347 Pido Road Peterborough, Ontario K9J 6X7 Canada www.ghd.com



Our ref: 11220832-01

12 April 2021

Consolidated Fastfrate (Ottawa) Holdings Inc. c/o Pierre Courteau CBRE Limited 333 Preston Street, 7<sup>th</sup> Floor Ottawa, Ontario K1S 5N4

#### Re: Terrain Analysis, Septic Assessment and Percolation Rate Evaluation Proposed Commercial Development Rideau Road and Somme Street Gloucester Con 6 from Rideau River, Lot 26, Ottawa, Ontario

Dear Mr. Courteau:

### 1. Introduction

GHD Limited (GHD) is pleased to provide you (the Client) with the following letter documenting excavation activities completed in the general locations of a proposed septic tile bed and stormwater pond. The locations were requested by CIMA. This letter documents the soil and groundwater conditions encountered also provides a summary of approximate percolation rate (T-time) values based upon soil collected from the test pit locations. Additional information regarding the terrain of the above noted property can be gleaned from the Geotechnical Investigation report.

The general location is illustrated on the Site Location Plan, Figure 1. The test pit locations are illustrated on the Test Pit Location Plan, Figure 2.

# 2. Field Activities

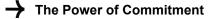
Test pits were advanced under the supervision of GHD on March 31, 2021. The test pits were excavated at five (5) locations to depths ranging from 2.4 to 3.4 m. The soil stratigraphy consisted of fill at each location described as gravelly sand with silt trace clay to a silty sand with gravel and clay. Fill was observed to the bottom of each test pit. The fill also included a mix of asphalt, bricks and concrete at each location. Refusal was encountered at 2.4 m at TP-1 due to asphalt. Test pit logs are provided in Appendix A.

Soil samples were collected from each test pit. Hydrometer testing was conducted at GHD's laboratory. The grain size data, included in Appendix A, indicated:

18 – 41% gravel; 36 – 47% sand; 12 – 23% silt; and, 4 – 12% clay size particles by weight.

Groundwater seepage was encountered at each test pit. The shallow groundwater was observed between 1.8 and 2.4 metres below ground surface (mbgs). Test pits TP-2, TP-3, TP-4 and TP-5 encountered groundwater at 1.8 mbgs.

Based upon the Supplementary Guidelines to the Ontario Building Code 1997, the percolation rate is estimated (based upon the gradation test results only) to have an average value of 12 to 20 min/cm with a medium permeability.



#### 3. Conclusions and Recommendations

Due to the inconsistency of the fill materials observed and shallow groundwater seepage encountered it is recommended the septic disposal system be a fully raised bed absorption trench leaching bed. It is recommended prior to placement if the imported fill that any surficial organics be removed from the tile bed and mantle area. It is also suggested that that the existing fill material be compacted to ensure uneven settlement of the tiles does not occur.

The waste disposal system should meet Ontario Regulation 350/06 made under the Building Code Act, 1992 and incorporate the following design features:

- 1. Organics should be stripped from the area of the leaching bed and downgradient mantle.
- 2. The exposed subgrade below the tile bed should be trimmed and scarified, and provided with a gentle slope of 0.5% in the direction of the mantle.
- The tile bed should be constructed as a fully raised leaching type bed up to the full height of at least 1 3. m above existing grade. The raised bed should consist of clean, granular fill capable of providing an in-place T-time of 4 to 8 min/cm.
- 4. The mantle should be constructed along the downgradient margin of the raised bed. Each mantle should extend along the full width of the bed and for a minimum of 15 m downgradient from the bed. The mantle should consist of similar granular fill raised to a minimum of 250 mm above the surrounding grade. Surface runoff should be diverted away from the leaching bed by means of proper site drainage.
- 5. The waste disposal system should be kept clear of surface drainage swales, roof leader drains, and other sources of surface water.
- 6. The tile bed should be kept away from shade trees and a healthy cover of vegetation should be developed and maintained over the bed to promote evapotranspiration.
- 7. When sighting a tile bed on sloping ground, it is recommended that procedures outlined in the Building Code be followed closely.
- 8. Minimum set back distances from septic tank (plus 2 times height raised):
  - Building 1.5 m

Property line – 3 m

Drilled well - 15 m

- Open water course 15 m
- Minimum set back distances from septic tile bed (plus 2 times height raised): 9.
  - Building 5 m

- Property line 3 m
- Drilled well, properly sealed 15 m
- Open water course 15 m
- Shallow well 30 m
- 10. The layout, design and construction of the waste disposal bed should be subject to inspection by experienced hydrogeologic personnel.

