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Geotechnical Services
Km 1691.7 to 1717.3, Alaska Highway #1
Yukon, 2004

Volume 2
ROCK DRILLING & TEST PITTING PROGRAMS

HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J R Paine & Associates Ltd

EDMONTON ● GRANDE PRAIRIE ● PEACE RIVER ● WHITEHORSE

HOGGAN ENGINEERING & TESTING (1980) LTD.

Geotechnical Services
Km 1691.7 to 1717.3, Alaska Highway #1
Yukon, 2004

Volume 2
ROCK DRILLING & TEST PITTING PROGRAMS

Volume 2

ROCK DRILLING & TEST PITTING PROGRAMS

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SECTION 1

ROCK DRILLING PROGRAM

BORE HOLE SOILS LOGS

TEST HOLE LOG

Northing: 6769273
Easting: 635167

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30084-8 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 22 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm	0.74mm	.002mm
GRAVEL	SAND	SILT / CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		As Per Same Log 30084					
		SAND, some silt to silty	R1	1.8			
		- damp, medium dense, brown					
		- some rock chips ext. some gravel to Gravelly					
		As Above	R2	3.4			
		- possibly cleaner @ 10'					
			R3	1.55			
0.1		Increase Gravel	R4	6.4			
		- dense.					
	SD	Rock	R5	7.3	Just	Powder Due to Dynamic Seal Packer	
		- dense, light beige/grey					
		- mostly powder	R6	8.8	Grab		
9.9		E.O.H. @ 9.9					

NOTE: HOLE IS 10m South of 30084 TO AVOID LEVEL DRILLING

TEST HOLE LOG

Northing: 6769366
Easting: 635154

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30085 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 22 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		As Per Soils Log 30085					
0		Sand, some silt to Silty	R7	3.0			
		- damp, medium dense, brown					
		- some rock chips (minimal)					
-3.0	50	Rock	R8	4.3			
		- dense, grey					
		- rock chips to 20mm					
		As Above	R9	5.2			
		- rock chips to 15mm					
		As Above	R10	6.1			
		- rock chips to 5mm					
		E.O.H.e 7.0					
		HOLE IS SOUTH OF 30085 DUE TO ALIGN LOCAL DRAINAGE					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6769428
Easting: 635135

Project No: 8002-318 Test Hole No: #: 30086 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept 22/23 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

pth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		As Per Soils Log 30086					
		Sandy, some silt, some rock chips	R11	1.5			
		- damp medium dense, brown					
		Sandy, some silt to Silty, rock chips	R12	3.7			
		- moist, dense,					
		- Possibly Frozen					
		- not going through air to well, plugging up					
		Sandy, trace to some silt	R13	5.2			
		- moist, dense,					
		- Slow going, (possibly due to moisture)					
		As Above	R14	6.7			
		- trace silt, some rock chips					
		SANDY SILT (Powder)	R15	7.6			
		- some rock chips & some rounded stone				These 2 colours of	
		- light beige, dry				Powder Alternating	
						Fragments	
		As Above	R16	8.8			
		- dark grey					
			R17	10.7			
2.5		Rock	R18	12.8			

TEST HOLE LOG

Northing: 6768428
Easting: 635135

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 36086 R (PGW2) Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 22/23 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

)th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		As Above	R19	15.2			
		- minimal chips in sample due to bad diverter seal.					
		E.O.H. @ 15.5					
		NOTE: CHANGED FROM CASING BIT @ 13.4 BIT STEM + .6 OF 1ST STEM WAS WET. POSSIBLY GROUNDWATER AT BR. INTERFACE					

TEST HOLE LOG

Northing: 6769474
Easting: 635128

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30087 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: SEPT. 23 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm		.002mm
GRAVEL	SAND	SILT		CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

oth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		As Per Soils Log 30087					
		Sand, some silt, trace to some gravels	R20	2.4m			
		- damp, brown					
		Sand, some gravel to Gravelly, trace silt	R21	5.2			
		- damp, brown					
		- some rock chips					
6.1	GG	Gravelly Sand, trace silt	R22	6.7			
		- damp, brown					
		- rock chips					
			R23	8.5			
	SS	Rock	R24	10.7			
		- dry, grey					
		- mostly powder, some chips	R25	12.2			
		E.O.H. @ 12.8					
		NOTE: WHEN APPROX 7.3-10.4 BECAME WET: H2O/MUD CAME OUT OF CORE					
		POSSIBLE H2O SEAM NEAR 7.3					

TEST HOLE LOG

Northing: 6769513
Easting: 635110

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30088 B Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 23, 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
						No Samples - Top 3.0m	
		As Per Soils Log 30088				Returned	Probes
		Sandy Gravel	R26	5.4			
		- damp, brown					
		- rock chips					
			R27	5.5			
7	SO	Rock	R28	7.3			
		- dry, grey					
		- rock chips					
			R29	8.8			
		E.O.H. @ 9.8					

HOGGAN ENGINEERING & TESTING (1980) LTD.
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TEST HOLE LOG

Northing: 6769602
Easting: 635080

Project No: 8002-318 Test Hole No: #: 30089 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 24 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		As Per Soils Log 30089					
0.5	SO	Rock	R30	1.5m	-		
		- dry, grey					
			R31	2.7m			
		E.O.H. @ 3.4m					
		- Continue Drilling to 46 to Pull Casing.					

HOGGAN ENGINEERING &
TESTING (1980) LTD.
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TEST HOLE LOG

Northing: 6769661
Easting: 635065

Project No: 8002-318 Test Hole No: #: 30090 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 12 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30090					
1.5	SM	Rock	R32	2.1m		Sample From Top of Hole Cyclone Not Working	
		- dry, grey					
			R33	3.7m			
		E.O.H. @ 4.3					
		No Casing					

TEST HOLE LOG

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Northing: 6769700
Easting: 635045

Project No: 8002-318 Test Hole No: #: 30091 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 24 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30091					
1.0	So	Rock	R34	1.5		Top of hole Sample	
		- dry, grey					
			R35	3.0		Top of hole Sample	
		E.O.H. @ 4.0					
		No Casing.					

TEST HOLE LOG

Northing: 6769762
Easting: 634998

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30092 B Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept 24, 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL	SAND		SILT		CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30092					
49	50	Rock	R36	55			
		- dry, grey					
			R37	70			
		E.O.H. @ 79					

TEST HOLE LOG

Northing: 6769812
Easting: 634965

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30093 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 24 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30093					
		Sandy Silt / Silty Sand, some gravel	R38	2.4m			
		- moist, brown					
		Sandy, trace to some silt, some gravel	L39	7.6m			
		- damp to moist, brown					
		- some rock chips					
7.6	50	Possibly Rock					
		- some rock chips, some sand, minimal gravel/clust.					
	50	Rock	R40	8.8			
		- dry, grey					
			R41	10.4			
		E.O.H.e 10.7					

TEST HOLE LOG

Northing: 6769986
Easting: 634847

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30096 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 24 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30096					
						No Sample in core	
						- too wet/mud.	
		Gravelly Silty Sand	R42	7.0			
		- moist to wet, brown					
		Gravelly Sand, some silt	R43	10.1			
		- damp, brown					
0.7		Very Dense - Very Slow. No indication of Rock					
		Gravelly Silty Sand to Silty Gravelly Sand	R44	12.5			
		- damp to moist, brown					
		Possibly Rock or Gravel/ Cobble Shots	R45	14.3			
		- moist, brown					
		- Bit Freezing up (No Bounce)					
		- some rounded stone (reasoning for not Bedrock)					
		- minimal powder out core					
		E.O.H. @ 14.3					

TEST HOLE LOG

Northing: 6770133
Easting: 634803

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30097 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: SEPT. 24 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30097				No Sample TOP 6.7	
						DUE TO PLUGGED CIRC.	
		Rock Boulder at TOP 10'-12'					
		Gravelly Sandy Silt to Gravelly Silt Sand	R46	6.7			
		- wet, brown					
		- some rock chips					
			R47	9.1			
	dg	Gravelly Sand, some silt to Silty					
		- damp to moist, brown	R48	10.4			
2.5	dg	Sandy Gravel, trace to some silt	R49	12.8			
		- damp, brown					
			R50	14.9			
		E.O.H.e 15.2					

TEST HOLE LOG

Northing: 6770540
Easting: 634627

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30100 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 25 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm		0.74mm		.002mm
GRAVEL	SAND		SI	LT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As for Soil Loc. 30100					
	da	Rock	RS1	14.0			
		-soft, dense, brown w/ purple hue					
	da	Rock	RS2	15.8			
		-dry, grey w/ purple hue					
		E.O.H. @ 16.2					
		Air Hose Plugged @ 13.1m. Stopped to Clean. Air Hose. Broken Section (Air Leak).					

TEST HOLE LOG

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

Northing: 6770659
Easting: 634653

Project No: 8002-318 Test Hole No: #: 30101 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 25 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" GRAVEL 5mm	SAND 0.74mm	SILT .002mm	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30101					
2.4	50	Rock	R53	4.0		(Top of Hole Sample)	
		- dry, grey					
		E.O.H @ 4.6					

TEST HOLE LOG

Northing: 6770744
Easting: 634647

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30102 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 25 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soil Log					
1.2	SS	Rock	RS4	1.8			
		- dry, grey					
			RS5	3.4			
		E.O.H. @ 4.3					

TEST HOLE LOG

Northing: 6770854
Easting: 634648

Project No: 8002-318 Test Hole No: #: 30103 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 25 2004

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration,TSF
0		As Per Soils Log 30103					
	50	Rock	R56	4.0			
		- dry, grey					
			R57	5.5			
		E.O.H.e 7.3					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6770967
Easting: 634664

Project No: 8002-318 Test Hole No: #: 30104 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: SEPT. 25 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soil Log 30104					
	So	Rock	RSB	4.6		Top of Hole Sample	
		- dry, grey					
			RS9	6.1		Core Sample	
		End 7.0					

TEST HOLE LOG

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Northing: 6771151
Easting: 634529

Project No: 8002-318 Test Hole No: #: 30105 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 26 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration,TSF
0		As Per Soils Log 30105					
	50	Rock	RC4	5.2			
		- dry, grey					
			RC5	6.7			
		E.O.H. @ 7.6					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6771014
Easting: 634672

Project No: 8002-318 Test Hole No: #: 30106 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept 26 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30106					
1.2	30	Rock (Possibly Fractured/Broken to 1.5m)	R60	2.1		Core Sample	
		- dry, grey					
			R61	3.7		Core Sample	
		E.O.H @ 4.6					

TEST HOLE LOG

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

Northing: 6771070
Easting: 634575

Project No: 8002-318 Test Hole No: #: 30107 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 26 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm | 0.74mm | .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration,TSF
0		As Per Soils Log 30107					
1.2	50	Rock	R62	2.1		Cone Sample	
		- dry, grey					
			R63	3.4		Cone Sample	
		E.O.H. @ 4.3					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6771629
Easting: 634480

Project No: 8002-318   Test Hole No: #: 30HM R   Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W.   Date: Sept. 26 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm | 0.74mm | .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet	MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense	CONSISTENCY - soft, firm, stiff, hard
GRADATION - poorly or well graded	PLASTICITY - low, medium, high
SIZE RANGE - coarse, medium, fine	COLOR -
COLOR -	INTRUSIONS - oxides, coal lumps, etc.
INTRUSIONS - oxides, coal lumps, etc.	

TILL - heterogeneous mixture of gravel, sand, silt, and clay   COBBLE - 3" - 8"   BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0							
1		Rock	R66	1.8		Top o Hole	
		- dry, grey					
			R67	3.4		Top of Hole	
		E.O.H. @ 4.0					

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6771772
Easting: 634470

Project No: 8002-318 Test Hole No: #: 30112 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept 26 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Sample 30112					
	SD	Rock (Possibly Fractured at Surface) Some Sand in Boulder					
		- dry, grey					
		- Intact 4.0	R68	4.3			
		E.O.H. @ 4.6					

TEST HOLE LOG

Northing: 6771880
Easting: 634441

Project No: 8002-318 Test Hole No: #: 30113 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 26 2004

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

"	5mm		0.74mm		.002mm
GRAVEL	SAND		SILT		CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30113					
	SO	Rock					
	SO	Intact	R69	4.0		Top of Hole	
		End of Hole					

TEST HOLE LOG

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Northing: 6772023
Easting: 634886

Project No: 8002-318 Test Hole No: #: 30114B Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 27, 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

GRAVEL (5mm)	SAND (0.74mm)	SILT (.002mm)	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay
COBBLE - 3" - 8"
BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30114					
3	50	Rock					
		- Possibly fractured w/ some sand in-fill					
		- medium dense					
		Rock	R70	4.3			
		- intact					
		E.O.H. @ 4.6m					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6772108
Easting: 634337

Project No: 8002-318 Test Hole No: #: 30115 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 27 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm		.002mm
GRAVEL	SAND		SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Logs 30115					
	SO	Rock or Boulder / Cobbles					
		- light brown / grey					
		-					
3.4	SO	Rock	R73	3.7			
		- Some powder (not fine)					
		- Some sand in sample					
		- water on stem when withdrawn					
		- medium dense rock					
		E.O.H. @ 4.6					

TEST HOLE LOG

Northing: 6772107
Easting: 634309

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30116 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 27 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Sonic Log 30116					
		- Dated powder & rock chips @ 1.5m					
	SI	Rock - Fractured FR ≈ 3.0	R71	40			
		- Still some sand coming out core/up hole.					
		- dry, grey.					
		- medium dense rock					
		E.O.H. @ 4.6m					

TEST HOLE LOG

Northing: 6772253
Easting: 634224

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30117 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 27 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

"	5mm		0.74mm		.002mm
GRAVEL	SAND		SILT		CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Sonic Log 30117					
	SA	Rock or Gravel Stuff:	R72	6.1			
		- brown, dry					
		- not much powder, possibly softer rock					
		- some round stone in sample (not fractured)					
		E.O.H @ 6.7					

TEST HOLE LOG

Northing: 6772271
Easting: 634188

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30118' N2 Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 27 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm	0.74mm	.002mm
GRAVEL	SAND	SILT / CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30118					
2	30	Rock	R74	4.3		Top of hole Sample	
		- Powdery, grey, dry					
		- lots of rock chips					
		E.O.H. @ 4.6					

TEST HOLE LOG

Northing: As Per 30121 Soil
Easting:

Project No: 8002-318 Test Hole No: #: 30121 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept 17 2004

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm	0.74mm	.002mm
GRAVEL	SAND	SILT / CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30121					
	SO	Rock	R75	4.6			
		- dry, grey					
		- some powder					
		- medium dense rock	R76	7.0			
		E.O.H. @ 7.6					

TEST HOLE LOG

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Northing: 6772688
Easting: 633923

Project No: 8002-318 Test Hole No: #: 30122 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 27 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" GRAVEL 5mm	SAND 0.74mm	SILT .002mm	CLAY

MOISTURE CONTENT - dry, damp, moist, wet	MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense	CONSISTENCY - soft, firm, stiff, hard
GRADATION - poorly or well graded	PLASTICITY - low, medium, high
SIZE RANGE - coarse, medium, fine	COLOR -
COLOR -	INTRUSIONS - oxides, coal lumps, etc.
INTRUSIONS - oxides, coal lumps, etc.	

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As per Soils Log 30122					
		Silty Sandy Gravel	R77	6.7		Top of hole sample - [illegible]	
		EOH @ 7.6m No Rock					
		Rock TH approx. 1m higher in elevation due to					
		creek xing being too soft & when ground pressured					
		soil TH would erupt w/ swamp mud.					

