

Englobe

Project No. P0013610.201

DRAWING No. BH25

Project: Geotechnical and Environmental Investigation - Yonge Street

Sheet No. 1 of 1

Location: Yonge Street, About 35 m North of Wellesley Street East, Northbound Curb Lane, 2.0 m West of East

CurbDate Drilled: 6/27/2019Drill Type: Soild Stem AugerDatum: Assumed

Split Spoon Sample



Auger Sample



SPT (N) Value



Dynamic Cone Test



Shelby Tube



Shear Strength by



Natural Moisture Content



Atterberg Limits



Undrained Triaxial at



% Strain at Failure



Shear Strength by Direct Shear Test

[illegible]

CLASSIFICATION LOG P0013610.201_BOREHOLE LOGS - RV1.GPJ LOG A GWGL02.GDT 11/27/20

Checked By: S. Ganesh

Logged By: P. Jin

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

LOG OF BOREHOLE No. BH26

Englobe

Project No. P0013610.201

DRAWING No. BH26

Project: Geotechnical and Environmental Investigation - Yonge Street

Sheet No. 1 of 1

Location: Yonge Street, About 55 m North of Irwin Avenue, Southbound Curb Lane, 1.0 m East of West Curb

Date Drilled: 6/27/2019

Drill Type: Soild Stem Auger

Datum: Assumed

Split Spoon Sample



Auger Sample



SPT (N) Value



Dynamic Cone Test



Shelby Tube



Shear Strength by

Vane Test



Natural Moisture Content



Atterberg Limits



Undrained Triaxial at

% Strain at Failure



Shear Strength by

Penetrometer Test



GWL	SYMBOL	SOIL DESCRIPTION	ELEV. m	DEPTH m	Standard Penetration Test N Value		Natural Moisture Content % Atterberg Limits (% Dry Weight)	SAMPLING METHOD	Soil Type	Natural Unit Weight kN/m ³	Percent of Fines, %
					40	80	120	160			
		ASPHALT CONCRETE (95 mm)	0.1	0							
		PORTLAND CEMENT CONCRETE (165 mm)	0.3								
		FILL, Crushed Granular: trace silt, trace clay, brown, moist									
			0.9								
		FILL, Sand: brown, moist, loose		1							
			1.2								
		FILL, Clayey Silt: brown, moist, loose									
			1.7								
		FILL, Sandy Clayey Silt: trace gravel, brown, moist, compact		2							
			2.3								
		TILL, Clayey Silty Till: trace sand, trace gravel, brown, compact									
				3							
			4.6								
		SILTY CLAY: grey, moist, very stiff		5							
			5.5								
		Terminated at 5.5 m									
		Borehole advanced using continuous flight solid stem augering equipment on June 27, 2019 by Malone's Soil Samples Ltd.									
		No water was encountered upon completion.									

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

CLASSIFICATION LOG P0013610.201_BOREHOLE LOGS - RV1.GPJ LOG A GWGL02.GDT 11/27/20

Checked By: S. Ganesh
Logged By: P. Jin

LOG OF BOREHOLE No. BH27

Englobe

Project No. P0013610.201

DRAWING No. BH27

Project: Geotechnical and Environmental Investigation - Yonge Street

Sheet No. 1 of 1

Location: Yonge Street, About 35 m North of Charles Street West, Northbound Curb Lane, 1.5 m West of East

Curb

Date Drilled: 6/27/2019

Drill Type: Soild Stem Auger

Datum: Assumed

Split Spoon Sample



Auger Sample



SPT (N) Value



Dynamic Cone Test



Shelby Tube



Shear Strength by

Vane Test



Natural Moisture Content



Atterberg Limits



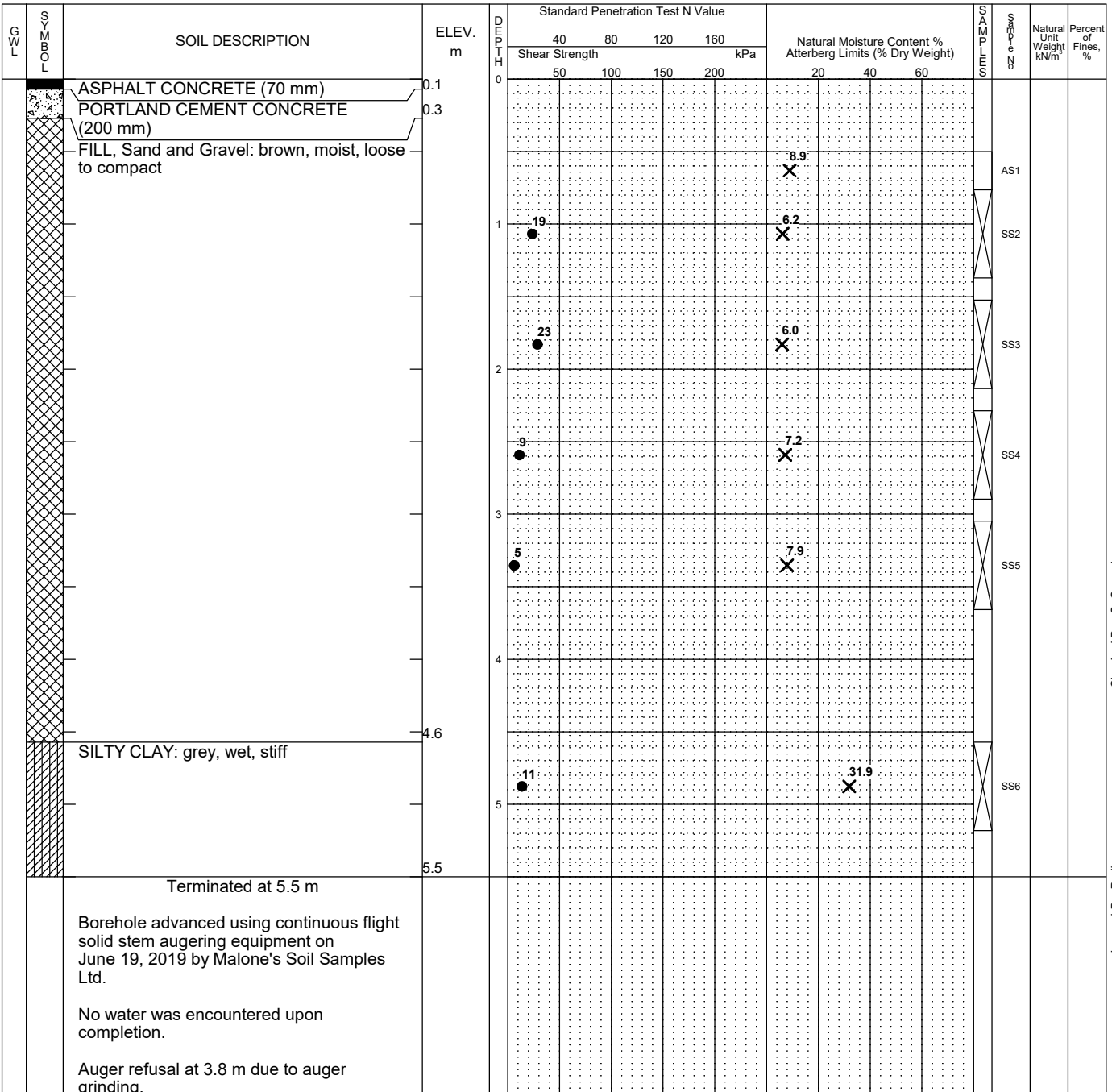
Undrained Triaxial at

% Strain at Failure



Shear Strength by

Penetrometer Test



CLASSIFICATION LOG P0013610.201_BOREHOLE LOGS - RV1.GPJ LOG A GWGL02.GDT 11/27/20

Checked By: S. Ganesh

Logged By: P. Jin

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

LOG OF BOREHOLE No. BH28

Englobe

Project No. P0013610.201

DRAWING No. BH28

Project: Geotechnical and Environmental Investigation - Yonge Street

Sheet No. 1 of 1

Location: Yonge Street, About 5 m North of Cumberland Street, Southbound Curb Lane, 2.0 m East of West

Curb

Date Drilled: 6/27/2019

Drill Type: Soild Stem Auger

Datum: Assumed

Split Spoon Sample



Auger Sample



SPT (N) Value



Dynamic Cone Test



Shelby Tube



Shear Strength by



Vane Test

Natural Moisture Content



Atterberg Limits



Undrained Triaxial at



% Strain at Failure



Shear Strength by



Penetrometer Test

15

10



GWL	SYMBOL	SOIL DESCRIPTION	ELEV. m	DEPTH m	Standard Penetration Test N Value				Natural Moisture Content %			SAMPLES	Soil Type	Natural Unit Weight kN/m ³	Percent of Fines, %	
					Shear Strength				Atterberg Limits (% Dry Weight)							
					40	80	120	160	20 40 60							
		ASPHALT CONCRETE (85 mm)	0.1	0												
		PORTLAND CEMENT CONCRETE (215 mm)	0.3													
		FILL, Sand and Gravel: brown, moist, very loose to loose														

Checked By: S. Ganesh

Logged By: P. Jin

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

CLASSIFICATION LOG P0013610.201_BOREHOLE LOGS - RV1.GPJ LOG A GWGL02.GDT 11/27/20

Englobe

Project No. P0013610.201

DRAWING No. BH29

Project: Geotechnical and Environmental Investigation - Yonge Street

Sheet No. 1 of 1

Location: Yonge Street, About 35 m South of Davenport Road, Northbound Curb Lane, 2.0 m West of East

CurbDate Drilled: 6/27/2019Drill Type: Soild Stem AugerDatum: Assumed

Split Spoon Sample



Auger Sample



SPT (N) Value



Dynamic Cone Test



Shelby Tube



Shear Strength by

Natural Moisture Content



Atterberg Limits



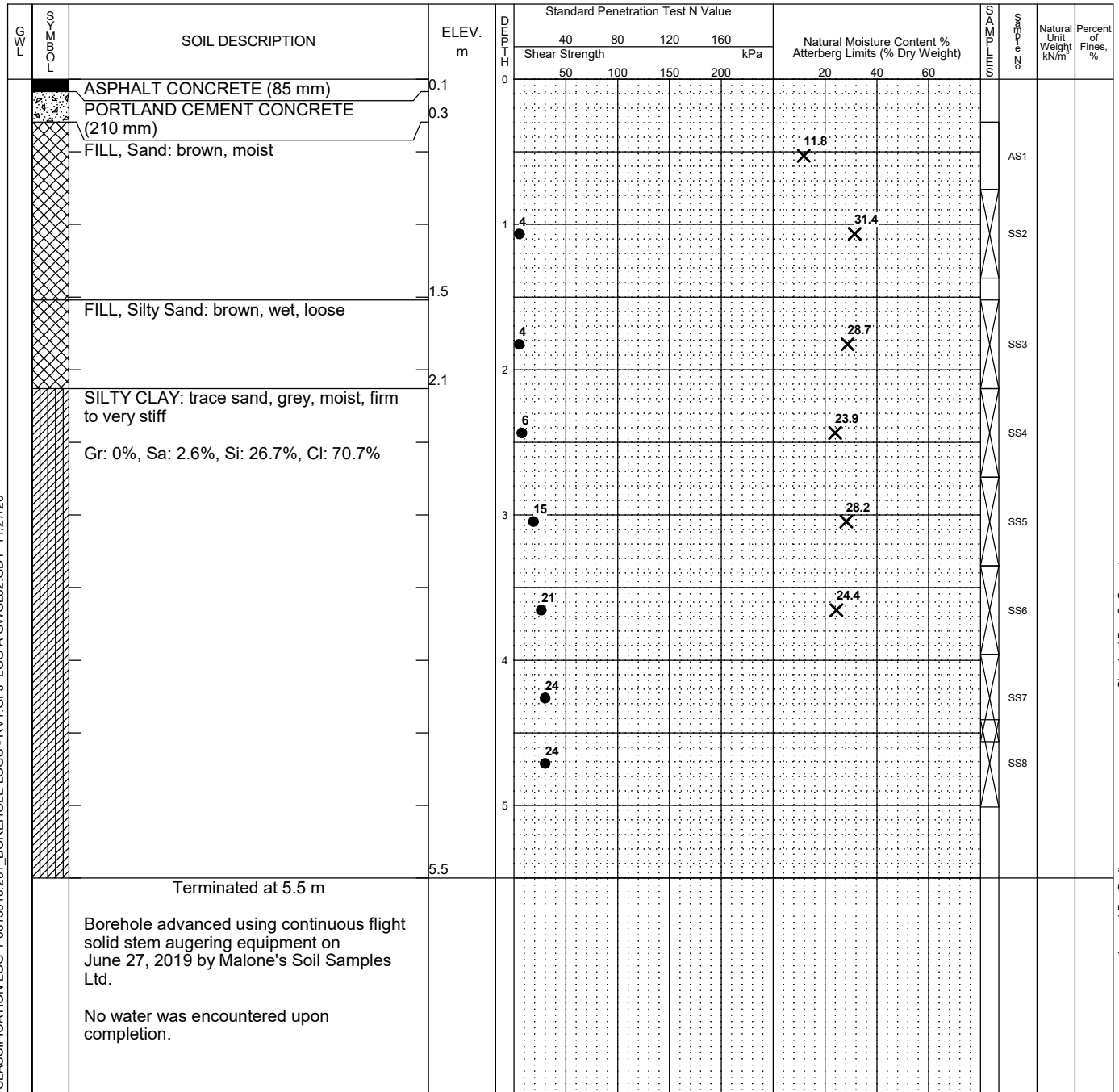
Undrained Triaxial at



% Strain at Failure



Shear Strength by Penetrometer Test



CLASSIFICATION LOG P0013610.201_BOREHOLE LOGS - RV1.GPJ LOG A GWGL02.GDT 11/27/20

Checked By: S. Ganesh

Logged By: P. Jin

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

LOG OF BOREHOLE No. BH30

Englobe

Project No. P0013610.201

DRAWING No. BH30

Project: Geotechnical and Environmental Investigation - Yonge Street

Sheet No. 1 of 1

Location: Yonge Street, About 52 m South of Dundas Square, Southbound Curb Lane, 1.4 m East of West

Curb

Date Drilled: 2/10/2020

Drill Type: Hang Auger

Datum: Assumed

Split Spoon Sample ☒

Auger Sample ☐

SPT (N) Value ☐

Dynamic Cone Test ☐

Shelby Tube ☐

Shear Strength by Vane Test ☒

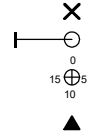
Natural Moisture Content ☒

Atterberg Limits ☒

Undrained Triaxial at ☐

% Strain at Failure ☐

Shear Strength by Penetrometer Test ☒



GWL	SYMBOL	SOIL DESCRIPTION	ELEV. m	DEPTH m	Standard Penetration Test N Value				Natural Moisture Content %			SAMPLING	Soil Type	Natural Unit Weight kN/m ³	Percent of Fines, %
					Shear Strength				Atterberg Limits (% Dry Weight)						
					40	80	120	160							
		ASPHALT CONCRETE (70 mm)	0.1	0									AS1		
		PORTLAND CEMENT CONCRETE (230 mm)													
		FILL, Crushed Granular: brown, moist	0.3										AS1		
			0.7										AS2		
		FILL, Gravelly Sand: trace silt, trace clay, brown, moist													
		Gr: 22.3%, Sa: 69.7%, Si: 5.7%, Cl: 2.3%	0.9										AS2		
		Terminated at 0.9 m													
		Borehole advanced using hand augering on October 2, 2020 by Englobe drilling crew.													
		No water was encountered upon completion.													

CLASSIFICATION LOG P0013610.201_BOREHOLE LOGS - RV1.GPJ LOG A GWGL02.GDT 11/27/20

Checked By: S. Ganesh

Logged By: P. Jin

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

Englobe

Location: Yonge Street, About 35 m South of Walton Street, Southbound Curb Lane, 4.5 m East of West Curb

▲

[illegible]

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

LOG OF BOREHOLE No. BH32

Englobe

Project No. P0013610.201

DRAWING No. BH32

Project: Geotechnical and Environmental Investigation - Yonge Street

Sheet No. 1 of 1

Location: Yonge Street, About 108 m South of College Street, Southbound Curb Lane, 3.2 m West of Median

Curb

Date Drilled: 2/10/2020

Drill Type: Hang Auger

Datum: Assumed

Split Spoon Sample ☒

Auger Sample ☐

SPT (N) Value ☐

Dynamic Cone Test ☐

Shelby Tube ☐

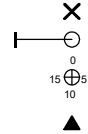
Shear Strength by Vane Test ☐

Natural Moisture Content ☒

Atterberg Limits ☐

Undrained Triaxial at % Strain at Failure ☐

Shear Strength by Penetrometer Test ☐



GWL	SYMBOL	SOIL DESCRIPTION	ELEV. m	DEPTH m	Standard Penetration Test N Value				Natural Moisture Content % Atterberg Limits (% Dry Weight)			SAMPLE NO.	Soil Type	Natural Unit Weight kN/m ³	Percent of Fines, %	
					Shear Strength											
					40	80	120	160	kPa							
					50	100	150	200		20	40	60				
		ASPHALT CONCRETE (95 mm)	0.1													
		PORTLAND CEMENT CONCRETE (210 mm)	0.3													
		FILL, Crushed Granular: brown, moist	0.7													
		FILL, Gravelly Sand: brown, moist	0.9							8.8 X						
		Terminated at 0.9 m														
		Borehole advanced using hand augering on October 2, 2020 by Englobe drilling crew.														
		No water was encountered upon completion.														

Time	Water Level (m)	Depth to Cave (m)

Checked By: S. Ganesh

Logged By: P. Jin

CLASSIFICATION LOG P0013610.201_BOREHOLE LOGS - RV1.GPJ LOG A GWGL02.GDT 11/27/20

Toronto Transit
Commission
SHEET 1 of 4
DATUM Geodetic

[illegible]

LOGGED : QC
CHECKED : TY

Toronto Transit
Commission
SHEET 2 of 4
DATUM Geodetic

TTC OVERBURDEN P-0012504-0-20-TTC-COLLEGE STATION.GPJ TTC GDT 22/11/18

LOGGED : QC
CHECKED : TY

Toronto Transit
Commission
SHEET 3 of 4
DATUM Geodetic

TTC OVERBURDEN P-0012504-0-20-TTC-COLLEGE STATION.GPJ TTC.GDT 22/11/18

LOGGED : QC
CHECKED : TY

Toronto Transit
Commission
SHEET 4 of 4
DATUM Geodetic

TTC OVERBURDEN P-0012504-0-20-TTC-COLLEGE STATION.GPJ TTC GDT 22/11/18



Appendix 3 Core Summary Table

TABLE 3-1
PAVEMENT STRUCTURE AT CORE LOCATIONS
Yonge Street from Richmond Street to Davenport Road

Core Number	LOCATION	AC Lift Thickness (mm)	AC (mm)	PCC (mm)
C1	Yonge Street, About 52 m North of Richmond Street East, Northbound Curb Lane, 1.3 m West of East Curb	AC Lift 1 =50 AC Lift 2 =60	110	225
C2	Yonge Street, About 27 m North of Queen Street East, Northbound Curb Lane, 0.9 m West of East Curb	AC Lift 1 =50 AC Lift 2 =40 AC Lift 3 =40	130	210
C3	Yonge Street, About 60 m North of Queen Street East, Southbound Curb Lane, 0.8 m East of West Curb	AC Lift 1 =50 AC Lift 2 =45	95	185
C4	Yonge Street, About 32 m South of Shuter Street, Southbound Curb Lane, 3 m East of West Curb	AC Lift 1 =30 AC Lift 2 =40 AC Lift 3 =50	120	165
C5	Yonge Street, About 30 m North of Shuter Street, Southbound Curb Lane, 1.5 m East of West Curb	AC Lift 1 =50 AC Lift 2 =65	115	195
C6	Yonge Street, About 56 m North of Shuter Street, Northbound Curb Lane, 3.0 m West of East Curb	AC Lift 1 =25 AC Lift 2 =45 AC Lift 3 =25	95	235
C7	Yonge Street, About 90 m South of Dundas Square, Northbound Curb Lane, 1.8 m West of East Curb	AC Lift 1 =50 AC Lift 2 =75	125	205
C8	Yonge Street, About 11 m South of Dundas Square, Northbound Curb Lane, 1.2 m West of East Curb	AC Lift 1 =25 AC Lift 2 =50 AC Lift 3 =30	105	210
C9	Yonge Street, About 24 m South of Dundas Street West, Southbound Curb Lane, 1.2 m East of West Curb	AC Lift 1 =50 AC Lift 2 =40	90	215
C10	Yonge Street, About 20 m North of Dundas Street East, Southbound Curb Lane, 3.0 m East of West Curb	AC Lift 1 =30 AC Lift 2 =40	70	150
C11	Yonge Street, About 18 m South of Edward Street, Northbound Curb Lane, 1.3 m West of East Curb	AC Lift 1 =30 AC Lift 2 =30	60	150

TABLE 3-1
PAVEMENT STRUCTURE AT CORE LOCATIONS
Yonge Street from Richmond Street to Davenport Road

Core Number	LOCATION	AC Lift Thickness (mm)	AC (mm)	PCC (mm)
C12	Yonge Street, About 31 m North of Edward Street, Southbound Curb Lane, 1.8 m East of West Curb	AC Lift 1 =40 AC Lift 2 =25	65	195
C13	Yonge Street, About 19 m South of Elm Street, Southbound Curb Lane, 2.2 m East of West Curb	AC Lift 1 =55 AC Lift 2 =60	115	235
C14	Yonge Street, About 39 m North of Elm Street, Northbound Curb Lane, 3.0 m West of East Curb	AC Lift 1 =40 AC Lift 2 =25	65	195
C15	Yonge Street, About 1.5 m North of Walton Street, Northbound Curb Lane, 1.3 m West of East Curb	AC Lift 1 =30 AC Lift 2 =50	80	200
C16	Yonge Street, About 19 m South of Gerrard Street East, Northbound Curb Lane, 1.3 m West of East Curb	AC Lift 1 =25 AC Lift 2 =40	65	220
C17	Yonge Street, About 14 m North of Gerrard Street East, Southbound Curb Lane, 3.8 m East of West Curb	AC Lift 1 =35 AC Lift 2 =35	70	220
C18	Yonge Street, About 45 m North of Gerrard Street East, Southbound Rightturn Lane, 2.8 m East of West Curb	AC Lift 1 =35 AC Lift 2 =30	65	220
C19	Yonge Street, About 90 m North of Gerrard Street East, Northbound Curb Lane, 5.5 m West of East Curb	AC Lift 1 =45 AC Lift 2 =40	85	210
C21	Yonge Street, About 6 m South of Carlton Street, Northbound Curb Lane, 2.0 m West of East Curb	AC Lift 1 = 25 AC Lift 2 = 50	75	210
C22	Yonge Street, About 9 m South of College Street, Southbound Curb Lane, 3.2 m East of West Curb	AC Lift 1 =50 AC Lift 2 =15	65	230
C23	Yonge Street, About 55 m North of Carlton Street, Northbound Curb Lane, 5.0 m West of East Curb	AC Lift 1 =40 AC Lift 2 =25	65	260

TABLE 3-1
PAVEMENT STRUCTURE AT CORE LOCATIONS
Yonge Street from Richmond Street to Davenport Road

Core Number	LOCATION	AC Lift Thickness (mm)	AC (mm)	PCC (mm)
C24	Yonge Street, About 45 m North of Alexander Street, Southbound Curb Lane, 1.0 m East of West Curb	AC Lift 1 =25 AC Lift 2 =40	65	210
C25	Yonge Street, About 35 m North of Wellesley Street East, Northbound Curb Lane, 2.0 m West of East Curb	AC Lift 1 =25 AC Lift 2 =70	95	315
C26	Yonge Street, About 55 m North of Irwin Avenue, Southbound Curb Lane, 1.0 m East of West Curb	AC Lift 1 =25 AC Lift 2 =70	95	165
C27	Yonge Street, About 35 m North of Charles Street West, Northbound Curb Lane, 1.5 m West of East Curb	AC Lift 1 =25 AC Lift 2 =45	70	200
C28	Yonge Street, About 5 m North of Cumberland Street, Southbound Curb Lane, 2.0 m East of West Curb	AC Lift 1 =30 AC Lift 2 =55	85	215
C29	Yonge Street, About 35 m South of Davenport Road, Northbound Curb Lane, 2.0 m West of East Curb	AC Lift 1 =35 AC Lift 2 =50	85	210
C30	Yonge Street, About 52 m South of Dundas Square, Southbound Curb Lane, 1.4 m East of West Curb	AC Lift 1 =50 AC Lift 2 =20	70	230
C31	Yonge Street, About 35 m South of Walton Street, Southbound Curb Lane, 4.5 m East of West Curb	AC Lift 1 =35 AC Lift 2 =40	75	230
C32	Yonge Street, About 108 m South of College Street, Southbound Curb Lane, 3.2 m West of Median Curb	AC Lift 1 =35 AC Lift 2 =60	95	210

Notes:

Asphalt Concrete: AC

Portland Cement Concrete: PCC

Appendix 4 Core Photographs

TABLE 4-1
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C1 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 52 m North of Richmond Street East, Northbound Curb Lane, 1.3 m West of East Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	50	Surface Course
Lift 2:	60	Binder Course

AC TOTAL: 110
 PCC TOTAL: 225

TOTAL DEPTH OF CORE: 335 mm

TABLE 4-2
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C2 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 27 m North of Queen Street East, Northbound Curb Lane, 0.9 m West of East Curb



CORE DESCRIPTION:

Poor bond between AC Lifts.
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	50	Surface Course
Lift 2:	40	Binder Course
Lift 3:	40	Binder Course

AC TOTAL: 130

PCC TOTAL: 210

TOTAL DEPTH OF CORE: 340 mm

TABLE 4-3
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C3 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 60 m North of Queen Street East, Southbound Curb Lane, 0.8 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:	Type:
	mm
Lift 1:	50 Surface Course
Lift 2:	45 Binder Course

AC TOTAL:	<u>95</u>
PCC TOTAL:	<u>185</u>

TOTAL DEPTH OF CORE: 280 mm

TABLE 4-4
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C4 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 60 m South of Shutter Street, Southbound Curb Lane, 3 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:	Type:
	mm
Lift 1:	30 Surface Course
Lift 2:	40 Binder Course
Lift 3:	50 Binder Course

AC TOTAL: 120
 PCC TOTAL: 165

TOTAL DEPTH OF CORE: 285 mm

TABLE 4-5
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C5 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 30 m North of Shutter Street, Southbound Curb Lane, 1.5 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:		Type:
	mm	
Lift 1:	50	Surface Course
Lift 2:	65	Binder Course

AC TOTAL: 115
 PCC TOTAL: 195

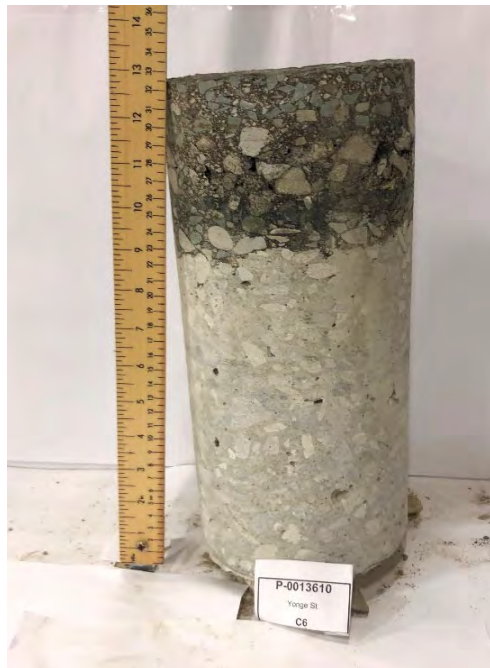
TOTAL DEPTH OF CORE: 310 mm

TABLE 4-6
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C6 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 56 m North of Shuter Street, Northbound Curb Lane, 3.0 m West of East Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:		Type:
	mm	
Lift 1:	25	Surface Course
Lift 2:	45	Binder Course
Lift 3:	25	Binder Course

AC TOTAL: 95
 PCC TOTAL: 235

TOTAL DEPTH OF CORE: 330 mm

TABLE 4-7
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C7 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 90 m South of Dundas Square, Northbound Curb Lane, 1.8 m West of East Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:		Type:
	mm	
Lift 1:	50	Surface Course
Lift 2:	75	Binder Course

AC TOTAL: 125
 PCC TOTAL: 205

TOTAL DEPTH OF CORE: 330 mm

TABLE 4-8
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C8 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 11 m South of Dundas Square, Northbound Curb Lane, 1.2 m West of East Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:		
	mm	
Lift 1:	25	Surface Course
Lift 2:	50	Binder Course
Lift 3:	30	Binder Course

AC TOTAL: 105
 PCC TOTAL: 210

TOTAL DEPTH OF CORE: 315 mm

TABLE 4-9
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C9 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 24 m South of Dundas Street West, Southbound Curb Lane, 1.2 m East of West Curb



CORE DESCRIPTION:

Poor bond between AC Lifts.
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	50	Surface Course
Lift 2:	40	Binder Course

AC TOTAL: 90
 PCC TOTAL: 215

TOTAL DEPTH OF CORE: 305 mm

TABLE 4-10
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C10 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 20 m North of Dundas Street East, Southbound Curb Lane, 3.0 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:	Type:
	mm
Lift 1:	30 Surface Course
Lift 2:	40 Binder Course

AC TOTAL: 70
 PCC TOTAL: 150

TOTAL DEPTH OF CORE: 220 mm

TABLE 4-11

**ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS**

Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.:	P0013610.201	CLIENT:	Steer Davies Gleave North America
CORE NUMBER:	C11	PROJECT LOCATION:	Yonge Street from Richmond Street to Davenport Road
SAMPLE LOCATION: Yonge Street, About 18 m South of Edward Street, Northbound Curb Lane, 1.3 m West of East Curb			



CORE DESCRIPTION:

Deteriorated AC Layer
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:	Type:	
	mm	
Lift 1:	30	Surface Course
Lift 2:	30	Binder Course

AC TOTAL:	60	
PCC TOTAL:	150	

TOTAL DEPTH OF CORE: 210 mm

TABLE 4-12
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C12 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 31 m North of Edward Street, Southbound Curb Lane, 1.8 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	40	Surface Course
Lift 2:	25	Binder Course

AC TOTAL: 65
 PCC TOTAL: 195

TOTAL DEPTH OF CORE: 260 mm

TABLE 4-13

**ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS**

Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.:	P0013610.201	CLIENT:	Steer Davies Gleave North America
CORE NUMBER:	C13	PROJECT LOCATION:	Yonge Street from Richmond Street to Davenport Road
SAMPLE LOCATION: Yonge Street, About 19 m South of Elm Street, Southbound Curb Lane, 2.2 m East of West Curb			



CORE DESCRIPTION:

Good bond between AC Lifts.
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:	Type:
	mm
Lift 1:	55 Surface Course
Lift 2:	60 Binder Course

AC TOTAL:	115
PCC TOTAL:	235

TOTAL DEPTH OF CORE: 350 mm

TABLE 4-14
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C14 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 39 m North of Elm Street, Northbound Curb Lane, 3.0 m West of East Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:	Type:
	mm
Lift 1:	40 Surface Course
Lift 2:	25 Binder Course

AC TOTAL:	<u>65</u>
PCC TOTAL:	<u>260</u>

TOTAL DEPTH OF CORE: 325 mm

TABLE 4-15
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C15 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 1.5 m North of Walton Street, Northbound Curb Lane, 1.3 m West of East Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	30	Surface Course
Lift 2:	50	Binder Course

AC TOTAL: 80

PCC TOTAL: 200

TOTAL DEPTH OF CORE: 280 mm

TABLE 4-16
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C16 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 19 m South of Gerrard Street East, Northbound Curb Lane, 1.3 m West of East Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:	Type:
	mm
Lift 1:	25 Surface Course
Lift 2:	40 Binder Course

AC TOTAL: 65
 PCC TOTAL: 220

TOTAL DEPTH OF CORE: 285 mm

TABLE 4-17

**ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS**

Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C17 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 14 m North of Gerrard Street East, Southbound Curb Lane, 3.8 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	35	Surface Course
Lift 2:	35	Binder Course

AC TOTAL: 70
 PCC TOTAL: 220

TOTAL DEPTH OF CORE: 290 mm

TABLE 4-18
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C18 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 45 m North of Gerrard Street East, Southbound Rightturn Lane, 2.8 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	35	Surface Course
Lift 2:	30	Binder Course

AC TOTAL: 65
 PCC TOTAL: 220

TOTAL DEPTH OF CORE: 285 mm

TABLE 4-19
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C19 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 90 m North of Gerrard Street East, Northbound Curb Lane, 5.5 m West of East Curb



CORE DESCRIPTION:

Poor bond between AC Lifts.
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	45	Surface Course
Lift 2:	40	Binder Course

AC TOTAL: 85

PCC TOTAL: 210

TOTAL DEPTH OF CORE: 295 mm

TABLE 4-20
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C21 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 6 m South of Carlton Street, Northbound Curb Lane, 2.0 m West of East Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:		Type:
	mm	
Lift 1:	25	Surface Course
Lift 2:	50	Binder Course

AC TOTAL: 75
 PCC TOTAL: 210

TOTAL DEPTH OF CORE: 285 mm

TABLE 4-21
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C22 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 9 m South of College Street, Southbound Curb Lane, 3.2 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Good bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:
 mm
 Lift 1: 50 Surface Course
 Lift 2: 15 Binder Course

AC TOTAL: 65
 PCC TOTAL: 230

TOTAL DEPTH OF CORE: 295 mm

TABLE 4-22
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C23 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 55 m North of Carlton Street, Northbound Curb Lane, 5.0 m West of East Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Good bond between AC Lift and PCC.
 Visible steel slag aggregate.

