Log of Borehole: BH1

Project: Geotechnical Investigation
Client: Department of Fisheries and Oceans
Location: Lawn, NL
Project No: 3079
Date: February 12 - 13, 16, 2016

Depth below LNT (m)	Geologic Description	Elevation (m)	Sample Type	Sample No.	"N" Value	Recovery (%)	RQD (%)
0	0 m LNT	0					
	Harbour bottom (-2.545 m LNT)	-2.55					
	SPT: 1 / 1 / 1 / 4 for 0.17 m. CFEM: Gravelly Sand, trace Silt/Clay.	-3.17	SS	1	2	14	
	Overburden						
	SPT: 6 / 6 / 5 / 4. Rock stuck in split spoon shoe.	-3.79	SS	2	11	8	
	Overburden: fine gravel.	-4.8	OB	–		13	
	SPT: 1 / 4 / 20 / 52 for 0.0 m, bouncing (Refusal). CFEM: Gravel and Sand, trace Silt/Clay.	-5.19	SS	3	24	23	
	Overburden: fine to coarse gravel.	-5.36	OB	–		35	
	SS4: "N" Value = 52; Recovery = 0%. SPT: 2 for 0.05 m / 52 for 0.0 m, bouncing (Refusal). No sample recovery.						
	Overburden: fine to coarse gravel, cobble (15 cm), boulders (32 cm to 37 cm).	-6.59	OB	–		39	
	SS5: "N" Value = 52; Recovery = 0%. SPT: 2 for 0.04 m / 52 for 0.0 m, bouncing (Refusal). No sample recovery.						
	Overburden: coarse gravel, cobble (10 cm).	-8.81	OB	–		26	
	SS6: "N" Value = 52; Recovery = 0%. SPT: 2 for 0.01 m / 52 for 0.0 m, bouncing (Refusal). No sample recovery.						
	Overburden: fine to coarse gravel.	-10.2	OB	–		11	
	SPT: 10 / 29 / 52 for 0.01 m, bouncing (Refusal). CFEM: Gravelly Sand, some Silt/Clay.	-10.6	SS	7	81	28	
	Overburden: fine to coarse gravel.	-11.6	OB	–		20	
	End of Borehole						

Standard Penetration Test "N" Value per 300 mm: 20 40 60 80

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154 Major's Path
St. John's, NL A1A 5A1
Phone: (709) 739-7270
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Drilling Method: NW casing / NQ coring
Driller: Formation Drilling Ltd.
Datum: LNT
Sheet: 1 of 1

Log of Borehole: BH2

Project: Geotechnical Investigation
Client: Department of Fisheries and Oceans
Location: Lawn, NL
Project No: 3079
Date: February 18, 2016

Depth below LNT (m)	Geologic Description	Elevation (m)	Sample Type	Sample No.	"N" Value	Recovery (%)	RQD (%)
0	0 m LNT	0					
	Harbour bottom (-2.890 m LNT).	-2.89					
	SPT: 2 / 2 / 6 / 4. Gravel and organics.	-3.48	SS	1	8	9	
	SS2 overlapped with SS1 for 0.45 m. Split spoon sank 0.20 m under own weight before SPT. SPT: 9 / 5 / 8 / 4. CFEM: Sand, some Gravel, trace Silt/Clay.	-3.8	SS	2	13	23	
	Overburden: cobbles (12 cm).	-4.84	OB	–		57	
	SS3: "N" Value = 52; Recovery = 0%. SPT: 1 for 0.01 m / 52 for 0.0 m, bouncing (Refusal). No sample recovery.						
	Overburden: cobble (19 cm), fine to coarse gravel.	-6.37	OB	–		33	
	SS4: "N" Value = 52; Recovery = 0%. SPT: 1 for 0.01 m / 52 for 0.0 m, bouncing (Refusal). No sample recovery.						
	Overburden: fine to coarse gravel, boulder (22 cm).	-7.76	OB	–		52	
	SPT: 5 for 0.11 m / 52 for 0.0 m, bouncing (Refusal). No sample recovery.		SS	5	52	0	
	Overburden: fine to coarse gravel.	-8.81	OB	–		21	
	SS6: "N" Value = 52; Recovery = 0%. SPT: 4 for 0.04 m / 52 for 0.0 m, bouncing (Refusal). No sample recovery.						
	Overburden: fine gravel, boulder (25 cm).	-10	OB	–		24	
	SS7: "N" Value = 52; Recovery = 0%. SPT: 2 for 0.05 m / 52 for 0.0 m, bouncing (Refusal). Rock stuck in split spoon shoe.						
	Overburden: fine to coarse gravel.	-11.3	OB	–		43	
	SS8: "N" Value = 52; Recovery = 0%. SPT: 2 for 0.01 m / 52 for 0.0 m, bouncing (Refusal). No sample recovery.						
	End of Borehole						

