

APPENDIX D

GEOTECHNICAL INFORMATION

Table G1: Summary of Borrow Sources Identified for Remedial Action Plan - Former Weather Station, Ennadai Lake, NU

Borrow Source	Distance from Site (m)	Estimated Area (m ²)	Assumed Thickness (m)	Estimated Volume (m ³)	Testpits (Depth)	Material Description	Surface Condition	Notes
Borrow 1	200	4,400	2	8,800	TP08 (0.5 m) TP09 (0.5 m) TP10 (0.5 m)	Gravelly Sand with trace of fines & Silt and Sand	<ul style="list-style-type: none"> - Exposed mineral soil on top - Vegetation on side slopes - Previously disturbed - Occasional small boulders on surface 	<ul style="list-style-type: none"> - Extent reduce due to IOL and proximity to spring - Accessible - Close to site - Near potential Landfill/Landfarm areas - Source of Type 2 Sand
Borrow 2	320	12,000	2	12,000*	TP15 (0.5 m) TP16 (0.5 m)	Gravel and Sand with trace of fines	<ul style="list-style-type: none"> - Exposed mineral soil on top - Vegetation on side slopes - Steep side slopes - 20% cobbles and small boulders on and embedded in surface 	<ul style="list-style-type: none"> - Extent reduce due proximity to water bodies and areas of historical significance - Accessible - Close to site - Source of Type 1 Sand and Gravel
Borrow 4	1,200	8,800	2	17,600	TP11 (0.5 m) TP12 (0.5 m)	Gravelly Sand with trace of fines & Gravel and Sand with trace of fines	<ul style="list-style-type: none"> - Exposed mineral soil on top - Vegetation on side slopes 	<ul style="list-style-type: none"> - Close to spring - Extent reduce due to IOL - Accessible to airstrip - Source of Type 2 Sand
Borrow 5	100	7,600	2	15,200	Geotech-1 (0.5 m) Geotech-2 (0.5 m) Geotech-3 (0.5 m) Geotech-4 (0.5 m) Geotech-5 (0.5 m)	Sand & Gravelly Sand to Silty Sand	<ul style="list-style-type: none"> - Exposed mineral soil on top - Vegetation on side slopes - Previously disturbed - Steep side slopes 	<ul style="list-style-type: none"> - Extent reduce due proximity to water bodies and areas of historical significance - Accessible - Close to site - Near potential Landfill/Landfarm areas - Source of Type 2 Sand
Borrow 6	650	4,500	2	9,000	TP19 (0.5 m) TP20 (0.5 m)	Sand and Gravel	<ul style="list-style-type: none"> - Exposed mineral soil on top - Vegetation on side slopes 	<ul style="list-style-type: none"> - Accessible to airstrip - Source of Type 1 Sand and Gravel - Near area of historical significance
Borrow 7	420	55,800	0.5	27,900	TP14 (0.5 m)	Gravelly Sand with some fines	<ul style="list-style-type: none"> - Vegetated and undisturbed - Gentle side slopes - 30-40% cobbles and boulders on and embedded in surface 	<ul style="list-style-type: none"> - Accessible - Close to site - Oversize material could be challenging - Source of Type 1 Sand and Gravel
Borrow 8	750	13,000	0.5	6,500	TP13 (0.5 m)	Sand and Gravel and some cobbles	<ul style="list-style-type: none"> - Vegetated and undisturbed - Gentle side slopes - 30% cobbles and boulderson and embedded in surface 	<ul style="list-style-type: none"> - Oversize material could be challenging - Accessible to airstrip - Source of Type 1 Sand and Gravel

*accounting for steep side slopes

PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 13-14, Oct.11, 2012
 Sample ID: TP01-S01 - Landfill1
 Depth: 0.0-1.1 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SAND, silty, trace clay
 Natural Moisture Content: 5.3%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	
25	
20	
16	
12.5	
10	
5	
2.5	
1.25	100
0.63	99
0.315	93
0.16	69
0.08	34

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: _____

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ASTM C136 & D422

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	
25	
20	
16	
12.5	
10	100
5	99
2.5	99
1.25	97
0.63	92
0.315	78
0.16	57
0.08	28

** The soil description is visually based, subject to EBA description protocols.

SIEVE SIZES

200 100 60 40 30 20 16 10 8 4 3/8 1/2 3/4 1 1 1/2 2 3

PERCENT PASSING

100
90
80
70
60
50
40
30
20
10
0

GRAIN SIZE (mm)

0.0005 .001 .002 .005 .01 .02 .05 .1 .2 .5 1 2 5 10 20 50

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

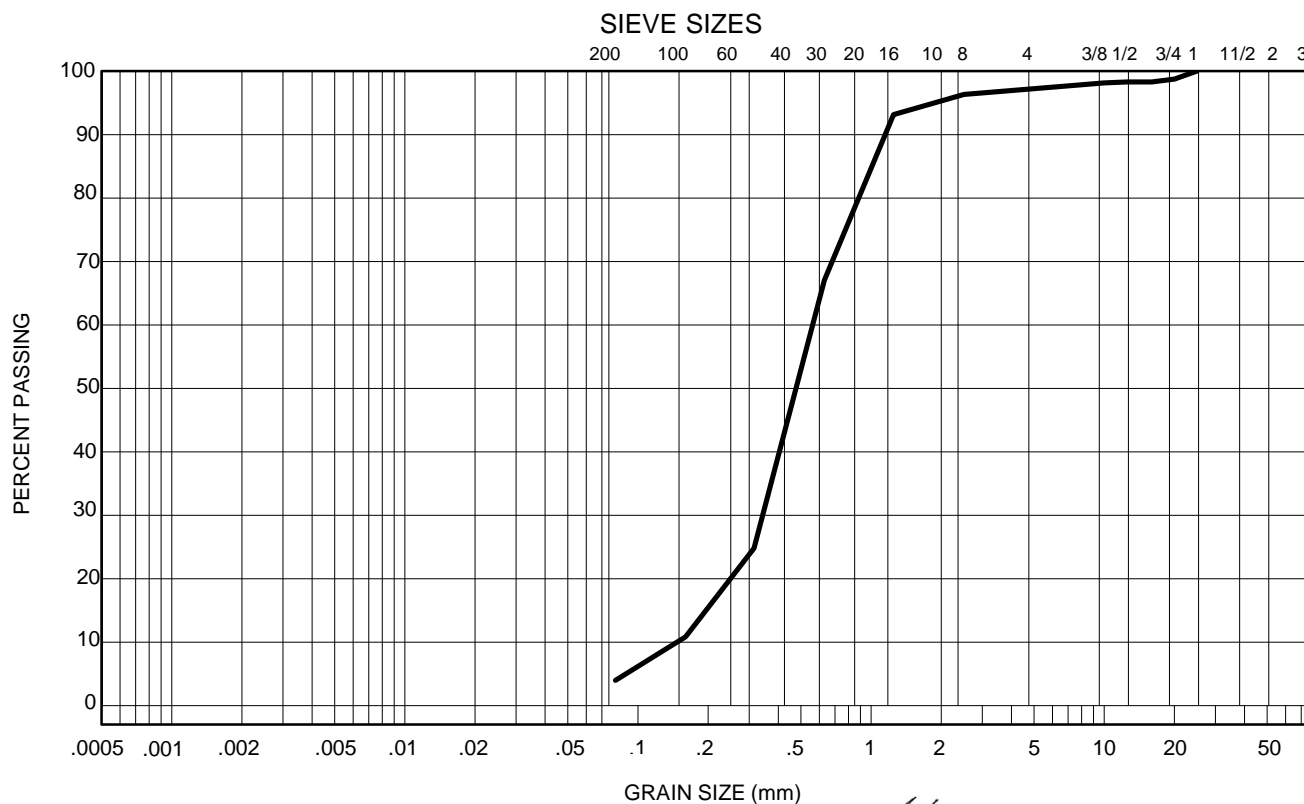
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 13-14, 2012
 Sample ID: PH03-S03 - Landfill 1
 Depth: 0.0-1.3 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SAND, trace gravel, trace fines
 Natural Moisture Content: 1.7%
 Remarks: Blended composite sample taken using a soil auger.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	
25	100
20	99
16	98
12.5	98
10	98
5	97
2.5	96
1.25	93
0.63	67
0.315	25
0.16	11
0.08	4