AC LIFT THICKNESSES:	Type:
	mm
Lift 1:	40 Surface Course
Lift 2:	25 Binder Course

AC TOTAL: 65
 PCC TOTAL: 260

TOTAL DEPTH OF CORE: 325 mm

TABLE 4-23

**ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
 CORE PHOTOGRAPH AND DESCRIPTIONS**

Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C24 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 45 m North of Alexander Street, Southbound Curb Lane, 1.0 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	25	Surface Course
Lift 2:	40	Binder Course

AC TOTAL: 65

PCC TOTAL: 210

TOTAL DEPTH OF CORE: 275 mm

TABLE 4-24

**ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS**

Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C25 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 35 m North of Wellesley Street East, Northbound Curb Lane, 2.0 m West of East Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	25	Surface Course
Lift 2:	70	Binder Course

AC TOTAL: 95
 PCC TOTAL: 315

TOTAL DEPTH OF CORE: 410 mm

TABLE 4-25

**ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS**

Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C26 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 55 m North of Irwin Avenue, Southbound Curb Lane, 1.0 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
Good bond between AC Lift and PCC.
No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	25	Surface Course
Lift 2:	70	Binder Course

AC TOTAL: 95

PCC TOTAL: 165

TOTAL DEPTH OF CORE: 260 mm

TABLE 4-26
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C27 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 35 m North of Charles Street West, Northbound Curb Lane, 1.5 m West of East Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:	Type:
	mm
Lift 1:	25 Surface Course
Lift 2:	45 Binder Course

AC TOTAL:	<u>70</u>
PCC TOTAL:	<u>200</u>

TOTAL DEPTH OF CORE: 270 mm

TABLE 4-27

**ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS**

Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C28 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 5 m North of Cumberland Street, Southbound Curb Lane, 2.0 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	30	Surface Course
Lift 2:	55	Binder Course

AC TOTAL: 85

PCC TOTAL: 215

TOTAL DEPTH OF CORE: 300 mm

TABLE 4-28
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.:	P0013610.201	CLIENT:	Steer Davies Gleave North America
CORE NUMBER:	C29	PROJECT LOCATION:	Yonge Street from Richmond Street to Davenport Road
SAMPLE LOCATION: Yonge Street, About 35 m South of Davenport Road, Northbound Curb Lane, 2.0 m West of East Curb			



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:	Type:
	mm
Lift 1:	35 Surface Course
Lift 2:	50 Binder Course

AC TOTAL:	85
PCC TOTAL:	210

TOTAL DEPTH OF CORE: 295 mm

TABLE 4-29
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C30 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 52 m South of Dundas Square, Southbound Curb Lane, 1.4 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
Poor bond between AC Lift and PCC.
No visible steel slag aggregate.

AC LIFT THICKNESSES:	Type:
	mm
Lift 1:	50 Surface Course
Lift 2:	20 Binder Course

AC TOTAL:	<u>70</u>
PCC TOTAL:	<u>230</u>

TOTAL DEPTH OF CORE: 300 mm

TABLE 4-30
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America

CORE NUMBER: C31 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road

SAMPLE LOCATION: Yonge Street, About 35 m South of Walton Street, Southbound Curb Lane, 4.5 m East of West Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
Poor bond between AC Lift and PCC.
No visible steel slag aggregate.

AC LIFT THICKNESSES: Type:

	mm	
Lift 1:	35	Surface Course
Lift 2:	40	Binder Course

AC TOTAL: 75

PCC TOTAL: 230

TOTAL DEPTH OF CORE: 305 mm

TABLE 4-31
ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE
CORE PHOTOGRAPH AND DESCRIPTIONS
Yonge Street, Geotechnical and Environmental Investigation

PROJECT NO.: P0013610.201 CLIENT: Steer Davies Gleave North America
 CORE NUMBER: C32 PROJECT LOCATION: Yonge Street from Richmond Street to Davenport Road
 SAMPLE LOCATION: Yonge Street, About 108 m South of College Street, Southbound Curb Lane, 3.2 m West of Median Curb



CORE DESCRIPTION:

Good bond between AC Lifts.
 Poor bond between AC Lift and PCC.
 No visible steel slag aggregate.

AC LIFT THICKNESSES:		Type:
	mm	
Lift 1:	35	Surface Course
Lift 2:	60	Binder Course

AC TOTAL: 95
 PCC TOTAL: 210

TOTAL DEPTH OF CORE: 305 mm

Appendix 5 Laboratory Test Results

OPSS GRANULAR A GRAIN SIZE ANALYSIS TEST REPORT

PROJECT: P0013610.201 CLIENT: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

SAMPLE ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLED BY: P.J.
SAMPLE LOCATION: BH1-AS1
SAMPLING DATE: 23/03/2020
SAMPLE RECEIVED DATE: 23/03/2020
COMMENTS: N/A

SIEVE SIZE mm	% PASSING		
	SAMPLE	SPECIFICATION minimum	SPECIFICATION maximum
26.5	100.0	100.0	100.0
19.0	100.0	85.0	100.0
13.2	78.0	65.0	90.0
9.5	53.7	50.0	73.0
4.75	46.0	35.0	55.0
1.18	30.2	15.0	40.0
0.30	17.3	5.0	22.0
0.075	6.9	2.0	8.0

Note: * Out of Specification

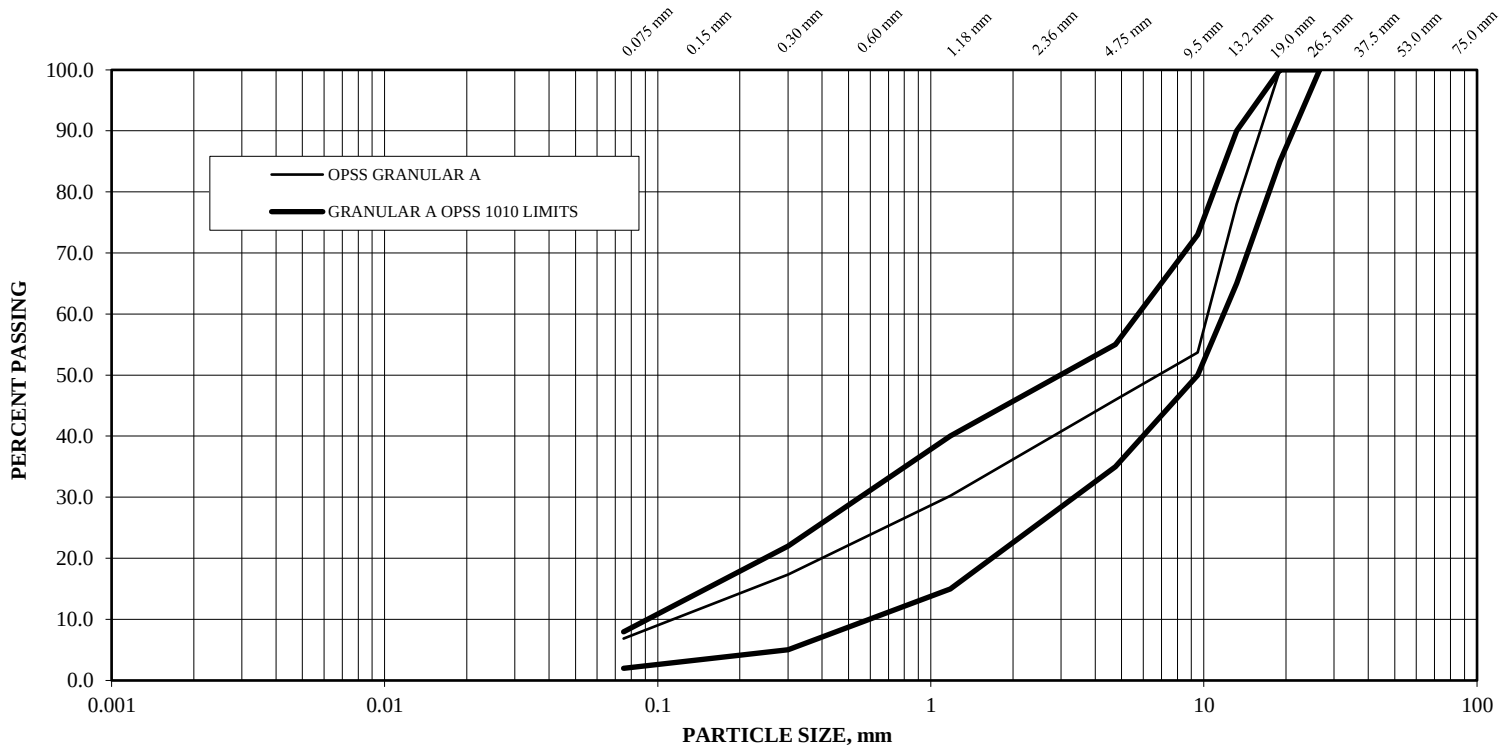
PARTICLE SIZE DISTRIBUTION, MTO LS-602

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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GRAIN SIZE ANALYSIS AND HYDROMETER TEST REPORT MTO LS-602, 702, AND 703/704

PROJECT: P0013610.201 CLIENT/JOB NAME: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

ROS ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLING LOCATION:	BH1-AS2	GRAIN SIZE ANALYSIS		HYDROMETER ANALYSIS	
SAMPLING DEPTH, m	0.45	SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING
SAMPLING METHOD:	Hand Augering	53.0	100.0	0.037	8.4
SAMPLED BY:	P.J.	37.5	100.0	0.026	6.7
SAMPLE DESCRIPTION:	Gravelly Sand some Silt trace Clay	26.5	100.0	0.017	5.8
SAMPLING DATE:	2020-03-23	19.0	100.0	0.010	4.5
SAMPLE RECEIVED DATE:	2020-03-23	13.2	100.0	0.007	3.8
		9.5	90.0	0.005	3.5
		4.75	70.6	0.003	3.1
		2.36	58.2	0.001	2.1
		1.18	50.4	ATTERBERG LIMITS, %	
		0.60	43.4		
		0.30	35.0	Plastic Limit	N/A
		0.15	25.6	Liquid Limit	N/A
		0.075	16.1	Plastic Index	N/A

GRAIN SIZE PROPORTIONS, %	
% GRAVEL (> 4.75 mm):	29.4
% SAND (75 µm to 4.75 mm):	54.5
% Silt (5 µm to 75 µm):	12.6
% Clay (<5 µm):	3.5
SUSCEPTIBILITY TO FROST HEAVING:	Low

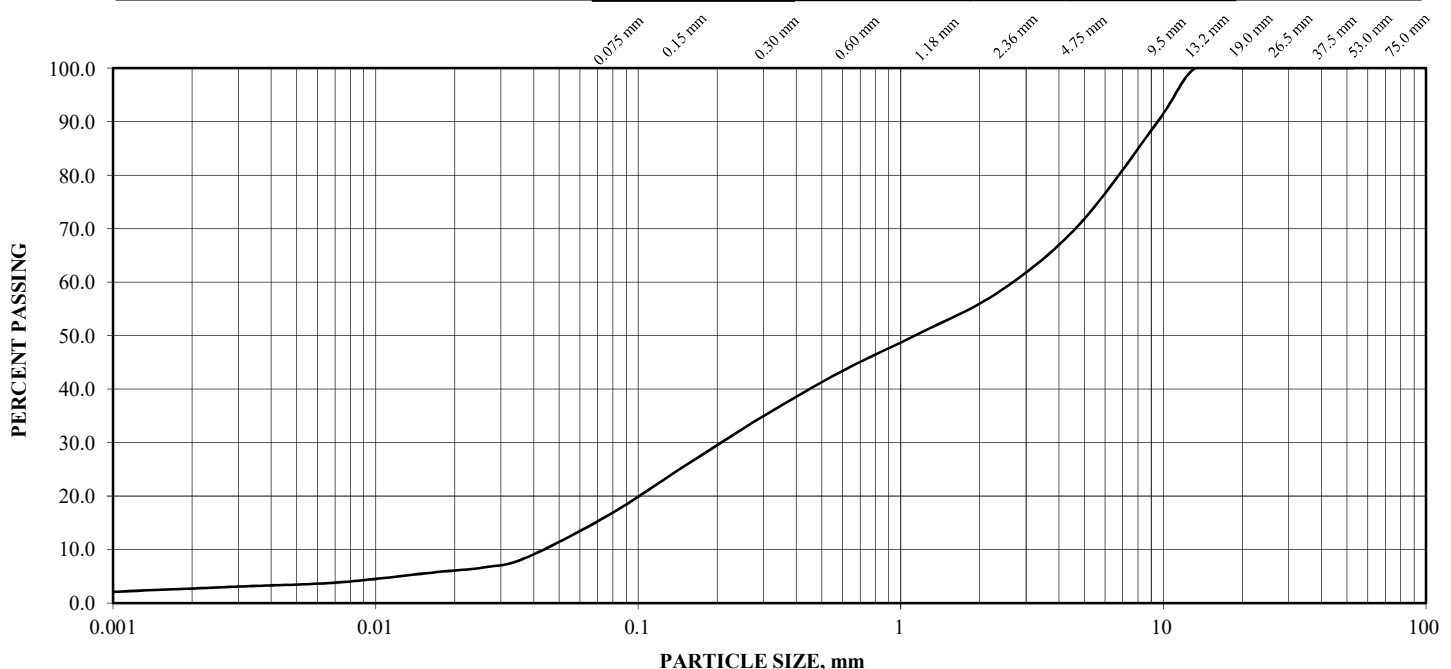
PARTICLE SIZE DISTRIBUTION, MTO LS-702

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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GRAIN SIZE ANALYSIS AND HYDROMETER TEST REPORT MTO LS-602, 702, AND 703/704

PROJECT: P0013610.201 CLIENT/JOB NAME: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

ROS ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLING LOCATION: BH3-AS2
SAMPLING DEPTH, m: 0.57
SAMPLING METHOD: Hand Augering
SAMPLED BY: P.J.
SAMPLE DESCRIPTION: Sand some Gravel trace Silt trace Clay
SAMPLING DATE: 2020-03-23
SAMPLE RECEIVED DATE: 2020-03-23

GRAIN SIZE PROPORTIONS, %

% GRAVEL (> 4.75 mm): 18.0
% SAND (75 µm to 4.75 mm): 59.0
% Silt (5 µm to 75 µm): 16.9
% Clay (<5 µm): 6.1
SUSCEPTIBILITY TO FROST HEAVING: Low

GRAIN SIZE ANALYSIS		HYDROMETER ANALYSIS	
SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING
53.0	100.0	0.037	14.0
37.5	100.0	0.026	11.7
26.5	100.0	0.017	10.0
19.0	100.0	0.010	8.3
13.2	100.0	0.007	7.2
9.5	100.0	0.005	6.1
4.75	82.0	0.003	4.9
2.36	70.6	0.001	3.7
1.18	61.0	ATTERBERG LIMITS, %	
0.60	51.4		
0.30	40.9	Plastic Limit	N/A
0.15	31.5	Liquid Limit	N/A
0.075	23.0	Plastic Index	N/A

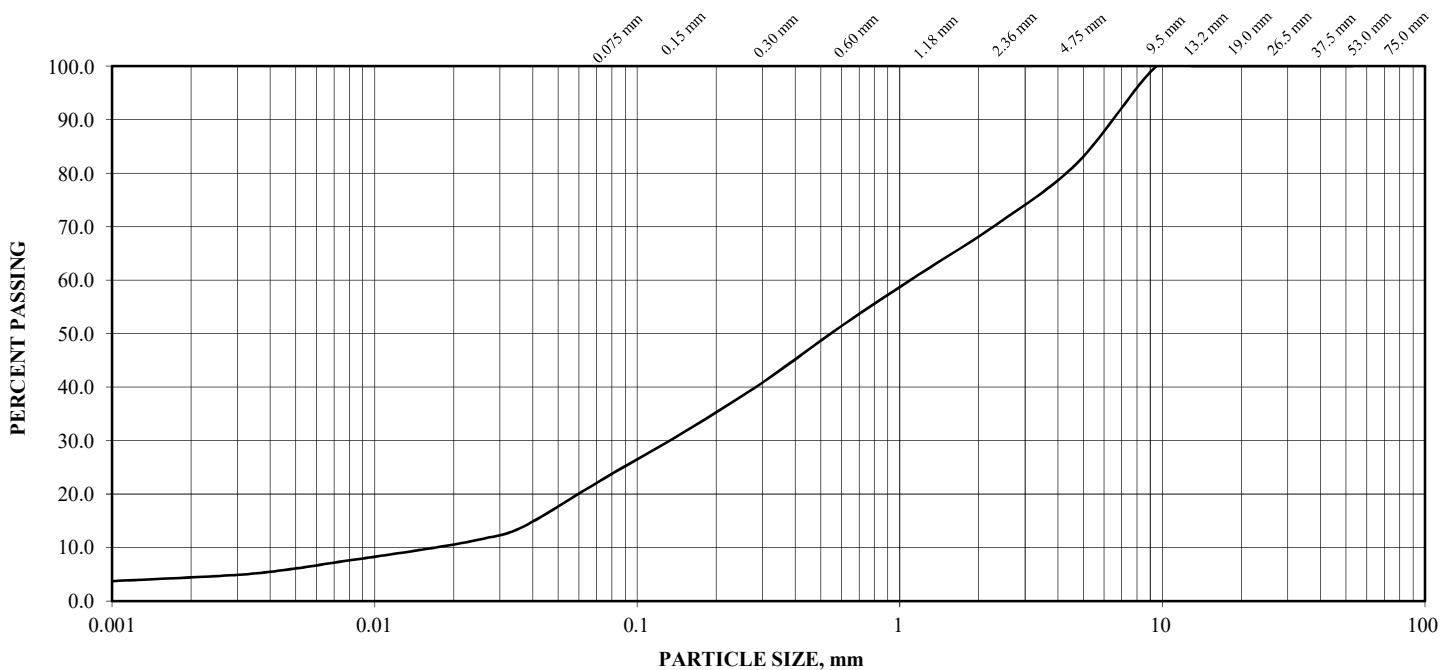
PARTICLE SIZE DISTRIBUTION, MTO LS-702

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
------	------	----------------	-----------	-------------	-------------	-------------	--------

UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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OPSS GRANULAR A GRAIN SIZE ANALYSIS TEST REPORT

PROJECT: P0013610.201 CLIENT: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

SAMPLE ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLED BY: P.J.
SAMPLE LOCATION: BH5-AS1
SAMPLING DATE: 23/03/2020
SAMPLE RECEIVED DATE: 23/03/2020
COMMENTS: N/A

SIEVE SIZE mm	% PASSING		
	SAMPLE	SPECIFICATION minimum	SPECIFICATION maximum
26.5	100.0	100.0	100.0
19.0	97.6	85.0	100.0
13.2	90.6*	65.0	90.0
9.5	88.4*	50.0	73.0
4.75	73.3*	35.0	55.0
1.18	44*	15.0	40.0
0.30	21.3	5.0	22.0
0.075	11*	2.0	8.0

Note: * Out of Specification

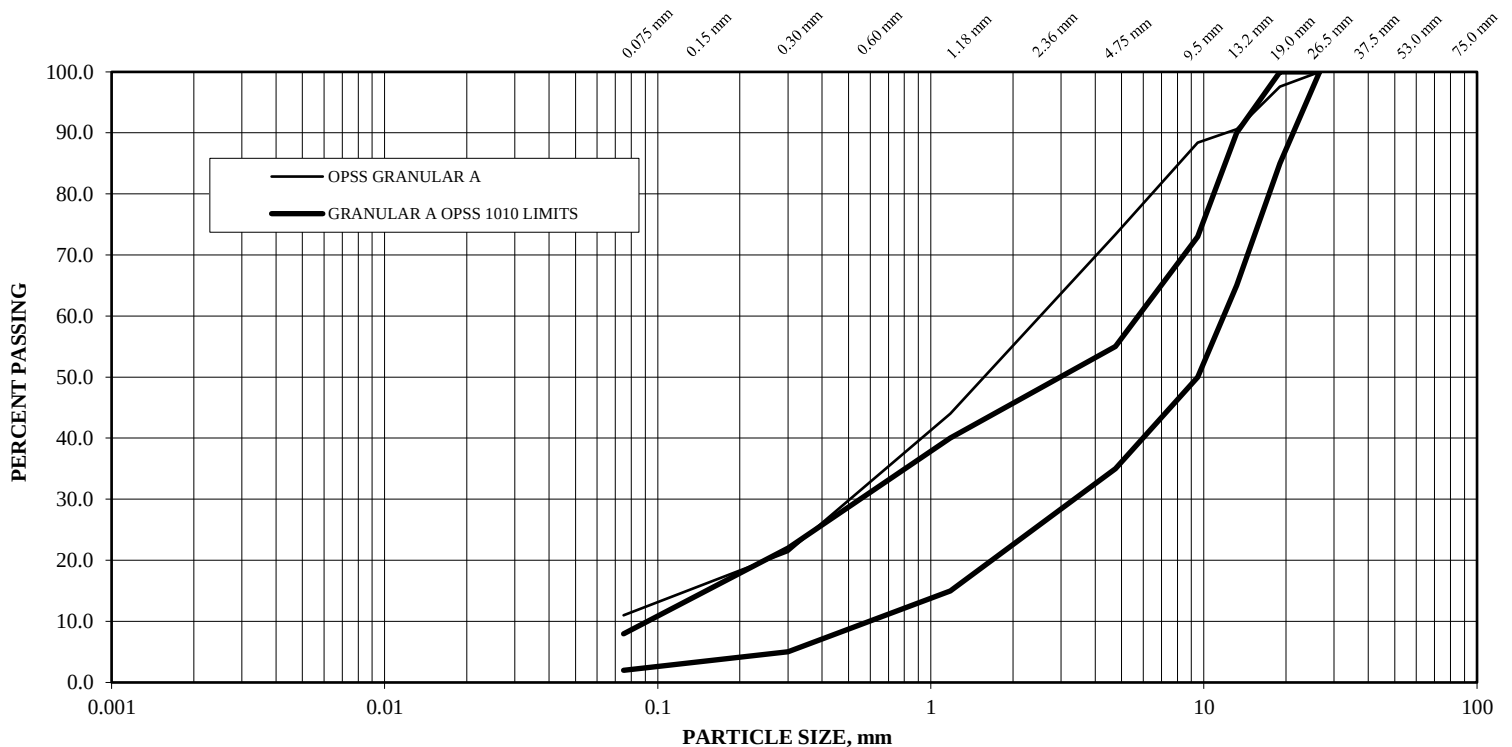
PARTICLE SIZE DISTRIBUTION, MTO LS-602

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
------	------	----------------	-----------	-------------	-------------	-------------	--------

UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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GRAIN SIZE ANALYSIS AND HYDROMETER TEST REPORT MTO LS-602, 702, AND 703/704

PROJECT: P0013610.201 CLIENT/JOB NAME: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

ROS ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLING LOCATION: BH12-AS2
SAMPLING DEPTH, m: 0.65
SAMPLING METHOD: Hand Augering
SAMPLED BY: P.J.
SAMPLE DESCRIPTION: Sand trace Gravel trace Silt trace Clay
SAMPLING DATE: 2020-03-23
SAMPLE RECEIVED DATE: 2020-03-23

GRAIN SIZE PROPORTIONS, %

% GRAVEL (> 4.75 mm):	7.4
% SAND (75 µm to 4.75 mm):	84.4
% Silt (5 µm to 75 µm):	7.4
% Clay (<5 µm):	0.8
SUSCEPTIBILITY TO FROST HEAVING:	Low

GRAIN SIZE ANALYSIS		HYDROMETER ANALYSIS	
SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING
53.0	100.0	0.037	1.9
37.5	100.0	0.026	1.1
26.5	100.0	0.017	0.8
19.0	100.0	0.010	0.8
13.2	100.0	0.007	0.8
9.5	100.0	0.005	0.8
4.75	92.6	0.003	0.8
2.36	87.4	0.001	0.8
1.18	86.3	ATTERBERG LIMITS, %	
0.60	80.3		
0.30	53.9	Plastic Limit	N/A
0.15	20.5	Liquid Limit	N/A
0.075	8.3	Plastic Index	N/A

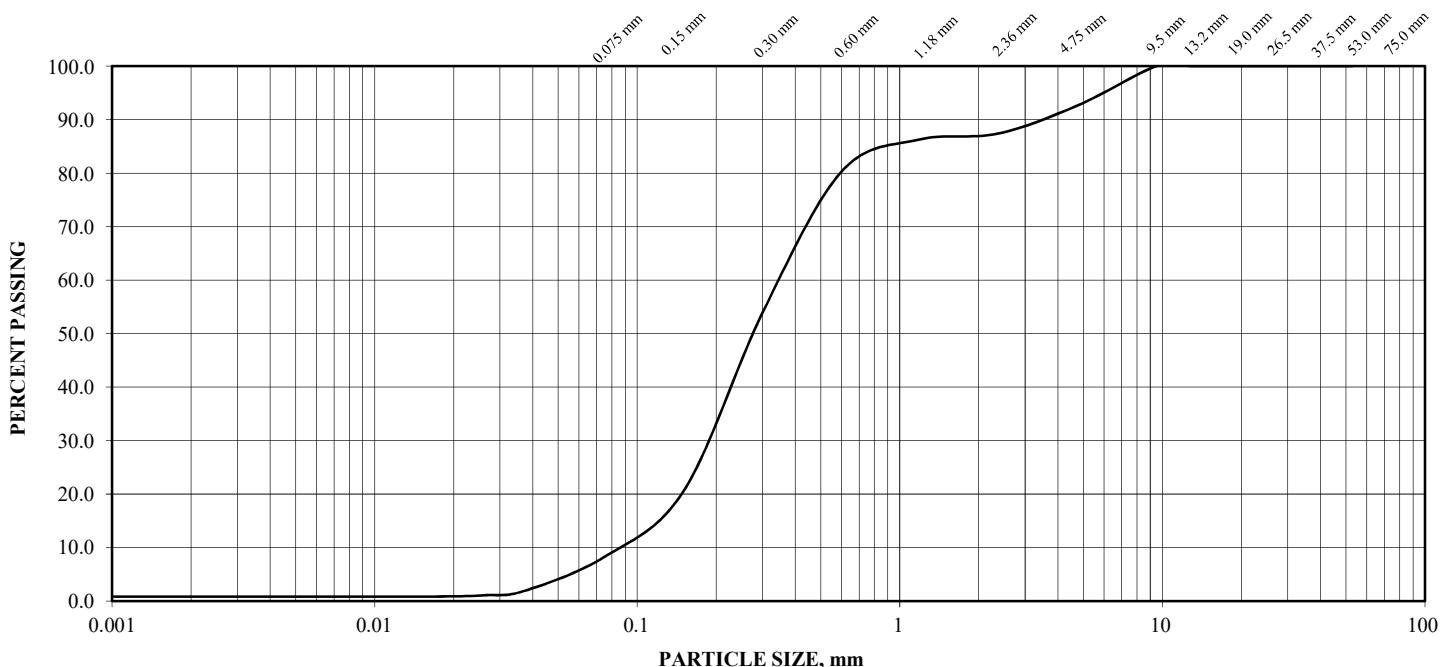
PARTICLE SIZE DISTRIBUTION, MTO LS-702

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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OPSS GRANULAR A GRAIN SIZE ANALYSIS TEST REPORT

PROJECT: P0013610.201 CLIENT: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

SAMPLE ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLED BY: P.J.