We trust that this report meets your immediate requirements. Should you have any questions, please contact our office.

Regards

GHD

Robert Neck, M.Eng., P.Geo. (M **Project Manager** 

Encl.: Appendix A (Test Pit Logs and Gradation Results)

Email to Pierre Courteau Cc: Christian Lavoie-Lebel (Christian.Lavoie-Lebel@cima.ca)

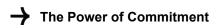
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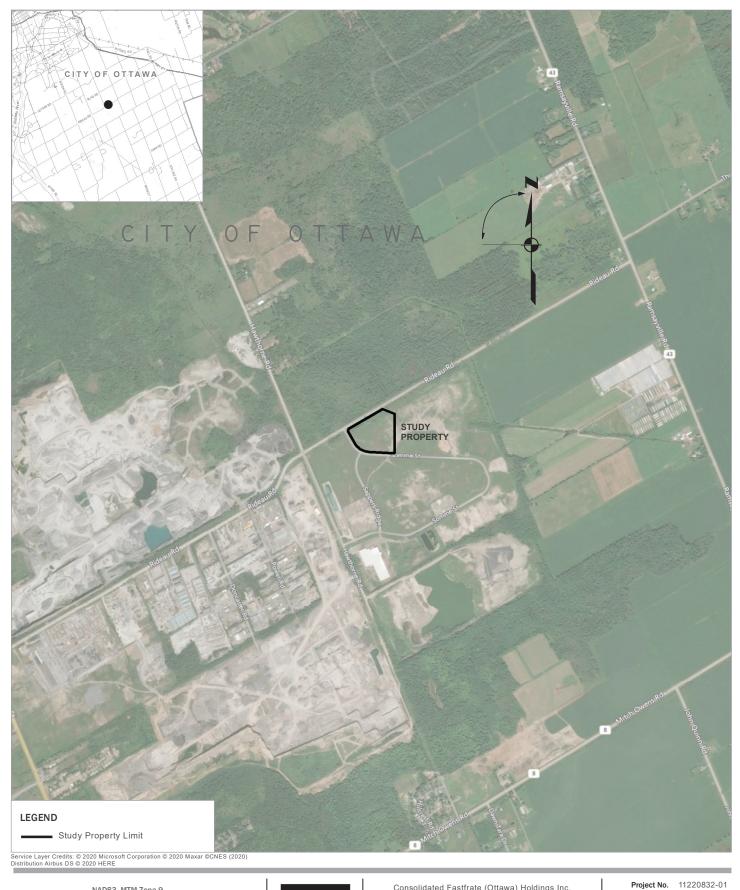
ROBERT W. NECK

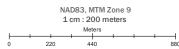
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# Attachment 1 Figures





#### ATTRIBUTION STATEMENTS

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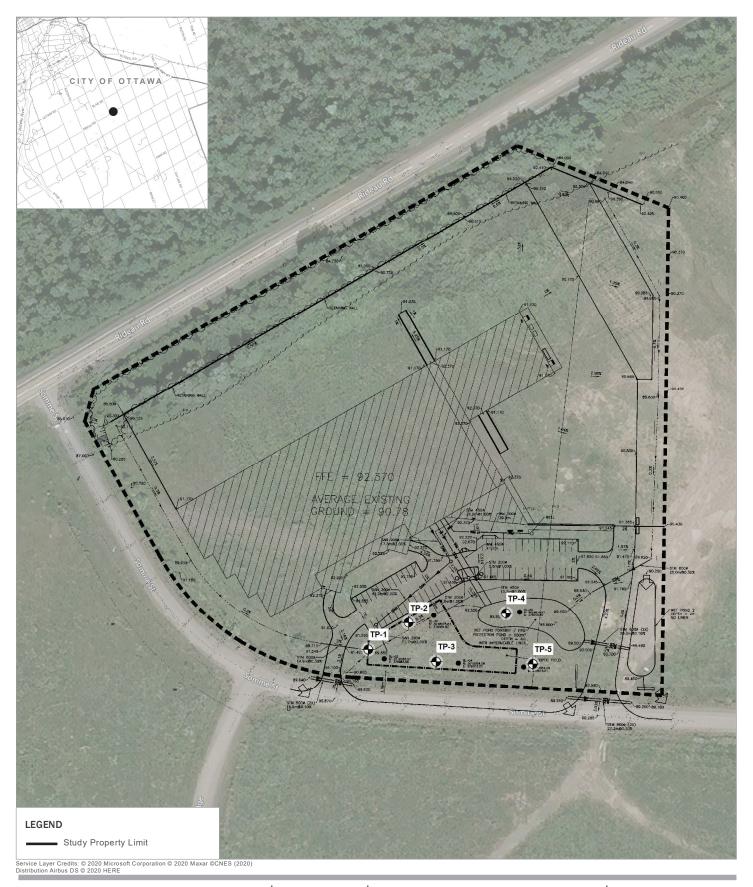