TEST HOLE LOG

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

Northing: 6773197
Easting: 622698

Project No: 8002-318 Test Hole No: #: 30126 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 28 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

ɔth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration,TSF
0		As Per Soils Log 30126					
	50	Rock	R78	3.0			
		- dry, grey					
		- medium dense to dense rock.					
			R79	4.3			
		E.O.H. @ 4.6m					

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6773336
Easting: 633614

Project No: 8002-318 Test Hole No: #: 30127 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: SEPT. 28 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" — 5mm — 0.74mm — .002mm

GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet	MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense	CONSISTENCY - soft, firm, stiff, hard
GRADATION - poorly or well graded	PLASTICITY - low, medium, high
SIZE RANGE - coarse, medium, fine	COLOR -
COLOR -	INTRUSIONS - oxides, coal lumps, etc.
INTRUSIONS - oxides, coal lumps, etc.	

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As per Soils Log 30127					
	50	Silty Sand (Cannot determine rock)	R80	4.9			
		- dry to damp, brown / grey					
		- minimal chips in sample					
		- mat'l has minimal boulder, more fine sands	R81	7.0			
		- drill advanced steadily - not hard drilling.					
		EOH @ 7.6					

TEST HOLE LOG

Northing: 6773477
Easting: 633527

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30129 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 28 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As per Survey Log 30129					
7	SO	Sandy Gravel. (Not Identified if Rock)	R82	5.2			
		- dry, brown/grey					
		- some chips, Minimal powder					
		- steady drilling.					
7.6	SO	Rock	R83	7.3			
		- significant powder					
		- grey, dry					
		End @ 7.6					

TEST HOLE LOG

Northing: 6773655
Easting: 633418

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30131 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 28 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30131					
	So	Rock	RB4	4.0			
		- dry, grey					
		- significant powder					
		- minimal rock chips					
		As Above	RB5	5.8			
		- increase rock chips					
		E.O.H. @ 6.1					

TEST HOLE LOG

Northing: 6773786
Easting: 633333

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30132 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 28 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm	0.74mm	.002mm
GRAVEL	SAND	SILT / CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30132					
	so	Rock (Possibly Fractured)					
		- dry, grey w/ edel brown seams					
	sa	Rock (Silty)	R86	4.6			
		- dry, grey					
		- significant powder					
		- rock chips					
			R87	6.1			
		EOH @ 6.1					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6773908
Easting: 633264

Project No: 8002-318 Test Hole No: #: 30133 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: SEPT 28 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm		.002mm
GRAVEL	SAND	SILT		CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

pth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soil Log 30133					
4	SO	Rock	R88	4.0			
		- dry, grey					
		- significant powder					
		- rock chips					
		- more intact (slower drilling w/ depth)					
		E.O.H. @ 4.6					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6774009
Easting: 633155

Project No: 8002-318 Test Hole No: #: 30134 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept 28 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" — GRAVEL — 5mm — SAND — 0.74mm — SILT — .002mm — CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration,TSF
0		As Per Sur Log 30134					
	50	Rock	R89	2.1		Top of hole xmostly	Sample chips
		- dry, grey					
		- significant powder.					
1		- rock chips	R90	4.0			
		EOH @ 4.0					

TEST HOLE LOG

Northing: 6774140
Easting: 633064

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30135 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: SEPT 28 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm	0.74mm	.002mm
GRAVEL	SAND	SILT / CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soil Log 30135					
2	SO	Rock					
		- Possibly fractured (some brownish sand/powder seams)					
		- some powder					
5.7	DG	Rock	R91	40		Too of Hole	Sample
		- INTACT				- MOSTLY	Chips
		- powdery, rock chips					
		- dry, grey					
		E.O.H. @ 46					

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6774199
Easting: 633004

Project No: 8002-318 Test Hole No: #: 30136 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept 28 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

GRAVEL	5mm SAND	0.74mm SILT	.002mm CLAY

MOISTURE CONTENT - dry, damp, moist, wet	MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense	CONSISTENCY - soft, firm, stiff, hard
GRADATION - poorly or well graded	PLASTICITY - low, medium, high
SIZE RANGE - coarse, medium, fine	COLOR -
COLOR -	INTRUSIONS - oxides, coal lumps, etc.
INTRUSIONS - oxides, coal lumps, etc.	

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration,TSF
0		As Per Soil Log 30136					
4	50	Rock	R92	3.0			
		-dry, grey					
		-more intact w/ depth					
		-significant powder, rock chips					
			R93	4.3			
		E.O.H. @ 4.6					

TEST HOLE LOG

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Northing: 6775671
Easting: 631981

Project No: 8002-318 Test Hole No: #: 30149 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 30 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" | 5mm | 0.74mm | .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

pth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration,TSF
0		As Per Soils Log 30149					
3		Rock	127	5.2			
		- dry, grey					
		- significant powder, rock chips					
		- slow steady drilling					
			125	7.6			
		E.O.H. @ 7.6					

TEST HOLE LOG

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Northing: 6775744
Easting: 631923

Project No: 8002-318 Test Hole No: #: 30150R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 30 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

...th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
...0		As Per Soil Log 30150					
...5		Silty Sand, some gravel	[redacted]	11.6			
		- dry to damp, grey/brown					
...1.7		Silty sandy sand (powder) [possible rock]	R122	13.7			
		- dry, grey					
		- steady drilling					
		- minimal chips, mostly powder	R123	16.5			
		E.O.H. @ 16.8					

TEST HOLE LOG

Northing: 6775818
Easting: 631865

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30151 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 30 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm		0.74mm		.002mm
GRAVEL	SAND		SILT		CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30151					
		Sandy, some silt to Silty, some gravel - damp, brown	R112	4.3			
		Gravelly Sandy, some silt - dry, brown					
6.1		Sandy, some silt - dry to damp, brown	R113	6.1			
		Sandy, some gravel, some silt - dry to damp, brown	R114	8.5			
		Sandy, trace to some silt, trace gravel - damp, brown	R115	10.1			
13.4		Sandy Gravel, trace silt - damp, brown					
		Gravelly Sandy, some silt to Silty - damp, brown					

TEST HOLE LOG

Northing: 6775818
Easting: 631865

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30151 & Rep 2 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
11.3		Silty Sand / Sandy Silt	R116	11.9			
		- dry, brown					
		- powdery					
12.8		Sand, some silt to Silty (Possibly the same as above but not pulverized and driest from compressor -	R117	13.1			
		- damp, dark brown					
		Silty Sand / Sandy Silt, (Possible rock?) - No	R118	14.6			
		- dry, grey					
		- minimal chips (if at all), almost pure powder / fine sand					
		Sand, some silt to Silty	R119	15.2			
		- dry to damp, grey					
15.8		Silty Sand, some gravel (CANNOT DETERMINE IF ROCK)	R120	18.3			
		- dry, grey					
		- some powder, some rock chips					
		- easy drilling, lots of discharge					
		E.O.H. @ 19.8					
		NOTE: STEAM WET BELOW 13.4 ON WITHDRAWAL					

TEST HOLE LOG

Northing: 6776014
Easting: 631723

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30153 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: SEPT. 30 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Sonic Log 30153					
		Sand, some silt	R108	8.2			
		- dry to damp, light brown					
		Silty Sand	R109	10.1			
		- dry, light grey/brown					
		- some powder, no chips					
	50	Silt, some sand ?	R110	12.2			
		- dry, dark brown					
		- powdery					
		- easy drilling					
	50	Rock	R111	15.2			
		- dry, grey					
		- steady drilling					
		- significant powder, rock chips					
		E.O.H. @ 16.2					

TEST HOLE LOG

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Northing: As Per 30154 Soils
Easting:

Project No: 8002-318 Test Hole No: #: 30154 R2 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 29 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30154					
7		Silty Sand, to Sand, some silt	R105	11.0			
		- dry to damp, brown					
		- slow drilling					
12 8	SO	Rock (Potential Boulder / Fractured Bedrock)	R106	13.1			
		- dry, grey					
		- significant powder / chips					
		- steady drilling					
0	SA	Sand, some silt	R07	14.6			
		- dry to damp, brown					
		E.O.H. @ 15.2					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6776114
Easting: 631648

Project No: 8002-318 Test Hole No: #: 30155 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: SEPT. 29 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

"	5mm		0.74mm		.002mm
GRAVEL	SAND		SILT		CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30155					
		Sandy Gravel, trace to some silt	R101	8.5			
		- damp to moist, brown					
4	dg	Gravelly Sand, some silt	R102	10.7			
		- damp, brown					
1.4	dg	Sand, some silt to Silty, some gravel	R103	12.3			
		- damp, brown/grey					
		- very slow drilling (hammer plugging)					
	dg	Sand, some silt to Silty	R104	15.2			
		- damp, brown					
		- very slow drilling (hammer plugging)					
		E.O.H. @ 15.2					
		No indication of Rock					

TEST HOLE LOG

Northing: 6776190
Easting: 631591

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30156 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 29 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30156					
12.1		Silty Sand - damp, grey - steady drilling - no significant rock chips or powder	R99 R100	14.6 16.8		Depth may be off as hose was plugged.	
		E.O.H. @ 19.8					

TEST HOLE LOG

Northing: 6776191
Easting: 631651

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30157R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 29 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30157					
		Sandy Gravel, trace silt. - dry, brown/grey	R98	6.7			
		E.O.H. @ 7.0					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6776266
Easting: 631560

Project No: 8002-318 Test Hole No: #: 30158 R Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location:
Log By: R.W. Date: Sept. 29 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30158					
		Gravelly Sand, trace silt	R94	7.0			
		- moist to wet (Frozen), brown					
			R95	9.1			
	SO	Sand, trace to some silt	R96	11.3			
		- dry to damp, brown					
		- steady drilling					
			R97	13.7			
		E.O.H.@ 13.7					

TEST HOLE LOG

Northing: 6776361
Easting: 631515

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30159 R Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location:

Log By: R.W. Date: Sept. 29 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

"	5mm		0.74mm		.002mm
GRAVEL	SAND		SILT		CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

th	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		As Per Soils Log 30159					
							43.045
		NOTE: = 9.8 STEM PUSHED IN, W/ MINIMAL HAMMERING					
		For = 12					
		= 12.5 STEM PUSHED IN W/ MINIMAL HAMMERING					
		E.O.H. @ 13.7 - LAST 10' STEM HAD STRIPPED THREADS					

HOGGAN ENGINEERING & TESTING (1980) LTD.

MOISTURE CONTENT RESULTS

J.R. Paine & Associates Ltd.

CONSULTING AND TESTING ENGINEERS

MOISTURE ANALYSIS

Project: Geotechnical Services

Client: YTG - Highways & Public Works, Transportation & Engineering

Made By: MI

Job No: 8002-318

Location: Km 1691-7-1717.3, Alaska Hwy

Ck'd By:

Date: 10/10/2004

SAMPLE #	R5	R6	R7	R10	R18	R19
TEST HOLE #	30084R	30084R	30085R	30085R	30086R	30086R
DEPTH (metres)	7.3	8.8	3.0	6.1	12.8	15.2
MOISTURE CONTENT %	0.3	0.3	4.1	0.2	0.8	1.0
SAMPLE #	R22	R23	R24	R25	R27	R28
TEST HOLE #	30087R	30087R	30087R	30087R	30088R	30088R
DEPTH (metres)	6.7	8.5	10.7	12.2	5.5	7.3
MOISTURE CONTENT %	9.9	5.0	3.1	1.3	1.3	0.7
SAMPLE #	R29	R30	R31	R32	R33	R34
TEST HOLE #	30088R	30089R	30089R	30090R	30090R	30091R
DEPTH (metres)	8.8	1.5	2.7	2.1	3.7	1.5
MOISTURE CONTENT %	0.8	0.5	0.4	1.9	0.5	0.8
SAMPLE #	R35	R36	R37	R40	R41	R44
TEST HOLE #	30091R	30092R	30092R	30093R	30093R	30096R
DEPTH (metres)	3.0	5.5	7.0	8.8	10.4	12.5
MOISTURE CONTENT %	0.3	4.5	0.5	0.8	2.9	8.7
SAMPLE #	R45	R46	R47	R48	R49	R50
TEST HOLE #	30096R	30097R	30097R	30097R	30097R	30097R
DEPTH (metres)	14.3	6.7	9.1	10.4	12.8	14.9
MOISTURE CONTENT %	2.9	13.3	13.6	9.9	2.4	2.7
SAMPLE #	R51	R52	R53	R54	R55	R56
TEST HOLE #	30100R	30100R	30101R	30102R	30102R	30103R
DEPTH (metres)	14.0	15.8	4.0	1.8	3.4	4.0
MOISTURE CONTENT %	6.0	2.5	1.9	1.4	0.4	1.1
SAMPLE #	R57	R58	R59	R60	R61	R62
TEST HOLE #	30103R	30104R	30104R	30106R	30106R	30107R
DEPTH (metres)	5.5	4.6	6.1	2.1	3.7	2.1
MOISTURE CONTENT %	0.5	2.6	0.8	1.3	0.8	0.5
SAMPLE #	R63	R64	R65	R66	R67	R68
TEST HOLE #	30107R	30105R	30105R	30111R	30111R	30112R
DEPTH (metres)	3.4	5.2	6.7	1.8	3.4	4.3
MOISTURE CONTENT %	0.3	0.9	0.7	1.0	0.8	1.0
SAMPLE #	R69	R70	R71	R72	R73	R74
TEST HOLE #	30113R	30114R	30116R	30117R	30115R	30118R
DEPTH (metres)	4.0	4.3	4.0	6.1	3.7	4.3
MOISTURE CONTENT %	2.4	2.3	2.2	1.6	1.2	1.0
SAMPLE #	R75	R76	R77	R78	R79	R80
TEST HOLE #	30121R	30121R	30122R	30126R	30126R	30127R
DEPTH (metres)	4.6	7.0	6.7	3.0	4.3	4.9
MOISTURE CONTENT %	1.3	1.4	6.2	1.3	1.3	3.3

J.R. Paine & Associates Ltd.