SAMPLE LOCATION: BH13-AS1

SAMPLING DATE: 23/03/2020

SAMPLE RECEIVED DATE: 23/03/2020

COMMENTS: N/A

SIEVE SIZE mm	% PASSING		
	SAMPLE	SPECIFICATION minimum	SPECIFICATION maximum
37.5	100.0	100.0	100.0
26.5	90.8*	100.0	100.0
19.0	88.0	85.0	100.0
13.2	79.6	65.0	90.0
9.5	74*	50.0	73.0
4.75	59.8*	35.0	55.0
1.18	40.9*	15.0	40.0
0.30	25.7*	5.0	22.0
0.075	12.8*	2.0	8.0

Note: * Out of Specification

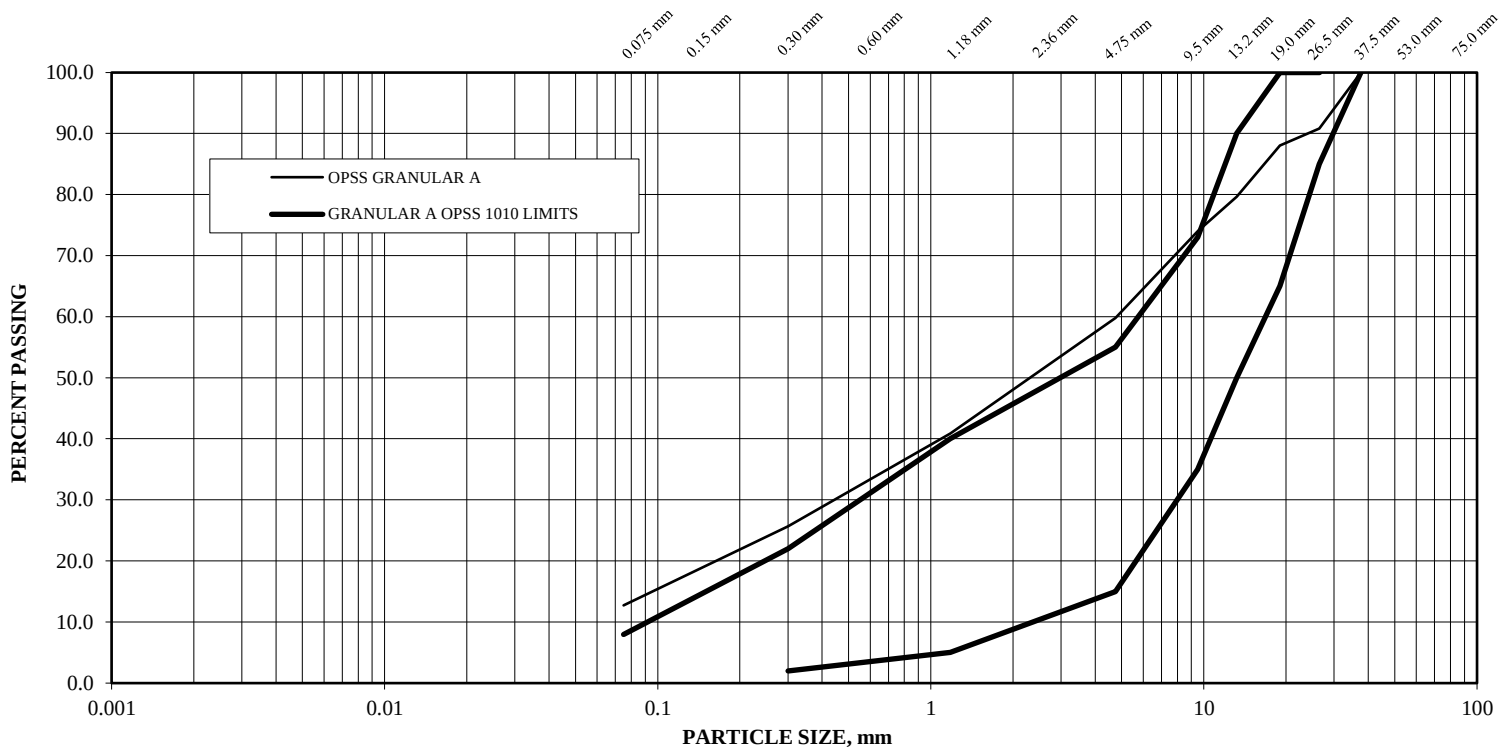
PARTICLE SIZE DISTRIBUTION, MTO LS-602

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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OPSS GRANULAR A GRAIN SIZE ANALYSIS TEST REPORT

PROJECT: P0013610.201 CLIENT: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

SAMPLE ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLED BY: P.J.
SAMPLE LOCATION: BH14-AS1
SAMPLING DATE: 23/03/2020
SAMPLE RECEIVED DATE: 23/03/2020
COMMENTS: N/A

SIEVE SIZE mm	% PASSING		
	SAMPLE	SPECIFICATION minimum	SPECIFICATION maximum
26.5	100.0	100.0	100.0
19.0	89.5	85.0	100.0
13.2	69.1	65.0	90.0
9.5	59.4	50.0	73.0
4.75	46.7	35.0	55.0
1.18	34.3	15.0	40.0
0.30	24.1*	5.0	22.0
0.075	11*	2.0	8.0

Note: * Out of Specification

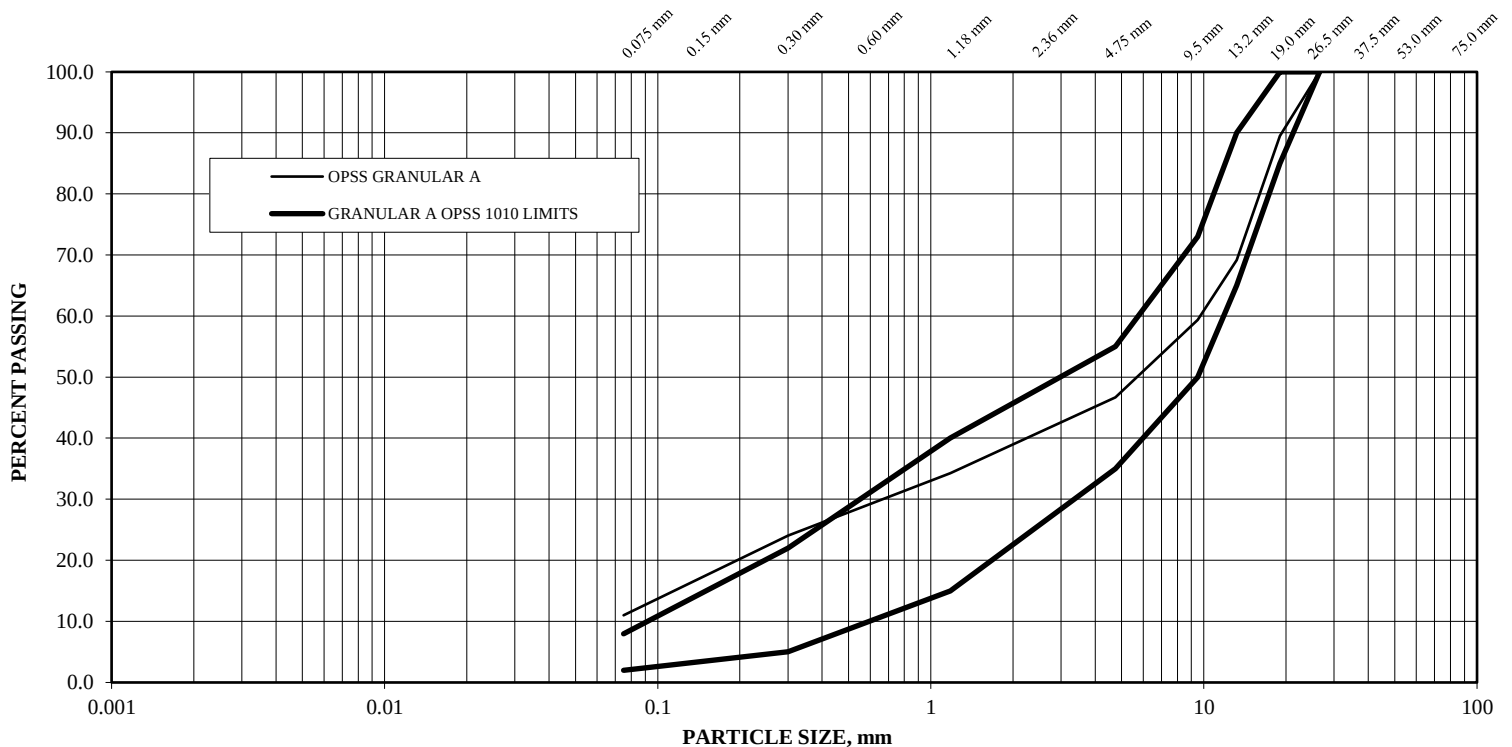
PARTICLE SIZE DISTRIBUTION, MTO LS-602

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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GRAIN SIZE ANALYSIS AND HYDROMETER TEST REPORT MTO LS-602, 702, AND 703/704

PROJECT: P0013610.201 CLIENT/JOB NAME: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231
ROS ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLING LOCATION:	BH14-AS2	GRAIN SIZE ANALYSIS		HYDROMETER ANALYSIS	
SAMPLING DEPTH, m	0.70	SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING
SAMPLING METHOD:	Hand Augering	53.0	100.0	0.037	20.0
SAMPLED BY:	P.J.	37.5	100.0	0.026	18.7
SAMPLE DESCRIPTION:	Sand some Gravel some Silt some Clay	26.5	100.0	0.017	17.0
SAMPLING DATE:	2020-03-23	19.0	100.0	0.010	14.2
SAMPLE RECEIVED DATE:	2020-03-23	13.2	96.8	0.007	12.5
		9.5	93.8	0.005	10.8
		4.75	86.3	0.003	8.7
		2.36	82.1	0.001	5.6
		1.18	78.4	ATTERBERG LIMITS, %	
		0.60	73.1		
		0.30	57.3	Plastic Limit	
		0.15	32.8	Liquid Limit	
		0.075	23.9	Plastic Index	NP

GRAIN SIZE PROPORTIONS, %	
% GRAVEL (> 4.75 mm):	13.7
% SAND (75 µm to 4.75 mm):	62.4
% Silt (5 µm to 75 µm):	13.1
% Clay (<5 µm):	10.8
SUSCEPTIBILITY TO FROST HEAVING:	Low

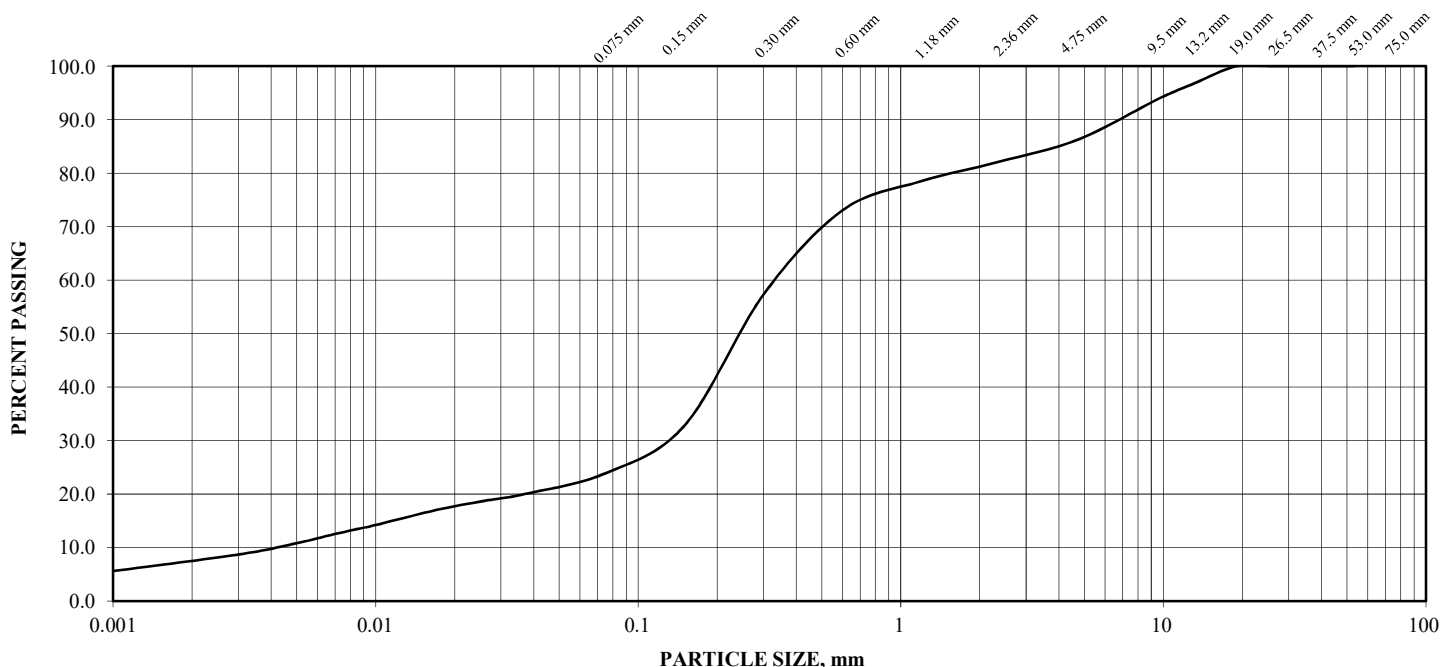
PARTICLE SIZE DISTRIBUTION, MTO LS-702

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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OPSS GRANULAR A GRAIN SIZE ANALYSIS TEST REPORT

PROJECT: P0013610.201 CLIENT: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

SAMPLE ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLED BY: P.J.
 SAMPLE LOCATION: BH16-AS1
 SAMPLING DATE: 23/03/2020
 SAMPLE RECEIVED DATE: 23/03/2020
 COMMENTS: N/A

SIEVE SIZE mm	% PASSING		
	SAMPLE	SPECIFICATION minimum	SPECIFICATION maximum
26.5	100.0	100.0	100.0
19.0	87.0	85.0	100.0
13.2	71.6	65.0	90.0
9.5	62.1	50.0	73.0
4.75	50.5	35.0	55.0
1.18	34.8	15.0	40.0
0.30	22.7*	5.0	22.0
0.075	11*	2.0	8.0

Note: * Out of Specification

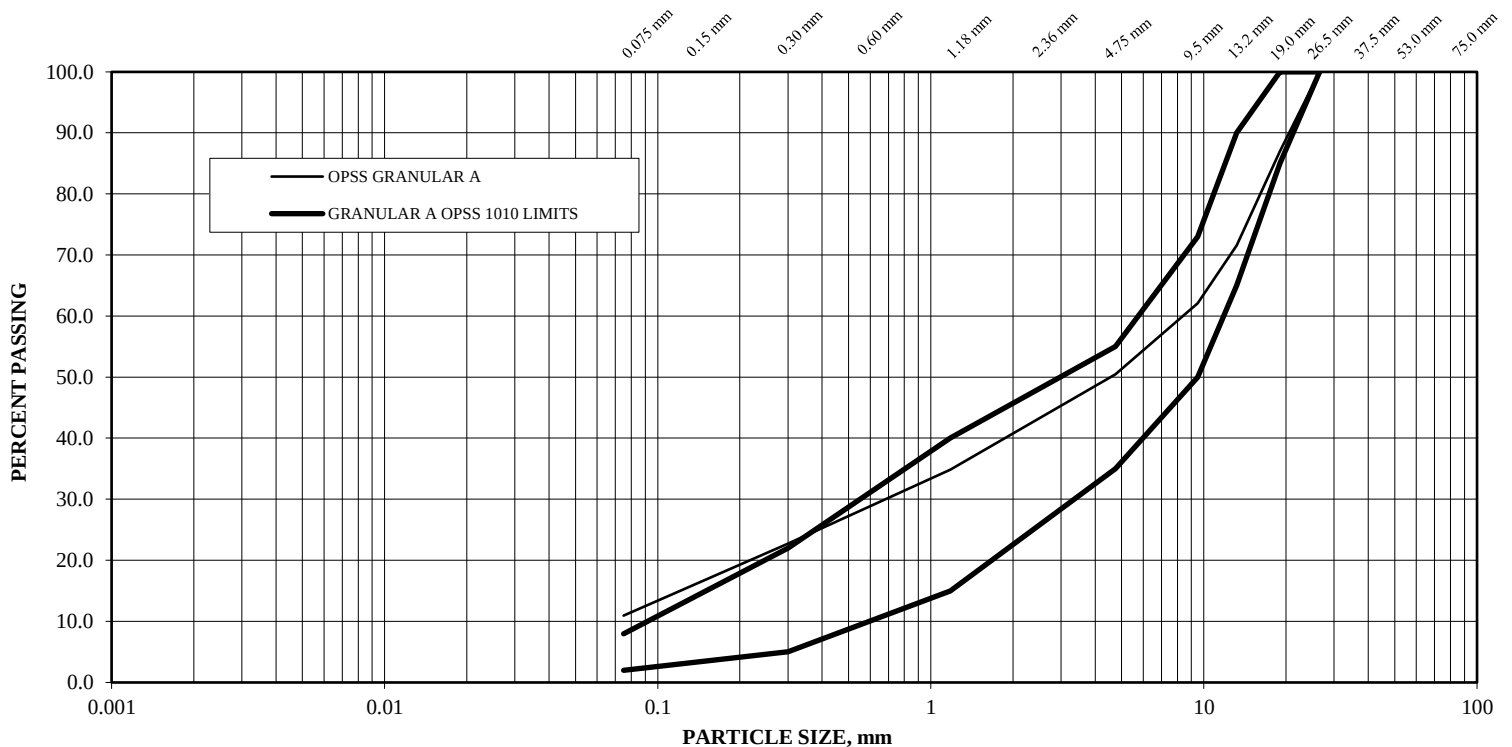
PARTICLE SIZE DISTRIBUTION, MTO LS-602

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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GRAIN SIZE ANALYSIS AND HYDROMETER TEST REPORT MTO LS-602, 702, AND 703/704

PROJECT: P0013610.201 CLIENT/JOB NAME: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

ROS ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLING LOCATION: BH16-AS2

SAMPLING DEPTH, m: 0.56

SAMPLING METHOD: Hand Augering

SAMPLED BY: P.J.

SAMPLE DESCRIPTION: Silty Sand some Gravel trace Clay

SAMPLING DATE: 2020-03-23

SAMPLE RECEIVED DATE: 2020-03-23

GRAIN SIZE PROPORTIONS, %

% GRAVEL (> 4.75 mm): 11.3

% SAND (75 µm to 4.75 mm): 58.4

% Silt (5 µm to 75 µm): 22.0

% Clay (<5 µm): 8.3

SUSCEPTIBILITY TO FROST HEAVING: Low

GRAIN SIZE ANALYSIS		HYDROMETER ANALYSIS	
SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING
53.0	100.0	0.037	15.9
37.5	100.0	0.026	13.0
26.5	100.0	0.017	11.0
19.0	100.0	0.010	10.1
13.2	98.0	0.007	9.2
9.5	95.6	0.005	8.3
4.75	88.7	0.003	7.3
2.36	84.1	0.001	5.7
1.18	80.9	ATTERBERG LIMITS, %	
0.60	77.0		
0.30	68.7	Plastic Limit	
0.15	50.8	Liquid Limit	
0.075	30.3	Plastic Index	NP

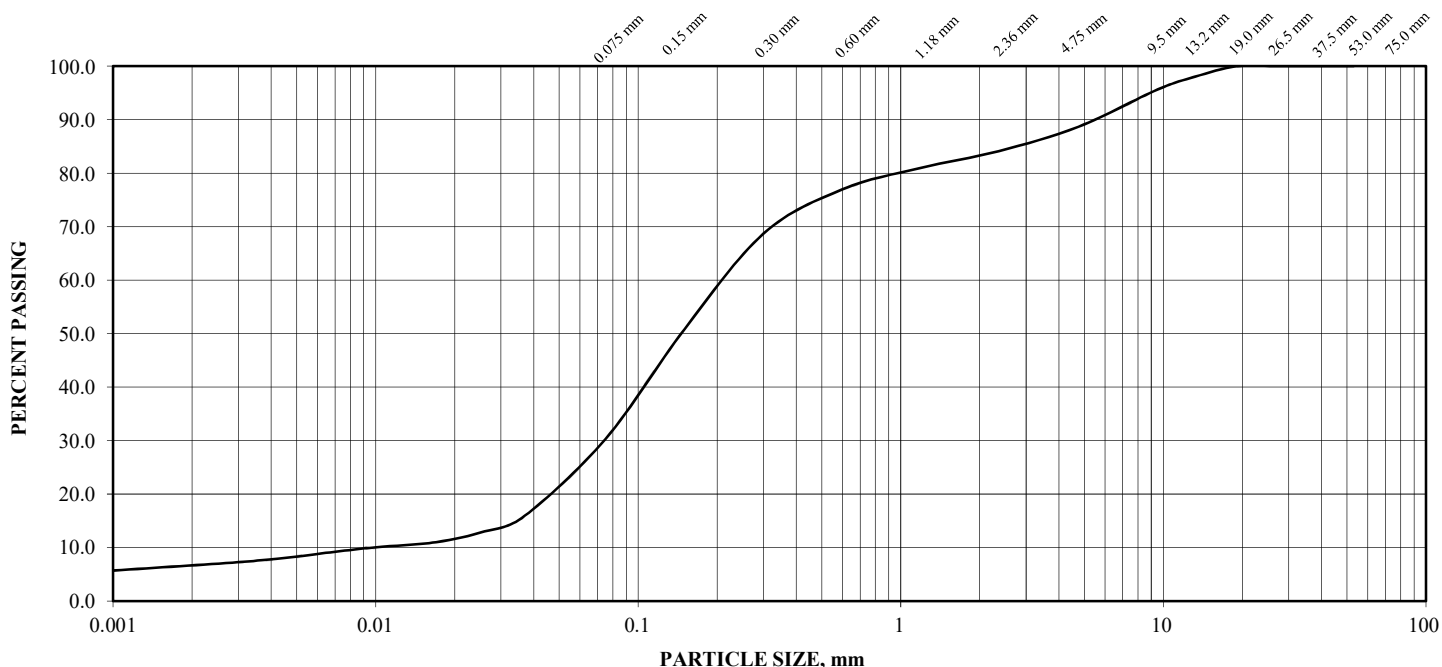
PARTICLE SIZE DISTRIBUTION, MTO LS-702

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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OPSS GRANULAR A GRAIN SIZE ANALYSIS TEST REPORT

PROJECT: P0013610.201 CLIENT: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

SAMPLE ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLED BY: P.J.
SAMPLE LOCATION: BH19-AS1
SAMPLING DATE: 23/03/2020
SAMPLE RECEIVED DATE: 23/03/2020
COMMENTS: N/A

SIEVE SIZE mm	% PASSING		
	SAMPLE	SPECIFICATION minimum	SPECIFICATION maximum
26.5	92.4*	100.0	100.0
19.0	85.8	85.0	100.0
13.2	75.9	65.0	90.0
9.5	64.2	50.0	73.0
4.75	47.2	35.0	55.0
1.18	20.1	15.0	40.0
0.30	10.1	5.0	22.0
0.075	7.4	2.0	8.0

Note: * Out of Specification

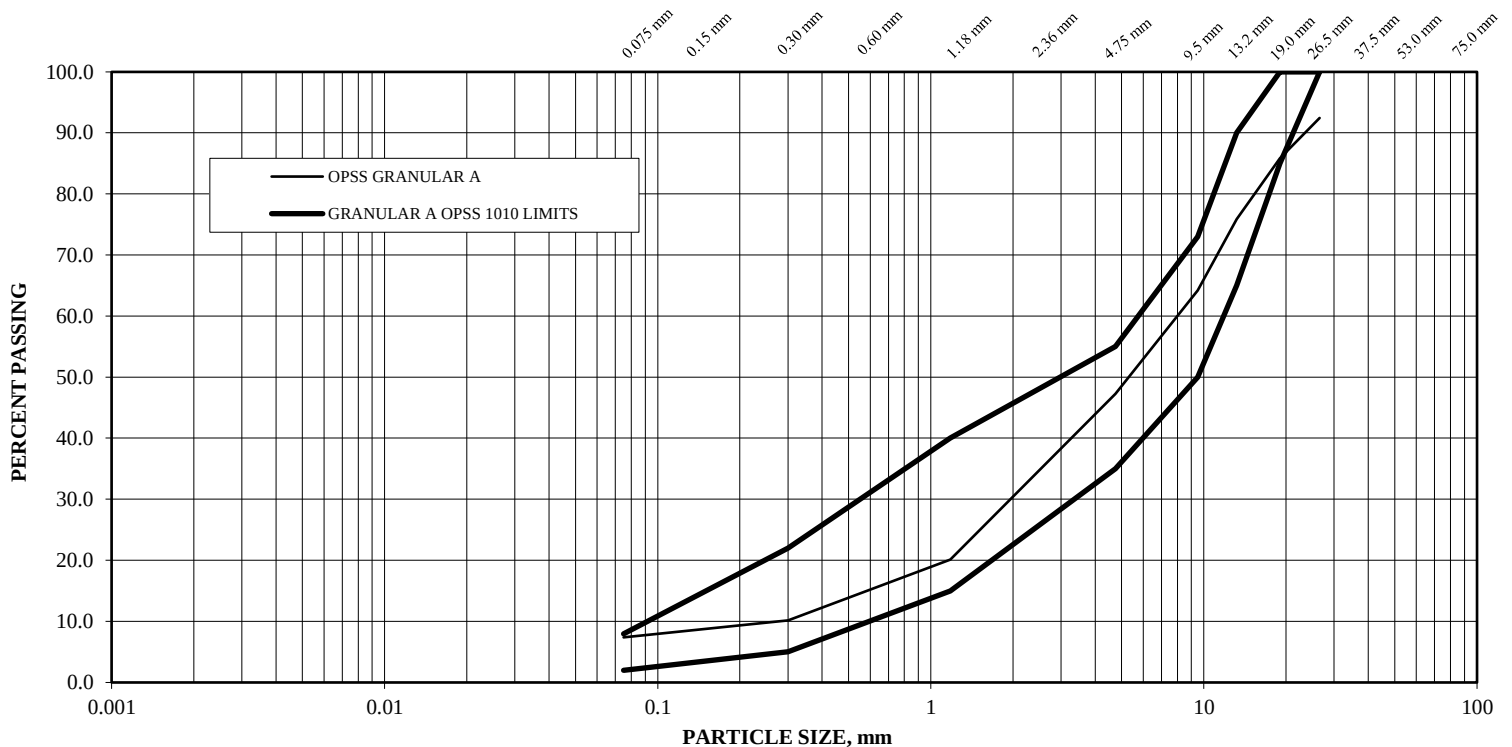
PARTICLE SIZE DISTRIBUTION, MTO LS-602

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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GRAIN SIZE ANALYSIS AND HYDROMETER TEST REPORT

MTO LS-602, 702, AND 703/704

PROJECT: P0013610.201 CLIENT/JOB NAME: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

ROS ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLING LOCATION: BH19-AS2

SAMPLING DEPTH, m: 0.55

SAMPLING METHOD: Hand Augering

SAMPLED BY: P.J.

