APPENDIX 6 - BORING LOG - GEOTECHNIC

Reconstruction of the plant wharf of Riviere-au-Renard – R.075514.001

TECHNISOL | BORING LOG

File: TP10093.221
Project : Wall (Plant)
Situation : Rivière-Au-Renard

BOREHOLE NO: F-4
Date: 2002-08-19
Page : 1 / 1

SAMPLE TYPE

SS: SPLIT SPOON, GAUGE: BW
TW: THIN WALL TUBE
PS: PLUNGER SAMPLER
WA: WASHING
CR: CORE SAMPLE, GAUGE: NQ

TESTS

N: Standard penetration index
US: Undrained shear strength undisturbed
DUS: Undrained shear strength disturbed
K: Permeability
PI: Pression limit

LABORATORY TESTS

GA: GRAIN SIZE ANALYSIS
W_L: LIQUID LIMIT
W_P: PLASTIC LIMIT
W: WATER CONTENT (%)

Undisturbed | Disturbed | Lost | Core

ELEV(M) -5.44	DEPTH (M) 0.00	DESCRIPTION	COND	TYPE.NO	REC%	TEST
		Grey sandy gravel, some silt. Dense.		SS-1	65	N: 47 AG
-5,99	0,55					
	1,00	Bedrock: Uniform dark grey siltstone. Very poor quality.		CR-2	80	RQD: 0%
	2,00	Containing sub-vertical calcite layers coating a black mudstone passage.		CR-3	95	RQD: 0%
	3,00					
-8,84	3,40	Millimiter and centimiter alternance of grey clayey limestone and of dark grey siltstone. Sub-vertical beding. Set is recut by calcite layers.		CR-4	83	RQD: 100%
	4,00					
	5,00			CR-5	100	RQD: 100% Q: 19,3 MPa
-10,79	5,35	End of the borehole at a depth of 5.35 m.				
	6,00					
	7,00					
	8,00					
	9,00					