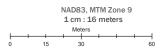
Consolidated Fastfrate (Ottawa) Holdings Inc. RIDEAU ROAD & SOMME STREET CITY OF OTTAWA ONTARIO

Revision No. 1 Date Apr 2021

#### SEPTIC ASSESSMENT SITE LOCATION PLAN

FIGURE 1





#### ATTRIBUTION STATEMENTS

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Consolidated Fastfrate (Ottawa) Holdings Inc. RIDEAU ROAD & SOMME STREET CITY OF OTTAWA ONTARIO

SEPTIC ASSESSMENT TEST HOLE LOCATION PLAN 
 Project No.
 11220832-01

 Revision No.
 1

 Date
 Apr 2021

#### **FIGURE 2**

# Appendix A

# **Test Pit Logs and Gradation Results**

REFER	ENCE	No.:	11220832											ENG	CLOSURE No.: A-1
GHD				TEST HOLE No.: <u>TP-1</u> ELEVATION: <u>Existing grade</u>								TEST HOLE REPORT         Page:       1       of       1			
CLIENT	:	(	Consolidated Fastfrate												LEGEND
PROJE	CT: _	ę	Septic Assessment												GS - GRAB SAMPLE
LOGGE	D BY:		J. Scott	DAT	E:	31	Marc	:h 2	2021						▼ - WATER LEVEL
EXCAV	ATION	СОМ	PANY: Goldie Mohr Lto	d. MET	METHOD: Backhoe										-
NOTES:	:		18T E: 456548 N: 5017	167											
	0						1								
Depth	m Below Existing Grade	Stratigraphy	DESCRIPT SOIL AND B		-	I ype and Number	Moisture Content	(	Shear Sensit O W H Ai	test ( ivity ( ater o tterbe	Cu) S) conter rg lim	nt (% its (	%) %)	∆ Field □ Lab	
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	0.2	<u>, 1/, 1</u> 1/, 1/,	· · · ·												
1			<b>SM</b> - Gravelly sand (fil clay, concrete, brick, a brown, moist	l), with silt, trace asphalt, compact,											- Test pit open upon completion
2								-							- GS-1 37% Gravel
		$\bigotimes$				GS-1									47% Sand 12% Silt
3															4% Clay
4															
		$\bigotimes$													
5 1.5		$\bigotimes$						_				_			
		$\bigotimes$													
6-	1.8		With clay, loose					-							- GS-2
- 2.0		$\bigotimes$			$\left \right\rangle$	GS-2									41% Gravel 36% Sand
7	2.1	XX	Wet					-							16% Silt 7% Clay
8	2.4	$\bigotimes$													- Groundwater infiltration observed at approximately 2.1 mbgs
2.5	2.4		END OF TEST HOLE												- Refusal at 2.4m (asphalt)
9															(asprian)
10								_							
+															
11								-	+						
- 3.5															
12												1			
4.0															
14															
- 4.5															