SAMPLE DESCRIPTION: Silty Sand trace Clay trace Gravel

SAMPLING DATE: 2020-03-23

SAMPLE RECEIVED DATE: 2020-03-23

GRAIN SIZE PROPORTIONS, %

% GRAVEL (> 4.75 mm): 5.9

% SAND (75 µm to 4.75 mm): 49.3

% Silt (5 µm to 75 µm): 35.7

% Clay (<5 µm): 9.1

SUSCEPTIBILITY TO FROST HEAVING: Low

GRAIN SIZE ANALYSIS		HYDROMETER ANALYSIS	
SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING
53.0	100.0	0.037	17.3
37.5	100.0	0.026	14.4
26.5	100.0	0.017	12.9
19.0	100.0	0.010	11.9
13.2	98.0	0.007	10.3
9.5	97.0	0.005	9.1
4.75	94.1	0.003	7.9
2.36	91.6	0.001	6.2
1.18	89.9	ATTERBERG LIMITS, %	
0.60	88.3		
0.30	85.6	Plastic Limit	N/A
0.15	76.6	Liquid Limit	N/A
0.075	44.8	Plastic Index	N/A

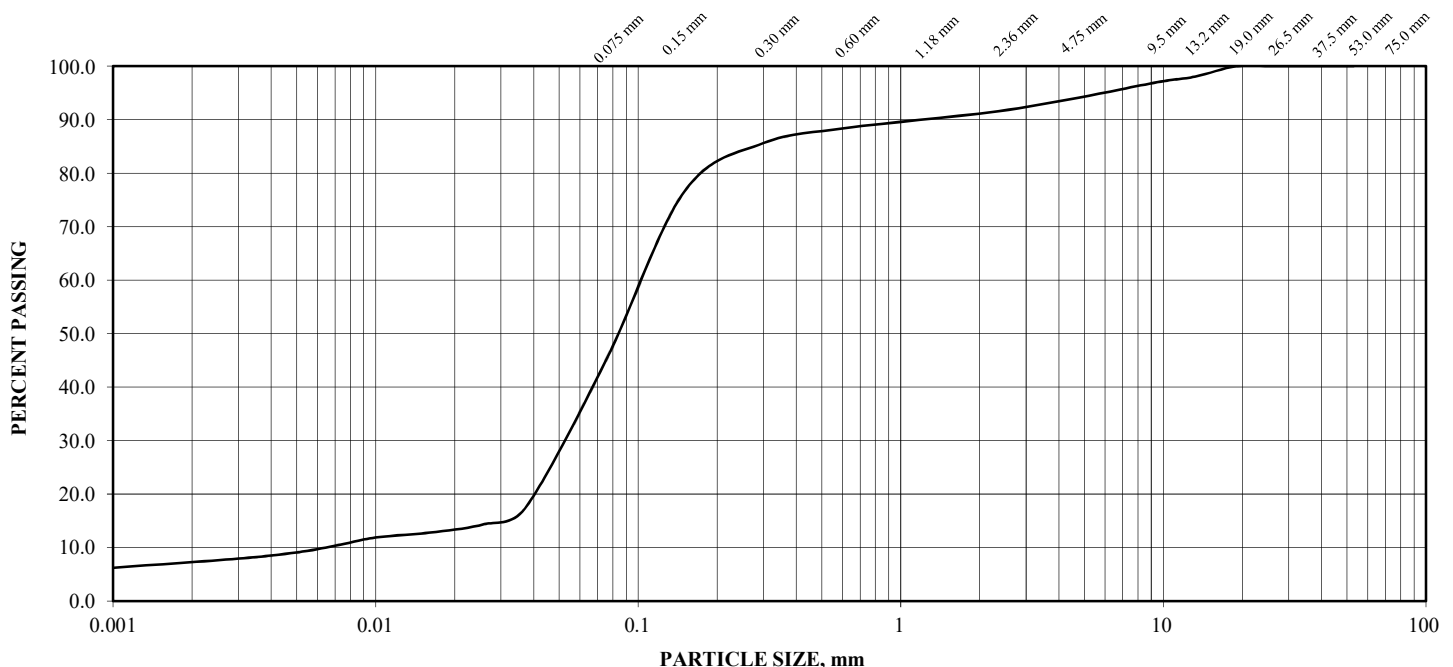
PARTICLE SIZE DISTRIBUTION, MTO LS-702

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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GRAIN SIZE ANALYSIS AND HYDROMETER TEST REPORT MTO LS-602, 702, AND 703/704

PROJECT: P0013610.201 CLIENT/JOB NAME: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

ROS ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLING LOCATION: BH21-AS1

SAMPLING DEPTH, m: 0.28

SAMPLING METHOD: Hand Augering

SAMPLED BY: P.J.

SAMPLE DESCRIPTION: Sandy Silt trace Gravel trace Clay

SAMPLING DATE: 2020-03-23

SAMPLE RECEIVED DATE: 2020-03-23

GRAIN SIZE PROPORTIONS, %

% GRAVEL (> 4.75 mm): 6.9

% SAND (75 µm to 4.75 mm): 36.3

% Silt (5 µm to 75 µm): 54.6

% Clay (<5 µm): 2.2

SUSCEPTIBILITY TO FROST HEAVING: Moderate

GRAIN SIZE ANALYSIS		HYDROMETER ANALYSIS	
SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING
53.0	100.0	0.037	14.0
37.5	100.0	0.026	8.3
26.5	100.0	0.017	6.0
19.0	96.2	0.010	3.9
13.2	95.0	0.007	2.8
9.5	94.4	0.005	2.2
4.75	93.1	0.003	1.6
2.36	92.1	0.001	0.9
1.18	92.1	ATTERBERG LIMITS, %	
0.60	91.2		
0.30	90.0	Plastic Limit	N/A
0.15	86.3	Liquid Limit	N/A
0.075	56.8	Plastic Index	N/A

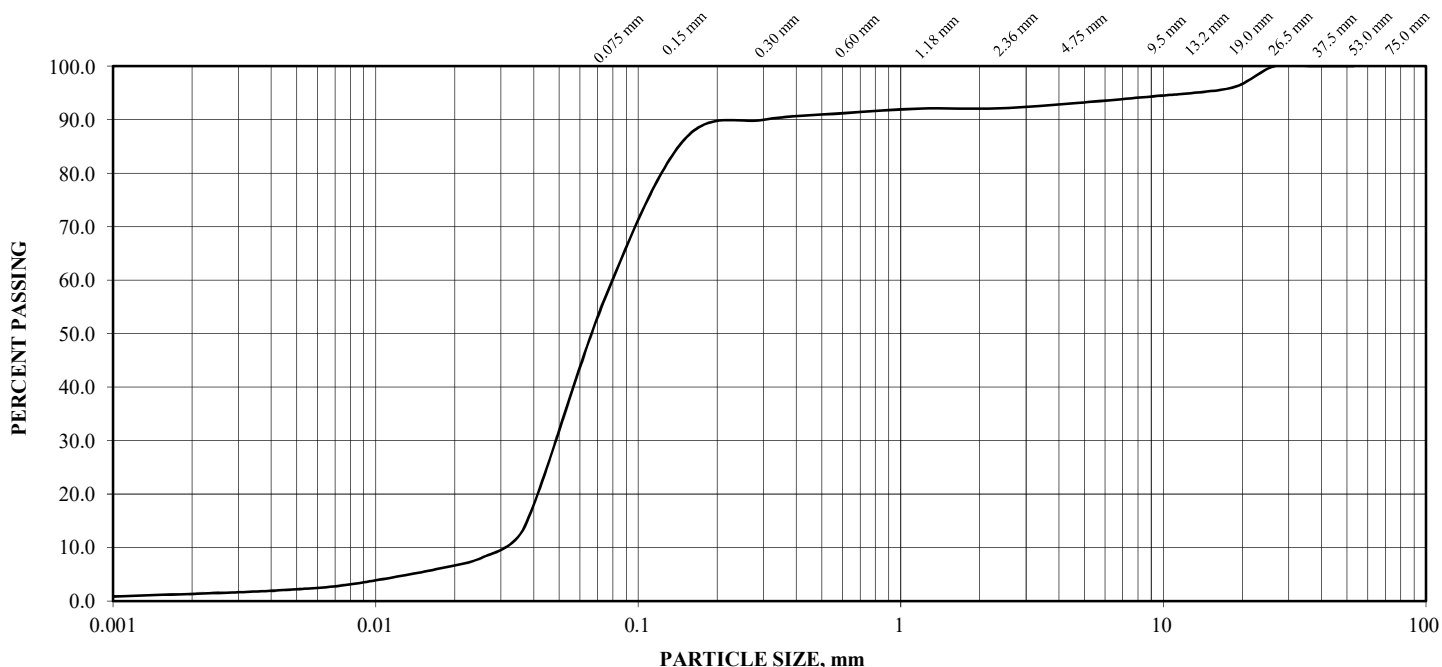
PARTICLE SIZE DISTRIBUTION, MTO LS-702

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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OPSS GRANULAR A GRAIN SIZE ANALYSIS TEST REPORT

PROJECT: P0013610.201 CLIENT: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

SAMPLE ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLED BY: P.J.
SAMPLE LOCATION: BH22-AS1
SAMPLING DATE: 23/03/2020
SAMPLE RECEIVED DATE: 23/03/2020
COMMENTS: N/A

SIEVE SIZE mm	% PASSING		
	SAMPLE	SPECIFICATION minimum	SPECIFICATION maximum
26.5	100.0	100.0	100.0
19.0	94.0	85.0	100.0
13.2	92.3*	65.0	90.0
9.5	91.9*	50.0	73.0
4.75	89.6*	35.0	55.0
1.18	85.5*	15.0	40.0
0.30	55.2*	5.0	22.0
0.075	23.4*	2.0	8.0

Note: * Out of Specification

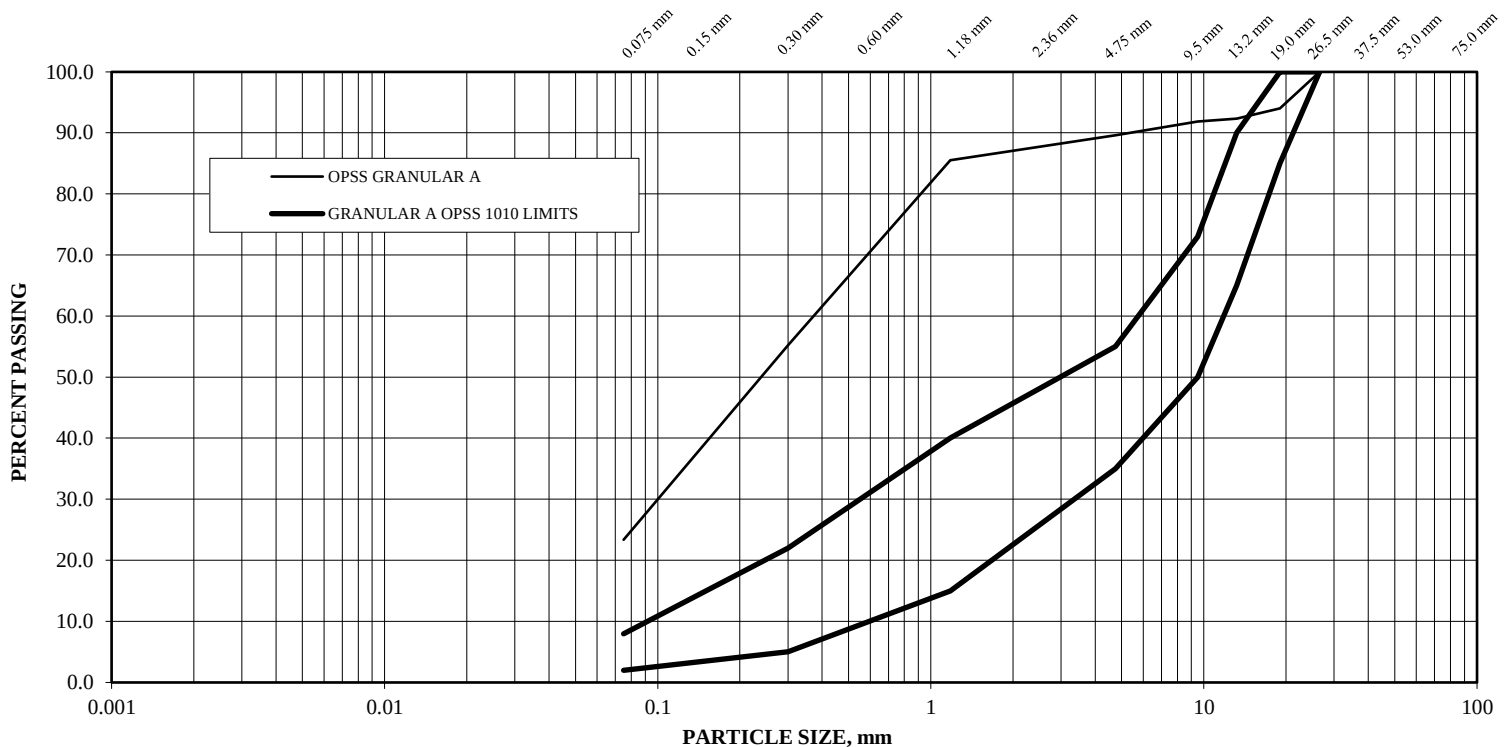
PARTICLE SIZE DISTRIBUTION, MTO LS-602

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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GRAIN SIZE ANALYSIS AND HYDROMETER TEST REPORT MTO LS-602, 702, AND 703/704

PROJECT: P0013610.201 CLIENT/JOB NAME: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

ROS ID: 83857 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLING LOCATION: BH26-SS4

SAMPLING DEPTH, m: 3.30

SAMPLING METHOD: Split Spoon

SAMPLED BY: S.C.

SAMPLE DESCRIPTION: Silty clay trace sand

SAMPLING DATE: 2019-07-02

SAMPLE RECEIVED DATE: 2019-07-02

GRAIN SIZE PROPORTIONS, %

% GRAVEL (> 4.75 mm): 0.0

% SAND (75 µm to 4.75 mm): 2.6

% Silt (5 µm to 75 µm): 26.7

% Clay (< 5 µm): 70.7

SUSCEPTIBILITY TO FROST HEAVING: Low

GRAIN SIZE ANALYSIS		HYDROMETER ANALYSIS	
SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING
53.0	100.0	0.037	92.6
37.5	100.0	0.026	89.3
26.5	100.0	0.017	86.0
19.0	100.0	0.010	79.6
13.2	100.0	0.007	75.4
9.5	100.0	0.005	70.7
4.75	100.0	0.003	60.9
2.36	100.0	0.001	39.3
1.18	100.0	ATTERBERG LIMITS, %	
0.60	100.0		
0.30	100.0	Plastic Limit	N/A
0.15	99.2	Liquid Limit	N/A
0.075	97.4	Plastic Index	N/A

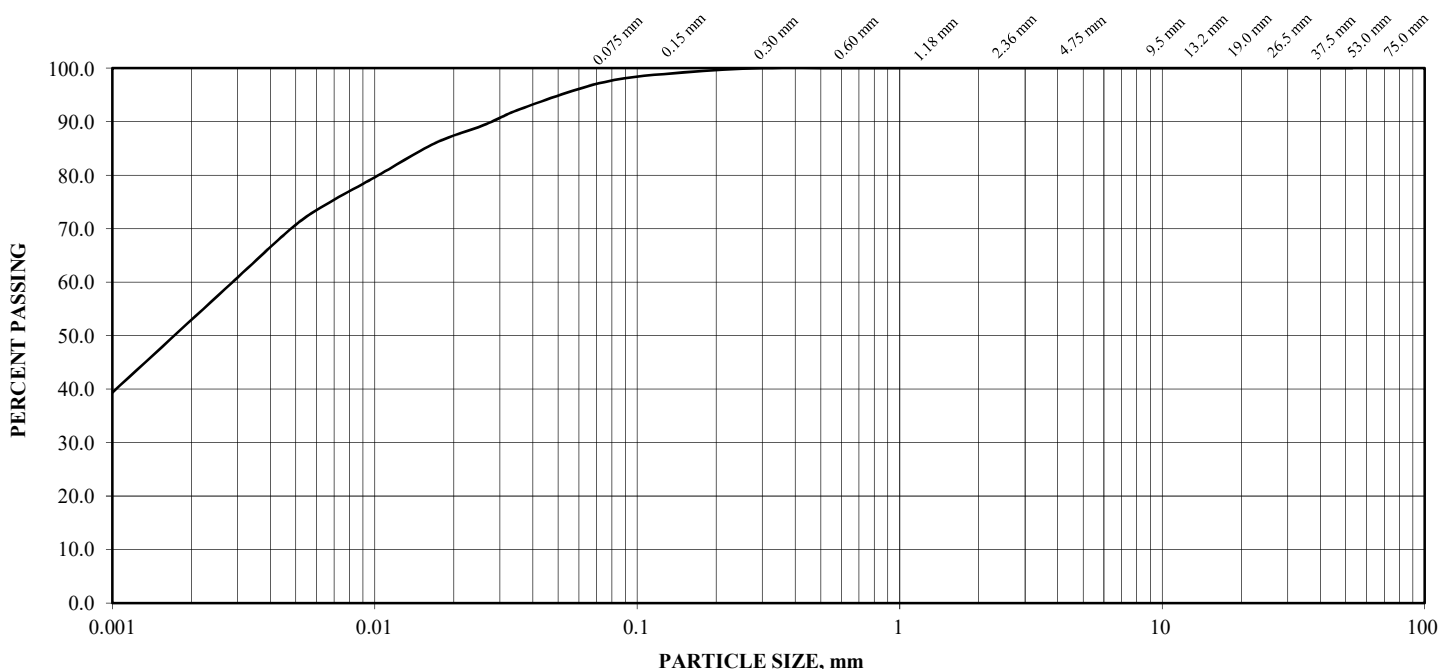
PARTICLE SIZE DISTRIBUTION, MTO LS-702

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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GRAIN SIZE ANALYSIS AND HYDROMETER TEST REPORT MTO LS-602, 702, AND 703/704

PROJECT: P0013610.201 CLIENT/JOB NAME: Steer Davies & Gleave North America CONTRACT NUMBER: NA-1101231

ROS ID: 89483 PROJECT/LOCATION: Geotechnical Investigation / Yonge Street (From Richmond Street to Davenport Road)

SAMPLING LOCATION:	BH30-AS2	GRAIN SIZE ANALYSIS		HYDROMETER ANALYSIS	
SAMPLING DEPTH, m	0.72	SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING
SAMPLING METHOD:	Hand Augering	53.0	100.0	0.037	4.3
SAMPLED BY:	P.J.	37.5	100.0	0.026	3.5
SAMPLE DESCRIPTION:	Gravelly Sand trace Silt trace Clay	26.5	100.0	0.017	3.3
SAMPLING DATE:	2020-03-23	19.0	100.0	0.010	2.8
SAMPLE RECEIVED DATE:	2020-03-23	13.2	100.0	0.007	2.6
GRAIN SIZE PROPORTIONS, %		9.5	89.6	0.005	2.3
% GRAVEL (> 4.75 mm):	22.3	4.75	77.7	0.003	1.9
% SAND (75 µm to 4.75 mm):	69.7	2.36	68.9	0.001	1.3
% Silt (5 µm to 75 µm):	5.7	1.18	61.8	ATTERBERG LIMITS, %	
% Clay (<5 µm):	2.3	0.60	51.8		
SUSCEPTIBILITY TO FROST HEAVING:	Low	0.30	31.4	Plastic Limit	N/A
		0.15	14.4	Liquid Limit	N/A
		0.075	8.0	Plastic Index	N/A

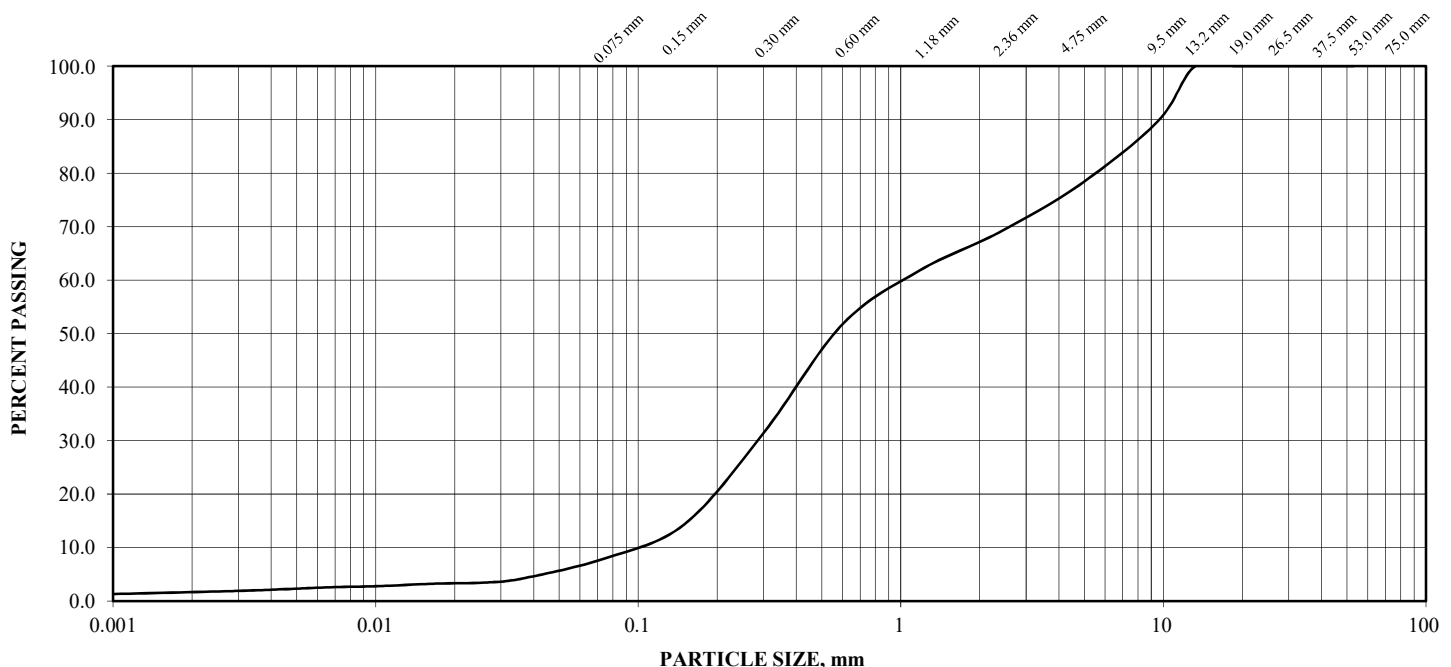
PARTICLE SIZE DISTRIBUTION, MTO LS-702

U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
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UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
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Appendix 6 Environmental Test Results

Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Ms. Ana Maria Gutierrez
Invoice to: EnGlobe Corp.
PO#: 24881

Report Number: 1940411
Date Submitted: 2020-10-07
Date Reported: 2020-10-15
Project: P-0013610-0-01-201-01
COC #: 862551
Temperature (C): 19
Custody Seal:

Page 1 of 16

Dear Ana Maria Gutierrez:

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

Sample Comment Summary

Sample ID: 1521086	BH5 AS2	CN (free) MRL elevated due to matrix interference (dilution was done).
Sample ID: 1521087	BH6 AS1	Metals spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.
Sample ID: 1521098	BH22 AS2	CN (free) MRL elevated due to matrix interference (dilution was done).
Sample ID: 1521101	BH32 AS1	CN (free) MRL elevated due to matrix interference (dilution was done).

Report Comments:

Hongyuan Deng, Inorganics Technician

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

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

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

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M9W 5W8
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PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1940411
Date Submitted: 2020-10-07
Date Reported: 2020-10-15
Project: P-0013610-0-01-201-01
COC #: 862551

O.Reg 153-T3-Ind/Com-Coarse

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria
Inorganics				
BH1 AS1	Electrical Conductivity	1.66	mS/cm	STD 1.4
BH1 AS1	Sodium Adsorption Ratio	27.6		STD 12
BH1 AS2	Electrical Conductivity	2.16	mS/cm	STD 1.4
BH1 AS2	Sodium Adsorption Ratio	32.6		STD 12
BH10 AS1	Electrical Conductivity	3.44	mS/cm	STD 1.4
BH10 AS1	Sodium Adsorption Ratio	68.1		STD 12
BH12 AS1	Electrical Conductivity	1.64	mS/cm	STD 1.4
BH12 AS1	Sodium Adsorption Ratio	28.6		STD 12
BH12 AS2	Electrical Conductivity	1.76	mS/cm	STD 1.4
BH12 AS2	Sodium Adsorption Ratio	26.8		STD 12
BH13 AS1	Electrical Conductivity	1.90	mS/cm	STD 1.4
BH13 AS1	Sodium Adsorption Ratio	37.5		STD 12
BH13 AS2	Sodium Adsorption Ratio	19.3		STD 12
BH18 AS1	Electrical Conductivity	2.37	mS/cm	STD 1.4
BH18 AS1	Sodium Adsorption Ratio	66.2		STD 12
BH18 AS2	Electrical Conductivity	1.62	mS/cm	STD 1.4
BH18 AS2	Sodium Adsorption Ratio	24.2		STD 12
BH2 AS1	Electrical Conductivity	1.58	mS/cm	STD 1.4
BH2 AS1	Sodium Adsorption Ratio	38.8		STD 12
BH21 AS1	Electrical Conductivity	1.47	mS/cm	STD 1.4
BH21 AS1	Sodium Adsorption Ratio	18.2		STD 12
BH22 AS1	Electrical Conductivity	1.66	mS/cm	STD 1.4
BH22 AS1	Sodium Adsorption Ratio	17.9		STD 12
BH22 AS2	Electrical Conductivity	1.71	mS/cm	STD 1.4
BH22 AS2	Sodium Adsorption Ratio	29.4		STD 12
BH3 AS1	Electrical Conductivity	1.89	mS/cm	STD 1.4
BH3 AS1	Sodium Adsorption Ratio	25.4		STD 12
BH3 AS2	Electrical Conductivity	1.79	mS/cm	STD 1.4
BH3 AS2	Sodium Adsorption Ratio	25.6		STD 12
BH32 AS1	Electrical Conductivity	3.47	mS/cm	STD 1.4
BH32 AS1	Sodium Adsorption Ratio	37.0		STD 12
BH5 AS1	Electrical Conductivity	2.97	mS/cm	STD 1.4
BH5 AS1	Sodium Adsorption Ratio	49.4		STD 12
BH5 AS2	Electrical Conductivity	3.31	mS/cm	STD 1.4
BH5 AS2	Sodium Adsorption Ratio	33.6		STD 12
BH6 AS1	Electrical Conductivity	1.57	mS/cm	STD 1.4
BH6 AS1	Sodium Adsorption Ratio	32.4		STD 12
BH7 AS1	Electrical Conductivity	2.33	mS/cm	STD 1.4
BH7 AS1	Sodium Adsorption Ratio	24.4		STD 12

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

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

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Project: P-0013610-0-01-201-01
COC #: 862551

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1521080 Soil153	1521081 Soil153	1521082 Soil153	1521083 Soil153	1521084 Soil153
2020-10-06	2020-10-06	2020-10-06	2020-10-06	2020-10-06
BH1 AS1	BH1 AS2	BH2 AS1	BH3 AS1	BH3 AS2

Analyte Batch No MRL Units Guideline

Antimony	390742	1	ug/g	STD 40	<1	<1	<1	<1	<1
Arsenic	390742	1	ug/g	STD 18	2	3	2	2	3
Barium	390742	1	ug/g	STD 670	21	31	31	32	34
Beryllium	390742	1	ug/g	STD 8	<1	<1	<1	<1	<1
Boron (Hot Water Soluble)	390594	0.5	ug/g	STD 2	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (total)	390742	5	ug/g	STD 120	5	<5	<5	<5	<5
Cadmium	390742	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium Total	390742	1	ug/g	STD 160	90	22	19	26	20
Chromium VI	390787	0.20	ug/g	STD 8	<0.20	<0.20	0.20	0.34	0.24
Cobalt	390742	1	ug/g	STD 80	8	7	11	12	18
Copper	390742	1	ug/g	STD 230	24	28	26	17	19
Lead	390742	1	ug/g	STD 120	14	9	12	20	23
Mercury	390742	0.1	ug/g	STD 3.9	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	390742	1	ug/g	STD 40	<1	<1	<1	<1	<1
Nickel	390742	1	ug/g	STD 270	44	19	14	18	15
Selenium	390742	1	ug/g	STD 5.5	<1	<1	<1	<1	<1
Silver	390742	0.2	ug/g	STD 40	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	390742	1	ug/g	STD 3.3	<1	<1	<1	<1	<1
Uranium	390742	0.5	ug/g	STD 33	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	390742	2	ug/g	STD 86	12	16	15	18	19
Zinc	390742	2	ug/g	STD 340	50	36	30	31	33

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COC #: 862551

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1521085 Soil153	1521086 Soil153	1521087 Soil153	1521088 Soil153	1521089 Soil153
2020-10-06	2020-10-06	2020-10-06	2020-10-06	2020-10-06
BH5 AS1	BH5 AS2	BH6 AS1	BH7 AS1	BH10 AS1

Analyte **Batch No** **MRL** **Units** **Guideline**

Antimony	390742	1	ug/g	STD 40	<1	<1	<1	<1	<1
Arsenic	390742	1	ug/g	STD 18	3	2	2	2	2
Barium	390742	1	ug/g	STD 670	28	23	22	28	29
Beryllium	390742	1	ug/g	STD 8	<1	<1	<1	<1	<1
Boron (Hot Water Soluble)	390594	0.5	ug/g	STD 2	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (total)	390742	5	ug/g	STD 120	<5	<5	7	<5	<5
Cadmium	390742	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium Total	390742	1	ug/g	STD 160	28	7	32	22	26
Chromium VI	390787	0.20	ug/g	STD 8	<0.20	<0.20	<0.20	<0.20	<0.20
Cobalt	390742	1	ug/g	STD 80	8	3	4	9	18
Copper	390742	1	ug/g	STD 230	22	12		21	25
	390874	1	ug/g	STD 230			13		
Lead	390742	1	ug/g	STD 120	18	8	13	19	13
Mercury	390742	0.1	ug/g	STD 3.9	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	390742	1	ug/g	STD 40	<1	<1	<1	<1	<1
Nickel	390742	1	ug/g	STD 270	22	7	17	15	21
Selenium	390742	1	ug/g	STD 5.5	<1	<1	<1	<1	<1
Silver	390742	0.2	ug/g	STD 40	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	390742	1	ug/g	STD 3.3	<1	<1	<1	<1	<1
Uranium	390742	0.5	ug/g	STD 33	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	390742	2	ug/g	STD 86	15	14	6	17	14
Zinc	390742	2	ug/g	STD 340	39	18		27	36
	390874	2	ug/g	STD 340			21		

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Project: P-0013610-0-01-201-01
COC #: 862551

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1521090 Soil153	1521091 Soil153	1521092 Soil153	1521093 Soil153	1521094 Soil153
2020-10-06	2020-10-06	2020-10-06	2020-10-06	2020-10-06
BH21 AS1	BH12 AS1	BH12 AS2	BH13 AS1	BH13 AS2

