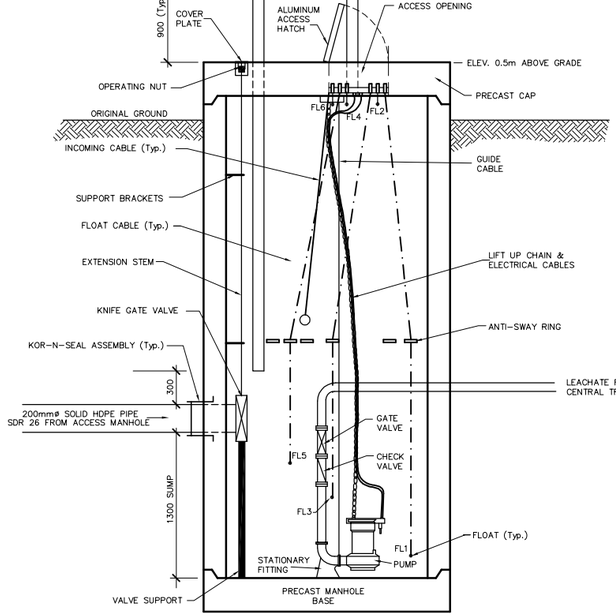
PIPING TRENCH BETWEEN MH#A & MH#B AND CLEANOUT TRENCH

N.T.S.



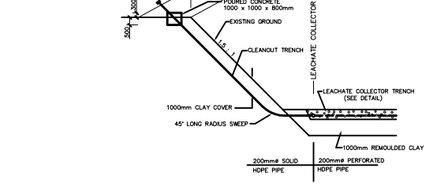
LEACHATE COLLECTOR DETAIL

N.T.S.



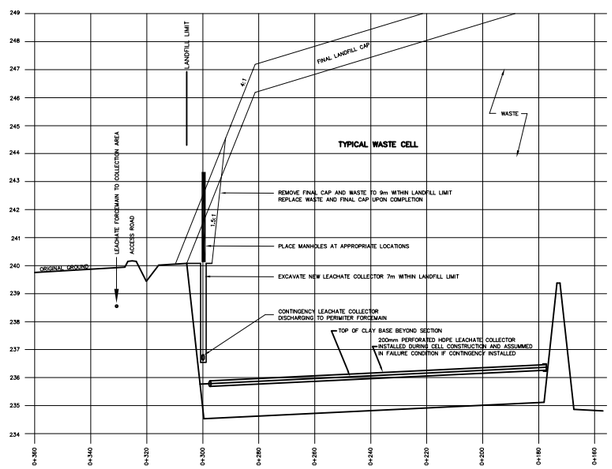
PUMPING MANHOLE #B SCHEMATIC

SCALE : 1 : 25



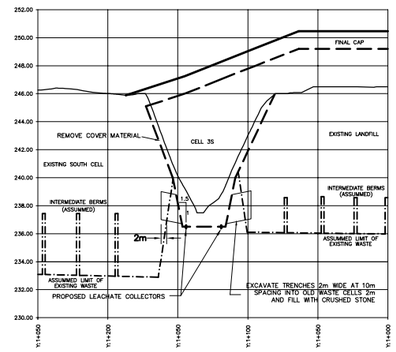
CLEANOUT DETAIL – SECTION I–I

(NTS)



CONTINGENCY PERIPHERAL LEACHATE COLLECTOR

SCALE: HOR 1:1000
VERT 1:200



TYPICAL SECTION THRU CELL 3S AND GRAVEL TRENCH

SCALE: HOR 1:1000
VERT 1:100

REVISIONS		
Date	Description	By
JAN 2/97	ADDED CUTOFF TRENCH DETAIL	T C G
DEC 95	GENERAL REVISIONS	J E A
JUNE 95	REVISED PLANS TO MOEE COMMENTS	J E A
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 DETAILS

CLIENT: **CANADIAN WASTE SERVICES INC.**

Design: J.E.A.	Scale: N/A
Drawn: J.E.A.	Date: SEPTEMBER 1994
Traced:	Approved:
Checked: F.C.F.	Design Engineer
DRAWING No.	**91730D – 318**

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-9125Plan 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

NOTES :

1. TOPOGRAPHIC FEATURES SHOWN ON THIS PLAN ARE BASED ON FIELD SURVEY DATA TO AUGUST 22, 2005 BY HENDERSON PADDON AND ASSOCIATES AND 1997 AERIAL PHOTOGRAPHY MAPPING BY BASE MAPPING LIMITED DATED DECEMBER 1997.
2. COUNTY ROAD 79 IMPROVEMENTS AT SITE ACCESS :
   –SOUTHBOUND LEFT TURN LANE
   –NORTHBOUND RIGHT TURN DECELERATION LANE
   –NORTHBOUND ACCELERATION LANE
   –ILLUMINATE SITE ACCESS AREA

B.M.#1 ELEV. 241.643 (GEODETIC)
TOP OF 1" SQUARE STANDARD IRON BAR LOCATED AT GRID POINT 0+012.82W, 0+599.67S

LEGEND :

- TOP OF BERM ELEVATION
- C/L ROAD ELEVATION
- C/L DITCH ELEVATION
- TOP OF CAP AT WASTE LIMIT ELEVATIONS
- PROPOSED LIMIT OF WASTE
- PROPOSED FINAL CONTOURS (TOP OF FINAL COVER)
- WASTE MANAGEMENT PROPERTY LIMIT WITH PROPOSED 1.83m HIGH WOVEN WIRE FENCE
- PROPOSED DITCHING
- PROPOSED RIP RAP LINED DITCHING
- CAP UNDERDRAIN SYSTEM
- PROPOSED VISUAL SCREENING BARRIER
- PROPOSED LITTER FENCE
- PROPOSED PAVED ROAD (HOT MIX ASPHALT OR PRIME DOUBLE SURFACE TREATMENT)
- PROPOSED GUIDE RAIL
- PROPOSED STORM SEWER (TEMPORARY)
- PROPOSED STORM SEWER
- CB CATCH BASIN
- DI DITCH INLET
- CBMH CATCH BASIN MANHOLE
- EXISTING GROUND CONTOURS 2.5m INTERVAL
- EXISTING GROUND CONTOURS 0.5m INTERVAL
- EXISTING DITCH/SWALE
- EXISTING TREELINE

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HPA JOB # 105716

WASTE MANAGEMENT

PROPOSED FINAL CONTOURS AND STORMWATER MANAGEMENT PLAN

WARWICK LANDFILL
WATFORD ONTARIO

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

SHEET 111

NOTES :

1. TOPOGRAPHIC FEATURES SHOWN ON THIS PLAN ARE BASED ON FIELD SURVEY DATA TO AUGUST 22, 2005 BY HENDERSON PADDON AND ASSOCIATES AND 1997 AERIAL PHOTOGRAPHY MAPPING BY BASE MAPPING LIMITED DATED DECEMBER 1997.
2. COUNTY ROAD 79 IMPROVEMENTS AT SITE ACCESS :
   –SOUTHBOUND LEFT TURN LANE
   –NORTHBOUND RIGHT TURN DECELERATION LANE
   –NORTHBOUND ACCELERATION LANE
   –ILLUMINATE SITE ACCESS AREA

B.M.#1 ELEV. 241.643 (GEODETIC)
TOP OF 1" SQUARE STANDARD IRON BAR LOCATED AT GRID POINT 0+012.82W, 0+599.67S

LEGEND :

- TOP OF BERM ELEVATION
- C/L ROAD ELEVATION
- C/L DITCH ELEVATION
- TOP OF CAP AT WASTE LIMIT ELEVATIONS
- PROPOSED LIMIT OF WASTE
- PROPOSED FINAL CONTOURS (TOP OF FINAL COVER)
- WASTE MANAGEMENT PROPERTY LIMIT WITH PROPOSED 1.83m HIGH WOVEN WIRE FENCE
- PROPOSED DITCHING
- PROPOSED RIP RAP LINED DITCHING
- CAP UNDERDRAIN SYSTEM
- PROPOSED VISUAL SCREENING BARRIER
- PROPOSED LITTER FENCE
- PROPOSED PAVED ROAD (HOT MIX ASPHALT OR PRIME DOUBLE SURFACE TREATMENT)
- PROPOSED GUIDE RAIL
- PROPOSED STORM SEWER (TEMPORARY)
- PROPOSED STORM SEWER
- CB CATCH BASIN
- DI DITCH INLET
- CBMH CATCH BASIN MANHOLE
- EXISTING GROUND CONTOURS 2.5m INTERVAL
- EXISTING GROUND CONTOURS 0.5m INTERVAL
- EXISTING DITCH/SWALE
- EXISTING TREELINE

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HPA JOB # 105716

WASTE MANAGEMENT

PROPOSED FINAL CONTOURS AND STORMWATER MANAGEMENT PLAN

WARWICK LANDFILL
WATFORD ONTARIO

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

SHEET 111

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HPA JOB # 105716

WASTE MANAGEMENT

NOTES :

1. LOCAL THICKENING OF GRAVEL ABOVE LEACHATE COLLECTOR PIPES IS NOT REFLECTED ON TOP OF PRIMARY GRAVEL CONTOURS SHOWN ON THIS PLAN.
2. CONTOURS FOR MAXIMUM DEPTH OF EXCAVATION AGAINST BASE BLOWOUT ARE BASED ON FIGURE 1 "BASE STABILITY ASSESSMENT" DATED JUNE 17, 2005 BY JAGGER HIMS LIMITED. SUBTRACT 1.45m FROM TOP OF PRIMARY GRAVEL CONTOURS TO OBTAIN BOTTOM OF BASE EXCAVATION.

LEGEND :

- SPOT ELEVATIONS TOP OF PRIMARY GRAVEL
- TOP OF SLOPE ELEVATION (TOP OF PRIMARY GRAVEL)
- PROPOSED TOP OF PRIMARY GRAVEL CONTOURS
- PROPOSED LIMIT OF WASTE
- INFERRED CONTOURS FOR MAXIMUM DEPTH OF EXCAVATION TO PREVENT BASAL HEAVE
- WASTE MANAGEMENT PROPERTY LIMIT WITH PROPOSED 1.83m HIGH WOVEN WIRE FENCE
- PROPOSED DITCHING
- PROPOSED RIP RAP LINED DITCHING
- PROPOSED VISUAL SCREENING BARRIER
- PROPOSED LITTER FENCE
- PROPOSED PAVED ROAD (HOTMIX ASPHALT OR PRIME DOUBLE SURFACE TREATMENT)
- PROPOSED GUIDE RAIL
- PROPOSED STORM SEWER
- PROPOSED OVERHEAD HYDRO
- EXISTING GROUND CONTOURS 2.5m INTERVAL
- EXISTING GROUND CONTOURS 0.5m INTERVAL
- EXISTING DITCH/SWALE
- EXISTING TREELINE

SCALE : 0 50 100 150m

LANDFILL BOTTOM CONTOURS
(TOP OF PRIMARY GRAVEL)

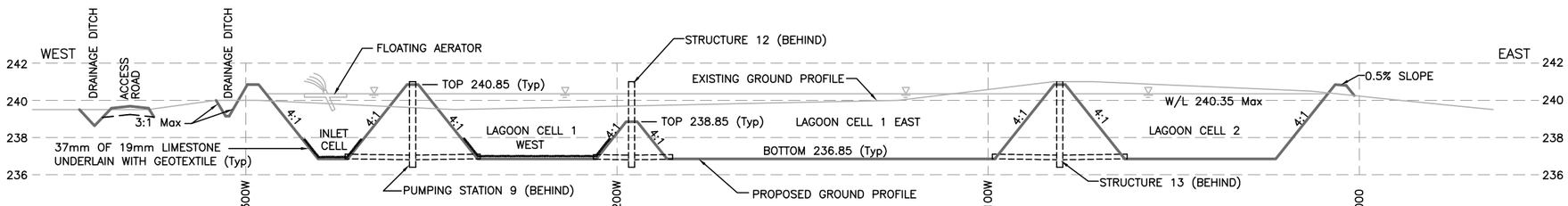
WARWICK LANDFILL
WATFORD ONTARIO

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

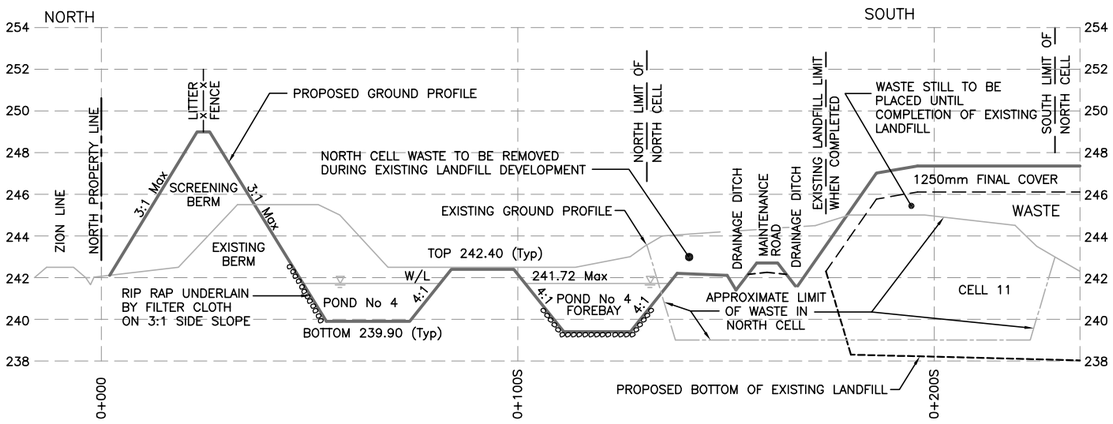
WASTE MANAGEMENT OF CANADA CORP.

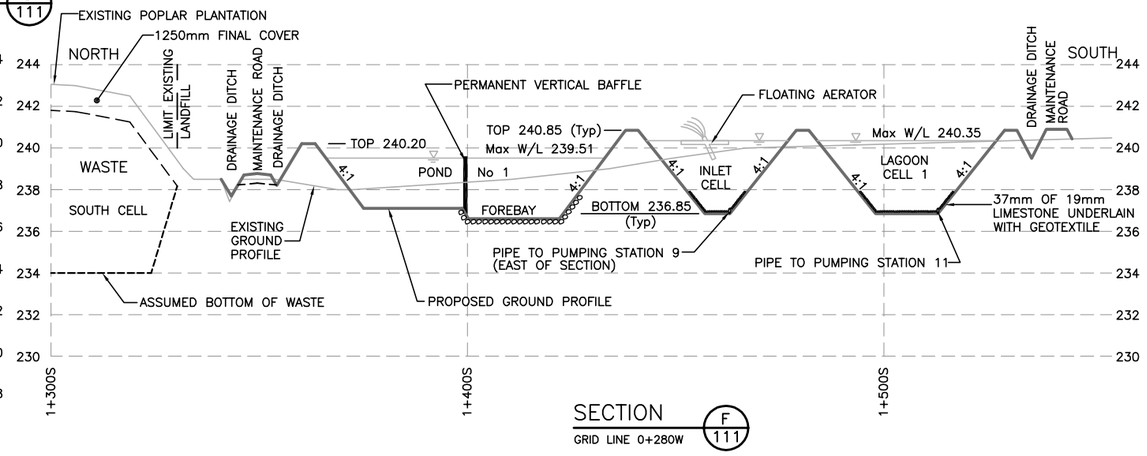
DRAWING NO. 105716-112

SHEET 112



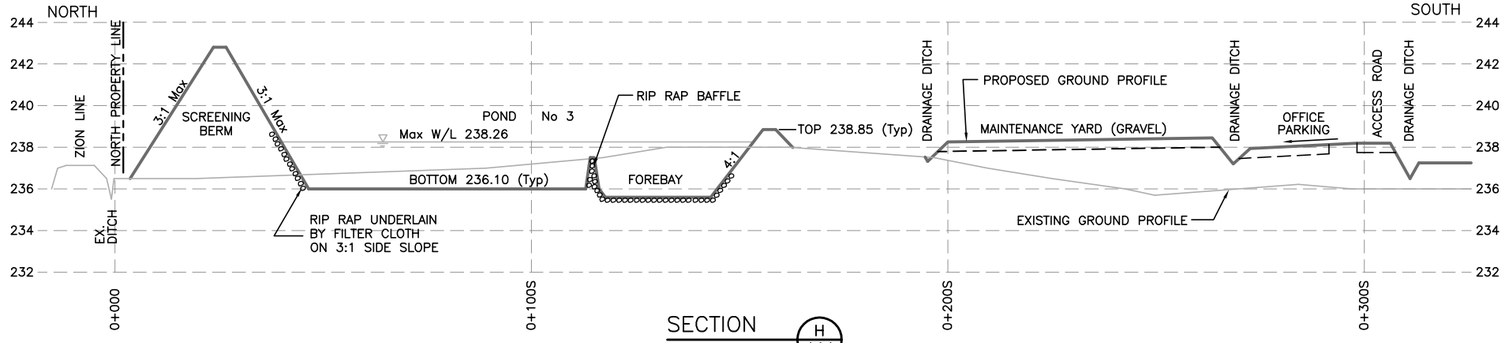
SECTION D
GRID LINE 1+460S
111



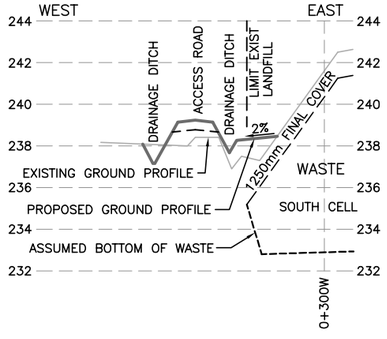


SECTION F
GRID LINE 0+280W
111

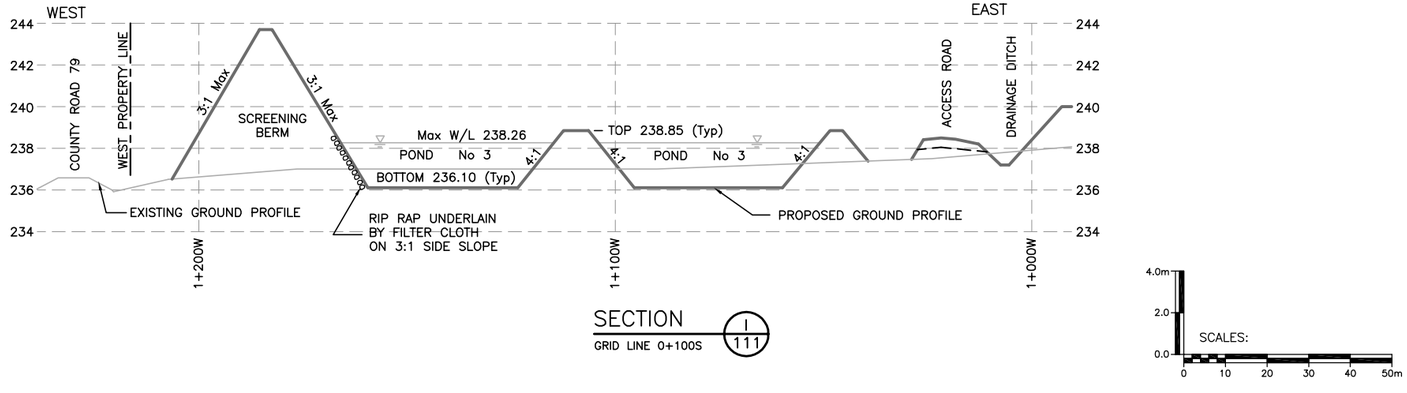
SECTION E
GRID LINE 0+140W
111



SECTION H
GRID LINE 1+070W
111



SECTION G
GRID LINE 1+300S
111



SECTION I
GRID LINE 0+100S
111

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HPA JOB # 105716

WASTE MANAGEMENT

LANDFILL PERIMETER SECTIONS

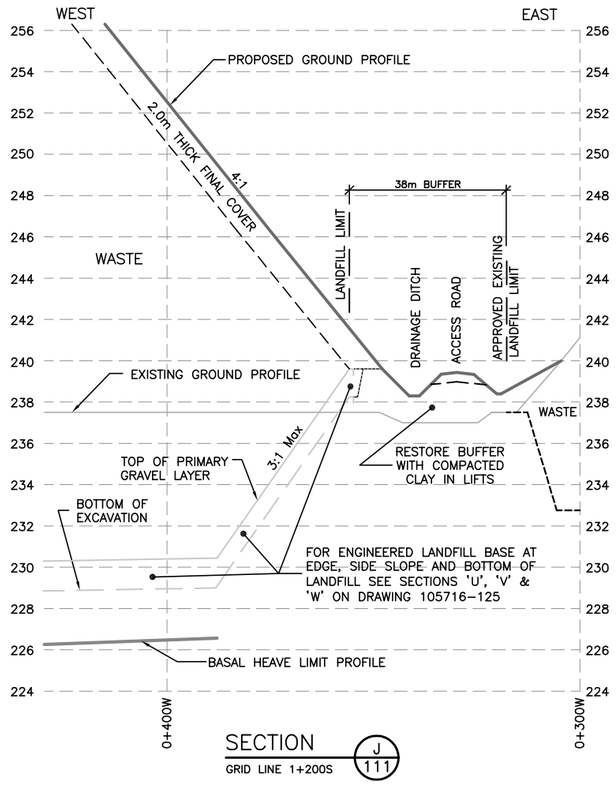
WARWICK LANDFILL
WATFORD ONTARIO

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

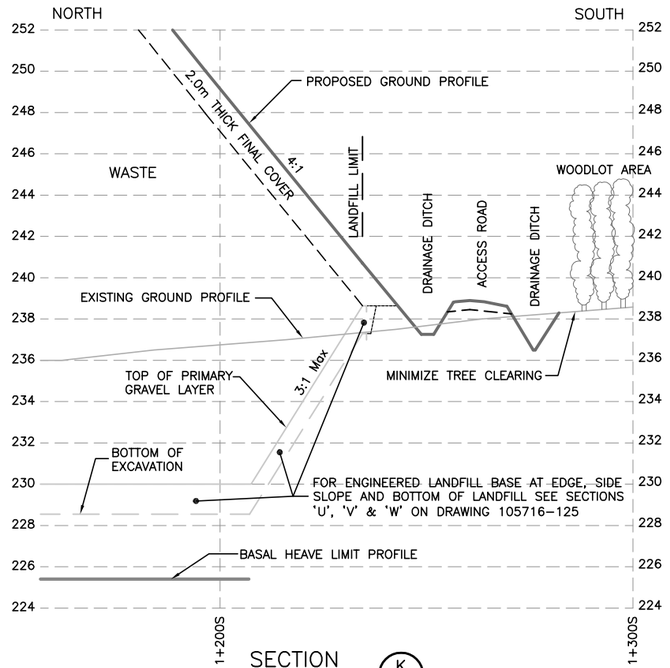
WASTE MANAGEMENT OF CANADA CORP.

DRAWING NO. 105716 - 113

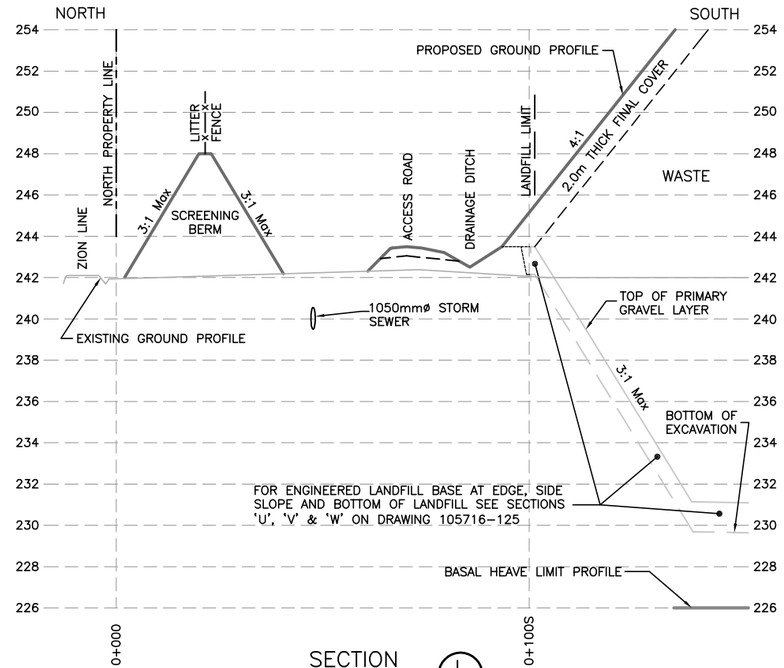
SHEET 113



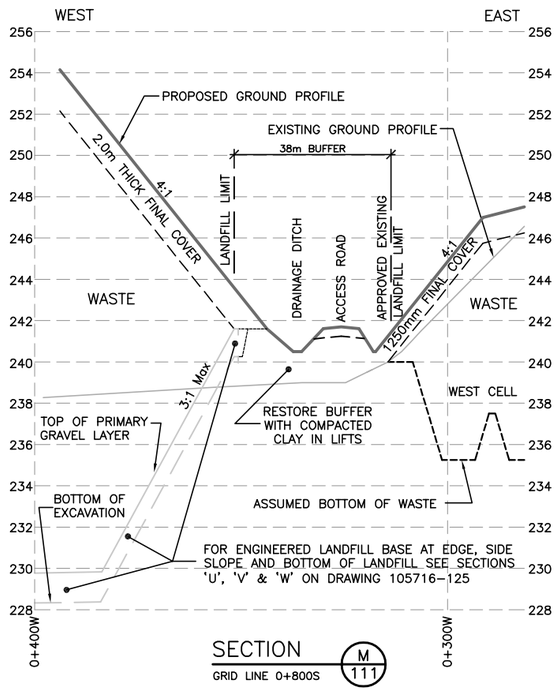
SECTION J / 111
GRID LINE 1+200S



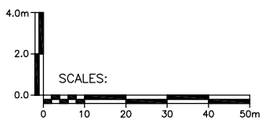
SECTION K / 111
GRID LINE 1+500W

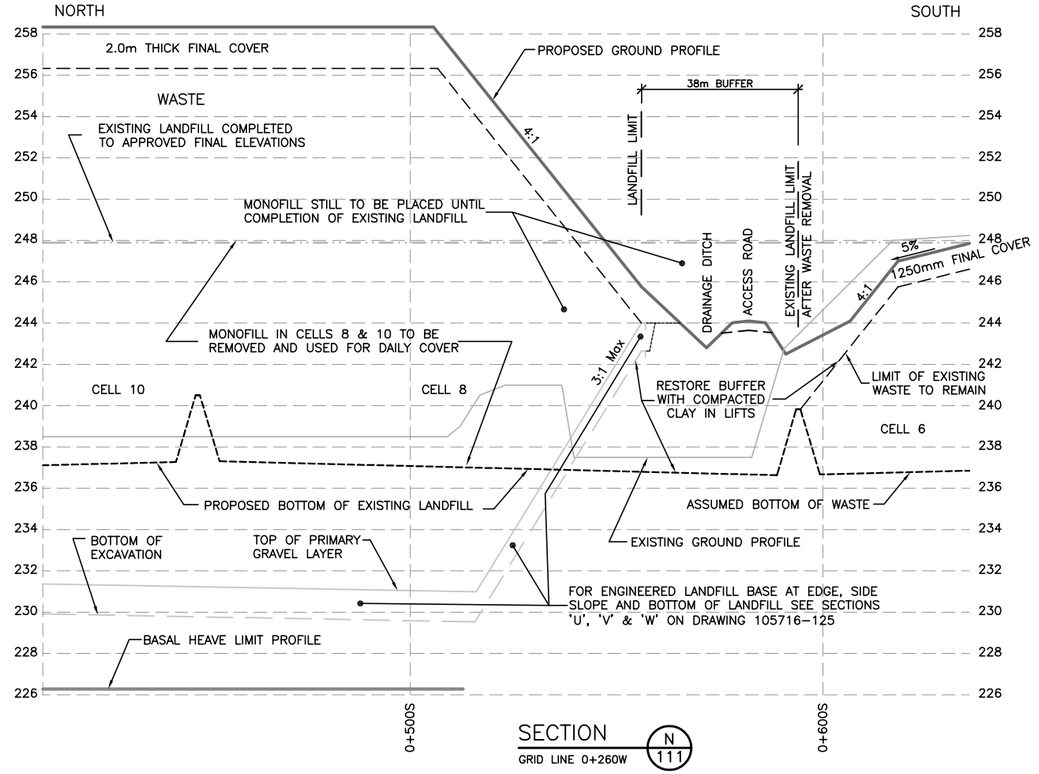


SECTION L / 111
GRID LINE 0+400W



SECTION M / 111
GRID LINE 0+800S





SECTION N / 111
GRID LINE 0+260W

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HPA JOB # 105716

WASTE MANAGEMENT

LANDFILL PERIMETER SECTIONS

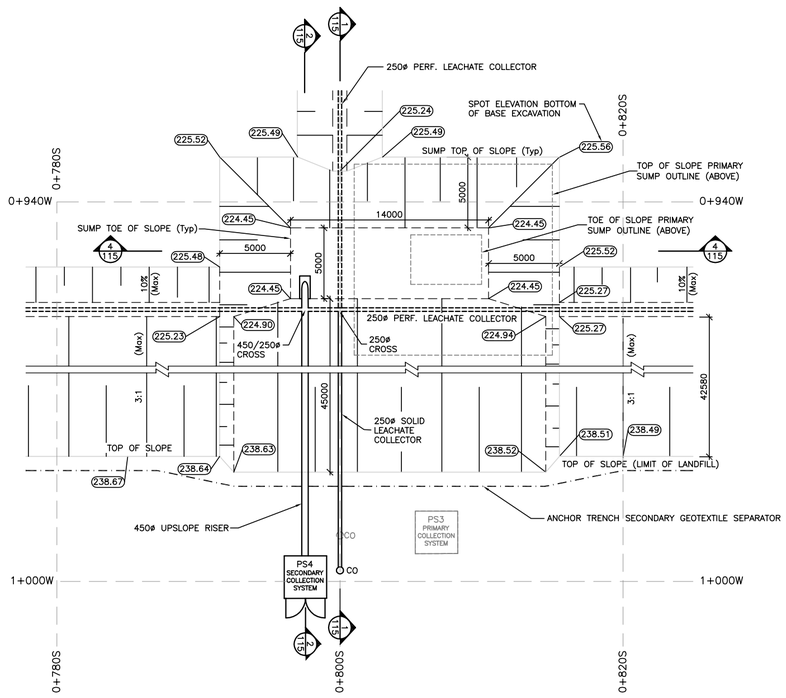
WARWICK LANDFILL
WATFORD ONTARIO

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

WASTE MANAGEMENT OF CANADA CORP.