TEST HOLE LOG GEOTECH 11220832 TEST PIT GINT LOGS.GPJ GEOLOGIC.GDT 12/4/21

	R	EFERE	NCE	No.:	11220832											ENG	CLOSURE No.: A-2			
	GH	D				TEST HOLE									Т	ES	ST HOLE REPORT			
						ELEVATION:		-	XIOUIIQ	, gro							Page: <u>1</u> of <u>1</u>			
					Consolidated Fastfrate															
	PF	ROJEC	T: _	5	Septic Assessment												GS - GRAB SAMPLE ▼ - WATER LEVEL			
					I. Scott												-			
	Ε>	KCAVA	TION	COM	PANY: Goldie Mohr Lto	d. MET	ГНС	DD: <u>B</u> a	ackho	e							-			
	N	OTES:		1	18T E: 456572 N: 5017	175														
	Depth		m Below Existing Grade	Stratigraphy	DESCRIPT SOIL AND B			Type and Number	Moisture Content	S S C W P	hear te ensitiv ) Wa -¶ Atte w	est (C vity (S ater c erber	cu) i) onten g limi	t (%) ts (%)	△ □ )	Field Lab				
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	-	-	0.1	$\overline{\times}$	<b>TOPSOIL</b> (102mm) <b>SM</b> - Gravelly sand (fil															
1		-			concrete, brick, aspha	ılt, brown, moist							_			+	- Test pit open upon			
	-	- - 0.5		$\bigotimes$													completion			
2	2-	-											_			+				
	-	-		$\bigotimes$																
3	3-	- 1.0											-		_	+				
	-	- 1.0		$\bigotimes$				GS-1												
4		-						N N					-			+				
	+	-		$\bigotimes$																
5	;-†	- 1.5 -											-			+				
	-	-		$\bigotimes$																
6	}[	-	1.8	ŽŽ	Wet	·	•										- Groundwater infiltration observed at			
		- 2.0		$\bigotimes$													approximately 1.8 mbgs			
7	′ _   	-																		
0	,	-		$\bigotimes$																
8 12	,	- 2.5																		
0.0610.0	,	-	2.7	$\bigotimes$																
GEOLO	, 	-	2.1		END OF TEST HOLE															
- Gag. 10	0-1	- 3.0																		
TOGS	_	-																		
	1	-											_							
ESTPI	+	- - 3.5																		
832 TE	2	-											_			+				
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G GEC	+	-																		
	4-	-								$\mid$			+	+	_	+				
TEST HOLE LOG GEOTECH 11220832 TEST PIT GINT LOGS GPJ GEOLOGIC GDT 12/4/21	-	- - 4.5																		
≓∟									1											

REFER	ENCE	No.:	11220832										EN	CLOSU	RE No.:	A-3
					TEST HOLE No.: TP-3								TES	ат но	OLE R	EPORT
GHD				ELEVATION:		E	xisting	gra	ade						_ <u>1</u> of	
CLIENT	:	(	Consolidated Fastfrate											LEG	END	
			Septic Assessment													AB SAMPLE
			J. Scott			31								Ţ	- WA	TER LEVEL
			PANY: Goldie Mohr Lto											_		
NOTES	:		18T E: 456599 N: 5017	156												
Depth	m Below Existing Grade	Stratigraphy	DESCRIPT SOIL AND B			Number	Moisture Content	St Se O wp	near tes ensitivit Wate Matter	st (Cu) y (S) er cont berg li	ent (% mits ('	%) %)	∆ Field ] Lab		COMMEI 0.2 m	NTS
ft m	0.0		GROUND S	URFACE			%	1(	0 20 30	0 40 5	0 60	708	0 90			
	0.2		<b>TOPSOIL</b> (152 mm) <b>SM</b> - Gravelly sand (fil concrete, asphalt, bro	ll), with silt, wn, moist											- Test pi	t open upon
2 2															completi	on
3 - - 1.0																
	1.2		Grey, cobbles		$\setminus$	GS-1										
5 1.5 																
6	1.8		 Wet													lwater n observed at nately 1.8 mbgs
9 – 2.5 9 –															- 50 mm	diameter
10	3.0		END OF TEST HOLE		$\left  \right\rangle$	GS-2									monitorii to 2.7 ml	ng well installed ogs
								_								
3.5 12-																
13								+								
								+								
2 - 4.5																