Analyte **Batch No** **MRL** **Units** **Guideline**

Antimony	390742	1	ug/g	STD 40	<1	<1	<1		
	390813	1	ug/g	STD 40				<1	<1
Arsenic	390742	1	ug/g	STD 18	2	3	2		
	390813	1	ug/g	STD 18				3	2
Barium	390742	1	ug/g	STD 670	23	28	20		
	390813	1	ug/g	STD 670				31	16
Beryllium	390742	1	ug/g	STD 8	<1	<1	<1		
	390813	1	ug/g	STD 8				<1	<1
Boron (Hot Water Soluble)	390594	0.5	ug/g	STD 2	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (total)	390742	5	ug/g	STD 120	<5	<5	<5		
	390813	5	ug/g	STD 120				5	<5
Cadmium	390742	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4		
	390813	0.4	ug/g	STD 1.9				<0.4	<0.4
Chromium Total	390742	1	ug/g	STD 160	8	24			
	390813	1	ug/g	STD 160				16	9
	390874	1	ug/g	STD 160			13		
Chromium VI	390787	0.20	ug/g	STD 8	<0.20	<0.20	<0.20	0.21	<0.20
Cobalt	390742	1	ug/g	STD 80	4	15	5		
	390813	1	ug/g	STD 80				14	4
Copper	390742	1	ug/g	STD 230	15	19	14		
	390813	1	ug/g	STD 230				24	12
Lead	390742	1	ug/g	STD 120	5	52	32		
	390813	1	ug/g	STD 120				25	28

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COC #: 862551

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1521090 Soil153	1521091 Soil153	1521092 Soil153	1521093 Soil153	1521094 Soil153
2020-10-06	2020-10-06	2020-10-06	2020-10-06	2020-10-06
BH21 AS1	BH12 AS1	BH12 AS2	BH13 AS1	BH13 AS2

Analyte	Batch No	MRL	Units	Guideline
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Mercury	390742	0.1	ug/g	STD 3.9	<0.1	<0.1	<0.1		
	390813	0.1	ug/g	STD 3.9				<0.1	<0.1
Molybdenum	390742	1	ug/g	STD 40	<1	<1	<1		
	390813	1	ug/g	STD 40				<1	<1
Nickel	390742	1	ug/g	STD 270	7	16			
	390813	1	ug/g	STD 270				17	11
	390874	1	ug/g	STD 270			10		
Selenium	390742	1	ug/g	STD 5.5	<1	<1	<1		
	390813	1	ug/g	STD 5.5				<1	<1
Silver	390742	0.2	ug/g	STD 40	<0.2	<0.2	<0.2		
	390813	0.2	ug/g	STD 40				<0.2	<0.2
Thallium	390742	1	ug/g	STD 3.3	<1	<1	<1		
	390813	1	ug/g	STD 3.3				<1	<1
Uranium	390742	0.5	ug/g	STD 33	<0.5	<0.5	<0.5		
	390813	0.5	ug/g	STD 33				<0.5	<0.5
Vanadium	390742	2	ug/g	STD 86	13	15	12		
	390813	2	ug/g	STD 86				16	11
Zinc	390742	2	ug/g	STD 340	19	36	23		
	390813	2	ug/g	STD 340				46	22

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COC #: 862551

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1521095 Soil153	1521096 Soil153	1521097 Soil153	1521098 Soil153	1521099 Soil153
2020-10-06	2020-10-06	2020-10-06	2020-10-06	2020-10-06
BH18 AS1	BH18 AS2	BH22 AS1	BH22 AS2	BH30 AS1

Analyte	Batch No	MRL	Units	Guideline
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Antimony	390813	1	ug/g	STD 40	<1	<1	<1	<1	<1
Arsenic	390813	1	ug/g	STD 18	3	3	2	1	2
Barium	390813	1	ug/g	STD 670	34	22	22	15	19
Beryllium	390813	1	ug/g	STD 8	<1	<1	<1	<1	<1
Boron (Hot Water Soluble)	390594	0.5	ug/g	STD 2		<0.5	<0.5	<0.5	<0.5
	390731	0.5	ug/g	STD 2	<0.5				
Boron (total)	390813	5	ug/g	STD 120	<5	<5	<5	<5	<5
Cadmium	390813	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium Total	390813	1	ug/g	STD 160	22	18	10	7	9
Chromium VI	390787	0.20	ug/g	STD 8	<0.20	<0.20	<0.20	0.23	<0.20
Cobalt	390813	1	ug/g	STD 80	34	10	4	4	4
Copper	390813	1	ug/g	STD 230	23	18	13	10	14
Lead	390813	1	ug/g	STD 120	28	46	6	3	10
Mercury	390813	0.1	ug/g	STD 3.9	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	390813	1	ug/g	STD 40	<1	<1	<1	<1	<1
Nickel	390813	1	ug/g	STD 270	30	13	8	6	8
Selenium	390813	1	ug/g	STD 5.5	<1	<1	<1	<1	<1
Silver	390813	0.2	ug/g	STD 40	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	390813	1	ug/g	STD 3.3	<1	<1	<1	<1	<1
Uranium	390813	0.5	ug/g	STD 33	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	390813	2	ug/g	STD 86	18	14	15	12	14
Zinc	390813	2	ug/g	STD 340	60	28	19	14	26

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COC #: 862551

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1521100
Soil153
2020-10-06
BH30 AS2

1521101
Soil153
2020-10-06
BH32 AS1

Analyte	Batch No	MRL	Units	Guideline		
Antimony	390813	1	ug/g	STD 40	<1	<1
Arsenic	390813	1	ug/g	STD 18	2	2
Barium	390813	1	ug/g	STD 670	26	27
Beryllium	390813	1	ug/g	STD 8	<1	<1
Boron (Hot Water Soluble)	390594	0.5	ug/g	STD 2	<0.5	<0.5
Boron (total)	390813	5	ug/g	STD 120	<5	5
Cadmium	390813	0.4	ug/g	STD 1.9	<0.4	<0.4
Chromium Total	390813	1	ug/g	STD 160	29	14
Chromium VI	390787	0.20	ug/g	STD 8	<0.20	<0.20
Cobalt	390813	1	ug/g	STD 80	6	7
Copper	390813	1	ug/g	STD 230	22	21
Lead	390813	1	ug/g	STD 120	14	23
Mercury	390813	0.1	ug/g	STD 3.9	<0.1	<0.1
Molybdenum	390813	1	ug/g	STD 40	<1	<1
Nickel	390813	1	ug/g	STD 270	19	16
Selenium	390813	1	ug/g	STD 5.5	<1	<1
Silver	390813	0.2	ug/g	STD 40	<0.2	<0.2
Thallium	390813	1	ug/g	STD 3.3	<1	<1
Uranium	390813	0.5	ug/g	STD 33	<0.5	<0.5
Vanadium	390813	2	ug/g	STD 86	19	16
Zinc	390813	2	ug/g	STD 340	38	37

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Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Ms. Ana Maria Gutierrez
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1940411
Date Submitted: 2020-10-07
Date Reported: 2020-10-15
Project: P-0013610-0-01-201-01
COC #: 862551

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Inorganics

Guideline = O.Reg 153-T3-Ind/Com-Coarse					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1521080 Soil153 2020-10-06 BH1 AS1	1521081 Soil153 2020-10-06 BH1 AS2	1521082 Soil153 2020-10-06 BH2 AS1	1521083 Soil153 2020-10-06 BH3 AS1	1521084 Soil153 2020-10-06 BH3 AS2
Analyte	Batch No	MRL	Units	Guideline						
Cyanide (CN-)	390681	0.005	ug/g	STD 0.051						
Electrical Conductivity	390676	0.05	mS/cm	STD 1.4						
pH - CaCl2	390729	2.00								
Sodium Adsorption Ratio	390697	0.01		STD 12						

Inorganics

<u>Inorganics</u>					Lab I.D.	1521085	1521086	1521087	1521088	1521089
Analyte	Batch No	MRL	Units	Guideline	Sample Matrix	Soil153	Soil153	Soil153	Soil153	Soil153
					Sample Type	2020-10-06	2020-10-06	2020-10-06	2020-10-06	2020-10-06
					Sample Date	BH5 AS1	BH5 AS2	BH6 AS1	BH7 AS1	BH10 AS1
					Sampling Time					
					Sample I.D.					
Cyanide (CN-)	390681	0.005	ug/g	STD 0.051		<0.005		<0.005	<0.005	<0.005
		0.02	ug/g	STD 0.051			<0.02			
Electrical Conductivity	390676	0.05	mS/cm	STD 1.4		2.97*	3.31*	1.57*	2.33*	3.44*
pH - CaCl2	390729	2.00				7.95	8.01	8.21	8.38	8.37
Sodium Adsorption Ratio	390697	0.01		STD 12		49.4*	33.6*	32.4*	24.4*	68.1*

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Inorganics

Guideline = O.Reg 153-T3-Ind/Com-Coarse					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1521090 Soil153 2020-10-06 BH21 AS1	1521091 Soil153 2020-10-06 BH12 AS1	1521092 Soil153 2020-10-06 BH12 AS2	1521093 Soil153 2020-10-06 BH13 AS1	1521094 Soil153 2020-10-06 BH13 AS2
Analyte	Batch No	MRL	Units	Guideline						
Cyanide (CN-)	390681	0.005	ug/g	STD 0.051						
Electrical Conductivity	390676	0.05	mS/cm	STD 1.4						
pH - CaCl2	390729	2.00								
Sodium Adsorption Ratio	390697	0.01		STD 12						

Inorganics

<u>Inorganics</u>					Lab I.D.	1521095	1521096	1521097	1521098	1521099
Analyte	Batch No	MRL	Units	Sample Matrix	Soil153	Soil153	Soil153	Soil153	Soil153	
				Sample Type						
				Sample Date	2020-10-06	2020-10-06	2020-10-06	2020-10-06	2020-10-06	
				Sampling Time						
				Sample I.D.	BH18 AS1	BH18 AS2	BH22 AS1	BH22 AS2	BH30 AS1	
Cyanide (CN-)	390681	0.005	ug/g	STD 0.051	<0.005	<0.005	<0.005		<0.005	
		0.02	ug/g	STD 0.051				<0.02		
Electrical Conductivity	390676	0.05	mS/cm	STD 1.4	2.37*	1.62*	1.66*	1.71*	0.58	
pH - CaCl2	390729	2.00			10.3	8.26	8.00	8.16	7.89	
Sodium Adsorption Ratio	390697	0.01		STD 12	66.2*	24.2*	17.9*	29.4*	9.30	

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Guideline = O.Reg 153-T3-Ind/Com-Coarse

Inorganics

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1521100 Soil153	1521101 Soil153
2020-10-06	2020-10-06
BH30 AS2	BH32 AS1

Analyte	Batch No	MRL	Units	Guideline		
Cyanide (CN-)	390681	0.005	ug/g	STD 0.051	<0.005	
		0.02	ug/g	STD 0.051		<0.02
Electrical Conductivity	390676	0.05	mS/cm	STD 1.4	0.53	3.47*
pH - CaCl2	390729	2.00			7.94	8.02
Sodium Adsorption Ratio	390697	0.01		STD 12	8.88	37.0*

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
390594	Boron (Hot Water Soluble)	<0.5 ug/g	80	70-130	94	75-125	0	0-30
390676	Electrical Conductivity	<0.05	98	90-110			2	0-10
390681	Cyanide (CN-)	<0.005 ug/g	99	75-125	78	70-130	0	0-20
390697	Sodium Adsorption Ratio	<0.01					0	
390729	pH - CaCl2	4.83	100	90-110			0	
390731	Boron (Hot Water Soluble)	<0.5 ug/g	86	70-130	94	75-125	0	0-30
390742	Silver	<0.2 ug/g	111	70-130	106	70-130	0	0-20
390742	Arsenic	<1 ug/g	104	70-130	101	70-130	0	0-20
390742	Boron (total)	<5 ug/g	108	70-130	169	70-130	0	0-20
390742	Barium	<1 ug/g	103	70-130	134	70-130	5	0-20
390742	Beryllium	<1 ug/g	111	70-130	93	70-130	0	0-20
390742	Cadmium	<0.4 ug/g	109	70-130	102	70-130	0	0-20
390742	Cobalt	<1 ug/g	106	70-130	93	70-130	3	0-20
390742	Chromium Total	<1 ug/g	106	70-130	100	70-130	50	0-20
390742	Copper	<1 ug/g	116	70-130	31	70-130	16	0-20
390742	Mercury	<0.1 ug/g		70-130	97	70-130	0	0-20
390742	Molybdenum	<1 ug/g	98	70-130	95	70-130	0	0-20
390742	Nickel	<1 ug/g	111	70-130	92	70-130	31	0-20
390742	Lead	<1 ug/g	111	70-130	114	70-130	10	0-20
390742	Antimony	<1 ug/g	87	70-130	90	70-130	0	0-20
390742	Selenium	<1 ug/g	112	70-130	97	70-130	0	0-20
390742	Thallium	<1 ug/g	109	70-130	100	70-130	0	0-20
390742	Uranium	<0.5 ug/g	103	70-130	104	70-130	0	0-20
390742	Vanadium	<2 ug/g	102	70-130	117	70-130	6	0-20
390742	Zinc	<2 ug/g	117	70-130	98	70-130	5	0-20
390787	Chromium VI	<0.20 ug/g	102	80-120	94	70-130	0	0-35
390813	Silver	<0.2 ug/g	99	70-130	98	70-130	0	0-20
390813	Arsenic	<1 ug/g	98	70-130	97	70-130	0	0-20
390813	Boron (total)	<5 ug/g	103	70-130	121	70-130	0	0-20
390813	Barium	<1 ug/g	99	70-130	17	70-130	6	0-20
390813	Beryllium	<1 ug/g	102	70-130	100	70-130	0	0-20
390813	Cadmium	<0.4 ug/g	103	70-130	97	70-130	0	0-20
390813	Cobalt	<1 ug/g	97	70-130	88	70-130	11	0-20

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Project: P-0013610-0-01-201-01
COC #: 862551

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
390813	Chromium Total	<1 ug/g	98	70-130	51	70-130	13	0-20
390813	Copper	<1 ug/g	108	70-130	78	70-130	11	0-20
390813	Mercury	<0.1 ug/g	100	70-130	89	70-130	0	0-20
390813	Molybdenum	<1 ug/g	93	70-130	90	70-130	0	0-20
390813	Nickel	<1 ug/g	103	70-130	69	70-130	15	0-20
390813	Lead	<1 ug/g	104	70-130	78	70-130	6	0-20
390813	Antimony	<1 ug/g	76	70-130	86	70-130	0	0-20
390813	Selenium	<1 ug/g	107	70-130	100	70-130	0	0-20
390813	Thallium	<1 ug/g	104	70-130	96	70-130	0	0-20
390813	Uranium	<0.5 ug/g	95	70-130	96	70-130	0	0-20
390813	Vanadium	<2 ug/g	95	70-130	82	70-130	10	0-20
390813	Zinc	<2 ug/g	111	70-130	47	70-130	5	0-20
390874	Chromium Total	<1 ug/g	105	70-130	118	70-130	6	0-20
390874	Copper	<1 ug/g	114	70-130	94	70-130	9	0-20
390874	Nickel	<1 ug/g	108	70-130	99	70-130	6	0-20
390874	Zinc	<2 ug/g	115	70-130	56	70-130	9	0-20

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Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
390594	Boron (Hot Water Soluble)	iCAP OES	2020-10-08	2020-10-08	Z_S	MOECC E3470
390676	Electrical Conductivity	Electrical Conductivity Meter	2020-10-09	2020-10-09	Z_S	Cond-Soil
390681	Cyanide (CN-)	Skalar CN Analyzer	2020-10-09	2020-10-09	QT	MOECC E3015
390697	Sodium Adsorption Ratio	iCAP OES	2020-10-09	2020-10-09	Z_S	Ag Soil
390729	pH - CaCl2	pH Meter	2020-10-13	2020-10-13	R_R	Ag Soil
390731	Boron (Hot Water Soluble)	iCAP OES	2020-10-13	2020-10-13	Z_S	MOECC E3470
390742	Silver	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Arsenic	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Boron (total)	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Barium	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Beryllium	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Cadmium	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Cobalt	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Chromium Total	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Copper	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Mercury	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Molybdenum	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Nickel	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Lead	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Antimony	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Selenium	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Thallium	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Uranium	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Vanadium	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390742	Zinc	ICAPQ-MS	2020-10-13	2020-10-13	H_D	EPA 200.8
390787	Chromium VI	FAA	2020-10-14	2020-10-14	Z_S	M US EPA 3060A
390813	Silver	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Arsenic	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Boron (total)	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Barium	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Beryllium	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Cadmium	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Cobalt	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8

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Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
390813	Chromium Total	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Copper	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Mercury	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Molybdenum	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Nickel	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Lead	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Antimony	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Selenium	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Thallium	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Uranium	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Vanadium	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390813	Zinc	ICAPQ-MS	2020-10-14	2020-10-14	H_D	EPA 200.8
390874	Chromium Total	ICAPQ-MS	2020-10-15	2020-10-15	H_D	EPA 200.8
390874	Copper	ICAPQ-MS	2020-10-15	2020-10-15	H_D	EPA 200.8
390874	Nickel	ICAPQ-MS	2020-10-15	2020-10-15	H_D	EPA 200.8
390874	Zinc	ICAPQ-MS	2020-10-15	2020-10-15	H_D	EPA 200.8

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1821 Albion Road, Unit 7
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Attention: Mr. Weiyu Jin
Invoice to: EnGlobe Corp.
PO#:

Report Number: 1927159
Date Submitted: 2020-03-13
Date Reported: 2020-03-20
Project: P-0013610
COC #: 854721
Temperature (C): 16
Custody Seal:

Page 1 of 7

Dear Weiyu Jin:

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

Report Comments:

Addrine Thomas, Inorganics Supervisor

Long Qu, Organics Supervisor

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

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

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

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Project: P-0013610
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O.Reg 153-T3-Ind/Com-Coarse

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria
Inorganics				
BH11 AS1	Electrical Conductivity	2.14	mS/cm	STD 1.4
BH11 AS1	Sodium Adsorption Ratio	44.4		STD 12
BH11 AS2	Electrical Conductivity	2.15	mS/cm	STD 1.4
BH11 AS2	Sodium Adsorption Ratio	44.6		STD 12
BH14 AS1	Sodium Adsorption Ratio	15.1		STD 12
BH14 AS2	Sodium Adsorption Ratio	20.5		STD 12
BH15 AS1	Sodium Adsorption Ratio	20.2		STD 12
BH8 AS1	Sodium Adsorption Ratio	13.9		STD 12
BH8 AS2	Sodium Adsorption Ratio	24.1		STD 12

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Date Submitted: 2020-03-13
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COC #: 854721

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1484933 Soil153	1484934 Soil153	1484935 Soil153	1484936 Soil153	1484937 Soil153
2020-03-13	2020-03-13	2020-03-13	2020-03-13	2020-03-13
BH8 AS1	BH8 AS2	BH9 AS1	BH11 AS1	BH11 AS2

Analyte **Batch No** **MRL** **Units** **Guideline**

Antimony	380975	1	ug/g	STD 40	<1	<1	<1	<1	<1
Arsenic	380975	1	ug/g	STD 18	2	2	2	2	2
Barium	380975	1	ug/g	STD 670	35	27	30	25	25
Beryllium	380975	1	ug/g	STD 8	<1	<1	<1	<1	<1
Boron (Hot Water Soluble)	380918	0.5	ug/g	STD 2	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (total)	380975	5	ug/g	STD 120	7	6	<5	7	5
Cadmium	380975	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium Total	380975	1	ug/g	STD 160	13	11	11	12	12
Chromium VI	381002	0.20	ug/g	STD 8	<0.20	<0.20	<0.20	<0.20	<0.20
Cobalt	380975	1	ug/g	STD 80	5	3	4	4	4
Copper	380975	1	ug/g	STD 230	15	10	12	17	16
Lead	380975	1	ug/g	STD 120		9	18	12	10
	381076	1	ug/g	STD 120	16				
Mercury	380975	0.1	ug/g	STD 3.9	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	380975	1	ug/g	STD 40	<1	<1	<1	<1	<1
Nickel	380975	1	ug/g	STD 270	10	9	10	9	10
Selenium	380975	1	ug/g	STD 5.5	<1	<1	<1	<1	<1
Silver	380975	0.2	ug/g	STD 40	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	380975	1	ug/g	STD 3.3	<1	<1	<1	<1	<1
Uranium	380975	0.5	ug/g	STD 33	0.6	<0.5	0.8	0.8	<0.5
Vanadium	380975	2	ug/g	STD 86	16	12	15	14	12
Zinc	380975	2	ug/g	STD 340	32	29	29	54	48

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

Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Mr. Weiyu Jin
PO#:
Invoice to: EnGlobe Corp.

Report Number: 1927159
Date Submitted: 2020-03-13
Date Reported: 2020-03-20
Project: P-0013610
COC #: 854721

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1484938 Soil153	1484939 Soil153	1484940 Soil153
2020-03-13	2020-03-13	2020-03-13
BH14 AS1	BH14 AS2	BH15 AS1

Analyte	Batch No	MRL	Units	Guideline
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Antimony	380975	1	ug/g	STD 40	<1	<1	<1
Arsenic	380975	1	ug/g	STD 18	3	2	2
Barium	380975	1	ug/g	STD 670	53	46	58
Beryllium	380975	1	ug/g	STD 8	<1	<1	<1
Boron (Hot Water Soluble)	381024	0.5	ug/g	STD 2	<0.5	<0.5	<0.5
Boron (total)	380975	5	ug/g	STD 120	6	6	11
Cadmium	380975	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4
Chromium Total	380975	1	ug/g	STD 160	20	18	62
Chromium VI	381002	0.20	ug/g	STD 8	<0.20	<0.20	<0.20
Cobalt	380975	1	ug/g	STD 80	6	5	3
Copper	380975	1	ug/g	STD 230	15	14	12
Lead	380975	1	ug/g	STD 120	13	12	18
Mercury	380975	0.1	ug/g	STD 3.9	<0.1	<0.1	<0.1
Molybdenum	380975	1	ug/g	STD 40	<1	<1	1
Nickel	380975	1	ug/g	STD 270	14	12	14
Selenium	380975	1	ug/g	STD 5.5	<1	<1	<1
Silver	380975	0.2	ug/g	STD 40	<0.2	<0.2	<0.2
Thallium	380975	1	ug/g	STD 3.3	<1	<1	<1
Uranium	380975	0.5	ug/g	STD 33	<0.5	<0.5	0.6
Vanadium	380975	2	ug/g	STD 86	23	20	26
Zinc	380975	2	ug/g	STD 340	48	39	41

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1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Mr. Weiyu Jin
PO#:
Invoice to: EnGlobe Corp.

Report Number: 1927159
Date Submitted: 2020-03-13
Date Reported: 2020-03-20
Project: P-0013610
COC #: 854721

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Inorganics

					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.					
					Guideline					
Analyte	Batch No	MRL	Units	Guideline						
Cyanide (CN-)	381003	0.02	ug/g	STD 0.051	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Electrical Conductivity	380881	0.05	mS/cm	STD 1.4	1.27	1.33	0.50	2.14*		
	380998	0.05	mS/cm	STD 1.4						2.15*
pH - CaCl2	381006	2.00			7.97	7.85	7.92	7.98	7.99	
Sodium Adsorption Ratio	380916	0.01		STD 12	13.9*	24.1*	6.78	44.4*		
	381005	0.01		STD 12						44.6*

Inorganics

					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.			
					Guideline			
Analyte	Batch No	MRL	Units	Guideline				
Cyanide (CN-)	381003	0.02	ug/g	STD 0.051	<0.02	<0.02	<0.02	
Electrical Conductivity	380998	0.05	mS/cm	STD 1.4	1.07	1.23	0.99	
pH - CaCl2	381006	2.00			7.88	7.88	8.73	
Sodium Adsorption Ratio	381005	0.01		STD 12	15.1*	20.5*	20.2*	

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Report Number: 1927159
Date Submitted: 2020-03-13
Date Reported: 2020-03-20
Project: P-0013610
COC #: 854721

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
380881	Electrical Conductivity	<0.05	103	90-110			6	0-10
380916	Sodium Adsorption Ratio	<0.01					1	
380918	Boron (Hot Water Soluble)	<0.5 ug/g	94	70-130	91	75-125	0	0-30
380975	Silver	<0.2 ug/g	108	70-130	119	70-130	0	0-20
380975	Arsenic	<1 ug/g	99	70-130	102	70-130	0	0-20
380975	Boron (total)	<5 ug/g	109	70-130	116	70-130	0	0-20
380975	Barium	<1 ug/g	109	70-130	133	70-130	4	0-20
380975	Beryllium	<1 ug/g	109	70-130	108	70-130	0	0-20
380975	Cadmium	<0.4 ug/g	111	70-130	113	70-130	0	0-20
380975	Cobalt	<1 ug/g	98	70-130	89	70-130	0	0-20
380975	Chromium Total	<1 ug/g	113	70-130	161	70-130	5	0-20
380975	Copper	<1 ug/g	109	70-130	74	70-130	14	0-20
380975	Mercury	<0.1 ug/g	100	70-130	107	70-130	0	0-20
380975	Molybdenum	<1 ug/g	102	70-130	106	70-130	0	0-20
380975	Nickel	<1 ug/g	106	70-130	113	70-130	3	0-20
380975	Lead	<1 ug/g	120	70-130	114	70-130	61	0-20
380975	Antimony	<1 ug/g	76	70-130	108	70-130	0	0-20
380975	Selenium	<1 ug/g	109	70-130	106	70-130	0	0-20
380975	Thallium	<1 ug/g	111	70-130	112	70-130	0	0-20
380975	Uranium	<0.5 ug/g	107	70-130	112	70-130	0	0-20
380975	Vanadium	<2 ug/g	107	70-130	122	70-130	0	0-20
380975	Zinc	<2 ug/g	117	70-130	71	70-130	7	0-20
380998	Electrical Conductivity	<0.05	94	90-110			2	0-10
381002	Chromium VI	<0.20 ug/g	100	80-120	86	70-130	0	0-35
381003	Cyanide (CN-)	<0.02 ug/g	108	75-125	100	70-130	0	0-20
381005	Sodium Adsorption Ratio	<0.01					4	
381006	pH - CaCl2	5.66	100	90-110			0	
381024	Boron (Hot Water Soluble)	<0.5 ug/g	93	70-130	91	75-125	0	0-30
381076	Lead	<1 ug/g	106	70-130	151	70-130	5	0-20

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M9W 5W8
Attention: Mr. Weiyu Jin
PO#:
Invoice to: EnGlobe Corp.

Report Number: 1927159
Date Submitted: 2020-03-13
Date Reported: 2020-03-20
Project: P-0013610
COC #: 854721

Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
380881	Electrical Conductivity	Electrical Conductivity Meter	2020-03-17	2020-03-17	SKH	Cond-Soil
380916	Sodium Adsorption Ratio	iCAP OES	2020-03-17	2020-03-17	SKH	Ag Soil
380918	Boron (Hot Water Soluble)	iCAP OES	2020-03-17	2020-03-17	SKH	MOECC E3470
380975	Silver	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Arsenic	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Boron (total)	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Barium	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Beryllium	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Cadmium	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Cobalt	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Chromium Total	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Copper	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Mercury	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Molybdenum	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Nickel	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Lead	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Antimony	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Selenium	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Thallium	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Uranium	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Vanadium	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380975	Zinc	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
380998	Electrical Conductivity	Electrical Conductivity Meter	2020-03-19	2020-03-19	SKH	Cond-Soil
381002	Chromium VI	FAA	2020-03-19	2020-03-19	Z_S	M US EPA 3060A
381003	Cyanide (CN-)	Skalar CN Analyzer	2020-03-19	2020-03-19	Z_S	MOECC E3015
381005	Sodium Adsorption Ratio	iCAP OES	2020-03-19	2020-03-19	SKH	Ag Soil
381006	pH - CaCl2	pH Meter	2020-03-19	2020-03-19	JM	Ag Soil
381024	Boron (Hot Water Soluble)	iCAP OES	2020-03-19	2020-03-19	SKH	MOECC E3470
381076	Lead	ICAPQ-MS	2020-03-20	2020-03-20	H_D	EPA 200.8

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Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Steven Chen
Invoice to: EnGlobe Corp.
PO#: 24881

Report Number: 1910333
Date Submitted: 2019-06-21
Date Reported: 2019-07-01
Project: P-0013610
COC #: 845082
Temperature (C): 9
Custody Seal:

Page 1 of 12

Dear Steven Chen:

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

Sample Comment Summary

Sample ID: 1434864 BH23 AS1	For this report, metals spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.
Sample ID: 1434865 BH23 SS2	Metals spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

Report Comments:

Addrine Thomas, Inorganics Supervisor

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

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

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

Client: EnGlobe Corp. (Toronto)
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M9W 5W8
Attention: Steven Chen
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Invoice to: EnGlobe Corp.

