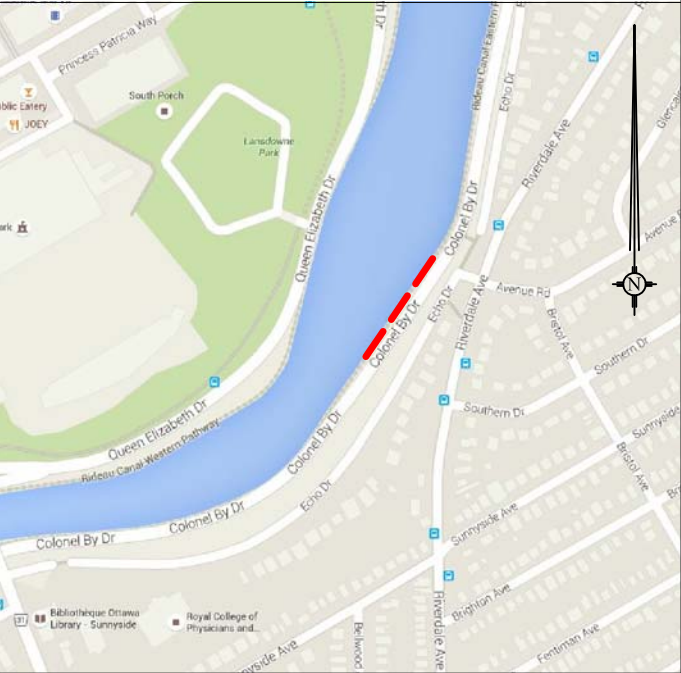






**SITE LOCATION**



**LEGEND :**


-  BH-16-09 - Borehole #9
-  CC-16-04 - Concrete coring #4

**NOTES:**

1- Base plan from Google Map.



**SNC • LAVALIN**

TITLE : Borehole location plan		
CLIENT : PWGSC		
PROJET : Rideau Canal Walls Rideau Canal Walls		
LOCATION : Geotechnical Investigation Ottawa, Ontario		
ENGINEER: Sébastien Bisson, P.Eng., M.Eng. PEO# 100206436		
SCALE :  None		
DATE : July 2016	FILE NO. : 636464	DRAWING : 3 of 3

**CLIENT** : PWGSC  
**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464

**BOREHOLE : BH-16-09**

**DATE** : 2016-04-25

**COORDINATES** : SCoPQ NAD 83

**E**: 369 066,9    **N**: 5 029 065,1

DEPTH (m)	ELEVATION (m)	DESCRIPTION	WATER LEVEL	SAMPLES			IN SITU AND LABORATORY TESTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
				TYPE AND NUMBER	CONDITION	RECOVERY (%)	N or RQD (%)	WATER CONTENT AND ATTERBERG'S LIMITS (%) <div><div>W<sub>P</sub></div><div><div></div><div>W</div><div></div></div><div>W<sub>L</sub></div></div>	OTHER TESTS	▲ S <sub>u</sub> (kPa) ▼ S <sub>us</sub> (kPa) △ S <sub>r</sub> (kPa) ▽ S <sub>rs</sub> (kPa)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	● N <sub>dc</sub> (blows/300 mm)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
	20									40	60	80	40	80	120	160																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
0.05	0.25	<div>ASPHALT. GRANULAR A.</div> <div>FILL: sand, some silt to silty sand.</div> <div>- Compactness: loose to very loose.</div> <div>FILL: silty sand, some gravel. Presence of organic debries.</div> <div>- Compactness: loose.</div> <div>SAND AND GRAVEL, some silt (SM).</div> <div>- Compactness: dense to very dense.</div> <div>A layer of sand and silt, traces of gravel (SM) was observed from 7.2 to 8.7 m in depth.</div> <div>END OF BOREHOLE. No refusal.</div>		SS-1	<div></div>	59	9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