TEST HOLE LOG GEOTECH 11220832 TEST PIT GINT LOGS.GPJ GEOLOGIC.GDT 12/4/21

	REFER	ENCE	No.:	11220832										ENC	CLOSURE N	lo.: <u>A-4</u>		
C	HD					TEST HOLE No.:TP-4								TEST HOLE REPORT				
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	CLIENT	:	(	Consolidated Fastfrate											LEGEND			
	PROJE	СТ: _	:	Septic Assessment												- GRAB SAMPL		
	LOGGE	D BY:		J. Scott	DAT	E:	3^	Marc	:h 2	021						- WATER LEVE	ΞL.	
	EXCAV	ATION	I COM	PANY: Goldie Mohr Lte	d. MET	ГНС	DD: <u>B</u> a	ackho	е						-			
	NOTES	:		18T E: 456656 N: 5017	172													
	Depth	m Below Existing Grade	Stratigraphy	DESCRIPT SOIL AND B			Type and Number	Moisture Content	S S O W P	hear te ensitiv Wa Wa Wi	est (C vity (S ater co erbero	:u) ) onten g limit	t (%) s (%)	∆ Field □ Lab		MMENTS		
ft	m	0.0	<u>. : <u>x1 1</u>z<u></u> .</u>	GROUND S TOPSOIL (102mm)	URFACE			%	1	0 20 3	30 40	50 (	50 70	80 90				
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1-	+			clay, concrete, asphal	i, diown, moisi				$\left  \right $			_		+	- T	est pit open upor	n	
	- 0.5														COI	mpletion		
2-	-																	
	1																	
3-							GS-1									S-1 % Gravel		
4 -															17	% Sand % Silt		
	Ļ														7%	b Clay		
5-	1.5																	
	F																	
6-	+	1.8		 Wet		•											1 - 4	
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7-	]																	
8 - 8	_																	
GDT	- 2.5 -																	
9-090	÷																	
ol GE(	+																	
10- SS	3.0 																	
GINT LO	ţ						GS-2											
	- - 3.5	3.4		END OF TEST HOLE														
337 TES 337 12-	-																	
112205	Ļ																	
표 민 13-	- 4.0											_		+				
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	+								$\left  \right $					+++				
TEST HOLE LOG GEOTECH 11220832 TEST PIT GINT LOGS.GPJ GEOLOGIC.GDT 12/4/21 	- 4.5																	

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						TEST HOLE	No	.:	TF	<b>&gt;</b> -5	5				TES		E REPORT	
	GH	ש				ELEVATION	: _	E	xistin	g g	rade				_	Page: <u>1</u>		
	СІ	LIENT:		(	Consolidated Fastfrate									_		LEGEND		
	PF	ROJEC	т: _	S	Septic Assessment												- GRAB SAMPLE	
	LC	OGGE	BY:		J. Scott	DA	TE:	3′	1 Marc	ch :	2021					- <b>⊻</b> -	- WATER LEVEL	
							METHOD: Backhoe											
	N	OTES:		-	18T E: 456601 N: 5017	160												
	Depth		m Below Existing Grade	Stratigraphy	DESCRIPT SOIL AND B			- Type and Number	Moisture Content		Shear Sensiti O W J At			(%) s (%)	∆ Field □ Lab		IMENTS	
	ft		0.0	· <u></u>	GROUND S TOPSOIL (102mm)	URFACE			%		10 20	30 40	50 6	0 70	80 90			
	-	-	0.1	$\overline{\times}$	SM - Silty sand (fill), w	ith gravel, with	-											
1	1	-			clay, with asphalt, con moist	crete, brown,				-						- Te	est pit open upon	
	-	- - 0.5															npletion	
2	2-	-		$\bigotimes$						-								
	-	-		$\bigotimes$														
	3	- 1.0		$\bigotimes$														
	1-1	-	1.2	$\bigotimes$				GS-1										
	'_	-	1.2	$\bigotimes$	Grey													
5	5-	- - 1.5		$\bigotimes$														
	-	-																
6	3-{	-	1.8	$\bigotimes$						-						- Gr	roundwater	
	-	- 2.0		$\bigotimes$													Itration observed at proximately 1.8 mbgs	
7	7-	-								-								
4/21		-																
DT 12/	3	- 2.5																
OGIC.G		-		$\bigotimes$														
GEOLO	, _	-		$\bigotimes$				GS-2								- GS 189	% Gravel	
rd9.6	0-	- 3.0	3.0	$\bigotimes$			_ [ `									23%	% Sand % Silt	
T LOG	-	-			END OF TEST HOLE											12%	% Clay	
	1-	-								_								
rest p	+	- 3.5																
50832	2-	-								$\vdash$	+	+	+		+			
H 112	+	-																
TEST HOLE LOG GEOTECH 11220832 TEST PIT GINT LOGS.GPJ GEOLOGIC.GDT 12/4/21	3-	- 4.0																
100 G		-																
1 1 HOLE L	- -	-																
TEST	-	- 4.5																