Standard Penetration Test "N" Value per 300 mm: 20 40 60 80

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Drilling Method: NW casing / NQ coring
Driller: Formation Drilling Ltd.
Datum: LNT
Sheet: 1 of 1

Log of Borehole: BH3

Project: Geotechnical Investigation
Client: Department of Fisheries and Oceans
Location: Lawn, NL
Project No: 3079
Date: February 19, 2016

Depth below LNT (m)	Geologic Description	Elevation (m)	Sample Type	Sample No.	"N" Value	Recovery (%)	RQD (%)
0	0 m LNT	0					
	Harbour bottom (-2.857 m LNT).	-2.86					
	SPT: 1 for 0.30 m / 2 / 16. CFEM: Gravel and Sand, trace Silt/Clay.	-3.46	SS	1	2	11	
	Overburden: fine to coarse gravel.	-3.97	OB	–		27	
	SS2: "N" Value = 52; Recovery = 0%. SPT: 52 for 0.0 m, bouncing (Refusal). No sample recovery.						
	Overburden: fine to coarse gravel, cobbles (9 cm to 10 cm).	-6.17	OB	–		62	
	SS3: "N" Value = 52; Recovery = 0%. SPT: 2 for 0.08 m / 52 for 0.0 m, bouncing (Refusal). No sample recovery.						
	Overburden: fine gravel, cobbles (8 cm to 9 cm).	-7.98	OB	–		24	
	SPT: 30 / 2 for 0.01 m / 52 for 0.0 m, bouncing (Refusal). No sample recovery.	-8.13	SS	4	52	0	
	Overburden: fine to coarse gravel.	-9.5	OB	–		14	
	SS5: "N" Value = 52; Recovery = 0%. SPT: 1 for 0.01 m / 52 for 0.0 m, bouncing (Refusal). No sample recovery.						
	Overburden: coarse gravel.	-10.9	OB	–		9	
	SPT: 20 / 2 for 0.03 m / 52 for 0.0 m, bouncing (Refusal). CFEM: Gravel and Sand, trace Silt/Clay.	-11.1	SS	6	52	50	
	Bedrock: metamorphosed volcanic rock.	-12	RC	–		75	0
	SS7: "N" Value = 52; Recovery = 0%. SPT: 1 for 0.01 m / 52 for 0.0 m, bouncing (Refusal). No sample recovery.						
	Bedrock: metamorphosed volcanic rock.	-12.6	RC	–		68	
	End of Borehole						

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Fisheries and Oceans Canada / Pêches et Océans Canada

SMALL CRAFT HARBOURS

NOTES:
1. ALL ELEVATIONS ARE IN METRES UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

PROVINCE OF NEWFOUNDLAND
PERMIT HOLDER
This Permit Allows
AFN ENGINEERING INC.
To practice Professional Engineering in Newfoundland and Labrador. Permit No. as issued by APEGNL F0299 which is valid for the year 2016.

STAMP: REGISTERED PROFESSIONAL ENGINEER NEIL C. HUNT SIGNATURE 07/04/16 DATE NEWFOUNDLAND & LABRADOR

revisions		date
C	ISSUED FOR TENDER	07/04/16
B	ISSUED FOR 99% REVIEW	05/07/16
A	ISSUED FOR REVIEW	12/28/15

project / projet: WHARF RECONSTRUCTION LAWN, NL

drawing / dessin: BOREHOLES – 2016

designed N.H. / concu
date JULY 4, 2016
drawn P.H. / dessine
date JULY 4, 2016
approved / approuve
Tender / Soumission
DFO Project Manager
project number / no. du projet: 718889
drawing no. / no. du dessin: C9

Plot Scale: PLOT_SCALE