**REMARKS :**

**DRILLING METHOD :** NW casing using a track mounted CME-55LC drill.

# BOREHOLE LOG


















**CLIENT** : PWGSC  
**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464

**BOREHOLE : BH-16-10**

**DATE** : 2016-04-25

**COORDINATES** : SCoPQ NAD 83

**E**: 369 049,8    **N**: 5 029 038,1

DEPTH (m)	ELEVATION (m)	DESCRIPTION	WATER LEVEL	SAMPLES			IN SITU AND LABORATORY TESTS			
				TYPE AND NUMBER	CONDITION	RECOVERY (%)	N or RQD (%)	WATER CONTENT AND ATTERBERG'S LIMITS (%) $\begin{array}{c} W_p \\   \\ W \\   \\ W_L \end{array}$	OTHER TESTS	▲ $S_u$ (kPa)   ▼ $S_{us}$ (kPa) △ $S_r$ (kPa)   ▽ $S_{rs}$ (kPa) ● $N_{dc}$ (blows/300 mm)
								20 40 60 80		40 80 120 160
0,08 0,16		<b>ASPHALT.</b>		SS-1		48	6			
1		<b>GRANULAR A.</b>		SS-2		75	4			
2		FILL: gravely sand and silt to gravel, sand and silt.		SS-3		54	10			
3		- Compactness: loose to compact.		SS-4		26	11			
4				SS-5		0	5			
4,10				SS-6		31	15			
5		<b>GRAVEL AND SAND</b> , traces of silt (GW-GM).		SS-7		8	13			
5,25		- Compactness: compact.		SS-8		46	16		G	
6		<b>SAND</b> , traces to some gravel, traces of silt (SW-SM).		SS-9		44	25			
7		- Compactness: loose to very dense.		SS-10		56	19		G	
8				SS-11		74	25			
9				SS-12		57	10			
10		NQ telescoped from 9.1 to 10.7 m in depth: gravels up to 50 mm Ø were recovered.		SS-13		75	84			
11				SS-14		21	7			
12				SS-15		56	19		G	
13				SS-16		62	46			
13,50		<b>GRAVEL AND SAND</b> , traces of silt (GW-GM). NQ telescoped from 13.7 to 15.2 m in depth: gravels up to 55 mm Ø were recovered.		SS-17		34	74			
15		- Compactness: dense to very dense.								
15,85		<b>END OF BOREHOLE.</b> No refusal.								

**REMARKS :**

**DRILLING METHOD :** NW casing and NQ coring using a track mounted CME-55LC drill.

**CLIENT** : PWGSC  
**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464

**BOREHOLE : BH-16-11**  
**DATE** : 2016-04-26  
**COORDINATES** : SCoPQ NAD 83  
**E**: 369 041,1    **N**: 5 029 025,5

DEPTH (m)	ELEVATION (m)	DESCRIPTION	WATER LEVEL	SAMPLES			IN SITU AND LABORATORY TESTS										
				TYPE AND NUMBER	CONDITION	RECOVERY (%)	N or RQD (%)	WATER CONTENT AND ATTERBERG'S LIMITS (%) <div><div>W<sub>P</sub></div><div><div>W</div><div>W<sub>L</sub></div></div></div>	OTHER TESTS	▲ S <sub>u</sub> (kPa) ▼ S <sub>us</sub> (kPa) △ S <sub>r</sub> (kPa) ▽ S <sub>rs</sub> (kPa)							
	● N <sub>dc</sub> (blows/300 mm)																
	20									40	60	80	40	80	120	160	
0.06 0.16		<div>ASPHALT. GRANULAR A.</div> <div>FILL: gravely sand and silt to sandy silty gravel. Gravels up to 75 mm Ø were recovered.</div> <div>- Compactness: very loose to compact.</div>		SS-1	<div></div>	38	7						OVM = 15 ppm OVM = 20 ppm				
1				SS-2	<div></div>	26	10						OVM = 10 ppm				
2				SS-3	<div></div>	0	22										
3				SS-4	<div></div>	13	7						OVM = 65 ppm				
4				SS-5	<div></div>	61	3						OVM = 35 ppm				
5				SS-6	<div></div>	30	19						OVM = 20 ppm				
6				SS-7	<div></div>	30	34										
7				SS-8	<div></div>	26	33										
8				SS-9	<div></div>	69	32						G				
9				SS-10	<div></div>	67	30										
10				SS-11	<div></div>	72	27						G				
11				SS-12	<div></div>	74	32										
12				SS-13	<div></div>	72	95										
13				SS-14	<div></div>	100	24										
14				SS-15	<div></div>	67	57										
15				SS-16	<div></div>	70	51						G				
16				SS-17	<div></div>	59	46										

**REMARKS :**

**DRILLING METHOD :** NW casing and NQ coring using a track mounted CME-55LC drill.

# BOREHOLE LOG

**CLIENT** : PWGSC  
**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464

**BOREHOLE : BH-16-11**  
**DATE** : 2016-04-26  
**COORDINATES** : SCoPQ NAD 83  
**E**: 369 041,1    **N**: 5 029 025,5

DEPTH (m)	ELEVATION (m)	DESCRIPTION	WATER LEVEL	SAMPLES			IN SITU AND LABORATORY TESTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
				TYPE AND NUMBER	CONDITION	RECOVERY (%)	N or RQD (%)	WATER CONTENT AND ATTERBERG'S LIMITS (%) <div><div>W<sub>P</sub></div><div><div></div><div>W</div></div><div>W<sub>L</sub></div></div>	OTHER TESTS	▲ S <sub>u</sub> (kPa) ▼ S <sub>us</sub> (kPa) △ S <sub>r</sub> (kPa) ▽ S <sub>rs</sub> (kPa)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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17.80		SAND, traces of silt and gravel (SP-SM). NQ telescoped from 17.8 to 24.4 m in depth.  - Compactness: dense to very dense.		SS-18	<div></div>	72	37																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