Report Number: 1910333
Date Submitted: 2019-06-21
Date Reported: 2019-07-01
Project: P-0013610
COC #: 845082

O.Reg 153-T3-Ind/Com-Coarse

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria
Inorganics				
BH23 AS6	Sodium Adsorption Ratio	14.2		STD 12
BH23 SS2	Electrical Conductivity	2.46	mS/cm	STD 1.4
BH23 SS3	Electrical Conductivity	3.46	mS/cm	STD 1.4
BH23 SS3	Sodium Adsorption Ratio	23.6		STD 12
BH23 SS4	Electrical Conductivity	2.09	mS/cm	STD 1.4
BH23 SS4	Sodium Adsorption Ratio	35.0		STD 12
BH23 SS5	Electrical Conductivity	1.97	mS/cm	STD 1.4
BH23 SS5	Sodium Adsorption Ratio	29.6		STD 12
BH27 AS1	Electrical Conductivity	1.53	mS/cm	STD 1.4
BH27 AS1	Sodium Adsorption Ratio	50.4		STD 12
BH27 SS2	Electrical Conductivity	2.86	mS/cm	STD 1.4
BH27 SS2	Sodium Adsorption Ratio	24.3		STD 12
BH27 SS3	Electrical Conductivity	2.34	mS/cm	STD 1.4
BH27 SS3	Sodium Adsorption Ratio	63.6		STD 12
BH27 SS4	Electrical Conductivity	3.31	mS/cm	STD 1.4
BH27 SS4	Sodium Adsorption Ratio	47.9		STD 12
BH27 SS5	Electrical Conductivity	1.50	mS/cm	STD 1.4
BH27 SS5	Sodium Adsorption Ratio	20.7		STD 12

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Date Submitted: 2019-06-21
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Project: P-0013610
COC #: 845082

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1434864 Soil153	1434865 Soil153	1434866 Soil153	1434867 Soil153	1434868 Soil153
2019-06-19	2019-06-19	2019-06-19	2019-06-19	2019-06-19
BH23 AS1	BH23 SS2	BH23 SS3	BH23 SS4	BH23 SS5

Analyte **Batch No** **MRL** **Units** **Guideline**

Antimony	368046	1	ug/g	STD 40	<1		<1	<1	<1
	368128	1	ug/g	STD 40		1			
Arsenic	368046	1	ug/g	STD 18	2		2	2	2
	368128	1	ug/g	STD 18		2			
Barium	368046	1	ug/g	STD 670	29		63	59	41
	368128	1	ug/g	STD 670		43			
Beryllium	368046	1	ug/g	STD 8	<1		<1	<1	<1
	368128	1	ug/g	STD 8		<1			
Boron (Hot Water Soluble)	368027	0.5	ug/g	STD 2	<0.5		<0.5	<0.5	<0.5
	368141	0.5	ug/g	STD 2		<0.5			
Boron (total)	368046	5	ug/g	STD 120	<5		<5	<5	<5
	368128	5	ug/g	STD 120		6			
Cadmium	368046	0.4	ug/g	STD 1.9	<0.4		<0.4	<0.4	<0.4
	368128	0.4	ug/g	STD 1.9		<0.4			
Chromium Total	368046	1	ug/g	STD 160	10		18	16	14
	368232	1	ug/g	STD 160		16			
Chromium VI	368215	0.20	ug/g	STD 8	0.22	<0.20	0.21	<0.20	<0.20
Cobalt	368046	1	ug/g	STD 80	4		6	6	4
	368128	1	ug/g	STD 80		4			
Copper	368046	1	ug/g	STD 230	9		14	14	10
	368128	1	ug/g	STD 230		11			
Lead	368046	1	ug/g	STD 120	7		14	11	5
	368128	1	ug/g	STD 120		19			

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Date Submitted: 2019-06-21
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Project: P-0013610
COC #: 845082

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1434864 Soil153	1434865 Soil153	1434866 Soil153	1434867 Soil153	1434868 Soil153
2019-06-19	2019-06-19	2019-06-19	2019-06-19	2019-06-19
BH23 AS1	BH23 SS2	BH23 SS3	BH23 SS4	BH23 SS5

Analyte	Batch No	MRL	Units	Guideline
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Mercury	368030	0.1	ug/g	STD 3.9	<0.1		<0.1	<0.1	<0.1
	368240	0.1	ug/g	STD 3.9		<0.1			
Molybdenum	368046	1	ug/g	STD 40	<1		<1	<1	<1
	368128	1	ug/g	STD 40		<1			
Nickel	368046	1	ug/g	STD 270	8		14	14	10
	368128	1	ug/g	STD 270		15			
Selenium	368046	1	ug/g	STD 5.5	<1		<1	<1	<1
	368128	1	ug/g	STD 5.5		<1			
Silver	368046	0.2	ug/g	STD 40	<0.2		<0.2	<0.2	<0.2
	368128	0.2	ug/g	STD 40		<0.2			
Thallium	368046	1	ug/g	STD 3.3	<1		<1	<1	<1
	368128	1	ug/g	STD 3.3		<1			
Uranium	368046	0.5	ug/g	STD 33	<0.5		<0.5	<0.5	<0.5
	368128	0.5	ug/g	STD 33		<0.5			
Vanadium	368046	2	ug/g	STD 86	18		20	20	19
	368128	2	ug/g	STD 86		33			
Zinc	368046	2	ug/g	STD 340	21		30	29	22
	368128	2	ug/g	STD 340		22			

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Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1434869 Soil153	1434870 Soil153	1434871 Soil153	1434872 Soil153	1434873 Soil153
2019-06-19	2019-06-19	2019-06-19	2019-06-19	2019-06-19
BH23 AS6	BH27 AS1	BH27 SS2	BH27 SS3	BH27 SS4

Analyte Batch No MRL Units Guideline

Antimony	368046	1	ug/g	STD 40	<1	<1	<1	<1	<1
Arsenic	368046	1	ug/g	STD 18	2	2	2	1	2
Barium	368046	1	ug/g	STD 670	38	27	22	21	25
Beryllium	368046	1	ug/g	STD 8	<1	<1	<1	<1	<1
Boron (Hot Water Soluble)	368027	0.5	ug/g	STD 2	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (total)	368046	5	ug/g	STD 120	<5	<5	<5	<5	<5
Cadmium	368046	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium Total	368046	1	ug/g	STD 160	14	26	31	25	30
Chromium VI	368215	0.20	ug/g	STD 8	<0.20	<0.20	<0.20	<0.20	0.25
Cobalt	368046	1	ug/g	STD 80	4	4	4	2	2
Copper	368046	1	ug/g	STD 230	9	7	10	7	8
Lead	368046	1	ug/g	STD 120	5	3	3	3	4
Mercury	368030	0.1	ug/g	STD 3.9	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	368046	1	ug/g	STD 40	<1	<1	<1	<1	<1
Nickel	368046	1	ug/g	STD 270	10	12	15	12	14
Selenium	368046	1	ug/g	STD 5.5	<1	<1	<1	<1	<1
Silver	368046	0.2	ug/g	STD 40	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	368046	1	ug/g	STD 3.3	<1	<1	<1	<1	<1
Uranium	368046	0.5	ug/g	STD 33	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	368046	2	ug/g	STD 86	18	12	10	10	11
Zinc	368046	2	ug/g	STD 340	21	18	18	16	21

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Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Steven Chen
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1910333
Date Submitted: 2019-06-21
Date Reported: 2019-07-01
Project: P-0013610
COC #: 845082

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1434874
Soil153
2019-06-19
BH27 SS5

1434875
Soil153
2019-06-19
BH27 SS6

Analyte	Batch No	MRL	Units	Guideline		
Antimony	368046	1	ug/g	STD 40	<1	<1
Arsenic	368046	1	ug/g	STD 18	2	3
Barium	368046	1	ug/g	STD 670	17	98
Beryllium	368046	1	ug/g	STD 8	<1	<1
Boron (Hot Water Soluble)	368027	0.5	ug/g	STD 2	<0.5	<0.5
Boron (total)	368046	5	ug/g	STD 120	<5	<5
Cadmium	368046	0.4	ug/g	STD 1.9	<0.4	<0.4
Chromium Total	368046	1	ug/g	STD 160	15	27
Chromium VI	368215	0.20	ug/g	STD 8	<0.20	<0.20
Cobalt	368046	1	ug/g	STD 80	2	9
Copper	368046	1	ug/g	STD 230	7	20
Lead	368046	1	ug/g	STD 120	9	9
Mercury	368030	0.1	ug/g	STD 3.9	<0.1	<0.1
Molybdenum	368046	1	ug/g	STD 40	<1	<1
Nickel	368046	1	ug/g	STD 270	8	21
Selenium	368046	1	ug/g	STD 5.5	<1	<1
Silver	368046	0.2	ug/g	STD 40	<0.2	<0.2
Thallium	368046	1	ug/g	STD 3.3	<1	<1
Uranium	368046	0.5	ug/g	STD 33	<0.5	0.7
Vanadium	368046	2	ug/g	STD 86	10	31
Zinc	368046	2	ug/g	STD 340	33	46

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Project: P-0013610
COC #: 845082

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Inorganics

					Lab I.D. 1434864 Soil153	1434865 Soil153	1434866 Soil153	1434867 Soil153	1434868 Soil153
					Sample Matrix	2019-06-19	2019-06-19	2019-06-19	2019-06-19
					Sample Type	BH23 AS1	BH23 SS2	BH23 SS3	BH23 SS4
					Sample Date				
					Sampling Time				
					Sample I.D.				
Analyte	Batch No	MRL	Units	Guideline					
Cyanide (CN-)	368217	0.03	ug/g	STD 0.051	<0.03	<0.03	<0.03	<0.03	<0.03
Electrical Conductivity	368154	0.05	mS/cm	STD 1.4	1.10	2.46*	3.46*	2.09*	1.97*
pH - CaCl2	368269	2.00			8.16	10.6	8.57	8.14	8.01
Sodium Adsorption Ratio	368146	0.01		STD 12	12.0	9.82	23.6*	35.0*	29.6*

Inorganics

					Lab I.D. 1434869 Soil153	1434870 Soil153	1434871 Soil153	1434872 Soil153	1434873 Soil153
					Sample Matrix	2019-06-19	2019-06-19	2019-06-19	2019-06-19
					Sample Type	BH23 AS6	BH27 AS1	BH27 SS2	BH27 SS3
					Sample Date				
					Sampling Time				
					Sample I.D.				
Analyte	Batch No	MRL	Units	Guideline					
Cyanide (CN-)	368217	0.03	ug/g	STD 0.051	<0.03	<0.03	<0.03	<0.03	<0.03
Electrical Conductivity	368154	0.05	mS/cm	STD 1.4	0.91	1.53*	2.86*	2.34*	3.31*
pH - CaCl2	368269	2.00			8.01	9.30	8.51	8.29	8.17
Sodium Adsorption Ratio	368146	0.01		STD 12	14.2*		24.3*	63.6*	47.9*
	368344	0.01		STD 12		50.4*			

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COC #: 845082

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Inorganics

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1434874 Soil153	1434875 Soil153
2019-06-19	2019-06-19
BH27 SS5	BH27 SS6

Analyte	Batch No	MRL	Units	Guideline
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Cyanide (CN-)	368217	0.03	ug/g	STD 0.051	<0.03	<0.03
Electrical Conductivity	368154	0.05	mS/cm	STD 1.4	1.50*	0.74
pH - CaCl2	368269	2.00			10.6	8.13
Sodium Adsorption Ratio	368146	0.01		STD 12	20.7*	4.17

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Report Number: 1910333
Date Submitted: 2019-06-21
Date Reported: 2019-07-01
Project: P-0013610
COC #: 845082

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
368027	Boron (Hot Water Soluble)	<0.5 ug/g	103	70-130	85	75-125	0	0-30
368030	Mercury	<0.1 ug/g	93	80-120	115	70-130	0	0-30
368046	Silver	<0.2 ug/g	111	70-130	93	70-130	0	0-20
368046	Arsenic	<1 ug/g	98	70-130	86	70-130	0	0-20
368046	Boron (total)	<5 ug/g	101	70-130	106	70-130	0	0-20
368046	Barium	<1 ug/g	101	70-130	152	70-130	4	0-20
368046	Beryllium	<1 ug/g	104	70-130	87	70-130	0	0-20
368046	Cadmium	<0.4 ug/g	108	70-130	94	70-130	0	0-20
368046	Cobalt	<1 ug/g	104	70-130	83	70-130	3	0-20
368046	Chromium Total	<1 ug/g	105	70-130	106	70-130	3	0-20
368046	Copper	<1 ug/g	112	70-130	94	70-130	3	0-20
368046	Molybdenum	<1 ug/g	97	70-130	84	70-130	0	0-20
368046	Nickel	<1 ug/g	107	70-130	80	70-130	4	0-20
368046	Lead	<1 ug/g	104	70-130	95	70-130	5	0-20
368046	Antimony	<1 ug/g	97	70-130	73	70-130	0	0-20
368046	Selenium	<1 ug/g	108	70-130	85	70-130	0	0-20
368046	Thallium	<1 ug/g	105	70-130	87	70-130	0	0-20
368046	Uranium	<0.5 ug/g	97	70-130	90	70-130	0	0-20
368046	Vanadium	<2 ug/g	100	70-130	124	70-130	3	0-20
368046	Zinc	<2 ug/g	111	70-130	134	70-130	3	0-20
368128	Silver	<0.2 ug/g	105	70-130	94	70-130	0	0-20
368128	Arsenic	<1 ug/g	95	70-130	89	70-130	0	0-20
368128	Boron (total)	<5 ug/g	95	70-130	97	70-130	0	0-20
368128	Barium	<1 ug/g	97	70-130	100	70-130	3	0-20
368128	Beryllium	<1 ug/g	99	70-130	88	70-130	0	0-20
368128	Cadmium	<0.4 ug/g	103	70-130	94	70-130	0	0-20
368128	Cobalt	<1 ug/g	100	70-130	86	70-130	0	0-20
368128	Copper	<1 ug/g	108	70-130	85	70-130	8	0-20
368128	Molybdenum	<1 ug/g	94	70-130	87	70-130	0	0-20
368128	Nickel	<1 ug/g	103	70-130	62	70-130	12	0-20
368128	Lead	<1 ug/g	102	70-130	91	70-130	8	0-20
368128	Antimony	<1 ug/g	92	70-130	88	70-130	0	0-20
368128	Selenium	<1 ug/g	106	70-130	91	70-130	0	0-20

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M9W 5W8
Attention: Steven Chen
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1910333
Date Submitted: 2019-06-21
Date Reported: 2019-07-01
Project: P-0013610
COC #: 845082

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
368128	Thallium	<1 ug/g	102	70-130	89	70-130	0	0-20
368128	Uranium	<0.5 ug/g	95	70-130	89	70-130	0	0-20
368128	Vanadium	<2 ug/g	96	70-130	86	70-130	8	0-20
368128	Zinc	<2 ug/g	107	70-130	88	70-130	8	0-20
368141	Boron (Hot Water Soluble)	<0.5 ug/g	97	70-130	79	75-125	0	0-30
368146	Sodium Adsorption Ratio	<0.01					6	
368154	Electrical Conductivity	<0.05	97	90-110			1	0-10
368215	Chromium VI	<0.20 ug/g	103	80-120	85	70-130	0	0-35
368217	Cyanide (CN-)	<0.03 ug/g	124	75-125	97	70-130	0	0-20
368232	Chromium Total	<1 ug/g	99	70-130		70-130	8	0-20
368240	Mercury	<0.1 ug/g	100	80-120	105	70-130	0	0-30
368269	pH - CaCl2	5.68	101	90-110			0	
368344	Sodium Adsorption Ratio	<0.01					4	

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Report Number: 1910333
Date Submitted: 2019-06-21
Date Reported: 2019-07-01
Project: P-0013610
COC #: 845082

Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
368027	Boron (Hot Water Soluble)	iCAP OES	2019-06-25	2019-06-25	SKH	Boron HWE
368030	Mercury	Cetac Hg Analyzer	2019-06-25	2019-06-25	SKH	M SM3112B-3500B
368046	Silver	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Arsenic	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Boron (total)	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Barium	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Beryllium	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Cadmium	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Cobalt	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Chromium Total	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Copper	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Molybdenum	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Nickel	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Lead	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Antimony	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Selenium	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Thallium	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Uranium	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Vanadium	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368046	Zinc	ICAPQ-MS	2019-06-25	2019-06-25	H_D	EPA 200.8
368128	Silver	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Arsenic	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Boron (total)	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Barium	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Beryllium	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Cadmium	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Cobalt	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Copper	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Molybdenum	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Nickel	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Lead	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Antimony	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Selenium	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8

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Attention: Steven Chen
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1910333
Date Submitted: 2019-06-21
Date Reported: 2019-07-01
Project: P-0013610
COC #: 845082

Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
368128	Thallium	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Uranium	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Vanadium	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368128	Zinc	ICAPQ-MS	2019-06-26	2019-06-26	SKH	EPA 200.8
368141	Boron (Hot Water Soluble)	iCAP OES	2019-06-26	2019-06-26	SKH	Boron HWE
368146	Sodium Adsorption Ratio	iCAP OES	2019-06-26	2019-06-26	SKH	Ag Soil
368154	Electrical Conductivity	Electrical Conductivity Meter	2019-06-26	2019-06-26	SKH	Cond-Soil
368215	Chromium VI	FAA	2019-06-27	2019-06-27	Z_S	M US EPA 3060A
368217	Cyanide (CN-)	Skalar CN Analyzer	2019-06-27	2019-06-27	Z_S	MOECC E3015
368232	Chromium Total	ICAPQ-MS	2019-06-27	2019-06-27	H_D	EPA 200.8
368240	Mercury	Cetac Hg Analyzer	2019-06-27	2019-06-27	SKH	M SM3112B-3500B
368269	pH - CaCl2	pH Meter	2019-06-27	2019-06-27	K_J	Ag Soil
368344	Sodium Adsorption Ratio	iCAP OES	2019-06-28	2019-06-28	SKH	Ag Soil

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M9W 5W8
Attention: Steven Chen
Invoice to: EnGlobe Corp.
PO#: 24881

Report Number: 1911408
Date Submitted: 2019-07-03
Date Reported: 2019-07-11
Project: P-0013610
COC #: 845694
Temperature (C): 13
Custody Seal:

Page 1 of 11

Dear Steven Chen:

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

Sample Comment Summary

Sample ID: 1437691 BH24 SS5 For this report, metals spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.
--

Report Comments:

Rebecca Koshy, Project Manager

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

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

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

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Attention: Steven Chen
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1911408
Date Submitted: 2019-07-03
Date Reported: 2019-07-11
Project: P-0013610
COC #: 845694

O.Reg 153-T3-Ind/Com-Coarse
Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria
Inorganics				
BH24 SS5	Electrical Conductivity	3.37	mS/cm	STD 1.4
BH24 SS5	Sodium Adsorption Ratio	43.8		STD 12
BH24 SS6	Electrical Conductivity	2.81	mS/cm	STD 1.4
BH24 SS6	Sodium Adsorption Ratio	47.8		STD 12
BH25 SS2	Electrical Conductivity	2.51	mS/cm	STD 1.4
BH25 SS2	Sodium Adsorption Ratio	29.6		STD 12
BH25 SS3	Electrical Conductivity	2.50	mS/cm	STD 1.4
BH25 SS3	Sodium Adsorption Ratio	25.5		STD 12
BH26 SS2	Electrical Conductivity	1.47	mS/cm	STD 1.4
BH26 SS2	Sodium Adsorption Ratio	25.5		STD 12
BH26 SS3	Electrical Conductivity	2.13	mS/cm	STD 1.4
BH26 SS3	Sodium Adsorption Ratio	45.8		STD 12
BH26 SS4	Electrical Conductivity	2.35	mS/cm	STD 1.4
BH26 SS4	Sodium Adsorption Ratio	16.3		STD 12
BH26 SS5	Electrical Conductivity	1.78	mS/cm	STD 1.4
BH26 SS6	Electrical Conductivity	1.78	mS/cm	STD 1.4
BH28 SS5	Sodium Adsorption Ratio	13.5		STD 12
BH29 SS1	Sodium Adsorption Ratio	12.2		STD 12
BH29 SS2	Electrical Conductivity	1.46	mS/cm	STD 1.4
BH29 SS2	Sodium Adsorption Ratio	26.2		STD 12
BH29 SS3	Electrical Conductivity	2.27	mS/cm	STD 1.4
BH29 SS3	Sodium Adsorption Ratio	45.1		STD 12
BH29 SS4	Electrical Conductivity	2.19	mS/cm	STD 1.4
BH29 SS4	Sodium Adsorption Ratio	13.8		STD 12
BH29 SS5	Electrical Conductivity	2.50	mS/cm	STD 1.4
BH29 SS6	Electrical Conductivity	1.74	mS/cm	STD 1.4

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Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Steven Chen
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1911408
Date Submitted: 2019-07-03
Date Reported: 2019-07-11
Project: P-0013610
COC #: 845694

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1437691 Soil153	1437692 Soil153	1437693 Soil153	1437694 Soil153	1437695 Soil153
2019-06-25	2019-06-25	2019-06-25	2019-06-25	2019-06-25
BH24 SS5	BH24 SS6	BH25 SS2	BH25 SS3	BH26 SS2

Analyte Batch No MRL Units Guideline

Antimony	368719	1	ug/g	STD 40	<1	<1	<1	<1	<1
Arsenic	368719	1	ug/g	STD 18	2	2	3	2	3
Barium	368719	1	ug/g	STD 670	27	21	50	40	87
Beryllium	368719	1	ug/g	STD 8	<1	<1	<1	<1	<1
Boron (Hot Water Soluble)	368806	0.5	ug/g	STD 2	<0.5	<0.5	<0.5	<0.5	<0.5
Boron (total)	368719	5	ug/g	STD 120	<5	<5	<5	<5	<5
Cadmium	368719	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium Total	368719	1	ug/g	STD 160	12	11	20	17	23
Chromium VI	368714	0.20	ug/g	STD 8	<0.20	<0.20	<0.20	<0.20	0.28
Cobalt	368719	1	ug/g	STD 80	4	4	6	6	7
Copper	368719	1	ug/g	STD 230	8	8	13	12	16
Lead	368719	1	ug/g	STD 120	3	3	8	8	7
Mercury	368722	0.1	ug/g	STD 3.9	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	368719	1	ug/g	STD 40	<1	<1	<1	<1	<1
Nickel	368719	1	ug/g	STD 270	9	8	14	12	19
Selenium	368719	1	ug/g	STD 5.5	<1	<1	<1	<1	<1
Silver	368719	0.2	ug/g	STD 40	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	368719	1	ug/g	STD 3.3	<1	<1	<1	<1	<1
Uranium	368719	0.5	ug/g	STD 33	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	368719	2	ug/g	STD 86	18	16	24	22	27
Zinc	368719	2	ug/g	STD 340	22	18	30	26	34

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Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1437696 Soil153	1437697 Soil153	1437698 Soil153	1437699 Soil153	1437700 Soil153
2019-06-25	2019-06-25	2019-06-25	2019-06-25	2019-06-25
BH26 SS3	BH26 SS4	BH26 SS5	BH26 SS6	BH28 SS5

Analyte Batch No MRL Units Guideline

Antimony	368719	1	ug/g	STD 40	<1	<1	<1	<1	<1
Arsenic	368719	1	ug/g	STD 18	4	4	3	3	3
Barium	368719	1	ug/g	STD 670	76	167	117	137	161
Beryllium	368719	1	ug/g	STD 8	<1	<1	<1	<1	<1
Boron (Hot Water Soluble)	368806	0.5	ug/g	STD 2	<0.5	<0.5			
	368855	0.5	ug/g	STD 2			<0.5	<0.5	<0.5
Boron (total)	368719	5	ug/g	STD 120	<5	6	7	8	6
Cadmium	368719	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium Total	368719	1	ug/g	STD 160	27	32	28	31	31
Chromium VI	368714	0.20	ug/g	STD 8	0.51	0.46	0.51	0.21	0.22
Cobalt	368719	1	ug/g	STD 80	11	10	10	11	10
Copper	368719	1	ug/g	STD 230	23	21	19	22	21
Lead	368719	1	ug/g	STD 120	9	9	8	9	9
Mercury	368722	0.1	ug/g	STD 3.9	<0.1	<0.1			
	368768	0.1	ug/g	STD 3.9			<0.1	<0.1	<0.1
Molybdenum	368719	1	ug/g	STD 40	<1	<1	<1	<1	<1
Nickel	368719	1	ug/g	STD 270	26	24	22	26	23
Selenium	368719	1	ug/g	STD 5.5	<1	<1	<1	<1	<1
Silver	368719	0.2	ug/g	STD 40	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	368719	1	ug/g	STD 3.3	<1	<1	<1	<1	<1
Uranium	368719	0.5	ug/g	STD 33	<0.5	0.6	0.8	0.7	0.8
Vanadium	368719	2	ug/g	STD 86	29	37	34	37	40
Zinc	368719	2	ug/g	STD 340	50	49	47	52	54

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Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1437701 Soil153	1437702 Soil153	1437703 Soil153	1437704 Soil153	1437705 Soil153
2019-06-25	2019-06-25	2019-06-25	2019-06-25	2019-06-25
BH28 SS6	BH29 SS1	BH29 SS2	BH29 SS3	BH29 SS4

Analyte Batch No MRL Units Guideline

Antimony	368719	1	ug/g	STD 40	<1	<1	<1	<1	<1
Arsenic	368719	1	ug/g	STD 18	3	2	2	3	2
Barium	368719	1	ug/g	STD 670	145	47	74	120	190
Beryllium	368719	1	ug/g	STD 8	<1	<1	<1	<1	<1
Boron (Hot Water Soluble)	368855	0.5	ug/g	STD 2	<0.5		<0.5	<0.5	<0.5
	368899	0.5	ug/g	STD 2		<0.5			
Boron (total)	368719	5	ug/g	STD 120	7	6	6	9	9
Cadmium	368719	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium Total	368719	1	ug/g	STD 160	27	16	18	29	31
Chromium VI	368861	0.20	ug/g	STD 8	<0.20	<0.20	<0.20	<0.20	<0.20
Cobalt	368719	1	ug/g	STD 80	9	14	13	10	10
Copper	368719	1	ug/g	STD 230	19	12	12	18	19
Lead	368719	1	ug/g	STD 120	9	12	9	8	8
Mercury	368768	0.1	ug/g	STD 3.9	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	368719	1	ug/g	STD 40	<1	<1	<1	<1	<1
Nickel	368719	1	ug/g	STD 270	21	12	12	20	22
Selenium	368719	1	ug/g	STD 5.5	<1	<1	<1	<1	<1
Silver	368719	0.2	ug/g	STD 40	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	368719	1	ug/g	STD 3.3	<1	<1	<1	<1	<1
Uranium	368719	0.5	ug/g	STD 33	0.6	<0.5	<0.5	0.6	0.7
Vanadium	368719	2	ug/g	STD 86	36	24	24	38	40
Zinc	368719	2	ug/g	STD 340	50	30	31	47	52

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Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1437706 Soil153	1437707 Soil153	1437708 Soil153	1437709 Soil153
2019-06-25	2019-06-25	2019-06-25	2019-06-25
BH29 SS5	BH29 SS6	BH29 SS7	BH29 SS8

Analyte	Batch No	MRL	Units	Guideline
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Antimony	368719	1	ug/g	STD 40	<1	<1	<1	<1
Arsenic	368719	1	ug/g	STD 18	3	2	3	3
Barium	368719	1	ug/g	STD 670	198	158	171	165
Beryllium	368719	1	ug/g	STD 8	<1	<1	<1	<1
Boron (Hot Water Soluble)	368855	0.5	ug/g	STD 2	<0.5	<0.5	<0.5	<0.5
Boron (total)	368719	5	ug/g	STD 120	8	8	8	7
Cadmium	368719	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4	<0.4
Chromium Total	368719	1	ug/g	STD 160	34	27	32	32
Chromium VI	368861	0.20	ug/g	STD 8	<0.20	<0.20	<0.20	<0.20
Cobalt	368719	1	ug/g	STD 80	11	9	11	10
Copper	368719	1	ug/g	STD 230	22	18	20	21
Lead	368719	1	ug/g	STD 120	9	7	9	9
Mercury	368768	0.1	ug/g	STD 3.9	<0.1	<0.1	<0.1	<0.1
Molybdenum	368719	1	ug/g	STD 40	<1	<1	<1	<1
Nickel	368719	1	ug/g	STD 270	25	20	25	25
Selenium	368719	1	ug/g	STD 5.5	<1	<1	<1	<1
Silver	368719	0.2	ug/g	STD 40	<0.2	<0.2	<0.2	<0.2
Thallium	368719	1	ug/g	STD 3.3	<1	<1	<1	<1
Uranium	368719	0.5	ug/g	STD 33	0.7	0.7	0.9	0.7
Vanadium	368719	2	ug/g	STD 86	43	35	39	38
Zinc	368719	2	ug/g	STD 340	59	45	53	54

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COC #: 845694

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Inorganics

Guideline = O.Reg 153-T3-Ind/Com-Coarse					Lab I.D.	1437691	1437692	1437693	1437694	1437695
<u>Inorganics</u>					Sample Matrix	Soil153	Soil153	Soil153	Soil153	Soil153
					Sample Type	2019-06-25	2019-06-25	2019-06-25	2019-06-25	2019-06-25
					Sample Date					
					Sampling Time					
					Sample I.D.	BH24 SS5	BH24 SS6	BH25 SS2	BH25 SS3	BH26 SS2
Analyte	Batch No	MRL	Units	Guideline						
Cyanide (CN-)	368717	0.03	ug/g	STD 0.051	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Electrical Conductivity	368710	0.05	mS/cm	STD 1.4	3.37*	2.81*	2.51*	2.50*	1.47*	
pH - CaCl2	368725	2.00			7.95	7.90	7.93	8.70	7.93	
Sodium Adsorption Ratio	368728	0.01		STD 12	43.8*	47.8*	29.6*		25.5*	
	368873	0.01		STD 12				25.5*		

Inorganics

<u>Inorganics</u>					Lab I.D.	1437696	1437697	1437698	1437699	1437700
					Sample Matrix	Soil153	Soil153	Soil153	Soil153	Soil153
					Sample Type					
					Sample Date	2019-06-25	2019-06-25	2019-06-25	2019-06-25	2019-06-25
					Sampling Time					
					Sample I.D.	BH26 SS3	BH26 SS4	BH26 SS5	BH26 SS6	BH28 SS5
Analyte	Batch No	MRL	Units	Guideline						
Cyanide (CN-)	368717	0.03	ug/g	STD 0.051	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Electrical Conductivity	368710	0.05	mS/cm	STD 1.4	2.13*	2.35*	1.78*	1.78*	1.03	
pH - CaCl2	368725	2.00			7.85	8.12	8.02	7.78	7.82	
Sodium Adsorption Ratio	368728	0.01		STD 12	45.8*	16.3*	10.1	9.98	13.5*	