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

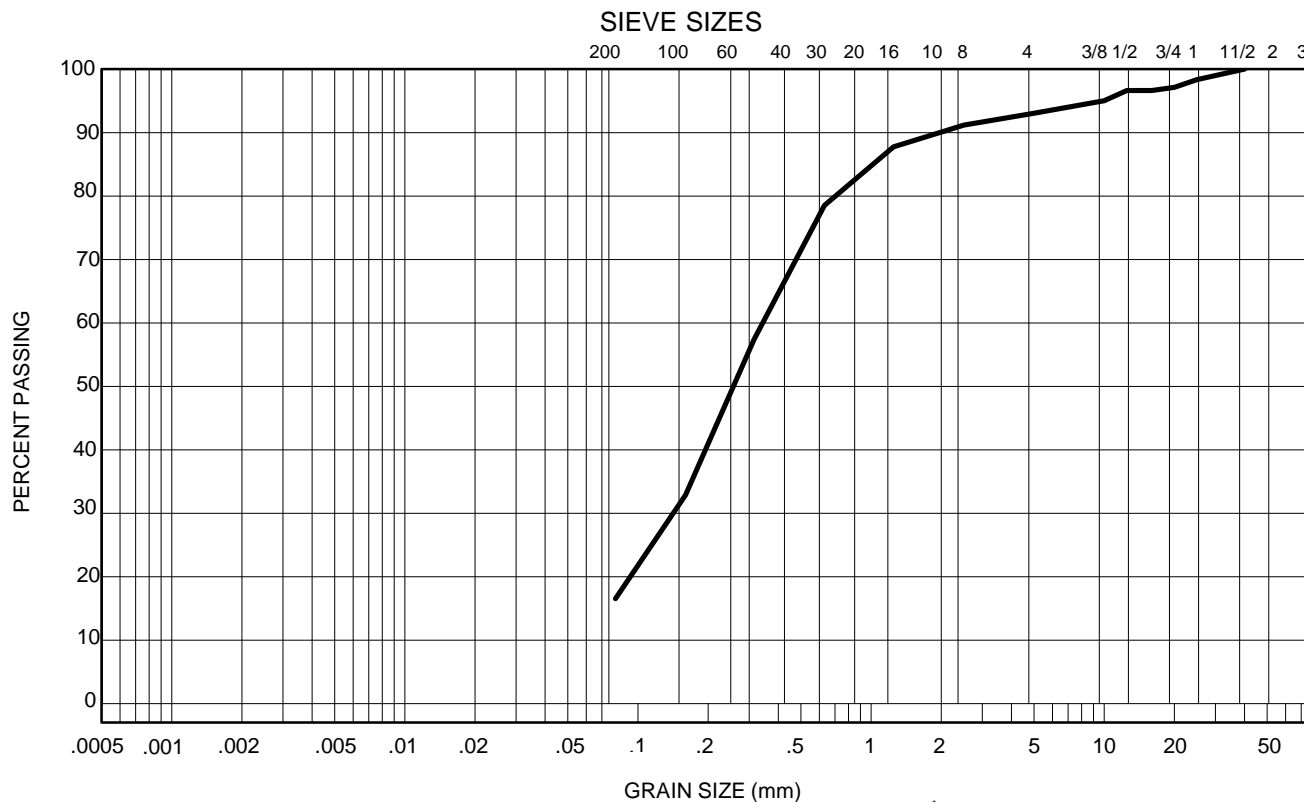
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 13-14, 2012
 Sample ID: TP04-S04 - Landfill 2
 Depth: 0.25-1.0 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SAND, some silt, trace gravel
 Natural Moisture Content: 4.9%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	100
25	98
20	97
16	97
12.5	97
10	95
5	93
2.5	91
1.25	88
0.63	79
0.315	57
0.16	33
0.08	17

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

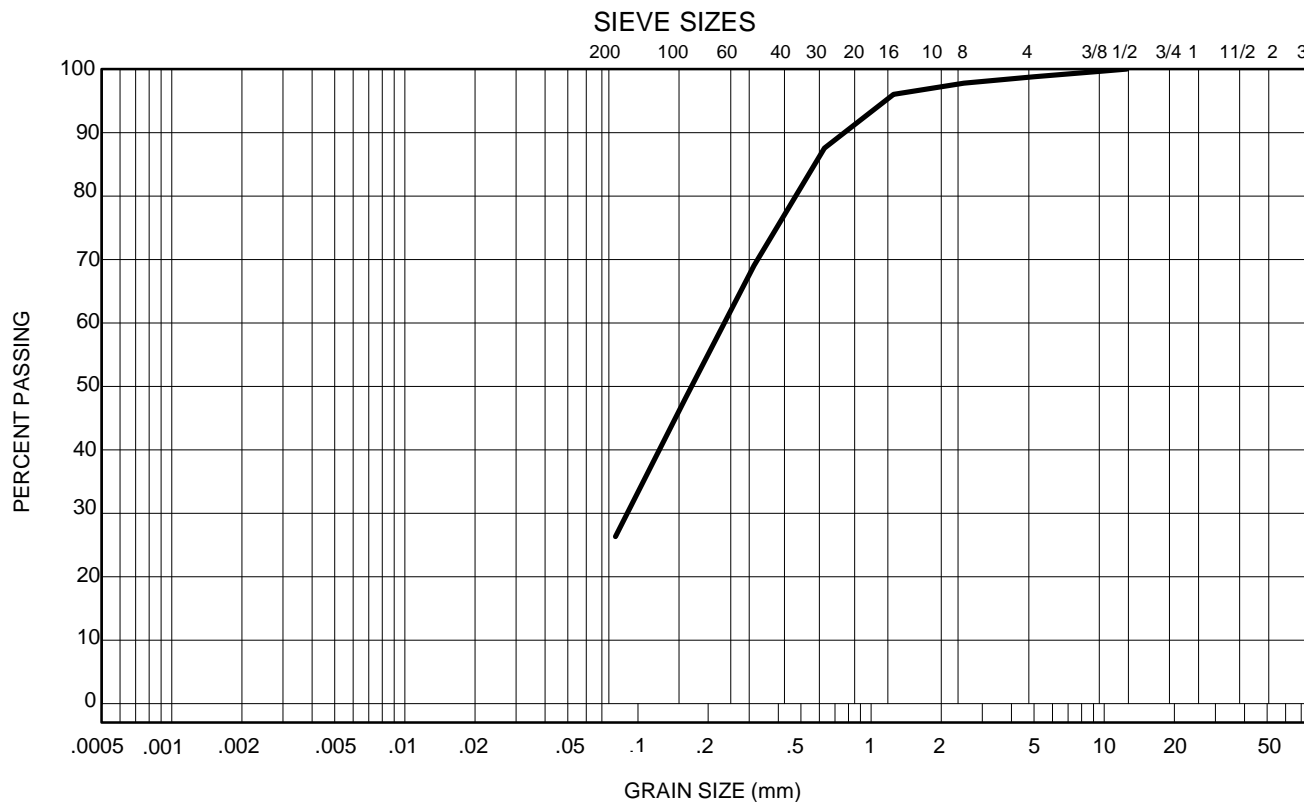
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 13-14, 2012
 Sample ID: PH05-S05 - Landfill 2
 Depth: 0.0 - 0.9 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SAND, silty, trace gravel
 Natural Moisture Content: 5.4%
 Remarks: Blended composite sample taken using a soil auger.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	
25	
20	
16	
12.5	
10	100
5	99
2.5	98
1.25	96
0.63	88
0.315	69
0.16	48
0.08	26

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: Kck

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 13-14, 2012
 Sample ID: PH06-S06 - Landfill 2
 Depth: 0.0-1.0 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SAND, silty, trace gravel
 Natural Moisture Content: 6.5%
 Remarks: Blended composite sample taken using a soil auger.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	
25	
20	
16	100
12.5	99
10	98
5	95
2.5	92
1.25	88
0.63	82
0.315	66
0.16	44
0.08	22

* The upper clay size of 2 µm is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: _____ *Kick* _____

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ASTM C136 & D422

** The soil description is visually based, subject to EBA description protocols.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	
25	
20	
16	100
12.5	99
10	98
5	93
2.5	89
1.25	81
0.63	67
0.315	38
0.16	8
0.08	1