REMARKS :

**DRILLING METHOD** : NW casing and NQ coring using a track mounted CME-55LC drill.


















**CLIENT** : PWGSC  
**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464

**BOREHOLE : BH-16-12**

**DATE** : 2016-04-27

**COORDINATES** : SCoPQ NAD 83

**E**: 369 033,6    **N**: 5 029 015,0

DEPTH (m)	ELEVATION (m)	DESCRIPTION	WATER LEVEL	SAMPLES			IN SITU AND LABORATORY TESTS			
				TYPE AND NUMBER	CONDITION	RECOVERY (%)	N or RQD (%)	WATER CONTENT AND ATTERBERG'S LIMITS (%) $\begin{array}{c} W_p \\   \\ W \\   \\ W_L \end{array}$	OTHER TESTS	▲ $S_u$ (kPa)   ▼ $S_{us}$ (kPa) △ $S_r$ (kPa)   ▽ $S_{rs}$ (kPa) ● $N_{dc}$ (blows/300 mm)
								20 40 60 80		40 80 120 160
0.07 0.16		<b>ASPHALT.</b>		SS-1		36	12			
		<b>GRANULAR A.</b>		SS-2		59	7			
1		<b>FILL:</b> silty sand, some gravel (SM).		SS-3		0	20			
2		- Compactness: loose to compact.		SS-4		30	14			
3				SS-5		0	18			
3.20		<b>GRAVEL AND SAND</b> , some silt (GW).		SS-6		68	R			
4		NQ telescoped from 3.0 to 3.8 m and 4.6 to 6.0 m in depth: gravels up to 80 mm Ø were recovered.		SS-7		39	38			
5		- Compactness: dense.		SS-8		52	34			
6				SS-9		34	32			
6.03		<b>Gravelly SAND</b> , traces to some silt (SW-SM).		SS-10		52	39			
7		NQ telescoped from 6.0 to 6.9 m in depth: gravels up to 80 mm Ø were recovered.		SS-11		59	26			
8		- Compactness: compact to dense.		SS-12		84	35			
9				SS-13		62	58			
8.70		<b>SAND AND GRAVEL</b> , some silt (SM).		SS-14		49	74			
10		NQ telescoped from 9.1 to 15.2 m in depth: gravels up to 55 mm Ø were recovered.		SS-15		100	R			
11		- Compactness: very dense.		SS-16		61	62			
12				SS-17		63	R			
15.32		<b>END OF BOREHOLE.</b>								
16		No refusal.								

**REMARKS :**

**DRILLING METHOD :** NW casing and NQ coring using a track mounted CME-55LC drill.

**CLIENT** : PWGSC  
**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464

**BOREHOLE : BH-16-13**

**DATE** : 2016-04-28

**COORDINATES** : SCoPQ NAD 83

**E**: 369 016,9    **N**: 5 028 989,3

DEPTH (m)	ELEVATION (m)	DESCRIPTION	WATER LEVEL	SAMPLES			IN SITU AND LABORATORY TESTS											
				TYPE AND NUMBER	CONDITION	RECOVERY (%)	N or RQD (%)	WATER CONTENT AND ATTERBERG'S LIMITS (%) <div><div>W<sub>P</sub></div><div><div></div><div>W</div><div></div></div><div>W<sub>L</sub></div></div>	OTHER TESTS	▲ S <sub>u</sub> (kPa) ▼ S <sub>us</sub> (kPa) △ S <sub>r</sub> (kPa) ▽ S <sub>rs</sub> (kPa)								
										● N <sub>dc</sub> (blows/300 mm)								
	20							40		60	80	40	80	120	160			
0.06 0.16		<div>ASPHALT. GRANULAR A.</div> <div>FILL: gravely sand and silt, traces of clay to sandy silty gravel. Presence of cobbles.</div> <div>- Compactness: loose to compact.</div>		SS-1	<div></div>	54	14						OVM = 0 ppm OVM = 20 ppm					
1				SS-2	<div></div>	72	13							OVM = 20 ppm				
2				SS-3	<div></div>	0	19											
3				SS-4	<div></div>	36	18							OVM = 15 ppm				
4	3.70			SS-5	<div></div>	16	23											
5				SS-6	<div></div>	26	4											
6				SS-7	<div></div>	44	23											
7				SS-8	<div></div>	36	35							G				
8				SS-9	<div></div>	54	24											
9				SS-10	<div></div>	46	31											
10				SS-11	<div></div>	44	12											
11				SS-12	<div></div>	48	23											
12				SS-13	<div></div>	67	50											
13				SS-14	<div></div>	43	32											
14				SS-15	<div></div>	79	56							G				
15				SS-16	<div></div>	21	R											
16	15.62			SS-17	<div></div>	34	R											
17																		