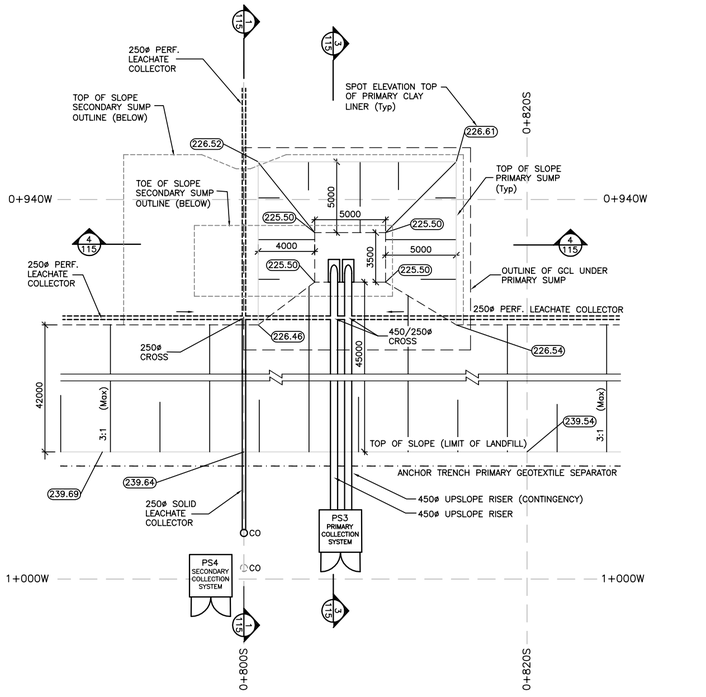
DRAWING NO. 105716 - 114

SHEET 114

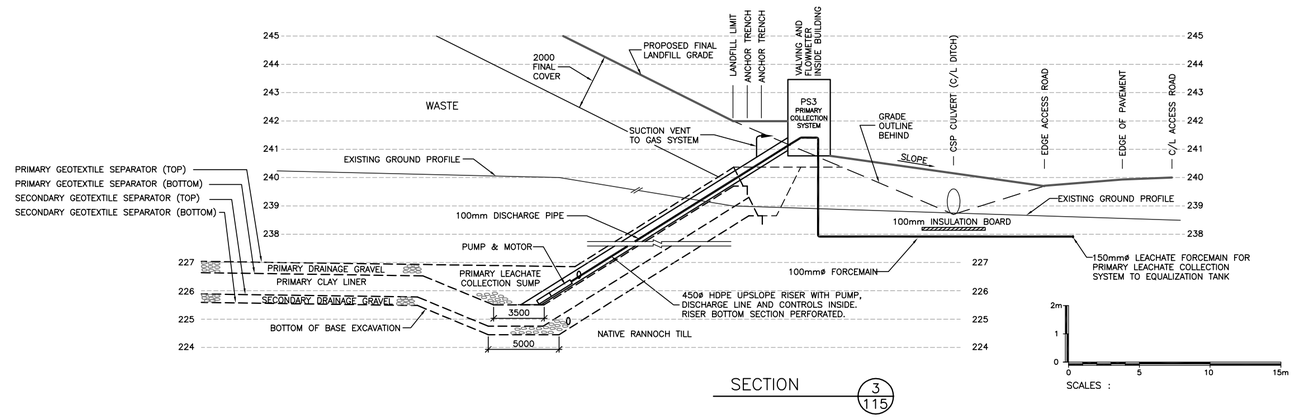


SECONDARY LEACHATE COLLECTION SYSTEM
SUMP 2 PLAN

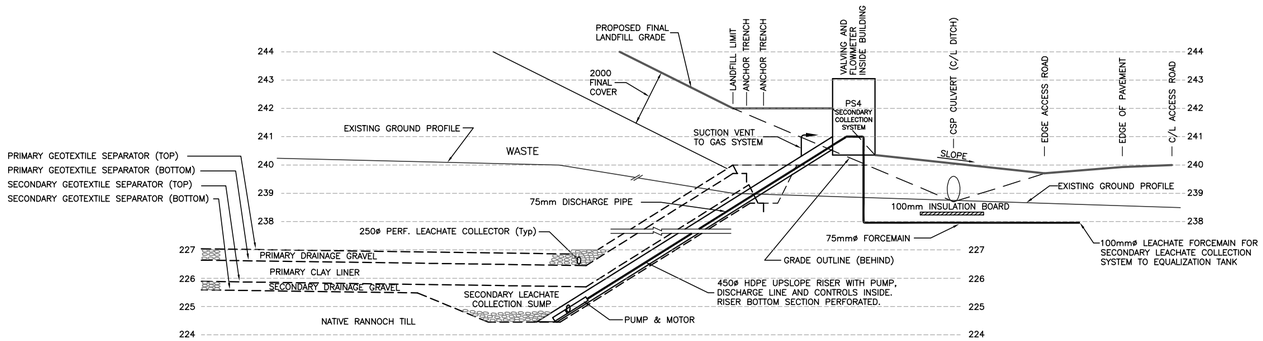
SCALES : 0 5 10 15m



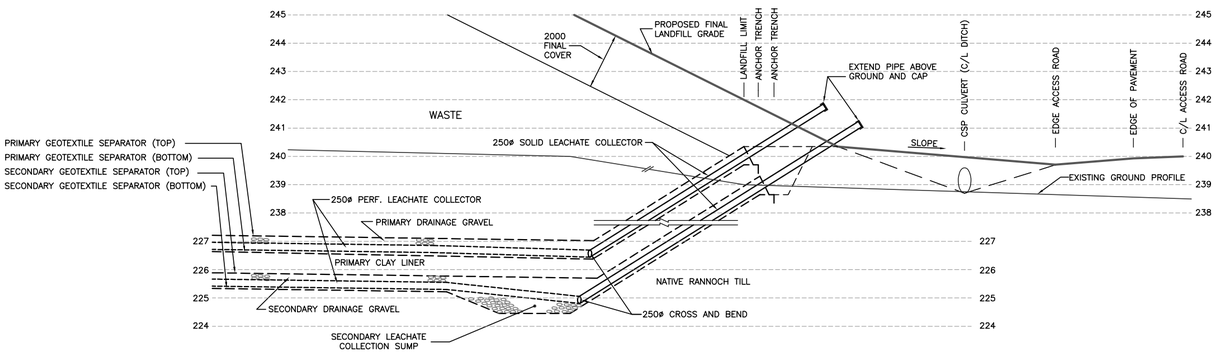
PRIMARY LEACHATE COLLECTION SYSTEM
SUMP 2 PLAN



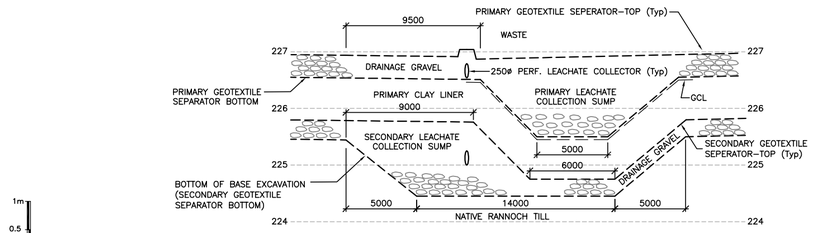
SECTION 3/115



SECTION 2/115



SECTION 1/115



SECTION 4/115

DATE	DESCRIPTION
	REVISION / ISSUE

Seal not valid unless signed & dated

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HPA JOB # 105715

WASTE MANAGEMENT

LEACHATE COLLECTION SUMP DETAILS

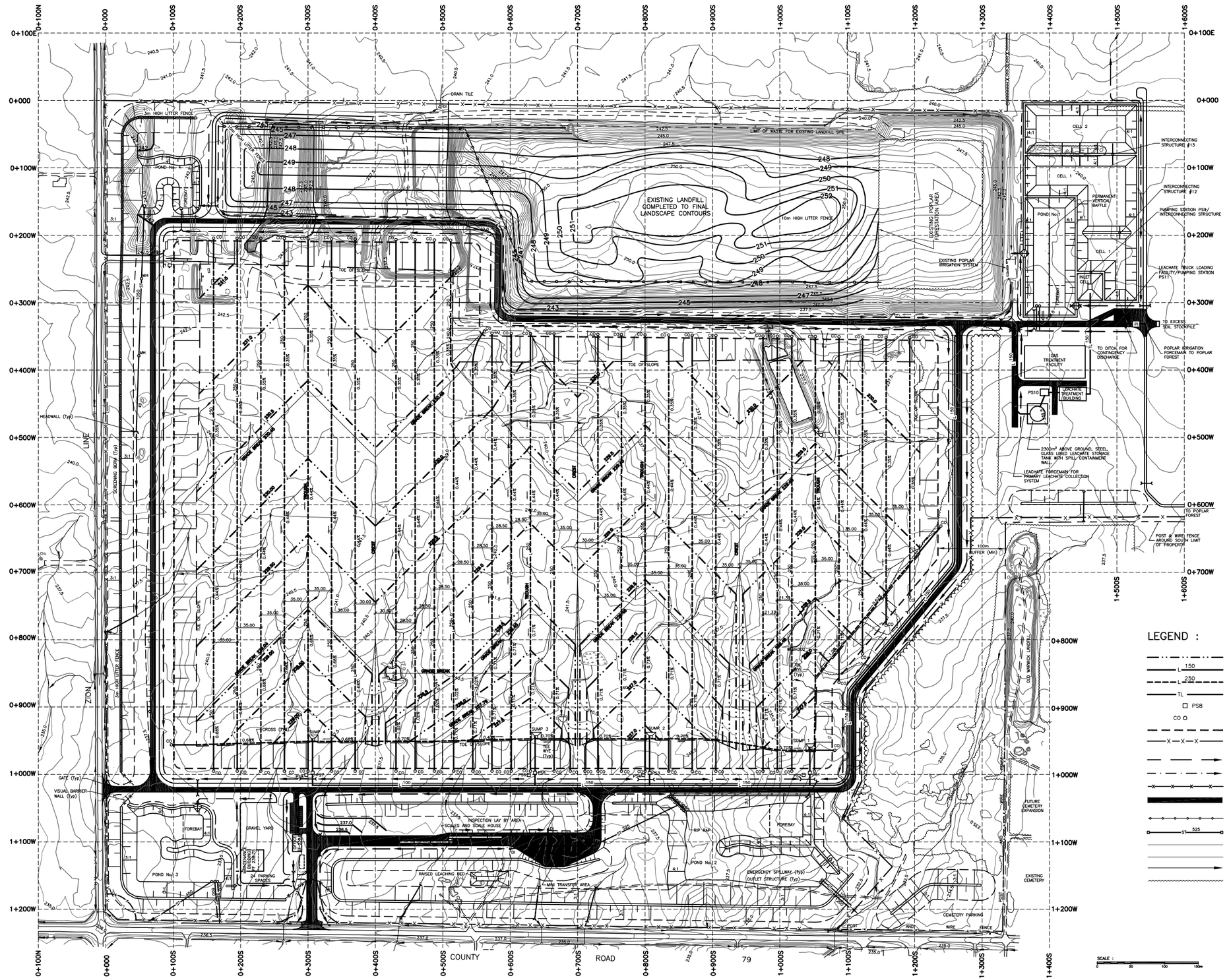
WARWICK LANDFILL
NAPANEE ONTARIO

DWN BY: T C G
CHK BY: F C F
DATE: FEB 24 06
SCALE: SEE BAR SCALE

WASTE MANAGEMENT OF CANADA CORP.

DRAWING NO. 105716-115

SHEET 115



NOTES :

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

LEGEND :

- PROPOSED PRIMARY GRAVEL CONTOURS
- L 150 — PROPOSED HDPE LEACHATE COLLECTION PIPE (SOLID)/FORCEMAIN
- L 250 — PROPOSED HDPE LEACHATE COLLECTION PIPE (PERF.)
- TL — PROPOSED TREATED LEACHATE FORCEMAIN
- PS8 — PROPOSED LEACHATE PUMP STATION
- CO — PROPOSED LEACHATE COLLECTION SYSTEM CLEANOUT
- PROPOSED LIMIT OF WASTE
- X—X—X — WASTE MANAGEMENT PROPERTY LIMIT WITH PROPOSED 1.83m HIGH WOVEN WIRE FENCE
- PROPOSED DITCHING
- PROPOSED RIP RAP LINED DITCHING
- PROPOSED VISUAL SCREENING BARRIER
- PROPOSED PAVED ROAD (HOT MIX ASPHALT OR PRIME DOUBLE SURFACE TREATMENT)
- PROPOSED GUIDE RAIL
- ST 525 — PROPOSED STORM SEWER
- EXISTING GROUND CONTOURS 2.5m INTERVAL
- EXISTING GROUND CONTOURS 0.5m INTERVAL
- EXISTING DITCH/SWALE
- EXISTING TREELINE

SCALE : 0 50 100 150m

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HPA JOB # 105716

WASTE MANAGEMENT

PROPOSED PRIMARY LEACHATE COLLECTION SYSTEM

WARWICK LANDFILL
WATFORD ONTARIO

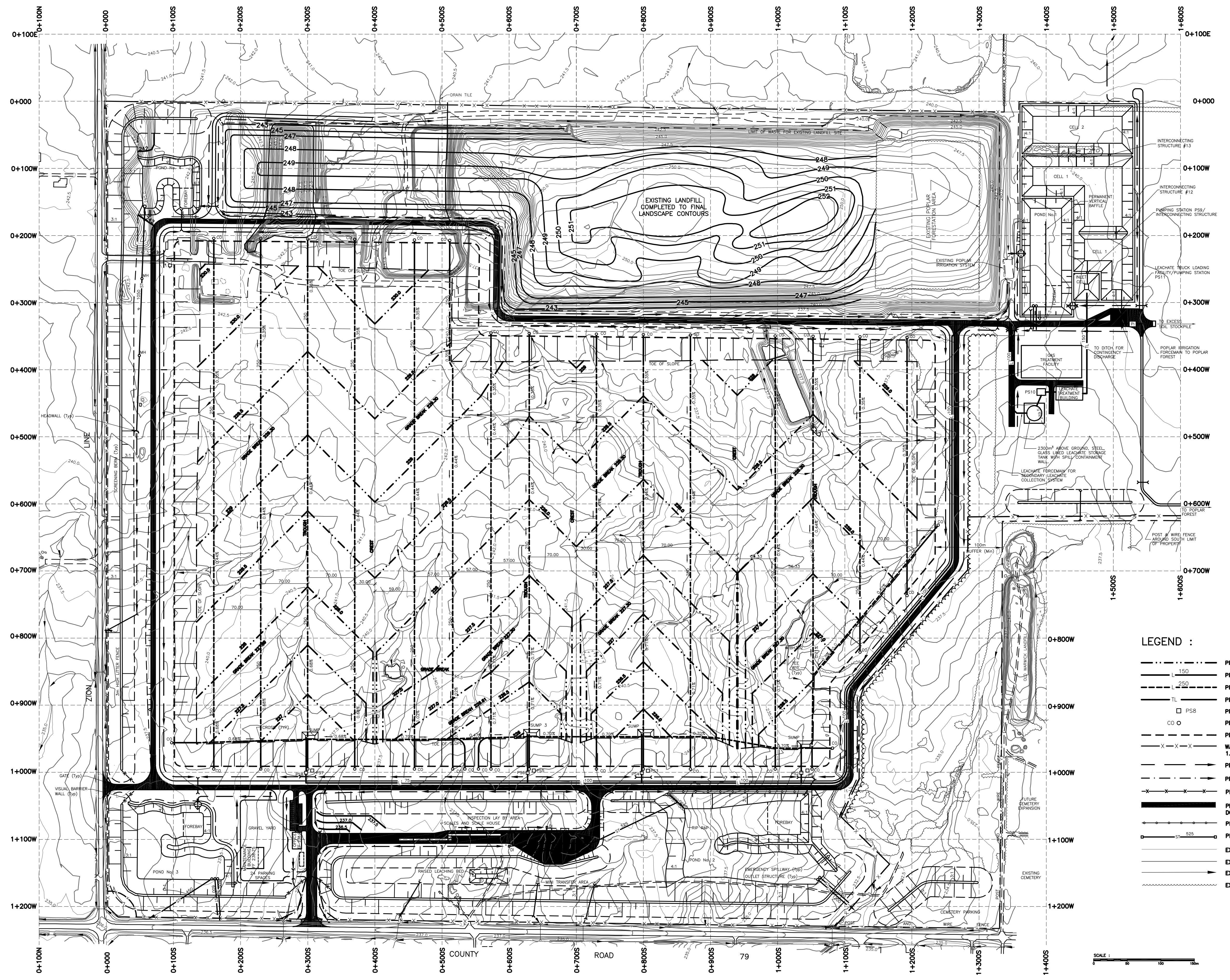
DWN BY: T C G DATE: DEC 21 07
CHK BY: F C F SCALE: SEE BAR SCALE

WASTE MANAGEMENT OF CANADA CORP.

DRAWING NO. 105716-116

SHEET 116

G:\2005\105716\Cad\Drawings\GAS BASE DRAWINGS\DECEMBER 21 2007\105716-111-112-116-117.dwg Mar 11, 2008 - 9:56am



LEGEND :

	PROPOSED SECONDARY GRAVEL CONTOURS
L 150	PROPOSED HDPE LEACHATE COLLECTION PIPE (SOLID)/FORCEMAIN
L 250	PROPOSED HDPE LEACHATE COLLECTION PIPE (PERF.)
TL	PROPOSED TREATED LEACHATE FORCEMAIN
PS8	PROPOSED LEACHATE PUMP STATION
CO	PROPOSED LEACHATE COLLECTION SYSTEM CLEANOUT
	PROPOSED LIMIT OF WASTE
X X X	WASTE MANAGEMENT PROPERTY LIMIT WITH PROPOSED 1.83m HIGH WOVEN WIRE FENCE
	PROPOSED DITCHING
	PROPOSED RIP RAP LINED DITCHING
	PROPOSED VISUAL SCREENING BARRIER
	PROPOSED PAVED ROAD (HOT MIX ASPHALT OR PRIME DOUBLE SURFACE TREATMENT)
	PROPOSED GUIDE RAIL
ST 525	PROPOSED STORM SEWER
	EXISTING GROUND CONTOURS 2.5m INTERVAL
	EXISTING GROUND CONTOURS 0.5m INTERVAL
	EXISTING DITCH/SWALE
	EXISTING TREELINE

SCALE : 0 50 100 150m

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HPA JOB # 105716

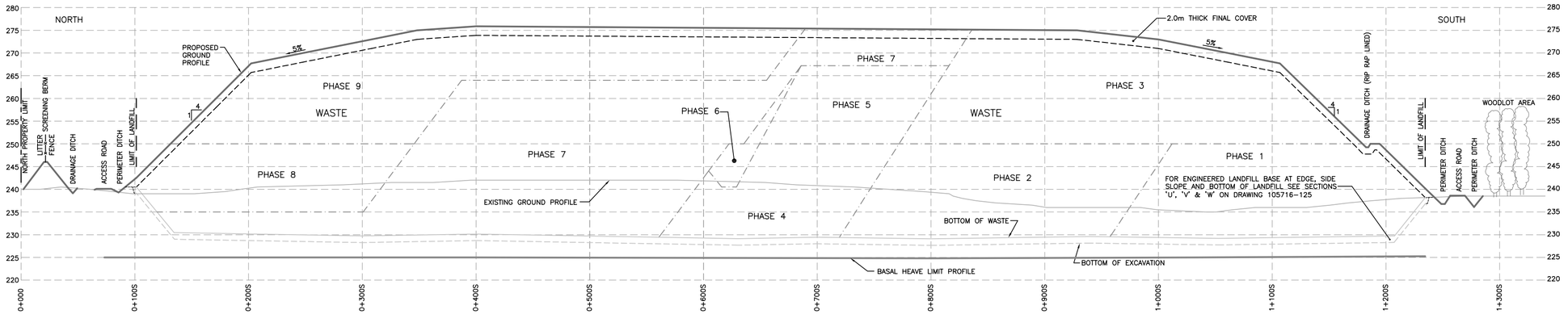
WASTE MANAGEMENT

PROPOSED SECONDARY LEACHATE COLLECTION SYSTEM

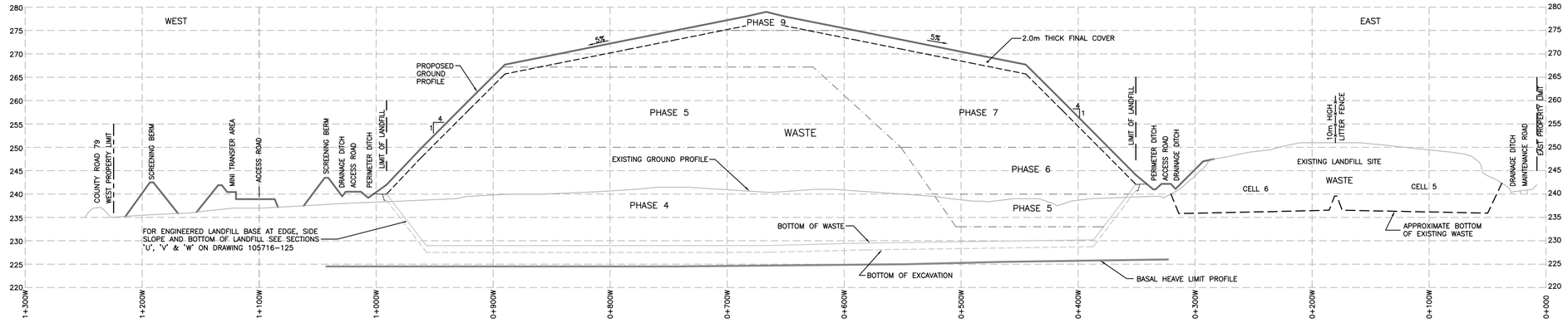
WARWICK LANDFILL
WATFORD ONTARIO

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. 105716-117

SHEET 117

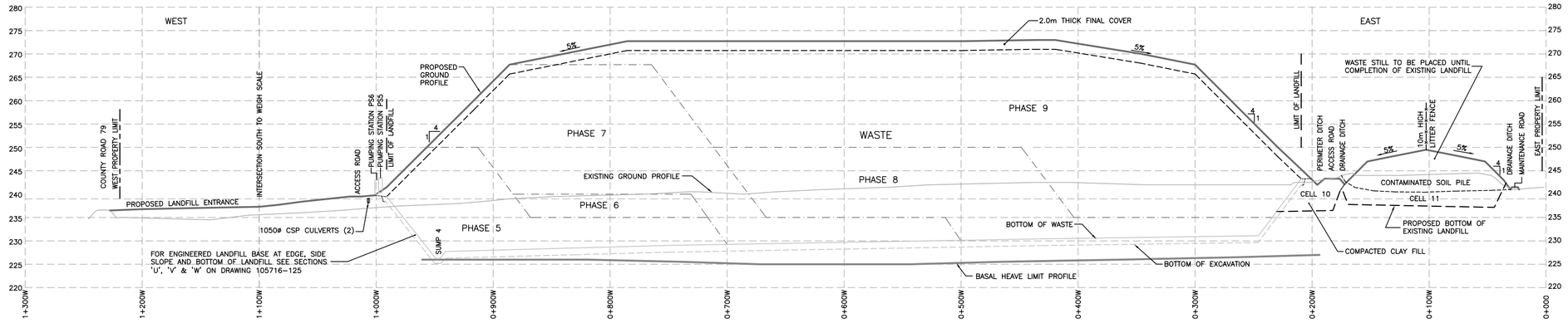


SECTION A / 111
GRID LINE 0+600W



SECTION B / 111
GRID LINE 0+700S

10m
5
0
SCALES :
0 25 50 75m



SECTION C / 111
GRID LINE 0+300S

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HPA JOB # 105716

WASTE MANAGEMENT

LANDFILL SECTIONS

WARWICK LANDFILL
WATFORD ONTARIO

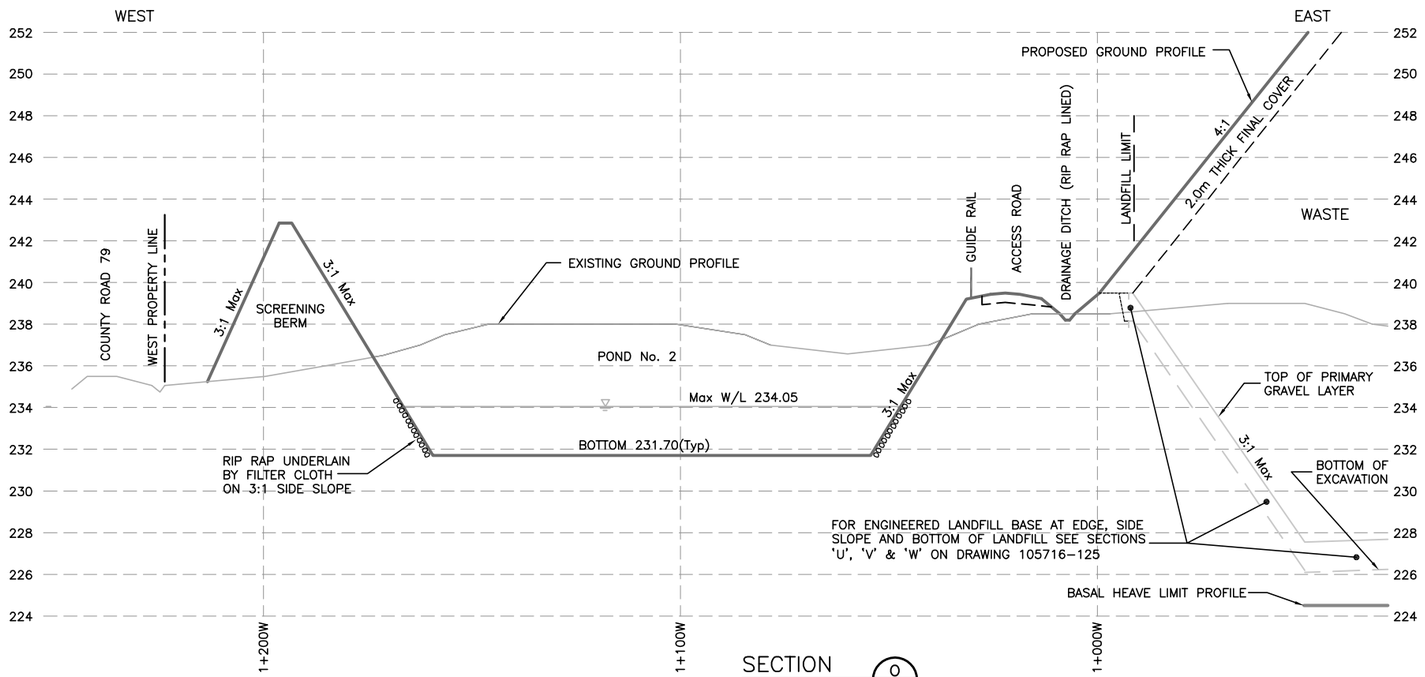
DWN BY: T C G
CHK BY: F C F
DATE: FEB 24 06
SCALE: SEE BAR SCALE

WASTE MANAGEMENT OF CANADA CORP.

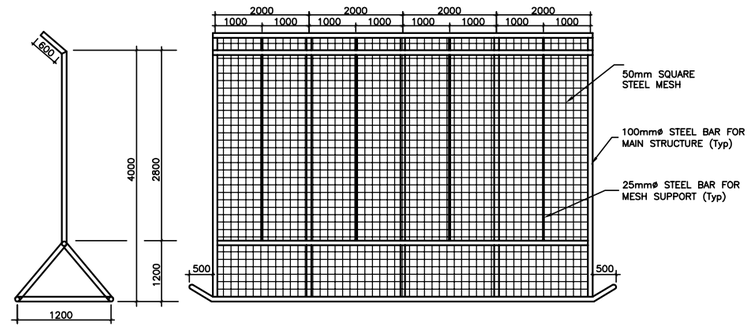
DRAWING NO. 105716-118

SHEET 118

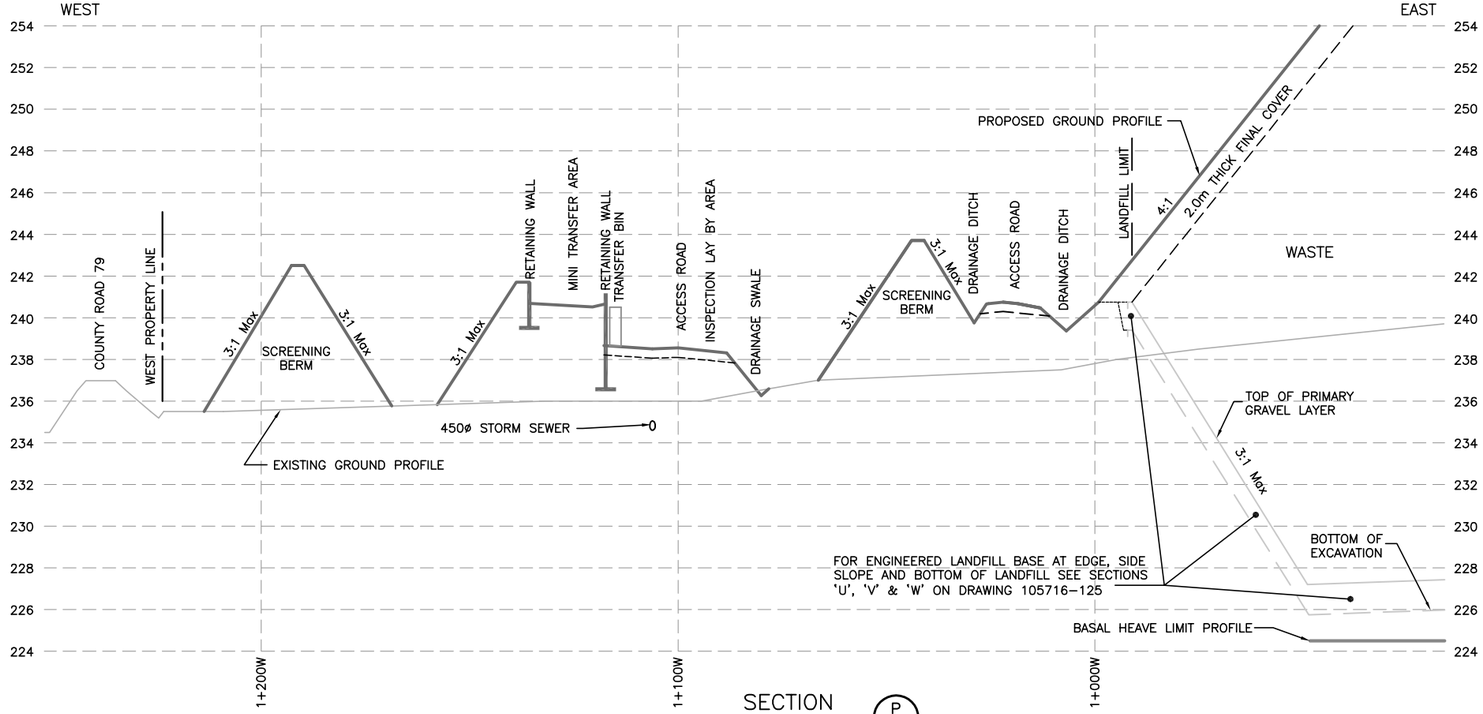
G:\2005\700\105716\Drawings\Odd BASE DRAWINGS\FEBRUARY 24 2006\105716-118.dwg Mar 21, 2006 - 8:03am



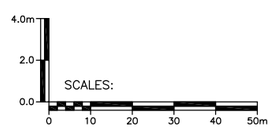
SECTION O / 111
GRID LINE 0+900S



PORTABLE LITTER FENCE
NTS



SECTION P / 111
GRID LINE 0+650S



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HPA JOB # 105716

WASTE MANAGEMENT

LANDFILL PERIMETER SECTIONS

WARWICK LANDFILL
WATFORD ONTARIO

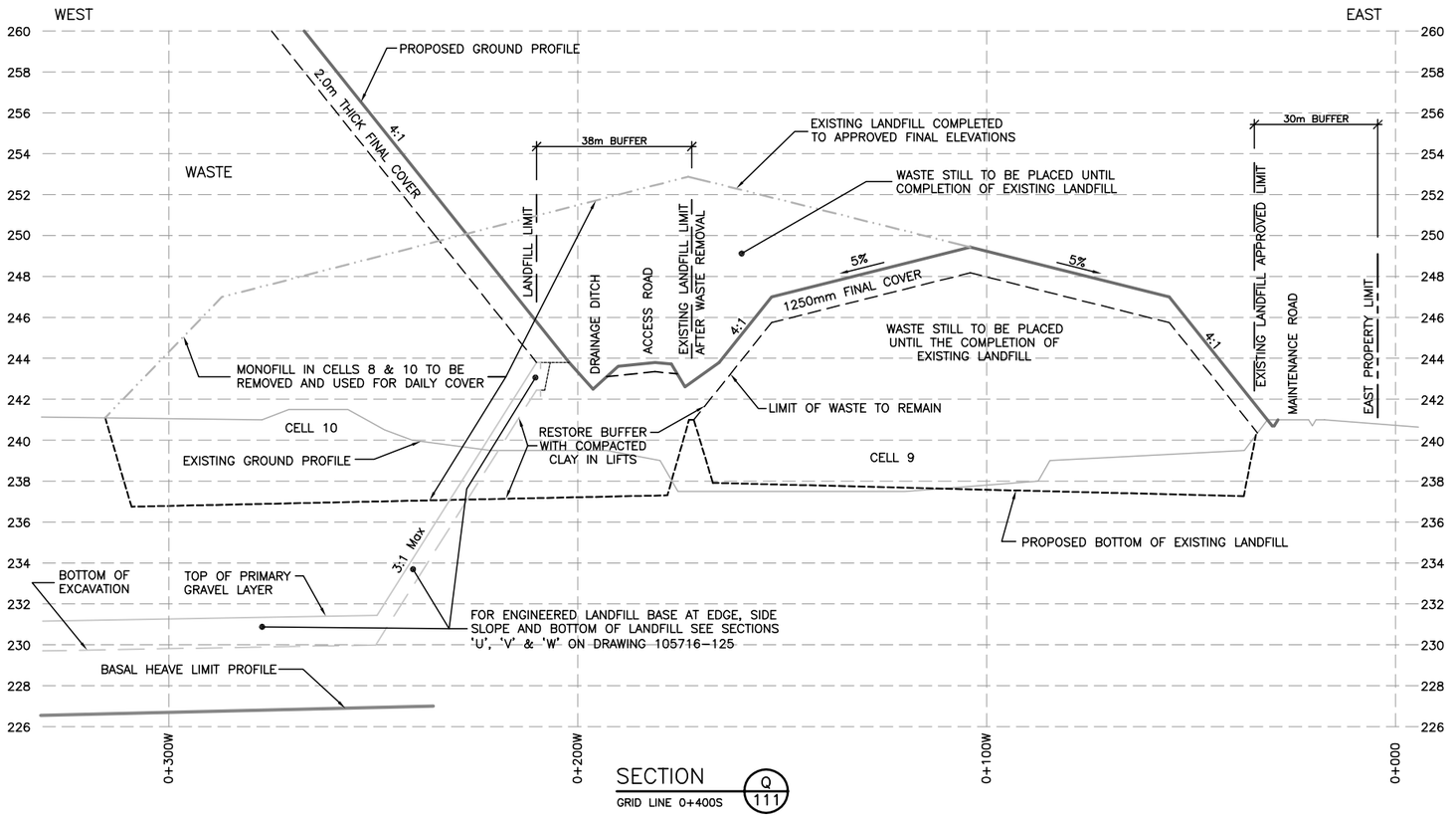
DWN BY: T C G
CHK BY: F C F
DATE: DEC 21, 07
SCALE: SEE BAR SCALE

WASTE MANAGEMENT OF CANADA CORP.