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Inorganics

Analyte	Batch No	MRL	Units	Guideline	Lab I.D.	Sample Matrix	Sample Type	Sample Date	Sampling Time	Sample I.D.
					1437701	Soil153	1437702	Soil153	1437703	Soil153
Cyanide (CN-)	368866	0.03	ug/g	STD 0.051	2019-06-25	BH28 SS6	2019-06-25	BH29 SS1	2019-06-25	BH29 SS2
Electrical Conductivity	368710	0.05	mS/cm	STD 1.4	1.04	0.88	1.46*	2.27*	2.19*	
pH - CaCl2	368725	2.00			8.42	8.30	7.72	7.74	7.38	
Sodium Adsorption Ratio	368728	0.01		STD 12	6.60	12.2*	26.2*	45.1*	13.8*	

Inorganics

Analyte	Batch No	MRL	Units	Guideline	Lab I.D.	Sample Matrix	Sample Type	Sample Date	Sampling Time	Sample I.D.
					1437706	Soil153	1437707	Soil153	1437708	Soil153
Cyanide (CN-)	368866	0.03	ug/g	STD 0.051	2019-06-25	BH29 SS5	2019-06-25	BH29 SS6	2019-06-25	BH29 SS7
Electrical Conductivity	368710	0.05	mS/cm	STD 1.4	2.50*	1.74*	1.05	0.73		
pH - CaCl2	368725	2.00			7.65					
	368797	2.00				7.90	7.81	7.90		
Sodium Adsorption Ratio	368728	0.01		STD 12	11.6	7.77	2.75	1.55		

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
368710	Electrical Conductivity	<0.05	98	90-110			4	0-10
368714	Chromium VI	<0.20 ug/g	92	80-120	79	70-130	0	0-35
368717	Cyanide (CN-)	<0.03 ug/g	96	75-125	105	70-130	0	0-20
368719	Silver	<0.2 ug/g	109	70-130	116	70-130	0	0-20
368719	Arsenic	<1 ug/g	94	70-130	112	70-130	0	0-20
368719	Boron (total)	<5 ug/g	103	70-130	159	70-130	0	0-20
368719	Barium	<1 ug/g	99	70-130	219	70-130	1	0-20
368719	Beryllium	<1 ug/g	101	70-130	109	70-130	0	0-20
368719	Cadmium	<0.4 ug/g	103	70-130	117	70-130	0	0-20
368719	Cobalt	<1 ug/g	98	70-130	113	70-130	0	0-20
368719	Chromium Total	<1 ug/g	103	70-130	160	70-130	3	0-20
368719	Copper	<1 ug/g	101	70-130	125	70-130	4	0-20
368719	Molybdenum	<1 ug/g	97	70-130	110	70-130	0	0-20
368719	Nickel	<1 ug/g	101	70-130	124	70-130	2	0-20
368719	Lead	<1 ug/g	96	70-130	115	70-130	0	0-20
368719	Antimony	<1 ug/g	94	70-130	77	70-130	0	0-20
368719	Selenium	<1 ug/g	102	70-130	114	70-130	0	0-20
368719	Thallium	<1 ug/g	97	70-130	103	70-130	0	0-20
368719	Uranium	<0.5 ug/g	93	70-130	108	70-130	0	0-20
368719	Vanadium	<2 ug/g	99	70-130	182	70-130	1	0-20
368719	Zinc	<2 ug/g	102	70-130	147	70-130	2	0-20
368722	Mercury	<0.1 ug/g	92	80-120	101	70-130	0	0-30
368725	pH - CaCl2	5.01	101	90-110			0	
368728	Sodium Adsorption Ratio	<0.01					3	
368768	Mercury	<0.1 ug/g	102	80-120	122	70-130	0	0-30
368797	pH - CaCl2	4.95	99	90-110			0	
368806	Boron (Hot Water Soluble)	<0.5 ug/g	94	70-130	70	75-125	0	0-30
368855	Boron (Hot Water Soluble)	<0.5 ug/g	90	70-130	92	75-125	0	0-30
368861	Chromium VI	<0.20 ug/g	107	80-120	93	70-130	0	0-35
368866	Cyanide (CN-)	<0.03 ug/g	115	75-125	90	70-130	0	0-20
368873	Sodium Adsorption Ratio	<0.01					3	
368899	Boron (Hot Water Soluble)	<0.5 ug/g	92	70-130	87	75-125	0	0-30

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Project: P-0013610
COC #: 845694

Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
368710	Electrical Conductivity	Electrical Conductivity Meter	2019-07-08	2019-07-08	OA	Cond-Soil
368714	Chromium VI	FAA	2019-07-08	2019-07-08	Z_S	M US EPA 3060A
368717	Cyanide (CN-)	Skalar CN Analyzer	2019-07-08	2019-07-08	Z_S	MOECC E3015
368719	Silver	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Arsenic	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Boron (total)	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Barium	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Beryllium	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Cadmium	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Cobalt	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Chromium Total	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Copper	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Molybdenum	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Nickel	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Lead	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Antimony	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Selenium	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Thallium	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Uranium	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Vanadium	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368719	Zinc	ICAPQ-MS	2019-07-08	2019-07-08	H_D	EPA 200.8
368722	Mercury	Cetac Hg Analyzer	2019-07-08	2019-07-08	SKH	M SM3112B-3500B
368725	pH - CaCl2	pH Meter	2019-07-08	2019-07-08	SG	Ag Soil
368728	Sodium Adsorption Ratio	iCAP OES	2019-07-08	2019-07-08	SKH	Ag Soil
368768	Mercury	Cetac Hg Analyzer	2019-07-09	2019-07-09	SKH	M SM3112B-3500B
368797	pH - CaCl2	pH Meter	2019-07-09	2019-07-09	SKH	Ag Soil
368806	Boron (Hot Water Soluble)	iCAP OES	2019-07-09	2019-07-09	SKH	MOECC E3470
368855	Boron (Hot Water Soluble)	iCAP OES	2019-07-10	2019-07-10	SKH	MOECC E3470
368861	Chromium VI	FAA	2019-07-10	2019-07-10	Z_S	M US EPA 3060A
368866	Cyanide (CN-)	Skalar CN Analyzer	2019-07-10	2019-07-10	Z_S	MOECC E3015
368873	Sodium Adsorption Ratio	iCAP OES	2019-07-10	2019-07-10	SKH	Ag Soil
368899	Boron (Hot Water Soluble)	iCAP OES	2019-07-11	2019-07-11	SKH	MOECC E3470

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Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Steven Chen
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1911408
Date Submitted: 2019-07-03
Date Reported: 2019-07-11
Project: P-0013610
COC #: 845694

Petroleum Hydrocarbons - CCME Checklist

Samples were analysed by Eurofins Ottawa Method AMCCME2, "Petroleum Hydrocarbons in Water and Soil, CCME/TPH", "Petroleum Hydrocarbons in Water and Soil, CCME/TPH". These methods comply with the reference method for the CCME CWS PHC and are validated for use in the laboratory. Eurofins Ottawa is accredited by CALA (ISO 17025) for all CCME F1-F4 fractions as listed in this report. Eurofins Mississauga is accredited by SCC (ISO 17025) for all CCME F1-F4 fractions as listed in this report. Data for QC samples (blank, duplicate, spike) are available on request

Holding/Analysis Times	Yes/No	If NO, then reasons
All fractions analyzed within recommended hold times/analysis times?	Yes	
F1		
nC6 and nC10 response factors within 30% of toluene	Yes	
BTEX was subtracted from F1 fraction	Yes	
If YES, was F1-BTEX (C6-C10) reported	Yes	
F2		
nC10, nC16 and nC34 response factors within 10% of their average (F2-F4)	Yes	
Linearity within 15% (F2-F4)	Yes	
Napthalene was subtracted from F2 fraction		Napthalene (PAH) not requested/analysed
If YES was F2-Napthalene reported		
F3		
PAH (selected compounds) subtracted from F3 fraction		PAH not requested/analysed
If YES was F3-PAH reported		
F4		
C50 response factor within 70% of nC10+nC16+nC34 average	Yes	
Chromatogram descended to baseline by retention time of C50	Yes	
if NO was F4 (C34-C50) gravimetric reported		

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Certificate of Analysis

Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Ms. Ana Maria Gutierrez
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1940413
Date Submitted: 2020-10-07
Date Reported: 2020-10-16
Project: P-0013610-0-01-201-01
COC #: 862551

Page 1 of 9

Dear Ana Maria Gutierrez:

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

Report Comments:

APPROVAL:

Long Qu, Organics Supervisor

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

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

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

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

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

Certificate of Analysis

Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Ms. Ana Maria Gutierrez
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1940413
Date Submitted: 2020-10-07
Date Reported: 2020-10-16
Project: P-0013610-0-01-201-01
COC #: 862551

					1521104 R347 2020-10-06 BH1 AS2	1521105 R347 2020-10-06 BH3 AS2	1521106 R347 2020-10-06 BH5 AS2	1521107 R347 2020-10-06 BH12 AS2
Group	Analyte	MRL	Units	Guideline				
Anions	F	0.10	mg/L	LQC 150.0	<0.10	<0.10	<0.10	<0.10
	NO2 + NO3 as N	10	mg/L	LQC 1000	<10	<10	<10	<10
General Chemistry	Cyanide (free)	0.05	mg/L	LQC 20.0	<0.05	<0.05	<0.05	<0.05
Leachate	REG 558 Leach				y	y	y	y
	Zero Headspace Extraction				y	y	y	y
Mercury	Hg	0.001	mg/L	LQC 0.1	<0.001	<0.001	<0.001	<0.001
Metals	Ag	0.01	mg/L	LQC 5	<0.01	<0.01	<0.01	<0.01
	As	0.02	mg/L	LQC 2.5	<0.02	<0.02	<0.02	<0.02
	B	0.1	mg/L	LQC 500.0	<0.1	<0.1	<0.1	<0.1
	Ba	0.01	mg/L	LQC 100.0	0.47	0.48	0.34	0.49
	Cd	0.008	mg/L	LQC 0.5	<0.008	<0.008	<0.008	<0.008
	Cr	0.05	mg/L	LQC 5.0	<0.05	<0.05	<0.05	<0.05
	Pb	0.01	mg/L	LQC 5.0	<0.01	0.01	<0.01	0.01
	Se	0.02	mg/L	LQC 1.0	<0.02	<0.02	<0.02	<0.02
	U	0.01	mg/L	LQC 10.0	<0.01	<0.01	<0.01	<0.01
Moisture	Moisture-Humidite	0.1	%		7.5	10.5	7.7	5.1
Subcontract-Inorg	Ignitability		N/A		Negative	Negative	Negative	Negative
VOCs Surrogates	1,2-dichloroethane-d4	0	%		102	101	103	101
	4-bromofluorobenzene	0	%		73	71	72	72
	Toluene-d8	0	%		88	90	88	90
Volatiles	1,1-dichloroethylene	0.5	ug/L	LQC 1400	<0.5	<0.5	<0.5	<0.5
	1,2-dichlorobenzene	0.4	ug/L	LQC 20000	<0.4	<0.4	<0.4	<0.4
	1,2-dichloroethane	0.2	ug/L	LQC 500	<0.2	<0.2	<0.2	<0.2
	1,4-dichlorobenzene	0.4	ug/L	LQC 500	<0.4	<0.4	<0.4	<0.4
	Benzene	0.5	ug/L	LQC 500	<0.5	<0.5	<0.5	<0.5

Guideline = REG 558

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Certificate of Analysis

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1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Ms. Ana Maria Gutierrez
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1940413
Date Submitted: 2020-10-07
Date Reported: 2020-10-16
Project: P-0013610-0-01-201-01
COC #: 862551

					1521104 R347 2020-10-06 BH1 AS2	1521105 R347 2020-10-06 BH3 AS2	1521106 R347 2020-10-06 BH5 AS2	1521107 R347 2020-10-06 BH12 AS2
Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.			
Volatiles	Carbon Tetrachloride	0.2	ug/L	LQC 500	<0.2	<0.2	<0.2	<0.2
	Chloroform	0.5	ug/L	LQC 10000	<0.5	<0.5	<0.5	<0.5
	Dichloromethane	4.0	ug/L	LQC 5000	<4.0	<4.0	<4.0	<4.0
	Methyl Ethyl Ketone (MEK)	10	ug/L	LQC 200000	<10	<10	<10	<10
	Monochlorobenzene	0.5	ug/L	LQC 8000	<0.5	<0.5	<0.5	<0.5
	Tetrachloroethylene	0.3	ug/L	LQC 3000	<0.3	<0.3	<0.3	<0.3
	Trichloroethylene	0.3	ug/L	LQC 5000	<0.3	<0.3	<0.3	<0.3
	Vinyl Chloride	0.2	ug/L	LQC 200	<0.2	<0.2	<0.2	<0.2
					1521108 R347 2020-10-06 BH13 AS2	1521109 R347 2020-10-06 BH18 AS2	1521110 R347 2020-10-06 BH22 AS2	1521111 R347 2020-10-06 BH30 AS2
Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.			
Anions	F	0.10	mg/L	LQC 150.0	<0.10	<0.10	<0.10	<0.10
	NO ₂ + NO ₃ as N	10	mg/L	LQC 1000	<10	<10	<10	<10
General Chemistry	Cyanide (free)	0.05	mg/L	LQC 20.0	<0.05	<0.05	<0.05	<0.05
Leachate	REG 558 Leach				y	y	y	y
	Zero Headspace Extraction				y	y	y	y
Mercury	Hg	0.001	mg/L	LQC 0.1	<0.001	<0.001	<0.001	<0.001
Metals	Ag	0.01	mg/L	LQC 5	<0.01	<0.01	<0.01	<0.01
	As	0.02	mg/L	LQC 2.5	<0.02	<0.02	<0.02	<0.02
	B	0.1	mg/L	LQC 500.0	<0.1	0.1	<0.1	<0.1
	Ba	0.01	mg/L	LQC 100.0	0.46	0.47	0.37	0.45
	Cd	0.008	mg/L	LQC 0.5	<0.008	<0.008	<0.008	<0.008

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Report Number: 1940413
Date Submitted: 2020-10-07
Date Reported: 2020-10-16
Project: P-0013610-0-01-201-01
COC #: 862551

					1521108 R347 2020-10-06 BH13 AS2	1521109 R347 2020-10-06 BH18 AS2	1521110 R347 2020-10-06 BH22 AS2	1521111 R347 2020-10-06 BH30 AS2
					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.			
Group	Analyte	MRL	Units	Guideline				
Metals	Cr	0.05	mg/L	LQC 5.0	<0.05	<0.05	<0.05	<0.05
	Pb	0.01	mg/L	LQC 5.0	0.02	0.05	<0.01	0.02
	Se	0.02	mg/L	LQC 1.0	<0.02	<0.02	<0.02	<0.02
	U	0.01	mg/L	LQC 10.0	<0.01	<0.01	<0.01	<0.01
Moisture	Moisture-Humidite	0.1	%		5.4	10.0	6.4	8.6
Subcontract-Inorg	Ignitability		N/A		Negative	Negative	Negative	Negative
VOCs Surrogates	1,2-dichloroethane-d4	0	%		101	102	83	84
	4-bromofluorobenzene	0	%		70	72	73	74
	Toluene-d8	0	%		89	89	87	86
Volatiles	1,1-dichloroethylene	0.5	ug/L	LQC 1400	<0.5	<0.5	<0.5	<0.5
	1,2-dichlorobenzene	0.4	ug/L	LQC 20000	<0.4	<0.4	<0.4	<0.4
	1,2-dichloroethane	0.2	ug/L	LQC 500	<0.2	<0.2	<0.2	<0.2
	1,4-dichlorobenzene	0.4	ug/L	LQC 500	<0.4	<0.4	<0.4	<0.4
	Benzene	0.5	ug/L	LQC 500	<0.5	<0.5	<0.5	<0.5
	Carbon Tetrachloride	0.2	ug/L	LQC 500	<0.2	<0.2	<0.2	<0.2
	Chloroform	0.5	ug/L	LQC 10000	<0.5	<0.5	<0.5	<0.5
	Dichloromethane	4.0	ug/L	LQC 5000	<4.0	<4.0	<4.0	<4.0
	Methyl Ethyl Ketone (MEK)	10	ug/L	LQC 200000	<10	<10	<10	<10
	Monochlorobenzene	0.5	ug/L	LQC 8000	<0.5	<0.5	<0.5	<0.5
	Tetrachloroethylene	0.3	ug/L	LQC 3000	<0.3	<0.3	<0.3	<0.3
	Trichloroethylene	0.3	ug/L	LQC 5000	<0.3	<0.3	<0.3	<0.3
	Vinyl Chloride	0.2	ug/L	LQC 200	<0.2	<0.2	<0.2	<0.2

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Certificate of Analysis

Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Ms. Ana Maria Gutierrez
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1940413
Date Submitted: 2020-10-07
Date Reported: 2020-10-16
Project: P-0013610-0-01-201-01
COC #: 862551

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 390638 Analysis/Extraction Date 2020-10-10 Analyst QT Method SM2320,2510,4500H/F			
F	<0.10 mg/L	101	90-110
Run No 390661 Analysis/Extraction Date 2020-10-08 Analyst SG Method ASTM 2216			
Moisture-Humidite			80-120
REG 558 Leach			
Zero Headspace Extraction			
Run No 390681 Analysis/Extraction Date 2020-10-09 Analyst QT Method SM4500-CNC/MOE E3015			
Cyanide (CN-)	<0.05 mg/L	99	75-125
Run No 390738 Analysis/Extraction Date 2020-10-14 Analyst SKH Method SM 4110			
NO2 + NO3 as N			
Run No 390824 Analysis/Extraction Date 2020-10-13 Analyst AET Method SUBCONTRACT P-INORG			
Ignitability			
Run No 390856 Analysis/Extraction Date 2020-10-15 Analyst YH Method EPA 8260			

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Certificate of Analysis

Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Ms. Ana Maria Gutierrez
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1940413
Date Submitted: 2020-10-07
Date Reported: 2020-10-16
Project: P-0013610-0-01-201-01
COC #: 862551

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Dichloroethylene, 1,1-	<0.5 ug/L	85	60-130
Dichlorobenzene, 1,2-	<0.4 ug/L	93	60-130
Dichloroethane, 1,2-	<0.2 ug/L	102	60-130
Dichlorobenzene, 1,4-	<0.4 ug/L	93	60-130
Benzene	<0.5 ug/L	117	60-130
Carbon Tetrachloride	<0.2 ug/L	112	60-130
Chloroform	<0.5 ug/L	115	60-130
Methylene Chloride	<4.0 ug/L	120	60-130
Methyl Ethyl Ketone	<10 ug/L	100	60-130
Chlorobenzene	<0.5 ug/L	100	60-130
Tetrachloroethylene	<0.3 ug/L	116	60-130
Trichloroethylene	<0.3 ug/L	114	60-130
Vinyl Chloride	<0.2 ug/L	101	60-130
Run No 390870 Analysis/Extraction Date 2020-10-15 Analyst SKH Method M SM3112B-3500B			
Mercury	<0.001 mg/L	91	76-123
Run No 390875 Analysis/Extraction Date 2020-10-15 Analyst H D Method EPA 200.8			

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Certificate of Analysis

Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Ms. Ana Maria Gutierrez
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1940413
Date Submitted: 2020-10-07
Date Reported: 2020-10-16
Project: P-0013610-0-01-201-01
COC #: 862551

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Silver	<0.01 mg/L	110	70-130
Arsenic	<0.02 mg/L	109	70-130
Boron (total)	<0.1 mg/L	84	70-130
Barium	<0.01 mg/L	105	70-130
Cadmium	<0.008 mg/L	110	70-130
Chromium Total	<0.05 mg/L	107	70-130
Lead	<0.01 mg/L	109	70-130
Selenium	<0.02 mg/L	111	70-130
Uranium	<0.01 mg/L	101	70-130
Run No 390922 Analysis/Extraction Date 2020-10-16 Analyst YH Method EPA 8260			
Dichloroethylene, 1,1-	<0.5 ug/L	85	60-130
Dichlorobenzene, 1,2-	<0.4 ug/L	93	60-130
Dichloroethane, 1,2-	<0.2 ug/L	102	60-130
Dichlorobenzene, 1,4-	<0.4 ug/L	93	60-130
Benzene	<0.5 ug/L	117	60-130
Carbon Tetrachloride	<0.2 ug/L	112	60-130
Chloroform	<0.5 ug/L	115	60-130

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Certificate of Analysis

Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Ms. Ana Maria Gutierrez
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1940413
Date Submitted: 2020-10-07
Date Reported: 2020-10-16
Project: P-0013610-0-01-201-01
COC #: 862551

QC Summary

Analyte	Blank	QC % Rec	QC Limits
Methylene Chloride	<4.0 ug/L	120	60-130
Methyl Ethyl Ketone	<10 ug/L	100	60-130
Chlorobenzene	<0.5 ug/L	100	60-130
Tetrachloroethylene	<0.3 ug/L	116	60-130
Trichloroethylene	<0.3 ug/L	114	60-130
Vinyl Chloride	<0.2 ug/L	101	60-130

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Certificate of Analysis

Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Ms. Ana Maria Gutierrez
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1940413
Date Submitted: 2020-10-07
Date Reported: 2020-10-16
Project: P-0013610-0-01-201-01
COC #: 862551

Sample Comment Summary

Sample ID: 1521104 BH1 AS2 Metals analysis for this report was performed on an aqua-regia digest of sample material.
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Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
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M9W 5W8
Attention: Mr. Weiyu Jin
Invoice to: EnGlobe Corp.
PO#: 24881

Report Number: 1927161
Date Submitted: 2020-03-13
Date Reported: 2020-03-20
Project: P-0013610
COC #: 854721
Temperature (C): 16
Custody Seal:

Page 1 of 8

Dear Weiyu Jin:

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

Sample Comment Summary

Sample ID: 1484949 BH8 AS2 Metals analysis for this report was performed on an aqua-regia digest of the sample material, except for Boron.
--

Report Comments:

Addrine Thomas, Inorganics Supervisor

Long Qu, Organics Supervisor

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

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

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

Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Mr. Weiyu Jin
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1927161
Date Submitted: 2020-03-13
Date Reported: 2020-03-20
Project: P-0013610
COC #: 854721

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria

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Project: P-0013610
COC #: 854721

Guideline = REG 558

Flashpoint

Analyte

Batch No

MRL

Units

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

Guideline

1484949
R347
2020-03-13
BH8 AS2

1484950
R347
2020-03-13
BH9 AS1

1484951
R347
2020-03-13
BH11 AS2

1484952
R347
2020-03-13
BH14 AS2

1484953
R347
2020-03-13
BH15 AS2

Flash Point

381068

C

MAT 61-

>70

>70

>70

>70

>70

Leachate

Analyte

Batch No

MRL

Units

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

Guideline

1484949
R347
2020-03-13
BH8 AS2

1484950
R347
2020-03-13
BH9 AS1

1484951
R347
2020-03-13
BH11 AS2

1484952
R347
2020-03-13
BH14 AS2

1484953
R347
2020-03-13
BH15 AS2

REG 558 Leach

381004

Y

Y

Y

Y

Y

Zero Headspace Extraction

381004

Y

Y

Y

Y

Y

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Project: P-0013610
COC #: 854721

Guideline = REG 558

Metals

					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.					
					Guideline					
Analyte	Batch No	MRL	Units	Guideline						
Arsenic	381008	0.02	mg/L	LQC 2.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Barium	381008	0.01	mg/L	LQC 100.0	0.58	0.54	0.61	0.61	0.61	0.67
Boron (total)	380984	0.1	mg/L	LQC 500.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	381008	0.008	mg/L	LQC 0.5	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Chromium Total	381008	0.05	mg/L	LQC 5.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead	381008	0.01	mg/L	LQC 5.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	381015	0.001	mg/L	LQC 0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	381008	0.02	mg/L	LQC 1.0	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Silver	381008	0.01	mg/L	LQC 5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	381008	0.01	mg/L	LQC 10.0	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Volatiles

					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.					
					Guideline					
Analyte	Batch No	MRL	Units	Guideline						
Benzene	381048	0.5	ug/L	LQC 500	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	381048	0.2	ug/L	LQC 500	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	381048	0.5	ug/L	LQC 8000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	381048	0.5	ug/L	LQC 10000	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorobenzene, 1,2-	381048	0.4	ug/L	LQC 20000	<0.4	<0.4	<0.4	<0.4	<0.4	0.6
Dichlorobenzene, 1,4-	381048	0.4	ug/L	LQC 500	<0.4	<0.4	<0.4	<0.4	<0.4	0.5
Dichloroethane, 1,2-	381048	0.2	ug/L	LQC 500	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dichloroethylene, 1,1-	381048	0.5	ug/L	LQC 1400	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methyl Ethyl Ketone	381049	10	ug/L	LQC 200000		<10	<10	<10	<10	<10

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

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

Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
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Attention: Mr. Weiyu Jin
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1927161
Date Submitted: 2020-03-13
Date Reported: 2020-03-20
Project: P-0013610
COC #: 854721

Guideline = REG 558

Volatiles

					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1484949 R347 2020-03-13 BH8 AS2	1484950 R347 2020-03-13 BH9 AS1	1484951 R347 2020-03-13 BH11 AS2	1484952 R347 2020-03-13 BH14 AS2	1484953 R347 2020-03-13 BH15 AS2
Analyte	Batch No	MRL	Units	Guideline						
Methyl Ethyl Ketone	381066	10	ug/L	LQC 200000		<10				
Methylene Chloride	381048	4.0	ug/L	LQC 5000		<4.0	<4.0	<4.0	<4.0	<4.0
Tetrachloroethylene	381048	0.3	ug/L	LQC 3000		<0.3	<0.3	<0.3	<0.3	<0.3
Trichloroethylene	381048	0.3	ug/L	LQC 5000		<0.3	<0.3	<0.3	<0.3	<0.3
Vinyl Chloride	381048	0.2	ug/L	LQC 200		<0.2	<0.2	<0.2	<0.2	<0.2

Inorganics

					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1484949 R347 2020-03-13 BH8 AS2	1484950 R347 2020-03-13 BH9 AS1	1484951 R347 2020-03-13 BH11 AS2	1484952 R347 2020-03-13 BH14 AS2	1484953 R347 2020-03-13 BH15 AS2
Analyte	Batch No	MRL	Units	Guideline						
Cyanide (CN-)	381003	0.05	mg/L	LQC 20.0		<0.05	<0.05	<0.05	<0.05	<0.05
F	381029	0.10	mg/L	LQC 150.0		0.18	0.20	0.20	0.24	0.15
NO2 + NO3 as N	381082	0.10	mg/L	LQC 1000		<0.10	<0.10	<0.10	<0.10	<0.10

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Date Submitted: 2020-03-13
Date Reported: 2020-03-20
Project: P-0013610
COC #: 854721

Guideline = REG 558

Moisture

					Lab I.D. 1484949 R347	1484950 R347	1484951 R347	1484952 R347	1484953 R347
					Sample Matrix	2020-03-13	2020-03-13	2020-03-13	2020-03-13
					Sample Type	BH8 AS2	BH9 AS1	BH11 AS2	BH14 AS2
					Sample Date				
					Sampling Time				
					Sample I.D.				
Analyte	Batch No	MRL	Units	Guideline					
Moisture-Humidite	381004	0.1	%		6.0	10.2	5.6	15.2	15.0

VOCs Surrogates

					Lab I.D. 1484949 R347	1484950 R347	1484951 R347	1484952 R347	1484953 R347
					Sample Matrix	2020-03-13	2020-03-13	2020-03-13	2020-03-13
					Sample Type	BH8 AS2	BH9 AS1	BH11 AS2	BH14 AS2
					Sample Date				
					Sampling Time				
					Sample I.D.				
Analyte	Batch No	MRL	Units	Guideline					
1,2-dichloroethane-d4	381048	0	%		106	121	115	108	112
4-bromofluorobenzene	381048	0	%		111	110	110	112	112
Toluene-d8	381048	0	%		97	101	103	99	102

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Attention: Mr. Weiyu Jin
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Report Number: 1927161
Date Submitted: 2020-03-13
Date Reported: 2020-03-20
Project: P-0013610
COC #: 854721

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
380984	Boron (total)	<0.1 mg/L	109	89.3-110.7		89.3-110.7	0	0-20
381003	Cyanide (CN-)	<0.05 mg/L	108	75-125	100	80-120	0	0-20
381004	Moisture-Humidite			80-120				
381004	REG 558 Leach							
381004	Zero Headspace Extraction							
381008	Silver	<0.01 mg/L	120	70-130		70-130		0-20
381008	Arsenic	<0.02 mg/L	100	70-130		70-130		0-20
381008	Barium	<0.01 mg/L	113	70-130		70-130		0-20
381008	Cadmium	<0.008 mg/L	113	70-130		70-130		0-20
381008	Chromium Total	<0.05 mg/L	113	70-130		70-130		0-20
381008	Lead	<0.01 mg/L	109	70-130		70-130		0-20
381008	Selenium	<0.02 mg/L	110	70-130		70-130		0-20
381008	Uranium	<0.01 mg/L	97	70-130		70-130		0-20
381015	Mercury	<0.001 mg/L	94	76-123	99	70-130	0	0-20
381029	F	<0.10 mg/L	101	90-110				0-5
381048	Dichloroethylene, 1,1-	<0.5 ug/L	104	60-130	105	50-140	0	0-30
381048	Dichlorobenzene, 1,2-	<0.4 ug/L	106	60-130	106	50-140	0	0-30
381048	Dichloroethane, 1,2-	<0.2 ug/L	101	60-130	111	50-140	0	0-30
381048	Dichlorobenzene, 1,4-	<0.4 ug/L	99	60-130	107	50-140	0	0-30
381048	Benzene	<0.5 ug/L	114	60-130	118	50-140	0	0-30
381048	Carbon Tetrachloride	<0.2 ug/L	92	60-130	112	50-140	0	0-30
381048	Chloroform	<0.5 ug/L	116	60-130	114	50-140	18	0-30
381048	Methylene Chloride	<4.0 ug/L	108	60-130	108	50-140	0	0-30
381048	Chlorobenzene	<0.5 ug/L	97	60-130	105	50-140	0	0-30
381048	Tetrachloroethylene	<0.3 ug/L	104	60-130	115	50-140	0	0-30
381048	Trichloroethylene	<0.3 ug/L	105	60-130	104	50-140	0	0-30
381048	Vinyl Chloride	<0.2 ug/L	105	60-130	114	50-140	0	0-30
381049	Methyl Ethyl Ketone	<10 ug/L		60-130	108	50-140	0	0-30
381066	Methyl Ethyl Ketone	<10 ug/L		60-130	108	50-140	0	0-30
381068	Flash Point							
381082	NO ₂ + NO ₃ as N	<0.10 mg/L	107	80-120		65-135	0	0-20

Results relate only to the parameters tested on the samples submitted.
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Attention: Mr. Weiyu Jin
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1927161
Date Submitted: 2020-03-13
Date Reported: 2020-03-20
Project: P-0013610
COC #: 854721

Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
380984	Boron (total)	ICAPQ-MS	2020-03-18	2020-03-18	H_D	EPA 200.8
381003	Cyanide (CN-)	Skalar CN Analyzer	2020-03-19	2020-03-19	Z_S	C SM4500-CNC
381004	Moisture-Humidity	Oven	2020-03-18	2020-03-18	SG	ASTM 2216
381004	REG 558 Leach	Manual	2020-03-18	2020-03-18	SG	EPA 1311/O. Reg 347
381004	Zero Headspace Extraction	Manual	2020-03-18	2020-03-18	SG	EPA 1311/O. Reg 347
381008	Silver	ICAPQ-MS	2020-03-19	2020-03-19	H_D	EPA 200.8
381008	Arsenic	ICAPQ-MS	2020-03-19	2020-03-19	H_D	EPA 200.8
381008	Barium	ICAPQ-MS	2020-03-19	2020-03-19	H_D	EPA 200.8
381008	Cadmium	ICAPQ-MS	2020-03-19	2020-03-19	H_D	EPA 200.8
381008	Chromium Total	ICAPQ-MS	2020-03-19	2020-03-19	H_D	EPA 200.8
381008	Lead	ICAPQ-MS	2020-03-19	2020-03-19	H_D	EPA 200.8
381008	Selenium	ICAPQ-MS	2020-03-19	2020-03-19	H_D	EPA 200.8
381008	Uranium	ICAPQ-MS	2020-03-19	2020-03-19	H_D	EPA 200.8
381015	Mercury	CV AA	2020-03-19	2020-03-19	SKH	M SM3112B-3500B
381029	F	Auto Titrator	2020-03-19	2020-03-19	H_D	SM2320,2510,4500H/F
381048	Dichloroethylene, 1,1-	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381048	Dichlorobenzene, 1,2-	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381048	Dichloroethane, 1,2-	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381048	Dichlorobenzene, 1,4-	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381048	Benzene	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381048	Carbon Tetrachloride	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381048	Chloroform	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381048	Methylene Chloride	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381048	Chlorobenzene	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381048	Tetrachloroethylene	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381048	Trichloroethylene	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381048	Vinyl Chloride	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381049	Methyl Ethyl Ketone	GC-MS	2020-03-17	2020-03-18	TJB	EPA 8260
381066	Methyl Ethyl Ketone	GC-MS	2020-03-18	2020-03-18	TJB	EPA 8260
381068	Flash Point	Manual	2020-03-20	2020-03-20	JM	C ASTM D56
381082	NO2 + NO3 as N	Skalar Technicon	2020-03-20	2020-03-20	Z_S	C SM4500-NO3-F

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Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Steven Chen
Invoice to: EnGlobe Corp.
PO#: 24881

Report Number: 1910334
Date Submitted: 2019-06-21
Date Reported: 2019-06-28
Project: P-0013610
COC #: 845083
Temperature (C): 9
Custody Seal:

Page 1 of 8

Dear Steven Chen:

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

Sample Comment Summary

Sample ID: 1434876 BH23 Metals analysis for this report was performed on an aqua-regia digest of the sample material, except for Boron.