**REMARKS :**

**DRILLING METHOD :** NW casing and NQ coring using a track mounted CME-55LC drill.

# BOREHOLE LOG

**CLIENT** : PWGSC  
**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464

**BOREHOLE : BH-16-16**  
**DATE** : 2016-03-04  
**COORDINATES** : SCoPQ NAD 83  
**E**: 369 052,1    **N**: 5 029 053,9

DEPTH (m)	ELEVATION (m)	DESCRIPTION	WATER LEVEL	SAMPLES			IN SITU AND LABORATORY TESTS										
				TYPE AND NUMBER	CONDITION	RECOVERY (%)	N or RQD (%)	WATER CONTENT AND ATTERBERG'S LIMITS (%)				OTHER TESTS					
	<div><div><div><div><div>W<sub>P</sub></div><div>W</div><div>W<sub>L</sub></div></div></div><div></div></div></div>																
	20							40	60	80	40		80	120	160		
0,46		<b>SILTY CLAY</b> , traces of sand and gravel. Presence of organic matters. Presence of shells.		SS-1	<div></div>	54	12										
1		<b>SAND AND GRAVEL</b> , traces of silt and clay. Presence of cobbles.  - Compactness: dense to very dense.		SS-2	<div></div>	54	37										
1,83				SS-3	<div></div>	63	56										
2		<b>END OF BOREHOLE.</b> No refusal.															
3																	
4																	
5																	
6																	

**REMARKS :**

**DRILLING METHOD :** Manual percussion drilling using a motorized tripod.

# BOREHOLE LOG

**CLIENT** : PWGSC  
**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464

**BOREHOLE : BH-16-17**  
**DATE** : 2016-03-04  
**COORDINATES** : SCoPQ NAD 83  
**E**: 369 019,8    **N**: 5 029 006,2

DEPTH (m)	ELEVATION (m)	DESCRIPTION	WATER LEVEL	SAMPLES			IN SITU AND LABORATORY TESTS													
				TYPE AND NUMBER	CONDITION	RECOVERY (%)	N or RQD (%)	WATER CONTENT AND ATTERBERG'S LIMITS (%) <div><div><div><div><div><div></div><div>W<sub>P</sub></div></div><div><div><div></div><div>W</div><div></div></div></div><div><div><div></div><div>W<sub>L</sub></div></div></div></div></div></div></div>	OTHER TESTS	▲ S <sub>u</sub> (kPa) ▼ S <sub>us</sub> (kPa) △ S <sub>r</sub> (kPa) ▽ S <sub>rs</sub> (kPa)										
	● N <sub>dc</sub> (blows/300 mm)																			
	20									40	60	80	40	80	120	160				
0,61		CLAY, SAND AND SILT in various proportions. Presence of organic matters. Presence of shells		SS-1	<div></div>	42	12													
1,04		SAND AND GRAVEL, traces of silt and clay. Presence of cobbles. <div>- Compactness: very dense</div>		SS-2	<div></div>	59	R													
		END OF BOREHOLE.																		
	</																			

REMARKS :