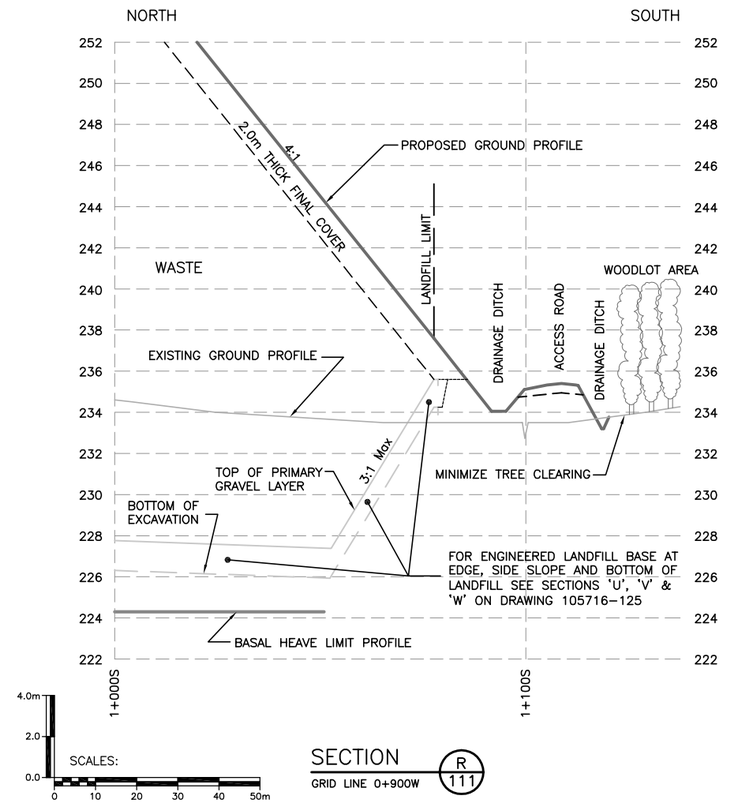
DRAWING NO. 105716 - 119

SHEET 119

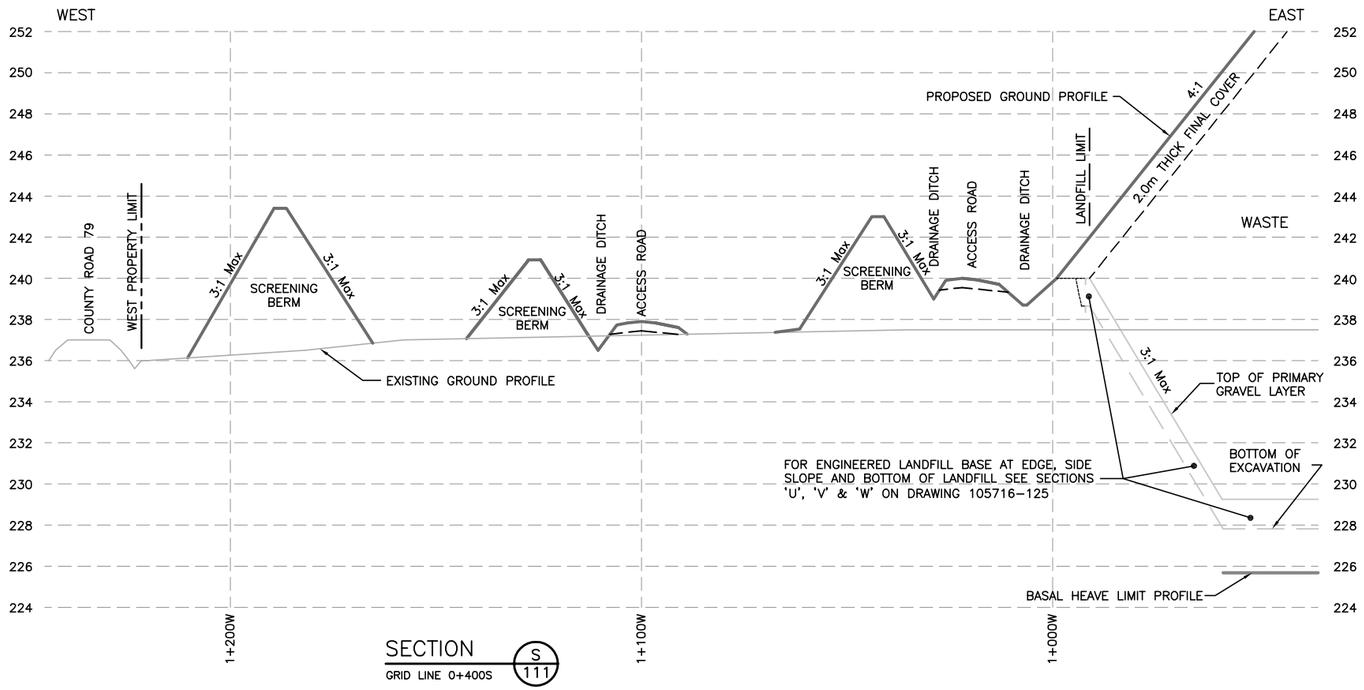
G:\2005\700\105716\Drawings\LAND BASE DRAWINGS\DECEMBER 21 2007\105716-113-114-119-120.dwg Mar 11, 2008 - 9:45am



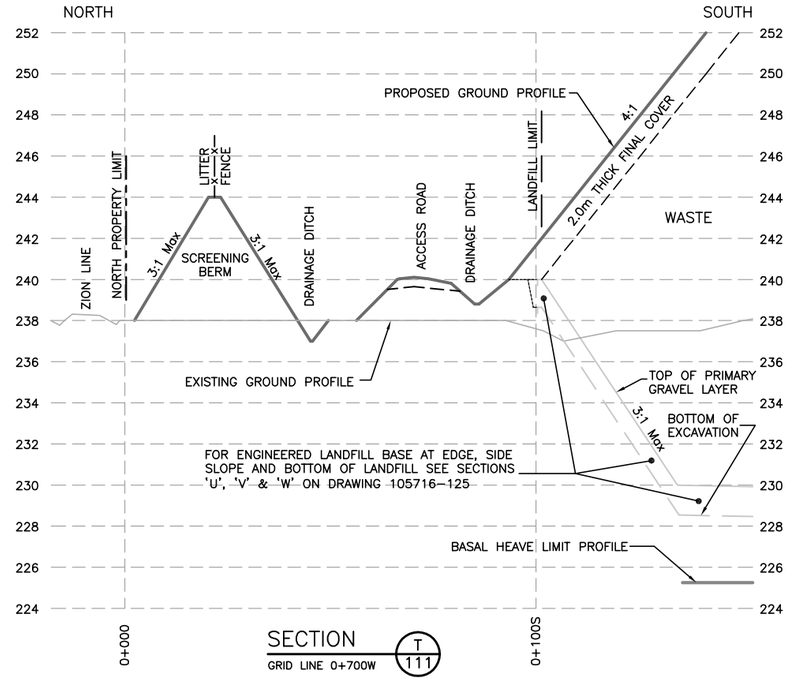
SECTION Q / 111
GRID LINE 0+400S



SECTION R / 111
GRID LINE 0+900W



SECTION S / 111
GRID LINE 0+400S



SECTION T / 111
GRID LINE 0+700W

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HPA JOB # 105716

WASTE MANAGEMENT

LANDFILL PERIMETER SECTIONS

WARWICK LANDFILL
WATFORD ONTARIO

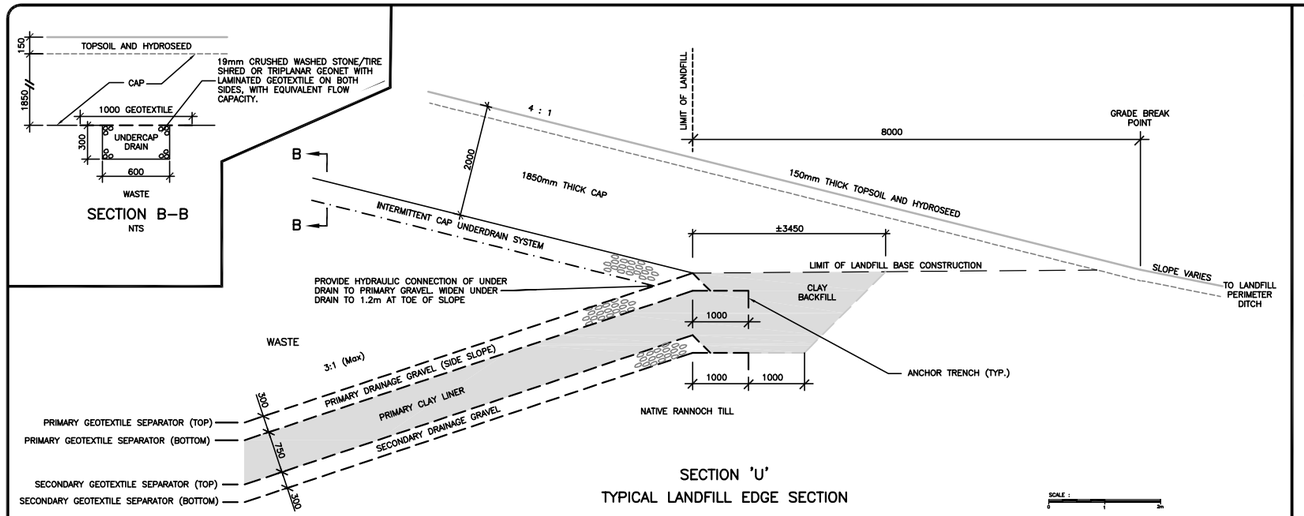
DWN BY: T C G
CHK BY: F C F
DATE: DEC 21 07
SCALE: SEE BAR SCALE

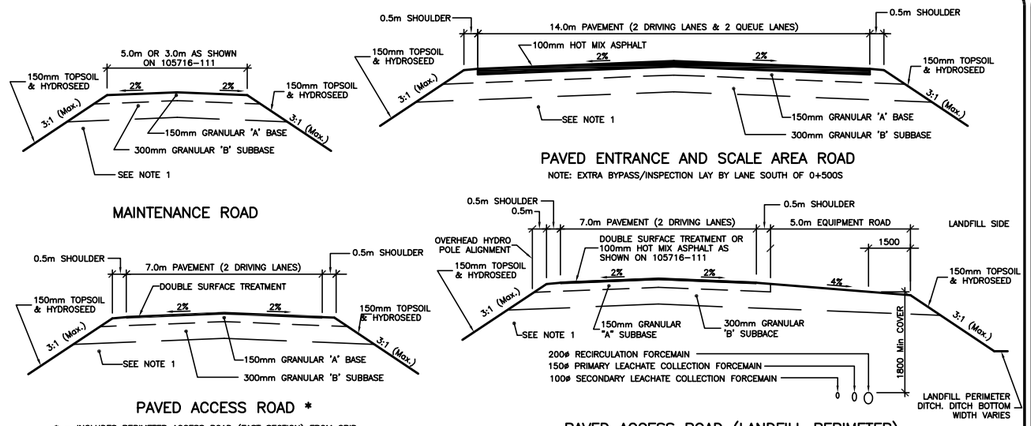
WASTE MANAGEMENT OF CANADA CORP.

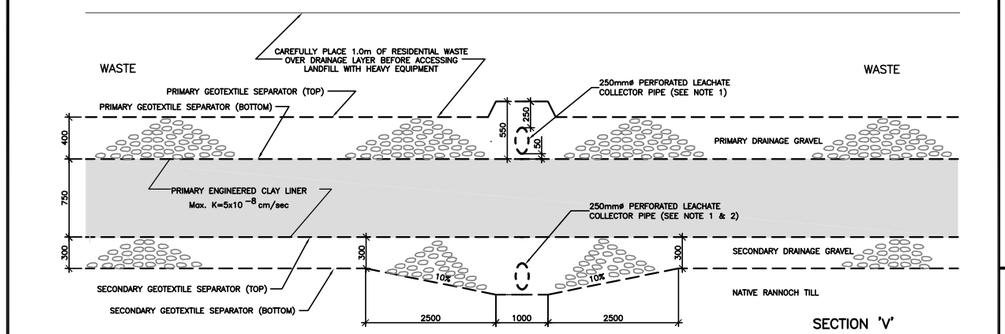
DRAWING NO. 105716 - 120

SHEET 120

G:\2005\700\105716\Drawings\CAD BASE DRAWINGS\DECEMBER 21 2007\105716-113-114-119-120.dwg Mar 11, 2008 - 9:49am





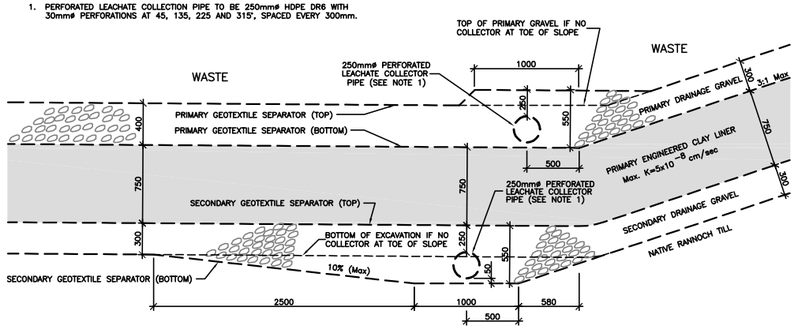


NOTES :

1. PERFORATED LEACHATE COLLECTION PIPE TO BE 250mmø HDPE DR6 WITH 30mmø PERFORATIONS AT 45, 135, 225 AND 315°, SPACED EVERY 300mm.
2. SECONDARY LEACHATE COLLECTOR TO BE INSTALLED UNDER EVERY SECOND PRIMARY LEACHATE COLLECTOR RUN
3. THICKNESS OF PRIMARY GRAVEL LAYER – 400mm ON BOTTOM – 300mm ON SIDE SLOPES
4. INSTALL 5mmø (3/16") STAINLESS STEEL PULL CABLE (POLY COATED) INSIDE LEACHATE COLLECTOR PIPING RUNNING IN EAST-WEST DIRECTION.

NOTE :

1. PERFORATED LEACHATE COLLECTION PIPE TO BE 250mmø HDPE DR6 WITH 30mmø PERFORATIONS AT 45, 135, 225 AND 315°, SPACED EVERY 300mm.



SECTION 'W'
LANDFILL BASE DETAIL
TOE OF SLOPE WITH LEACHATE COLLECTOR PIPE

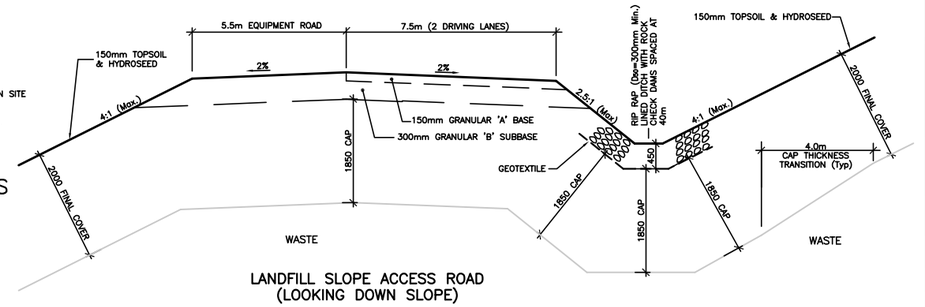
SCALE :
0
0.5
1.0m

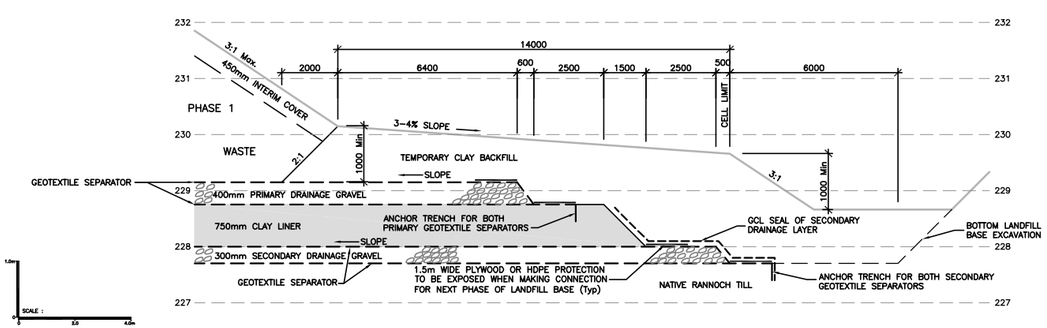
NOTES :

1. ROAD SUBGRADE – NATIVE SOIL MATERIAL OR FILL CONSISTING OF ON SITE EXCESS EXCAVATED MATERIAL COMPACTED TO 95% SPMDD
2. PROVIDE 2% SUPERELEVATION OF ROAD SURFACE ON ALL 90° TURNS.

TYPICAL ROAD SECTIONS

1.0m
0.5
0
0
2
4m





4.0m
2.0
0
0
2.0
4.0m
SCALE :

DATE	DESCRIPTION
	REVISION / ISSUE

Seal not valid unless signed & dated

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HPA JOB # 105716

WASTE MANAGEMENT

DETAILS AND SECTIONS

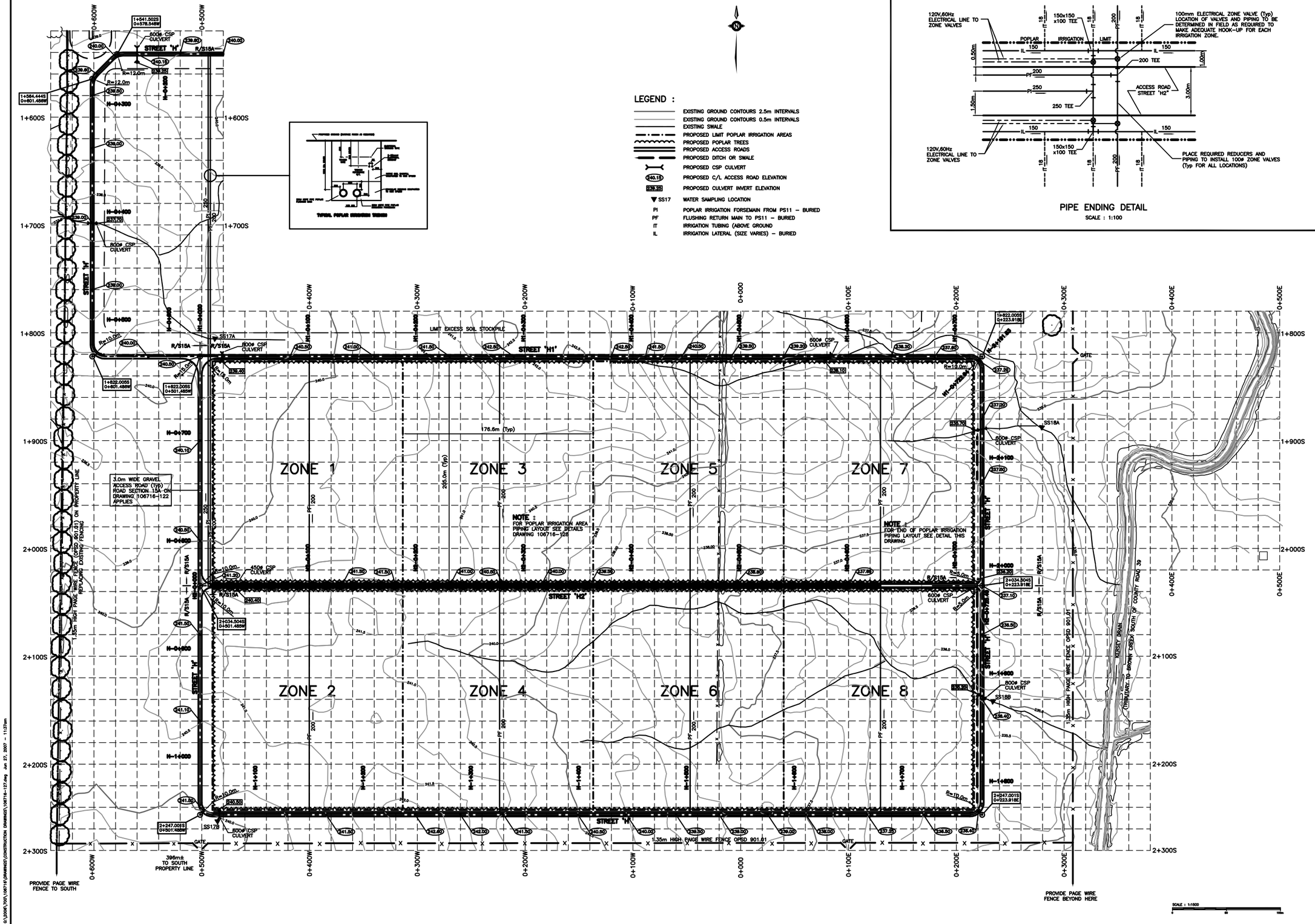
WARWICK LANDFILL
WATFORD ONTARIO

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

WASTE MANAGEMENT OF CANADA CORP.

DRAWING NO. 105716-125

SHEET 125



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HPA JOB # 10716

WM WASTE MANAGEMENT

PLAN
POPLAR IRRIGATION AREA

WARWICK LANDFILL

DWN BY: T C G
CHK BY: F C F
DATE: MAY 2007
SCALE: SEE BAR SCALE

WASTE MANAGEMENT OF CANADA CORP.

DRAWING NO. 106716 - 127

SHEET 127

APPENDIX M:

Monitoring Well and Gas Probe Status

No Groundwater monitoring wells or gas probes were installed at the Site in 2023.

APPENDIX N:

MECP Inspection Reports

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

Inspection Report

System Number:	
Entity:	WASTE MANAGEMENT OF CANADA CORPORATION
Inspection Start Date:	03/31/2023 (mm/dd/yyyy)
Inspection End Date:	03/31/2023 (mm/dd/yyyy)
Inspected By:	Michael Harris
Badge #:	1904

_____
(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: WASTE | **Regulated Activity:** Landfills

Question ID	NOL 1	**Question Type**	Legislative
Question: Does the Open landfill site have an Environmental Compliance Approval (ECA)?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes 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 2022/23 inspection program, an inspection was conducted at the Twin Creeks Environmental Centre (the Site/Facility) 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 inspection report includes a summary of the weekly inspections and weekly that took place between October 2022 and March 2023. All weekly reports during this time were sent to the Company. For specific details on each inspection, see the weekly reports. 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) 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.

Question ID	NOL 3	**Question Type**	Legislative
Question: Does the holder of the landfill ECA own the entire site?			
Legislative Requirement	EPA | 27 | (1); EPA | O. Reg. 232/98 | 3;		
Observation			
Yes			

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

Question ID	NOL 4	**Question Type**	Information
Question: Does the landfill have a Contaminant Attenuation Zone (CAZ)?			
Legislative Requirement	Not Applicable		
Observation			

No

Question ID	NOL 13	Question Type	Information
Question: 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?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes Yes Access to and exit from the Site for the transportation of waste is permitted from Country Road 79 (Nauvoo Road). There are both paved and unpaved access roads on site. Typically unpaved roads are made of material that would allow for vehicles hauling waste on site to readily travel unhindered in normal weather conditions as per ECA condition 6.31a&b.			

Question ID	NOL 14	Question Type	Legislative
Question: Is site access limited to times when an attendant is on duty?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes Yes An attendant is always on duty at the Site during operating hours. During non-operating hours, the Site entrance and exit gates are locked. Site access is secured against access by unauthorized persons as per Condition 6.28 of the ECA. During the review period, there was one complaint regarding the gates being open after hours. According to the Company logs, consultants were onsite conducting work, but forgot to close the gate behind them. As a reminder the Company is required to ensure access is limited to times when an attendant is on duty.			

Question ID	NOL 15	Question Type	Legislative
Question: Does the site only receive waste from within its approved service area?			
Legislative Requirement	EPA | 27 | (1);		
Observation			

Yes Yes The Facility only receives waste generated in the Province of Ontario as per Condition
6.4 and 6.7 of the ECA.

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 the inspection period the Company deposited waste in Cells 4B, 4C & 6A of the Expansion Site. All waste is being deposited 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 since March 2022 are as follows:

September 2022 - 128262.83 tonnes
October 2022 - 107648.42 tonnes
November 2022 - 94,149.03 tonnes
December 2022 - 97165.52 tonnes
January 2023 - 91078.09 tonnes
February 2022 - 93,397.52 tonnes

During the 2022 reporting year the Company received 1389873.02 tonnes of waste.

Question ID	NOL 16	**Question Type**	Information
Question: Is the site required to have a ground water monitoring program by the ECA?			
Legislative Requirement	Not Applicable		
Observation			

Yes Yes The following Site-specific approvals outline the requirements for groundwater 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".

Groundwater monitoring is completed semi-annually in the spring and fall as per the EMP.

No alterations can be made to the program unless prior approval has been given by the District Manager.

Question ID	NOL 17	**Question Type**	Legislative
Question: Is the site implementing the groundwater monitoring program as required by the ECA?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes Yes The Company documents the results of the required monitoring programs in quarterly and annual monitoring reports which are routinely reviewed by the Ministry for compliance purposes. The 2022 third quarter ("Q3") Monitoring Report, fourth quarter ("Q2") Monitoring Report, and Annual Monitoring reports have been submitted to the Ministry. The Q3 and Q4 reporting periods reflect all monitoring completed by the Facility between July 1, 2022 and December 31, 2022. The Annual Monitoring report covers all monitoring in 2022. According to the report, the Company is implementing the monitoring program as required by the ECA.			

Question ID	NOL 18	**Question Type**	Legislative
Question: Are monitoring well samples taken and tested to determine the quality of the ground water?			
Legislative Requirement	EPA | 27 | (1); EPA | O. Reg. 232/98 | 25;		
Observation			
Yes Yes According to the Annual report the analytical results of the groundwater monitoring wells generally satisfied the relevant trigger concentrations (with noted known exceptions).			

Question ID	NOL 19	**Question Type**	Information
Question: Is the ministry concerned with the results of the samples that have been tested?			
Legislative Requirement	Not Applicable		

Observation
No

Question ID	NOL 21	Question Type	Information
Question: Is the site required to manage leachate by the ECA?			
Legislative Requirement	Not Applicable		
Observation			

Yes 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:
- 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 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 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.

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 or Canflow Environmental Services in Ontario.

According to reports provided by the Company, the following was shipped offsite since August 2022:

September 2022 - 3927.42 mt
October 2022- 4942.74 mt
November 2022 - 5374.14 mt
December 2022 - 4628.2 mt
January 2023- 4876.66 mt
February 2023 - 4738.5 mt

Question ID	NOL 22	**Question Type**	Legislative
Question: Is the landfill implementing the procedures required by the ECA to manage leachate?			
Legislative Requirement	EPA | 27 | (1);		
Observation			

Yes Yes
Existing Site:

Leachate liquid levels are monitored semi-annually in May and November for the Existing Site.

Overall, hydraulic containment of the leachate in the Existing Site was generally maintained, with some exceptions as described in the annual report. Acceptable groundwater and surface water quality were noted around the existing site during 2022 and no visible leachate seeps were observed by RWDI nor the undersigned officer.

Over the long term, leachate levels are expected to decrease in the Existing Site since it is capped and leachate is extracted for poplar system irrigation and off-Site disposal. in the annual report it is concluded that the continued leachate level monitoring is required to ensure leachate is managed effectively in consideration of the destination target (onsite vs off site treatments).

Expansion Site:

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:
PS1 - 232.7 mASL
PS3 - 232.6 mASL
PS5 - 232.8 mASL
PS7 - 233.4 mASL (installed with Cell 6A)

According to the Company's Annual Report the leachate levels in PS1, PS3, PS5 and PS7 generally remained below their respective trigger leachate elevations in 2022.

RWDI reported during 2022 leachate elevations within Cell 1, 2, 4 & 6A of the expansion site were below the historical groundwater elevation confirming the hydraulic trap was maintained as per condition 14.1.

One leachate seep was observed by the Inspector on October 6, 2022 and repaired by the Company on the same day. One leachate seep was also reported by the Company during the March 24, 2023 inspection that occurred earlier in the week and was repaired.

Question ID	NOL 24	**Question Type**	Information
Question: Is the ministry concerned with the leachate quality?			
Legislative Requirement	Not Applicable		
Observation			
No			

Question ID	NOL 26	**Question Type**	Information
Question: Is the site required to manage landfill gas by the ECA?			
Legislative Requirement	Not Applicable		
Observation			
Yes Yes Gas produced by the landfill is managed by the on-Site gas collection and flaring system. A portion of this gas is conveyed from the landfill to a neighboring property, where it is converted and used for building heat for a large greenhouse on an as-needed basis during the colder seasons. The remaining gas is sent to one of the two existing flares on-Site. Waste ECA No. A032203: - Condition 7.10 and 13.6 requires the gas control system to be managed and monitored as specified in the D&O Report 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 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.

Question ID	NOL 27	**Question Type**	Legislative

Question:

Is the site implementing the landfill gas manangement requirements in the ECA?

Legislative Requirement	EPA | 27 | (1);

Observation

Yes Yes Landfill gas monitoring is completed monthly from November to April and in July at gas monitoring probes GP1A to GP8. Gas probes GP9 and GP10, were installed in late June 2022 in accordance with their respective stages of landfill construction as presented in Table 2 of the landfill EMP and therefore, were not monitored during the 2022 Q1 or Q2 monitoring period. Monitoring of gas probes GP9 and GP10 are said to have begun in Q3.

According to the 2022 annual submitted by RWDI methane gas was not detected within the gas probes in 2022.

Total Hydrocarbon (THC) capped 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. 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. The 2022 fall monitoring was conducted on October 3, 2022 and identified 8 areas that needed repair. On October 27, 2022 these repairs were completed with validation monitoring occurring on November 11, 2022.

The temperatures of the flares are checked during the unannounced weekly inspections to ensure they are operating above 875 degrees Celsius. During this reporting period the operating flare was observed operating above 875 degrees Celsius according to the SCADA system on all occasions. When in operation, Flare 1 was also reported to be operating above this threshold.

- Landfill gas being produced within the vertical gas wells in Cell 4B and 4C and released to atmosphere because they are not yet fully connected to the collection system. Some of the wells are connected however not all are connected. Vertical wells cannot be fully connected to the collection system until landfilling in the cell is for the most part completed. Delays and emergency alterations to the fill plan have created issues in connecting these wells. According to the Company, Cell 6A is being constructed in a way so that this issue will not arise. Wells are being installed after final grading of 6A in order to prevent "conduits" to the atmosphere prior to connecting to the collection system.

- Odour complaints in the later half of 2022 were attributed to this issue. The Company submitted a written plan that outlined the actions taken by the Company, and the actions that will be taken to address the odours that primarily included timelines for the gas collection system installation. During the March 28, 2022 inspection the gas collection system had all but two wells hooked into the collection system, minimizing landfill gas odours offsite.

Question ID	NOL 29	**Question Type**	Information
Question: Is the ministry concerned with landfill gas at this site?			
Legislative Requirement	Not Applicable		
Observation			
No Concerns with landfill gas at the Site were addressed as part of this inspection. The Company did have delays in installing landfill gas collection in cell 4 however these concerns are being addressed by the Company.			

Question ID	NOL 31	**Question Type**	Information
Question: Is the site required to have a surface water monitoring program by the ECA?			
Legislative Requirement	Not Applicable		
Observation			
Yes 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.

Question ID	NOL 32	**Question Type**	Legislative
Question: Is the site implementing the surface water monitoring program as required by the ECA?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes Following precipitation events of greater than 10 mm in a 24-hour period, routine surface water samples were collected during all quarters in 2022 at monitoring stations SS1,SS16 SP2, SP3, SP4, and SP1 (unless otherwise noted in the annual report). The routine quarterly surface water monitoring results satisfied the relevant trigger concentrations, with seven (7) exceptions. The exceptions are discussed in detail in the Annual Report. It is however important to note that verification results indicated acceptable chemical and biological results for each trigger level exceedance therefore no further verification monitoring was required. According to the report the overall surface water quality did not show an unacceptable landfill leachate or operations effect in 2022. The annual spring biomonitoring showed that there was not a potential for detrimental effects to aquatic life in the discharge water and was acceptable for continued discharge.			

Question ID	NOL 34	**Question Type**	Information
Question: Are there water quality concerns with the results of the samples that have been tested?			
Legislative Requirement	Not Applicable		
Observation			
No On April 20, 2022 the Company, RWDI and the Ministry had a discussion surrounding the Ministry's objective to see a reduction in Total Suspended Solids (TSS) loading to discharging surface water from large industrial facilities, including landfilling sites within the			

province of Ontario. The Ministry is looking for best efforts by WM to address TSS loading to discharging surface water from the Twin Creeks Environmental Centre.

As a result, a letter was provided to the Ministry from RWDI outlining a that a TSS Action Plan would be developed and received by the Ministry in October 2022. It should be noted that the majority of this work had taken place during 2021 & 2022 including the removal of sediment build up within the sedimentation ponds, seeding of inactive waste areas and installation of sedimentation structures (straw bales). According to plan the removal of sediment should restore the design optimal effectiveness of the ponds to capture sediment and therefore reduce TSS offsite. According to the Plan continued monitoring will indicate whether these methods reduced TSS.

Question ID	NOL 36	**Question Type**	Legislative
Question: Is proper equipment available for the compaction of waste and applying cover material?			
Legislative Requirement	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.			

Question ID	NOL 37	**Question Type**	Legislative
Question: Is the landfill able to accurately determine the amount of waste received?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
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 Type**	Legislative
Question: Are all disposal operations at the site adequately and continually supervised?			
Legislative Requirement	EPA | 27 | (1);		
Observation			

Yes There is always a Supervisor on-Site during the weekly inspections.

Question ID	NOL 39	**Question Type**	Information
Question: Does the landfill operator have a site inspection program as required by the ECA?			
Legislative Requirement	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. In addition RWDI conducts inspections to ensure the Company is operating within the conditions of the ECA. No issues or concerns have been identified with the frequency or details of site inspections.			

Question ID	NOL 40	**Question Type**	Legislative
Question: Does the landfill operator have a procedure in place to address issues identified by staff during the site inspection?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes These procedures are documented in the D&O Report and BMP Plan. Some examples of Issues that may arise may be related to odour, litter, dust or leachate seeps. No issues were identified as part of this inspection.			

Question ID	NOL 41	**Question Type**	Legislative
Question: Is the waste being compacted adequately?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes Compactors are regularly observed in operation at the active working face during			

weekly on-Site inspections.

Question ID	NOL 42	Question Type	Legislative
Question: Is Daily cover applied to the waste at the end of each working day or as otherwise specified in the ECA?			
Legislative Requirement	EPA | 27 | (1); EPA | O. Reg. 232/98 | 7;		
Observation			

Yes 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.

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

The Company reports that daily cover is adequately applied at the end of each working day. 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:

- Automobile Shredder Residue (ASR)
- Soil
- Contaminated Soil
- Woodchips
- Tarps

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 February 2, 2022 and results indicated that it met the specifications and was classified as non-hazardous. In addition, ASR was sampled on April 6, 2022 and showed the same results.

The Company voluntarily discontinued the use of ASR in November 2021 due to off-Site track out issues. In January 2022 the Company received a small amount of ASR from a

new supplier to trial at the Site. This material is much finer in size, which the Company's District Manager John McDonald anticipated would reduce the amount of pieces getting stuck in/around truck tires as they exit the Site. During the Ministry's weekly inspections, the undersigned officer observed improvement in the reduction of visible ASR along the roads. However in May 2022, the inspections continued to show ASR track out being observed. This new issue of ASR track out was now related to drag/blow out and needed to be addressed. An Abatement Plan was received by the Company on August 11, 2022 and included once again the voluntary discontinuance of ASR. Clean up of the roadside ditches and Nauvoo Road is continually ongoing. Final clean up is expected in October 2022.

Since March 2022 eight (8) Ministry inspections took place before/after landfilling operations were taking place to assess the daily cover requirements. Of these 8 instances, 5 showed signs that Daily Cover had not been properly applied.

Four instances of this lack of proper daily cover took place in a short period of time in the spring when the Company was required to restructure the fill plan due to events that took place in the end of 2021 and early 2022. An Abatement Plan was requested by the Ministry and implemented after the fourth instance.

The fifth instance of lack of daily cover was observed on September 13, 2022. This inspection was in direct response to several odour complaints that took place the week prior. This inspection resulted in observations that daily cover was applied poorly over the active face, an open special waste hole, and other poor cover areas (e.g. flagging, exposed waste etc.). The Company was given until September 16, 2022 to ensure all areas were covered appropriately. Four days later another inspection took place to assess daily cover on Saturday September 17, 2022. At the time of this inspection daily cover appeared to be appropriate.

A total of four (4) Part 1 Offense Notices (tickets) were issued to the Company for failure to comply with this condition of the ECA.

The Company is currently exploring different options for daily cover prior to applying for amendment to the ECA. At this time there have been no formal requests to alter daily cover requirements from the Company.

No further issues were observed by the inspector during 2022.

Question ID	NOL 43	**Question Type**	Legislative
Question: Are procedures implemented to control rodents or other animals and insects at the site?			
Legislative Requirement	EPA | 27 | (1);		

Observation
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 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. No concerns or issues with pest control were identified during this reporting period.

Question ID	NOL 44	Question Type	Legislative
Question: Is site access restricted by use of a gate, fence, or physical barrier when the site is not operating?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes ECA No. 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: -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 or brought to the attention of the Ministry during this reporting period.			

Question ID	NOL 45	Question Type	Legislative
Question:			

Is the waste disposal area adequately screened from public view?	
Legislative Requirement	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 Type**	Legislative
Question: 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 Requirement	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 Type**	Legislative
Question: Has the annual operations report been submitted to MECP or available on site as required by the ECA?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes The 2022 annual report was submitted by the Company. The Company is also required to submit quarterly reports in accordance with condition 15.4 and 15.5. These were also submitted on time. No issues were found regarding the submission or retention of annual or quarterly reports			

Question ID	NOL 48	**Question Type**	Legislative
Question: Is scavenging being prevented?			
Legislative Requirement	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. According to the Company Waste Management staff are trained extensively preventing scavenging in the landfill.

Question ID	NOL 49	**Question Type**	Information
Question: Has a closure plan been submitted to the MECP?			
Legislative Requirement	Not Applicable		
Observation			
No Condition 16.1 states that a closure plan is required to be submitted at least two years prior to closure (or when 90% of capacity is reached, whatever comes first). The site is not yet required to submit a closure plan.			

Question ID	NOL 51	**Question Type**	Legislative
Question: Is the landfill only accepting the types of waste that they are approved to receive?			
Legislative Requirement	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 issues were identified with this condition during the review period.			

Question ID	NOL 52	**Question Type**	Information
Question: 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?			
Legislative Requirement	Not Applicable		
Observation			

Yes 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 53	**Question Type**	Legislative
Question: is the waste refusal procedure being followed?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes			

Question ID	NOL 54	**Question Type**	Legislative
Question: Does the landfill have a procedure in place to address and document spills and fires?			
Legislative Requirement	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 Type	Legislative
Question: Does the landfill have emergency contingency plan as required by the ECA?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes The Emergency Response Plan is included in the D&O Report.			