CONSULTING AND TESTING ENGINEERS

MOISTURE ANALYSIS

Project: Geotechnical Services

Client: YTG - Highways & Public Works, Transportation & Engineering

Made By: MI

Job No: 8002-318

Location: Km 1691-7-1717.3, Alaska Hwy

Ck'd By:

Date: 10/10/2004

SAMPLE #	R81	R82	R83	R84	R85	R86
TEST HOLE #	30127R	30129R	30129R	30131R	30131R	30132R
DEPTH (metres)	7.0	5.2	7.3	4.0	5.8	4.6
MOISTURE CONTENT %	4.2	3.4	3.5	1.6	0.6	0.6
SAMPLE #	R87	R88	R89	R90	R91	R92
TEST HOLE #	30132R	30133R	30134R	30134R	30135R	30136R
DEPTH (metres)	6.1	4.0	2.1	4.0	4.0	3.0
MOISTURE CONTENT %	0.3	2.1	0.9	0.7	1.1	0.5
SAMPLE #	R93	R94	R95	R96	R97	R98
TEST HOLE #	30136R	30158R	30158R	30158R	30158R	30157R
DEPTH (metres)	4.3	7.0	9.1	11.3	13.7	6.7
MOISTURE CONTENT %	0.7	2.8	2.7	4.0	3.3	1.2
SAMPLE #	R99	R100	R101	R102	R103	R104
TEST HOLE #	30156R	30156R	30155R	30155R	30155R	30155R
DEPTH (metres)	14.6	16.8	8.5	10.7	12.8	15.2
MOISTURE CONTENT %	2.9	2.6	3.9	2.8	3.4	9.0
SAMPLE #	R105	R106	R107	R108	R109	R110
TEST HOLE #	30154R	30154R	30154R	30153R	30153R	30153R
DEPTH (metres)	11.0	13.1	14.6	8.2	10.1	12.2
MOISTURE CONTENT %	5.0	4.0	3.2	4.0	2.6	4.2
SAMPLE #	R111	R112	R113	R114	R115	R116
TEST HOLE #	30153R	30151R	30151R	30151R	30151R	30151R
DEPTH (metres)	15.2	4.3	6.1	8.5	10.1	11.9
MOISTURE CONTENT %	2.2	9.8	5.6	3.9	4.3	4.6
SAMPLE #	R117	R118	R119	R120	R121	R122
TEST HOLE #	30151R	30151R	30151R	30151R	30150R	30150R
DEPTH (metres)	13.1	14.6	15.2	18.3	11.6	13.7
MOISTURE CONTENT %	9.7	2.9	5.0	3.9	2.4	1.7
SAMPLE #	R123	R124	R125			
TEST HOLE #	30150R	30149R	30149R			
DEPTH (metres)	16.5	5.2	7.6			
MOISTURE CONTENT %	1.4	0.9	0.9			
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						

LABORATORY SAMPLE PHOTOS

R5

R6

R7

R10

R18

R19

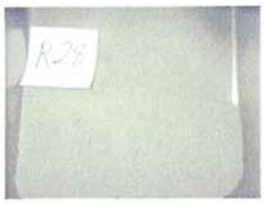
R22

R23

R24

R25

R27



R28

R29

R30

R31

R32

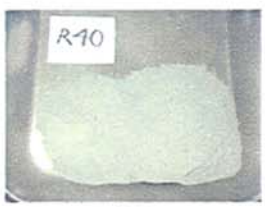
R33

R34

R35

R36

R37



R40

R41

R44

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R125

SECTION 2

TEST PIT PROGRAM

Km 1699+700 LHS

TEST PIT SOILS LOGS

TEST HOLE LOG

Northing: 6764614
Easting: 636645

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30177 Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location: 1699+700 LHS

Log By: R.W. Date: Aug 10 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		Sandy GRAVEL, trace to some silt	TP1 ✓	0.8-1.3			
		- damp, medium dense, brown					
		- cobbles & boulders 20-40% vol					
		- boulders to 0.75m					
		- organics noted throughout					
			TP2 ✓	2.0-2.4			
			TP3 ✓	3.0-3.3			
			TP4 ✓	4.5-4.8			
		* MOSTLY A GRANITE TYPE ROCK: VERY SOUND. WHITE W/ BLACK SPOTS					
		E.O.H. @ 4.8m					
		2 PHOTOS OF EXC BASE					
		1 PHOTO SAMPLE PILES					
		2 ROCK PHOTOS					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6764616
Easting: 636697

Project No: 8002-318 Test Hole No: #: 30178 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Km 1699+700 L45
Log By: R.W. Date: AUG. 10 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
2		Sandy GRAVEL, trace to some silt	TP5 ✓	0.8-1.3			
		-damp, medium dense, brown					
		-cobble & boulders - 10 - 30% Vol					
		- boulders to 0.6m dia					
		-organics noted throughout					
			TP6 ✓	2.2-2.5			
2.8	do	AS ABOVE	TP7 ✓	3.0-3.5			
		-damp.					
2	do	Sandy GRAVEL, some silt	TP8 ✓	4.3-4.8			
		- damp, to moist, medium dense, brown					
		- slight increase in fine sands & silts					
		E.O.H @ 4.9m					
		2 photos exc. Base					
		1 photo Sample Pile					

TEST HOLE LOG

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Northing: 6764619
Easting: 636749

Project No: 8002-318 Test Hole No: #: 30179 Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location: 1699+700 L4S

Log By: R.W. Date: Aug 10 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

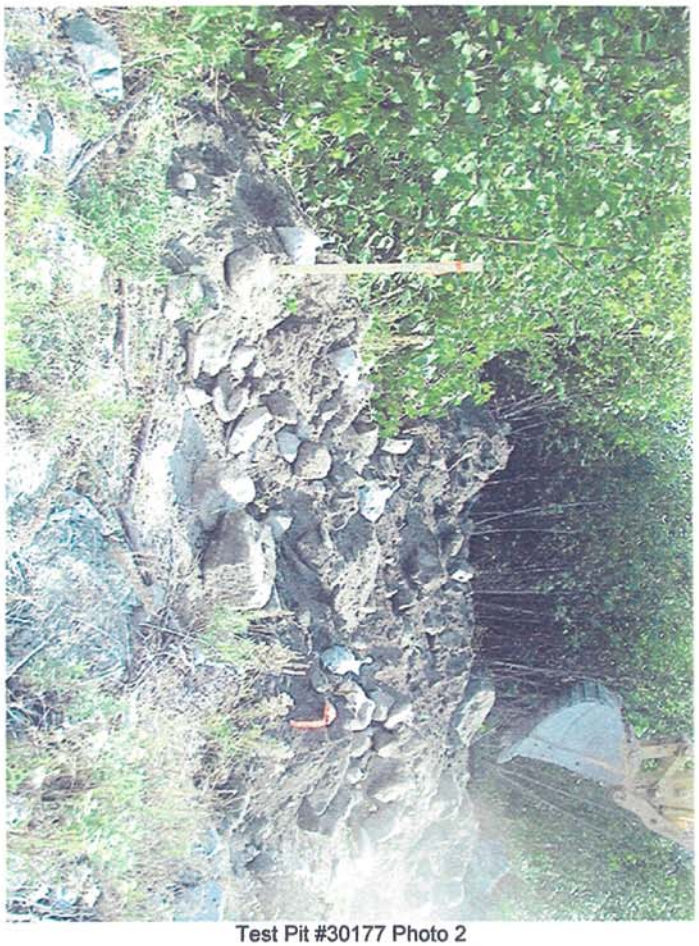
MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
2		Sandy GRAVEL, trace to some silt	TP9 ✓	0.5-1.0			
		- damp, medium dense, brown					
		- cobbles & boulders 10-30% Vol					
		- boulders to 0.6m dia					
		- organics noted throughout					
			TP10 ✓	1.8-2.3			
30	do	AS ABOVE	TP11 ✓	3.2-3.5			
		- slight decrease silt (midway)					
			TP12 ✓	4.5-5.0			
		E.O.H. @ 5.0m					
		2 PHOTOS OF EXC. BASE					
		1 PHOTO OF SAMPLE PILES					

TEST PIT PHOTOS

Test Pit #30177 Photo 1



Test Pit #30177 Photo 2

Test Pit #30177 Photo 3

Test Pit #30177 Photo 4

Test Pit #30177 Photo 5

Test Pit #30178 Photo 1

Test Pit #30178 Photo 2

Test Pit #30178 Photo 3

Test Pit #30179 Photo 1

Test Pit #30179 Photo 2

Test Pit #30179 Photo 3

HOGGAN ENGINEERING & TESTING (1980) LTD.

MOISTURE CONTENT RESULTS

J.R. Paine & Associates Ltd.

CONSULTING AND TESTING ENGINEERS

MOISTURE ANALYSIS

Project: Geotechnical Services-Shakwak

Client: YTG - Highways & Public Works, Transportation & Engineering

Made By: MD   Job No: 8002-318

Location: Km 1699+700 LHS

Ck'd By: Date: August 4, 2004

SAMPLE #	TP1	TP2	TP3	TP4	TP5	TP6
TEST HOLE #	30177	30177	30177	30177	30178	30178
DEPTH (metres)	0.8-1.3	2.0-2.4	3.0-3.3	4.5-4.8	0.8-1.3	2.2-2.5
MOISTURE CONTENT %	3.9	5.2	5.0	4.7	1.4	3.3
SAMPLE #	TP7	TP8	TP9	TP10	TP11	TP12
TEST HOLE #	30178	30178	30179	30179	30179	30179
DEPTH (metres)	3.0-3.5	4.3-4.8	0.5-1.0	1.8-2.3	3.2-3.5	4.5-5.0
MOISTURE CONTENT %	4.8	5.6	3.2	5.8	6.6	6.3
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
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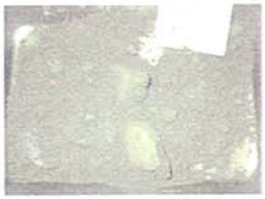
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						

LABORATORY SAMPLE PHOTOS



TP 1

TP 2

TP 3

TP 4

TP 5

TP 6

TP 7

TP 8

TP 9

TP 10

TP 11

GRAIN SIZE ANALYSES RESULTS

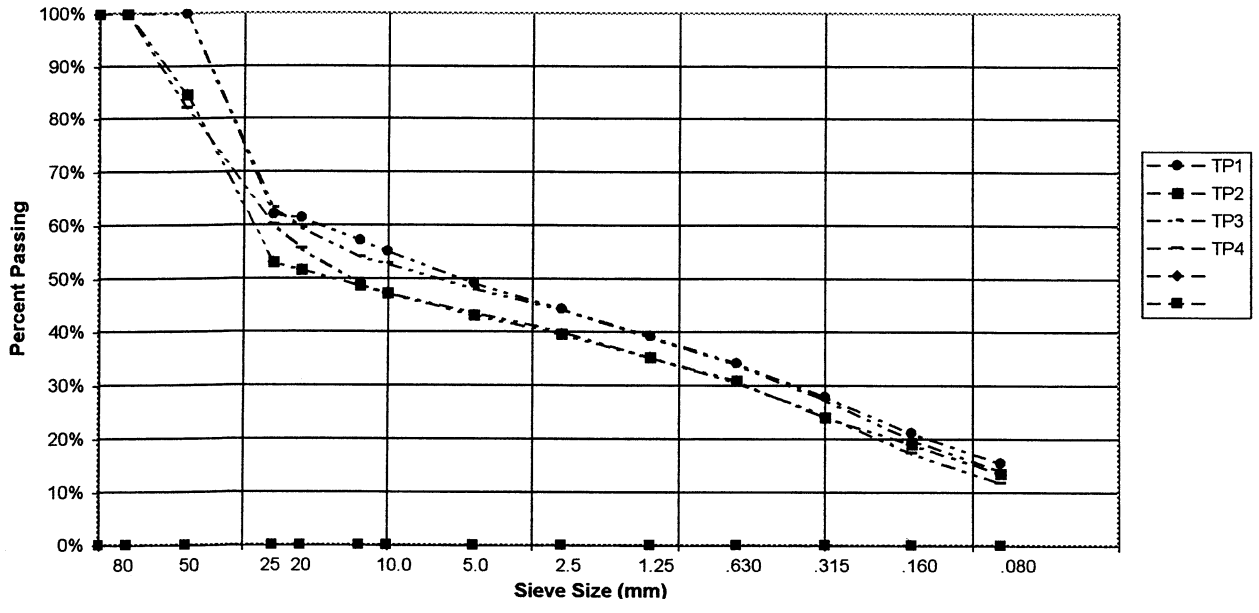
HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. H. Paine & Associates Ltd.

PROJECT NUMBER:	8002-318	HOLE No.: 30177
CLIENT:	YTG, Transportation & Engineering	
PROJECT NAME:	Geotechnical Services	
PROJECT LOCATION:	Km 1691.7-1717.3	
DRILL UNIT:	Cat 318C Excavator	
HOLE LOCATION:	636646-6764614	
LOGGED BY:	RW	DATE COMP: 08/10/2004

FIELD NO:	TP1	TP2	TP3	TP4		
LAB NO:	TP1	TP2	TP3	TP4		
DEPTH:	0.8-1.3	2.0-2.4	3.0-3.3	4.5-4.8		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	85%	100%	82%		
25.0	62%	53%	63%	60%		
20.0	61%	52%	60%	56%		
12.5	57%	49%	54%	49%		
10.0	55%	47%	53%	47%		
5.0	49%	43%	48%	44%		
2.5	44%	40%	44%	40%		
1.25	39%	35%	39%	35%		
0.630	34%	31%	34%	31%		
0.315	28%	24%	27%	24%		
0.160	21%	19%	20%	17%		
0.080	16%	14%	14%	12%		
M.C.(%):	4%	5%	5%	5%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	51	57	52	56		
% SAND:	34	29	34	32		
% FINES:	16	14	14	12		
CLASSIFICATION	SILTY GRAVEL WITH SAND (GM)	SILTY GRAVEL WITH SAND (GM)	SILTY GRAVEL WITH SAND (GM)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)		

Grain Size Analysis (Percent Passing vs Grain Size)



HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. R. Paine & Associates Ltd.

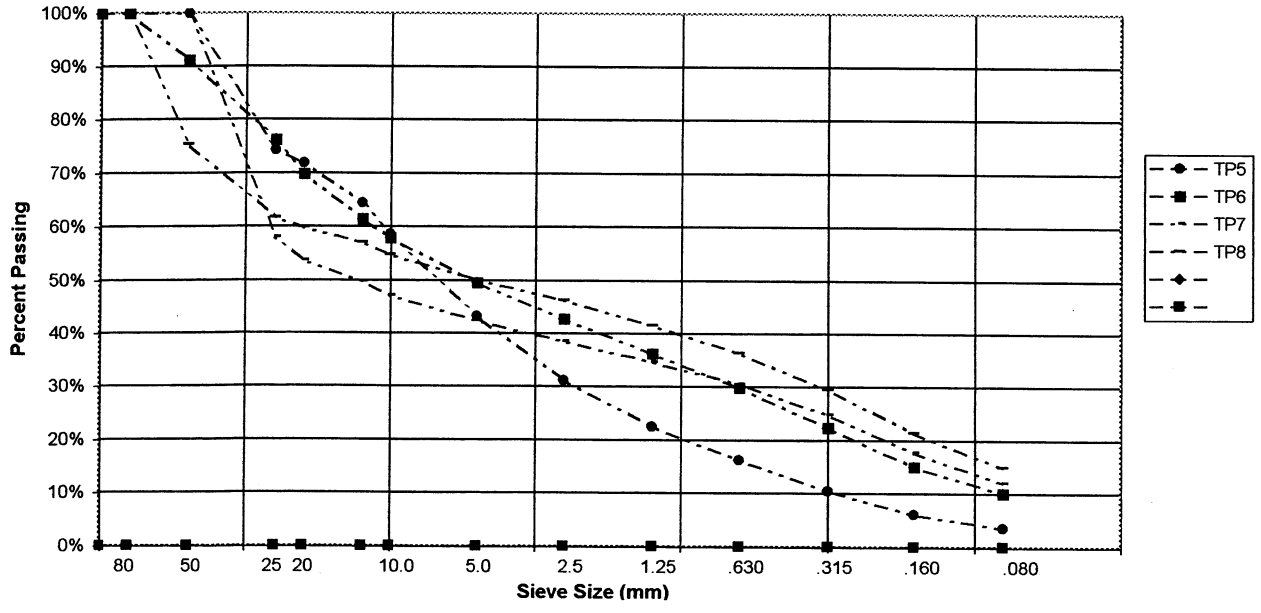
PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Cat 318C Excavator
HOLE LOCATION: 636697-6764616
LOGGED BY: RW