* Translated by PWGSC

TECHNISOL

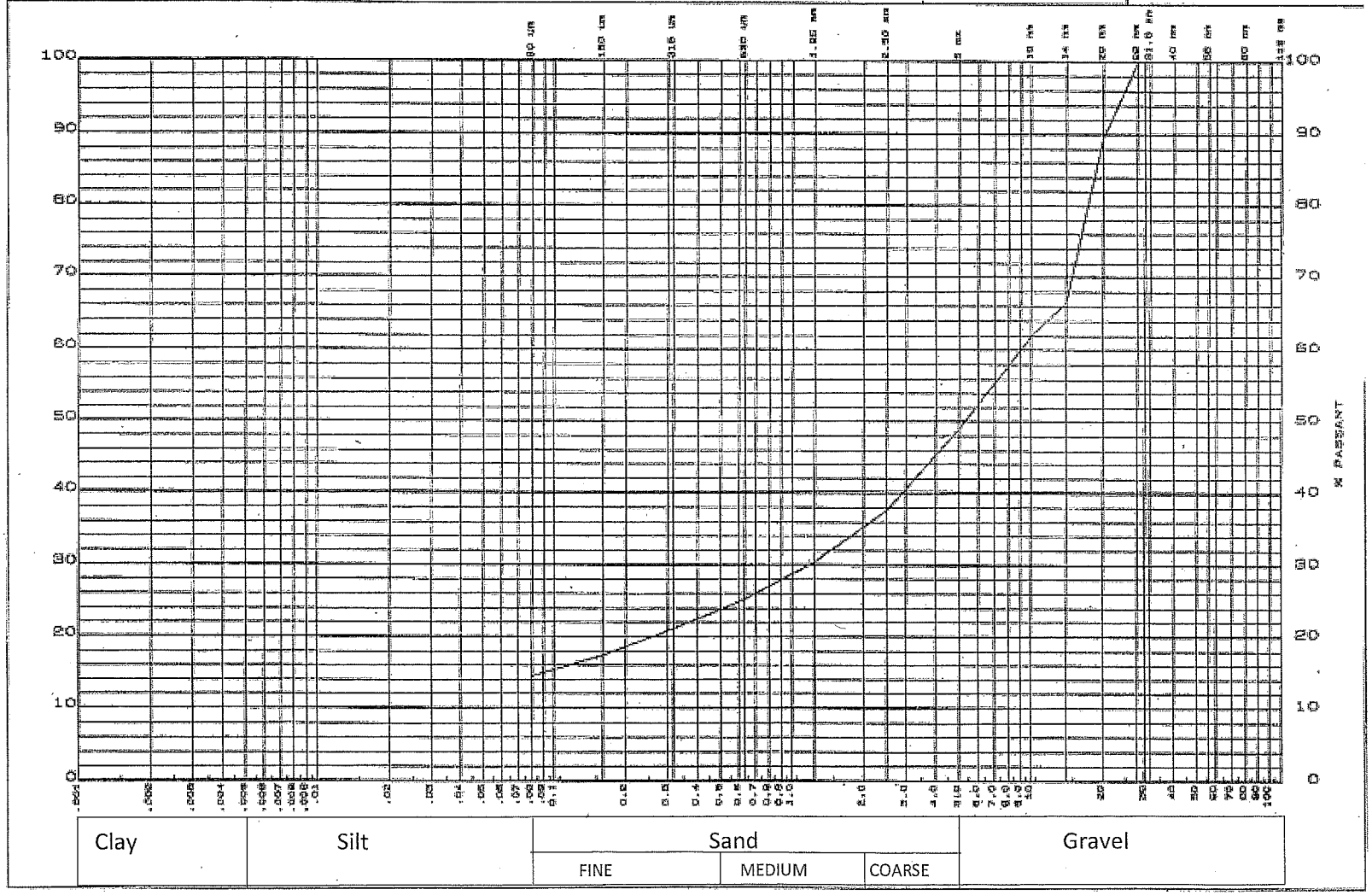
Curve Grading

Sample No : TP10099F4CF1

File No : TP10099 221

Tests: ST-NOEL-53

Exigence



Clay	Silt	Sand			Gravel
		FINE	MEDIUM	COARSE	

* Translated by PWGSC

TECHNISOL	Property of Ground	Project TP10093	
		S-P	MOD.
Project : Wharf reconstruction	**Situation** : Rivière-au-Renard PAGE : 2 / 2	221	

Test No.	Sample No.	Depth (m)	Description	Content (%)														
				Gravel	Sand	Silt	Clay	End										
F-4	SS-1	0,00-0,55	Sandy gravel, a little of silt	50,9	34,6	-	-	14,5	-	-	-	-	-					-
						-	-		-	-	-	-	-					-

* Translated by PWGSC

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BORING LOG - GEOTECHNIC

PROJECT: RIVIERE-AU-RENARD'S FISHING HARBOUR REHABILITATION — FILE NO.: 99-9335-01

LOCATION: RIVIERE-AU-RENARD, QUEBEC — BOREHOLE NO.: BH-1

SAMPLE TYPE

SS: SPLIT SPOON 51 mm O.D.
ST: SHELBY TUBE ____ mm O.D.
CR: CORE SAMPLE, GAUGE NQ
AS: AUGER SAMPLE
MS: MANUAL SHOVEL

SAMPLE CONDITION

UNDISTURBED | DISTURBED | LOST | CORE

TESTS

W : WATER CONTENT (%)
L : ATTERBERG LIMITS
GA : GRAIN SIZE ANALYSIS
C : CONSOLIDATION
K : PERMEABILITY (cm/s)
N : STANDARD PENETRATION INDEX (blows/0,30 m)
N' : DYNAMIC PENETRATION INDEX (blows/0,30 m)
RQD : ROCK QUALITY DESIGNATION (%)
CS : COMPRESSION STRENGTH (MPa)
TS : TENSILE STRENGTH (MPa)

SHEAR STRENGTH
V : UNDISTURBED - FIELD (kPa)
Vr : DISTURBED - FIELD (kPa)
S : UNDISTURBED - CONE (kPa)
Sr : DISTURBED - CONE (kPa)