Question ID	NOL 56	Question Type	Information
Question: Is there an ECA condition requiring financial assurance?			
Legislative Requirement	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 Type	Legislative
Question: Has the financial assurance been submitted, as specified in the ECA?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes			

Question ID	NOL 59	Question Type	Legislative
Question: Does the landfill have a procedure in place to address complaints?			
Legislative Requirement	EPA | 27 | (1);		

Observation

Yes 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. "

According to the Company a total of 73 complaints were reported in 2022. The majority of the complaints were about odour from the site. Odour from the Site can originate from a variety of sources. For a portion of the year odours were attributed to insufficient cover & failure to cover the special waste holes; this is discussed in the Ministry's September 2022 Summary Report. More recently, odours have been attributed to landfill gas generation and delays in installing the landfill gas collection system in Cell 4. Details regarding this are discussed elsewhere in this report and in the Weekly Inspection Reports provided to the Company.

There have been 3 complaints reported in so far in 2023.

Ongoing discussions between the Ministry and WM occur on the notifications of complaints and follow up actions taken by the Company. The Company reported on these complaints in the two WPLC meetings that took place in this reporting period. The Company is also required to review and summarize the complaints and response in the annual report.

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.

Question ID	NOL 61	**Question Type**	Information
Question: Has the landfill operator developed a Design and Operations Manual?			
Legislative Requirement	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. The D&O Report requires minor updates to be made, which the Company plans to address during their next ECA amendment application.			

Question ID	NOL 63	**Question Type**	Legislative
Question: Does the landfill operator have training procedures for site personnel?			
Legislative Requirement	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 Type**	Legislative
Question: Is the landfill operator following the established training procedures?			
Legislative Requirement	EPA | 27 | (1);		
Observation			
Yes			

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

Question ID	949100	**Question Type**	Legislative
Question: Were the inspection questions sufficient to address other identified non-compliance items?			
Legislative Requirement	Not Applicable		
Observation			

AMBIENT AIR QUALITY MONITORING
Condition 13.8 of ECA No. A032203 requires that Air Quality, Dust, Hydrocarbon, and Volatile Organic Carbon (VOC) 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.
A total of fifteen (15) TSP exceedance events were reported in 2022. According to the exceedance notifications submitted by RWDI on behalf of the Company, all the exceedances can be attributed to On-site construction-related activities consisting of hauling clay material from Cell 6A and Cell 6B to the excess soil stockpile, hauling select clay liner material to the top of the Existing Landfill, the delivery and stockpiling of drainage layer gravel, in combination with offsite sources. As described in the Dust BMP continuous TSP analysers are required at the Site when two or more exceedances in any given year are attributed to landfilling activities. The Ministry Technical Support Section will be reviewing the Quarterly Reports and Annual Reports relating to TSP concentrations on Site.

Metals are analyzed on the highest filter TSP concentration out of every four samples per location. All 2022 samples collected for metals were below their air quality standards as outlined in O. Reg.419.

Fenceline VOC sampling takes place between June - September during operating hours. Five sets of upwind and downwind samples are collected, with no more than two samples collected within the same calendar month. Five VOC samples were collected in 2022. All

concentrations measured were less than their respective air quality standards.

WEEKLY INSPECTIONS

Since the last summary report twenty six (26) inspections took place since the September Summary report. Ministry on-site inspections continue to take place weekly at the Site. On-site inspections took place on the following dates:

October 6, 12, 21, 24
November 2, 8, 15, 23
December 2, 8, 14, 20, 29
January 4, 13, 18, 27
February 1, 8, 15, 24, 27
March 8, 15, 24, 28

One purpose of these weekly inspections is to assess the Company efforts towards preventing, minimizing and mitigating off-site impacts resulting from their operations such as odours, litter, noise and dust. The following is a brief summary of those reports. Further details an be found in each of the weekly inspection reports submitted to the Company.

Odours were observed from strong to faint ratings downwind of the landfill during all of the inspections since the last summary report. Odours were mixed from landfill gas to refuse odours. Some odours were attributed to odorous loads. Each individual weekly report describe odours identified around the Site. Many agricultural related odours, odours from the nearby bake shop, and odours from the greenhouse have also been noted.

Typically speaking, odours associated with landfill gas have been the issue within this last half of 2022. The delays in hooking the landfill gas collection system up in cell 4 have been the leading cause of this issue. This is discussed elsewhere in this report as well as at length in the weekly inspection reports.

Litter was present on site in many of the inspections. The installation of the northern litter fence has helped to reduce the offsite impacts typically observed in the late winter. Litter picking has improved at the site, and no issues with the response of the Company was observed during this review period.

ASR drag out was not an issue in the later half of 2022. ASR continues to be accepted as a waste on the site, but the Company continues to voluntarily not use it as a cover material.

Dust track out was has been observed at site on multiple occasions, but the sweeper has always been observed operating. Mud and dust on the road has also been observed from other sources around the site.

TWIN CREEKS ENVIRONMENTAL CENTRE
5768 NAUVOO RD, WARWICK, ON, N0M 2S0

INSPECTION REPORT

Entity:	WASTE MANAGEMENT OF CANADA CORPORATION
Inspection Start Date:	April 01, 2023
Inspection End Date:	September 30, 2023
Inspected By:	Amanda Seaman
Badge #:	
Inspected By:	Jessica Brown
Badge #:	2089

Amanda Seaman

_____
(signature)

INTRODUCTION

Purpose

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.

The Ministry issues Environmental Compliance Approvals (ECA) under the EPA for landfill sites that dispose of solid non-hazardous wastes. The ECA imposes conditions related to development and operation of the site, and includes monitoring requirements, etc. To confirm whether the regulated community is complying with the requirements related to the waste disposal activities, the Ministry is committed to conducting proactive inspections of waste sites. With that aim in mind, Ministry staff conducted an inspection of the Twin Creeks Environmental Centre (Site) in Warwick Township as part of the Sarnia District Office's 2023/24 inspection program.

The Site is approved to accept municipal, industrial, commercial, and institutional solid non-hazardous waste generated within the Province of Ontario, including non-hazardous contaminated soils under ECA Number A032203, dated February 4, 2023. The Site is owned and operated by Waste Management of Canada Corporation (Company).

NON-COMPLIANCE

This should not be construed as a confirmation of full compliance with all potential applicable legal requirements. 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.

RECOMMENDATIONS

This should not be construed as a confirmation of full conformance with all potential applicable 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: WASTE | **Regulated Activity:** Landfills

Question ID	NOL 1	**Question Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Does the Open landfill site have an Environmental Compliance Approval (ECA)?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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 2023/24 inspection program, an inspection was conducted at the Twin Creeks Environmental Centre (the Site/Facility) 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 inspection report includes a summary of the weekly inspections that took place between April 2023 and September 2023. All weekly reports during this time were sent to the Company. For specific details on each inspection, see the weekly reports.

The Site has the following Ministry approvals:

WASTE DISPOSAL SITE:
ECA No. A032203, dated February 4, 2023
- 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) 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.

Question ID	NOL 2	**Question Type**	Information

Legislative Requirement(s):
Not Applicable

Question:
Is this landfill on Crown land?

Compliance Response(s)/Corrective Action(s)/Observation(s):
No

Question ID	NOL 3	**Question Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1); EPA | O. Reg. 232/98 | 3;

Question:
Does the holder of the landfill ECA own the entire site?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

Question ID	NOL 4	**Question Type**	Information

Legislative Requirement(s):
Not Applicable

Question:
Does the landfill have a Contaminant Attenuation Zone (CAZ)?

Compliance Response(s)/Corrective Action(s)/Observation(s):
No

Question ID	NOL 12	Question Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Does the landfill have a large enough Buffer Area as specified in the ECA or Regulation 232/98?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

Question ID	NOL 13	Question Type	Information

Legislative Requirement(s):
EPA | 27 | (1);

Question:
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?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

Access to and exit from the Site for the transportation of waste is permitted from Country Road 79 (Nauvoo Road).

There are both paved and unpaved access roads on site. Typically unpaved roads are made of material that would allow for vehicles hauling waste on site to readily travel unhindered in normal weather conditions as per ECA condition 6.31a&b.

Question ID	NOL 14	Question Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Is site access limited to times when an attendant is on duty?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

An attendant is always on duty at the Site during operating hours.

During non-operating hours, the Site entrance and exit gates are locked. Site access is secured against access by unauthorized persons as per Condition 6.28 of the ECA.

Question ID	NOL 15	Question Type	Legislative

Legislative Requirement(s):

EPA | 27 | (1);

Question:
Does the site only receive waste from within its approved service area?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

The Facility only receives waste generated in the Province of Ontario as per Condition 6.4 and 6.7 of the ECA.

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 the inspection period the Company deposited waste in Cells 6A, 4A, 4B & 4C of the Expansion Site. All waste is being deposited 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 since March 2023 are as follows:

March 2023 - 112,688.42 tonnes
April 2023 – 108,050.79 tonnes
May 2023 – 127,666.07 tonnes
June 2023 – 143,906.75 tonnes
July 2023 – 150,266.24 tonnes
August 2023 – 157,976.11 tonnes
September 2023 – 139,384.26 tonnes

From the beginning of 2023 to the end of September 2023 the Company has received 1,123,878.31 tonnes of waste.

Question ID	NOL 16	**Question Type**	Information

Legislative Requirement(s):
Not Applicable

Question:
Is the site required to have a ground water monitoring program by the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

The following Site-specific approvals outline the requirements for groundwater 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".

Groundwater monitoring is completed semi-annually in the spring and fall as per the EMP.

No alterations can be made to the program unless prior approval has been given by the District Manager.

Question ID	NOL 17	**Question Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Is the site implementing the groundwater monitoring program as required by the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

The Company documents the results of the required monitoring programs in quarterly and annual monitoring reports which are routinely reviewed by the Ministry for compliance purposes.

The 2023 First Quarter ("Q1") Monitoring Report and 2023 Second Quarter ("Q2") Monitoring Report have been submitted to the Ministry. The Q1 and Q2 reporting periods reflect all monitoring completed by the Facility between January 1, 2023 and June 30, 2023.

According to the report, the Company is implementing the monitoring program as required by the ECA.

Question ID	NOL 18	**Question Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1); EPA | O. Reg. 232/98 | 25;

Question:
Are monitoring well samples taken and tested to determine the quality of the ground water?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

According to the Q2 report, the analytical results of the groundwater monitoring wells generally satisfied the relevant trigger concentrations (with noted known exceptions).

Question ID	NOL 19	Question Type	Information

Legislative Requirement(s):
Not Applicable

Question:
Is the ministry concerned with the results of the samples that have been tested?

Compliance Response(s)/Corrective Action(s)/Observation(s):
No

Question ID	NOL 21	Question Type	Information

Legislative Requirement(s):
Not Applicable

Question:
Is the site required to manage leachate by the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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:
- 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 Collection - Expansion Site:
A leachate collection system has been installed in Cell 1, Cell 2, Cell 4, and Cell 6A. The leachate level in the primary drainage layer of these cells is currently controlled by automated Pump Station 1 (PS1), Pump Station 3 (PS3), Pump Station 5 (PS5) , and Pump Station 7 (PS7). 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 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.

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, the following was shipped offsite since March 2023:

March 2023 – 5,529.72 mt
April 2023 – 4,738.91 mt
May 2023 – 5,234.17 mt
June 2023 – 5,510.56 mt
July 2023 – 5,025.44 mt
August 2023 – 5,305.75 mt
September 2023 – 5,183.61 mt

Question ID	NOL 22	**Question Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Is the landfill implementing the procedures required by the ECA to manage leachate?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

Existing Site:

Leachate liquid levels are monitored semi-annually in May and November for the Existing Site.

Overall, hydraulic containment of the leachate in the Existing Site was generally maintained, with some exceptions as described in the Q2 report. Acceptable groundwater and surface water quality were noted around the existing site during this reporting period. No visible leachate seeps were observed by RWDI however, the Company reported a few leachate seeps during this reporting period. Additional details on these leachate seeps can be found below and in the

weekly inspection reports.

Over the long term, leachate levels are expected to decrease in the Existing Site since it is capped and leachate is extracted for poplar system irrigation and off-Site disposal. In the Q2 report, it is concluded that the continued leachate level monitoring is required to ensure leachate is managed effectively in consideration of the destination target (onsite vs off site treatments).

Expansion Site:

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:
PS1 - 232.7 mASL
PS3 - 232.6 mASL
PS5 - 232.8 mASL
PS7 - 233.4 mASL (installed with Cell 6A)

According to the Company's Q1 and Q2 Reports, the leachate levels in PS1, PS3, PS5 and PS7 generally remained below their respective trigger leachate elevations with the exception of PS7 during the time period of April 5 to May 23, 2023, where the leachate elevation slightly exceeded the 0.3 m of head by values ranging from 0.01 m to 0.14 m. This has been attributed to the significant amount of precipitation received in early spring.

RWDI reported during 2023 leachate elevations within Cell 1, 2, 4 & 6A of the expansion site were below the historical groundwater elevation confirming the hydraulic trap was maintained as per condition 14.1.

The Company reported a few leachate seeps during this reporting period in the existing landfill as well as the expansion site. Leachate seeps are common in the spring but with the wetter weather that occurred in Spring 2023, there were a few more identified than normal. Leachate seeps were reported by the Company to the Inspector during inspections on March 24th at a transition zone between cell 3& 4, April 6th along the access ramp on cell 4 along the eastern haul road, April 12th along the access ramp on cell 4 along the eastern haul road and near MH3SA & MH3SB and September 13th on the east wall of cell 4. On May 10, 2023 the Ministry asked the Company for a written action plan to remediate the leachate seep near MH3SA & MH3SB identified on April 12, 2023. All seeps were repaired by the Company and there were no offsite impacts reported.

During this reporting period the leachate levels in the storage tank were higher than normal but this was attributed to the amount of large amount of precipitation received during the Spring and Summer 2023.

Question ID	NOL 24	Question Type	Information

Legislative Requirement(s):
Not Applicable

Question:
Is the ministry concerned with the leachate quality?

Compliance Response(s)/Corrective Action(s)/Observation(s):
No

Question ID	NOL 26	Question Type	Information

Legislative Requirement(s):
Not Applicable

Question:
Is the site required to manage landfill gas by the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

Gas produced by the landfill is managed by the on-Site gas collection and flaring system. A portion of this gas is conveyed from the landfill to a neighboring property, where it is converted and used for building heat for a large greenhouse on an as-needed basis during the colder seasons. The remaining gas is sent to one of the two existing flares on-site.

Waste ECA No. A032203:
- Condition 7.10 and 13.6 requires the gas control system to be managed and monitored as specified in the D&O Report 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 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.

Question ID	NOL 27	Question Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Is the site implementing the landfill gas manangement requirements in the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

Landfill gas monitoring is completed monthly from November to April and in July at gas monitoring probes GP1A to GP10. Gas probes GP9 and GP10, were installed in late June 2022 in accordance with their respective stages of landfill construction as presented in Table 2 of the landfill EMP.

According to the 2023 quarterly reports submitted by RWDI methane gas was not detected at the established gas probes GP1A to GP10 (Q1 & Q2 monitoring periods).

Total Hydrocarbon (THC) capped 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. 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. The 2023 spring monitoring was conducted on May 15, 2023 and there were no detected exceedances during this survey, meaning there were no THC concentrations measured at 500 ppm or greater.

The temperatures of the flares are checked during the unannounced weekly inspections to ensure they are operating above 875 degrees Celsius. During this reporting period when in operation, Flare 1 and Flare 2 were observed operating above 875 degrees Celsius according to the SCADA system on all occasions.

During the March and April 2023 inspections, the gas collection system had all but two wells hooked into the collection system, minimizing landfill gas odours offsite. The two remaining wells were difficult to reach and required additional steps. During this inspection period, the Inspector noted that the offsite odors were significantly reduced compared to the previous inspection period (September 2022-March 2023) when the landfill gas collection system in Cell 4 had not been connected.

During the June 14, 2023 inspection, the Company reported that one of the horizontal gas well headers had been damaged while digging the special waste hole. Asbestos waste was deposited on the area before repairs could occur. 18 vertical wells were disconnected from the system for a day to allow for the repairs. The Company informed the WPLC and the Township of Warrick of the incident.

During the September 20, 2023 inspection, the Company reported a flare compressor malfunction on September 15, 2023, Flare 1 and Flare 2 were down from approx. 10am-2pm. No releases were reported, and the gas system held pressure within compliance limits. The Company used a portable generator for back-up to power the Flare's until the flare compressor was repaired on September 21st as per Condition 7.8 of ECA No. A032203.

Question ID	NOL 29	Question Type	Information

Legislative Requirement(s):
Not Applicable

Question:
Is the ministry concerned with landfill gas at this site?

Compliance Response(s)/Corrective Action(s)/Observation(s):
No

Question ID	NOL 31	Question Type	Information

Legislative Requirement(s):
Not Applicable

Question:
Is the site required to have a surface water monitoring program by the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

The following Site-specific approvals outline the requirements for surface water 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.

Question ID	NOL 32	Question Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Is the site implementing the surface water monitoring program as required by the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

Following precipitation events of greater than 10 mm in a 24-hour period, routine surface water samples were collected during Q1 and Q2 at monitoring stations SS1, SS10, SS16, SS19 (new),

SP1 SP2, SP3, and SP4. SS19 not monitored since the compost facility is not yet constructed.

The routine quarterly surface water monitoring results satisfied the relevant trigger concentrations, with three (3) exceptions. The exceptions are discussed in detail in the Q1 and Q2 Reports submitted by the Company. It is however important to note that verification results indicated acceptable chemical and biological results for each trigger level exceedance therefore no further verification monitoring was required.

According to the report the overall surface water quality did not show an unacceptable landfill leachate or operations effect in 2023.

The annual spring biomonitoring showed that there was not a potential for detrimental effects to aquatic life in the discharge water and was acceptable for continued discharge.

Question ID	NOL 34	**Question Type**	Information

Legislative Requirement(s):
Not Applicable

Question:
Are there water quality concerns with the results of the samples that have been tested?

Compliance Response(s)/Corrective Action(s)/Observation(s):
No

In April 2022 the Company, RWDI and the Ministry had a discussion surrounding the Ministry's objective to see a reduction in Total Suspended Solids (TSS) loading to discharging surface water from large industrial facilities, including landfilling sites within the province of Ontario. The Ministry is looking for best efforts by WM to address TSS loading to discharging surface water from the Twin Creeks Environmental Centre.

As a result, a letter was provided to the Ministry from RWDI outlining a that a TSS Action Plan would be developed and received by the Ministry in October 2022. It should be noted that the majority of this work had taken place during 2021 & 2022 including the removal of sediment build up within the sedimentation ponds, seeding of inactive waste areas and installation of sedimentation structures (straw bales). According to plan the removal of sediment should restore the design optimal effectiveness of the ponds to capture sediment and therefore reduce TSS offsite. According to the Plan continued monitoring will indicate whether these methods reduced TSS.

Question ID	NOL 36	**Question Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Is proper equipment available for the compaction of waste and applying cover material?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Yes

The proper equipment for waste compaction and daily cover application was observed during the Ministry's weekly on-Site inspections.

Question ID	NOL 37	Question Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Is the landfill able to accurately determine the amount of waste received?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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 Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Are all disposal operations at the site adequately and continually supervised?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

There is always a Supervisor on-Site during the weekly inspections.

Question ID	NOL 39	Question Type	Information

Legislative Requirement(s):
Not Applicable

Question:
Does the landfill operator have a site inspection program as required by the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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.

In addition, RWDI conducts inspections to ensure the Company is operating within the

conditions of the ECA.

No issues or concerns have been identified with the frequency or details of site inspections

Question ID	NOL 40	Question Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Does the landfill operator have a procedure in place to address issues identified by staff during the site inspection?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

These procedures are documented in the D&O Report and BMP Plan. Some examples of Issues that may arise may be related to odour, litter, dust or leachate seeps.

No issues were identified as part of this inspection.

Question ID	NOL 41	Question Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Is the waste being compacted adequately?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

Compactors are regularly observed in operation at the active working face during weekly on-Site inspections.

Question ID	NOL 42	Question Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1); EPA | O. Reg. 232/98 | 7;

Question:
Is Daily cover applied to the waste at the end of each working day or as otherwise specified in the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

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.

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

The Company reports that daily cover is adequately applied at the end of each working day. 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:

- Automobile Shredder Residue (ASR)
- Soil
- Contaminated Soil
- Woodchips
- Tarps

According to condition 6.52 of ECA No. A032203, 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 10, 2023 and results indicated that it met the specifications and was classified as non-hazardous.

ASR was becoming an issue in March 2023. The Company has submitted an ASR Abatement plan in July 2023 and continues to work with the Ministry to reduce off site track out. The ASR Abatement plan included actions to clean up the roadside ditches and Nauvoo Road is continually ongoing. Final clean-up is expected in October 2023. ASR continues to be accepted as a waste on the site and is used on non-drivable surfaces as daily cover.

Since March 2023 four (4) Ministry inspections took place before/after landfilling operations were taking place to assess the daily cover requirements. Of these 4 instances, 3 showed signs that Daily Cover had not been properly applied. A total of three (3) Notice of Violation's were issued to the Company for failure to comply with this condition of the ECA.

No further issues were observed by the inspector from March 2023 to September 2023.

Question ID	NOL 43	**Question Type**	Legislative
Legislative Requirement(s): EPA | 27 | (1);			
Question:			

Are procedures implemented to control rodents or other animals and insects at the site?

Compliance Response(s)/Corrective Action(s)/Observation(s):

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 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.

No concerns or issues with pest control were identified during this reporting period.

Question ID	NOL 44	**Question Type**	Legislative

Legislative Requirement(s):

EPA | 27 | (1);

Question:

Is site access restricted by use of a gate, fence, or physical barrier when the site is not operating?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Yes

ECA No. 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:
-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 or brought to the attention of the Ministry during this reporting period.

Question ID	NOL 45	**Question Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Is the waste disposal area adequately screened from public view?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

Yes, in accordance with Condition 5.4 of ECA No. A032203, 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 Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1); EPA | O. Reg. 232/98 | 21;

Question:
Are daily records of site operations available at the site for at least the past 2 years or as otherwise required by the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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 Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Has the annual operations report been submitted to MECP or available on site as required by the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

The 2022 annual report was submitted by the Company. The Company is also required to submit quarterly reports in accordance with condition 15.4 and 15.5. These were also submitted on time.

No issues were found regarding the submission or retention of annual or quarterly reports.

Question ID	NOL 48	**Question Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1); EPA | O. Reg. 232/98 | 23;

Question:
Is scavenging being prevented?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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. According to the Company Waste Management staff are trained extensively preventing scavenging in the landfill.

Question ID	NOL 49	**Question Type**	Information

Legislative Requirement(s):
Not Applicable

Question:
Has a closure plan been submitted to the MECP?

Compliance Response(s)/Corrective Action(s)/Observation(s):
No

Condition 16.1 states that a closure plan is required to be submitted at least two years prior to closure (or when 90% of capacity is reached, whatever comes first). The site is not yet required to submit a closure plan.

Question ID	NOL 51	**Question Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Is the landfill only accepting the types of waste that they are approved to receive?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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 issues were identified with this condition during the review period.

Question ID	NOL 52	**Question Type**	Information

Legislative Requirement(s):

Not Applicable

Question:
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?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

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 53	**Question Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
is the waste refusal procedure being followed?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

The Company confirmed there were no refusals of waste shipments during April-September 2023.

Question ID	NOL 54	**Question Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Does the landfill have a procedure in place to address and document spills and fires?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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 Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Does the landfill have emergency contingency plan as required by the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

The Emergency Response Plan is included in the D&O Report.

Question ID	NOL 56	**Question Type**	Information

Legislative Requirement(s):
Not Applicable

Question:
Is there an ECA condition requiring financial assurance?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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 Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Has the financial assurance been submitted, as specified in the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Yes

Question ID	NOL 58	Question Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Has the company provided financial assurance re-evaluation estimates in compliance with the ECA?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

Question ID	NOL 59	Question Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Does the landfill have a procedure in place to address complaints?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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 Type**	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Has the landfill operator addressed the complaints to the satisfaction of the ministry?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

According to the Company a total of 18 complaints were reported from March 2023 to September 2023. The majority of the complaints were about odour from the site and one was related to ASR track out and once about litter. Odour from the Site can originate from a variety of sources. Odours were attributed to insufficient cover & failure to cover the special waste holes. In March, odours have been attributed to landfill gas generation and delays in installing the landfill gas collection system in Cell 4.

Ongoing discussions between the Ministry and WM occur on the notifications of complaints and follow up actions taken by the Company. The Company reported on these complaints in the three WPLC meetings that took place in this reporting period. The Company is also required to review and summarize the complaints and response in the annual report. 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.

Question ID	NOL 61	**Question Type**	Information

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Has the landfill operator developed a Design and Operations Manual?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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 Type	Information

Legislative Requirement(s):
Not Applicable

Question:
Is the Design and Operations Manual up to date?

Compliance Response(s)/Corrective Action(s)/Observation(s):
No

The D&O Report requires minor updates to be made, which the Company plans to address during their next ECA amendment application.

Question ID	NOL 63	Question Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Does the landfill operator have training procedures for site personnel?

Compliance Response(s)/Corrective Action(s)/Observation(s):
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 Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Is the landfill operator following the established training procedures?

Compliance Response(s)/Corrective Action(s)/Observation(s):
Yes

Question ID	NOL 65	Question Type	Legislative

Legislative Requirement(s):
EPA | 27 | (1);

Question:
Has the Certificate of Requirement been registered on Title?

Compliance Response(s)/Corrective Action(s)/Observation(s):

Yes

Question ID	949100	Question Type	Legislative

Legislative Requirement(s):
Not Applicable

Question:
Were the inspection questions sufficient to address other identified non-compliance items?

Compliance Response(s)/Corrective Action(s)/Observation(s):

AMBIENT AIR QUALITY MONITORING

Condition 13.8 of ECA No. A032203 requires that Air Quality, Dust, Hydrocarbon, and Volatile Organic Carbon (VOC) 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.

A total of eleven (11) TSP exceedance events were reported to the Ministry since March 2023. According to the exceedance notifications submitted by RWDI on behalf of the Company, all the exceedances can be attributed to On-site construction-related activities consisting of hauling clay material from Cell 6B to Cell 6A and Cell 4 for daily/interim cover, to the excess soil stockpile, hauling select clay liner material to the top of the Existing Landfill, the delivery and stockpiling of drainage layer gravel, in combination with offsite sources. As described in the Dust BMP continuous TSP analysers are required at the Site when two or more exceedances in any given year are attributed to landfilling activities.

Metals are analyzed on the highest filter TSP concentration out of every four samples per location. All Q1 & Q2 samples collected for metals were below their air quality standards as outlined in O. Reg.419.

Fenceline VOC sampling takes place between June - September during operating hours. Five sets of upwind and downwind samples are collected, with no more than two samples collected within the same calendar month. No samples were collected during the Q1 and Q2 reporting periods.

WEEKLY INSPECTIONS

Since the last summary report twenty six (26) inspections took place since the March Summary report. Ministry on-site inspections continue to take place weekly at the Site. On- site inspections took place on the following dates:

April 6, 12, 18, 26
May 5, 8, 19, 25, 31
June 8, 14, 23, 30
July 6, 13, 20, 26
August 2, 10, 17, 24, 30
September 6, 13, 20, 25

One purpose of these weekly inspections is to assess the Company efforts towards preventing, minimizing and mitigating off-site impacts resulting from their operations such as odours, litter, noise and dust. The following is a brief summary of those reports. Further details can be found in each of the weekly inspection reports submitted to the Company.

Odours were observed from strong to faint ratings downwind of the landfill during 23 of the 26 inspections since the last summary report. Odours were mixed from landfill gas to refuse odours. Odours were attributed to insufficient cover & failure to cover the special waste holes. In March, odours have been attributed to landfill gas generation and delays in installing the landfill gas collection system in Cell 4. Each individual weekly report describes odours identified around the Site. Many agricultural related odours have also been noted during the weekly inspections.

Litter was present on site in many of the inspections. The installation of the northern litter fence has helped to reduce the offsite impacts typically observed in the late winter. Litter picking has improved at the site, and no issues with the response of the Company was observed during this review period.

ASR was becoming an issue in March 2023. The Company has submitted an ASR Abatement plan in July 2023 and continues to work with the Ministry to reduce off site track out. The ASR Abatement plan included actions to clean up the roadside ditches and Nauvoo Road is continually ongoing. Final clean-up is expected in October 2023. ASR continues to be accepted as a waste on the site and is used on non-drivable surfaces.

Dust track out was has been observed at site on multiple occasions, but the sweeper and water truck has been observed operating. Mud and dust on the road has also been observed from other sources around the site.

SCOPE

Table 1 and Appendix 1 documents the findings of an unannounced perimeter and site inspection conducted by Environmental Officer Jessica Brown and Amanda Seaman at the Site on October 18, 2023. The focus of this inspection 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. Certain on-Site operations were also assessed to ensure compliance with the conditions of the ECA.

Meteorological conditions at the time of the inspection: Partly Cloudy
Temperature: 15 degrees Celsius
Wind: 22 km/hr SSW
Humidity: 64%

OFF-SITE OBSERVATIONS:
- See Table 1 for a summary of the off-Site observations made during this inspection.

ON-SITE OBSERVATIONS:
- See Appendix 1 for a summary of the on-Site observations made during this inspection

TABLES

Table 1:

Outlines the locations, times and observations made by Environmental Officer Jessica Brown and Amanda Seaman on October 18, 2023, to assess for potential impacts related to odour, dust, noise or litter from the Site.

Location	Time of Observation	Odour, Dust, Noise or Litter?
1. TCEC Employee Entrance – Zion Line	2:20 PM	• No offsite impacts
2. 7966 Zion Line	2:24 PM	• Moderate landfill odour (5/10)
3. North-east corner of Facility/Twin Creeks Greenhouse Boundary on Zion Line	2:26 PM	• Strong landfill odour (7/10)
4. Arkona Road @ Zion Line	2:30 PM	• No offsite impacts
5. 5599 Arkona Road	2:33 PM	• Slight agriculture odour (3/10)
6. Arkona Road @ Confederation Line	2:34 PM	• No offsite impacts
7. Confederation Park	2:39 PM	• No offsite impacts
8. Nauvoo Park	2:43 PM	• No offsite impacts
9. TCEC Main office	2:47 PM	• No impacts

APPENDIX 1

ON-SITE OBSERVATIONS:

- Officer J. Brown and A. Seaman arrived on-Site at 2:47 PM. At the time of the inspection the landfill was in operation.
- During the inspection it was noted Flare 1 was operating at 915 degrees Celsius while Flare 2 was operating at 887 degrees Celsius. Both flares were operating within their compliance limit.
- Leachate levels in the storage tank was at 6.36m. The level in PS-07 was at 2.91m and PS-05 was at 1.56m. No irrigation was occurring in the Poplar Plantation System during the time of the inspection.
- Construction on Cell 6B is ongoing. The Contractor was observed laying the gas line that will connect Cell 6B to the gas collection system.
- A deodorizer truck was observed near surface water pond #3.
- The area near MH3SA and MH3SB on the old landfill was inspected. No flowing water or leachate was observed in the area. The area was observed to wet due to rainfall earlier in the day.
- At the time of the inspection waste was being deposited in Cell 4. The special waste hole is located on Cell 4. Daily cover remains to be wood chips, soil, and tarps. The Inspectors observed multiple stockpiles of woodchips and woodchips actively being offloaded onto the active face. The Inspectors also observed woodchips being spread over the active face as daily cover.
- Litter was observed on the East slope of Cell 4. No litter was observed in the onsite stormwater ponds. No litter was observed offsite.
- Erosion rills were observed on the East and South side of the expanded landfill. No leachate seeps or litter was observed coming from the erosion rills.
- A sweeper was observed on the internal roads at 3:20pm and a water truck was observed on internal roads at 3:32pm.
- No leachate seeps were identified in the expanded landfill. No leachate observed outside of the Leachate Equalization Tank.
- Odours observed offsite on Zion Line were identified by the inspectors as landfill related. There were agricultural odours also noted offsite.
- Twin Creeks Greenhouse Inc. is building a housing for their seasonal employees across Zion Line from Twin Creeks Greenhouse Inc., which is directly North-East of the Facility.