HOLE No.: 30178

DATE COMP: 08/10/2004

FIELD NO:	TP5	TP6	TP7	TP8		
LAB NO:	TP5	TP6	TP7	TP8		
DEPTH:	0.8-1.3	2.2-2.5	3.0-3.5	4.3-4.8		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	91%	100%	75%		
25.0	74%	76%	58%	62%		
20.0	72%	70%	54%	60%		
12.5	64%	61%	50%	57%		
10.0	59%	58%	47%	55%		
5.0	43%	50%	42%	50%		
2.5	31%	43%	39%	46%		
1.25	22%	36%	35%	42%		
0.630	16%	30%	31%	36%		
0.315	11%	22%	25%	30%		
0.160	6%	15%	18%	21%		
0.080	4%	10%	12%	15%		
M.C.(%):	1%	3%	5%	6%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	57	50	58	50		
% SAND:	40	39	30	35		
% FINES:	4	10	12	15		
CLASSIFICATION	WELL-GRADED GRAVEL WITH SAND (GW)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	SILTY GRAVEL WITH SAND (GM)	SILTY GRAVEL WITH SAND (GM)		

Grain Size Analysis (Percent Passing vs Grain Size)



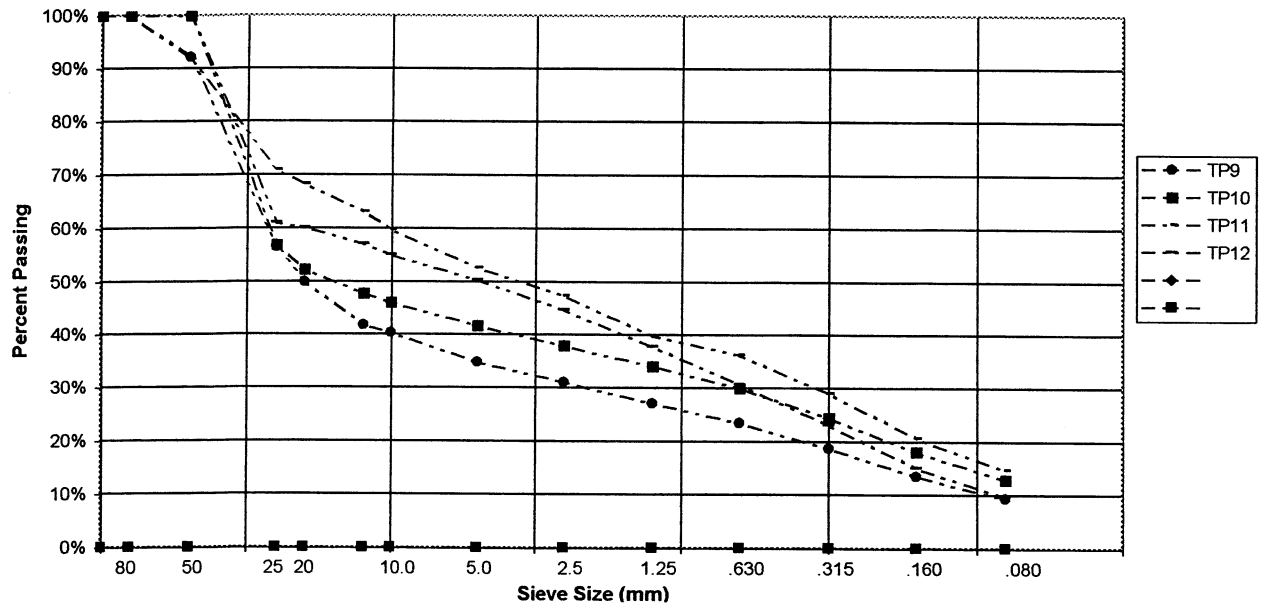
HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. H. Paine & Associates Ltd.

PROJECT NUMBER: 8002-318 HOLE No.: 30179
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Cat 318C Excavator
HOLE LOCATION: 636749-6764619
LOGGED BY: RW DATE COMP: 08/10/2004

FIELD NO:	TP9	TP10	TP11	TP12		
LAB NO:	TP9	TP10	TP11	TP12		
DEPTH:	0.5-1.0	1.8-2.3	3.2-3.5	4.5-5.0		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	92%	100%	92%	100%		
25.0	57%	57%	71%	61%		
20.0	50%	52%	68%	60%		
12.5	42%	48%	63%	57%		
10.0	40%	46%	60%	55%		
5.0	35%	42%	53%	50%		
2.5	31%	38%	47%	45%		
1.25	27%	34%	40%	38%		
0.630	23%	30%	36%	31%		
0.315	19%	24%	29%	23%		
0.160	14%	18%	21%	15%		
0.080	9%	13%	15%	10%		
M.C.(%):	3%	6%	7%	6%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	65	58	47	50		
% SAND:	25	29	38	40		
% FINES:	9	13	15	10		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	SILTY GRAVEL WITH SAND (GM)	SILTY GRAVEL WITH SAND (GM)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)		

Grain Size Analysis (Percent Passing vs Grain Size)



TEST PIT SOILS LOGS

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6768366
Easting: 634882

Project No: 8002-318 Test Hole No: #: 30072 Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location: Soldier Summit

Log By: R.W. Date: July 24, 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0'		Cobbles & Boulders, trace to some silt & sand					
		- boulders to 1.0m dia encountered					
		- fracturing rock					
		- boulders to 3.0m dia visible near surface.					
		E.O.H. @ 5.3m					
		1 Photo @ 1.0m 30072.jpg					
		1 Photo @ 1.5m 30072 (1).jpg					
		1 Photo Large Boulder Removed 30072 (2).jpg					
		1 Photo @ 5.3m - Exc. Base 30072(3).jpg					
		1 Photo of Spun Pile 30072(4).jpg.					

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6768366
Easting: 634882

Project No: 8002-318 Test Hole No: #: 30073 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Soldier Summit
Log By: ~~R.W.~~ M.F. Date: July 29, 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SI | LT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		boulders - cobbles - some surficial organics					
0.3	SO	boulders - cobbles - trace to some sand/silt					
		- boulders to 0.5m in dia.					
		- boulders to 30-40% by vol.					
3							
		E.O.H @ 5.3m					
		Photos ① 1.0m					
		② 2.5m					
		③ 4.3m - boulders					
		④ 5.3m					
		⑤ photo sample from 2.5m					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6768449
Easting: 634943

Project No: 8002-318 Test Hole No: #: 30074 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Soldier Summit
Log By: ~~R.W.~~ M.F. Date: July 29, 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

pth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		boulders - cobbles / some surficial organics					
0.3	50	boulders · cobbles / trace to some silt					
		- boulders encountered to 1.0m in dia.					
		- boulders and cobbles to 40-50% by vol.					
2							
		E.O.H @ 5.2					
		Photos - ① 1.5m					
		② 3.0m					
		③ 5.2m					
		④ boulder / spill pile					

TEST HOLE LOG

Northing: 6768519
Easting: 634961

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30075 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Soldiers Summit
Log By: ~~R.W.~~ M.F. Date: July 29, 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

pth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		boulders - cobbles / some surficial organics					
0.3	so	boulders - cobbles / trace silt and sand					
		- boulders encountered to 1.0m in dia.					
		- boulder and cobbles to 40-50% by vol.					
1							
		E.O.H @ 5.4					
		Photos - ① 1.5m					
		② 3.0m & spill pile					
		③ 5.4m					

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6768523
Easting: 635054

Project No: 8002-318 Test Hole No: #: 30076 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Soldier Summit
Log By: ~~R.W.~~ M.F. Date: July 29, 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		boulders - cobbles / some surficial organics					
0.3	SO	boulders - cobbles / some sand and silt					
		- boulders to 1.0m in dia.					
		- boulders to 30-40% by vol.					
	da	sandy gravel, trace to some silt	SI	3.6-4.2			
		- damp, dense, brown grey					
		- boulders to 20-30% by vol.					
5.1							
		E.O.H @ 5.4m					
		Photos ① 1.0m					
		② spillp.k					
		③ 3.0m					
		④ 5.4m					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6768551
Easting: 634972

Project No: 8002-318 Test Hole No: #: 30077 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Soldier Summit
Log By: ~~R.W.~~ M.F Date: July 31 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm		.002mm
GRAVEL	SAND		SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		boulders - cobbles / surficial organics					
0.2	SO	boulders - cobbles - some sand and silt.					
		- boulders to 1.0m in dia.					
		- boulders to 30-40% in vol.					
1							
		E.O.H @ 5.1m					
		Photos ① 1.0m					
		② 2.5m					
		③ 3.5m					
		④ 4.2m					
		⑤ spill pile					

HOGGAN ENGINEERING & TESTING (1980) LTD.
NSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6768663
Easting: 634997

Project No: 8002-318 Test Hole No: #: 30078 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Soldier Summit
Log By: ~~R.W.~~ M.F. Date: July 31 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		boulders - cobbles / heavy organics					
0.3	SO	silty gravel - some sand and boulders					
		- boulders to 1.5m in dia.					
		- boulders to 50% by vol.					
		E.O.H @ 5.0					
		Photos ① 1.5m					
		② 3.0m					
		③ 4.5m					
		④ spill pile					

TEST HOLE LOG

Northing: 6768745
Easting: 635028

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30079 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Soldier Summit
Log By: ~~R.W.~~ M.F. Date: July 31, 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm		.002mm
GRAVEL	SAND	SILT		CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		boulders-cobbles/surficial organics					
3.3	SO	silty sandy gravels; some boulders-cobbles					
		- boulders to 20% by vol.	S2	3.5-4.0			
		- boulders to 1.0m in dia.					
5.1							
		E.O.H. @ 5.1					
		Photos ① 1.5m					
		② 2.5m					
		③ 4.4m					
		④ spill pile					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6768798
Easting: 635046

Project No: 8002-318 Test Hole No: #: 30030 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Soldier Summit
Log By: ~~R.W.~~ M.F. Date: July 31, 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm		.002mm
GRAVEL	SAND	SILT		CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		boulders - cobbles, some sand, trace silts					
		- boulders to 60-70% by vol.					
1.0	SO	boulder - cobbles, sandy, silty gravel					
		- boulders to 0.5 m dia.					
		- boulders to 30-40% by vol.					
		E.O.H. @ 5.0m					
		Photos ① 1.0m					
		② 2.0m - spill pile					
		③ 3.0m					
		④ 4.0m					
		⑤ spill pile					

TEST HOLE LOG

Northing: 6768752
Easting: 635160

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30081 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Soldier Summit
Log By: ~~R.W.~~ M.F. Date: July 31 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

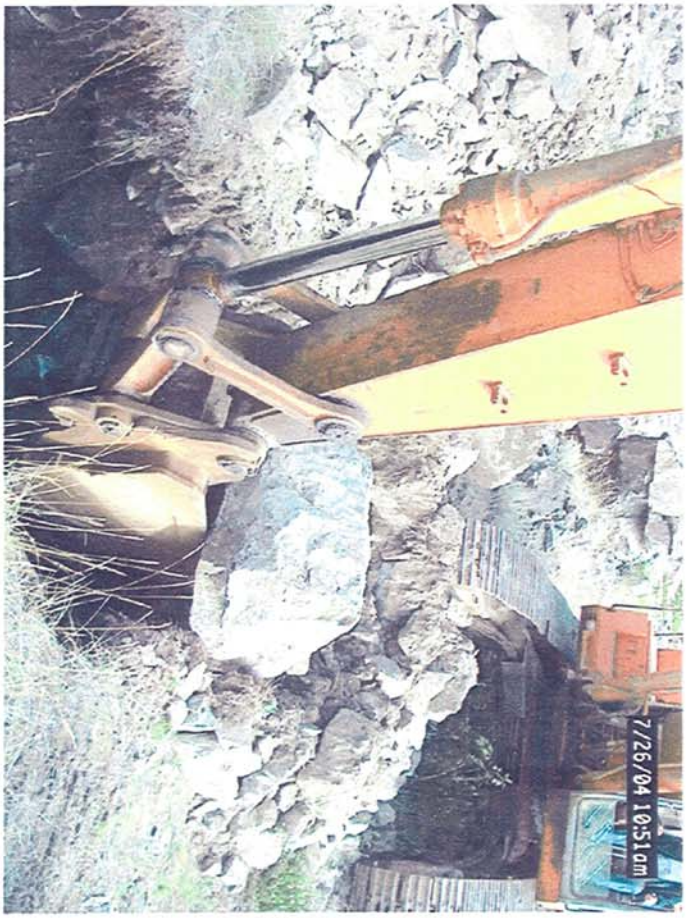
TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		boulders - cobbles - surficial organics					
2.3	SO	boulders - cobbles, some sand and silt					
		- boulders to 60-70% by vol.					
		- boulders to 1.0m dia.					
5	SO	sandy silty gravels - some boulders/cobbles					
		- boulders to 20-30% by vol.	S3	4.5-5.0			
7							
		E.O.H. @ 5.0m					
		Photos ① 1.0m					
		② 2.0m					
		③ 4.5m					
		④ spill pile					