**DRILLING METHOD** : Manual percussion drilling using a motorized tripod.

# BOREHOLE LOG

**CLIENT** : PWGSC  
**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464

**BOREHOLE : CC-16-04**  
**DATE** : 2016-05-02  
**COORDINATES** :

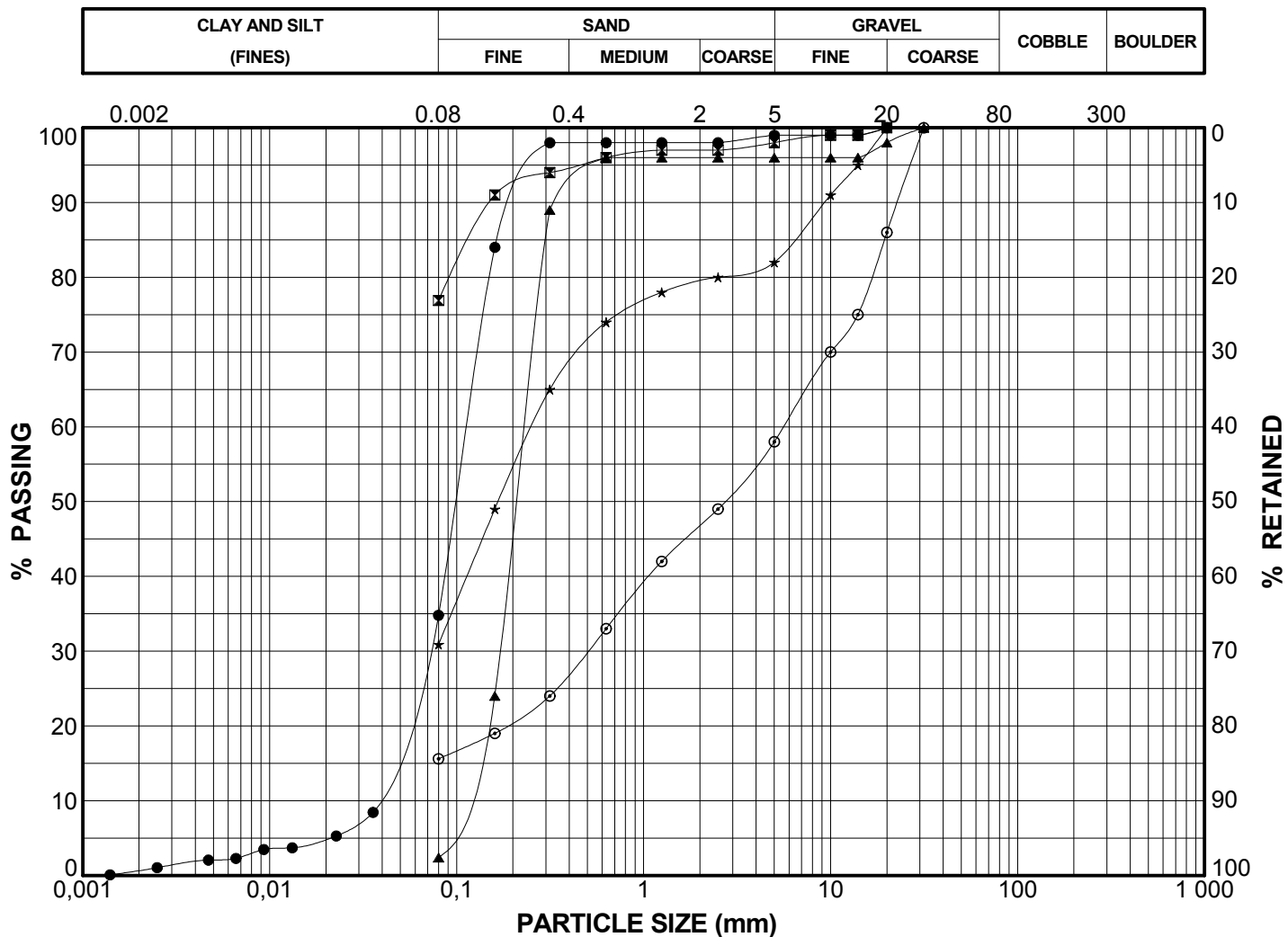
DEPTH (m)	ELEVATION (m)	DESCRIPTION	WATER LEVEL	SAMPLES			IN SITU AND LABORATORY TESTS												
				TYPE AND NUMBER	CONDITION	RECOVERY (%)	N or RQD (%)	WATER CONTENT AND ATTERBERG'S LIMITS (%) <div><div><div>W<sub>P</sub></div><div>W<sub>L</sub></div><div>W</div></div></div>	OTHER TESTS	▲ S <sub>u</sub> (kPa) ▼ S <sub>us</sub> (kPa) △ S <sub>r</sub> (kPa) ▽ S <sub>rs</sub> (kPa)									
	● N <sub>dc</sub> (blows/300 mm)																		
	20									40	60	80	40	80	120	160			
1		CONCRETE. Rideau Canal retaining wall.		CR-1	<div></div>	88													
2				CR-2	<div></div>	100													
3				CR-3	<div></div>	87													
4	3,94	END OF CORING. Sandy soil at the end of the coring bit.			<div></div>														
5																			
6																			

