

## **Appendix B**

Lab Testing



# GEMTEC

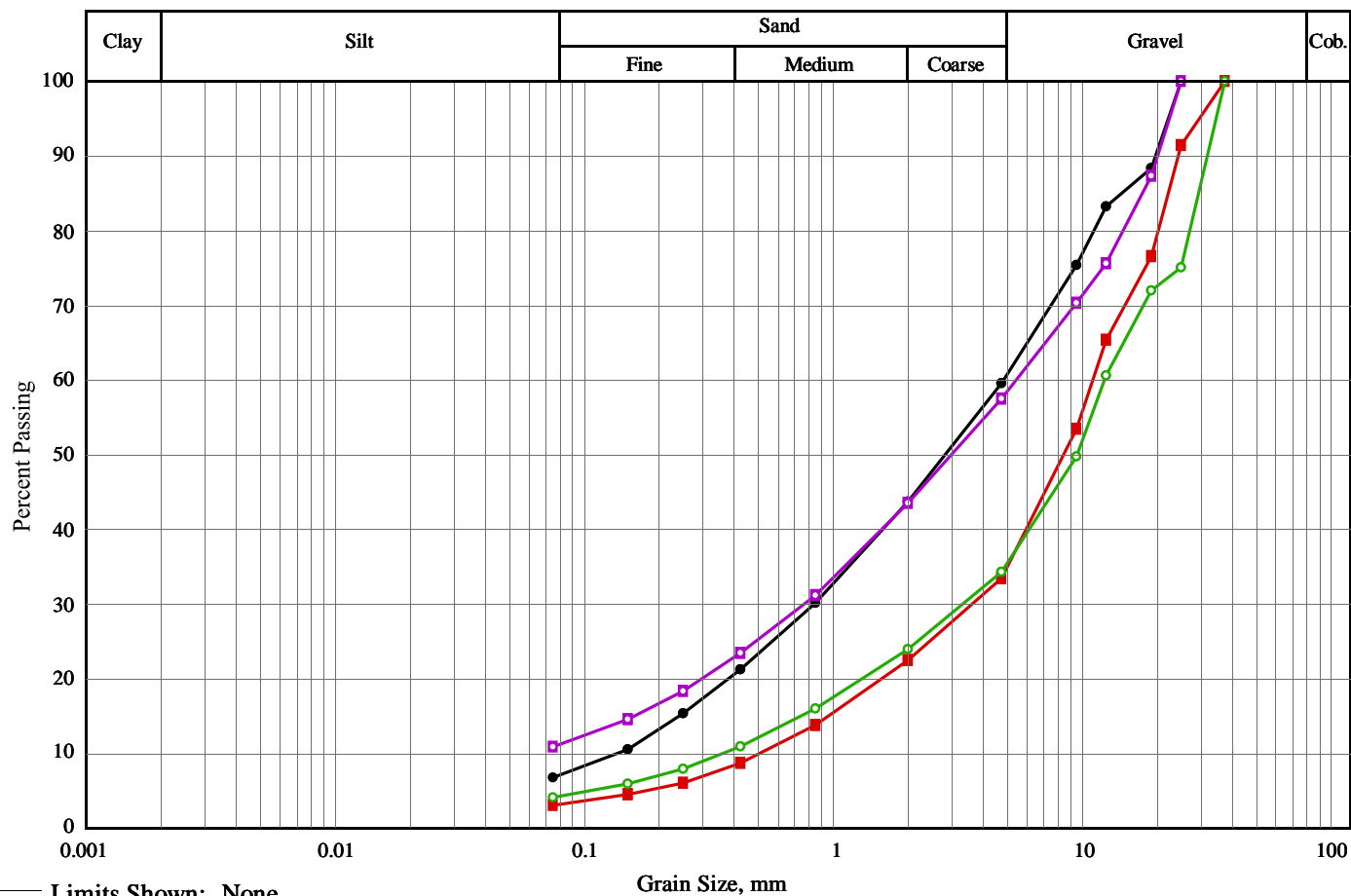
CONSULTING ENGINEERS  
AND SCIENTISTS

Client: Public Works & Government Services Canada

Project: Hueston Brook Culvert Replacement

Project #: 0473548

## Soils Grading Chart



Line Symbol	Description	Borehole/ Test Pit	Sample Number	Depth	% Cob.+ Gravel	% Sand	% Silt	% Clay	Date Sampled
—●—		1	7		40.4	52.8	6.8		15/05/13
—■—		2	2		66.6	30.4	3.1		15/05/13
—○—		2	5		65.7	30.2	4.1		15/05/13
—□—		4	5		42.5	46.6	10.9		15/05/13

Line Symbol	Sample Description	AASHTO	D <sub>10</sub>	D <sub>15</sub>	D <sub>50</sub>	D <sub>85</sub>	% 5-75µm
—●—	Sand and gravel , trace silt	A-1-a	0.14	0.24	2.82	14.44	---
—■—	Sandy gravel , trace silt	A-1-a	0.51	0.96	8.43	22.20	---
—○—	Sandy gravel , trace silt	A-1-a	0.36	0.74	9.56	29.38	---
—□—	Sand and gravel , some silt	A-1-a	---	0.16	2.99	17.48	---