TEST PIT PHOTOS

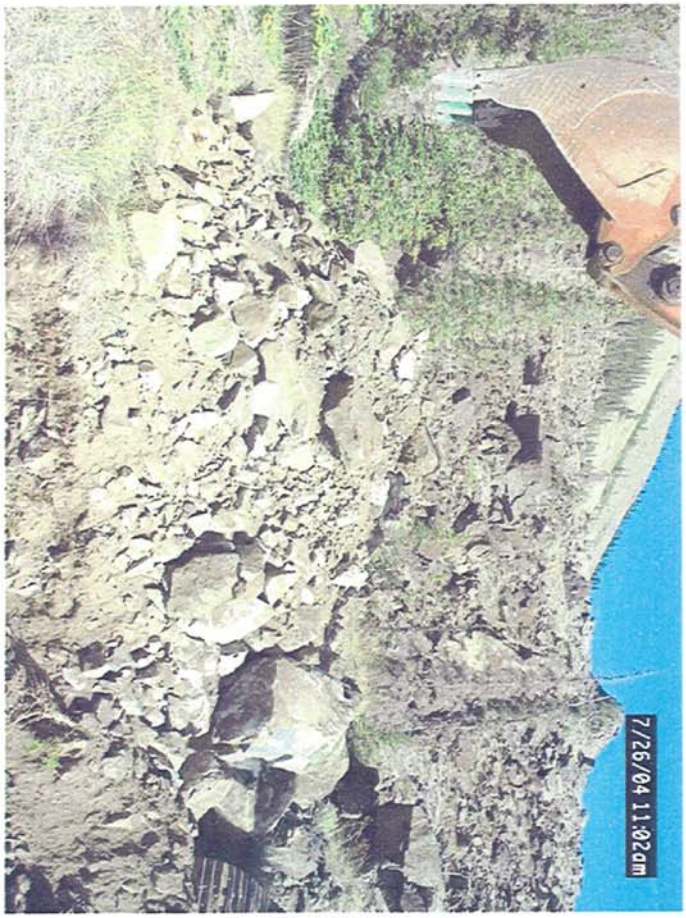
Test Pit #30072 Photo 1

Test Pit #30072 Photo 2



Test Pit #30072 Photo 3

Test Pit #30072 Photo 4

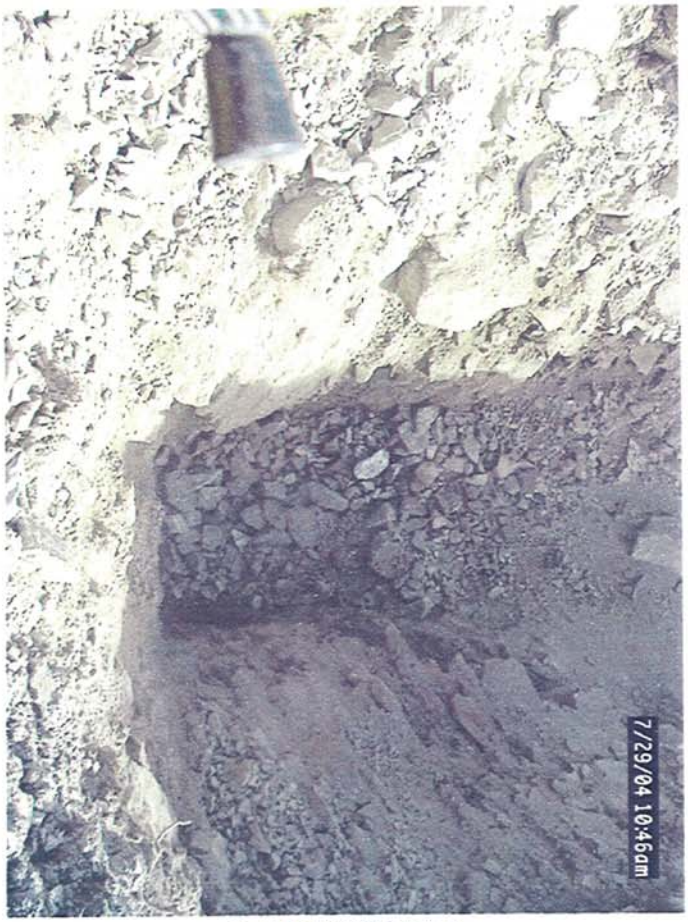


Test Pit #30072 Photo 5

Test Pit #30073 Photo 1

Test Pit #30073 Photo 2

Test Pit #30073 Photo 3

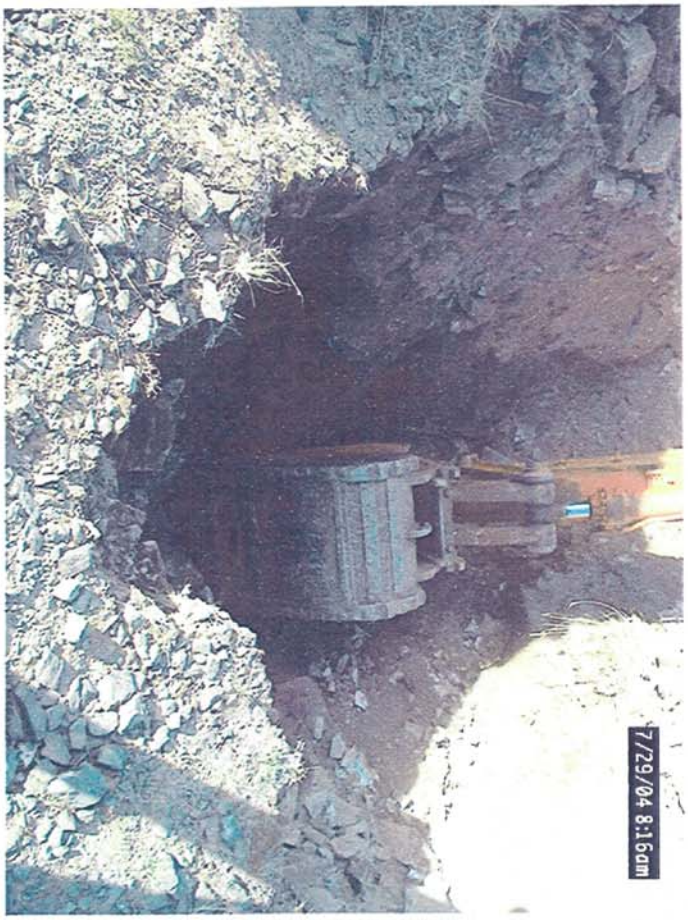


Test Pit #30073 Photo 4

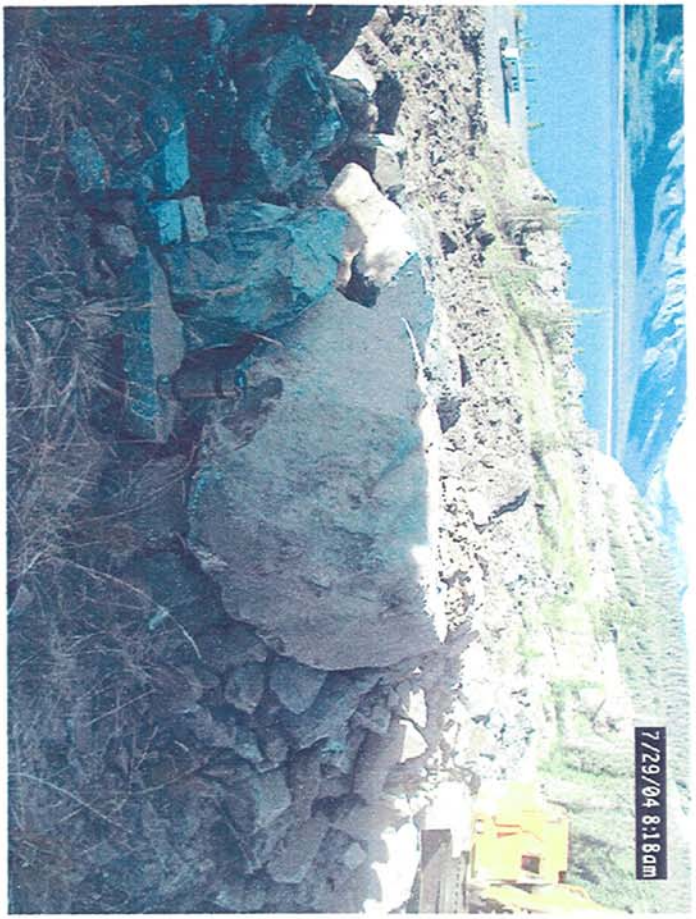
Test Pit #30073 Photo 5

Test Pit #30074 Photo 1

Test Pit #30074 Photo 2



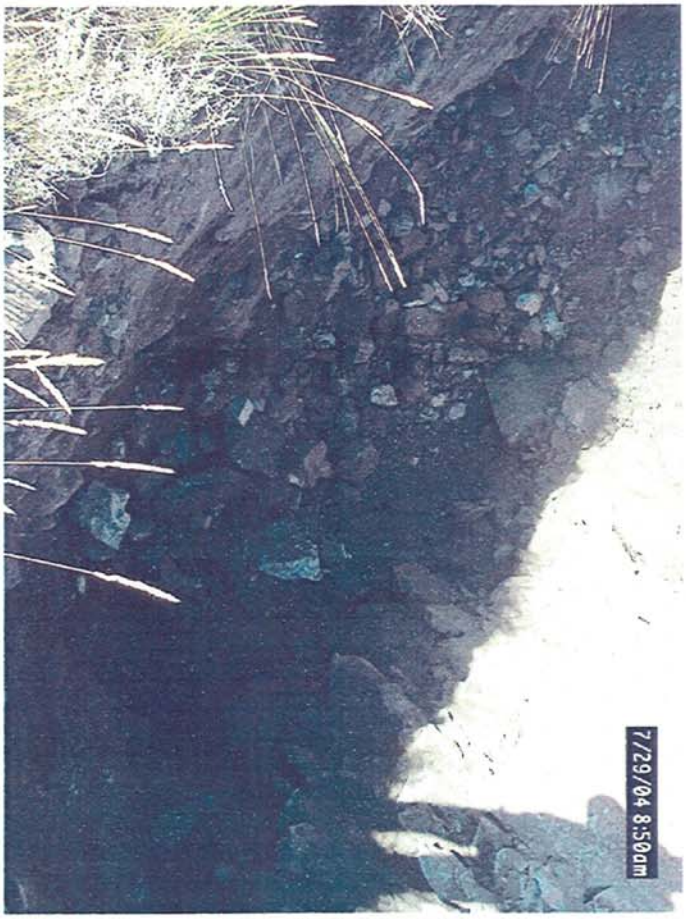
Test Pit #30074 Photo 3



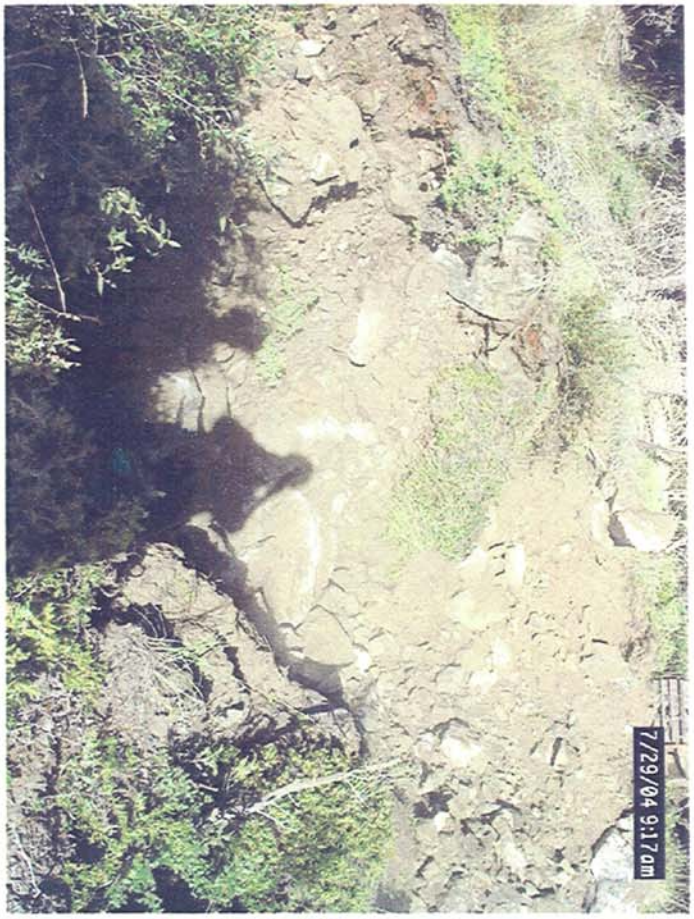
Test Pit #30074 Photo 4

Test Pit #30075 Photo 1

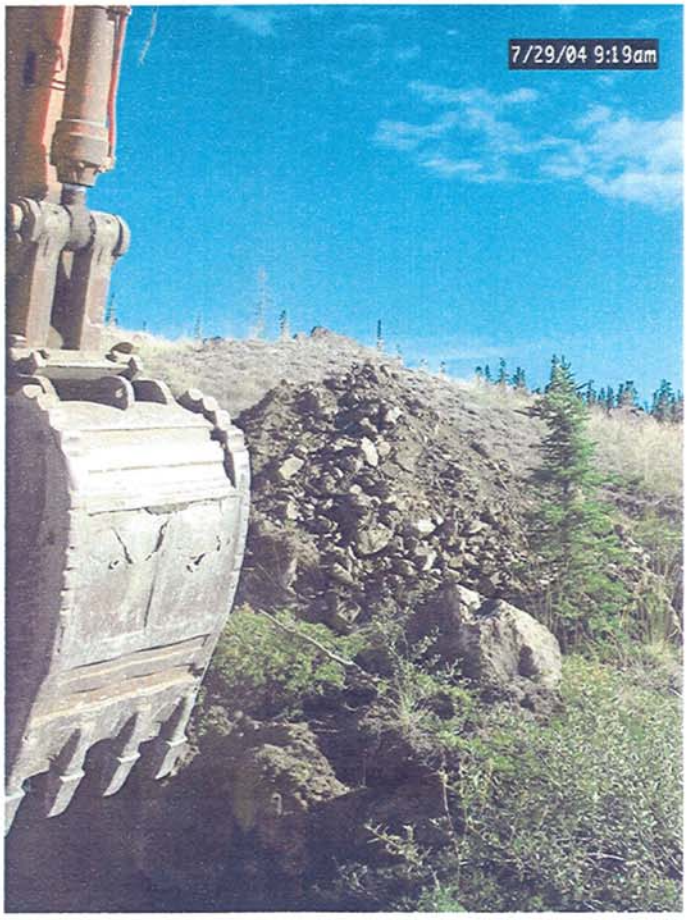
Test Pit #30075 Photo 2



Test Pit #30075 Photo 3

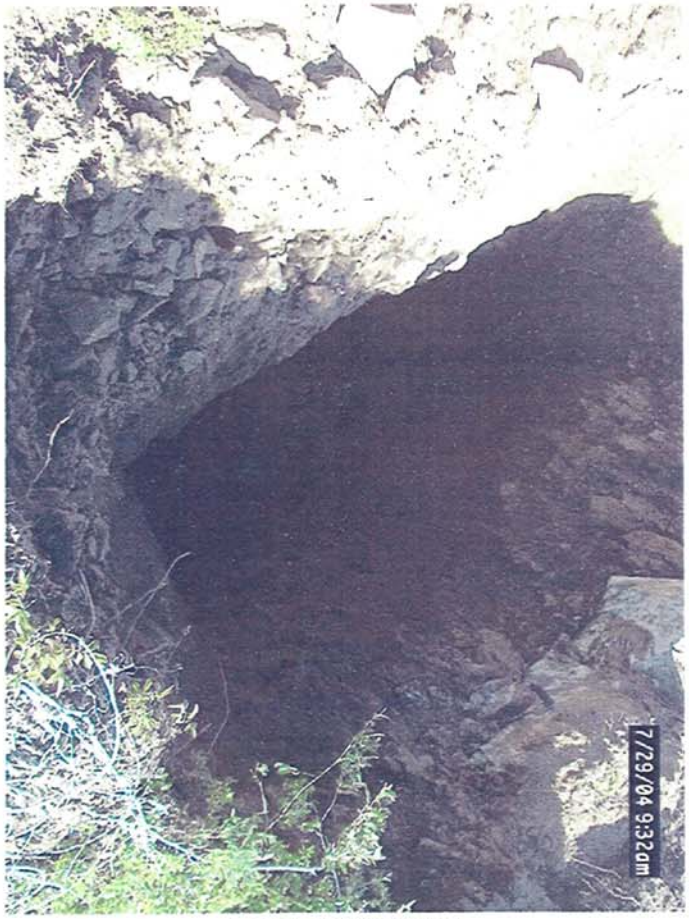


Test Pit #30076 Photo 1



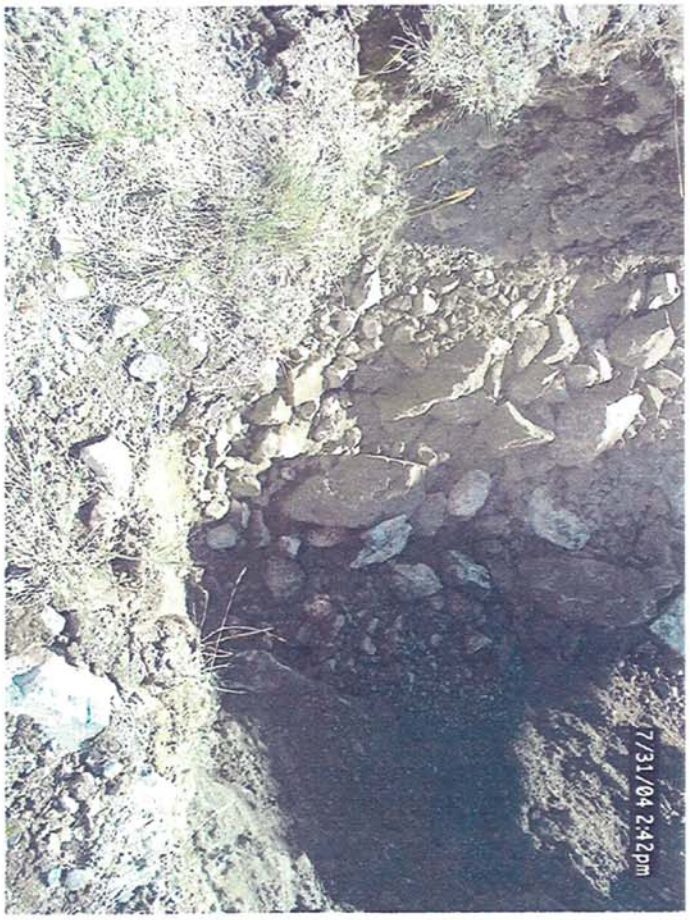
Test Pit #30076 Photo 2

Test Pit #30076 Photo 3



Test Pit #30076 Photo 4

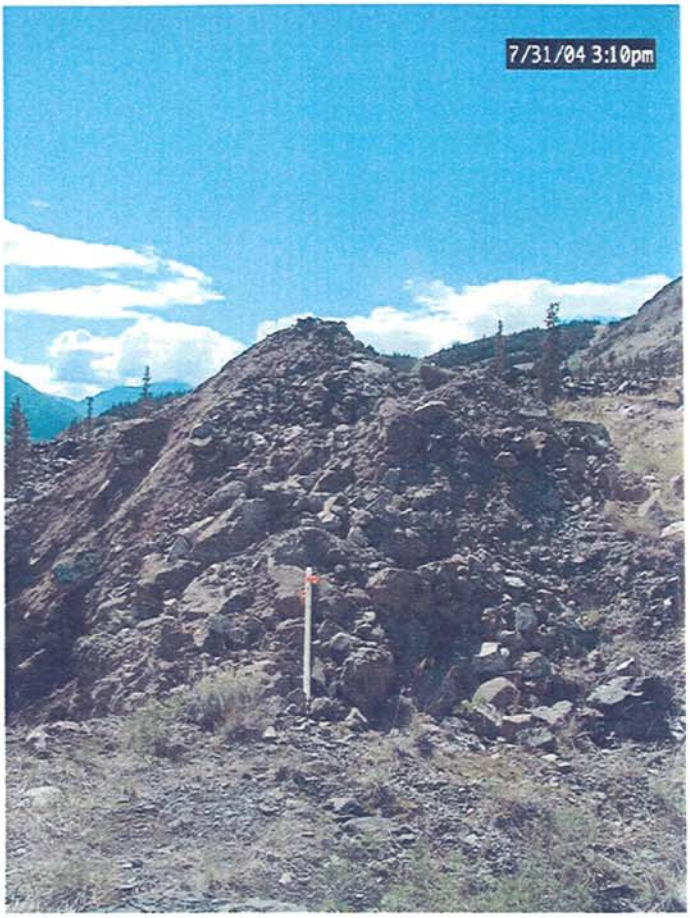
Test Pit #30077 Photo 1



Test Pit #30077 Photo 2

Test Pit #30077 Photo 3

Test Pit #30077 Photo 4

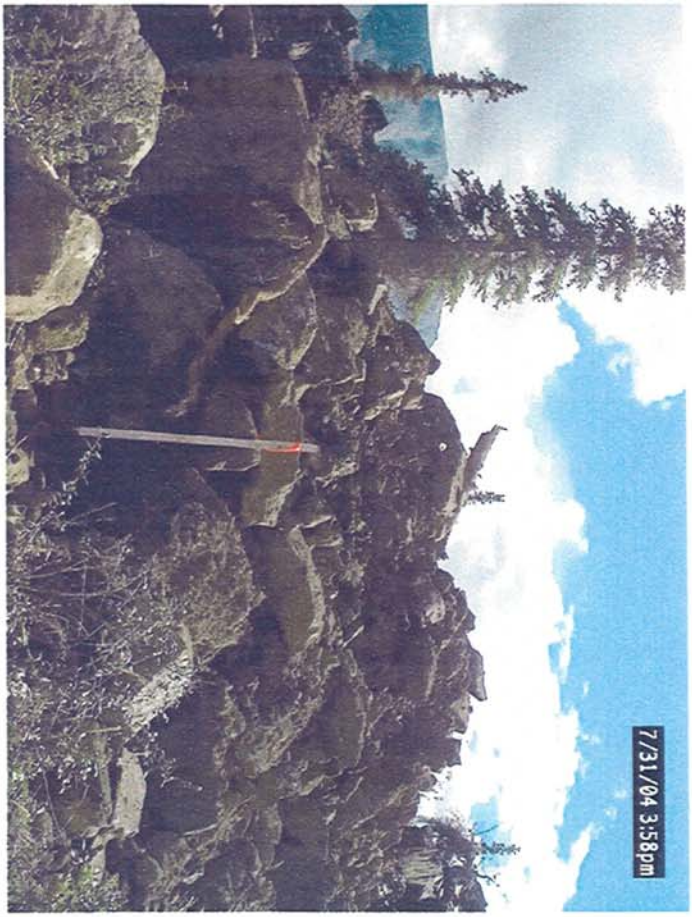


Test Pit #30077 Photo 5

Test Pit #30078 Photo 1

Test Pit #30078 Photo 2

Test Pit #30078 Photo 3