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: _____

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

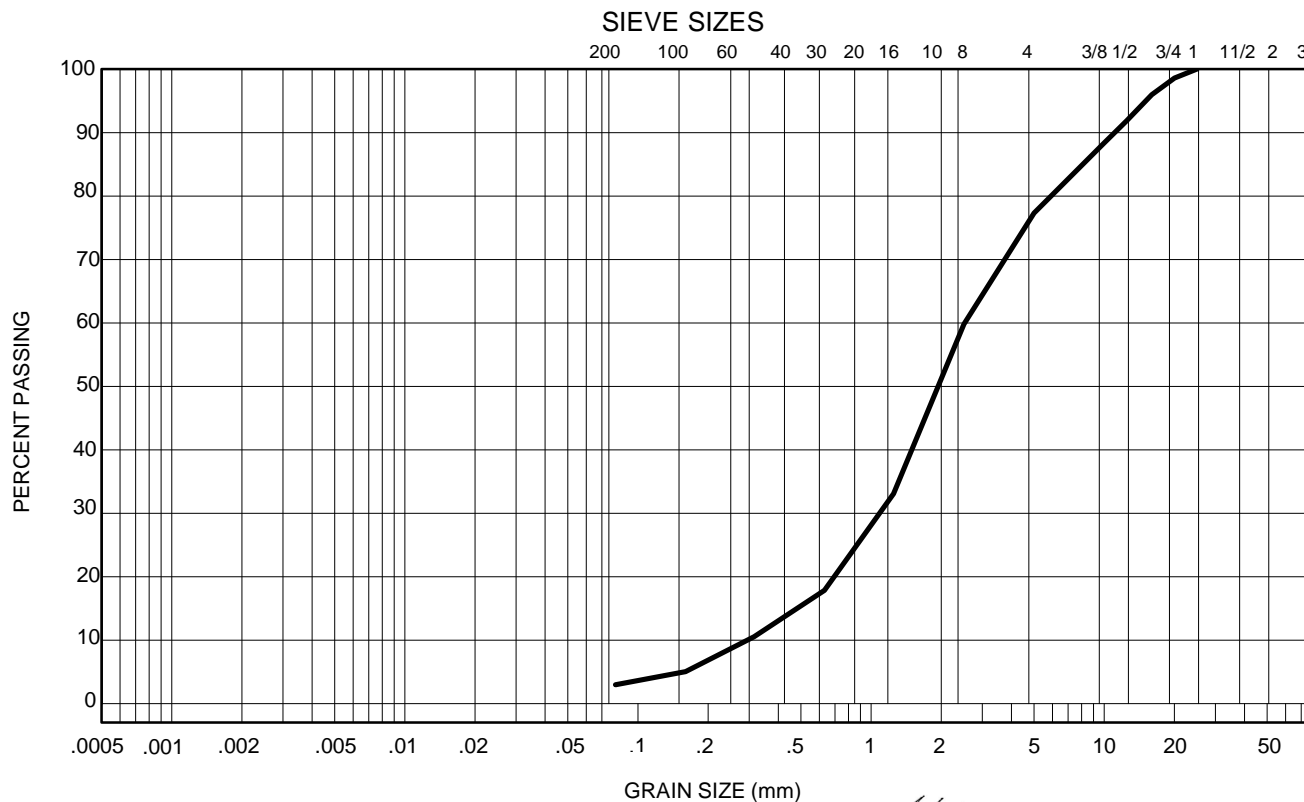
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 13-14, 2012
 Sample ID: TP08-S08 - Borrow 1- Sampled by M.B. (PWGSC)
 Depth: 0.0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SAND, gravelly, trace fines
 Natural Moisture Content: 2.0%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	
25	100
20	99
16	96
12.5	92
10	88
5	77
2.5	60
1.25	33
0.63	18
0.315	11
0.16	5
0.08	3

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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ASTM C136 & D422

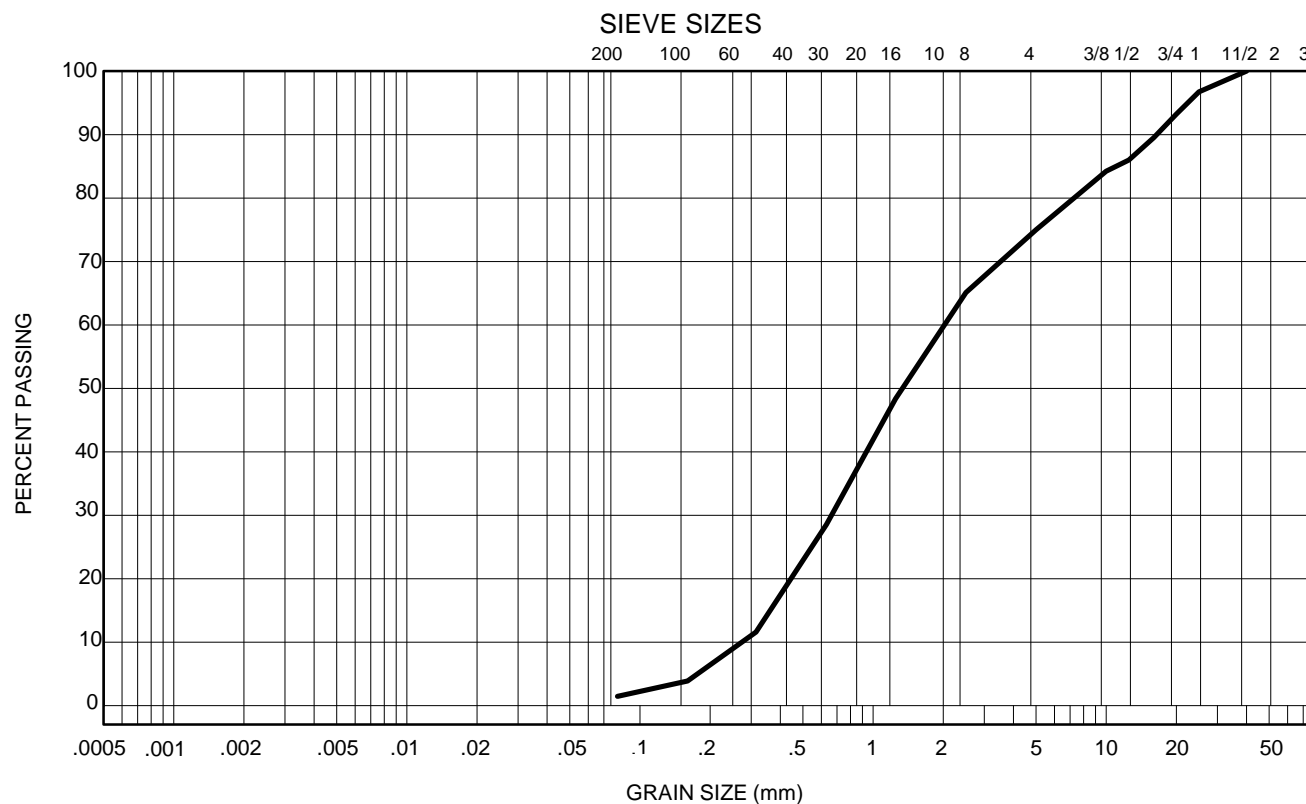
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 20-21, 2012
 Sample ID: TP9-S9 - Borrow 1 - Sampled by M.B. (PWGSC)
 Depth: 0.0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SAND, gravelly, trace fines
 Natural Moisture Content: 2.7%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	100
25	97
20	93
16	90
12.5	86
10	84
5	75
2.5	65
1.25	48
0.63	29
0.315	12
0.16	4
0.08	1

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: _____ *Kik*

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

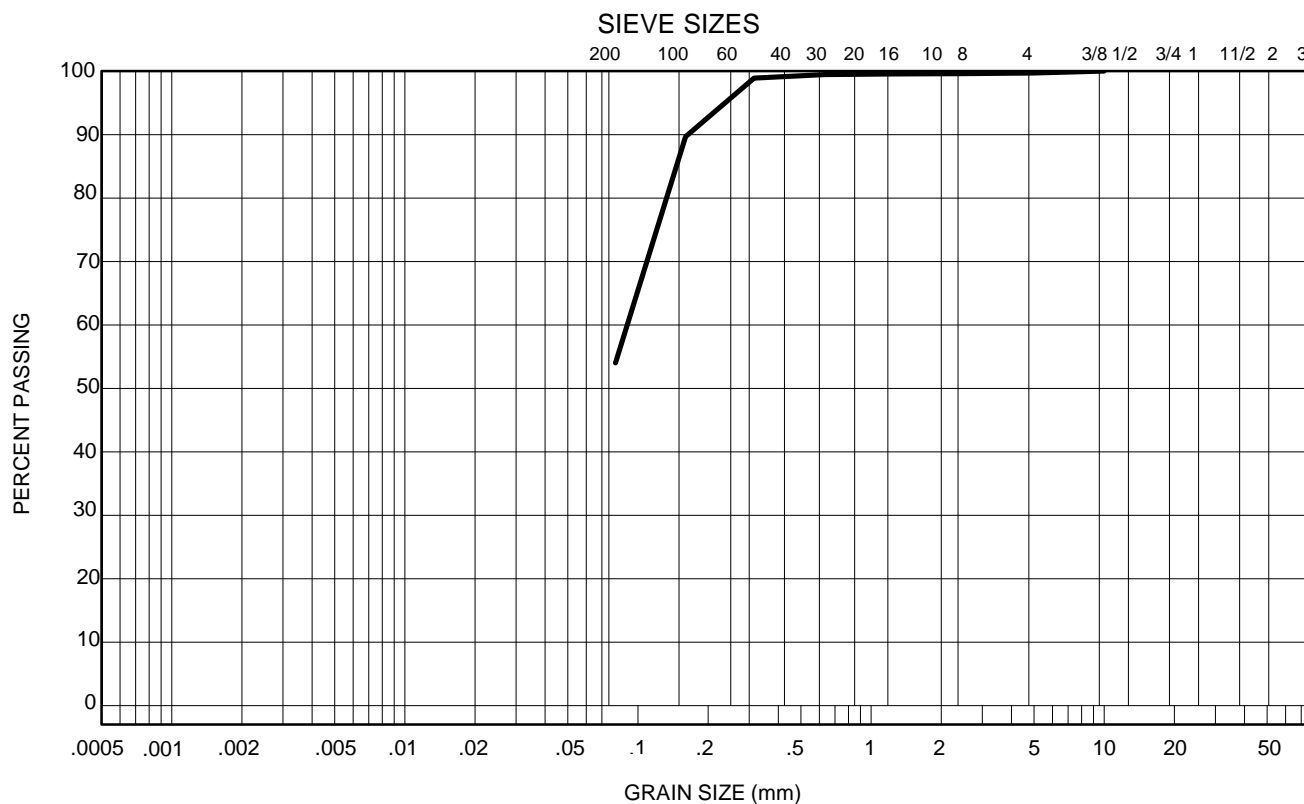
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 17-18, 2012
 Sample ID: TP10-S10 - Borrow 1 - Sampled by M.B. (PWGSC)
 Depth: 0.0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SILT & SAND
 Natural Moisture Content: 8.4%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	
25	
20	
16	
12.5	
10	
5	
2.5	
1.25	100
0.63	99
0.315	99
0.16	90
0.08	54