APPENDIX O:

Quarterly Contaminated Soil Analytical Results

Table O-1
Contaminated Soil - General Chemical Results - Compliance Monitoring
Twin Creeks Environmental Centre

Parameter	Units	O. Reg. 558	Contaminated Soil																												
Date			14-Jan-16	5-Apr-16	7-Jul-16	17-Oct-16	13-Jun-17	1-Aug-17	4-Oct-17	4-Jan-18	5-Apr-18	4-Jul-18	1-Oct-18	2-Jan-19	4-Apr-19	9-Jul-19	1-Oct-19	17-Jan-20	1-Apr-20	3-Sep-20	8-Oct-20	16-Mar-21	5-May-21	12-Aug-21	1-Oct-21	11-Jan-22	6-Apr-22	6-Jul-22	5-Oct-22	18-Jan-23	10-Apr-23	11-Jul-23	3-Oct-23
Laboratory			EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	EXOVA	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	Eurofins	BV Labs	BV Labs	BV Labs	BV Labs	BV Labs	BV Labs	BV Labs
Metals and Inorganics																																
Arsenic	mg/L	2.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0064	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Barium	mg/L	100.0	0.66	0.64	0.87	<1	<1	0.70	1.02	0.44	0.67	0.37	2.44	0.50	0.62	0.40	1.31	0.75	0.56	0.48	0.37	1.1	0.4	0.5	0.37	0.91	0.8	0.7	0.4	0.5	<0.2	0.3	0.4
Boron	mg/L	500.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	0.148	<0.1	<0.1	<0.1	0.3	0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	0.2	0.1	0.3	0.3	0.1	0.1	0.2	0.2
Cadmium	mg/L	0.5	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.0003	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.014	<0.008	0.009	<0.008	<0.008	<0.008	0.026	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chromium	mg/L	5.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.0011	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Lead	mg/L	5.0	<0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.01	<0.01	0.2	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1
Selenium	mg/L	1.0	<0.02	<0.02	<0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0012	<0.02	<0.001	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Silver	mg/L	5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0003	<0.1	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<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	0.003	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	mg/L	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	0.00003	<0.001	0.00005	<0.001	<0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cyanide (free)	mg/L	20.0	<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	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Fluoride	mg/L	150.0	0.32	0.21	0.16	0.18	0.20	0.31	0.54	0.24	0.25	<0.10	0.33	0.22	0.17	0.210	0.29	0.22	0.22	<0.10	0.17	0.18	0.34	0.25	0.25	<0.10	0.32	0.11	0.17	0.26	0.30	0.38	0.38
Nitrate + Nitrite	mg/L	1000.0	<0.10	10.90	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	<0.10	<0.10	0.14	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<10	<10	<1.0	<1.0	<1.0	0.43	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Polychlorinated Biphenyls (PCBs)																																	
Polychlorinated Biphenyls (PCBs)	ug/L	300	<0.1	<0.1	<10	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Volatile Organic Compounds (VOCs)																																	
1,1-dichloroethylene	ug/L	1400	<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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<20	<20	<20	<20	<20	<20	<20
1,2-dichlorobenzene	ug/L	20000	<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	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<50	<50	<50	<50	<50	<50	<50
1,2-dichloroethane	ug/L	500	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	103	<0.2	<0.2	<0.2	<0.2	0.3	<0.2	1.7	<0.2	<0.2	<0.2	<0.2	<50	<50	<50	<50	<50	<50	<50
1,4-dichlorobenzene	ug/L	500	<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	<0.2	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<50	<50	<50	<50	<50	<50	<50
Benzene	ug/L	500	<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	<0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<20	<20	<20	<20	<20	<20	<20
Carbon Tetrachloride	ug/L	500	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<20	<20	<20	<20	<20	<20	<20
Chloroform	ug/L	10000	<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	<0.5	<0.5	1.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<20	<20	<20	<20	<20	<20	<20
Dichloromethane	ug/L	5000	<4.0	<4.0	<4.0	<4.0	<0.2	<0.2	<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	<4.0	<4.0	<4.0	<4.0	<200	<200	<200	<200	<200	<200	<200
Methyl Ethyl Ketone (MEK)	ug/L	200000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	30	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Monochlorobenzene	ug/L	8000	<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	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<20	<20	<20	<20	<20	<20	<20
Tetrachloroethylene	ug/L	3000	<0.3	<0.3	<0.3	0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.02	<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	<20	<20	<20	<20	<20	<20	<20
Trichloroethylene	ug/L	5000	<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	<0.3	<0.3	2.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20
Vinyl Chloride	ug/L	200	<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	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<20	<20	<20	<20	<20	<20	<20
Semi-Volatile Organic Compounds (SVOCs)																																	
1-methylnaphthalene	ug/L		<0.1	56.1	22.3	0.1	<0.2	<0.1	0.1	<0.1	<0.1	<0.1	0.7	0.4	<0.1	0.1	<0.1	5.3	2.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.42	0.65	<0.20	<0.20	<0.20	0.32	<0.20
2-methylnaphthalene	ug/L		<0.1	19.7	6.2	0.3	<0.2	<0.1	0.2	<0.1	<0.1	<0.1	0.6	0.3	<0.1	<0.1	<0.1	6.0	1.4	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.42	0.52	<0.20	<0.20	<0.20	0.44	<0.20
Acenaphthene	ug/L		<0.1	3.4	3.6	0.3	<0.2	0.7	<0.1	<0.1	<0.1	<0.1	0.5	<0.1	<0.1	<0.1	0.2	0.9	0.4	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.60	<0.20	<0.20	<0.20	<0.20	0.49	<0.20
Acenaphthylene	ug/L		<0.1	0.4	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	1.8	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Anthracene	ug/L		<0.1	0.3	0.2	0.1	<0.2	0.7	<0.1	<0.1	<0.1	<0.1	0.5	<0.1	<0.1	<0.1	<0.1	0.5	0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.22	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)anthracene	ug/L		<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	ug/L	1.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b)fluoranthene	ug/L		<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	ug/L		<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(k)fluoranthene	ug/L		<0.05	<0.2	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chrysene	ug/L		<0.05	<0.2	0.06	<0.05	<0.2	<0.05	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibenzo(a,h)anthracene	ug/L		<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Fluoranthene	ug/L		<0.1	<0.2	0.1	0.1	<0.2	0.5	<0.1	<0.1	<0.1	<0.1	0.4	<0.1	<0.1	<0.1	0.1	0.2	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.20	<0.20	<0.20	0.22	<0.20	<0.20	<0.20
Fluorene	ug/L		<0.1	3.0	2.3	0.3	<0.2	0.6	<0.1	<0.1	<0.1	<0.1	0.8	<0.1	<0.1	<0.1	0.2	1.8	0.4	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.75	0.21	<0.20	<0.20	<0.20	0.48	<0.20
Indeno(1,2,3-c,d)pyrene	ug/L		<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Naphthalene	ug/L		<0.1	3.0	4.0	0.6	<0.2	0.8	0.3	<0.1	<0.5	<0.1	0.7	0.1	<0.1	0.20	0.2	12.0	3.6	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.0	<0.20	<0.20	<0.20	<0.20	2.6	0.54
Phenanthrene	ug/L		<0.1	2.2	1.0	0.6	<0.2	2.6	<0.1	0.2	<0.1	<0.1	0.8	0.2	<0.1	<0.1	0.1	1.7	0.4	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.1	0.27	<0.20	<0.20	<0.20	0.78	0.32
Pyrene	ug/L		<0.1	<0.2	0.3	<0.1	<0.2	0.3	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

NOTE: 1) 'mg/L denotes milligrams per litre; ug/L denotes microgram per litre.

2) '<' denotes parameter concentration is some concentration less than the laboratory reportable detection limit (RDL).

3) BV Labs denotes chemical analytical testing was completed by Bureau Veritas.

APPENDIX O2:

Laboratory Reports

Your P.O. #: 12285741
Your Project #: 2303459
Site#: 900
Site Location: ON07
Your C.O.C. #: TCLF-SOIL-JAN

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/01/30
Report #: R7489773
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C317706
Received: 2023/01/19, 09:47

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Cyanide (WAD) in Leachates	1	N/A	2023/01/24	CAM SOP-00457	OMOE 3015 m
Fluoride by ISE in Leachates	1	2023/01/24	2023/01/24	CAM SOP-00449	SM 23 4500-F- C m
Total Metals in TCLP Leachate by ICPMS	1	2023/01/24	2023/01/24	CAM SOP-00447	EPA 6020B m
Nitrate& Nitrite as Nitrogen in Leachate	1	N/A	2023/01/26	CAM SOP-00440	SM 23 4500-NO3I/NO2B
PAH Compounds in Leachate by GC/MS (SIM)	1	2023/01/26	2023/01/27	CAM SOP-00318	EPA 8270E
Polychlorinated Biphenyl in Leachate	1	2023/01/27	2023/01/27	CAM SOP-00309	EPA 8082A m
TCLP - % Solids	1	2023/01/23	2023/01/24	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	1	N/A	2023/01/24	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	1	N/A	2023/01/24	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	1	2023/01/20	2023/01/21	CAM SOP-00430	EPA 1311 m
VOCs in ZHE Leachates	1	2023/01/21	2023/01/22	CAM SOP-00228	EPA 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

Your P.O. #: 12285741
Your Project #: 2303459
Site#: 900
Site Location: ON07
Your C.O.C. #: TCLF-SOIL-JAN

Attention: Khalid Hussein

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/01/30
Report #: R7489773
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C317706
Received: 2023/01/19, 09:47

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C317706
Report Date: 2023/01/30

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		UVQ570		
Sampling Date		2023/01/18		
COC Number		TCLF-SOIL-JAN		
	UNITS	CONT SOIL	RDL	QC Batch
Charge/Prep Analysis				
Amount Extracted (Wet Weight) (g)	N/A	25	N/A	8461046
Inorganics				
Final pH	pH	5.61		8466744
Leachable Fluoride (F-)	mg/L	0.26	0.10	8466179
Initial pH	pH	9.24		8466744
TCLP - % Solids	%	100	0.2	8464165
TCLP Extraction Fluid	N/A	FLUID 2		8466743
Leachable WAD Cyanide (Free)	mg/L	<0.010	0.010	8466178
Leachable Nitrite (N)	mg/L	<0.10	0.10	8466170
Leachable Nitrate (N)	mg/L	<1.0	1.0	8466170
Leachable Nitrate + Nitrite (N)	mg/L	<1.0	1.0	8466170

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Bureau Veritas Job #: C317706
Report Date: 2023/01/30

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Bureau Veritas ID		UVQ570		
Sampling Date		2023/01/18		
COC Number		TCLF-SOIL-JAN		
	UNITS	CONT SOIL	RDL	QC Batch
Metals				
Leachable Arsenic (As)	mg/L	<0.2	0.2	8465985
Leachable Barium (Ba)	mg/L	0.5	0.2	8465985
Leachable Boron (B)	mg/L	0.1	0.1	8465985
Leachable Cadmium (Cd)	mg/L	<0.05	0.05	8465985
Leachable Chromium (Cr)	mg/L	<0.1	0.1	8465985
Leachable Lead (Pb)	mg/L	<0.1	0.1	8465985
Leachable Mercury (Hg)	mg/L	<0.001	0.001	8465985
Leachable Selenium (Se)	mg/L	<0.1	0.1	8465985
Leachable Silver (Ag)	mg/L	<0.01	0.01	8465985
Leachable Uranium (U)	mg/L	<0.01	0.01	8465985

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Bureau Veritas ID		UVQ570		
Sampling Date		2023/01/18		
COC Number		TCLF-SOIL-JAN		
	UNITS	CONT SOIL	RDL	QC Batch
Polyaromatic Hydrocarbons				
Leachable Benzo(b)fluoranthene	ug/L	<0.10	0.10	8471815
Leachable Naphthalene	ug/L	<0.20	0.20	8471815
Leachable Acenaphthylene	ug/L	<0.20	0.20	8471815
Leachable Acenaphthene	ug/L	<0.20	0.20	8471815
Leachable Fluorene	ug/L	<0.20	0.20	8471815
Leachable Phenanthrene	ug/L	<0.20	0.20	8471815
Leachable Anthracene	ug/L	<0.20	0.20	8471815
Leachable Fluoranthene	ug/L	0.22	0.20	8471815
Leachable Pyrene	ug/L	<0.20	0.20	8471815
Leachable Benzo(a)anthracene	ug/L	<0.20	0.20	8471815
Leachable Chrysene	ug/L	<0.20	0.20	8471815
Leachable Benzo(k)fluoranthene	ug/L	<0.20	0.20	8471815
Leachable Benzo(a)pyrene	ug/L	<0.10	0.10	8471815
Leachable Indeno(1,2,3-cd)pyrene	ug/L	<0.20	0.20	8471815
Leachable Dibenzo(a,h)anthracene	ug/L	<0.20	0.20	8471815
Leachable Benzo(g,h,i)perylene	ug/L	<0.20	0.20	8471815
Leachable 1-Methylnaphthalene	ug/L	<0.20	0.20	8471815
Leachable 2-Methylnaphthalene	ug/L	<0.20	0.20	8471815
Surrogate Recovery (%)				
Leachable D10-Anthracene	%	111		8471815
Leachable D14-Terphenyl (FS)	%	104		8471815
Leachable D8-Acenaphthylene	%	97		8471815

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C317706
Report Date: 2023/01/30

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (SOIL)

Bureau Veritas ID		UVQ570		
Sampling Date		2023/01/18		
COC Number		TCLF-SOIL-JAN		
	UNITS	CONT SOIL	RDL	QC Batch
Volatile Organics				
Leachable Benzene	mg/L	<0.020	0.020	8462906
Leachable Carbon Tetrachloride	mg/L	<0.020	0.020	8462906
Leachable Chlorobenzene	mg/L	<0.020	0.020	8462906
Leachable Chloroform	mg/L	<0.020	0.020	8462906
Leachable 1,2-Dichlorobenzene	mg/L	<0.050	0.050	8462906
Leachable 1,4-Dichlorobenzene	mg/L	<0.050	0.050	8462906
Leachable 1,2-Dichloroethane	mg/L	<0.050	0.050	8462906
Leachable 1,1-Dichloroethylene	mg/L	<0.020	0.020	8462906
Leachable Methylene Chloride(Dichloromethane)	mg/L	<0.20	0.20	8462906
Leachable Methyl Ethyl Ketone (2-Butanone)	mg/L	<1.0	1.0	8462906
Leachable Tetrachloroethylene	mg/L	<0.020	0.020	8462906
Leachable Trichloroethylene	mg/L	<0.020	0.020	8462906
Leachable Vinyl Chloride	mg/L	<0.020	0.020	8462906
Surrogate Recovery (%)				
Leachable 4-Bromofluorobenzene	%	95		8462906
Leachable D4-1,2-Dichloroethane	%	117		8462906
Leachable D8-Toluene	%	90		8462906

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C317706
Report Date: 2023/01/30

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Bureau Veritas ID		UVQ570		
Sampling Date		2023/01/18		
COC Number		TCLF-SOIL-JAN		
	UNITS	**CONT SOIL**	**RDL**	**QC Batch**
PCBs				
Leachable Total PCB	ug/L	<3.0	3.0	8472376
Surrogate Recovery (%)				
Leachable Decachlorobiphenyl	%	101		8472376

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

GENERAL COMMENTS

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8462906	Leachable 4-Bromofluorobenzene	2023/01/21	101	70 - 130	103	70 - 130	104	%				
8462906	Leachable D4-1,2-Dichloroethane	2023/01/21	102	70 - 130	100	70 - 130	107	%				
8462906	Leachable D8-Toluene	2023/01/21	109	70 - 130	110	70 - 130	93	%				
8471815	Leachable D10-Anthracene	2023/01/27	106	50 - 130	109	50 - 130	111	%				
8471815	Leachable D14-Terphenyl (FS)	2023/01/27	103	50 - 130	87	50 - 130	102	%				
8471815	Leachable D8-Acenaphthylene	2023/01/27	95	50 - 130	96	50 - 130	99	%				
8472376	Leachable Decachlorobiphenyl	2023/01/27	107 (2)	30 - 130	105	30 - 130	104	%				
8462906	Leachable 1,1-Dichloroethylene	2023/01/21	91	70 - 130	100	70 - 130	<0.020	mg/L	NC (1)	30		
8462906	Leachable 1,2-Dichlorobenzene	2023/01/21	91	70 - 130	95	70 - 130	<0.050	mg/L	NC (1)	30		
8462906	Leachable 1,2-Dichloroethane	2023/01/21	92	70 - 130	96	70 - 130	<0.050	mg/L	NC (1)	30		
8462906	Leachable 1,4-Dichlorobenzene	2023/01/21	109	70 - 130	113	70 - 130	<0.050	mg/L	NC (1)	30		
8462906	Leachable Benzene	2023/01/21	86	70 - 130	91	70 - 130	<0.020	mg/L				
8462906	Leachable Carbon Tetrachloride	2023/01/21	90	70 - 130	96	70 - 130	<0.020	mg/L	NC (1)	30		
8462906	Leachable Chlorobenzene	2023/01/21	92	70 - 130	96	70 - 130	<0.020	mg/L	NC (1)	30		
8462906	Leachable Chloroform	2023/01/21	91	70 - 130	97	70 - 130	<0.020	mg/L	NC (1)	30		
8462906	Leachable Methyl Ethyl Ketone (2-Butanone)	2023/01/21	101	60 - 140	101	60 - 140	<1.0	mg/L	NC (1)	30		
8462906	Leachable Methylene Chloride (Dichloromethane)	2023/01/21	90	70 - 130	95	70 - 130	<0.20	mg/L	NC (1)	30		
8462906	Leachable Tetrachloroethylene	2023/01/21	89	70 - 130	93	70 - 130	<0.020	mg/L	NC (1)	30		
8462906	Leachable Trichloroethylene	2023/01/21	97	70 - 130	101	70 - 130	<0.020	mg/L	NC (1)	30		
8462906	Leachable Vinyl Chloride	2023/01/21	87	70 - 130	95	70 - 130	<0.020	mg/L	NC (1)	30		
8465985	Leachable Arsenic (As)	2023/01/24	104 (2)	80 - 120	102	80 - 120	<0.2	mg/L	NC (3)	35	<0.2	mg/L
8465985	Leachable Barium (Ba)	2023/01/24	106 (2)	80 - 120	101	80 - 120	<0.2	mg/L	0.43 (3)	35	<0.2	mg/L
8465985	Leachable Boron (B)	2023/01/24	100 (2)	80 - 120	99	80 - 120	<0.1	mg/L	2.2 (3)	35	<0.1	mg/L
8465985	Leachable Cadmium (Cd)	2023/01/24	98 (2)	80 - 120	97	80 - 120	<0.05	mg/L	NC (3)	35	<0.05	mg/L
8465985	Leachable Chromium (Cr)	2023/01/24	101 (2)	80 - 120	100	80 - 120	<0.1	mg/L	NC (3)	35	<0.1	mg/L
8465985	Leachable Lead (Pb)	2023/01/24	99 (2)	80 - 120	99	80 - 120	<0.1	mg/L	NC (3)	35	<0.1	mg/L
8465985	Leachable Mercury (Hg)	2023/01/24	101 (2)	80 - 120	100	80 - 120	<0.001	mg/L	NC (3)	35	<0.001	mg/L
8465985	Leachable Selenium (Se)	2023/01/24	100 (2)	80 - 120	99	80 - 120	<0.1	mg/L	NC (3)	35	<0.1	mg/L
8465985	Leachable Silver (Ag)	2023/01/24	101 (2)	80 - 120	99	80 - 120	<0.01	mg/L	NC (3)	35	<0.01	mg/L

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8465985	Leachable Uranium (U)	2023/01/24	102 (2)	80 - 120	100	80 - 120	<0.01	mg/L	NC (3)	35	<0.01	mg/L
8466170	Leachable Nitrate (N)	2023/01/26	89 (2)	80 - 120	96	80 - 120	<1.0	mg/L	NC (3)	20	<1.0	mg/L
8466170	Leachable Nitrate + Nitrite (N)	2023/01/26	92 (2)	80 - 120	97	80 - 120	<1.0	mg/L	NC (3)	20	<1.0	mg/L
8466170	Leachable Nitrite (N)	2023/01/26	103 (2)	80 - 120	101	80 - 120	<0.10	mg/L	NC (3)	20	<0.10	mg/L
8466178	Leachable WAD Cyanide (Free)	2023/01/24	83 (2)	80 - 120	92	80 - 120	<0.0020	mg/L	NC (3)	20	<0.010	mg/L
8466179	Leachable Fluoride (F-)	2023/01/24	74 (4,2)	80 - 120	100	80 - 120	<0.10	mg/L	0.51 (3)	25	<0.10	mg/L
8471815	Leachable 1-Methylnaphthalene	2023/01/27	93	50 - 130	90	50 - 130	<0.20	ug/L				
8471815	Leachable 2-Methylnaphthalene	2023/01/27	95	50 - 130	95	50 - 130	<0.20	ug/L				
8471815	Leachable Acenaphthene	2023/01/27	102	50 - 130	105	50 - 130	<0.20	ug/L				
8471815	Leachable Acenaphthylene	2023/01/27	100	50 - 130	98	50 - 130	<0.20	ug/L				
8471815	Leachable Anthracene	2023/01/27	105	50 - 130	99	50 - 130	<0.20	ug/L				
8471815	Leachable Benzo(a)anthracene	2023/01/27	103	50 - 130	105	50 - 130	<0.20	ug/L				
8471815	Leachable Benzo(a)pyrene	2023/01/27	103	50 - 130	106	50 - 130	<0.10	ug/L	NC (1)	40		
8471815	Leachable Benzo(b)fluoranthene	2023/01/27	97	50 - 130	106	50 - 130	<0.10	ug/L				
8471815	Leachable Benzo(g,h,i)perylene	2023/01/27	157 (4)	50 - 130	118	50 - 130	<0.20	ug/L				
8471815	Leachable Benzo(k)fluoranthene	2023/01/27	99	50 - 130	104	50 - 130	<0.20	ug/L				
8471815	Leachable Chrysene	2023/01/27	106	50 - 130	94	50 - 130	<0.20	ug/L				
8471815	Leachable Dibenzo(a,h)anthracene	2023/01/27	153 (4)	50 - 130	116	50 - 130	<0.20	ug/L				
8471815	Leachable Fluoranthene	2023/01/27	127	50 - 130	121	50 - 130	<0.20	ug/L				
8471815	Leachable Fluorene	2023/01/27	103	50 - 130	92	50 - 130	<0.20	ug/L				
8471815	Leachable Indeno(1,2,3-cd)pyrene	2023/01/27	161 (4)	50 - 130	120	50 - 130	<0.20	ug/L				
8471815	Leachable Naphthalene	2023/01/27	98	50 - 130	102	50 - 130	<0.20	ug/L				
8471815	Leachable Phenanthrene	2023/01/27	107	50 - 130	107	50 - 130	<0.20	ug/L				
8471815	Leachable Pyrene	2023/01/27	101	50 - 130	92	50 - 130	<0.20	ug/L				

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8472376	Leachable Total PCB	2023/01/27	113 (2)	30 - 130	110	30 - 130	<3.0	ug/L	NC (3)	40		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [UVQ570-01]

(3) Duplicate Parent ID [UVQ570-01]

(4) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Bureau Veritas Job #: C317706
Report Date: 2023/01/30

RWDI Inc.
Client Project #: 2303459
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	10123733	CHAIN OF CUSTODY # :
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2202861-1000	TCLF-SOIL-JAN
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2984 Fax: 519-823-1316	Project Name:	TCLF-SOIL-JAN	
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com, Jeffery.Cleland@RWDI.c	Location:	Twin Creeks	
				Sampled By:	BEG	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary site specific
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region: _____
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - SOIL (TCLP) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	CONT SOIL	18-Jan-23	AM	SOIL	N	N	X	5	
2									
3									
4									See lab addendum for analysis.
5									
6									
7									
8									
9									
10									
11									
12									

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 27-Jan-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

19-Jan-23 09:47
Patricia Legette
C317706
AJH ENV-1279

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
BEG 18-Jan-23 / AM	[signature]	19/01/19	0947

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
10/10.9	☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285741
Your Project #: 2303459.01
Site#: 900
Site Location: ON07
Your C.O.C. #: TCLF-SOIL-APR

Attention: Khalid Hussein - Twin Creeks

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/04/20
Report #: R7595819
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3A1294
Received: 2023/04/12, 08:40

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Cyanide (WAD) in Leachates	1	N/A	2023/04/19	CAM SOP-00457	OMOE 3015 m
Fluoride by ISE in Leachates	1	2023/04/18	2023/04/18	CAM SOP-00449	SM 23 4500-F- C m
Total Metals in TCLP Leachate by ICPMS	1	2023/04/18	2023/04/18	CAM SOP-00447	EPA 6020B m
Moisture	1	N/A	2023/04/19	CAM SOP-00445	Carter 2nd ed 51.2 m
Nitrate& Nitrite as Nitrogen in Leachate	1	N/A	2023/04/18	CAM SOP-00440	SM 23 4500-NO3I/NO2B
PAH Compounds in Leachate by GC/MS (SIM)	1	2023/04/19	2023/04/19	CAM SOP-00318	EPA 8270E
Polychlorinated Biphenyl in Leachate	1	2023/04/19	2023/04/19	CAM SOP-00309	EPA 8082A m
TCLP - % Solids	1	2023/04/17	2023/04/18	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	1	N/A	2023/04/18	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	1	N/A	2023/04/18	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	1	2023/04/17	2023/04/18	CAM SOP-00430	EPA 1311 m
VOCs in ZHE Leachates	1	2023/04/18	2023/04/18	CAM SOP-00228	EPA 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

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Your P.O. #: 12285741
Your Project #: 2303459.01
Site#: 900
Site Location: ON07
Your C.O.C. #: TCLF-SOIL-APR

Attention: Khalid Hussein - Twin Creeks

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/04/20
Report #: R7595819
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3A1294

Received: 2023/04/12, 08:40

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

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Bureau Veritas Job #: C3A1294
Report Date: 2023/04/20

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		VNG624		
Sampling Date		2023/04/10		
COC Number		TCLF-SOIL-APR		
	UNITS	**CONT SOIL**	**RDL**	**QC Batch**
Charge/Prep Analysis				
Amount Extracted (Wet Weight) (g)	N/A	23	N/A	8611733
Inorganics				
Final pH	pH	5.73		8612269
Leachable Fluoride (F-)	mg/L	0.30	0.10	8613770
Initial pH	pH	9.61		8612269
Moisture	%	9.7	1.0	8617360
TCLP - % Solids	%	100	0.2	8611196
TCLP Extraction Fluid	N/A	FLUID 2		8612268
Leachable WAD Cyanide (Free)	mg/L	<0.010	0.010	8613786
Leachable Nitrite (N)	mg/L	<0.10	0.10	8613785
Leachable Nitrate (N)	mg/L	<1.0	1.0	8613785
Leachable Nitrate + Nitrite (N)	mg/L	<1.0	1.0	8613785

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3A1294
Report Date: 2023/04/20

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Bureau Veritas ID		VNG624		
Sampling Date		2023/04/10		
COC Number		TCLF-SOIL-APR		
	UNITS	CONT SOIL	RDL	QC Batch
Metals				
Leachable Arsenic (As)	mg/L	<0.2	0.2	8613637
Leachable Barium (Ba)	mg/L	<0.2	0.2	8613637
Leachable Boron (B)	mg/L	0.1	0.1	8613637
Leachable Cadmium (Cd)	mg/L	<0.05	0.05	8613637
Leachable Chromium (Cr)	mg/L	<0.1	0.1	8613637
Leachable Lead (Pb)	mg/L	<0.1	0.1	8613637
Leachable Mercury (Hg)	mg/L	<0.001	0.001	8613637
Leachable Selenium (Se)	mg/L	<0.1	0.1	8613637
Leachable Silver (Ag)	mg/L	<0.01	0.01	8613637
Leachable Uranium (U)	mg/L	<0.01	0.01	8613637

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Bureau Veritas ID		VNG624		
Sampling Date		2023/04/10		
COC Number		TCLF-SOIL-APR		
	UNITS	CONT SOIL	RDL	QC Batch
Polyaromatic Hydrocarbons				
Leachable Benzo(b)fluoranthene	ug/L	<0.10	0.10	8617068
Leachable Naphthalene	ug/L	<0.20	0.20	8617068
Leachable Acenaphthylene	ug/L	<0.20	0.20	8617068
Leachable Acenaphthene	ug/L	<0.20	0.20	8617068
Leachable Fluorene	ug/L	<0.20	0.20	8617068
Leachable Phenanthrene	ug/L	<0.20	0.20	8617068
Leachable Anthracene	ug/L	<0.20	0.20	8617068
Leachable Fluoranthene	ug/L	<0.20	0.20	8617068
Leachable Pyrene	ug/L	<0.20	0.20	8617068
Leachable Benzo(a)anthracene	ug/L	<0.20	0.20	8617068
Leachable Chrysene	ug/L	<0.20	0.20	8617068
Leachable Benzo(k)fluoranthene	ug/L	<0.20	0.20	8617068
Leachable Benzo(a)pyrene	ug/L	<0.10	0.10	8617068
Leachable Indeno(1,2,3-cd)pyrene	ug/L	<0.20	0.20	8617068
Leachable Dibenzo(a,h)anthracene	ug/L	<0.20	0.20	8617068
Leachable Benzo(g,h,i)perylene	ug/L	<0.20	0.20	8617068
Leachable 1-Methylnaphthalene	ug/L	<0.20	0.20	8617068
Leachable 2-Methylnaphthalene	ug/L	<0.20	0.20	8617068
Surrogate Recovery (%)				
Leachable D10-Anthracene	%	107		8617068
Leachable D14-Terphenyl (FS)	%	85		8617068
Leachable D8-Acenaphthylene	%	101		8617068

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (SOIL)

Bureau Veritas ID		VNG624		
Sampling Date		2023/04/10		
COC Number		TCLF-SOIL-APR		
	UNITS	CONT SOIL	RDL	QC Batch
Volatile Organics				
Leachable Benzene	mg/L	<0.020	0.020	8613929
Leachable Carbon Tetrachloride	mg/L	<0.020	0.020	8613929
Leachable Chlorobenzene	mg/L	<0.020	0.020	8613929
Leachable Chloroform	mg/L	<0.020	0.020	8613929
Leachable 1,2-Dichlorobenzene	mg/L	<0.050	0.050	8613929
Leachable 1,4-Dichlorobenzene	mg/L	<0.050	0.050	8613929
Leachable 1,2-Dichloroethane	mg/L	<0.050	0.050	8613929
Leachable 1,1-Dichloroethylene	mg/L	<0.020	0.020	8613929
Leachable Methylene Chloride(Dichloromethane)	mg/L	<0.20	0.20	8613929
Leachable Methyl Ethyl Ketone (2-Butanone)	mg/L	<1.0	1.0	8613929
Leachable Tetrachloroethylene	mg/L	<0.020	0.020	8613929
Leachable Trichloroethylene	mg/L	<0.020	0.020	8613929
Leachable Vinyl Chloride	mg/L	<0.020	0.020	8613929
Surrogate Recovery (%)				
Leachable 4-Bromofluorobenzene	%	107		8613929
Leachable D4-1,2-Dichloroethane	%	110		8613929
Leachable D8-Toluene	%	83		8613929

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3A1294
Report Date: 2023/04/20

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Bureau Veritas ID		VNG624		
Sampling Date		2023/04/10		
COC Number		TCLF-SOIL-APR		
	UNITS	**CONT SOIL**	**RDL**	**QC Batch**
PCBs				
Leachable Total PCB	ug/L	<3.0	3.0	8616275
Surrogate Recovery (%)				
Leachable Decachlorobiphenyl	%	124		8616275

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

GENERAL COMMENTS

Results relate only to the items tested.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8613929	Leachable 4-Bromofluorobenzene	2023/04/18	107	70 - 130	102	70 - 130	102	%				
8613929	Leachable D4-1,2-Dichloroethane	2023/04/18	101	70 - 130	102	70 - 130	111	%				
8613929	Leachable D8-Toluene	2023/04/18	102	70 - 130	105	70 - 130	89	%				
8616275	Leachable Decachlorobiphenyl	2023/04/19	123 (2)	30 - 130	115	30 - 130	99	%				
8617068	Leachable D10-Anthracene	2023/04/19	109	50 - 130	106	50 - 130	104	%				
8617068	Leachable D14-Terphenyl (FS)	2023/04/19	100	50 - 130	98	50 - 130	97	%				
8617068	Leachable D8-Acenaphthylene	2023/04/19	106	50 - 130	102	50 - 130	100	%				
8613637	Leachable Arsenic (As)	2023/04/18	101	80 - 120	100	80 - 120	<0.2	mg/L	NC (1)	35	<0.2	mg/L
8613637	Leachable Barium (Ba)	2023/04/18	103	80 - 120	99	80 - 120	<0.2	mg/L	2.3 (1)	35	<0.2	mg/L
8613637	Leachable Boron (B)	2023/04/18	108	80 - 120	113	80 - 120	<0.1	mg/L	3.9 (1)	35	<0.1	mg/L
8613637	Leachable Cadmium (Cd)	2023/04/18	102	80 - 120	98	80 - 120	<0.05	mg/L	NC (1)	35	<0.05	mg/L
8613637	Leachable Chromium (Cr)	2023/04/18	98	80 - 120	98	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8613637	Leachable Lead (Pb)	2023/04/18	96	80 - 120	97	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8613637	Leachable Mercury (Hg)	2023/04/18	103	80 - 120	104	80 - 120	<0.001	mg/L	NC (1)	35	<0.001	mg/L
8613637	Leachable Selenium (Se)	2023/04/18	101	80 - 120	100	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8613637	Leachable Silver (Ag)	2023/04/18	106	80 - 120	102	80 - 120	<0.01	mg/L	NC (1)	35	<0.01	mg/L
8613637	Leachable Uranium (U)	2023/04/18	102	80 - 120	98	80 - 120	<0.01	mg/L	NC (1)	35	<0.01	mg/L
8613770	Leachable Fluoride (F-)	2023/04/18	82	80 - 120	102	80 - 120	<0.10	mg/L	0.47 (1)	25	<0.10	mg/L
8613785	Leachable Nitrate (N)	2023/04/18	95	80 - 120	106	80 - 120	<1.0	mg/L	NC (1)	20	<1.0	mg/L
8613785	Leachable Nitrate + Nitrite (N)	2023/04/18	97	80 - 120	106	80 - 120	<1.0	mg/L	NC (1)	20	<1.0	mg/L
8613785	Leachable Nitrite (N)	2023/04/18	105	80 - 120	105	80 - 120	<0.10	mg/L	NC (1)	20	<0.10	mg/L
8613786	Leachable WAD Cyanide (Free)	2023/04/19	92	80 - 120	100	80 - 120	<0.0020	mg/L	NC (1)	20	<0.010	mg/L
8613929	Leachable 1,1-Dichloroethylene	2023/04/18	100	70 - 130	96	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable 1,2-Dichlorobenzene	2023/04/18	88	70 - 130	101	70 - 130	<0.050	mg/L	NC (1)	30		
8613929	Leachable 1,2-Dichloroethane	2023/04/18	98	70 - 130	99	70 - 130	<0.050	mg/L	NC (1)	30		
8613929	Leachable 1,4-Dichlorobenzene	2023/04/18	100	70 - 130	115	70 - 130	<0.050	mg/L	NC (1)	30		
8613929	Leachable Benzene	2023/04/18	95	70 - 130	94	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable Carbon Tetrachloride	2023/04/18	103	70 - 130	101	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable Chlorobenzene	2023/04/18	98	70 - 130	102	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable Chloroform	2023/04/18	101	70 - 130	100	70 - 130	<0.020	mg/L	NC (1)	30		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8613929	Leachable Methyl Ethyl Ketone (2-Butanone)	2023/04/18	113	60 - 140	113	60 - 140	<1.0	mg/L	NC (1)	30		
8613929	Leachable Methylene Chloride (Dichloromethane)	2023/04/18	102	70 - 130	102	70 - 130	<0.20	mg/L	NC (1)	30		
8613929	Leachable Tetrachloroethylene	2023/04/18	93	70 - 130	96	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable Trichloroethylene	2023/04/18	107	70 - 130	107	70 - 130	<0.020	mg/L	NC (1)	30		
8613929	Leachable Vinyl Chloride	2023/04/18	97	70 - 130	92	70 - 130	<0.020	mg/L	NC (1)	30		
8616275	Leachable Total PCB	2023/04/19	114 (2)	30 - 130	107	30 - 130	<3.0	ug/L	NC (3)	40		
8617068	Leachable 1-Methylnaphthalene	2023/04/19	99	50 - 130	92	50 - 130	<0.20	ug/L				
8617068	Leachable 2-Methylnaphthalene	2023/04/19	91	50 - 130	84	50 - 130	<0.20	ug/L				
8617068	Leachable Acenaphthene	2023/04/19	101	50 - 130	95	50 - 130	<0.20	ug/L				
8617068	Leachable Acenaphthylene	2023/04/19	100	50 - 130	94	50 - 130	<0.20	ug/L				
8617068	Leachable Anthracene	2023/04/19	105	50 - 130	102	50 - 130	<0.20	ug/L				
8617068	Leachable Benzo(a)anthracene	2023/04/19	97	50 - 130	94	50 - 130	<0.20	ug/L				
8617068	Leachable Benzo(a)pyrene	2023/04/19	92	50 - 130	89	50 - 130	<0.10	ug/L	NC (1)	40		
8617068	Leachable Benzo(b)fluoranthene	2023/04/19	96	50 - 130	94	50 - 130	<0.10	ug/L				
8617068	Leachable Benzo(g,h,i)perylene	2023/04/19	105	50 - 130	102	50 - 130	<0.20	ug/L				
8617068	Leachable Benzo(k)fluoranthene	2023/04/19	100	50 - 130	91	50 - 130	<0.20	ug/L				
8617068	Leachable Chrysene	2023/04/19	101	50 - 130	98	50 - 130	<0.20	ug/L				
8617068	Leachable Dibenzo(a,h)anthracene	2023/04/19	92	50 - 130	90	50 - 130	<0.20	ug/L				
8617068	Leachable Fluoranthene	2023/04/19	104	50 - 130	101	50 - 130	<0.20	ug/L				
8617068	Leachable Fluorene	2023/04/19	100	50 - 130	95	50 - 130	<0.20	ug/L				
8617068	Leachable Indeno(1,2,3-cd)pyrene	2023/04/19	100	50 - 130	97	50 - 130	<0.20	ug/L				
8617068	Leachable Naphthalene	2023/04/19	88	50 - 130	83	50 - 130	<0.20	ug/L				
8617068	Leachable Phenanthrene	2023/04/19	103	50 - 130	99	50 - 130	<0.20	ug/L				
8617068	Leachable Pyrene	2023/04/19	103	50 - 130	98	50 - 130	<0.20	ug/L				