**REMARKS :**

**DRILLING METHOD :** Hilti thin wall concrete coring bit.

# PARTICLE SIZE DISTRIBUTION

**CLIENT** : PWGSC  
**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464

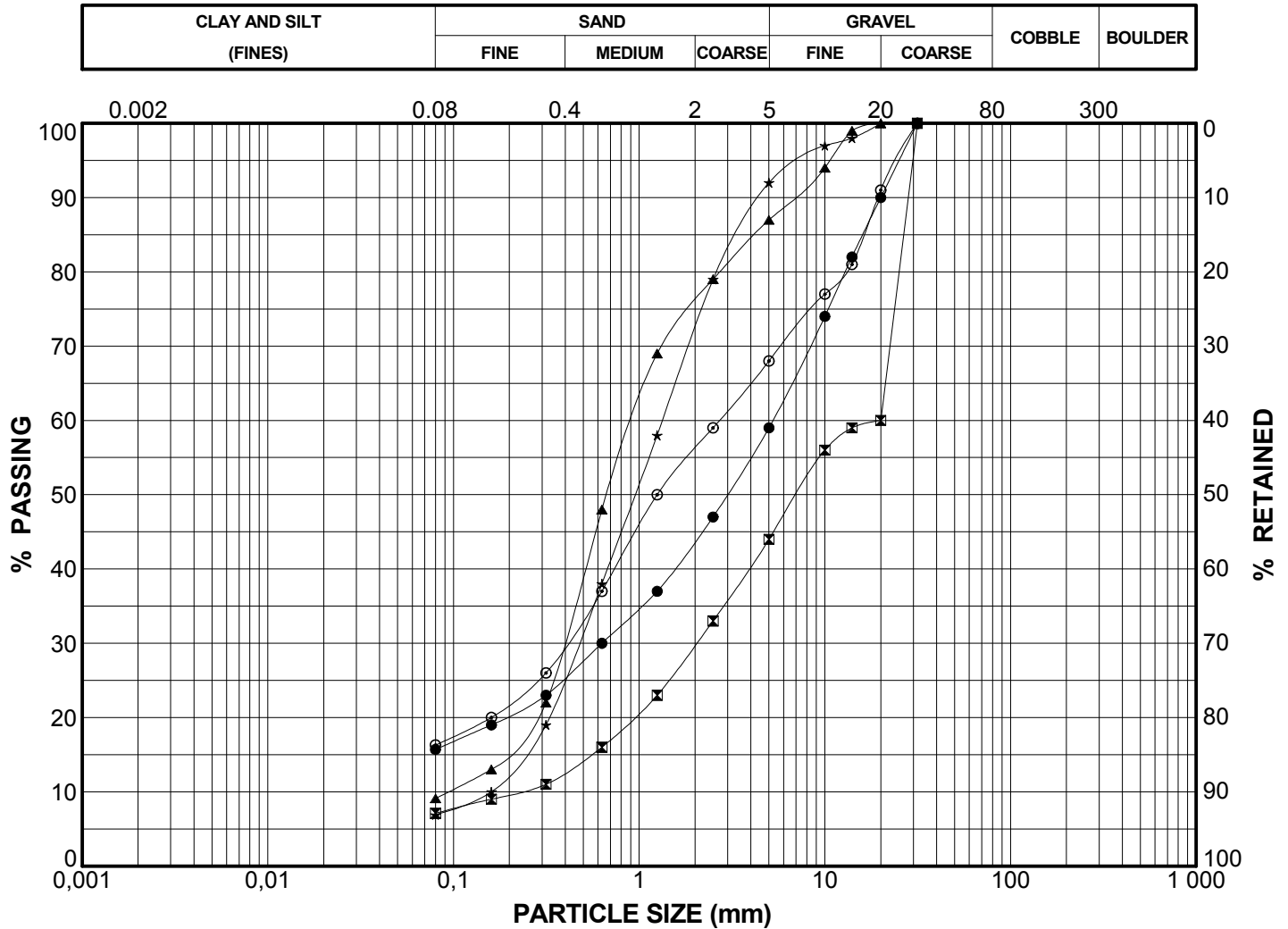


	Boring and / or Test Pit	Sample	Depth (m)		Gravel (%)	Sand (%)	Silt and Clay (%)		Description
			from	to					
●	BH-16-08	SS-11	6,86	7,47	1	64	34,1	0,7	Silty sand, traces of gravel and clay. (SM)
⊠	BH-16-08	SS-12	7,62	8,23	2	21	76,9		Sandy silt, traces of gravel. (ML)
▲	BH-16-08	SS-14	10,67	11,28	4	94	2,4		Sand, traces of gravel and silt. (SP)
★	BH-16-09	SS-4	1,83	2,44	18	51	30,9		Silty sand, some gravel. (SM)
⊙	BH-16-09	SS-9	4,88	5,49	42	42	15,6		Sand and gravel, some silt. (SM)