# GEMTEC

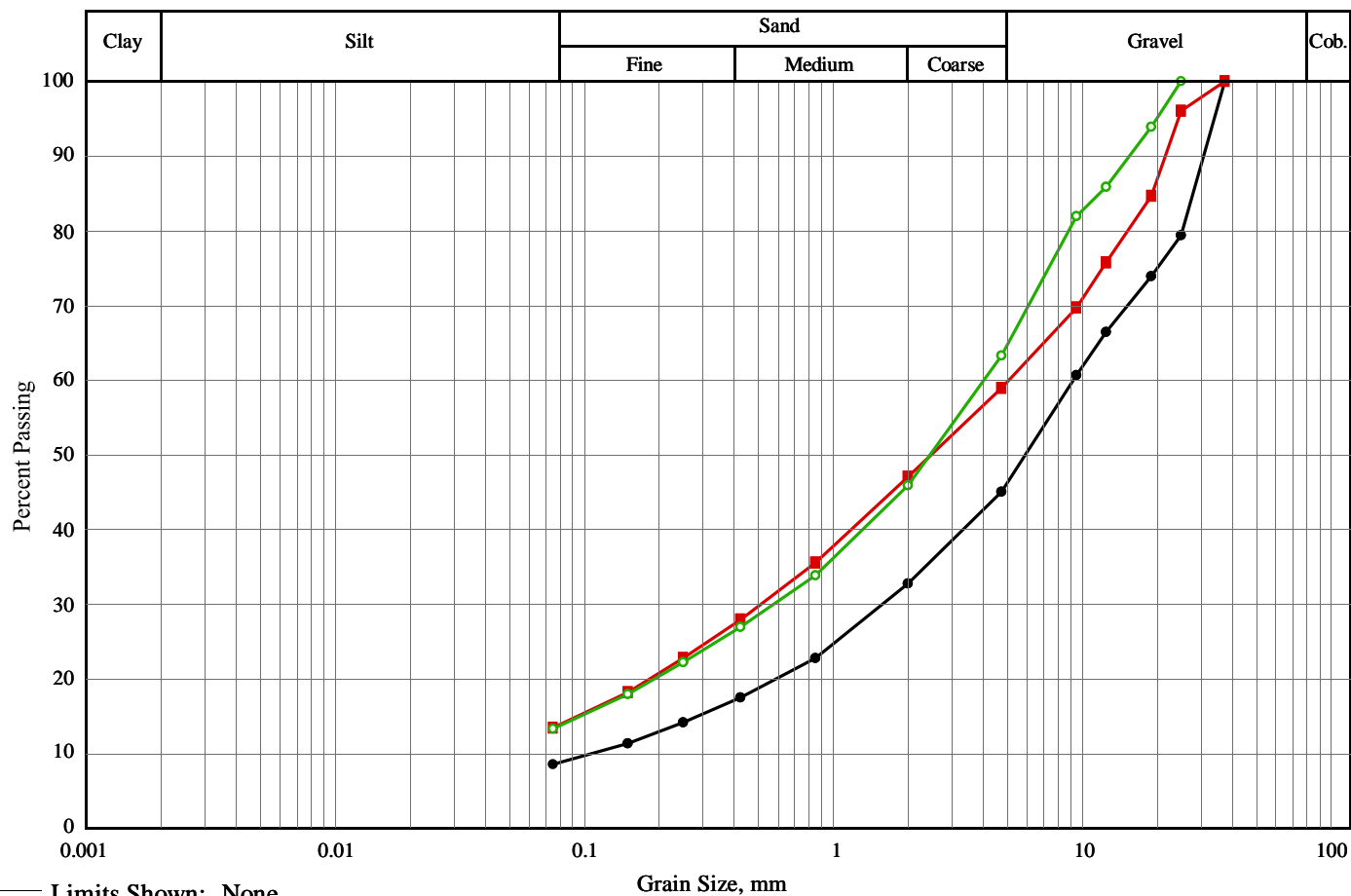
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## Soils Grading Chart



Line Symbol	Description	Borehole/ Test Pit	Sample Number	Depth	% Cob.+ Gravel	% Sand	% Silt	% Clay	Date Sampled
—●—		4	7		55.0	36.5	8.5		15/05/13
—■—		5	2		41.1	45.5	13.4		15/05/13
—○—		5	8		36.7	50.0	13.3		15/05/13

Line Symbol	Sample Description	AASHTO	D <sub>10</sub>	D <sub>15</sub>	D <sub>50</sub>	D <sub>85</sub>	% 5-75µm
—●—	Gravel and sand , trace silt	A-1-a	0.11	0.29	5.92	27.92	---
—■—	Sand and gravel , some silt	A-1-a	---	0.09	2.48	19.17	---
—○—	Sand and gravel , some silt	A-1-a	---	0.10	2.46	11.78	---