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: _____ *Kck*

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

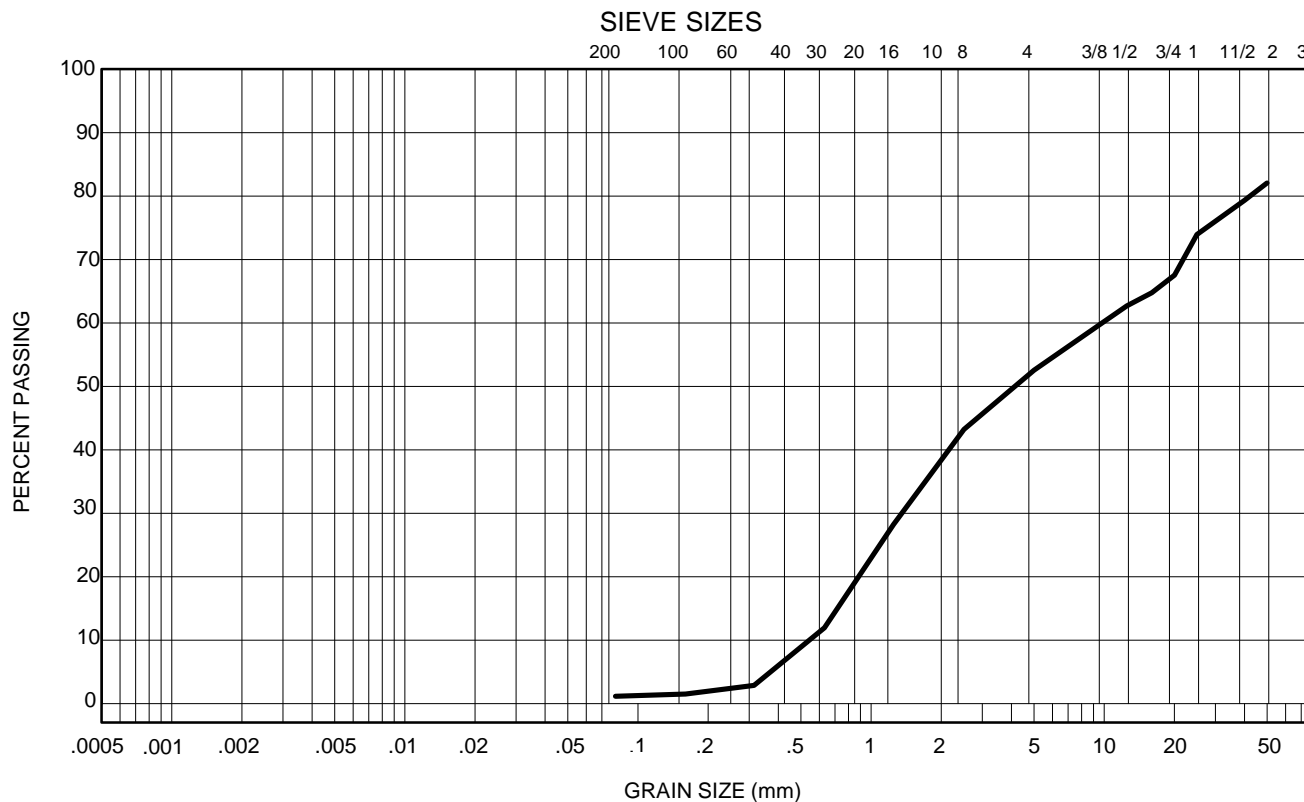
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 20-21, 2012
 Sample ID: TP11-S11 - Borrow 4
 Depth: 0.0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: GRAVEL & SAND, trace fines
 Natural Moisture Content: 1.7%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	79
25	74
20	68
16	65
12.5	63
10	60
5	53
2.5	43
1.25	28
0.63	12
0.315	3
0.16	2
0.08	1

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 18-19, 2012
 Sample ID: TP12-S12 - Borrow 4
 Depth: 0.0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SAND, some gravel, trace fines
 Natural Moisture Content: 1.5%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	100
25	96
20	95
16	93
12.5	92
10	90
5	84
2.5	78
1.25	53
0.63	9
0.315	1
0.16	1
0.08	1

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

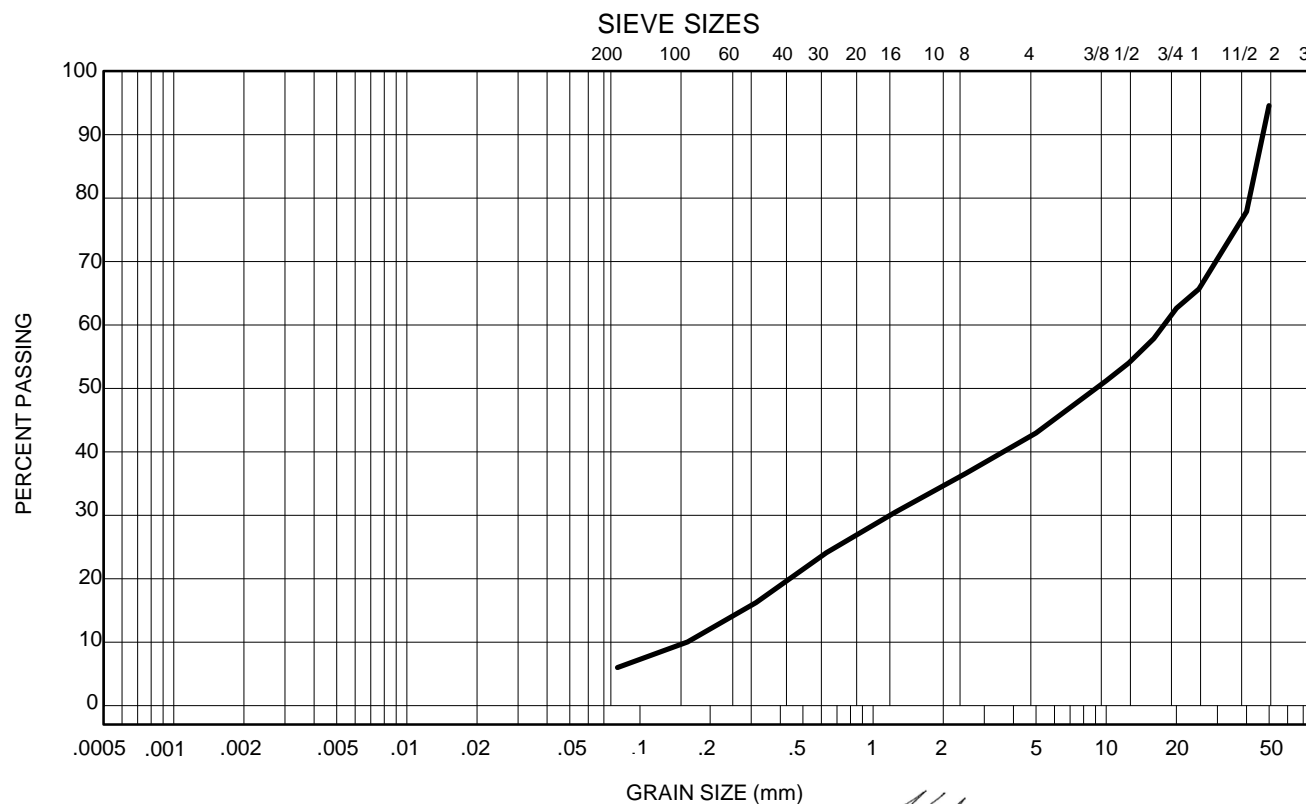
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 20-21, 2012
 Sample ID: TP13-S13 - Borrow 8
 Depth: 0.0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: GRAVEL & SAND, trace fines
 Natural Moisture Content: 2.2%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	78
25	66
20	63
16	58
12.5	54
10	51
5	43
2.5	37
1.25	31
0.63	24
0.315	16
0.16	10
0.08	6

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: Kik

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 20-21, 2012
 Sample ID: TP14-S14 - Borrow 7 / Landfarm 2
 Depth: 0.0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SAND, gravelly, some fines
 Natural Moisture Content: 4.3%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	100
25	99
20	94
16	90
12.5	87
10	83
5	71
2.5	62
1.25	50
0.63	40
0.315	29
0.16	21
0.08	14

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

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CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By:

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ASTM C136 & D422

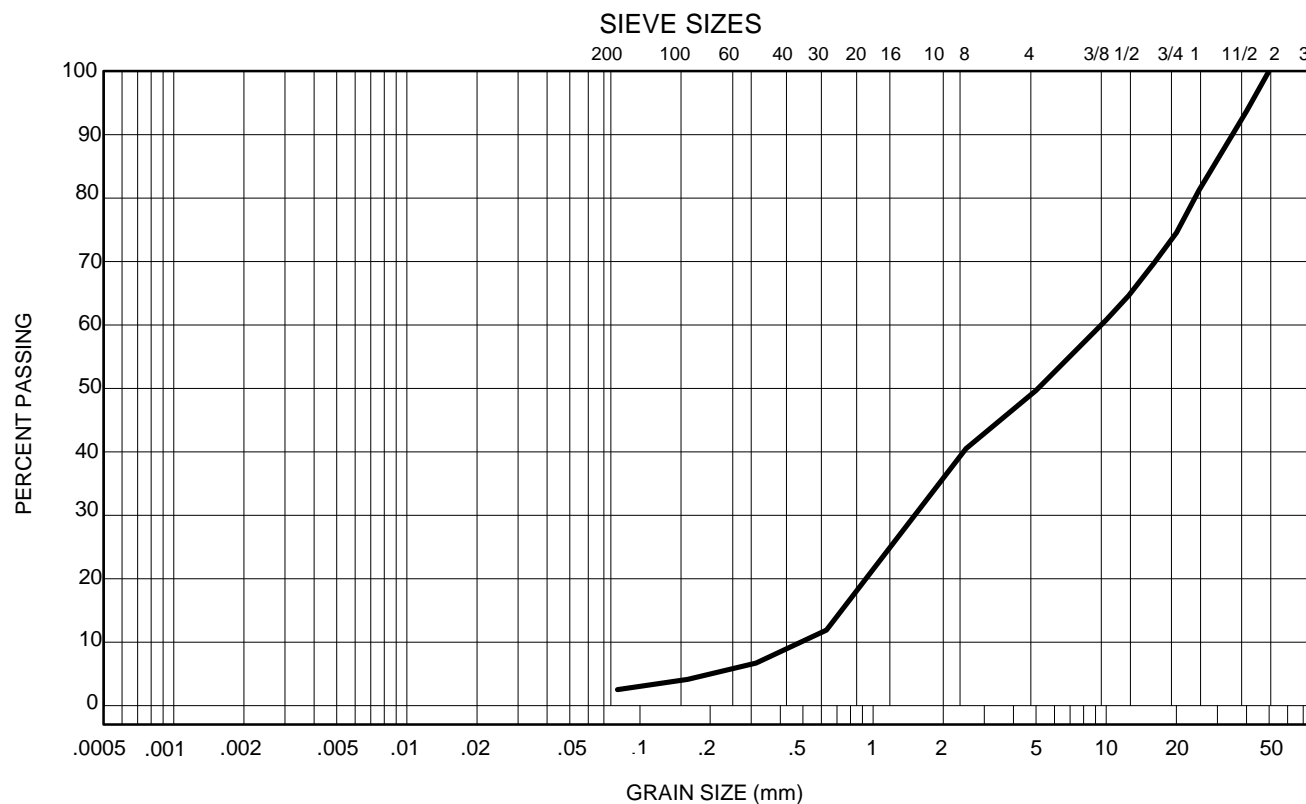
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 20-21, 2012
 Sample ID: TP15-S15 - Borrow 2
 Depth: 0.0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: GRAVEL & SAND, trace fines
 Natural Moisture Content: 2.3%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	94
25	81
20	75
16	70
12.5	65
10	61
5	50
2.5	41
1.25	26
0.63	12
0.315	7
0.16	4
0.08	3

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: Kck

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

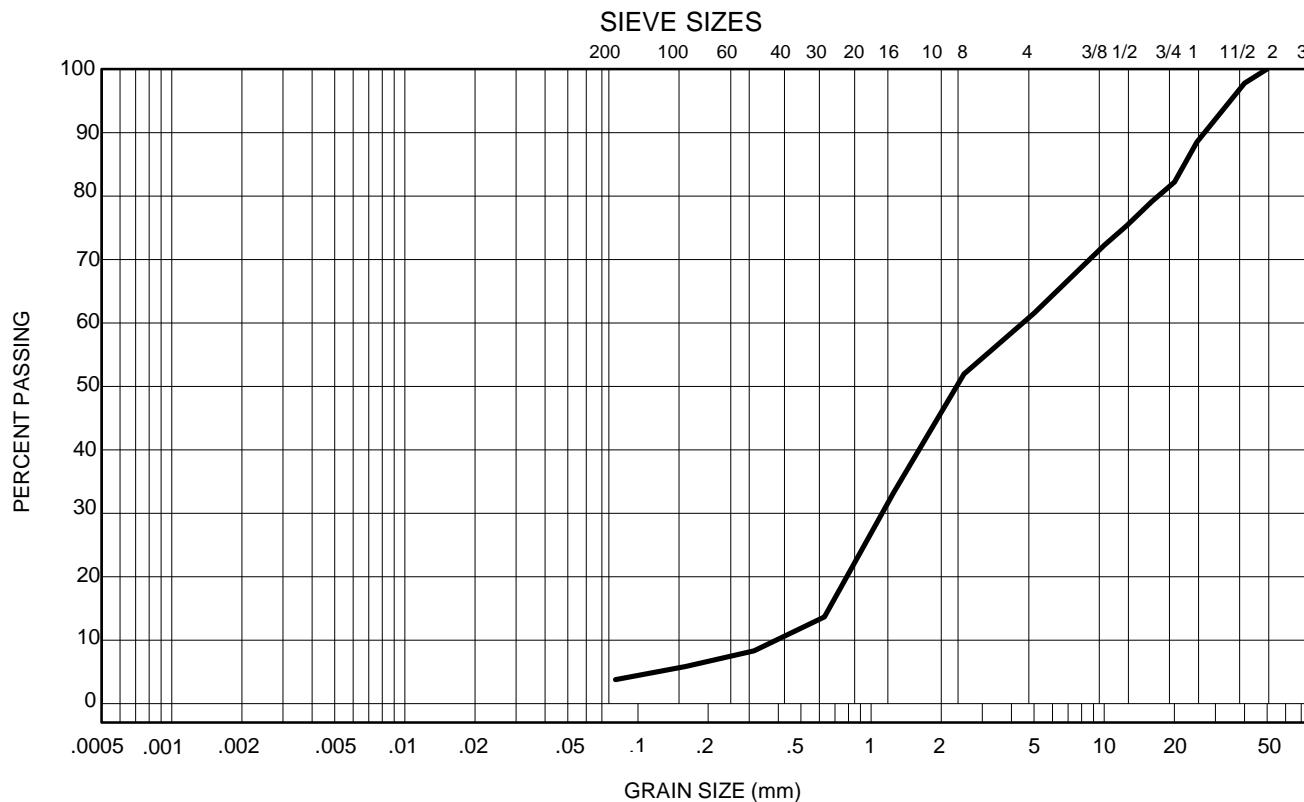
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 20-21, 2012
 Sample ID: TP16-S16 - Borrow 2
 Depth: 0.0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: GRAVEL & SAND, trace fines
 Natural Moisture Content: 2.6%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	98
25	89
20	82
16	79
12.5	75
10	72
5	62
2.5	52
1.25	33
0.63	14
0.315	8
0.16	6
0.08	4

* The upper clay size of 2 µm is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: *Kick*

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

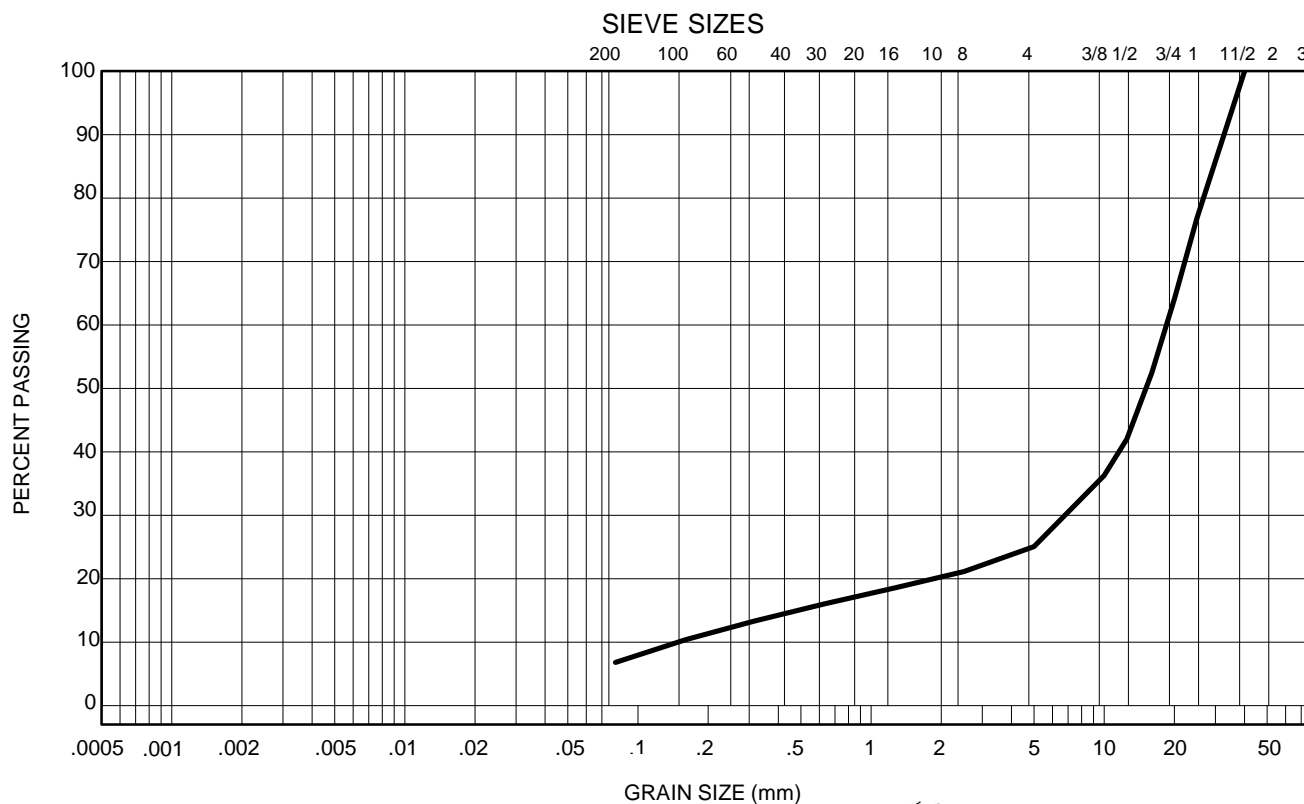
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 17-18, 2012
 Sample ID: TP17-S17 - Borrow 3
 Depth: 0.0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: GRAVEL, some sand, trace fines
 Natural Moisture Content: 4.3%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	100
25	77
20	64
16	52
12.5	42
10	36
5	25
2.5	21
1.25	19
0.63	16
0.315	13
0.16	10
0.08	7