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8617360	Moisture	2023/04/19							2.9 (1)	20		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [VNG624-01]

(3) Duplicate Parent ID [VNG624-01]

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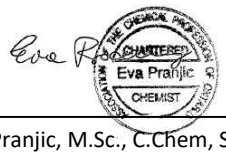
Bureau Veritas Job #: C3A1294
Report Date: 2023/04/20

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

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Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285741	CHAIN OF CUSTODY # :
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	TCLF-SOIL-APR
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2984 Fax: 519-823-1316	Project Name:	TCLF-SOIL-APR	
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com, Jeffery.Cleland@RWDI.c	Location:	Twin Creeks	
				Sampled By:	BEG	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558
Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3
Sewer Use: ☐ Sanitary ☐ Storm Region: _____
☒ Other: site specific (specify)

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - SOIL (TCLP) QUARTERLY							# of Cont.	COMMENTS / TAT COMMENTS
1	CONT SOIL	10-Apr-23	AM	SOIL	N	N	X							5	
2															
3															
4															See lab addendum for analysis.
5															
6															
7															
8															
9															
10															
11															
12															

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 20-Apr-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

12-Apr-23 08:40
Patricia Legette
C3A1294
SWP env-1307

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
BEG 11-Apr-23 / AM	[signature]	2023/04/12	~~08:40~~ 08:40

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
9/9/10	☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285741
Your Project #: 2303459.01
Site#: 900
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/07/19
Report #: R7725127
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K5055
Received: 2023/07/12, 08:55

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Cyanide (WAD) in Leachates	1	N/A	2023/07/17	CAM SOP-00457	OMOE 3015 m
Fluoride by ISE in Leachates	1	2023/07/17	2023/07/17	CAM SOP-00449	SM 23 4500-F- C m
Total Metals in TCLP Leachate by ICPMS	1	2023/07/17	2023/07/17	CAM SOP-00447	EPA 6020B m
Moisture	1	N/A	2023/07/15	CAM SOP-00445	Carter 2nd ed 51.2 m
Nitrate& Nitrite as Nitrogen in Leachate	1	N/A	2023/07/17	CAM SOP-00440	SM 23 4500-NO3I/NO2B
PAH Compounds in Leachate by GC/MS (SIM)	1	2023/07/17	2023/07/17	CAM SOP-00318	EPA 8270E
Polychlorinated Biphenyl in Leachate	1	2023/07/16	2023/07/17	CAM SOP-00309	EPA 8082A m
TCLP - % Solids	1	2023/07/14	2023/07/15	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	1	N/A	2023/07/15	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	1	N/A	2023/07/15	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	1	2023/07/17	2023/07/18	CAM SOP-00430	EPA 1311 m
VOCs in ZHE Leachates	1	2023/07/18	2023/07/18	CAM SOP-00228	EPA 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Your P.O. #: 12285741
Your Project #: 2303459.01
Site#: 900
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/07/19
Report #: R7725127
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3K5055

Received: 2023/07/12, 08:55

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

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Bureau Veritas Job #: C3K5055
Report Date: 2023/07/19

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		WIY396		
Sampling Date		2023/07/11		
COC Number		n/a		
	UNITS	CONT SOIL	RDL	QC Batch
Charge/Prep Analysis				
Amount Extracted (Wet Weight) (g)	N/A	23	N/A	8793635
Inorganics				
Final pH	pH	5.92		8790340
Leachable Fluoride (F-)	mg/L	0.38	0.10	8793597
Initial pH	pH	8.97		8790340
Moisture	%	11	1.0	8792092
TCLP - % Solids	%	100	0.2	8789492
TCLP Extraction Fluid	N/A	FLUID II		8790339
Leachable WAD Cyanide (Free)	mg/L	<0.010	0.010	8793608
Leachable Nitrite (N)	mg/L	<0.10	0.10	8793607
Leachable Nitrate (N)	mg/L	<1.0	1.0	8793607
Leachable Nitrate + Nitrite (N)	mg/L	<1.0	1.0	8793607

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3K5055
Report Date: 2023/07/19

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Bureau Veritas ID		WIY396		
Sampling Date		2023/07/11		
COC Number		n/a		
	UNITS	CONT SOIL	RDL	QC Batch
Metals				
Leachable Arsenic (As)	mg/L	<0.2	0.2	8792805
Leachable Barium (Ba)	mg/L	0.3	0.2	8792805
Leachable Boron (B)	mg/L	0.2	0.1	8792805
Leachable Cadmium (Cd)	mg/L	<0.05	0.05	8792805
Leachable Chromium (Cr)	mg/L	<0.1	0.1	8792805
Leachable Lead (Pb)	mg/L	<0.1	0.1	8792805
Leachable Mercury (Hg)	mg/L	<0.001	0.001	8792805
Leachable Selenium (Se)	mg/L	<0.1	0.1	8792805
Leachable Silver (Ag)	mg/L	<0.01	0.01	8792805
Leachable Uranium (U)	mg/L	<0.01	0.01	8792805

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Bureau Veritas ID		WIY396		
Sampling Date		2023/07/11		
COC Number		n/a		
	UNITS	CONT SOIL	RDL	QC Batch
Polyaromatic Hydrocarbons				
Leachable Benzo(b)fluoranthene	ug/L	<0.10	0.10	8792850
Leachable Naphthalene	ug/L	2.6	0.20	8792850
Leachable Acenaphthylene	ug/L	<0.20	0.20	8792850
Leachable Acenaphthene	ug/L	0.49	0.20	8792850
Leachable Fluorene	ug/L	0.48	0.20	8792850
Leachable Phenanthrene	ug/L	0.78	0.20	8792850
Leachable Anthracene	ug/L	<0.20	0.20	8792850
Leachable Fluoranthene	ug/L	<0.20	0.20	8792850
Leachable Pyrene	ug/L	<0.20	0.20	8792850
Leachable Benzo(a)anthracene	ug/L	<0.20	0.20	8792850
Leachable Chrysene	ug/L	<0.20	0.20	8792850
Leachable Benzo(k)fluoranthene	ug/L	<0.20	0.20	8792850
Leachable Benzo(a)pyrene	ug/L	<0.10	0.10	8792850
Leachable Indeno(1,2,3-cd)pyrene	ug/L	<0.20	0.20	8792850
Leachable Dibenzo(a,h)anthracene	ug/L	<0.20	0.20	8792850
Leachable Benzo(g,h,i)perylene	ug/L	<0.20	0.20	8792850
Leachable 1-Methylnaphthalene	ug/L	0.32	0.20	8792850
Leachable 2-Methylnaphthalene	ug/L	0.44	0.20	8792850
Surrogate Recovery (%)				
Leachable D10-Anthracene	%	110		8792850
Leachable D14-Terphenyl (FS)	%	110		8792850
Leachable D8-Acenaphthylene	%	105		8792850

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

VOLATILE ORGANICS BY GC/MS (SOIL)

Bureau Veritas ID		WIY396		
Sampling Date		2023/07/11		
COC Number		n/a		
	UNITS	CONT SOIL	RDL	QC Batch
Volatile Organics				
Leachable Benzene	mg/L	<0.020	0.020	8795783
Leachable Carbon Tetrachloride	mg/L	<0.020	0.020	8795783
Leachable Chlorobenzene	mg/L	<0.020	0.020	8795783
Leachable Chloroform	mg/L	<0.020	0.020	8795783
Leachable 1,2-Dichlorobenzene	mg/L	<0.050	0.050	8795783
Leachable 1,4-Dichlorobenzene	mg/L	<0.050	0.050	8795783
Leachable 1,2-Dichloroethane	mg/L	<0.050	0.050	8795783
Leachable 1,1-Dichloroethylene	mg/L	<0.020	0.020	8795783
Leachable Methylene Chloride(Dichloromethane)	mg/L	<0.20	0.20	8795783
Leachable Methyl Ethyl Ketone (2-Butanone)	mg/L	<1.0	1.0	8795783
Leachable Tetrachloroethylene	mg/L	<0.020	0.020	8795783
Leachable Trichloroethylene	mg/L	<0.020	0.020	8795783
Leachable Vinyl Chloride	mg/L	<0.020	0.020	8795783
Surrogate Recovery (%)				
Leachable 4-Bromofluorobenzene	%	93		8795783
Leachable D4-1,2-Dichloroethane	%	109		8795783
Leachable D8-Toluene	%	102		8795783

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3K5055
Report Date: 2023/07/19

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Bureau Veritas ID		WIY396		
Sampling Date		2023/07/11		
COC Number		n/a		
	UNITS	**CONT SOIL**	**RDL**	**QC Batch**
PCBs				
Leachable Total PCB	ug/L	<3.0	3.0	8792539
Surrogate Recovery (%)				
Leachable Decachlorobiphenyl	%	102		8792539

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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GENERAL COMMENTS

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8792539	Leachable Decachlorobiphenyl	2023/07/17	116	30 - 130	102	30 - 130	108	%				
8792850	Leachable D10-Anthracene	2023/07/17	116	50 - 130	103	50 - 130	115	%				
8792850	Leachable D14-Terphenyl (FS)	2023/07/17	118	50 - 130	109	50 - 130	104	%				
8792850	Leachable D8-Acenaphthylene	2023/07/17	113	50 - 130	108	50 - 130	99	%				
8795783	Leachable 4-Bromofluorobenzene	2023/07/18	94	70 - 130	94	70 - 130	94	%				
8795783	Leachable D4-1,2-Dichloroethane	2023/07/18	110	70 - 130	111	70 - 130	110	%				
8795783	Leachable D8-Toluene	2023/07/18	104	70 - 130	104	70 - 130	102	%				
8792092	Moisture	2023/07/15							13 (1)	20		
8792539	Leachable Total PCB	2023/07/17	113	30 - 130	103	30 - 130	<3.0	ug/L	NC (1)	40		
8792805	Leachable Arsenic (As)	2023/07/17	106	80 - 120	107	80 - 120	<0.2	mg/L	NC (1)	35	<0.2	mg/L
8792805	Leachable Barium (Ba)	2023/07/17	111	80 - 120	109	80 - 120	<0.2	mg/L	3.7 (1)	35	<0.2	mg/L
8792805	Leachable Boron (B)	2023/07/17	111	80 - 120	108	80 - 120	<0.1	mg/L	0.043 (1)	35	<0.1	mg/L
8792805	Leachable Cadmium (Cd)	2023/07/17	102	80 - 120	102	80 - 120	<0.05	mg/L	NC (1)	35	<0.05	mg/L
8792805	Leachable Chromium (Cr)	2023/07/17	102	80 - 120	103	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8792805	Leachable Lead (Pb)	2023/07/17	95	80 - 120	98	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8792805	Leachable Mercury (Hg)	2023/07/17	100	80 - 120	107	80 - 120	<0.001	mg/L	NC (1)	35	<0.001	mg/L
8792805	Leachable Selenium (Se)	2023/07/17	103	80 - 120	101	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8792805	Leachable Silver (Ag)	2023/07/17	98	80 - 120	101	80 - 120	<0.01	mg/L	NC (1)	35	<0.01	mg/L
8792805	Leachable Uranium (U)	2023/07/17	97	80 - 120	98	80 - 120	<0.01	mg/L	NC (1)	35	<0.01	mg/L
8792850	Leachable 1-Methylnaphthalene	2023/07/17	110	50 - 130	105	50 - 130	<0.20	ug/L				
8792850	Leachable 2-Methylnaphthalene	2023/07/17	98	50 - 130	93	50 - 130	<0.20	ug/L				
8792850	Leachable Acenaphthene	2023/07/17	106	50 - 130	101	50 - 130	<0.20	ug/L				
8792850	Leachable Acenaphthylene	2023/07/17	105	50 - 130	98	50 - 130	<0.20	ug/L				
8792850	Leachable Anthracene	2023/07/17	107	50 - 130	95	50 - 130	<0.20	ug/L				
8792850	Leachable Benzo(a)anthracene	2023/07/17	108	50 - 130	105	50 - 130	<0.20	ug/L				
8792850	Leachable Benzo(a)pyrene	2023/07/17	104	50 - 130	100	50 - 130	<0.10	ug/L	NC (1)	40		
8792850	Leachable Benzo(b)fluoranthene	2023/07/17	110	50 - 130	106	50 - 130	<0.10	ug/L				
8792850	Leachable Benzo(g,h,i)perylene	2023/07/17	111	50 - 130	108	50 - 130	<0.20	ug/L				
8792850	Leachable Benzo(k)fluoranthene	2023/07/17	109	50 - 130	105	50 - 130	<0.20	ug/L				
8792850	Leachable Chrysene	2023/07/17	108	50 - 130	106	50 - 130	<0.20	ug/L				

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8792850	Leachable Dibenzo(a,h)anthracene	2023/07/17	89	50 - 130	77	50 - 130	<0.20	ug/L				
8792850	Leachable Fluoranthene	2023/07/17	119	50 - 130	110	50 - 130	<0.20	ug/L				
8792850	Leachable Fluorene	2023/07/17	107	50 - 130	102	50 - 130	<0.20	ug/L				
8792850	Leachable Indeno(1,2,3-cd)pyrene	2023/07/17	107	50 - 130	105	50 - 130	<0.20	ug/L				
8792850	Leachable Naphthalene	2023/07/17	98	50 - 130	92	50 - 130	<0.20	ug/L				
8792850	Leachable Phenanthrene	2023/07/17	107	50 - 130	100	50 - 130	<0.20	ug/L				
8792850	Leachable Pyrene	2023/07/17	119	50 - 130	111	50 - 130	<0.20	ug/L				
8793597	Leachable Fluoride (F-)	2023/07/17	96	80 - 120	100	80 - 120	<0.10	mg/L	0.45 (1)	25	<0.10	mg/L
8793607	Leachable Nitrate (N)	2023/07/17	90	80 - 120	96	80 - 120	<1.0	mg/L	3.7 (1)	20	<1.0	mg/L
8793607	Leachable Nitrate + Nitrite (N)	2023/07/17	94	80 - 120	98	80 - 120	<1.0	mg/L	3.7 (1)	20	<1.0	mg/L
8793607	Leachable Nitrite (N)	2023/07/17	110	80 - 120	105	80 - 120	<0.10	mg/L	NC (1)	20	<0.10	mg/L
8793608	Leachable WAD Cyanide (Free)	2023/07/17	97	80 - 120	106	80 - 120	<0.0020	mg/L	NC (1)	20	<0.010	mg/L
8795783	Leachable 1,1-Dichloroethylene	2023/07/18	105	70 - 130	105	70 - 130	<0.020	mg/L	NC (1)	30		
8795783	Leachable 1,2-Dichlorobenzene	2023/07/18	101	70 - 130	102	70 - 130	<0.050	mg/L	NC (1)	30		
8795783	Leachable 1,2-Dichloroethane	2023/07/18	109	70 - 130	110	70 - 130	<0.050	mg/L	NC (1)	30		
8795783	Leachable 1,4-Dichlorobenzene	2023/07/18	115	70 - 130	115	70 - 130	<0.050	mg/L	NC (1)	30		
8795783	Leachable Benzene	2023/07/18	97	70 - 130	98	70 - 130	<0.020	mg/L	NC (1)	30		
8795783	Leachable Carbon Tetrachloride	2023/07/18	102	70 - 130	102	70 - 130	<0.020	mg/L	NC (1)	30		
8795783	Leachable Chlorobenzene	2023/07/18	102	70 - 130	103	70 - 130	<0.020	mg/L	NC (1)	30		
8795783	Leachable Chloroform	2023/07/18	101	70 - 130	101	70 - 130	<0.020	mg/L	NC (1)	30		
8795783	Leachable Methyl Ethyl Ketone (2-Butanone)	2023/07/18	107	60 - 140	109	60 - 140	<1.0	mg/L	NC (1)	30		
8795783	Leachable Methylene Chloride (Dichloromethane)	2023/07/18	97	70 - 130	98	70 - 130	<0.20	mg/L	NC (1)	30		
8795783	Leachable Tetrachloroethylene	2023/07/18	94	70 - 130	94	70 - 130	<0.020	mg/L	NC (1)	30		
8795783	Leachable Trichloroethylene	2023/07/18	101	70 - 130	101	70 - 130	<0.020	mg/L	NC (1)	30		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8795783	Leachable Vinyl Chloride	2023/07/18	101	70 - 130	102	70 - 130	<0.020	mg/L	NC (1)	30		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

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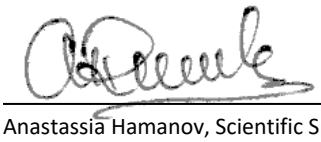
Bureau Veritas Job #: C3K5055
Report Date: 2023/07/19

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: BEG

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

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Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285741	CHAIN OF CUSTODY # :
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	TCLF-SOIL-JUL
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2984 Fax: 519-823-1316	Project Name:	TCLF-SOIL-JUL	
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com, Jeffery.Cleland@RWDI.c	Location:	Twin Creeks	
				Sampled By:	BEG	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA ☐ PWQO ☐ Reg. 558
Reg. 153: ☐ Table 1 ☐ Table 2 ☐ Table 3
Sewer Use: ☐ Sanitary ☐ Storm Region: _____
☒ Other: site specific (specify)
Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - SOIL (TCLP) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	CONT SOIL	11-Jul-23	AM	SOIL	N	N	X	5	
2									
3									
4									
5									See lab addendum for analysis.
6									
7									
8									
9									
10									
11									
12									CS intact

12-Jul-23 08:55
Patricia Legette
C3K5055
[illegible]PK ENV-1228

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # _____ (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days
DATE Required: 20-Jul-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:
BEG 11-Jul-23 / AM	B. Geethadevi GEETHADEVI BHUPATHI	2023/07/12	8:55

Laboratory Use Only

Temperature (°C) on Receipt	Condition of Sample on Receipt
3/4/7	☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

White: Maxxam Yellow: Mail Pink: Client

Your P.O. #: 12285741
Your Project #: 2303459.01
Site#: 900
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/10/16
Report #: R7862993
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V1468
Received: 2023/10/05, 10:48

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Cyanide (WAD) in Leachates	1	N/A	2023/10/11	CAM SOP-00457	OMOE 3015 m
Fluoride by ISE in Leachates	1	2023/10/11	2023/10/12	CAM SOP-00449	SM 23 4500-F- C m
Total Metals in TCLP Leachate by ICPMS	1	2023/10/12	2023/10/12	CAM SOP-00447	EPA 6020B m
Moisture	1	N/A	2023/10/10	CAM SOP-00445	Carter 2nd ed 51.2 m
Nitrate& Nitrite as Nitrogen in Leachate	1	N/A	2023/10/16	CAM SOP-00440	SM 23 4500-NO3I/NO2B
PAH Compounds in Leachate by GC/MS (SIM)	1	2023/10/11	2023/10/12	CAM SOP-00318	EPA 8270E
Polychlorinated Biphenyl in Leachate	1	2023/10/11	2023/10/11	CAM SOP-00309	EPA 8082A m
TCLP - % Solids	1	2023/10/10	2023/10/11	CAM SOP-00401	EPA 1311 Update I m
TCLP - Extraction Fluid	1	N/A	2023/10/11	CAM SOP-00401	EPA 1311 Update I m
TCLP - Initial and final pH	1	N/A	2023/10/11	CAM SOP-00401	EPA 1311 Update I m
TCLP Zero Headspace Extraction	1	2023/10/11	2023/10/12	CAM SOP-00430	EPA 1311 m
VOCs in ZHE Leachates	1	2023/10/12	2023/10/12	CAM SOP-00228	EPA 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Your P.O. #: 12285741
Your Project #: 2303459.01
Site#: 900
Site Location: ON07
Your C.O.C. #: n/a

Attention: Khalid Hussein - Twin Creeks

RWDI Inc.
600 Southgate Drive
Guelph, ON
Canada N1G 4P6

Report Date: 2023/10/16
Report #: R7862993
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3V1468

Received: 2023/10/05, 10:48

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799

==========

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Bureau Veritas Job #: C3V1468
Report Date: 2023/10/16

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: JRA

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		XFI631		
Sampling Date		2023/10/03		
COC Number		n/a		
	UNITS	**CONT SOIL**	**RDL**	**QC Batch**
Charge/Prep Analysis				
Amount Extracted (Wet Weight) (g)	N/A	23	N/A	8972999
Inorganics				
Final pH	pH	5.74		8973330
Leachable Fluoride (F-)	mg/L	0.38	0.10	8973014
Initial pH	pH	9.01		8973330
Moisture	%	5.3	1.0	8971324
TCLP - % Solids	%	100	0.2	8969874
TCLP Extraction Fluid	N/A	FLUID 2		8973328
Leachable WAD Cyanide (Free)	mg/L	<0.010	0.010	8973009
Leachable Nitrite (N)	mg/L	<0.10	0.10	8973004
Leachable Nitrate (N)	mg/L	<1.0	1.0	8973004
Leachable Nitrate + Nitrite (N)	mg/L	<1.0	1.0	8973004

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Bureau Veritas Job #: C3V1468
Report Date: 2023/10/16

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: JRA

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Bureau Veritas ID		XFI631		
Sampling Date		2023/10/03		
COC Number		n/a		
	UNITS	CONT SOIL	RDL	QC Batch
Metals				
Leachable Arsenic (As)	mg/L	<0.2	0.2	8975552
Leachable Barium (Ba)	mg/L	0.4	0.2	8975552
Leachable Boron (B)	mg/L	0.2	0.1	8975552
Leachable Cadmium (Cd)	mg/L	<0.05	0.05	8975552
Leachable Chromium (Cr)	mg/L	<0.1	0.1	8975552
Leachable Lead (Pb)	mg/L	<0.1	0.1	8975552
Leachable Mercury (Hg)	mg/L	<0.001	0.001	8975552
Leachable Selenium (Se)	mg/L	<0.1	0.1	8975552
Leachable Silver (Ag)	mg/L	<0.01	0.01	8975552
Leachable Uranium (U)	mg/L	<0.01	0.01	8975552

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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SEMI-VOLATILE ORGANICS BY GC-MS (SOIL)

Bureau Veritas ID		XFI631		
Sampling Date		2023/10/03		
COC Number		n/a		
	UNITS	CONT SOIL	RDL	QC Batch
Polyaromatic Hydrocarbons				
Leachable Benzo(b)fluoranthene	ug/L	<0.10	0.10	8974758
Leachable Naphthalene	ug/L	0.54	0.20	8974758
Leachable Acenaphthylene	ug/L	<0.20	0.20	8974758
Leachable Acenaphthene	ug/L	<0.20	0.20	8974758
Leachable Fluorene	ug/L	<0.20	0.20	8974758
Leachable Phenanthrene	ug/L	0.32	0.20	8974758
Leachable Anthracene	ug/L	<0.20	0.20	8974758
Leachable Fluoranthene	ug/L	<0.20	0.20	8974758
Leachable Pyrene	ug/L	<0.20	0.20	8974758
Leachable Benzo(a)anthracene	ug/L	<0.20	0.20	8974758
Leachable Chrysene	ug/L	<0.20	0.20	8974758
Leachable Benzo(k)fluoranthene	ug/L	<0.20	0.20	8974758
Leachable Benzo(a)pyrene	ug/L	<0.10	0.10	8974758
Leachable Indeno(1,2,3-cd)pyrene	ug/L	<0.20	0.20	8974758
Leachable Dibenzo(a,h)anthracene	ug/L	<0.20	0.20	8974758
Leachable Benzo(g,h,i)perylene	ug/L	<0.20	0.20	8974758
Leachable 1-Methylnaphthalene	ug/L	<0.20	0.20	8974758
Leachable 2-Methylnaphthalene	ug/L	<0.20	0.20	8974758
Surrogate Recovery (%)				
Leachable D10-Anthracene	%	97		8974758
Leachable D14-Terphenyl (FS)	%	94		8974758
Leachable D8-Acenaphthylene	%	92		8974758

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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VOLATILE ORGANICS BY GC/MS (SOIL)

Bureau Veritas ID		XFI631		
Sampling Date		2023/10/03		
COC Number		n/a		
	UNITS	CONT SOIL	RDL	QC Batch
Volatile Organics				
Leachable Benzene	mg/L	<0.020	0.020	8975622
Leachable Carbon Tetrachloride	mg/L	<0.020	0.020	8975622
Leachable Chlorobenzene	mg/L	<0.020	0.020	8975622
Leachable Chloroform	mg/L	<0.020	0.020	8975622
Leachable 1,2-Dichlorobenzene	mg/L	<0.050	0.050	8975622
Leachable 1,4-Dichlorobenzene	mg/L	<0.050	0.050	8975622
Leachable 1,2-Dichloroethane	mg/L	<0.050	0.050	8975622
Leachable 1,1-Dichloroethylene	mg/L	<0.020	0.020	8975622
Leachable Methylene Chloride(Dichloromethane)	mg/L	<0.20	0.20	8975622
Leachable Methyl Ethyl Ketone (2-Butanone)	mg/L	<1.0	1.0	8975622
Leachable Tetrachloroethylene	mg/L	<0.020	0.020	8975622
Leachable Trichloroethylene	mg/L	<0.020	0.020	8975622
Leachable Vinyl Chloride	mg/L	<0.020	0.020	8975622
Surrogate Recovery (%)				
Leachable 4-Bromofluorobenzene	%	101		8975622
Leachable D4-1,2-Dichloroethane	%	115		8975622
Leachable D8-Toluene	%	94		8975622

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C3V1468
Report Date: 2023/10/16

RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: JRA

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOIL)

Bureau Veritas ID		XFI631		
Sampling Date		2023/10/03		
COC Number		n/a		
	UNITS	**CONT SOIL**	**RDL**	**QC Batch**
PCBs				
Leachable Total PCB	ug/L	<3.0	3.0	8972938
Surrogate Recovery (%)				
Leachable Decachlorobiphenyl	%	110		8972938

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: JRA

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	14.0°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8972938	Leachable Decachlorobiphenyl	2023/10/11	101	30 - 130	115	30 - 130	110	%				
8974758	Leachable D10-Anthracene	2023/10/12	107	50 - 130	98	50 - 130	96	%				
8974758	Leachable D14-Terphenyl (FS)	2023/10/12	107	50 - 130	93	50 - 130	91	%				
8974758	Leachable D8-Acenaphthylene	2023/10/12	107	50 - 130	96	50 - 130	91	%				
8975622	Leachable 4-Bromofluorobenzene	2023/10/12	102	70 - 130	101	70 - 130	102	%				
8975622	Leachable D4-1,2-Dichloroethane	2023/10/12	110	70 - 130	111	70 - 130	112	%				
8975622	Leachable D8-Toluene	2023/10/12	99	70 - 130	99	70 - 130	95	%				
8971324	Moisture	2023/10/10							3.4 (1)	20		
8972938	Leachable Total PCB	2023/10/11	102	30 - 130	111	30 - 130	<3.0	ug/L	NC (1)	40		
8973004	Leachable Nitrate (N)	2023/10/16	94	80 - 120	98	80 - 120	<1.0	mg/L	NC (1)	20	<1.0	mg/L
8973004	Leachable Nitrate + Nitrite (N)	2023/10/16	93	80 - 120	100	80 - 120	<1.0	mg/L	0.97 (1)	20	<1.0	mg/L
8973004	Leachable Nitrite (N)	2023/10/16	NC	80 - 120	106	80 - 120	<0.10	mg/L	0.78 (1)	20	<0.10	mg/L
8973009	Leachable WAD Cyanide (Free)	2023/10/11	73 (2)	80 - 120	88	80 - 120	<0.0020	mg/L	NC (1)	20	<0.010	mg/L
8973014	Leachable Fluoride (F-)	2023/10/12	32 (2)	80 - 120	96	80 - 120	<0.10	mg/L	0.46 (1)	25	<0.10	mg/L
8974758	Leachable 1-Methylnaphthalene	2023/10/12	116	50 - 130	113	50 - 130	<0.20	ug/L				
8974758	Leachable 2-Methylnaphthalene	2023/10/12	103	50 - 130	102	50 - 130	<0.20	ug/L				
8974758	Leachable Acenaphthene	2023/10/12	121	50 - 130	111	50 - 130	<0.20	ug/L				
8974758	Leachable Acenaphthylene	2023/10/12	118	50 - 130	109	50 - 130	<0.20	ug/L				
8974758	Leachable Anthracene	2023/10/12	123	50 - 130	114	50 - 130	<0.20	ug/L				
8974758	Leachable Benzo(a)anthracene	2023/10/12	130	50 - 130	117	50 - 130	<0.20	ug/L				
8974758	Leachable Benzo(a)pyrene	2023/10/12	124	50 - 130	113	50 - 130	<0.10	ug/L	NC (1)	40		
8974758	Leachable Benzo(b)fluoranthene	2023/10/12	130	50 - 130	126	50 - 130	<0.10	ug/L				
8974758	Leachable Benzo(g,h,i)perylene	2023/10/12	133 (2)	50 - 130	121	50 - 130	<0.20	ug/L				
8974758	Leachable Benzo(k)fluoranthene	2023/10/12	127	50 - 130	124	50 - 130	<0.20	ug/L				
8974758	Leachable Chrysene	2023/10/12	129	50 - 130	119	50 - 130	<0.20	ug/L				
8974758	Leachable Dibenzo(a,h)anthracene	2023/10/12	129	50 - 130	119	50 - 130	<0.20	ug/L				
8974758	Leachable Fluoranthene	2023/10/12	129	50 - 130	116	50 - 130	<0.20	ug/L				
8974758	Leachable Fluorene	2023/10/12	127	50 - 130	113	50 - 130	<0.20	ug/L				
8974758	Leachable Indeno(1,2,3-cd)pyrene	2023/10/12	126	50 - 130	113	50 - 130	<0.20	ug/L				
8974758	Leachable Naphthalene	2023/10/12	100	50 - 130	98	50 - 130	<0.20	ug/L				

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8974758	Leachable Phenanthrene	2023/10/12	126	50 - 130	116	50 - 130	<0.20	ug/L				
8974758	Leachable Pyrene	2023/10/12	128	50 - 130	113	50 - 130	<0.20	ug/L				
8975552	Leachable Arsenic (As)	2023/10/12	98	80 - 120	99	80 - 120	<0.2	mg/L	NC (1)	35	<0.2	mg/L
8975552	Leachable Barium (Ba)	2023/10/12	NC	80 - 120	106	80 - 120	<0.2	mg/L	1.5 (1)	35	<0.2	mg/L
8975552	Leachable Boron (B)	2023/10/12	104	80 - 120	105	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8975552	Leachable Cadmium (Cd)	2023/10/12	100	80 - 120	99	80 - 120	<0.05	mg/L	NC (1)	35	<0.05	mg/L
8975552	Leachable Chromium (Cr)	2023/10/12	101	80 - 120	101	80 - 120	<0.1	mg/L	NC (1)	35	<0.1	mg/L
8975552	Leachable Lead (Pb)	2023/10/12	NC	80 - 120	102	80 - 120	<0.1	mg/L	0.68 (1)	35	<0.1	mg/L
8975552	Leachable Mercury (Hg)	2023/10/12	98	80 - 120	102	80 - 120	<0.001	mg/L	NC (1)	35	<0.001	mg/L
8975552	Leachable Selenium (Se)	2023/10/12	100	80 - 120	96	80 - 120	<0.1	mg/L	0.79 (1)	35	<0.1	mg/L
8975552	Leachable Silver (Ag)	2023/10/12	98	80 - 120	103	80 - 120	<0.01	mg/L	NC (1)	35	<0.01	mg/L
8975552	Leachable Uranium (U)	2023/10/12	105	80 - 120	105	80 - 120	<0.01	mg/L	NC (1)	35	<0.01	mg/L
8975622	Leachable 1,1-Dichloroethylene	2023/10/12	100	70 - 130	108	70 - 130	<0.020	mg/L	NC (1)	30		
8975622	Leachable 1,2-Dichlorobenzene	2023/10/12	95	70 - 130	104	70 - 130	<0.050	mg/L	NC (1)	30		
8975622	Leachable 1,2-Dichloroethane	2023/10/12	100	70 - 130	108	70 - 130	<0.050	mg/L	NC (1)	30		
8975622	Leachable 1,4-Dichlorobenzene	2023/10/12	106	70 - 130	115	70 - 130	<0.050	mg/L	NC (1)	30		
8975622	Leachable Benzene	2023/10/12	89	70 - 130	96	70 - 130	<0.020	mg/L				
8975622	Leachable Carbon Tetrachloride	2023/10/12	101	70 - 130	108	70 - 130	<0.020	mg/L	NC (1)	30		
8975622	Leachable Chlorobenzene	2023/10/12	101	70 - 130	109	70 - 130	<0.020	mg/L	NC (1)	30		
8975622	Leachable Chloroform	2023/10/12	106	70 - 130	113	70 - 130	<0.020	mg/L	NC (1)	30		
8975622	Leachable Methyl Ethyl Ketone (2-Butanone)	2023/10/12	105	60 - 140	112	60 - 140	<1.0	mg/L	NC (1)	30		
8975622	Leachable Methylene Chloride (Dichloromethane)	2023/10/12	99	70 - 130	105	70 - 130	<0.20	mg/L	NC (1)	30		
8975622	Leachable Tetrachloroethylene	2023/10/12	97	70 - 130	104	70 - 130	<0.020	mg/L	NC (1)	30		
8975622	Leachable Trichloroethylene	2023/10/12	98	70 - 130	105	70 - 130	<0.020	mg/L	NC (1)	30		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		Leachate Blank	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	Value	UNITS
8975622	Leachable Vinyl Chloride	2023/10/12	97	70 - 130	105	70 - 130	<0.020	mg/L	NC (1)	30		

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Leachate Blank: A blank matrix containing all reagents used in the leaching procedure. Used to determine any process contamination.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Duplicate Parent ID

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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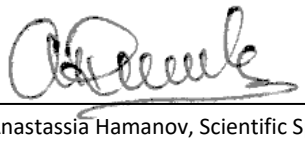
Bureau Veritas Job #: C3V1468
Report Date: 2023/10/16

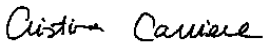
RWDI Inc.
Client Project #: 2303459.01
Site Location: ON07
Your P.O. #: 12285741
Sampler Initials: JRA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist



Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Maxxam Analytics Inc
6740 Campobello Road Mississauga, ON L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5777 Toll Free: (800) 563-6266

CHAIN OF CUSTODY RECORD

INVOICE INFORMATION:		REPORT INFORMATION (if differs from invoice):		PROJECT INFORMATION:		MAXXAM JOB NUMBER:
Company Name:	Waste Management of Canada Corporation	Company Name:	RWDI AIR Inc.	Quotation #		
Contact Name:	Lisa Mertick	Contact Name:	Brent Langille	P.O. #:	12285741	
Address:	5768 Nauvoo Rd, Watford, ON N0M 2S0	Address:	4510 Rhodes Drive, Unit 530 Windsor, ON, N8W 5K5	Project #:	2303459.01	CHAIN OF CUSTODY # :
Phone:	519-849-5810 Fax: 519-849-5811	Phone:	519-823-1311 x:2984 Fax: 519-823-1316	Project Name:	TCLF-SOIL-OCT	TCLF-SOIL-OCT
Email:	lmertick@wm.com	Email:	Brent.Langille@RWDI.com, Jeffery.Cleland@RWDI.c	Location:	Twin Creeks	
				Sampled By:	JRA	