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**Moisture Content  
and Density**

Borehole: 1	Date/Time Sampled: 15/05/13 1:59:00 PM	Mass of Cont. + Wet Soil, g:	931.30
Depth:	Date/Time Tested: 15/05/13 1:59:43 PM	Mass of Cont. + Dry Soil, g:	823.80
Sample: 7		Mass of Container, g:	163.31
Description:		Moisture Content, %:	16.28
		Sample Length, mm:	
		Sample Diameter, mm:	
		Sample Mass, g:	
		Sample Volume, mm <sup>3</sup>	
		Wet Density, kg/m <sup>3</sup>	
		Dry Density, kg/m <sup>3</sup>	
Borehole: 2	Date/Time Sampled: 15/05/13 1:59:43 PM	Mass of Cont. + Wet Soil, g:	532.88
Depth:	Date/Time Tested: 15/05/13 1:59:43 PM	Mass of Cont. + Dry Soil, g:	517.00
Sample: 2		Mass of Container, g:	172.53
Description:		Moisture Content, %:	4.61
		Sample Length, mm:	
		Sample Diameter, mm:	
		Sample Mass, g:	
		Sample Volume, mm <sup>3</sup>	
		Wet Density, kg/m <sup>3</sup>	
		Dry Density, kg/m <sup>3</sup>	
Borehole: 2	Date/Time Sampled: 15/05/13 1:59:43 PM	Mass of Cont. + Wet Soil, g:	559.83
Depth:	Date/Time Tested: 15/05/13 1:59:43 PM	Mass of Cont. + Dry Soil, g:	537.80
Sample: 5		Mass of Container, g:	164.71
Description:		Moisture Content, %:	5.90
		Sample Length, mm:	
		Sample Diameter, mm:	
		Sample Mass, g:	
		Sample Volume, mm <sup>3</sup>	
		Wet Density, kg/m <sup>3</sup>	
		Dry Density, kg/m <sup>3</sup>	

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**Moisture Content  
and Density**

Borehole: 4	Date/Time Sampled: 15/05/13 1:59:43 PM	Mass of Cont. + Wet Soil, g:	480.57
Depth:	Date/Time Tested: 15/05/13 1:59:43 PM	Mass of Cont. + Dry Soil, g:	454.90
Sample: 5		Mass of Container, g:	168.91
Description:		Moisture Content, %:	8.98
		Sample Length, mm:	
		Sample Diameter, mm:	
		Sample Mass, g:	
		Sample Volume, mm <sup>3</sup>	
		Wet Density, kg/m <sup>3</sup>	
		Dry Density, kg/m <sup>3</sup>	
Borehole: 4	Date/Time Sampled: 15/05/13 1:59:43 PM	Mass of Cont. + Wet Soil, g:	813.31
Depth:	Date/Time Tested: 15/05/13 1:59:43 PM	Mass of Cont. + Dry Soil, g:	768.10
Sample: 7		Mass of Container, g:	172.55
Description:		Moisture Content, %:	7.59
		Sample Length, mm:	
		Sample Diameter, mm:	
		Sample Mass, g:	
		Sample Volume, mm <sup>3</sup>	
		Wet Density, kg/m <sup>3</sup>	
		Dry Density, kg/m <sup>3</sup>	
Borehole: 5	Date/Time Sampled: 15/05/13 1:59:43 PM	Mass of Cont. + Wet Soil, g:	1067.40
Depth:	Date/Time Tested: 15/05/13 1:59:43 PM	Mass of Cont. + Dry Soil, g:	1004.10
Sample: 2		Mass of Container, g:	208.49
Description:		Moisture Content, %:	7.96
		Sample Length, mm:	
		Sample Diameter, mm:	
		Sample Mass, g:	
		Sample Volume, mm <sup>3</sup>	
		Wet Density, kg/m <sup>3</sup>	
		Dry Density, kg/m <sup>3</sup>	

 <b>GEMTEC</b> CONSULTING ENGINEERS AND SCIENTISTS	Client	Public Works & Government Services Canada	<b>Moisture Content and Density</b>
	Project:	Hueston Brook Culvert Replacement	
	Project #:	0473548	

Borehole: 5	Date/Time Sampled:	15/05/13 1:59:43 PM	Mass of Cont. + Wet Soil, g:	719.40
Depth:	Date/Time Tested:	15/05/13 1:59:43 PM	Mass of Cont. + Dry Soil, g:	662.10
Sample: 8			Mass of Container, g:	165.45
Description:			Moisture Content, %:	11.54
			Sample Length, mm:	
			Sample Diameter, mm:	
			Sample Mass, g:	
			Sample Volume, mm <sup>3</sup>	
			Wet Density, kg/m <sup>3</sup>	
			Dry Density, kg/m <sup>3</sup>	