**REMARKS :**

# PARTICLE SIZE DISTRIBUTION

**CLIENT** : PWGSC  
**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464

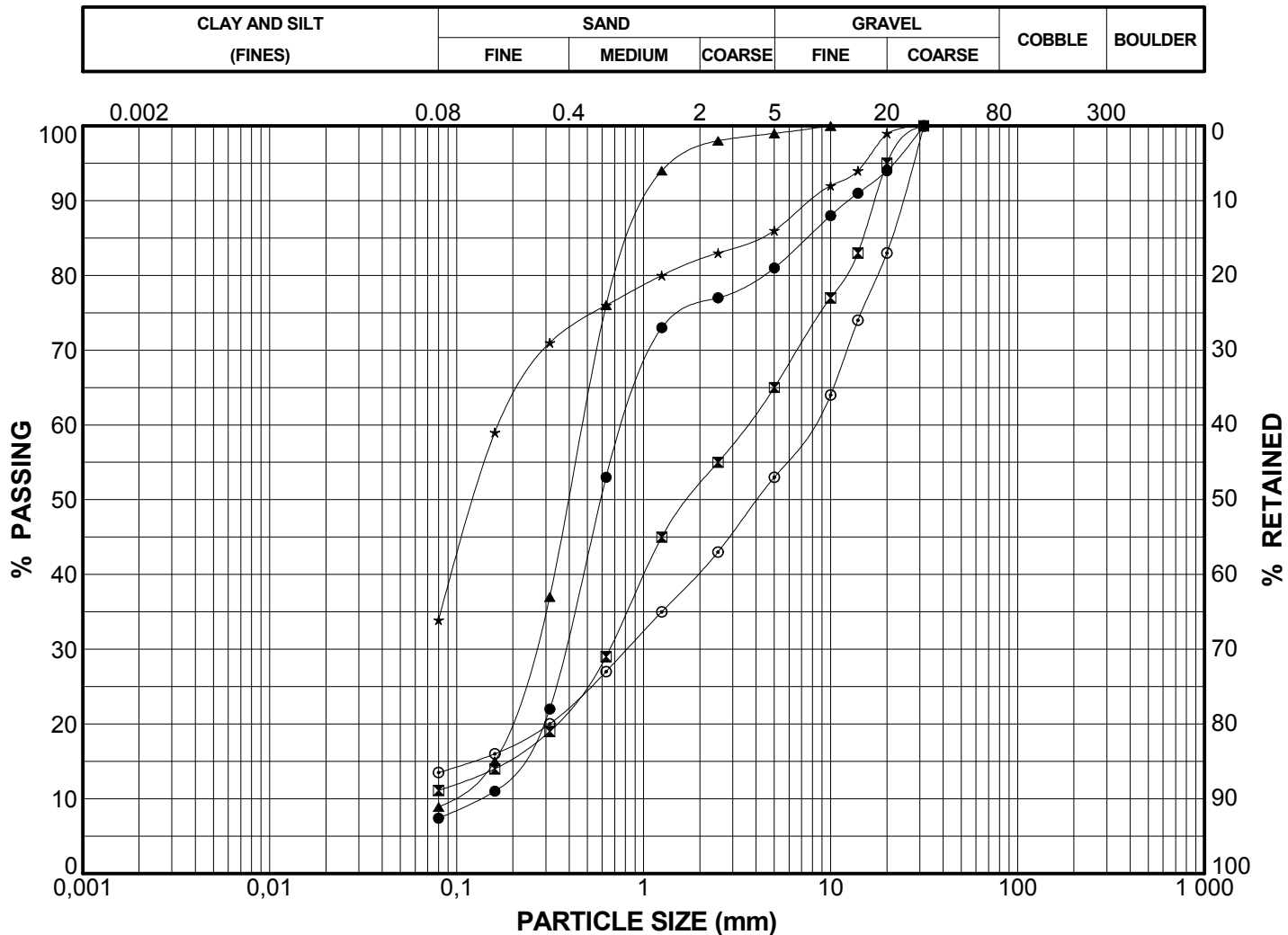


	Boring and / or Test Pit	Sample	Depth (m)		Gravel (%)	Sand (%)	Silt and Clay (%)	Description
			from	to				
●	BH-16-09	SS-14	9,14	9,75	41	43	15,7	Sand and gravel, some silt. (SM)
⊠	BH-16-10	SS-8	4,57	5,18	56	37	7,1	Gravel and sand, traces of silt. (GW-GM)
▲	BH-16-10	SS-10	6,10	6,71	13	78	9,1	Sand some gravel, traces of silt. (SW-SM)
★	BH-16-10	SS-15	12,19	12,80	8	85	6,9	Sand, traces of gravel and silt. (SW-SM)
⊙	BH-16-11	SS-9	5,33	5,94	32	52	16,3	Gravelly sand, some silt. (SM)

**REMARKS :**

# PARTICLE SIZE DISTRIBUTION

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**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464