* The upper clay size of 2 µm is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: Kick

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

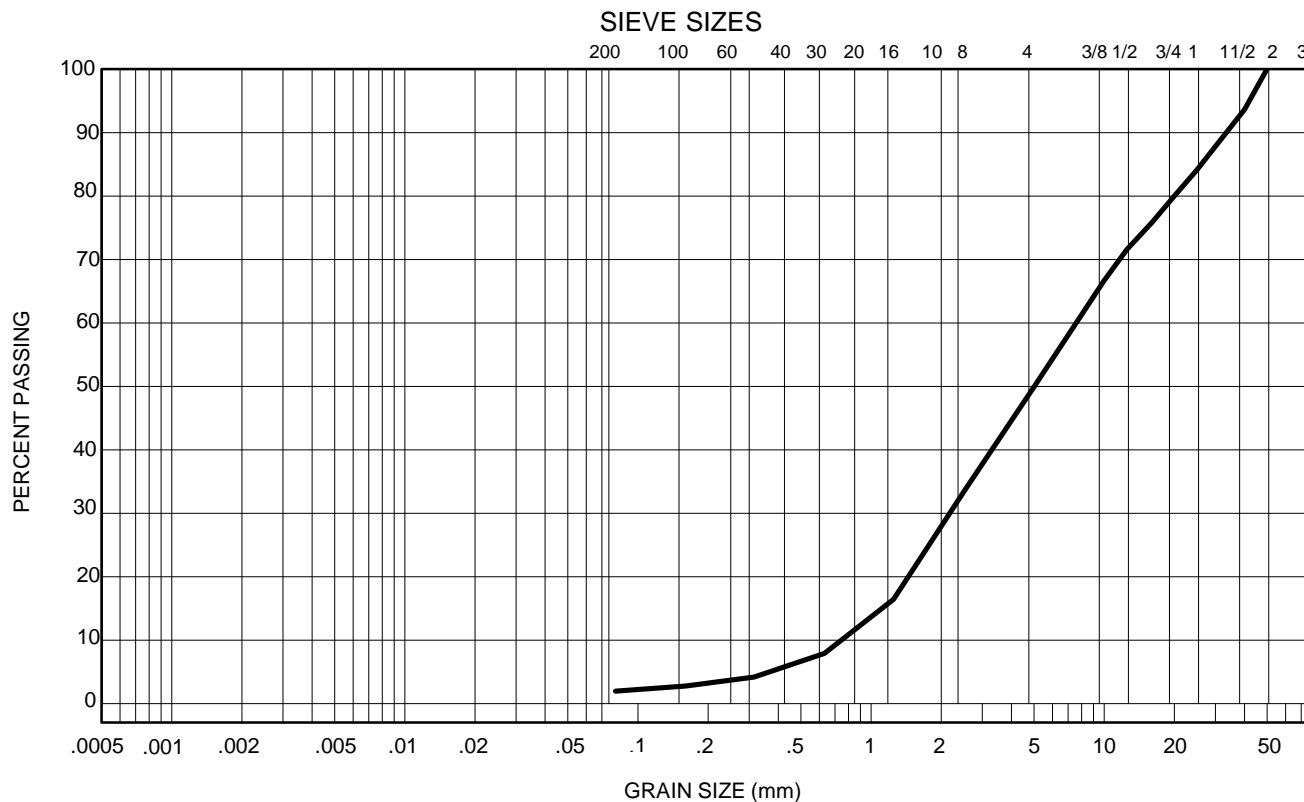
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 19-20, 2012
 Sample ID: TP18-S18 - Borrow 3
 Depth: 0.0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: GRAVEL & SAND, trace fines
 Natural Moisture Content: 2.0%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	94
25	84
20	80
16	76
12.5	72
10	67
5	50
2.5	33
1.25	16
0.63	8
0.315	4
0.16	3
0.08	2

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: Lck

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

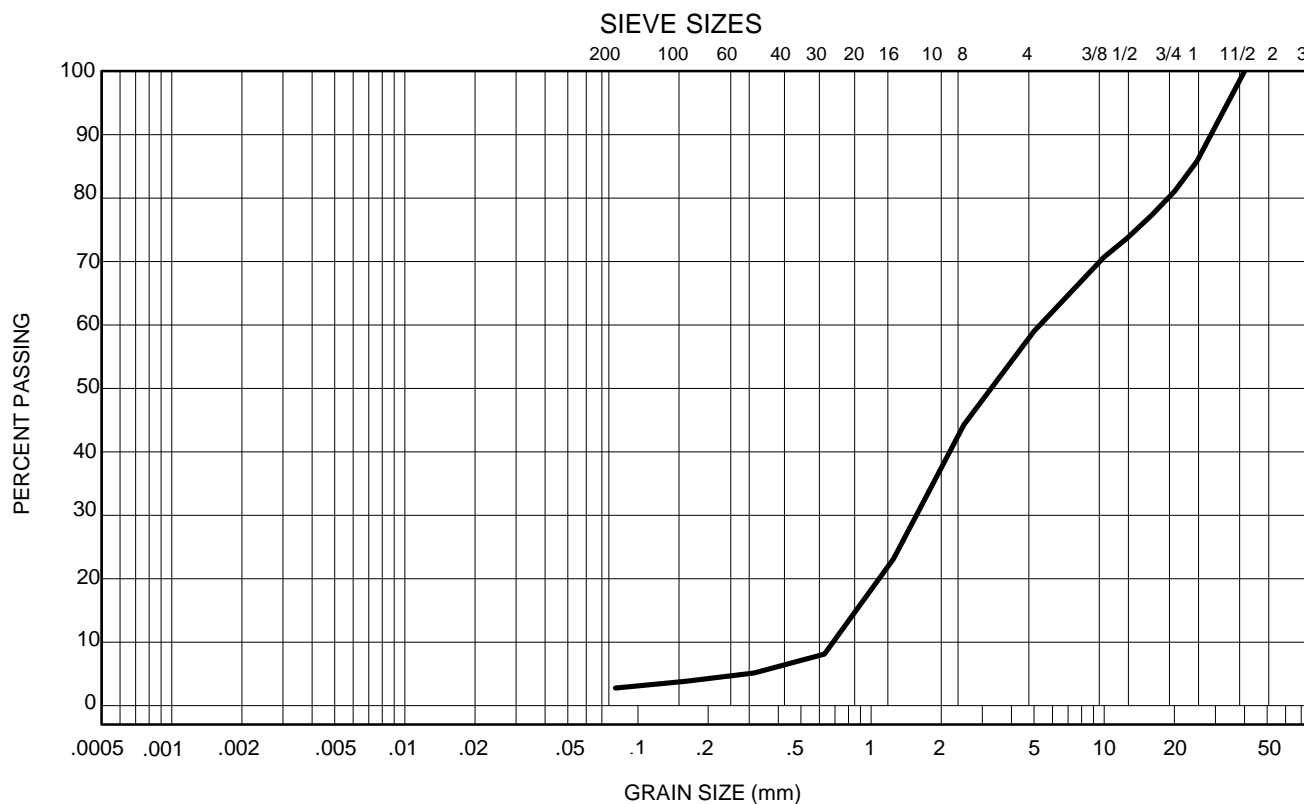
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 17-18, 2012
 Sample ID: TP19-S19 - Borrow 6
 Depth: 0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: GRAVEL & SAND, trace fines
 Natural Moisture Content: 2.3%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	100
25	86
20	81
16	77
12.5	74
10	71
5	59
2.5	44
1.25	23
0.63	8
0.315	5
0.16	4
0.08	3

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By:

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ASTM C136 & D422

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	100
25	93
20	90
16	87
12.5	83
10	80
5	64
2.5	38
1.25	15
0.63	7
0.315	4
0.16	3
0.08	2

** The soil description is visually based, subject to EBA description protocols.

The graph displays the grain size distribution of a soil sample. The x-axis represents grain size in millimeters (mm) on a logarithmic scale, ranging from 0.0005 to 50 mm. The y-axis represents the percentage of soil passing through a sieve, ranging from 0% to 100%. A thick black curve shows the distribution, starting at approximately 0.075 mm (7.5% passing) and ending at 50 mm (100% passing). The curve is relatively flat between 0.075 and 0.6 mm, then rises steeply between 0.6 and 10 mm, and finally levels off towards 50 mm. The top of the graph has a secondary x-axis for 'SIEVE SIZES' with values: 200, 100, 60, 40, 30, 20, 16, 10, 8, 4, 3/8, 1/2, 3/4, 1, 1 1/2, 2, 3.