REGULATORY CRITERIA

Note: For regulated drinking water samples - please use the Drinking Water Chain of Custody Form

☐ MISA Reg. 153 Sewer Use ☒ Other
☐ Table 1 ☐ Sanitary site specific
☐ PWQO ☐ Table 2 ☐ Storm specify
☐ Table 3 Region:
☐ Reg. 558

Report Criteria on C of A ? n

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (Please be specific):

TURNAROUND TIME (TAT) REQUIRED:

PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS

Regular (Standard) TAT:
☒ 5 to 7 Working Days

Rush TAT: Rush Confirmation # (call Lab for #)
☐ 1 day ☐ 2 days ☐ 3 days

DATE Required: 12-Oct-23
TIME Required: 12:00 PM

Please note that TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

	Sample Identification	Date Sampled	Time Sampled	Matrix (GW, SW, Soil, etc.)	Regulated Drinking Water ? (Y / N)	Metals Field Filtered ? (Y / N)	ON-WLF-2023 TCLS - SOIL (TCLP) QUARTERLY	# of Cont.	COMMENTS / TAT COMMENTS
1	CONT SOIL	12-Dec-23	AM	SOIL	N	N	X	5	
2									
3									
4									See lab addendum for analysis.
5									
6									
7									
8									
9									
10									
11									
12									

05-Oct-23 10:48
Patricia Legette
C3V1468
SWP ENV-1687

RELINQUISHED BY: (Signature/Print)	RECEIVED BY: (Signature/Print)	Date:	Time:	Laboratory Use Only
JRA 4-Oct-23 / AM	[illegible]	23/10/05	10:48	Temperature (°C) on Receipt 14.1/13.15 — Condition of Sample on Receipt ☐ OK ☐ SIF

*** MANDATORY SECTIONS IN GREY MUST BE FILLED OUT. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS**

Onice

White: Maxxam Yellow: Mail Pink: Client

APPENDIX P:

Complaint Logs

Table P-1
WM Twin Creeks Environmental Centre - Summary of Complaints - 2023-ECA A032203

Log	Name	Date	Time	Relationship	Type	Where	Wind Direction	Corrective Action	Response
1	Jackie Rombouts	1/2/2023	2:06 p.m.	Resident	Litter	On Site	N/A	Litter collection focuses on off site litter, then ditches and waterways, then on-site • We had 2 pickers out each day on Dec 28th, 29th and 30th following the snow melt. • This litter was from the litter event on Dec 29th	Complainant followed up 25 hours later, and was concerned that action had not been completed
2a	Judy Duncan	1/22/2023	3:52 p.m.	Resident	Odour	Residence	NNW	WM is currently working on a continuation of a project to seal off penetration points in the Landfill to improve gas capture. The next step is installing gas collection headers to all casings in Cell 4. This project will take some time to complete Connection of gas wells is a scheduled activity based on fill volumes and cell construction. The project is currently on schedule; however, this is a large task, that will take several more weeks to complete	No Response at this time
2b	Theresa Kersey	January 23, 2023 (for 1/22/23)	8:26 a.m.	Resident	Odour (Transient)	Driving by	N	WM is currently working on a continuation of a project to seal off penetration points in the Landfill to improve gas capture. The next step is installing gas collection headers to all casings in Cell 4. This project will take some time to complete Connection of gas wells is a scheduled activity based on fill volumes and cell construction. The project is currently on schedule; however, this is a large task, that will take several more weeks to complete	Thank you for your quick response
3	Megan Cattryesse	3/9/2023	8:04 a.m.	Resident	Odour	Residence	NNE	Potentially the special waste hole, odour dissipated by 8:24 a.m., covered that day	No Response at this time
4	Megan Cattryesse	3/31/2023	5:18 p.m.	Resident	Odour (Transient)	Driving by	SSW	Odour not verified, drive bys can be difficult to substantiate, As info: cover ops were being conducted at the time of the complaint. Gas well project is in final stages- wells currently being balanced.	No Response at this time
5a	Megan Cattryesse	5/10/2023	8:46 p.m.	Resident	Odour	At a Friends Residence	NE	Wind direction verified, at time of complaint wind was shifting from NE to NNE to WNW, verified that cover was adequate as per ECA, Gas system was operational	Thanks for your response.
5b	Jeff Sitlington	5/10/2023	8:57 p.m.	Resident	Odour	Residence	NE	Wind direction verified, at time of complaint wind was shifting from NE to NNE to WNW, verified that cover was adequate as per ECA, Gas system was operational	Thank you for your reply.
6	Jeff Sitlington	5/12/2023	11:18 p.m.	Resident	Odour (Transient)	Town	NE	Wind direction verified, verified that cover was adequate as per ECA, Gas system was operational, Notes: WM employee was on 402 approx. 7ish-detected agricultural activities and odour in area	Thanks for your response.
7	Linda Nugent	5/15/2023	7:35 a.m.	Resident	Odour	Residence	N	Investigation with Operations and Gas - nothing abnormal, landfill was operational at the time, weather conditions reviewed, Notes: WM employee detected mild garbage odour east of Nauvoo along Erie and St. Clair St.	Concerned about increase in odours if the Landfill gets bigger
8	Martina Jackson	5/29/2023	9:38 p.m.	Resident	Odour	Residence	ENE	Investigation with Operations and Gas - nothing abnormal, weather conditions reviewed, completed and filed relevant complaint log	No Response at this time
9	Jackie Rombouts	6/2/2023	8:34 a.m.	Resident	Odour	Bank of Montreal	NNW	Investigation with Operations and Gas - nothing abnormal, Landfill was operational at the time, weather conditions reviewed, completed and filed relevant complaint log, Investigator Notes: WM employee went to investigate-multi odours at that time i.e. exhaust, hot air, did not detect Landfill specifically.	No Response at this time
10	Klaas de Jong	6/24/2023	9:48 a.m.	Resident	Odour	Residence	NW	Investigation, Landfill was operational, Weather conditions reviewed, Flare running at full capacity other than five wells offline to be repaired	No Response at this time
11	Mac Parker	7/10/2023	7:03 p.m.	Resident	Odour (Transient) and ASR	Egremont Rd.	WSW	Investigation, Landfill was operational, Weather conditions reviewed, Sweeper was running at time of complaint	No Response at this time
12	Marliss Koolen	7/18/2023	7:30 AM	Resident	Odour	Residence	WSW	Investigation, Landfill was operational, Agricultural odours detected, weather conditions reviewed	No Response at this time
13	Marliss Koolen	8/9/2023	8:44 AM	Resident	Odour	Residence	WSW	Investigation, Landfill was operational, weather conditions reviewed.	No Response at this time
14	Megan Cattryesse	8/15/2023	4:10 PM	Resident	Odour (Transient)	Driving by/Residence	NNE	Investigation, Flares Running, Landfill operational at time of drive by, heavy rains created a potential for increased odours	No Response at this time
15	Jackie Rombouts	8/22/2023	8:54 PM	Resident	Odour	Ballpark	N	Filed, reviewed weather conditions, reminder of proper reporting procedure	Thanked for procedure.
16	Martina Jackson	9/8/2023	12:00 PM	Resident	Odour	School/Residence	SSW	Investigation, confirmed during morning perimeter inspection moderate odour at dog park at 8:50 am, other resident did not detect odours at school drop off.	No Response at this time
17	Marilyn Stephens	10/4/2023	11:26 AM	Resident	Odour (Transient)	Biking	SE	Investigation Notes: bulk of Watford smelt of agricultural odours at that time, wind direction inconsistent with complaint.	No Response at this time
18	Linda Nugent	11/4/2023	10:42 a.m.	Resident	Odour (Transient)	Driving	SSE	One flare was done, part required, repair completed on Monday	Appreciated response
19	Martina Jackson	11/4/2023	10:30 p.m.	Resident	Odour (Transient)	Driving	ESE	One flare was done, part required, repair completed on Monday	No Response at this time
20a	Jeff Sitlington	12/2/2023	5:22 a.m.	Resident	Odour	Residence	NNE	Gas Plant went down overnight, back online Sat. morning, review of Alert system to Techs	Thanks
20b	Ursula Verberne	12/2/2023	8:57 a.m.	Resident	Odour	Residence	NNE	Gas Plant went down overnight, back online Sat. morning, review of Alert system to Techs	No Response at this time
21	Megan Cattryesse	12/20/2023	5:15 pm and 9:07 p.m.	Resident	Odour (Transient)	Driving By	N/A	One of Flares was down for a few days but is running, takes some time to rebalance the field after an outage	No Response at this time

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-001
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	January 2, 2023 @ 2:06 p.m.
2. Name of Complainant	Jackie Rombouts
3. Address of Complainant	8605 Brickyard Line
4. Telephone Number of Complainant	N/A
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Litter
8. Nature of complaint (details): …Picture sent of Litter, "…The water that filters through your garbage goes directly to our farm and water supply….	
9. Precipitation: ☐Yes ☒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?	☐ Yes ☒ 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? b) The suppression system operational?	 ☒ Yes ☐ No ☒ Yes ☐ No

D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.
   - Litter collection focuses on off site litter, then ditches and waterways, then on-site
   - We had 2 pickers out each day on Dec 28th, 29th and 30th following the snow melt.
   - This litter was from the litter event on Dec 29th

2. When were these actions taken (date/time): January 3, 2023 @ 7:49 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to follow the Litter BMP – following the litter event, crews were dispatched within one hour of site opening and resumed the next operational day.

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 3, 2023 @ 7:49 a.m.
Who contacted the complainant (name/title):	Angela McLachlan (Environmental Compliance Manager)
How was the complainant contacted?	Email

Complainant Response:
Complainant followed up 25 hours later, and was concerned that action had not been completed.

F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	January 11, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-002a
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	January 22, 2023 @ 3:52 p.m.
2. Name of Complainant	Judy Duncan
3. Address of Complainant	515 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): Was out shovelling and could smell the Landfill	
9. Precipitation: ☐Yes ☐No N/A	10. Wind Direction: NNW
11. Precipitation Type & Amount:	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?	☐ Yes ☒ 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? b) The suppression system operational?	 ☒ Yes ☐ No ☐ Yes ☒ No

D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.
   Describe:

   - WM is currently working on a continuation of a project to seal off penetration points in the Landfill to improve gas capture. The next step is installing gas collection headers to all casings in Cell 4. This project will take some time to complete

2. When were these actions taken (date/time): January 22, 2023 @ 4:05 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:

   - Connection of gas wells is a scheduled activity based on fill volumes and cell construction. The project is currently on schedule; however, this is a large task, that will take several more weeks to complete

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 24, 2023 @ 1:16 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:	January 24, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-002b
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	January 23, 2023 @ 8:26 a.m.
2. Name of Complainant	Theresa Kersey
3. Address of Complainant	90 Sunset Ave.
4. Telephone Number of Complainant	N/A
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour (Transient)
8. Nature of complaint (details): could smell the Landfill driving by	
9. Precipitation: ☐Yes ☐No N/A	10. Wind Direction: N
11. Precipitation Type & Amount:	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?	☐ Yes ☒ 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? b) The suppression system operational?	 ☒ Yes ☐ No ☐ Yes ☒ No

D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.
   Describe:

   - WM is currently working on a continuation of a project to seal off penetration points in the Landfill to improve gas capture. The next step is installing gas collection headers to all casings in Cell 4. This project will take some time to complete

2. When were these actions taken (date/time): January 22, 2023 @ 4:05 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:

   - Connection of gas wells is a scheduled activity based on fill volumes and cell construction. The project is currently on schedule; however, this is a large task, that will take several more weeks to complete

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 24, 2023 @ 1:22 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.
Updated – Thank you for your quick response

F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	January 24, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-003
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	March 9, 2023 @ 8:04 a.m.
2. Name of Complainant	Megan Cattryese
3. Address of Complainant	419 Huron St.
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): Could smell the Landfill at Residence at 8:02 a.m. on Thursday, March 9.	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: NNE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 6 kmh

C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint?	☐ Yes ☒ 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? b) The suppression system operational?	 ☒ Yes ☐ No ☐ Yes ☒ No

D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.
   Describe:
   - Sr. District Manager went out immediately to investigate
   - Notes: detect on Nauvoo from Cemetery to Confederation, not detected downtown, confirmed along Huron St. from Warwick to John
   - 8:24 a.m. – odour dissipated not detectable
   - Special waste hole potential source, covered at the end of day.

2. When were these actions taken (date/time): March 9, 2023 @ 8:04 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to follow the Odour 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:	March 10, 2023 @ 9:31 a.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:	March 10, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-004
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	March 31, 2023 @ 5:18 p.m.
2. Name of Complainant	Megan Cattryese
3. Address of Complainant	419 Huron St.
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 (Transient)
8. Nature of complaint (details): …5:17 p.m. Zion line very strong odour and Nauvoo	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: SSW
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?	☐ Yes ☒ 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? b) The suppression system operational?	 ☒ Yes ☐ No ☐ Yes ☒ No

D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.
   Describe:
   - Odour not verified, drive bys can be difficult to substantiate
   - As information: cover operations were being conducted at the time of the complaint
   - Gas well project is in final stages-wells currently being balanced

2. When were these actions taken (date/time): March 31, 2023 @ 5:19 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to follow the Odour 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:	April 1 @ 11:08 a.m.& April 6 @ 12:46 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:	April 6, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-005a
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	May 9, 2023 @ 8:46 p.m.
2. Name of Complainant	Megan Cattryese
3. Address of Complainant	419 Huron St. (was at 610 St. Clair-Friend's)
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): …8:45…smell is horrible at a friend's residence…	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: NE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 6 kmh

C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint?	☐ Yes ☒ 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? b) The suppression system operational?	 ☒ Yes ☐ No ☒ 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 – Flares running at full capacity, other than (5) wells offline due to line damage
   - Reviewed occurrence with Operations -Nothing abnormal to generate landfill odour offsite.
   - Landfill was operational at the time
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed

2. When were these actions taken (date/time): June 24, 2023 @ 10:06 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to follow the Odour 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 24 & July 4, 2023 @ 11:30 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: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	July 4, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2019-005 (b)
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	May 9, 2023 @ 8:57 p.m.
2. Name of Complainant	Jeff Sitlington
3. Address of Complainant	319 St. Clair St., Watford
4. Telephone Number of Complainant	519-330-0352
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): • …smell of the dump is crazy and not liking it	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: NE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 6kmh

C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint?	☐ Yes ☒ 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? b) The suppression system operational?	 ☒ Yes ☐ No ☒ Yes ☐ No

D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.
   Describe:
   - Wind direction verified
   - At time of complaint, wind was shifting from NE to NNE to WNW
   - Verified that cover was adequate as per the ECA
   - Gas system was operational

2. When were these actions taken (date/time): May 9, 2023 @ 8:47 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to comply with the Odour 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:	May 10, 2023 @ 1:42 p.m.
Who contacted the complainant (name/title):	Angela McLachlan (Environmental Compliance Manager) /John McDonald (Sr District Manager)
How was the complainant contacted?	Telephone

Complainant Response:
- Thank you for your reply.

F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	May 10, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-006
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	May 12, 2023 @ 11:18 p.m.
2. Name of Complainant	Jeff Sitlington
3. Address of Complainant	319 St. Clair St., Watford
4. Telephone Number of Complainant	519-330-0352
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour (Transient)
8. Nature of complaint (details): • …once again the dump stinks in town..	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: NE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 5kmh

C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint?	☐ Yes ☒ 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? b) The suppression system operational?	 ☒ Yes ☐ No ☒ Yes ☐ No

D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.
   Describe:
   - Wind direction verified
   - Verified that cover was adequate as per the ECA
   - Gas system was operational
   - Notes: WM employee was on 402 at approximately 7ish – detected agricultural activities and odours in the area

2. When were these actions taken (date/time): May 12, 2023 @ 11:19 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to comply with the Odour 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:	May 18, 2023 at 4:15 p.m.
Who contacted the complainant (name/title):	Angela McLachlan (Environmental Compliance Manager) /John McDonald (Sr District Manager)
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:	May 18, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-007
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	May 15, 2023 @ 7:35 a.m.
2. Name of Complainant	Linda Nugent
3. Address of Complainant	618 Huron St.
4. Telephone Number of Complainant	519-494-4401
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): Just after 7:30 a.m. could smell the Landfill-strong	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: North
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?	☐ Yes ☒ 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? b) The suppression system operational?	 ☒ Yes ☐ No ☒ 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.
   - Landfill was operational at the time
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed
   - Notes: WM Employee noted: 8am there was a mild garbage odour east of Nauvoo along Erie and St. Clair St.

2. When were these actions taken (date/time): May 15, 2023 @ 8:03 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Will continue to comply with Odour 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:	May 18, 2023 @ 1:56 p.m.
Who contacted the complainant (name/title):	AMcLachlan
How was the complainant contacted?	Phone

Complainant Response:
Concerned about increased odours if Landfill gets bigger.

F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	May 18, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-008
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	May 29, 2023 @ 9:38 p.m.
2. Name of Complainant	Martina Jackson
3. Address of Complainant	537 Gold
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): 9:30 p.m. May 29 2023 Smell of garbage coming in our windows	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: ENE
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?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatched on Site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ 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 – 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): May 29, 2023 @ 9:47 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:

- Continue to comply with Odour 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 6, 2023 @ 12:55 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:	June 6, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-009
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	June 2, 2023 @ 8:34 a.m.
2. Name of Complainant	Jackie Rombouts
3. Address of Complainant	8605 Brickyard Line
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): …at Bank of Montreal in Watford and the stench of garbage is horrible. It hit me as soon as I opened my car door…	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: NNW
11. Precipitation Type & Amount: N/A	12. Wind Speed: 6 kmh

C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint? ☐ Yes ☒ 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) Is the suppression system operational? ☒ Yes ☐ No b) Is the odour caused by a specific operation? ☐ Yes ☒ No c) Is the Suppression System dispatched on Site? ☐ Yes ☒ No

D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.
   - 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.
   - Landfill was operational at the time
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed
   - Investigator Notes: WM employee went to investigate – multi odours at that time i.e. exhaust, hot air, did not detect Landfill specifically

2. When were these actions taken (date/time): June 2, 2023 @ 8:36 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to comply with Odour 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 6, 2023 @ 1:09 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:	June 6, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-010
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	June 24, 2023 @ 9:48 a.m.
2. Name of Complainant	Klaas de Jong
3. Address of Complainant	8296 Confederation Line
4. Telephone Number of Complainant	519-719-5840
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): Last weekend the dump smelled pretty bad and now it is again.	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: NW
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?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatched on Site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ Yes ☒ No

D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.
   Describe:
   - Wind direction verified
   - At time of complaint, wind was shifting from NE to NNE to WNW
   - Verified that cover was adequate as per the ECA
   - Gas system was operational

2. When were these actions taken (date/time): May 9, 2023 @ 8:47 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to follow the Odour 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:	May 10, 2023 at 1:38 p.m.
Who contacted the complainant (name/title):	Angela McLachlan
How was the complainant contacted?	Telephone

Complainant Response:

No Response at this time

Update: Thanks for your response (recd at 2:53 pm May 10/23)

F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	May 10, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-011
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	July 10, 2023 @ 7:03 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):	John McDonald/Angela McLachlan
7. Type of complaint	Odour & Trackout
8. Nature of complaint (details): ASW on the shoulder and ditch of Nauvoo strong odour on Egremont Rd from Nauvoo Rd thru to Arkona Rd. There was a South wind blowing across a huge open face of the Landfill at 9.30 am on July 10th 2023	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: WSW
11. Precipitation Type & Amount: N/A	12. Wind Speed: 10 kmh

C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatched on Site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ 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.
   - Flare is operational
   - Landfill was operational at the time
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed
   - Track out identified on road in the morning, sweeper was running at the time of complaint

2. When were these actions taken (date/time): July 10, 2023 @ 7:08 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to follow Odour and Dust 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:	July 11, 2023 @ 1:55 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:	July 11, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-012
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	July 18, 2023 @ 7:30 a.m.
2. Name of Complainant	Marlis Koolen
3. Address of Complainant	8345 Zion Line
4. Telephone Number of Complainant	226-456-6940
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, had to redo wash online	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: WSW
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?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatched on Site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ 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.
   - Flares is operational
   - Landfill was operational at the time-(removal of tarps occurring at approx.7 a.m.)
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed
   - Investigation Notes: (2) WM employees dispatched to investigate-both detected agricultural odours at corner of Zion which were fainter approaching address on Zion

2. When were these actions taken (date/time): July 18, 2023 @ 7:33 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to follow the Odour 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:	July 18, 2023 @ 2:26 p.m.
Who contacted the complainant (name/title):	Angela McLachlan
How was the complainant contacted?	Phone

Complainant Response:
No answer, left a message with details

F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	July 18, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-013
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	August 9, 2023, 2023 @ 8:44 a.m.
2. Name of Complainant	Marlis Koolen
3. Address of Complainant	8345 Zion Line
4. Telephone Number of Complainant	226-456-6940
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	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: WSW
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?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatched on Site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ 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.
   - Flares is operational
   - Landfill was operational at the time
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed

2. When were these actions taken (date/time): August 9, 2023 @ 8:49 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to follow the Odour 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:	August 10, 2023 @ 1:13 p.m.
Who contacted the complainant (name/title):	Angela McLachlan
How was the complainant contacted?	Phone

Complainant Response:

Could not talk, is expecting another call, advised when she has time to call me back.

F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	August 10, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-014
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	August 15, 2023 @ 4:10 p.m.
2. Name of Complainant	Megan Cattryesse
3. Address of Complainant	419 Huron
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 (Transient)
8. Nature of complaint (details): Could smell the Landfill at 4 p.m. driving by and on Aug. 14 around 6 p.m. at residence.	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: NNE/NNE
11. Precipitation Type & Amount: N/A	12. Wind Speed: 14 kmh/10kmh

C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatched on Site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ 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.
   - Flares running at full capacity
   - Landfill was operational at the time (driving by)
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed
   - Heavy rains created a potential for increased odours

2. When were these actions taken (date/time): August 15 @ 4:57 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to follow the Odour 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:	August 16 & 23, 2023 @ 8:04 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: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	August 23, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-015
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	August 22, 2023 @ 8:54 p.m. (received 8/28/23)
2. Name of Complainant	Jackie Rombouts
3. Address of Complainant	8605 Brickyard Line
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): …at Watford ballpark and the smell of garbage is terrible. People are complaining…	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: N
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? ☐ Yes ☒ 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) Is the suppression system operational? ☒ Yes ☐ No b) Is the odour caused by a specific operation? ☐ Yes ☒ No c) Is the Suppression System dispatched on Site? ☐ Yes ☒ No

D. CORRECTIVE ACTION

1. What actions were taken to resolve the source of the complaint.
   - Investigation into possible source of on-site odour-Operations/Gas – Nothing abnormal to generate landfill odour offsite.
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed
   - Reminded of complaint procedure (contact info.)

2. When were these actions taken (date/time): August 28, 2023 @ 10:55 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to comply with Odour 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:	August 28, 2023 @ 11:05 a.m.
Who contacted the complainant (name/title):	Angela McLachlan (Environmental Compliance Manager)
How was the complainant contacted?	Email

Complainant Response:
Thanked for reminding of complaint procedure.

F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	August 28, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-016
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	September 8, 2023 @ 12:00 p.m.
2. Name of Complainant	Martina Jackson
3. Address of Complainant	537 Gold
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): Stench of landfill had been horrible all morning.When dropping my kids off East Lambton at 9 am it was almost unbearable. For the rest of the morning I've had my windows open at 537 Gold Street and the stench of landfill that continues to blow through is horrendous.	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: NNW
11. Precipitation Type & Amount: N/A	12. Wind Speed: 10 kmh

C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatched on Site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ 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 – 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.
- Investigation Notes: confirmed during morning perimeter inspection moderate odour on Confed around the Dog Park at 8:50 a.m.
- Confirmed with other Resident dropping children off at school this morning, did not detect any odours.

2. When were these actions taken (date/time): September 8, 2023 @ 12:10 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:

- Continue to comply with Odour 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:	September 12, 2023 @ 12:21 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:	September 12, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-017
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	October 4, 2023 @ 11:26 a.m.
2. Name of Complainant	Marilyn Stephens
3. Address of Complainant	N/A
4. Telephone Number of Complainant	519-876-3678
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour (Transient)
8. Nature of complaint (details): At 7 p.m. last night was biking through the Park by Arena and could smell an odour, at first thought pig manure, but then thought it must be the Landfill.	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: SE
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?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatched on Site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ Yes ☒ 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
   - Investigation notes: Consultant noted that bulk of Watford smelled strongly of agricultural odours last night at that time, Landfill odour not detected.
   - Based on wind direction – potential agricultural from fields South of Confederation

2. When were these actions taken (date/time): October 4, 2023 @ 11:36 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - based on investigation no further action required as not Landfill related

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:	October 4, 2023 @ 2:11 p.m.
Who contacted the complainant (name/title):	Angela McLachlan
How was the complainant contacted?	Phone

Complainant Response:

Not home, left message with Marilyn's husband

F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	October 4, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-0018
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	November 4, 2023 @ 10:42 a.m.
2. Name of Complainant	Linda Nugent
3. Address of Complainant	618 Huron St.
4. Telephone Number of Complainant	519-494-4401
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour (Transient)
8. Nature of complaint (details): Was driving down the 402 and could smell the Landfill	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: SSE
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?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatch on site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ 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 – Nothing abnormal to generate landfill odour offsite.
   - Gas Operations reported one flare down on Saturday:
   - Landfill was operational at the time
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed

2. When were these actions taken (date/time): November 4, 2023 @ 11:22 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Gas techs on site over weekend monitoring gas flows
   - Parts were immediately ordered
   - Will continue to comply with Odour 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:	November 4, 2023 @ 4:04 p.m.
Who contacted the complainant (name/title):	AMcLachlan
How was the complainant contacted?	Phone

Complainant Response:
Appreciated the call back with information.

F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	November 4, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-019
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	November 4, 2023 @ 10:32 p.m.
2. Name of Complainant	Martina Jackson
3. Address of Complainant	537 Gold
4. Telephone Number of Complainant	N/A
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour (Transient)
8. Nature of complaint (details): 10:30pm November 4 2023 Driving by the landfill and into Watford. Smelled like straight methane. Triggered headache right away.	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: ESE
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?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatched on Site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ 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 – Nothing abnormal to generate landfill odour offsite.
   - Gas Operations reported one flare down on Saturday:
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed

2. When were these actions taken (date/time): November 4, 2023 @ 11:22 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:

   - Gas techs on site over weekend monitoring gas flows
   - Parts were immediately ordered
   - Continue to comply with Odour 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:	November 6, 2023 @ 12:24 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:	November 6, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-020a
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	December 2, 2023 @ 5:22 a.m.
2. Name of Complainant	Jeff Sitlington
3. Address of Complainant	319 St. Clair St.
4. Telephone Number of Complainant	519-330-0352
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): Can smell the Landfill in the house this morning.	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: NNE
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?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatched on Site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ 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 – Nothing abnormal to generate landfill odour offsite.
   - Gas Operations reported Plant went down over night
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed

2. When were these actions taken (date/time): December 2, 2023 @ 7:19 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:

   - Gas techs notified and continue to engage in prompt response-alert system to be reviewed.
   - Continue to comply with Odour 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:	December 2, 2023 @ 9:49 a.m.
Who contacted the complainant (name/title):	Angela McLachlan/Envtal Compl Mgr.
How was the complainant contacted?	Phone

Complainant Response:
Thanks

F. FORM COMPLETION

Form completed by: Name: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	December 4, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-020b
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with ECA/Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	December 2, 2023 @ 8:57 a.m.
2. Name of Complainant	Ursula Verberne
3. Address of Complainant	554 Ontario St.
4. Telephone Number of Complainant	519-402-3748
5. Relationship of Complainant	Resident
6. Employee receiving complaint (name):	Angela McLachlan
7. Type of complaint	Odour
8. Nature of complaint (details): I am a resident of Watford. I was leaving my home at 8:30am this morning and there was a very foul smell in the air that smelled like rotting garbage. I was driving toward the dump and could still smell the same smell as I did at my home. Our town is to hold the Annual Santa Claus Parade this morning and I feel sorry for those who are trying to enjoy a great parade with a very disgusting smell.	
9. Precipitation: ☒Yes ☐No	10. Wind Direction: NNE
11. Precipitation Type & Amount: 11.8 mm	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?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatched on Site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ 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 – Nothing abnormal to generate landfill odour offsite.
   - Gas Operations reported Plant went down over night
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed

2. When were these actions taken (date/time): December 2, 2023 @ 7:19 a.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:

   - Gas techs notified and continue to engage in prompt response-alert system to be reviewed.
   - Continue to comply with Odour 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:	December 2, 2023 @ 9:44 a.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 4, 2023

COMPLAINT LOG (FO-02)

A. ADMINISTRATIVE

Complaint Number (year-number, Ex. 2001-001):	2023-021
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 b) Submitted to the Environment Ministry c) Summarized for inclusion in a Report (monthly, quarterly, annual)	 ☒ ☒ ☒
Note: it is the Site Manager's responsibility to ensure compliance with C. of A./Permit conditions.	

B. SUMMARY

1. Date and Time of Complaint	December 20, 2023 @ 5:15 & 9:07 p.m.
2. Name of Complainant	Megan Cattryesse
3. Address of Complainant	419 Huron
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 (Transient)
8. Nature of complaint (details): Could smell the Landfill at 5:15 p.m. and 9:07 p.m when driving by	
9. Precipitation: ☐Yes ☒No	10. Wind Direction: ESE/E
11. Precipitation Type & Amount: N/A	12. Wind Speed: 2 kmh/6kmh

C. INVESTIGATION

1. Were there any unusual events/occurrences around the time of the complaint that may have contributed to the complaint?	☐ Yes ☒ 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) The suppression system operational? b) Is the odour caused by a specific operation? c) Is the suppression system dispatched on Site?	 ☒ Yes ☐ No ☐ Yes ☒ No ☐ 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
   - Flares now running at full capacity
   - However, one Flare had been down which creates an imbalance in the Field and takes several days to rebalance
   - Completed and filed relevant complaint log.
   - Weather Conditions reviewed

2. When were these actions taken (date/time): December 20 @ 5:54 p.m.

3. What measures have been employed or will be employed to prevent any future reoccurrence?
   Describe:
   - Continue to follow the Odour 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:	December 21, 2023 @ 10:58 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: Title:	Angela McLachlan Environmental Compliance Manager
Date completed:	December 21, 2023

APPENDIX Q:

2023 Annual Operations Report

APPENDIX Q

2023 ANNUAL OPERATIONS REPORT:
PER CONDITION 15.7 OF WASTE ECA NO. A032203

RWDI AIR Inc.
Consulting Engineers & Scientists
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TABLE OF CONTENTS

This Annual Operations Report for the 2023 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 2023 Fourth Quarter and Annual Monitoring Report (2023 Annual Report) and in accordance with the regulatory approvals noted below.

- Amended Environmental Compliance Approval (ECA) No. A032203, dated December 16, 2023. It is noted that during the 2023 calendar year, WM was required to conform to the Amended ECA dated December 19, 2020, then as amended on February 4, 2023, and then as further amended on December 16, 2023 (Waste ECA).
- Amended ECA for Industrial Sewage Works No. 2403-BE6LZ4, dated August 21, 2019 (Sewage ECA).
- Amended ECA for Air No. 6318-CX4NFX, dated December 13, 2023. It is noted that during the 2023 calendar year, WM was required to conform to Amended ECA for Air No. 4155-BMCLZ8, dated March 3, 2020 and then the Amended ECA for Air No. 6318-CX4NFX, dated December 13, 2023 (Air ECA).
- Permit-To-Take-Water (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 Landfill.
- 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 2023 are discussed in detail in **Sections 1 to 5 of Volume 1** of the 2023 Annual Report. No subsurface landfill gas migration was observed in 2023. Ambient air quality monitoring that was completed is discussed in detail within the Volume 4 of the 2023 Annual Report. Noise monitoring was also completed and is discussed in Volume 5 of the 2023 Annual Report.

Q.1.2 Condition 15.7(b)

The existing and constructed engineered facilities on the Site during 2023 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 2023.

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 and PS5 satisfied the cell base 0.3 m head leachate level

target elevation in 2023. The leachate elevations at PS3 in Cell 2 during the time periods of November 17 to 29, December 2 to 3, December 9 to 10, December 17, December 24 to 26, and December 30 to 31, 2023, did not satisfy condition 7.18 of the Waste ECA, where the leachate elevation exceeded the 0.3 m of head by values ranging from 0.02 to 0.26 m. The leachate elevations at PS7 in Cell 6A during the time period of April 4 to May 23, and July 8 to December 31, 2023 also did not satisfy condition 7.18 of the Waste ECA, where the leachate elevation exceeded the 0.3 m of head by values ranging from 0.08 m to 1.24 m.

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).

Details are also provided in **Section 4.1.2** of **Volume 1** of the 2023 Annual Report.

Q.1.3 Condition 15.7(c)

The expanded Poplar System was operational from May 2 to October 12, 2023. Per the Waste ECA, the last approved day to apply irrigation liquid to the Poplar System is October 15. During 2023, approximately 8,658.85 m^3 of leachate was applied to the expanded Poplar System. Monitoring of the Poplar System in 2023 included the required routine monitoring requirements, in consideration of the operational dates of the system. Details are presented in the **Volume 3** of the 2023 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 2023.

Q.1.5 Condition 15.7(e)

A detailed Site Contour Plan, as prepared by WSP Canada Inc., was updated to late December 2023 and is presented as **Figure Q-1** of Volume 2 of the 2023 Annual Report (WSP Canada Inc. Drawing No. 106716U-801).

Q.1.6 Condition 15.7(f)

During 2023, landfilling of waste and contaminated soil occurred in Cell 4 and Cell 6A.

Q.1.7 Condition 15.7(g)

During 2024, it is anticipated that landfilling of waste is scheduled to continue to occur in Phase 3 (Cell 1 and Cell 2), Cell 4, and Cell 6A. Upon completion of the landfill liner system of Cell 6B, it is anticipated that landfilling of waste is scheduled to occur in Cell 6B in 2024. Contaminated soil is anticipated to be disposed in the active portions of the Expansion Landfill. Contaminated soil may also be disposed in Cell 12 of the Existing Landfill, if a large enough demand for disposal of contaminated soil is required. Cell 12 is currently on idle status. Of note, contaminated soil must meet the 10% toxicity characteristic leachate procedure (TCLP) criteria for acceptable disposal into Cell 12.

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 2023, a portion of the Cell 6C pre-excavation activities related to the future construction of the Cell 6C landfill liner system of the Expansion Landfill was initiated.

Q.1.9 Condition 15.7(i)

Cover placement activities during 2023 consisted of temporary topsoil and seed placement on intermediate cover on portions of the southern, eastern, and western sideslopes of Cell 1, as well as on portions of the eastern and western sideslopes of Cell 2. Cell 4 also received intermediate cover placed along portions of the northern, eastern, and western sideslopes during 2023. Portions of Cell 1, Cell 2, and Cell 4 also 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 facilities/infrastructure at Twin Creeks Environmental Centre during 2023 consisted of the following.