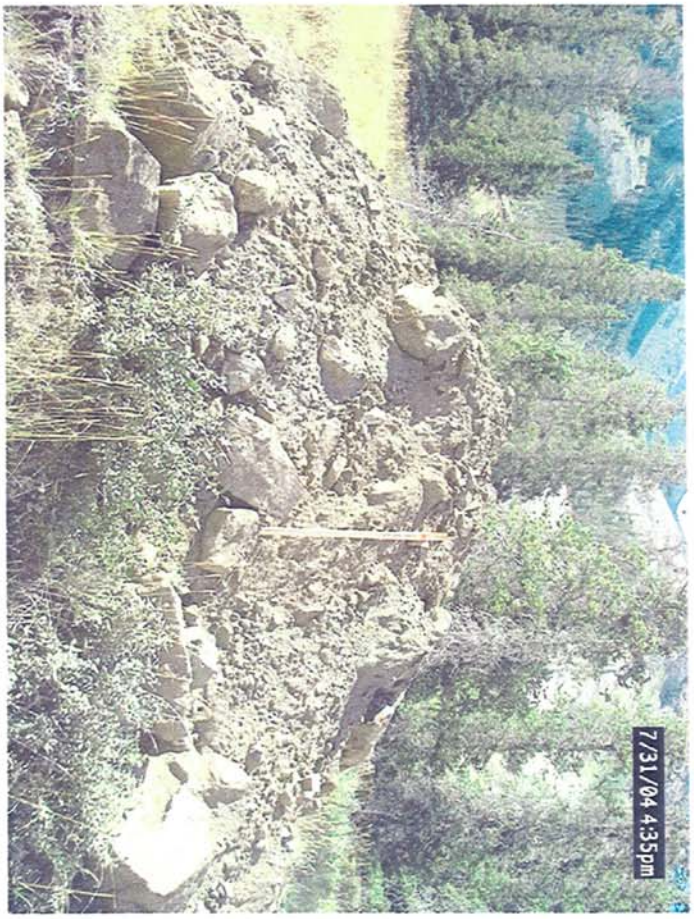


Test Pit #30078 Photo 4

Test Pit #30079 Photo 1

Test Pit #30079 Photo 2

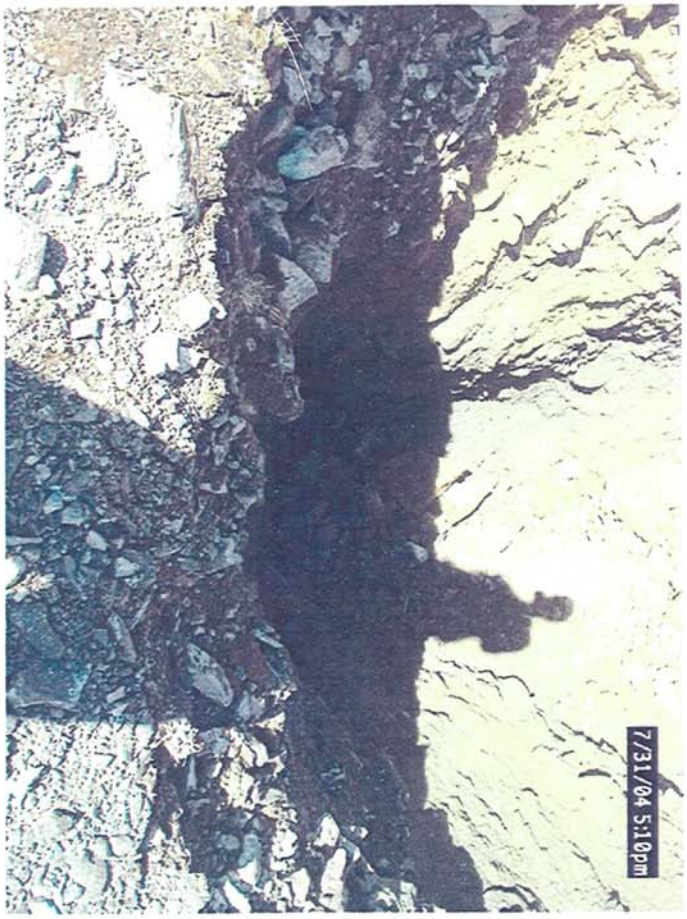
Test Pit #30079 Photo 3



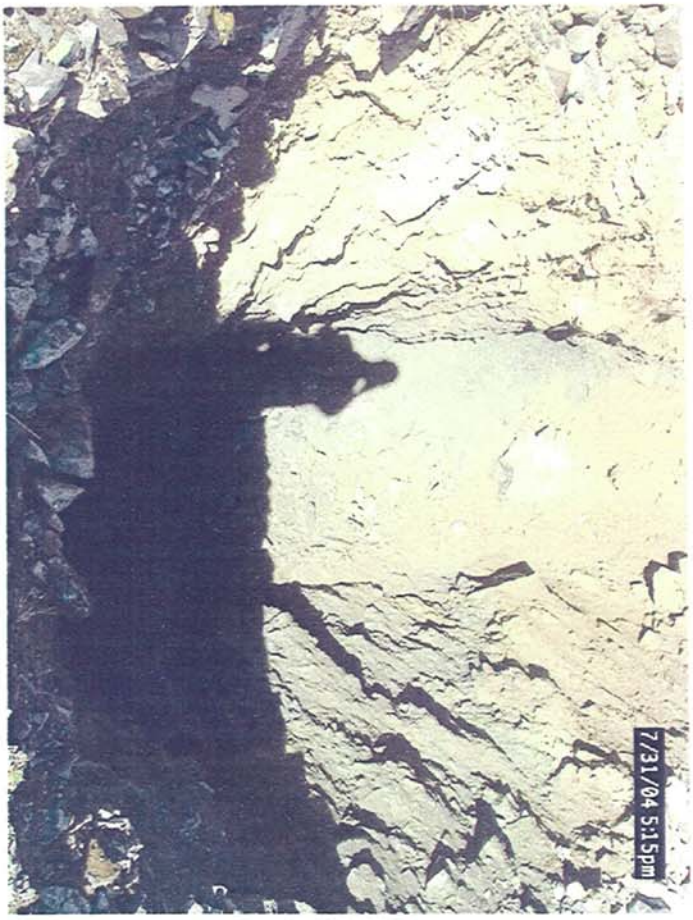
Test Pit #30079 Photo 4

Test Pit #30080 Photo 1

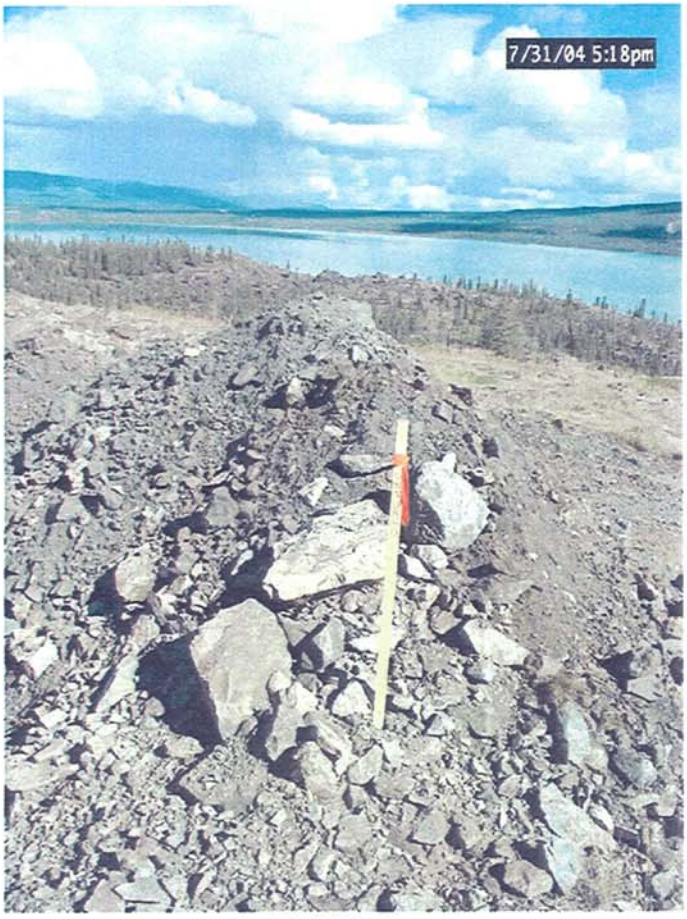
Test Pit #30080 Photo 2



Test Pit #30080 Photo 3



Test Pit #30080 Photo 4



Test Pit #30080 Photo 5

Test Pit #30081 Photo 1

Test Pit #30081 Photo 2

Test Pit #30081 Photo 3

Test Pit #30081 Photo 4

MOISTURE CONTENT RESULTS

J.R. Paine & Associates Ltd.

CONSULTING AND TESTING ENGINEERS

MOISTURE ANALYSIS

Project: Geotechnical Services-Shakwak

Client: YTG - Highways & Public Works, Transportation & Engineering

Made By: MD

Job No: 8002-318

Location: Soldier Summit

Ck'd By:

Date: August 4, 2004

SAMPLE #	S1	S2	S3			
TEST HOLE #	30076	30079	30081			
DEPTH (metres)	3.6-4.2	3.5-4.0	4.5-5.0			
MOISTURE CONTENT %	3.9		1.5			
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						

LABORATORY SAMPLE PHOTOS

S1

S3

HOGGAN ENGINEERING & TESTING (1980) LTD.

GRAIN SIZE ANALYSES RESULTS

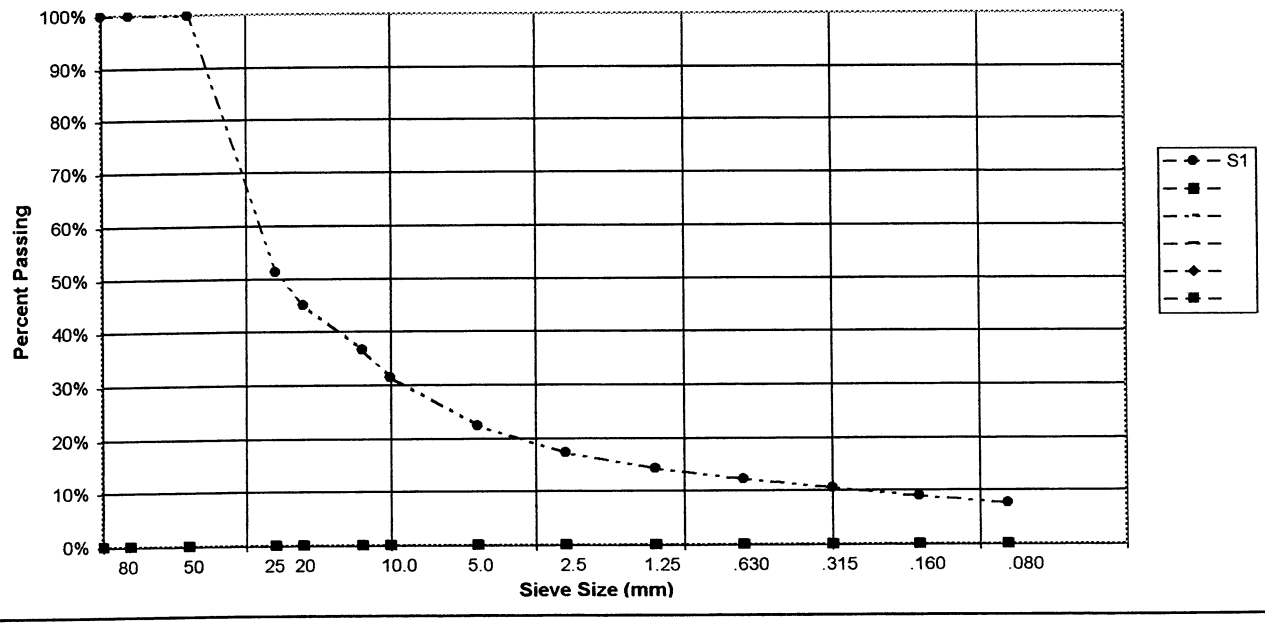
HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. R. Paine & Associates Ltd.