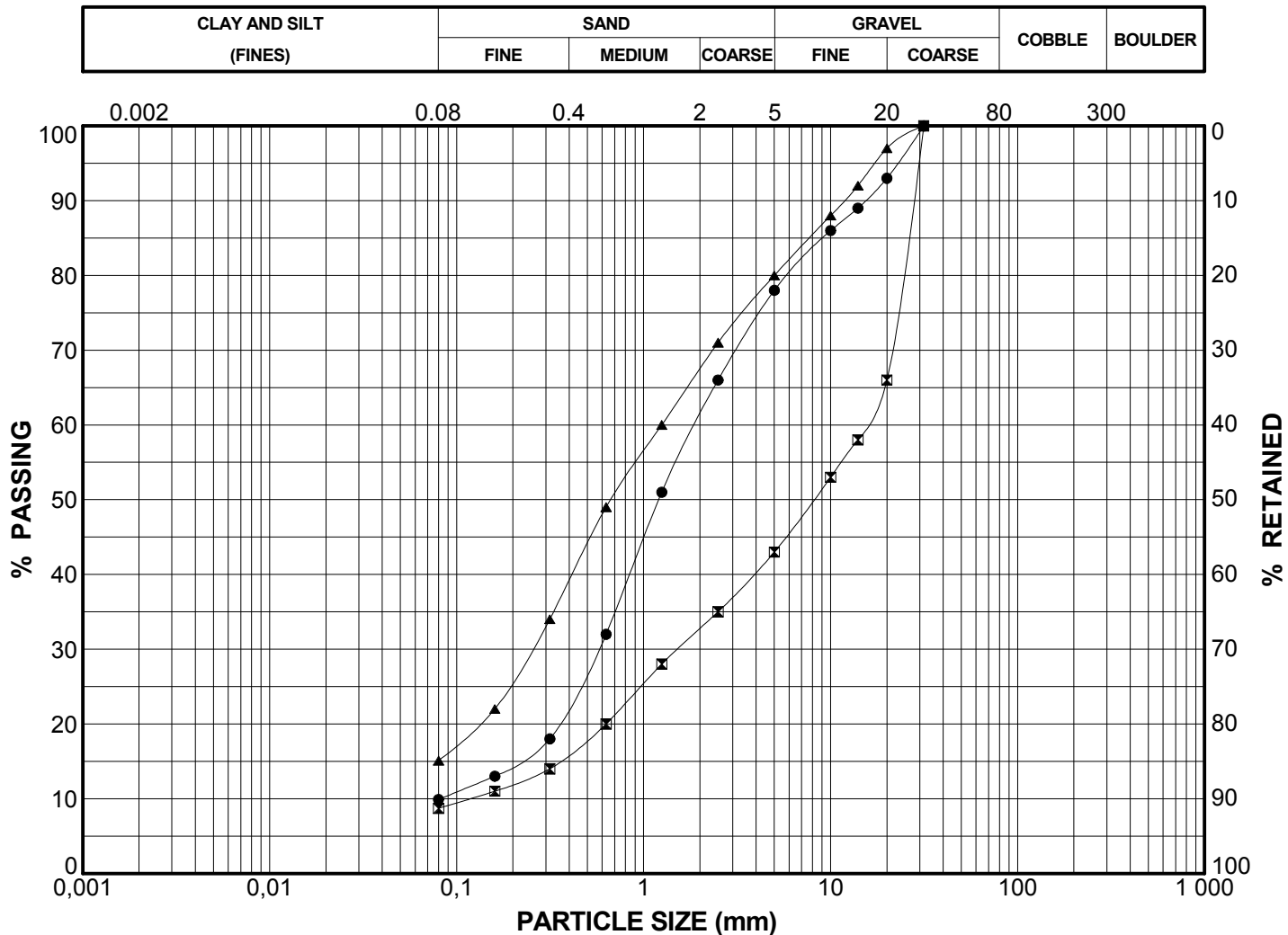


	Boring and / or Test Pit	Sample	Depth (m)		Gravel (%)	Sand (%)	Silt and Clay (%)	Description
			from	to				
●	BH-16-11	SS-11	6,86	7,47	19	74	7,4	Sand, some gravel, traces of silt. (SW-SM)
☒	BH-16-11	SS-16	13,72	14,33	35	54	11,1	Sand and gravel, some silt. (SW-SM)
▲	BH-16-11	SS-19	19,81	20,42	1	90	8,9	Sand, traces of silt and gravel. (SP-SM)
★	BH-16-12	SS-2	0,61	1,22	14	52	33,9	Silty sand, some gravel. (SM)
⊙	BH-16-12	SS-8	4,57	5,18	47	40	13,5	Gravel and sand, some silt. (GM)

**REMARKS :**

# PARTICLE SIZE DISTRIBUTION

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**PROJECT** : Geotechnical Investigation - Rideau Canal Walls  
**LOCATION** : Rideau Canal Pathway, Ottawa, Ontario  
**FILE** : 636464



	Boring and / or Test Pit	Sample	Depth (m)		Gravel (%)	Sand (%)	Silt and Clay (%)	Description
			from	to				
●	BH-16-12	SS-11	6,86	7,47	22	68	9,9	Gravelly sand, traces of silt. (SW-SM)
☒	BH-16-13	SS-8	4,57	5,18	57	34	8,7	Sandy gravel, traces of silt. (GW-GM)
▲	BH-16-13	SS-15	12,19	12,80	20	65	15,1	Gravelly sand, some silt. (SM)

**REMARKS :**