Report Comments:

Sarah Horner, Inorganics Technician

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

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

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Attention: Steven Chen
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Invoice to: EnGlobe Corp.

Report Number: 1910334
Date Submitted: 2019-06-21
Date Reported: 2019-06-28
Project: P-0013610
COC #: 845083

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria

Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Steven Chen
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1910334
Date Submitted: 2019-06-21
Date Reported: 2019-06-28
Project: P-0013610
COC #: 845083

Guideline = REG 558

Flashpoint

Analyte

Batch No

MRL

Units

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

Guideline

1434876

R347

1434877

R347

2019-06-19

2019-06-19

BH23

BH27

Flash Point

368221

C

MAT 61-

>70

67.0

Leachate

Analyte

Batch No

MRL

Units

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

Guideline

1434876

R347

1434877

R347

2019-06-19

2019-06-19

BH23

BH27

REG 558 Leach

368192

y

y

Zero Headspace Extraction

368194

y

y

Client: EnGlobe Corp. (Toronto)
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Report Number: 1910334
Date Submitted: 2019-06-21
Date Reported: 2019-06-28
Project: P-0013610
COC #: 845083

Guideline = REG 558

Metals

					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	
Analyte	Batch No	MRL	Units	Guideline	1434876 R347 2019-06-19 BH23	1434877 R347 2019-06-19 BH27
Arsenic	368336	0.02	mg/L	LQC 2.5	<0.02	<0.02
Barium	368336	0.01	mg/L	LQC 100.0	0.72	0.35
Boron (total)	368338	0.1	mg/L	LQC 500.0	0.1	0.1
Cadmium	368336	0.008	mg/L	LQC 0.5	<0.008	<0.008
Chromium Total	368336	0.05	mg/L	LQC 5.0	<0.05	<0.05
Lead	368336	0.01	mg/L	LQC 5.0	<0.01	<0.01
Mercury	368340	0.001	mg/L	LQC 0.1	<0.001	<0.001
Selenium	368336	0.02	mg/L	LQC 1.0	<0.02	<0.02
Silver	368336	0.01	mg/L	LQC 5	<0.01	<0.01
Uranium	368336	0.01	mg/L	LQC 10.0	<0.01	<0.01

Volatiles

					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	
Analyte	Batch No	MRL	Units	Guideline	1434876 R347 2019-06-19 BH23	1434877 R347 2019-06-19 BH27
Benzene	368172	0.5	ug/L	LQC 500	<0.5	<0.5
Carbon Tetrachloride	368172	0.2	ug/L	LQC 500	<0.2	<0.2
Chlorobenzene	368172	0.5	ug/L	LQC 8000	<0.5	<0.5
Chloroform	368172	0.5	ug/L	LQC 10000	<0.5	<0.5
Dichlorobenzene, 1,2-	368172	0.4	ug/L	LQC 20000	<0.4	<0.4
Dichlorobenzene, 1,4-	368172	0.4	ug/L	LQC 500	<0.4	<0.4
Dichloroethane, 1,2-	368172	0.2	ug/L	LQC 500	<0.2	<0.2
Dichloroethylene, 1,1-	368172	0.5	ug/L	LQC 1400	<0.5	<0.5
Methyl Ethyl Ketone	368171	10	ug/L	LQC 200000	<10	<10

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Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
Toronto, ON
M9W 5W8
Attention: Steven Chen
PO#: 24881
Invoice to: EnGlobe Corp.

Report Number: 1910334
Date Submitted: 2019-06-21
Date Reported: 2019-06-28
Project: P-0013610
COC #: 845083

Guideline = REG 558

Volatiles

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1434876
R347
2019-06-19
BH23

1434877
R347
2019-06-19
BH27

Analyte Batch No MRL Units Guideline

Methylene Chloride	368172	4.0	ug/L	LQC 5000	<4.0	<4.0
Tetrachloroethylene	368172	0.3	ug/L	LQC 3000	<0.3	<0.3
Trichloroethylene	368172	0.3	ug/L	LQC 5000	<0.3	<0.3
Vinyl Chloride	368172	0.2	ug/L	LQC 200	<0.2	<0.2

Inorganics

Lab I.D.
Sample Matrix
Sample Type
Sample Date
Sampling Time
Sample I.D.

1434876
R347
2019-06-19
BH23

1434877
R347
2019-06-19
BH27

Analyte Batch No MRL Units Guideline

Cyanide (CN-)	368217	0.05	mg/L	LQC 20.0	<0.05	<0.05
F	368268	0.10	mg/L	LQC 150.0	<0.10	<0.10
NO ₂ + NO ₃ as N	368310	0.10	mg/L	LQC 1000	0.16	0.16

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Moisture

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	
					1434876 R347	1434877 R347
Moisture-Humidite	368195	0.1	%		2019-06-19 BH23	2019-06-19 BH27
					8.7	5.6

VOCs Surrogates

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	
					1434876 R347	1434877 R347
1,2-dichloroethane-d4	368171	0	%		2019-06-19 BH23	2019-06-19 BH27
4-bromofluorobenzene	368171	0	%		101	99
Toluene-d8	368171	0	%		97	95
					100	100

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
368171	Methyl Ethyl Ketone	<10 ug/L		60-130	73	50-140	0	0-30
368172	Dichloroethylene, 1,1-	<0.5 ug/L	97	60-130	92	50-140	0	0-30
368172	Dichlorobenzene, 1,2-	<0.4 ug/L	97	60-130	105	50-140	0	0-30
368172	Dichloroethane, 1,2-	<0.2 ug/L	91	60-130	88	50-140	0	0-30
368172	Dichlorobenzene, 1,4-	<0.4 ug/L	86	60-130	94	50-140	0	0-30
368172	Benzene	<0.5 ug/L	84	60-130	82	50-140	0	0-30
368172	Carbon Tetrachloride	<0.2 ug/L	106	60-130	100	50-140	0	0-30
368172	Chloroform	<0.5 ug/L	95	60-130	98	50-140	0	0-30
368172	Methylene Chloride	<4.0 ug/L	82	60-130	86	50-140	0	0-30
368172	Chlorobenzene	<0.5 ug/L	89	60-130	87	50-140	0	0-30
368172	Tetrachloroethylene	<0.3 ug/L	117	60-130	117	50-140	0	0-30
368172	Trichloroethylene	<0.3 ug/L	102	60-130	97	50-140	0	0-30
368172	Vinyl Chloride	<0.2 ug/L	116	60-130	105	50-140	0	0-30
368192	REG 558 Leach							
368194	Zero Headspace Extraction							
368195	Moisture-Humidite			80-120				
368217	Cyanide (CN-)	<0.05 mg/L	124	75-125	97	80-120	0	0-20
368221	Flash Point							
368268	F	<0.10 mg/L	100	90-110			0	0-5
368310	NO2 + NO3 as N	<0.10 mg/L	100	80-120		65-135	0	0-50
368336	Silver	<0.01 mg/L	90	70-130		70-130		0-20
368336	Arsenic	<0.02 mg/L	93	70-130		70-130		0-20
368336	Barium	<0.01 mg/L	95	70-130		70-130		0-20
368336	Cadmium	<0.008 mg/L	98	70-130		70-130		0-20
368336	Chromium Total	<0.05 mg/L	97	70-130		70-130		0-20
368336	Lead	<0.01 mg/L	94	70-130		70-130		0-20
368336	Selenium	<0.02 mg/L	98	70-130		70-130		0-20
368336	Uranium	<0.01 mg/L	87	70-130		70-130		0-20
368338	Boron (total)	<0.01 mg/L	103	84.9-115		70-130		0-20
368340	Mercury	<0.001 mg/L	90	76-123	91	70-130	0	0-20

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Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
368171	Methyl Ethyl Ketone	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368172	Dichloroethylene, 1,1-	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368172	Dichlorobenzene, 1,2-	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368172	Dichloroethane, 1,2-	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368172	Dichlorobenzene, 1,4-	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368172	Benzene	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368172	Carbon Tetrachloride	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368172	Chloroform	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368172	Methylene Chloride	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368172	Chlorobenzene	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368172	Tetrachloroethylene	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368172	Trichloroethylene	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368172	Vinyl Chloride	GC-MS	2019-06-24	2019-06-27	TJB	EPA 8260
368192	REG 558 Leach	Manual	2019-06-25	2019-06-25	AET	EPA 1311/O. Reg 347
368194	Zero Headspace Extraction	Manual	2019-06-25	2019-06-25	AET	EPA 1311/O. Reg 347
368195	Moisture-Humidite	Oven	2019-06-25	2019-06-25	AET	ASTM 2216
368217	Cyanide (CN-)	Skalar CN Analyzer	2019-06-27	2019-06-27	Z_S	C SM4500-CNC
368221	Flash Point	Manual	2019-06-28	2019-06-28	SG	C ASTM D56
368268	F	Auto Titrator	2019-06-27	2019-06-27	K_J	SM2320,2510,4500H/F
368310	NO2 + NO3 as N	Skalar Technicon	2019-06-28	2019-06-28	Z_S	C SM4500-NO3-F
368336	Silver	ICAPQ-MS	2019-06-28	2019-06-28	SKH	EPA 200.8
368336	Arsenic	ICAPQ-MS	2019-06-28	2019-06-28	SKH	EPA 200.8
368336	Barium	ICAPQ-MS	2019-06-28	2019-06-28	SKH	EPA 200.8
368336	Cadmium	ICAPQ-MS	2019-06-28	2019-06-28	SKH	EPA 200.8
368336	Chromium Total	ICAPQ-MS	2019-06-28	2019-06-28	SKH	EPA 200.8
368336	Lead	ICAPQ-MS	2019-06-28	2019-06-28	SKH	EPA 200.8
368336	Selenium	ICAPQ-MS	2019-06-28	2019-06-28	SKH	EPA 200.8
368336	Uranium	ICAPQ-MS	2019-06-28	2019-06-28	SKH	EPA 200.8
368338	Boron (total)	ICAPQ-MS	2019-06-28	2019-06-28	SKH	EPA 200.8
368340	Mercury	CV AA	2019-06-28	2019-06-28	SKH	M SM3112B-3500B

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Client: EnGlobe Corp. (Toronto)
1821 Albion Road, Unit 7
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M9W 5W8
Attention: Steven Chen
Invoice to: EnGlobe Corp.
PO#: 24881

Report Number: 1911409
Date Submitted: 2019-07-03
Date Reported: 2019-07-11
Project: P-0013610
COC #: 845695
Temperature (C): 13
Custody Seal:

Page 1 of 8

Dear Steven Chen:

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

Sample Comment Summary

Sample ID: 1437710 BH 24 Metals analysis for this report was performed on an aqua-regia digest of the sample material, except for Boron.
--

Report Comments:

Addrine Thomas, Inorganics Supervisor

Long Qu, Organics Supervisor

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

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

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

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Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria

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Guideline = REG 558

Flashpoint

Guideline = REG 558					1437710	1437711	1437712	1437713	1437714
Analyte	Batch No	MRL	Units	Lab I.D.	R347	R347	R347	R347	R347
				Sample Matrix					
				Sample Type					
				Sample Date	2019-06-25	2019-06-25	2019-06-25	2019-06-25	2019-06-25
				Sampling Time					
Guideline									
				Sample I.D.	BH 24	BH 25	BH 26	BH 28	BH 29
Flash Point	368859		C	MAT 61-	>70	67.0	66.7	65.2	>70

Leachate

<u>Leachate</u>					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1437710 R347 2019-06-25 BH 24	1437711 R347 2019-06-25 BH 25	1437712 R347 2019-06-25 BH 26	1437713 R347 2019-06-25 BH 28	1437714 R347 2019-06-25 BH 29
Analyte	Batch No	MRL	Units	Guideline						
Moisture-Humidite	368859				8.71	12.6	21.3	7.47	22.4	
REG 558 Leach	368859				y	y	y	y	y	
Zero Headspace Extraction	368859				y	y	y	y	y	

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Guideline = REG 558

Metals

					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1437710 R347 2019-06-25 BH 24	1437711 R347 2019-06-25 BH 25	1437712 R347 2019-06-25 BH 26	1437713 R347 2019-06-25 BH 28	1437714 R347 2019-06-25 BH 29
Analyte	Batch No	MRL	Units	Guideline						
Arsenic	368885	0.02	mg/L	LQC 2.5		<0.02	<0.02	<0.02	<0.02	<0.02
Barium	368885	0.01	mg/L	LQC 100.0		0.43	0.51	1.09	0.34	0.45
Boron (total)	368839	0.1	mg/L	LQC 500.0		<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	368885	0.008	mg/L	LQC 0.5		<0.008	<0.008	<0.008	<0.008	<0.008
Chromium Total	368885	0.05	mg/L	LQC 5.0		<0.05	<0.05	<0.05	<0.05	<0.05
Lead	368885	0.01	mg/L	LQC 5.0		<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	368876	0.001	mg/L	LQC 0.1		<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	368885	0.02	mg/L	LQC 1.0		<0.02	<0.02	<0.02	<0.02	<0.02
Silver	368885	0.01	mg/L	LQC 5		<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	368885	0.01	mg/L	LQC 10.0		<0.01	<0.01	<0.01	<0.01	<0.01

Volatiles

					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1437710 R347 2019-06-25 BH 24	1437711 R347 2019-06-25 BH 25	1437712 R347 2019-06-25 BH 26	1437713 R347 2019-06-25 BH 28	1437714 R347 2019-06-25 BH 29
Analyte	Batch No	MRL	Units	Guideline						
Benzene	368811	0.5	ug/L	LQC 500		<0.5	<0.5	<0.5	<0.5	<0.5
Carbon Tetrachloride	368811	0.2	ug/L	LQC 500		<0.2	<0.2	<0.2	<0.2	<0.2
Chlorobenzene	368811	0.5	ug/L	LQC 8000		<0.5	<0.5	<0.5	<0.5	<0.5
Chloroform	368811	0.5	ug/L	LQC 10000		<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorobenzene, 1,2-	368811	0.4	ug/L	LQC 20000		<0.4	<0.4	<0.4	<0.4	<0.4
Dichlorobenzene, 1,4-	368811	0.4	ug/L	LQC 500		<0.4	<0.4	<0.4	<0.4	<0.4
Dichloroethane, 1,2-	368811	0.2	ug/L	LQC 500		<0.2	<0.2	<0.2	<0.2	<0.2
Dichloroethylene, 1,1-	368811	0.5	ug/L	LQC 1400		<0.5	<0.5	<0.5	<0.5	<0.5
Methyl Ethyl Ketone	368814	10	ug/L	LQC 200000		<10	<10	<10	<10	<10

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Guideline = REG 558

Volatiles

					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1437710 R347 2019-06-25 BH 24	1437711 R347 2019-06-25 BH 25	1437712 R347 2019-06-25 BH 26	1437713 R347 2019-06-25 BH 28	1437714 R347 2019-06-25 BH 29
Analyte	Batch No	MRL	Units	Guideline						
Methylene Chloride	368811	4.0	ug/L	LQC 5000		<4.0	<4.0	<4.0	<4.0	4.1
Tetrachloroethylene	368811	0.3	ug/L	LQC 3000		<0.3	<0.3	<0.3	<0.3	<0.3
Trichloroethylene	368811	0.3	ug/L	LQC 5000		<0.3	<0.3	<0.3	<0.3	<0.3
Vinyl Chloride	368811	0.2	ug/L	LQC 200		<0.2	<0.2	<0.2	<0.2	<0.2

Inorganics

					Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D.	1437710 R347 2019-06-25 BH 24	1437711 R347 2019-06-25 BH 25	1437712 R347 2019-06-25 BH 26	1437713 R347 2019-06-25 BH 28	1437714 R347 2019-06-25 BH 29
Analyte	Batch No	MRL	Units	Guideline						
Cyanide (CN-)	368933	0.05	mg/L	LQC 20.0		<0.05	<0.05	<0.05	<0.05	<0.05
F	368821	0.10	mg/L	LQC 150.0		0.18	0.14	0.14	0.16	0.10
NO2 + NO3 as N	368863	0.10	mg/L	LQC 1000		0.15	0.66	<0.10	<0.10	0.14

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VOCs Surrogates

					Lab I.D. 1437710 R347	1437711 R347	1437712 R347	1437713 R347	1437714 R347
					Sample Matrix	2019-06-25	2019-06-25	2019-06-25	2019-06-25
					Sample Type	BH 24	BH 25	BH 26	BH 28
					Sample Date				
					Sampling Time				
					Sample I.D.				
Analyte	Batch No	MRL	Units	Guideline					
1,2-dichloroethane-d4	368811	0	%		121	116	115	110	109
4-bromofluorobenzene	368811	0	%		110	113	115	112	115
Toluene-d8	368811	0	%		103	102	101	101	100

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
368811	Dichloroethylene, 1,1-	<0.5 ug/L	104	60-130	96	50-140	0	0-30
368811	Dichlorobenzene, 1,2-	<0.4 ug/L	82	60-130	80	50-140	0	0-30
368811	Dichloroethane, 1,2-	<0.2 ug/L	89	60-130	90	50-140	0	0-30
368811	Dichlorobenzene, 1,4-	<0.4 ug/L	88	60-130	91	50-140	0	0-30
368811	Benzene	<0.5 ug/L	106	60-130	99	50-140	0	0-30
368811	Carbon Tetrachloride	<0.2 ug/L	92	60-130	84	50-140	0	0-30
368811	Chloroform	<0.5 ug/L	91	60-130	87	50-140	0	0-30
368811	Methylene Chloride	<4.0 ug/L	81	60-130	101	50-140	0	0-30
368811	Chlorobenzene	<0.5 ug/L	94	60-130	98	50-140	0	0-30
368811	Tetrachloroethylene	<0.3 ug/L	88	60-130	92	50-140	0	0-30
368811	Trichloroethylene	<0.3 ug/L	103	60-130	97	50-140	0	0-30
368811	Vinyl Chloride	<0.2 ug/L	106	60-130	109	50-140	0	0-30
368814	Methyl Ethyl Ketone	<10 ug/L		60-130	80	50-140	0	0-30
368821	F	<0.10 mg/L	100	90-110			0	0-5
368839	Boron (total)	<0.1 mg/L	95	84.9-115	88	70-130	1	0-20
368859	Flash Point							
368859	Moisture-Humidite							
368859	REG 558 Leach							
368859	Zero Headspace Extraction							
368863	NO ₂ + NO ₃ as N	<0.10 mg/L	93	80-120		65-135	0	0-50
368876	Mercury	<0.001 mg/L	90	76-123	98	70-130	0	0-20
368885	Silver	<0.01 mg/L	80	70-130	89	70-130	0	0-20
368885	Arsenic	<0.02 mg/L	81	70-130	86	70-130	0	0-20
368885	Barium	<0.01 mg/L	83	70-130	71	70-130	3	0-20
368885	Cadmium	<0.008 mg/L	87	70-130	90	70-130	0	0-20
368885	Chromium Total	<0.05 mg/L	94	70-130	94	70-130	0	0-20
368885	Lead	<0.01 mg/L	79	70-130	76	70-130	0	0-20
368885	Selenium	<0.02 mg/L	88	70-130	87	70-130	0	0-20
368885	Uranium	<0.01 mg/L	72	70-130	75	70-130	0	0-20
368933	Cyanide (CN-)	<0.05 mg/L	128	75-125	80	80-120	0	0-20

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

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

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Report Number: 1911409
Date Submitted: 2019-07-03
Date Reported: 2019-07-11
Project: P-0013610
COC #: 845695

Test Summary

Batch No	Analyte	Instrument	Preparation Date	Analysis Date	Analyst	Method
368811	Dichloroethylene, 1,1-	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368811	Dichlorobenzene, 1,2-	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368811	Dichloroethane, 1,2-	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368811	Dichlorobenzene, 1,4-	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368811	Benzene	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368811	Carbon Tetrachloride	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368811	Chloroform	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368811	Methylene Chloride	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368811	Chlorobenzene	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368811	Tetrachloroethylene	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368811	Trichloroethylene	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368811	Vinyl Chloride	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368814	Methyl Ethyl Ketone	GC-MS	2019-07-09	2019-07-09	TJB	EPA 8260
368821	F	Auto Titrator	2019-07-09	2019-07-09	K_J	SM2320,2510,4500H/F
368839	Boron (total)	ICAPQ-MS	2019-07-09	2019-07-09	H_D	EPA 200.8
368859	Flash Point	Manual	2019-07-09	2019-07-09	SG	C ASTM D56
368859	Moisture-Humidite	Manual	2019-07-09	2019-07-09	SG	EPA 1311/O. Reg 347
368859	REG 558 Leach	Manual	2019-07-09	2019-07-09	SG	EPA 1311/O. Reg 347
368859	Zero Headspace Extraction	Manual	2019-07-09	2019-07-09	SG	EPA 1311/O. Reg 347
368863	NO2 + NO3 as N	Skalar Technicon	2019-07-10	2019-07-10	Z_S	C SM4500-NO3-F
368876	Mercury	CV AA	2019-07-10	2019-07-10	SKH	M SM3112B-3500B
368885	Silver	ICAPQ-MS	2019-07-10	2019-07-10	H_D	EPA 200.8
368885	Arsenic	ICAPQ-MS	2019-07-10	2019-07-10	H_D	EPA 200.8
368885	Barium	ICAPQ-MS	2019-07-10	2019-07-10	H_D	EPA 200.8
368885	Cadmium	ICAPQ-MS	2019-07-10	2019-07-10	H_D	EPA 200.8
368885	Chromium Total	ICAPQ-MS	2019-07-10	2019-07-10	H_D	EPA 200.8
368885	Lead	ICAPQ-MS	2019-07-10	2019-07-10	H_D	EPA 200.8
368885	Selenium	ICAPQ-MS	2019-07-10	2019-07-10	H_D	EPA 200.8
368885	Uranium	ICAPQ-MS	2019-07-10	2019-07-10	H_D	EPA 200.8
368933	Cyanide (CN-)	Skalar CN Analyzer	2019-07-11	2019-07-11	Z_S	C SM4500-CNC

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

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

Appendix 7 Asbestos and Steel Slag Test Results

TABLE 7-1
ASBESTOS CONTENT AND STEEL SLAG AT CORE LOCATIONS
Yonge Street from Richmond Street to Davenport Road

Core Number	LOCATION	AC Lift Thickness (mm)	Total AC Thickness (mm)	PCC (mm)	Asphalt Cement Content (%)	Asbestos Content By Dry Weight (%)	Steel Slag
C1	Yonge Street, About 52 m North of Richmond Street East, Northbound Curb Lane, 1.3 m West of East Curb	AC Lift 1 =50 AC Lift 2 =60	110	225	4.87	No visible fibres	No visible Steel Slag
C2	Yonge Street, About 27 m North of Queen Street East, Northbound Curb Lane, 0.9 m West of East Curb	AC Lift 1 =50 AC Lift 2 =40 AC Lift 3 =40	130	210	4.87	No visible fibres	No visible Steel Slag
C3	Yonge Street, About 60 m North of Queen Street East, Southbound Curb Lane, 0.8 m East of West Curb	AC Lift 1 =50 AC Lift 2 =45	95	185	4.97	No visible fibres	No visible Steel Slag
C4	Yonge Street, About 32 m South of Shuter Street, Southbound Curb Lane, 3 m East of West Curb	AC Lift 1 =30 AC Lift 2 =40 AC Lift 3 =50	120	165	5.05	No visible fibres	No visible Steel Slag
C5	Yonge Street, About 30 m North of Shuter Street, Southbound Curb Lane, 1.5 m East of West Curb	AC Lift 1 =50 AC Lift 2 =65	115	195	4.97	No visible fibres	No visible Steel Slag
C7	Yonge Street, About 90 m South of Dundas Square, Northbound Curb Lane, 1.8 m West of East Curb	AC Lift 1 =50 AC Lift 2 =75	125	205	4.97	No visible fibres	No visible Steel Slag
C8	Yonge Street, About 11 m South of Dundas Square, Northbound Curb Lane, 1.2 m West of East Curb	AC Lift 1 =25 AC Lift 2 =50 AC Lift 3 =30	105	210	4.91	No visible fibres	No visible Steel Slag
C10	Yonge Street, About 20 m North of Dundas Street East, Southbound Curb Lane, 3.0 m East of West Curb	AC Lift 1 =30 AC Lift 2 =40	70	150	4.91	No visible fibres	No visible Steel Slag
C15	Yonge Street, About 1.5 m North of Walton Street, Northbound Curb Lane, 1.3 m West of East Curb	AC Lift 1 =30 AC Lift 2 =50	80	200	5.05	No visible fibres	No visible Steel Slag
C17	Yonge Street, About 14 m North of Gerrard Street East, Southbound Curb Lane, 3.8 m East of West Curb	AC Lift 1 =35 AC Lift 2 =35	70	220	4.91	No visible fibres	No visible Steel Slag
C21	Yonge Street, About 6 m South of Carlton Street, Northbound Curb Lane, 2.0 m West of East Curb	AC Lift 1 = 25 AC Lift 2 = 50	75	210	4.97	No visible fibres	No visible Steel Slag
C30	Yonge Street, About 52 m South of Dundas Square, Southbound Curb Lane, 1.4 m East of West Curb	AC Lift 1 =50 AC Lift 2 =20	70	230	4.87	No visible fibres	No visible Steel Slag
C31	Yonge Street, About 35 m South of Walton Street, Southbound Curb Lane, 4.5 m East of West Curb	AC Lift 1 =35 AC Lift 2 =40	75	230	4.91	No visible fibres	No visible Steel Slag

TABLE 7-1
ASBESTOS CONTENT AND STEEL SLAG AT CORE LOCATIONS
Yonge Street from Richmond Street to Davenport Road

Core Number	LOCATION	AC Lift Thickness (mm)	Total AC Thickness (mm)	PCC (mm)	Asphalt Cement Content (%)	Asbestos Content By Dry Weight (%)	Steel Slag
C32	Yonge Street, About 108 m South of College Street, Southbound Curb Lane, 3.2 m West of Median Curb	AC Lift 1 =35 AC Lift 2 =60	95	210	4.87	No visible fibres	No visible Steel Slag

Notes:

Asphalt Concrete: AC

Portland Cement Concrete: PCC