PROJECT NUMBER:	8002-318	HOLE No.:	30076
CLIENT:	YTG, Transportation & Engineering		
PROJECT NAME:	Geotechnical Services		
PROJECT LOCATION:	Km 1691.7-1717.3		
DRILL UNIT:	Hitatchi 450EX		
HOLE LOCATION:	635054-6768523		
LOGGED BY:	RW	DATE COMP:	07/29/2004

FIELD NO:	S1
LAB NO:	S1
DEPTH:	3.6-4.2
TYPE:	BULK
SIEVE SIZE	**PERCENT PASSING**
100.0	100%
80.0	100%
50.0	100%
25.0	51%
20.0	45%
12.5	37%
10.0	32%
5.0	23%
2.5	17%
1.25	14%
0.630	12%
0.315	11%
0.160	9%
0.080	8%
M.C.(%):	4%
LIQUID LIMIT:	0.0
PLASTIC LIMIT:	0.0
PLASTIC INDEX.:	0.0
% GRAVEL:	77
% SAND:	15
% FINES:	8
CLASSIFICATION	POORLY GRADED GRAVEL WITH SILT (GP-GM)

Grain Size Analysis (Percent Passing vs Grain Size)



HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. R. Paine & Associates Ltd.

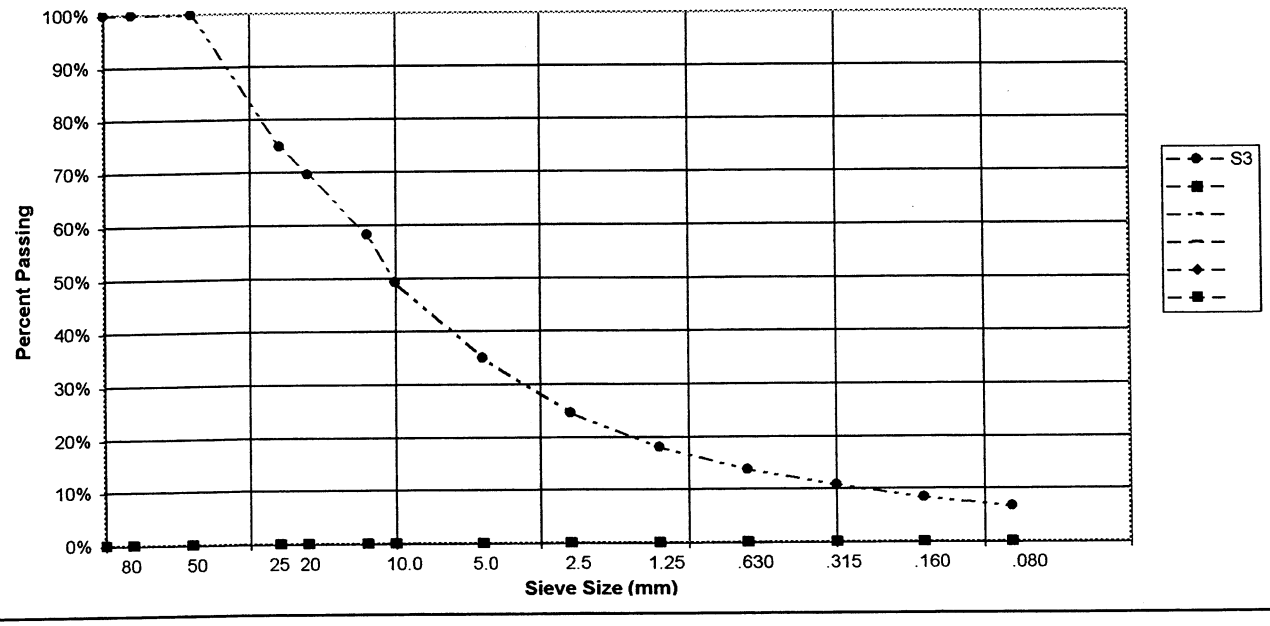
PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Hitatchi 450EX
HOLE LOCATION: 635160-6768752
LOGGED BY: RW

HOLE No.: 30081

DATE COMP: 07/31/2004

FIELD NO:	S3
LAB NO:	S3
DEPTH:	4.5-5.0
TYPE:	BULK
SIEVE SIZE	**PERCENT PASSING**
100.0	100%
80.0	100%
50.0	100%
25.0	75%
20.0	70%
12.5	58%
10.0	49%
5.0	35%
2.5	25%
1.25	18%
0.630	14%
0.315	11%
0.160	9%
0.080	7%
M.C.(%):	2%
LIQUID LIMIT:	0.0
PLASTIC LIMIT:	0.0
PLASTIC INDEX.:	0.0
% GRAVEL:	65
% SAND:	28
% FINES:	7
CLASSIFICATION	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)

Grain Size Analysis (Percent Passing vs Grain Size)



KM 1712.9 LHS WILLISCROFT CREEK

TEST PIT SOILS LOGS

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6775028
Easting: 638523

Project No: 8002-318 Test Hole No: #: 30137 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Williscroft Creek
Log By: R.W. Date: July 31 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

pth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
)		SURFICIAL ORGANICS					
3	SO	SANDY GRAVEL, trace to some silt	W1 ✓	.3 - 0.9			
		- damp, medium dense, brown					
>	do	AS ABOVE	W2 ✓	2.0-2.4		VERY DIFFICULT DIGGING	
		- FROZEN					
			W3 ✓	3.2-3.5			
			W4 ✓	4.2-4.4			
		E.O.H. @ 5.0m		•			
		1 photo : TP @ DEPTH					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6775066
Easting: 632578

Project No: 8002-318 Test Hole No: #: 30138 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Williscroft Creek
Log By: R.W. Date: Aug 1 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm
GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		Surficial Organics					
0.3	SG	Sandy Gravel	WS ×	1.5-2.0		Silty Sandy Gravel	
		- damp, loose, brown					
		- roots & misc organics to 1.0m					
0.7	SG	Sandy Gravel, trace silt	W6 ✓	2.5-3.0			
		- damp, medium dense, brown					
		- boulders to 300mm 5-15% Vol.					
			W7 ✓	3.8-4.2m			
			W8 ✓	4.8-5.3			
		E.O.H. @ 5.3m					
		2 photos - 1 TP & DEPTH					
		1 SAMPLE FILE					

TEST HOLE LOG

Northing: 6775122
Easting: 632665

Project No: 8002-318 Test Hole No: #: 30139 Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location: Willoscroft Creek

Log By: R.W. Date: Aug 01 2004

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm 0.74mm .002mm

GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		Surficial Organics					
	SG	Sandy Gravel, trace silt	W9 ✓	1.0-1.5			
		- damp, base, brown					
		- organics noted to 1.0m					
		- some organic silt noted between 1.0-1.5m					
		- boulders to 300mm 5-15% vol	W10 ✓	2.0-2.5			
			W11 ✓	3.5-4.0			
			W12 ✓	5.0-5.5			
		E.O.H. @ 5.5m					
		2 Photos					
		1 @ EXP. BASE - HOLE SURROUNDED IN					
		1 OF SAMPLE PILES					

TEST HOLE LOG

Northing: 6775097
Easting: 632440

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30140 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Williscroft Creek
Log By: R.W. Date: Aug 01 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm		0.74mm		.002mm
GRAVEL	SAND		SILT		CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		Surficial Organics					
.7	SG	Sandy Gravel, trace silt	W13 ✓	1.0-1.5			
		- damp, loose, brown					
		- organics noted to 0.8m					
		- boulders to 300mm, 5-15% vol					
			W14 ✓	2-2.5			
? a	SG	Sandy Gravel, trace silt	W15 ✓	3.2-3.6		Difficult Digging	
		- Frozen					
		- brown					
3.6	GS	Sandy Gravel, trace to some silt	W16 ✓	4.8-5.1		Very Difficult Digging	
		- frozen, some visible ice					
		- brown					
		E.O.H. @ 5.1m					
		Photos -					
		1 @ exc pond					
		1 @ sample piles					

TEST HOLE LOG

Northing: 6775140
Easting: 632495

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30141 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Williscroft Creek
Log By: R.W. Date: AUG 01 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm

GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		Surficial Organics					
	SG	Sandy Gravel, trace silt	W17 ✓	0.5-1.0			
		- damp, loose, brown					
		- organics noted to 0.5m					
		- boulders to 300mm 5-15% Vol					
	dg	Sandy Gravel, trace silt	W18 ✓	1.8-2.3			
		- damp, medium dense, brown					
		- boulders to 300mm 5-15% vol					
3.2	GG	Sandy Gravel, trace to some silt	W19 ✓	3.2-3.6		Very Difficult Digging	
		- frozen					
		- brown					
			W20 ✓	4.7-5.0			
		E.O.H. @ 5.0m					
		Photos -					
		1 @ exc. Base					
		1 @ sample piles					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6775194
Easting: 632545

Project No: 8002-318 Test Hole No: #: 30142 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Williscroft Creek
Log By: R.W. Date: Aug. 01 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm	0.74mm	.002mm
GRAVEL	SAND	SILT / CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
0		Surficial Organics					
0.3	so	Sandy Gravel, trace silt - damp, loose, brown - organics to 0.6m - boulders to 300mm 5-15% vol					
1.0	do	As Above - medium dense	W21 ✓	1.0-1.5			
			W22 ✓	2.5-3.0			
	do	Sandy Gravel, trace to some silt - Frozen	W23 ✓	3.2-3.8		Difficult Digging @ 3.2m	
4.0	do	Sandy Gravel, some silt, to Silty. - Frozen	W24 ✓	4.6-5.0		Very Difficult Digging @ 3.8m	
			↳ Frozen Pieces		(Higher Silt Content)		
		E.O.H. @ 5.0m					
		Photos - 1 @ ex. Bottom 1 @ Sample Pieces					

TEST HOLE LOG

Northing: 6775245
Easting: 632619

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30143 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Winnscream Creek
Log By: R.W. Date: Aug 01 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm	0.74mm	.002mm
GRAVEL	SAND	SILT / CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
.2		Surficial Organics					
.3	so	Sandy Gravel, trace silt	W25 ✓	.5-1.0			
		-damp, loose, brown					
		-organics to 0.5m					
		-boulders to 300mm 5-15% Vol					
	so	Gravelly Sand, trace silt	W26 ✗	2.2-2.7		Difficult @ 2.0m	Digging
		-Frozen, visible ice crystals to 5mm in clusters				Silty Gravelly Sand	
		-brown					
3.3m	so	Sandy Gravel, trace silt	W27 ✓	3.6-3.9		Normal Digging @ 3.3m	
		-moist, medium dense, brown					
.0	do	Gravelly Sand, trace to some silt	W28 ✓	4.6-5.0			
		-moist, medium dense, brown					
		E.O.H. @ 5.0m					
		Photos					
		-1 of Frozen matrix Sample # W23					
		-1 @ Exc Base					
		1 @ Sample Piles					

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Northing: 6775254
Easting: 632503

Project No: 8002-318 Test Hole No: #: 30144 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Willoscroft Creek
Log By: R.W. Date: Aug 2 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm			.002mm
GRAVEL	SAND		SI	LT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		Surficial Organics					
	So	Sandy Gravel/Gravelly Sand, trace to some silt					
		- damp, loose, brown					
	So	Sandy Gravel, trace to some silt	W29 ✓	1.4-1.8		H_2O Seepage @ 1.4m	
		- saturated, medium dense, brown					
	do	As Above	W30 ✓	2.5-2.8		Very Difficult Drilling	
		- moist					
			W31 ✓	3.6-3.9			
			W32 ✓	4.8-5.0			
		E.O.H. @ 5.0					
		Photos					
		1 @ OK. Base					
		1 @ Samples					

TEST HOLE LOG

Northing: 6775287
Easting: 632345

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30145 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Willscroft Creek
Log By: R.W. Date: Aug 2 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm	0.74mm	.002mm
GRAVEL	SAND	SILT / CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		Surficial Organics					
0.5	so	Gravelly Sandy, trace silt - damp, loose, brown - organics noted to 0.8m					
1.0	da	Sandy Gravel, trace to some silt - damp, medium dense, brown - cobbles to 200mm 0-10%	W33 ✓	1.0-1.4			
1	da	As above - Frozen	W34 ✓	2.0-2.3		Very Difficult Digging @ 1.9m	
2.3	da	Sandy Gravel, some silt to silty - Frozen - brown	W35 ✓	3.0-3.3			
			W36 ✓	4.0-4.8m			
		E.O.H. @ 4.8m					
		Photos 1 Photo @ Exc. Base 1 " Sample Pics					

TEST HOLE LOG

Northing: 6775326
Easting: 632400

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30146 Elev.

Client: YTG - Highways & Public Works

Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1

Location: Williscroft Creek

Log By: R.W. Date: Aug 02 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm		0.74mm		.002mm
GRAVEL	SAND		SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Depth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
		Surficial Organics					
	SG	Sandy Gravel, trace silt					
		- damp, base, brown, organics noted to 0.8m					
		- boulders to 300mm 5-10% Vol					
	do	As Above	W37 ✓	1.0-1.5			
		- medium dense					
			W38 ✓	2.6-2.9		Difficult Digging @ 2.3m	
	SG	Sandy Gravel, some silt	W39 ✓	3.5-3.8		Very Difficult Digging @ 3.2m	
		- Frozen					
		- brown					
		- cobbles to 200mm 5-10% Vol					
			W40 ✓	4.5-4.8			
		E.O.H. @ 4.8m					
		Photos					
		- 1 @ Exc. Base					
		- 1 @ Sample Piles					

TEST HOLE LOG

Northing: 6775365
Easting: 632400

HOGGAN ENGINEERING & TESTING (1980) LTD.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: #: 30147 Elev.
Client: YTG - Highways & Public Works
Project: Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1
Location: Williscroft Creek
Log By: R.W. Date: Aug 2 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm		0.74mm		.002mm
GRAVEL		SAND		SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

pth	Line Code	Classification	Sample No.	Sample Depth	Sample Type	Standard Penetration	Pocket Penetration, TSF
?		Surficial Organics					
0.4	SD	Sandy Gravel/Gravelly Sand, trace silt	W41 ✓	0.6-1.1			
		- damp, loose, brown					
2	do	As Above	W42 ✓	2.3-2.8			
		- medium dense					
		- boulders to 300mm 0-10% Vol					
						Difficult Digging @ 3.0m	
3.5	SD	Sandy Gravel, some silt	W43 ✓	3.7-4.1		Very Difficult @ 3.5m	
		- frozen					
		- brown					
		- boulders to 300mm 0-10% Vol.					
			W44 ✓	4.6-4.8			
		E.O.H. @ 4.8m					
		Photos -					
		1 of Exc Base					
		1 of Sample Piles					

TEST HOLE LOG

J.R. Paine & Associates Ltd.
CONSULTING & TESTING ENGINEERS

Project No: 8502-318 Test Hole No: 30146 Dawe Elev. 807m
Client: YTG - Highways & Public Works, Trans. Site - Braney
Project: Geotechnical Services KM 1691.7 to 1717.3 Alc Hwy #1
Location: Williscroft Creek
Log By: RW Date: Nov. 1, 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3" 5mm 0.74mm .002mm
GRAVEL | SAND | SILT | CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

N: 6775322
E: 632406

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Zone	Group Symbol	Classification	Sample No.	Depth	Type	Standard Penetration	Pocket Penetration, TSF
)		Sandy Gravel, trace to some silt	W45	0.3-0.9			
		- damp, medium dense, dark brown					
		- some coaly pieces noted					
m	GS	Sandy Gravel, trace to some silt	W46	1.8-2.1			
		- damp, medium dense, brown					
		- gravel loss due to caving & grinding					
		- some broken granite					
		- max size est. 50mm				3.0m Very Dense Gravelly Drilling	
						Loss of Rock augered up.	
	SG	Sandy Gravel, some silt (FROZEN)	W47	3.4-4.0			
		- damp to moist, dense to very dense, brown					
		- max size est. 60mm					
			W48	5.2-5.8			
	SG	Silty Sandy Gravel	W49	7.3-7.6		Packed Tieton Augers	
		- damp to moist, dense, brown					
	GS	Sandy Gravel/Gravelly Sand, some silt to silty	W50	8.2-8.8		Grindy Drilling	
		- dry to damp, dense, brown					
		- possibly gravel loss due to auger action	W51	9.8-10.4			
		- gravel/sample loss 30-40% due to reverse action on pulling					
			W52	11.0-11.6			

J.R. Paine & Associates Ltd.