DATE: 1999-11-28
REFERENCE DATUM: Maregraphic
WATER LEVEL — ELEVATION: -- — DATE: --
CASING — GAUGE: NW — DEPTH: 0,25 m

DEPTH (m)	ELEVATION (m)	WATER	GEOLOGICAL PROFILE — DESCRIPTION	UNDRAINED SHEAR STRENGTH (kPa) ▲ UNDISTURBED △ DISTURBED; W WATER CONTENT (%), W_p PLASTIC LIMIT, W_L LIQUID LIMIT	TESTS — N, N' or RQD	TESTS — OTHERS	SAMPLES — CONDITION	SAMPLES — TYPE AND NUMBER	SAMPLES — RECOVERY (%)	DEPTH (ft)
	-5,55		SEA BED	20 40 60 80						
	-5,60		**Alluvial deposit:** Black gravel with some silt and sand.		*	50 blows / 10 cm		SS-1A SS-1B	100	
	-5,80		**Bedrock:** Weathered rock.							
1			Clayey limestone, grey, containing whitish calcite layers of various thickness. The material is heavily fractured and of very poor quality down to about 1,60 m. The quality becomes poor to medium afterwards.		0			CR-2	68	5
2			The joints set coincides with the stratification. It has 15 to 30° with the core axis. Diaclases are also observed.		31	CS= 71,5 TS= 2,7		CR-3	100	
3					55			CR-4	96	10
	-9,21		End of the borehole at a depth of 3,66 m.							
4										15
5										
6										20
7										
8										25

BORING LOG - GEOTECHNIC

Laboratoire de matériaux de Québec (1987) inc.

PROJECT: RIVIERE-AU-RENARD'S FISHING HARBOUR REHABILITATION — FILE NO.: 99-9335-01

LOCATION: RIVIERE-AU-RENARD, QUEBEC — BOREHOLE NO.: BH-2

SAMPLE TYPE

SS: SPLIT SPOON 51 mm O.D.
ST: SHELBY TUBE _____ mm O.D.
CR: CORE SAMPLE, GAUGE NQ
AS: AUGER SAMPLE
MS: MANUAL SHOVEL

SAMPLE CONDITION

UNDISTURBED | DISTURBED | LOST | CORE

TESTS

W : WATER CONTENT (%)
L : ATTERBERG LIMITS
GA : GRAIN SIZE ANALYSIS
C : CONSOLIDATION
K : PERMEABILITY (cm/s)
N : STANDARD PENETRATION INDEX (blows/0,30 m)
N' : DYNAMIC PENETRATION INDEX (blows/0,30 m)
RQD : ROCK QUALITY DESIGNATION (%)
CS : COMPRESSION STRENGTH (MPa)
TS : TENSILE STRENGTH (MPa)

SHEAR STRENGTH

V : UNDISTURBED - FIELD (kPa)
Vr : DISTURBED - FIELD (kPa)
S : UNDISTURBED - CONE (kPa)
Sr : DISTURBED - CONE (kPa)

DATE: 1999-11-21
REFERENCE DATUM: Maregraphic
WATER LEVEL — ELEVATION: -- — DATE: --
CASING — GAUGE: NW — DEPTH: 0,91 m

GEOLOGICAL PROFILE

DEPTH (m)	ELEVATION (m)	WATER	DESCRIPTION
	-5,41		SEA BED
	-6,18		**Alluvial deposit:** Black silty and gravelly sand.
1	-6,32		**Bedrock:** Weathered rock
2			Clayey limestone, grey, containing whitish calcite layers of various thickness. The material is heavily fractured and of very poor quality down to about 4,26 m. The quality becomes poor afterwards.
3			The joints set coincides with the stratification. It has 15 to 30° with the core axis. Diaclases are also observed.
4	-10,28		
5			End of the borehole at a depth of 4,87 m.
6			
7			**Note:** The sea bed is 9,45 m underneath the surface of the Fishery wharf.
8			

UNDRAINED SHEAR STRENGTH (kPa)
▲ UNDISTURBED △ DISTURBED
20 40 60 80
W WATER CONTENT (%)
W_P PLASTIC LIMIT
W_L LIQUID LIMIT

TESTS / SAMPLES

N, N' or RQD	OTHERS	CONDITION	TYPE AND NUMBER	RECOVERY (%)	DEPTH (ft)
1	GA (fig. 1) W= 56,9		SS-1	11	
*	1 blow / 30 cm and 17 blows / 15 cm		SS-2A	11	
			SS-2B		
0			CR-3	31	5
0			CR-4	76	
10			CR-5	100	10
41			CR-6	96	15
					20
					25