LOTTOPO ST HOLE LOG



Cli	ent:	Consolidate	d Fastfrate		Lab No.:	SS-2	1-25		
Pro	ject/Site:	Rideau Street & Somm	ne Street, Otta	wa, ON	Project No.:	1122	0832	_	
	Borehole no. Depth:	:	m		Sample no.:	GS1 A-6		_	
	Deptil.	0.0-0.9				A-0		_	
	100 90 80							0 10 20	
Percent Passing	70       60       50							30 Dercent Retained	
<u>م</u>	40 30 20							- 60 70 80	
	10	0.01	0.1 Diameter	(mm)		10		90 100	
		Clay & Silt		Sand		Gravel			
			Fine nified Soil Class	Mediun		Fine C	oarse		
						1		7	
		Soil Description		Gravel (%)	Sand (%)	Clay &	Silt (%)		
				37	47	1	6		
		Silt-size particles (%): Clay-size particles (%) (<0.002mn	n).		12			4	
Rei	marks: <u>N</u>	loisture Content = 7.1% as per, A	ASTM D2216.					_	
Pei	formed by:	Josh S	ullivan		Date:	April 7, 2021			
Vei	rified by:	Joe Sullivan	JeSus	en-	Date:	April 7	April 7, 2021		



Clien	it:		(	Consolida	ated Fastfrate			Lab No.: SS-21-25				
Proje	ect/Site:	F	Rideau Stre	eet & Sor	mme Street, C	Ottawa, (	NC	Project No.:		11220832		
E	Borehole no	.:		TF	<b>D</b> 1		_	Sample no.:		GS2		
C	Depth:			1.8 - 2	2.1 m			Enclosure:		A-7		
Percent Passing	00 90 80 70 60 50 40 30 20 10										0 10 20 30 40 50 50 50 60 70 80 90	
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		Cla	ay & Silt				Sand		Gra	avel	]	
			.,		Fine Unified Soil C		Mediu tion Syste		Fine	Coarse	-	
	<u> </u>										-	
		s	Soil Descrip	tion		Grav	vel (%)	Sand (%)	CI	ay & Silt (%)		
							41	36		23		
			size particl		mm):				16 7			
Rem	<b>Remarks:</b> Moisture Content = 8.7% as per, A					6.						
Perfo	Performed by: Josh Sulliva							Date:	A	April 7, 2021		
Verif	erified by: Joe Sullivan			Jes	Sulla	9935	<b>Date:</b> April 7, 2021					



Clier	it:	Consolidated	d Fastfrate		Lab No.: SS-21-25				
Proje	ect/Site:	Rideau Street & Somm	e Street, Ot	ttawa, ON	Project No.:	11220	832		
E	Borehole no.:	TP4			Sample no.:	GS1			
[	Depth:	0.9 - 1.2	m		Enclosure:	A-8			
Percent Passing								Percent Retained	
	0.001	0.01	Diame	ter (mm)		10	100		
		Clay & Silt	Fine	Sand Mediu	m Coarse	Gravel Fine Co	parse		
		Ur		assification Syste					
		Soil Description		<b>Gravel (%)</b> 32	Sand (%) 44	<b>Clay &amp; S</b> 24			
		Silt-size particles (%): Clay-size particles (%) (<0.002mm	):		17 7				
					1				
Rem	arks: <u>M</u>	oisture Content = 10.6% as per, A	ASTM D221	16.					
Perf	ormed by:	Josh Su	ıllivan		Date:	April 7, 2021			
Verif	ied by:	Joe Sullivan	J-S.	Mar	<b>Date:</b> April 7, 2021				



Cli	ent:	Consolidated	Fastfrate	L	.ab No.:	SS-	21-25	
Pro	oject/Site:	Rideau Street & Somme	e Street, Ottawa, C	<u>N</u> F	Project No.:	1122	20832	
	Borehole no.:	TP5		S	Sample no.:	GS2	2	
	Depth:	2.75 - 3.05	m	E	Inclosure:	A-9	)	
Percent Passing								0 10 20 30 40 50 50 50 60 60 70 80 90 100
			Diameter (mm)					
		Clay & Silt		Sand	0	Gravel	0	
		Uni	Fine fied Soil Classificat	Medium ion System		Fine	Coarse	
		Soil Description	Grav	el (%)	Sand (%)	Clav &	silt (%)	
				8	47		35	
		Silt-size particles (%):		I	23	<u> </u>		
	(	Clay-size particles (%) (<0.002mm)	:		12			
Re	marks: <u>Mo</u>	bisture Content = 22.4% as per, A	STM D2216.					
Pe	formed by:	Josh Su	livan		Date:	April 7, 2021		
Ve	rified by:	Joe Sullivan	Jac Sulla		Date:	April 7, 2021		



ghd.com