Grain Size (mm)	Percent Passing (%)
0.075	7.5
0.15	8.5
0.3	10.5
0.6	15.5
1.0	25.5
2.0	45.5
4.75	65.5
10.0	80.5
20.0	90.5
47.5	100.0

Reviewed By: _____

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

Project: Phase 3 ESA & RAP Ennadai Lake Weather Station

Project No.: Y22101286

Client: PWGSC Edmonton

Attention: Michael Bernardin

Date Tested: Sept 19-20, 2012

Sample ID: Geotech 1- Borrow 5 - Sampled by M.C. (EBA)

Depth: 0.0-0.5 m

Soil Index:

Lab Number: 5711

Soil Description: SAND, trace fines

Natural Moisture Content: 2.5%

Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	
25	
20	
16	
12.5	
10	
5	
2.5	
1.25	100
0.63	99
0.315	76
0.16	11
0.08	1

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: *Kck*

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

Project: Phase 3 ESA & RAP Ennadai Lake Weather Station

Project No.: Y22101286

Client: PWGSC Edmonton

Attention: Michael Bernardin

Date Tested: Sept 19-20, 2012

Sample ID: Geotech 2 - Borrow 5 - Sampled by M.C. (EBA)

Depth: 0.0-0.5 m

Soil Index:

Lab Number: 5711

Soil Description: SAND, gravelly, trace fines

Natural Moisture Content: 2.0%

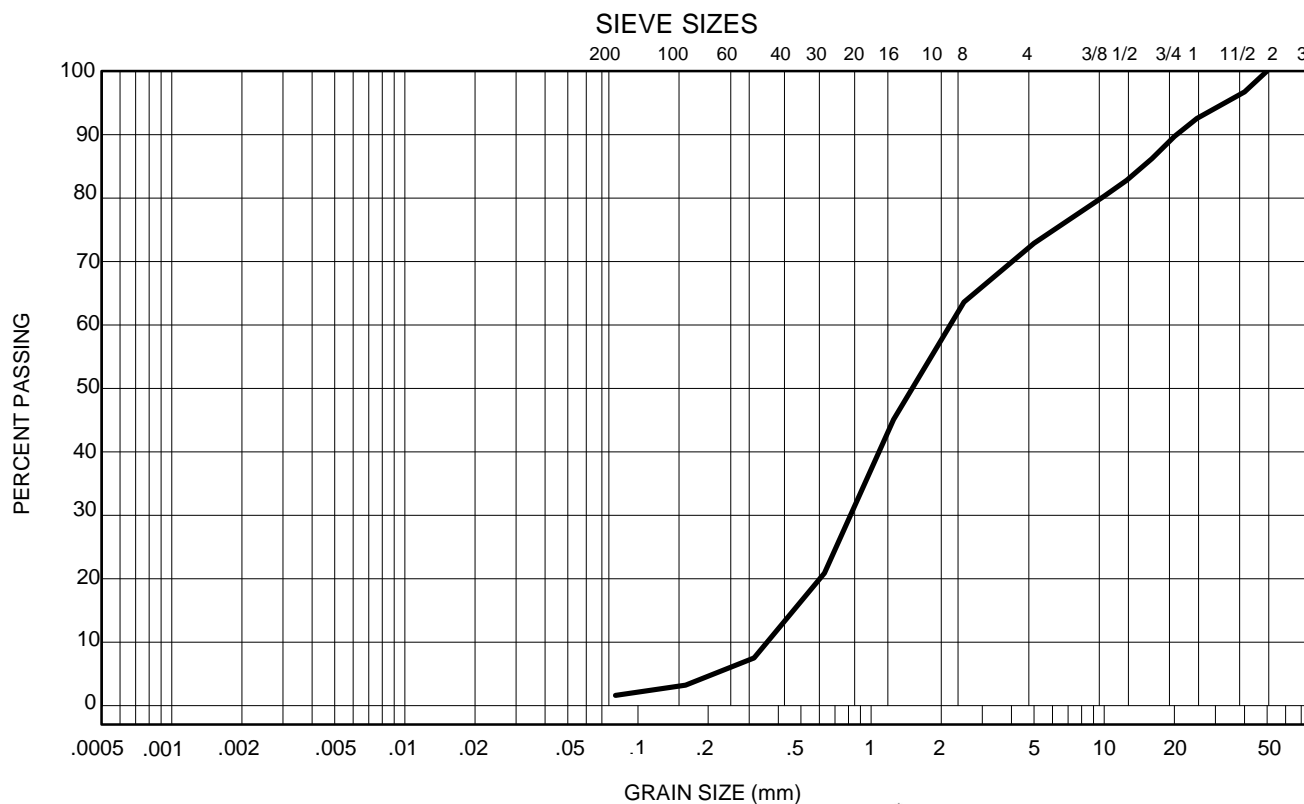
Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	97
25	93
20	90
16	86
12.5	83
10	80
5	73
2.5	64
1.25	45
0.63	21
0.315	8
0.16	3
0.08	2

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

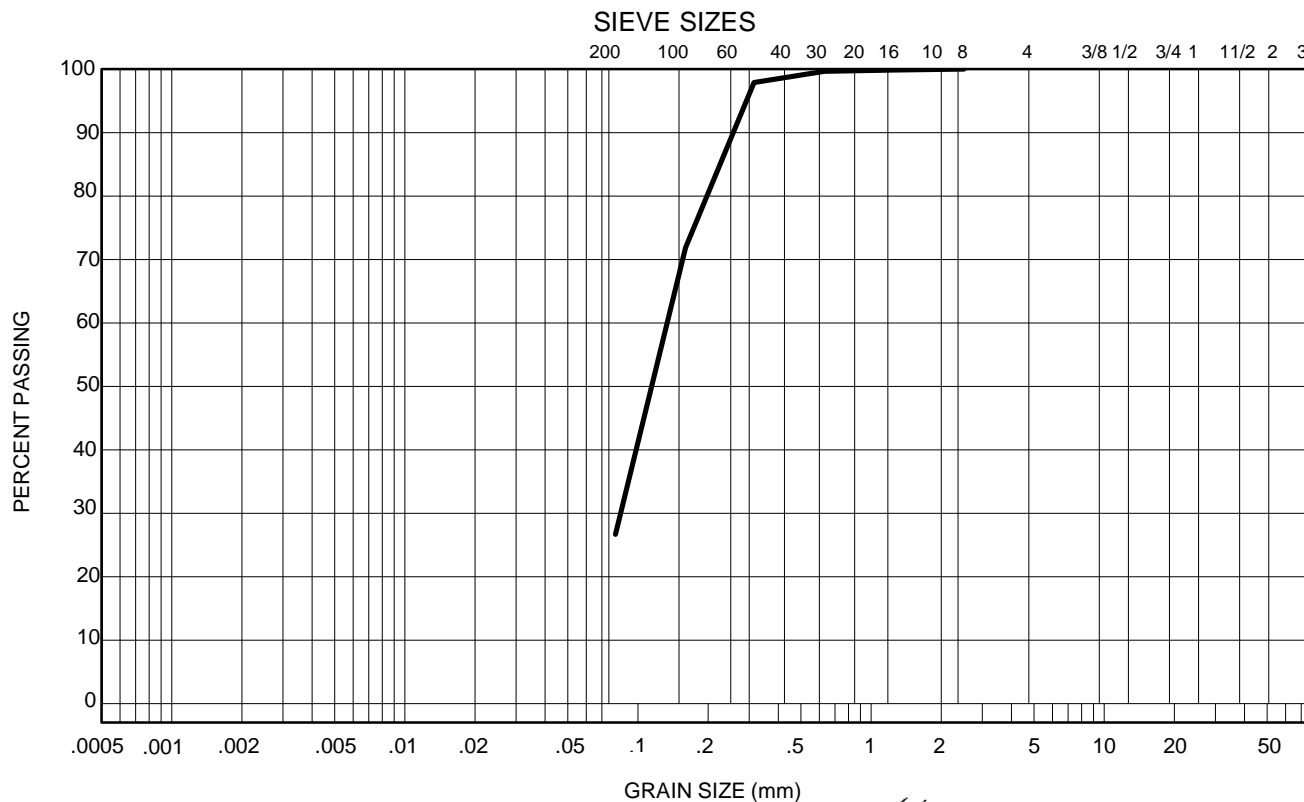
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 19-20, 2012
 Sample ID: Geotech 3 - Borrow 5 - Sampled by M.C. (EBA)
 Depth: 0.0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SAND, silty
 Natural Moisture Content: 6.6%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	
25	
20	
16	
12.5	
10	
5	
2.5	
1.25	
0.63	100
0.315	98
0.16	72
0.08	27