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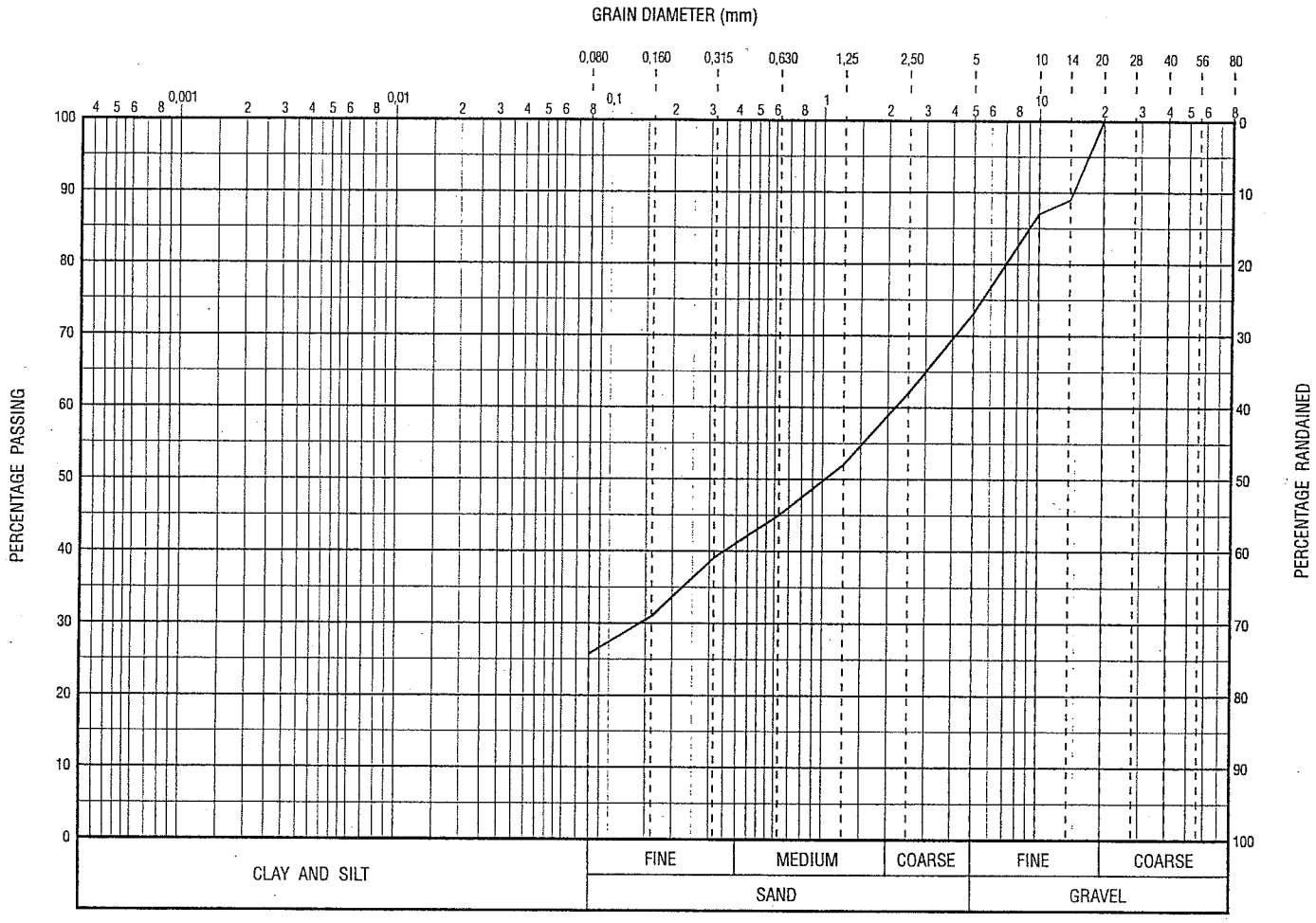
FIGURE NO.: 1

GRAIN SIZE ANALYSIS

PROJECT: RIVIERE-AU-RENARD'S FISHING HARBOUR REHABILITATION FILE NO.: 99-9335-01

LOCATION: RIVIERE-AU-RENARD, QUEBEC



SOURCE

Borehole no	BH-2
Samples nos	SS-1 and SS-2A

GRANULOMETRIC COMPONENTS (%)

Gravel	27
Sand	47
Silt	26

NATURAL WATER CONTENT (W)

W (%)	56,9

DESCRIPTIVE TERMINOLOGY

Silty and gravelly sand