- Select stages of the expansion of the horizontal gas extraction system in Cell 4.
- The majority of the Cell 6B landfill liner system of the Expansion Landfill.
- A portion of the Cell 6C pre-excavation activities related to the future construction of the Cell 6C landfill liner system.

Q.1.12 Condition 15.7(l)

Planned Site construction activities in 2024 are anticipated to consist of the following.

- Select stages of the expansion of the horizontal gas extraction system in Cell 4 and Cell 6A.
- Construction of the remainder of the Cell 6B landfill liner system.
- The Cell 6C pre-excavation activities related to the future construction of the Cell 6C landfill liner system.
- Potential resurfacing of select internal paved roads.
- Construction of the Renewable Natural Gas (RNG) Facility and associated additional two (2) landfill gas flares.

There are no surface water stations scheduled to be constructed or established during the 2024 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 Landfill during the survey period from December 21, 2022, to November 30, 2023, was approximately 1,167,658 cubic metres (m^3). This represents approximately 4.4% of the total approved air space volume available for the Existing and Expansion Landfills combined (Existing Landfill: 2,917,371 m^3 + Expansion Landfill: 23,590,629 m^3).

Q.1.14 Condition 15.7(n)

Based on GPS survey data collected at the Site on November 30, 2023, the total volume of waste plus daily cover consumed represents 13,354,911 m^3. It is noted that at approximately 15% cover material, this actual waste volume is approximately 11,351,674 m^3. The total tonnage of waste received at Expansion Landfill to November 30, 2023, was approximately 12,081,457 T. For calculating the remaining Site Life for the Twin Creeks Environmental Centre, the waste represents a density of 1,064 kg/m^3 (12,081,457 T/ 11,351,674 m^3 = 1,064 T/m^3).

As of November 30, 2023, a total of 16,272,282 m^3 (Existing Landfill: 2,917,371 m^3 + Expansion Landfill: 13,354,911 m^3) of air space (without final cap) was consumed of the 26,508,000 m^3 of available air space (without final cap). Therefore, 10,235,718 m^3 is remaining for waste disposal. This calculates that the remaining total approved air space volume available for waste filling is 38.6% of the permitted volume (Existing and Expansion Landfills combined).

Assuming WM will landfill the full amount of the approved 1,400,000 T of waste per year and achieve a waste density of 1,064 kg/m^3, for a resultant volume consumption of 1,315,433 m^3 per year of the remaining airspace of 10,235,718 m^3, then the remaining landfill Site Life is approximately 8 years as calculated below.

$$Site\ Life = \frac{remaining\ air\ space}{waste\ volume\ per\ year} = \frac{10{,}235{,}718\ m^3}{1{,}315{,}433\ {}^{m^3}/_{yr}} = 7.8\ years$$

Q.1.15 Condition 15.7(o)

Between January 1 and December 31, 2023, a total of 70,424.34 m^3 of leachate was managed, of which 61,765.49 m^3 of leachate was removed and transported off-Site for treatment and disposal at the Chatham Water Pollution Control Plant, while 8,658.85 m^3 was irrigated onto the Poplar system during the 2023 growing season. Details regarding the 2023 Poplar System irrigation activities are discussed in **Volume 3** of the 2023 Annual Report.

Of the 70,991.30 m^3 noted above, the approximate breakdown of leachate source location between the Existing Landfill and the Expansion Landfill is 22% (15,470.28 m^3) and 78% (54,954.06 m^3), respectively. This breakdown is based on the leachate source distribution which incorporates the separate approximate volumes of leachate extracted from the Existing Landfill (37% of area) and Expansion Landfill (63% of area) for either off-site disposal of stronger strength leachate (i.e. Expansion Landfill leachate) or storage of weaker strength leachate (i.e. Existing Landfill leachate) for use as irrigation liquid to the Poplar System during the 2023 growing season.

A breakdown of the leachate volume treated in 2023 is presented in **Section 4.1.3 of Volume 1** of the 2023 Annual Report.

Q.1.16 Condition 15.7(p)

Detailed in **Table Q-1** of Volume 2 of the 2023 Annual Report are the weekly summaries and total annual waste disposed at the Site during 2023. Original commodity reports are maintained on file. The maximum daily tonnage received at the Site during 2023 was on July 19th at 8,858.05 tonnes (T). In 2023, the total amount of waste received at the Site was 1,399,049.68 T, of which 154,554.27 T was contaminated soil and 1,366.70 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 2023 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 2023 Annual Report.

In 2023, WM received a total of 24 complaints. Of the complaints received by WM in 2023, one (1) of the complaints addressed two (2) topics (trackout and odour), one (1) of the complaints addressed litter, while the remaining complaints were related to odour. Of the odour complaints received, they represented a total of 20 complaint driven events, which each occurred on separate days. Of these odour events, 11 were documented from discrete physical locations such as a residence or commercial building. The remaining 9 odour events represented transient (drive-by) occurrences in which the complainant observed an odour while in transit along a road near to the Site.

Q.1.18 Condition 15.7(r)

No operational problems were observed during the 2023 monitoring period, other than detailed above for power outages.

Minor cap repairs were undertaken on the Existing Landfill in response to the total hydrocarbon (THC) Surveys completed in the spring and fall of 2023. Follow-up inspections indicated that the repairs were effective and THC was no longer detected at elevated concentrations in those areas. 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 2023 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 February 4, 2023, WM provided financial assurance in a form acceptable to the MECP Director, which by March 31, 2023, was in the amount of $37,164,501.00, with the next scheduled FA posting adjustment occurring by March 31, 2024.

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 2023 monitoring period.

It is noted that the groundwater quality at monitoring well OW69-5 at the Site continued to show elevated boron concentrations in 2023. 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 2023 monitoring well and gas probe installation/decommissioning status summary is provided in **Appendix M** of **Volume 2** of the 2023 Annual Report. For monitoring wells that were active in 2023, 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 2023 Annual Report.

Q.1.21 Condition 15.7(u)

Additional information was requested from WM by the MECP local office. The submitted information is summarized below.

- Odour Abatement Plan, dated January 27, 2023.
- Action items outlined in MECP site inspection, dated May 5, 2023.
    - Actions taken by WM to address observations #2 through #5, submitted on May 10, 2023.
    - Actions taken by WM to evaluate and address observation #1, submitted on June 5, 2023.
- Automobile Shredder Residue (ASR) Abatement Plan, dated July 27, 2023.
- PTTW Condition 4.2 – Work Plan to Investigate the Potential Impacts of the Water Taking Letter, dated December 15, 2023
- TSS Evaluation Letter, dated December 23, 2023.

Q.1.22 Condition 15.7(v)

The Site was operated from January 1 to December 31, 2023, in conformance with the regulatory approvals noted below.

- Amended Environmental Compliance Approval (ECA) No. A032203, dated December 16, 2023. It is noted that during the 2023 calendar year, WM was required to conform to the Amended ECA dated December 19, 2020, then as amended February 4, 2023, and then further amended on December 16, 2023 (Waste ECA).
- Amended ECA for Industrial Sewage Works No. 2403-BE6LZ4, dated August 21, 2019 (Sewage ECA).
- Amended ECA for Air No. 6318-CX4NFX, dated December 13, 2023. It is noted that during the 2023 calendar year, WM was required to conform to Amended ECA for Air No. 4155-BMCLZ8, dated March 3, 2020 and then the Amended ECA for Air No. 6318-CX4NFX, dated December 13, 2023 (Air ECA).
- Permit-To-Take-Water (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 Landfill.
- 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 2023 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. Where action items were required, they were addressed by WM. Inspections of the watercourses during each precipitation monitoring event (typically after ≥ 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 semi-annual inspections, within the timeframe of October 2022 to September 2023, are summarized in the MECP Inspection Reports in **Appendix N** of Volume 2 of the 2023 Annual Report. It is noted that the semi-annual MECP inspection report for the timeframe of October 2023 to March 2024, will be provided by the MECP in April 2024.

Q.1.24 Condition 15.7(x)

During 2023, WM collected 49.04 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	1.05
February	0.98
March	0.86
April	9.81
May	3.17
June	1.24
July	10.80
August	1.54
September	4.52
October	4.71
November	0.78
December	9.59
Total	**49.04**

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 2023.

Q.1.25 Condition 15.7(y)

No changes in operations, equipment, or procedures were implemented at the Site during 2023 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 2023.

Q.1.26 Condition 15.7(z)

No recommended changes are proposed for the operations of the Site in 2024, with the exception of the implementation of the infrastructure noted in **Section Q.1.12**.

Q.2 AMENDED AIR ENVIRONMENTAL COMPLIANCE APPROVAL NO. 4155-BMCLZ8 AND THEN AMENDED TO NO. 6318-CX4NFX

Although the flare became operational on November 18, 2009, the flare was unable to run for more than 4 consecutive months until February 2010, due to the limited gas volume generated from the Existing Landfill. The Expansion Landfill 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 2023 the early vertical gas extraction wells were installed progressively through Cell 2A through 6A, with Cell 2A through 4C 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 is a summary of the annual performance reporting per the Amended Air ECA No. 4155-BMCLZ8, dated March 3, 2020. It is noted that this Air ECA was the dominant Air-related regulatory document for reporting purposes during 2023 as this Air ECA was amended in the last month of 2023 on December 13, 2023 as Air ECA No. 6318-CX4NFX. Beginning in 2024, the Air ECA summary of compliance as presented in the following subsections will address the Condition structure of Air ECA No. 6318-CX4NFX, dated December 2023.

Q.2.1 Condition 1

The third enclosed flare system of the Gas Facility was not scheduled for installation in 2023 and therefore, notification to the MECP District Manager one (1) month prior to the expected date of installation was not required in 2023.

Q.2.2 Condition 2.1

Noise emissions from the Gas Facility are detailed in Volume 5 of the 2023 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 MECP 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. An acoustic audit was also completed across the dates of August 25, August 26, and December 13, 2022, in consideration of the landfill entering Phase 6 of construction.

These audits were completed to satisfy Condition 4.1 of the Amended Environmental Compliance Approval number 4155-BMCLZ8 dated March 3, 2020. 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 6.1 to 6.11

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 7.1 to 7.5

No complaints were received by WM during 2023 related to the Gas Facility.

Q.2.9 Conditions 8.1 to 8.4

The Amended Air ECA No. 6318-CX4NFX, dated December 13, 2023 for the Site was submitted to WM, by the MECP on December 13, 2023.

Q.2.10 Conditions 9.1 and 11

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 2023.

Q.3 PERMIT TO TAKE WATER NO. 4682-BLJRYJ

Reporting of 2023 water takings is required to be completed for Sedimentation Ponds 1 to 4 and the SDL per PTTW No. 4682-BLJRYJ, dated November 8, 2021. The water taking information collated for 2023 is submitted electronically to the Water Taking Registry System (WTRS) by March 31 following each calendar period. In 2023, water that was taken from the aforementioned ponds was used mainly for dust control for Cell 6B pre-excavation and construction activities. The water taking volumes in 2023 at the Site satisfied the PTTW requirements and are summarized in **Section 11** of Volume 1 of the 2023 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, 2023, in conformance with the regulatory documents noted below.

- Amended Environmental Compliance Approval (ECA) No. A032203, dated December 16, 2023. It is noted that during the 2023 calendar year, WM was required to conform to the Amended ECA dated December 19, 2020, then as amended on February 4, 2023, and then further amended on December 16, 2023 (Waste ECA).
- Amended ECA for Industrial Sewage Works No. 2403-BE6LZ4, dated August 21, 2019 (Sewage ECA).
- Amended ECA for Air No. 6318-CX4NFX, dated December 13, 2023. It is noted that during the 2023 calendar year, WM was required to conform to Amended ECA for Air No. 4155-BMCLZ8, dated March 3, 2020 and then the Amended ECA for Air No. 6318-CX4NFX, dated December 13, 2023 (Air ECA)..
- Permit-To-Take-Water (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 Landfill.
- 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 2023 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 2023 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 2023 reporting period.

TABLES

Table Q-1
Weekly Waste Tonnage - Twin Creeks Environmental Centre **Calendar Year 2023**

Week Start		Week End		Total Metric (tonnes)	MSW (tonnes)	Contaminated Soil	Warwick Residents (tonnes)
January	1	January	8	19,346.19	19,022.52	299.41	24.26
January	9	January	15	22,708.89	22,388.60	296.02	24.27
January	16	January	22	21,381.74	21,244.67	111.70	25.37
January	23	January	29	19,881.30	19,859.72	0.00	21.58
January	30	January	31	7,361.24	7,359.05	0.00	2.19
February	1	February	5	12,695.04	12,679.32	0.00	15.72
February	6	February	12	25,645.44	24,658.64	960.26	26.54
February	13	February	19	26,849.80	24,694.68	2,133.44	21.68
February	20	February	26	18,334.77	17,964.67	345.35	24.75
February	27	February	28	9,892.14	9,464.84	424.70	2.60
March	1	March	5	14,294.90	14,233.56	41.05	20.29
March	6	March	12	23,437.54	23,392.11	23.04	22.39
March	13	March	19	22,884.61	22,701.33	162.15	21.13
March	20	March	26	26,197.51	25,670.78	503.03	23.70
March	27	March	31	26,002.16	24,510.25	1,470.82	21.09
April	1	April	2	541.28	541.28	0.00	0.00
April	3	April	9	24,124.04	22,542.74	1,552.89	28.41
April	10	April	16	27,608.24	27,165.58	415.37	27.29
April	17	April	23	27,584.18	27,523.09	34.80	26.29
April	24	April	30	28,297.89	28,275.04	0.00	22.85
May	1	May	7	28,634.42	28,607.04	0.00	27.38
May	8	May	14	30,141.91	28,752.95	1,360.14	28.82
May	15	May	21	28,853.75	26,474.67	2,352.90	26.18
May	22	May	28	24,717.30	24,274.19	414.79	28.32
May	29	May	31	15,445.43	15,318.49	110.90	16.04
June	1	June	4	11,050.32	10,932.35	107.39	10.58
June	5	June	11	31,131.27	28,880.87	2,224.81	25.59
June	12	June	18	34,180.58	28,081.76	6,074.10	24.72
June	19	June	25	37,223.60	27,917.38	9,281.59	24.63
June	26	June	30	30,442.90	26,741.76	3,677.12	24.02
July	1	July	2	0.00	0.00	0.00	0.00
July	3	July	9	29,540.86	25,579.48	3,936.88	24.50
July	10	July	16	36,868.02	30,514.58	6,326.06	27.38
July	17	July	23	40,376.40	31,277.07	9,074.34	24.99
July	24	July	30	36,470.90	28,557.44	7,882.74	30.72
July	31	July	31	7,120.74	5,712.10	1,405.55	3.09
August	1	August	6	31,149.72	24,089.83	7,038.84	21.05
August	7	August	13	30,531.82	24,492.16	6,010.15	29.51
August	14	August	20	33,437.44	27,142.27	6,267.77	27.40
August	21	August	27	34,067.75	26,579.21	7,463.02	25.52
August	28	August	31	28,925.73	22,787.64	6,096.34	41.75
September	1	September	3	7,229.97	5,719.51	1,510.46	0.00
September	4	September	10	28,291.01	22,774.78	5,484.01	32.22
September	11	September	17	35,843.10	27,002.95	8,796.57	43.58
September	18	September	24	36,771.18	25,214.80	11,536.12	20.26
September	25	September	30	31,370.17	23,211.15	8,133.91	25.11
October	1	October	8	26,415.28	22,540.91	3,849.81	24.56
October	9	October	15	20,501.08	18,118.62	2,356.90	25.56
October	16	October	22	21,594.21	20,989.03	574.18	31.00
October	23	October	29	18,075.14	18,038.22	0.00	36.92
October	30	October	31	6,881.32	6,878.28	0.00	3.04
November	1	November	5	11,170.99	11,146.88	0.00	24.11
November	6	November	12	24,419.89	18,111.04	6,281.20	27.65
November	13	November	19	19,753.63	19,375.09	354.61	23.93
November	20	November	26	19,925.79	19,861.81	36.57	27.41
November	27	November	30	16,363.48	16,339.95	0.00	23.53
December	1	December	3	5,029.04	4,503.32	525.72	0.00
December	4	December	10	23,386.83	20,051.26	3,306.24	29.33
December	11	December	17	24,875.73	21,777.37	3,075.94	22.42
December	18	December	24	24,708.48	22,245.54	2,436.56	26.38
December	25	December	31	12,430.30	11,989.19	416.01	25.10
			Totals	**1,399,049.68**	**1,244,495.41**	**154,554.27**	**1,366.70**

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
Air Quality:	**Design and Operation**		
Dust	►	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
	Other Measures		
	►	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
	Monitoring		
	►	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
Air Quality: *Vehicle Emissions*	**Design and Operation**		
		No mitigation measures are required.	
	Additional Measures		
	►	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
		▪ Report vehicles that appear to be gross polluters.	On-going operations procedure
Air Quality: *Landfill Gas*	**Design and Operation**		
	►	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
	Monitoring		
	►	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
	►	An annual monitoring program for volatile organic compounds at the property line during the worst-case, summer conditions.	Completed
Air Quality: *Combustion* *Emissions Landfill Gas Flare*	**Design and Operation**		
	►	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 though the collection system during an upset condition. This control system would minimize potential adverse effects associated with a flare out situation.	Completed
		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
Air Quality: *Odour*	**Design and Operation**		
	►	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: *Odour (Cont'd)*	**Monitoring**		
	►	Develop a monitoring plan, which may include: ▪ outlining landfill cover inspection intervals. ▪ methods of recording odour complaints. ▪ log of mitigation work completed.	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
Air Quality: *Blowing Litter*	**Design and Operation**		
	►	Recommended components of Litter Management Plan for consideration:	
		Install portable litter fences that can be moved around the working face area to capture blowing litter on a day-to-day basis. Install permanent litter fences, downwind of the new proposed phases to capture the blowing litter for the predominant wind directions. 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.	Completed Completed On-going operations procedure
	►	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.	On-going operations procedure
Agriculture	**Design and Operations**		
	►	During design phase of road alterations, consider agricultural traffic moving along the shoulders of the roadway, avoiding design features that affect this equipment travel.	Completed
	Monitoring		
	►	Monitor groundwater, wells and surface water for leachate contamination, on an on-going basis.	On-going
	►	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
	Contingency		
	►	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.	Will be implemented if required
	►	Any tile drainage impacts or disruption of drainage outlets can be mitigated by installation of new drainage works.	Will be implemented if required
Archaeology and Heritage	**Design and Operations**		
	Archealogy		
	►	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.	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
Economics: *Community Economics: Impact*	**Other Measures**		
	►	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
Hydrogeology	**Design and Operations**		
	►	None required beyond the mitigation built into site design components.	Completed
	Monitoring and Contingency		
	►	Pumping of Secondary Drainage Layer with treatment of water prior to disposal.	Completed as required
	►	A full Environmental Monitoring and Contingency Plan will be prepared.	Completed
Landfill Gas: Explosive Hazard	**Design and Operations**		
	►	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
	Monitoring		
	►	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
	Contingency		
	►	A full inspection and monitoring plan will be prepared.	Completed
Land Use Planning	**Design and Operations**		
	►	None required.	
	Other Measures		
	►	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
Natural Environment and Resources	**Design and Operation**		
	►	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, 2017, and 2022.
	►	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
	Monitoring		
	►	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.
	Contingency		
	►	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	**Design and Operation**		
	►	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
	Other Measures		
	►	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	**Impact Management Recommendations:**		
	►	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	**Design and Operation**		
	►	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
	Other Measures		
	►	Reduce speed limit along County Road 79 from just south of Zion Line, southward to Watford.	Completed
Visual	**Design and Operation**		
	A)	*Landfill and Site*	
		▪ 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 reflectio	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)*	*Landscape*	
		▪ extend large caliper tree planting (±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
	Monitoring		
	►	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
	Contingency Plans		
	►	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
Landfill Operations	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
Stormwater Management	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
Groundwater	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
Leachate Treatment	Leachate monitoring program to determine any effects on water quality in Bear Creek.	Direct discharge not applicable. Monitoring on-going
Air Quality	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: ▪ outlining landfill cover inspection intervals. ▪ methods of recording odour complaints. ▪ log of mitigation work completed.	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
Litter	Routine monitoring and retrieving escaped litter.	On-going operations procedure
Gas	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
Agriculture	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
Visual	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
Leachate-Impacted Groundwater	► 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.
Contaminated Stormwater	► 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.
Emergency Spill Response-Waste Truck on Public Road	► 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.
Emergency Spill Response-Liquids on Public Road	► 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

LEGEND – EXISTING :

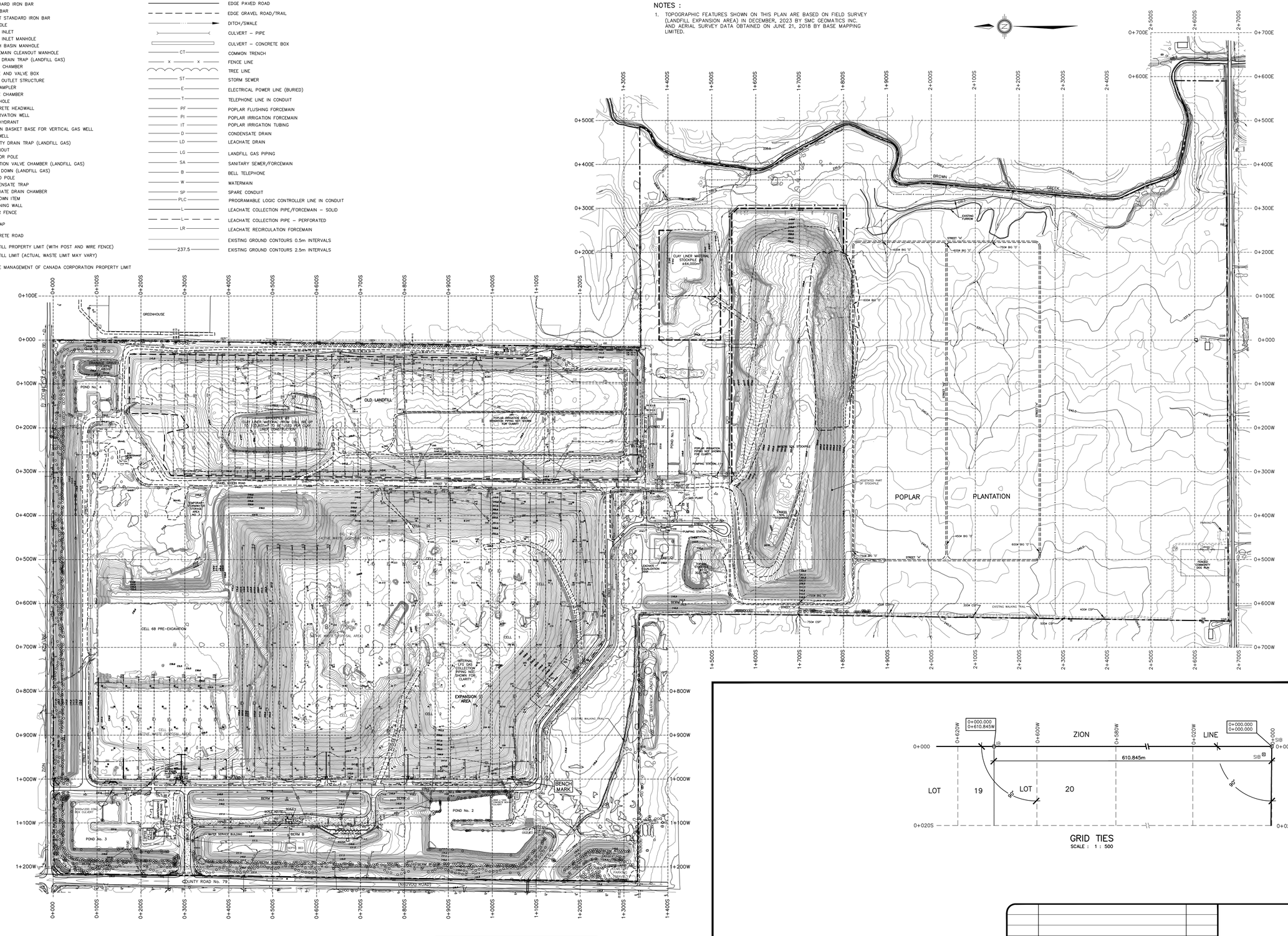
(APPLICABLE TO 1:750 SCALE DRAWINGS)

SIB	STANDARD IRON BAR
IB	IRON BAR
SSIB	SHORT STANDARD IRON BAR
MH18	MANHOLE
DI–5	DITCH INLET
DIMH1	DITCH INLET MANHOLE
CBMH2	CATCH BASIN MANHOLE
COMH4	FORCEMAIN CLEANOUT MANHOLE
PDT#1	PUMP DRAIN TRAP (LANDFILL GAS)
DC5	DRAIN CHAMBER
	VALVE AND VALVE BOX
OS3#1	POND OUTLET STRUCTURE
AS2	AIR SAMPLER
VC3	VALVE CHAMBER
HH4	HANDHOLE
	CONCRETE HEADWALL
OW6–12	OBSERVATION WELL
FH	FIRE HYDRANT
100	GABION BASKET BASE FOR VERTICAL GAS WELL
GW4/12	GAS WELL
GDT4	GRAVITY DRAIN TRAP (LANDFILL GAS)
CO	CLEANOUT
AP	ANCHOR POLE
IVC01	ISOLATION VALVE CHAMBER (LANDFILL GAS)
BD1	BLOW DOWN (LANDFILL GAS)
HP/P01	HYDRO POLE
CDT3	CONDENSATE TRAP
DC16	LEACHATE DRAIN CHAMBER
UN	UNKNOWN ITEM
RTW	RETAINING WALL
	LITTER FENCE
	RIP RAP
	CONCRETE ROAD
	LANDFILL PROPERTY LIMIT (WITH POST AND WIRE FENCE)
	LANDFILL LIMIT (ACTUAL WASTE LIMIT MAY VARY)
	WASTE MANAGEMENT OF CANADA CORPORATION PROPERTY LIMIT

	EDGE PAVED ROAD
	EDGE GRAVEL ROAD/TRAIL
	DITCH/SWALE
	CULVERT – PIPE
	CULVERT – CONCRETE BOX
CT	COMMON TRENCH
x x	FENCE LINE
	TREE LINE
ST	STORM SEWER
E	ELECTRICAL POWER LINE (BURIED)
T	TELEPHONE LINE IN CONDUIT
PF	POPLAR FLUSHING FORCEMAIN
PI	POPLAR IRRIGATION FORCEMAIN
IT	POPLAR IRRIGATION TUBING
D	CONDENSATE DRAIN
LD	LEACHATE DRAIN
LG	LANDFILL GAS PIPING
SA	SANITARY SEWER/FORCEMAIN
B	BELL TELEPHONE
W	WATERMAIN
SP	SPARE CONDUIT
PLC	PROGRAMABLE LOGIC CONTROLLER LINE IN CONDUIT
L	LEACHATE COLLECTION PIPE/FORCEMAIN – SOLID
L	LEACHATE COLLECTION PIPE – PERFORATED
LR	LEACHATE RECIRCULATION FORCEMAIN
	EXISTING GROUND CONTOURS 0.5m INTERVALS
237.5	EXISTING GROUND CONTOURS 2.5m INTERVALS

NOTES :

1. TOPOGRAPHIC FEATURES SHOWN ON THIS PLAN ARE BASED ON FIELD SURVEY (LANDFILL EXPANSION AREA) IN DECEMBER, 2023 BY SMC GEOMATICS INC. AND AERIAL SURVEY DATA OBTAINED ON JUNE 21, 2018 BY BASE MAPPING LIMITED.



SCALE : 1:4000

0 100 200 300m

B.M. ELEV. 235.571
CUT CROSS ON TOP OF VFMC2 – CONTROL POINT #108
AT GRID POINT 1+046.185, 0+999.75W

GRID TIES
SCALE : 1 : 500

DATE	DESCRIPTION	
01/25/24	ISSUED FOR REPORTING	C.O.R
	REVISION / ISSUE	

Seal not valid unless signed & dated

WSP
55 KING STREET, SUITE 700
ST CATHARINES (ONTARIO) CANADA L2R 3H5
TEL.: 905-687-1771 | WWW.WSP.COM

DECEMBER 2023
EXISTING CONDITIONS PLAN

TWIN CREEKS ENVIRONMENTAL CENTRE
WARWICK TOWNSHIP

DWN BY: W S
CHK BY: C O R

DATE: JANUARY 2024
SCALE: SEE BAR SCALE

WASTE MANAGEMENT OF CANADA CORP.

DRAWING NO. 106716U - 801

DRAWING
801

S:\Clients\Waste_Management\1Twin_Creeks_Landfill\09_PRO\2110167801_RNG_Civil_Work\40_PRO\0000_Other_Work\106716U-801 DECEMBER 2023 EXISTING CONDITIONS.dwg Jan 25, 2024 - 12:00pm

APPENDIX R:

2023 Annual Sewage Works Performance Report

APPENDIX R

2023 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)

It is noted that the Leachate Treatment Facility was not constructed or operational in 2023. Therefore, there is no requirement to assess against the effluent objectives as noted in the Sewage ECA.

R.2 CONDITION 12(3) (B)

For the relevant Works outlined in the Sewage ECA, a summary of the surface water monitoring completed in 2023 and a detailed interpretation of the relevant monitoring results, including a comparison to relevant trigger limits (trigger concentrations), is provided in **Sections 2.4 and 5.3** of Volume 1 of the 2023 Fourth Quarter and Annual Monitoring Report (2023 Annual Report). The Works were effective in managing surface water at the Site during 2023 (overview provided in **Section 5.3.6** of Volume 1 of the 2023 Annual Report).

R.3 CONDITION 12(3) (C)

There were no operational problems related to the Sewage Works during 2023.

R.4 CONDITION 12(3) (D)

Maintenance on major structure, equipment, apparatus, mechanism, or thing forming part of the Sewage Works was not required in 2023.

R.5 CONDITION 12(3) (E)

As detailed in **Section R.1**, the on-Site Leachate Treatment Facility did not require to be constructed in 2023 and therefore, did not operate during 2023. As such, no quality assurance or quality control (QA/QC) measures with respect to the Leachate Treatment Facility were required in 2023.

R.6 CONDITION 12(3) (F)

As discussed, the Leachate Treatment Facility was not constructed in 2023. Therefore, there was no Leachate Treatment Facility effluent monitoring equipment to calibrate or service.

R.7 CONDITION 12(3) (G)

As discussed, the Leachate Treatment Facility was not constructed in 2023 and therefore, no dry salt cake was generated in 2023.

R.8 CONDITION 12(3) (H)

No complaints were received during 2023 related to the Sewage Works.

R.9 CONDITION 12(3) (I)

Additional information was requested from WM by the MECP local office. The submitted information is summarized below.

- Action items outlined in MECP site inspection, dated May 5, 2023.
    - Actions taken by WM to address observations #2 through #5, submitted to MECP by WM on May 10, 2023.
- TSS Evaluation Letter, dated December 23, 2023.

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.

Monitoring Report and Site Information	
Waste Disposal Site Name	Twin Creeks Environmental Centre
Location (e.g. street address, lot, concession)	5768 Nauvoo Road (Watford)
GPS Location (taken within the property boundary at front gate/ front entry)	NAD 83: Zone 17, 428350E, 4758780N
Municipality	Township of Warwick, County of Lambton
Client and/or Site Owner	Waste Management of Canada Corporation
Monitoring Period (Year)	2023
This Monitoring Report is being submitted under the following:	
Certificate of Approval No.:	Waste ECA No. A032203; Sewage ECA No. 2403-BE6LZ4
Director's Order No.:	
Provincial Officer's Order No.:	
Other:	

Report Submission Frequency	○ **Annual** ◉ **Other**	Specify (Type Here): Quarterly and Annual Reports
The site is:	◉ **Active** ○ **Inactive** ○ **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?	○ **Yes** ◉ **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)	○ Yes ◉ 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:	◉ **Yes** ○ **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):	◉ **Yes** ○ **No** ○ **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.	○ **Yes** ◉ **No** ○ **Not Applicable**	
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:	○ **Yes** ○ **No** ◉ **Not Applicable**	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):	◉ **Yes** ○ **No**	

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

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.	◉ **Yes** ○ **No**		
6) The site meets compliance and assessment criteria.	◉ **Yes** ○ **No**	Refer to Section 5.2.3 of the 2023 Fourth Quarter and Annual Monitoring Report.	
7) The site continues to perform as anticipated. There have been no unusual trends/ changes in measured leachate and groundwater levels or concentrations.	◉ **Yes** ○ **No**		
1) Is one or more of the following risk reduction practices in place at the site: ***(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** ***(b)*** **There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or** ***(c)*** **The site meets the following two conditions (typically achieved after 15 years or longer of site operation):** ***i.*** **The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and** ***ii.*** **Seasonal and annual water levels and water quality fluctuations are well understood.**	◉ **Yes** ○ **No**	**Note which practice(s):**	☒ **(a)** ☐ **(b)** ☐ **(c)**
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	○ **Yes** ◉ **No** ○ **Not Applicable**	Refer to Section 6.2.3 of the 2023 Fourth Quarter and Annual Monitoring Report.	

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:**	

Name:	Brent J. Langille		
Seal:			
Signature:		**Date:**	**2024/02/20**
CEP Contact Information:	Brent J. Langille		
Company:	RWDI AIR Inc.		
Address:	4510 Rhodes Drive, Suite 530, Windsor, ON N8W 5K5		
Telephone No.:	(519) 823-1311	Fax No. :	(519) 823-1316
E-mail Address:	Brent.Langille@rwdi.com		
Co-signers for additional expertise provided:			
Signature:		**Date:**	
Signature:		**Date:**	

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:	(●) Yes ( ) 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):	(●) Yes ( ) No ( ) **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
SS16	Could not be sampled in Q3 of 2023 as insufficient flow was observed for sample collection.	Q3

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.	○ **Yes** ◉ **No** ○ **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:	○ **Yes** ○ **No** ◉ **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):	◉ **Yes** ○ **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 2023 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)?	◉ **Yes** ○ **No**	Section 5.3 of Volume 1 of the 2023 Fourth Quarter and Annual Monitoring Report summarizes the surface water monitoring findings.

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.	○ **Yes** ◉ **No**	Refer to Section 5.3 of Volume 1 of the 2023 Fourth Quarter and Annual Monitoring Report.
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)):	◉ Yes ○ No ○ Not Known ○ Not Applicable	Groundwater quality naturally exceeds select surface water trigger concentrations.
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	○ **Yes** ◉ **No** ○ **Not Applicable**	Refer to Section 5.3 of the 2023 Fourth Quarter and Annual Monitoring Report. Trigger concentration exceedances were noted in Q1 (at SS1), Q2 (at SS1 and SP2), and Q3 (SS1 and SP2).

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:

◉ **No Changes to the monitoring program are recommended** ○ **The following change(s) to the monitoring program is/are recommended:**	
◉ **No changes to the site design and operation are recommended** ○ **The following change(s) to the site design and operation is/are recommended:**	

CEP Signature	
Relevant Discipline	Geology
Date:	2024/02/20
CEP Contact Information:	Brent J. Langille
Company:	RWDI AIR Inc.
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Save As	**Print Form**