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

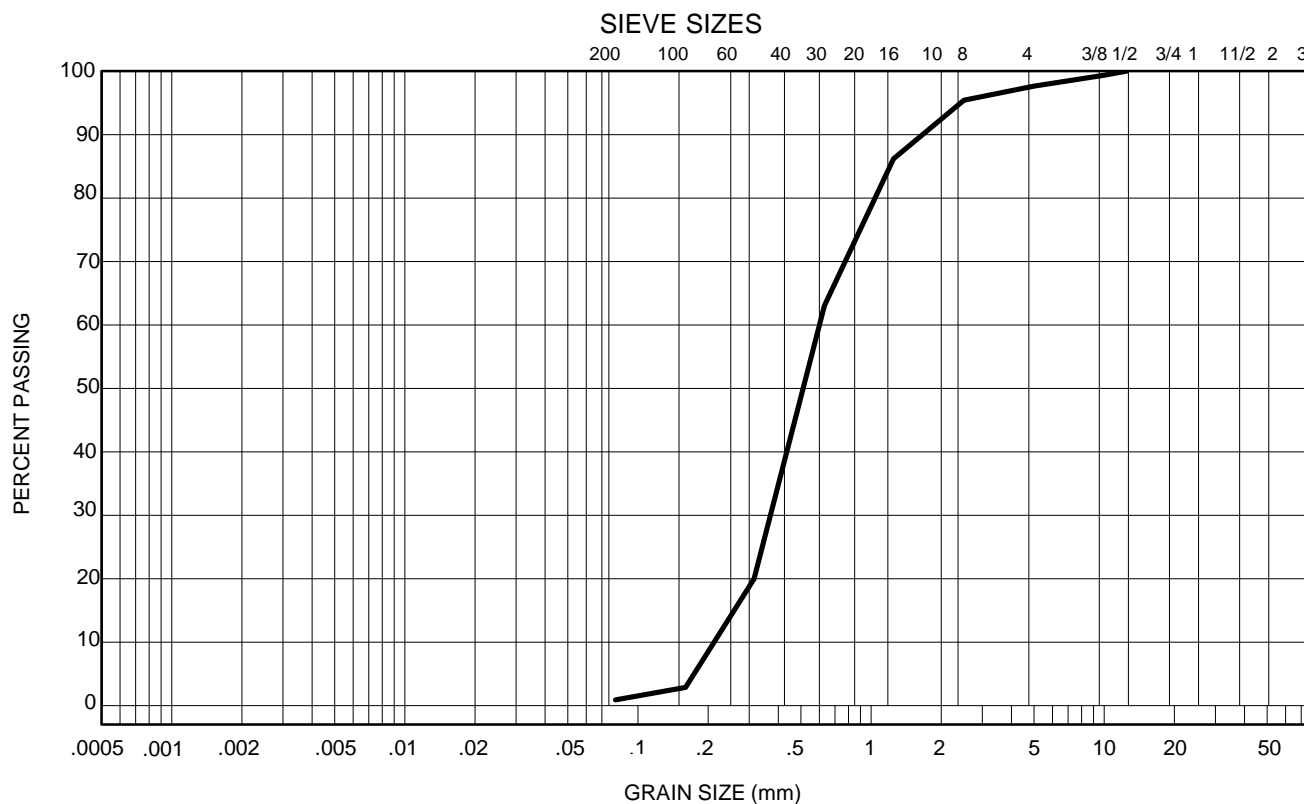
Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 17-18, 2012
 Sample ID: Geotech 4 - Borrow 5 - Sampled by M.C. (EBA)
 Depth: 0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SAND, trace gravel, trace fines
 Natural Moisture Content: 2.5%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	
25	
20	
16	
12.5	100
10	99
5	98
2.5	95
1.25	86
0.63	63
0.315	20
0.16	3
0.08	1

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: Lck

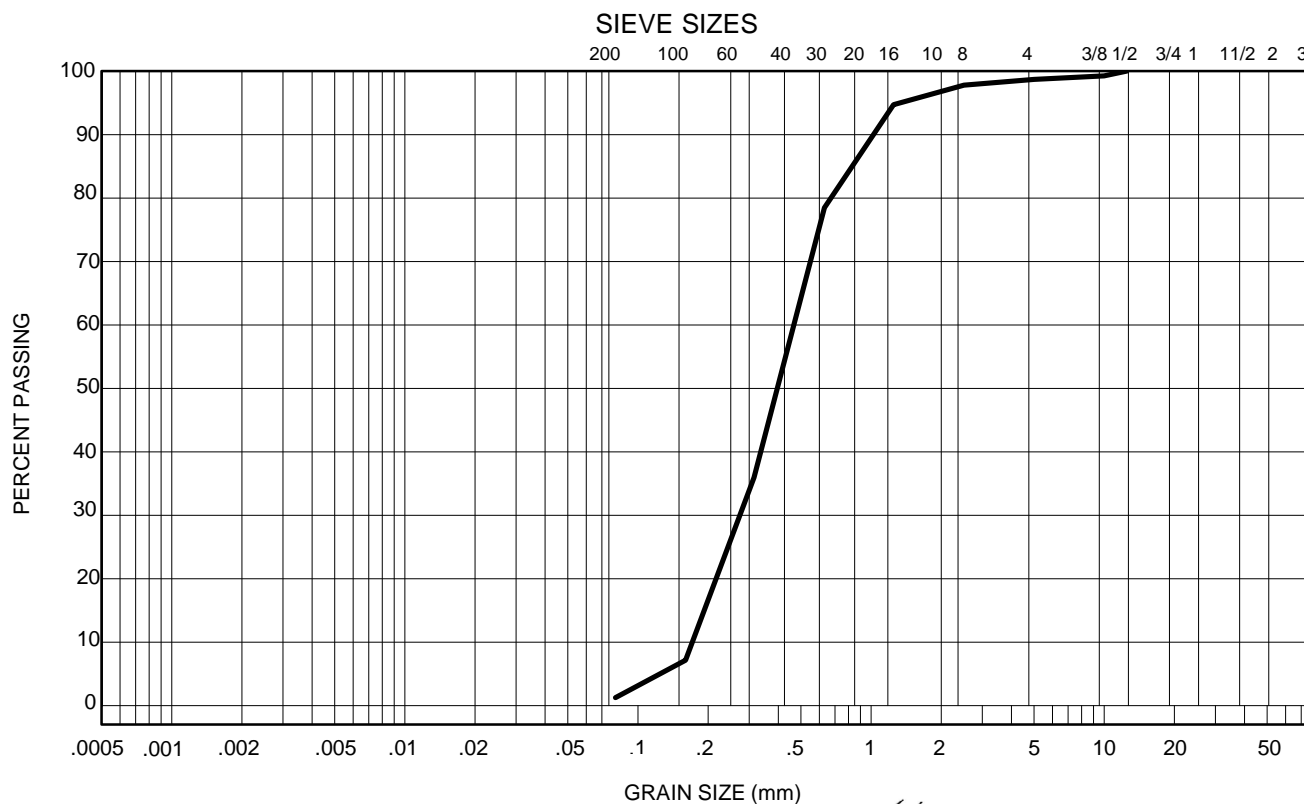
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ASTM C136 & D422

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	
25	
20	
16	
12.5	100
10	99
5	99
2.5	98
1.25	95
0.63	78
0.315	36
0.16	7
0.08	1

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: _____

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PARTICLE SIZE ANALYSIS TEST REPORT

ASTM C136 & D422

Project: Phase 3 ESA & RAP Ennadai Lake Weather Station
 Project No.: Y22101286
 Client: PWGSC Edmonton
 Attention: Michael Bernardin
 Date Tested: Sept 17-18, 2012
 Sample ID: Geotech 6 - West of Borrow 5 - Sampled by M.C. (EBA)
 Depth: 0-0.5 m
 Soil Index:
 Lab Number: 5711
 Soil Description: SAND, gravelly, trace fines
 Natural Moisture Content: 2.9%
 Remarks: Blended composite sample taken from side wall of testpit.

SIEVE SIZE (mm)	PERCENTAGE PASSING
40	100
25	93
20	88
16	86
12.5	84
10	82
5	75
2.5	67
1.25	49
0.63	26
0.315	15
0.16	7
0.08	3

* The upper clay size of 2 μ m is as per the Canadian Foundation Manual.

** The soil description is visually based, subject to EBA description protocols.

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Reviewed By: _____

Handwritten signature

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APPENDIX E

EBA'S GENERAL CONDITIONS

GENERAL CONDITIONS

GEO-ENVIRONMENTAL REPORT

This report incorporates and is subject to these “General Conditions”.

1.0 USE OF REPORT AND OWNERSHIP

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of EBA's client. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA's Client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

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2.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA's instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. The Client warrants that EBA's instruments of professional service will be used only and exactly as submitted by EBA.

Electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

3.0 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by EBA in its reasonably exercised discretion.

4.0 INFORMATION PROVIDED TO EBA BY OTHERS

During the performance of the work and the preparation of the report, EBA may rely on information provided by persons other than the Client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the Client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.