CONSULTING & TESTING ENGINEERS

TEST HOLE LOG

Project No: 8002.318 Test Hole No: 30146 DRILL PG #2 Elev.

Client: YTG - HIGHWAYS & PUBLIC WORKS, TRANS ENG. BRANCH

Project: GEOTECHNICAL SERVICES KM 1691.7 to 1717.3 AK HWY # 1

Location: WINSCROFT CREEK

Log By: RW Date: NOV. 1, 2004

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

3"	5mm	0.74mm	.002mm
GRAVEL	SAND	SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Zone	Group Symbol	Classification	Sample No.	Depth	Type	Standard Penetration	Pocket Penetration,TSF
2	do	GRAVELLY SAND / SANDY GRAVEL, some silt to silty	WS3	12.8-13.4			
		- dry to damp, dense, brown					
		- difficult to obtain sample due to reverse auger action					
			WS4	14.-14.6			
		E.O.H. @ 17.4m - AUGERS BINDING TOO MUCH / REFUSAL					
		- NO SAMPLE DUE TO AUGERING OUT OF HOLE					
		AUGERS BINDING					

TEST HOLE LOG

J.R. Paine & Associates Ltd.
CONSULTING & TESTING ENGINEERS

Project No: 8002-38 Test Hole No: 30142 Drill Elev. 813m
Client: YTG - Highways & Public Works, Transportation Engineering Branch
Project: Geotechnical Services Km 1691.7 to 1717.3 AK Hwy #1
Location: Williscroft Creek
Log By: RW Date: 11/01/2002

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm		0.74mm		.002mm
GRAVEL	SAND		SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

N: 6775193
E: 632558

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Zone	Group Symbol	Classification	Sample No.	Depth	Type	Standard Penetration	Pocket Penetration, TSF
1		Sandy Gravel	WS5	0.5-1.0			
		- dry to damp, medium dense, brown					
		- max size encl. 50mm					
			WS6	1.8-2.1			
2	da	Gravelly Sand/Sandy Silt to Silty (Frozen)	WS7	3.4-4.0			
		- damp to moist, dense brown					
		E.O.H. @ 8.2m - REFUSAL	WS8	4.9-5.5			
		3.7 - REFUSAL - Move 1m South					
		8.2 - REFUSAL - Move 1m South (Lost 3 stems in hole)					
		5.2m - REFUSAL - E.O.H.					

TEST HOLE LOG

J.R. Paine & Associates Ltd.
CONSULTING & TESTING ENGINEERS

Project No: 8002-318 Test Hole No: 04-2763 DRW Elev. 805
Client: YTG - HIGHWAYS & PUBLIC WORKS, TRANS ENG. BRANCH
Project: GEOTECHNICAL SERVICES KM 1691.7 to 1717.3 AK. Hwy #1
Location: WILLISCROFT CREEK
Log By: RW Date: 11/01/04

MINIMUM REQUIREMENTS FOR A TEST HOLE LOG CLASSIFICATION

5mm		0.74mm		.002mm
GRAVEL	SAND		SILT	CLAY

MOISTURE CONTENT - dry, damp, moist, wet
DENSITY - loose, medium dense, dense
GRADATION - poorly or well graded
SIZE RANGE - coarse, medium, fine
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

N: 6774951
E: 632672

MOISTURE CONTENT - dry, damp, moist, wet
CONSISTENCY - soft, firm, stiff, hard
PLASTICITY - low, medium, high
COLOR -
INTRUSIONS - oxides, coal lumps, etc.

TILL - heterogeneous mixture of gravel, sand, silt, and clay COBBLE - 3" - 8" BOULDER - 8" and larger

Zone	Group Symbol	Classification	Sample No.	Depth	Type	Standard Penetration	Pocket Penetration, TSF
0		Sandy Gravel	W59	.5-1.0			
		- dry, medium dense, brown					
		- visible boulders to 400mm on surface.					
			W60	1.8-2.4		Very Dense Driving	Grinding @ 1.8m
3.0	dg	Sandy Gravel / Gravelly Sand, trace to some silt	W61	3.4-4.0			
		- damp to dry, dense, brown					
		- max size encl. 50mm					
			W62	5.2-5.8		ATTEMPT #2	
		E.O.H. @ 6.7m - REFUSAL					
		REFUSAL @ 5.2m - MOVE 1m WEST					
		REFUSAL @ 4.9m - MOVE 1m WEST					
		REFUSAL @ 6.7m - E.O.H.					

TEST PIT PHOTOS

Test Pit #30137 Photo 1

Test Pit #30137 Photo 2

Test Pit #30137 Photo 3

Test Pit #30138 Photo 1

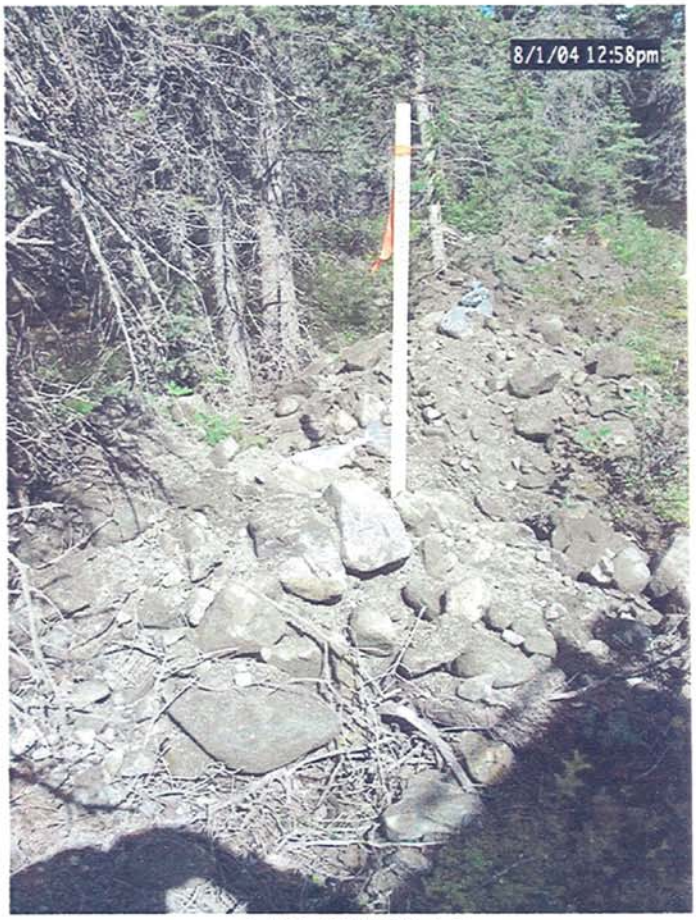
Test Pit #30139 Photo 1

Test Pit #30139 Photo 2

Test Pit #30140 Photo 1

Test Pit #30140 Photo 2

Test Pit #30141 Photo 1



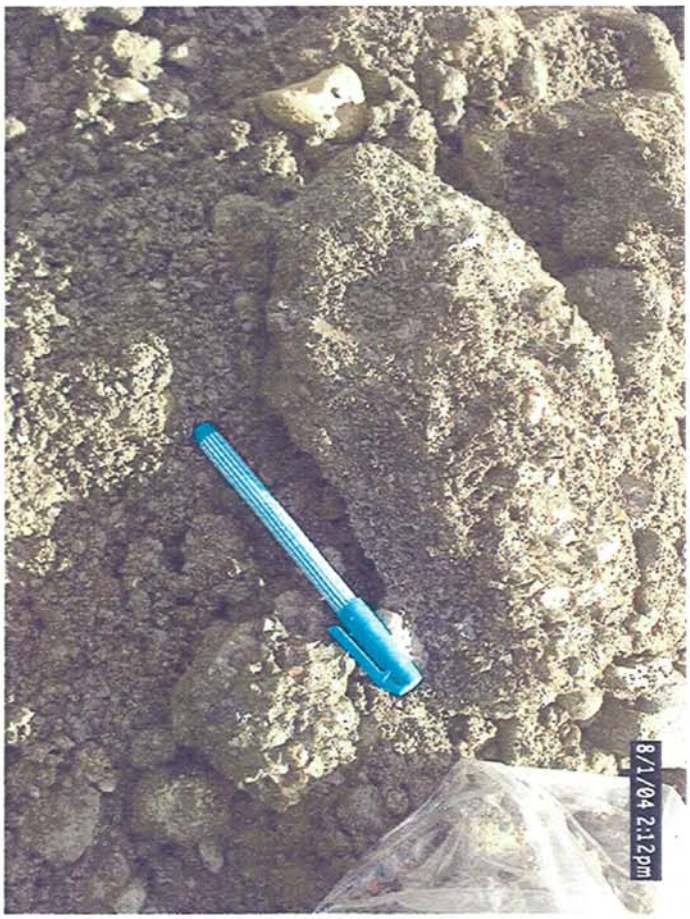
Test Pit #30141 Photo 2

Test Pit #30142 Photo 1

Test Pit #30142 Photo 2

Test Pit #30143 Photo 1

Test Pit #30143 Photo 2



Test Pit #30143 Photo 3

Test Pit #30144 Photo 1

Test Pit #30144 Photo 2

Test Pit #30145 Photo 1

Test Pit #30145 Photo 2

Test Pit #30146 Photo 1

Test Pit #30146 Photo 2

Test Pit #30147 Photo 1

Test Pit #30147 Photo 2

HOGGAN ENGINEERING & TESTING (1980) LTD.

MOISTURE CONTENT RESULTS

J.R. Paine & Associates Ltd.

CONSULTING AND TESTING ENGINEERS

MOISTURE ANALYSIS

Project: Geotechnical Services-Shakwak

Client: YTG - Highways & Public Works, Transportation & Engineering

Made By: MD

Job No: 8002-318

Location: Williscroft Creek

Ck'd By:

Date: August 4, 2004

SAMPLE #	W1	W2	W3	W4	W5	W6
TEST HOLE #	30137	30137	30137	30137	30138	30138
DEPTH (metres)	0.3-0.9	2.0-2.4	3.2-3.5	4.2-4.4	1.5-2.0	2.5-3.0
MOISTURE CONTENT %	2.5	5.1	5.1	6.8	3.4	3.9
SAMPLE #	W7	W8	W9	W10	W11	W12
TEST HOLE #	30138	30138	30139	30139	30139	30139
DEPTH (metres)	3.8-4.2	4.8-5.3	1.0-1.5	2.0-2.5	3.5-4.0	5.0-5.5
MOISTURE CONTENT %	4.0	1.8	1.4	1.9	4.3	1.9
SAMPLE #	W13	W14	W15	W16	W17	W18
TEST HOLE #	30140	30140	30140	30140	30141	30141
DEPTH (metres)	1.0-1.5	2.0-2.5	3.2-3.6	4.8-5.1	0.5-1.0	1.8-2.3
MOISTURE CONTENT %	1.8	2.1	2.7	2.6	2.1	2.7
SAMPLE #	W19	W20	W21	W22	W23	W24
TEST HOLE #	30141	30141	30142	30142	30142	30142
DEPTH (metres)	3.2-3.6	4.7-5.0	1.0-1.5	2.5-3.0	3.2-3.8	4.6-5.0
MOISTURE CONTENT %	6.3	6.6	4.7	4.6	3.3	13.0
SAMPLE #	W25	W26	W27	W28	W29	W30
TEST HOLE #	30143	30143	30143	30143	30144	30144
DEPTH (metres)	0.5-1.0	2.2-2.7	3.6-3.9	4.6-5.0	1.4-1.8	2.5-2.8
MOISTURE CONTENT %	1.8	7.1	2.7	3.9	9.2	6.5
SAMPLE #	W31	W32	W33	W34	W35	W36
TEST HOLE #	30144	30144	30145	30145	30145	30145
DEPTH (metres)	3.6-3.9	4.8-5.0	1.0-1.4	2.0-2.3	3.0-3.3	4.6-4.8
MOISTURE CONTENT %	4.5	9.6	3.2	8.2	15.0	4.8
SAMPLE #	W37	W38	W39	W40	W41	W42
TEST HOLE #	30146	30146	30146	30146	30147	30147
DEPTH (metres)	1.0-1.5	2.6-2.9	3.5-4.8	4.5-4.8	0.6-1.1	2.3-2.8
MOISTURE CONTENT %	3.1	2.9	4.5	3.8	5.3	3.1
SAMPLE #	W43	W44	W45	W46	W47	W48
TEST HOLE #	30147	30147	30146Drill	30146Drill	30146Drill	30146Drill
DEPTH (metres)	3.7-4.1	4.6-4.8	0.3-0.9	1.8-2.1	3.4-4.0	5.2-5.8
MOISTURE CONTENT %	5.6	2.5	3.3	3.6	5.5	4.9
SAMPLE #	W49	W50	W51	W52	W53	W54
TEST HOLE #	30146Drill	30146Drill	30146Drill	30146Drill	30146Drill	30146Drill
DEPTH (metres)	7.3-7.6	8.2-8.8	9.8-10.4	11.0-11.6	12.8-13.4	14.0-14.6
MOISTURE CONTENT %	7.3	3.3	4.0	4.0	3.8	3.7
SAMPLE #	W55	W56	W57	W58	W59	W60
TEST HOLE #	30142Drill	30142Drill	30142Drill	30142Drill	654-2763D	654-2763D
DEPTH (metres)	0.5-1.0	1.8-2.1	3.4-4.0	4.9-5.5	0.5-1.0	1.8-2.4
MOISTURE CONTENT %	1.5	1.9	6.6	7.0	1.3	1.3

J.R. Paine & Associates Ltd.

CONSULTING AND TESTING ENGINEERS

MOISTURE ANALYSIS

Project: Geotechnical Services-Shakwak

Client: YTG - Highways & Public Works, Transportation & Engineering

Made By: MD   Job No: 8002-318

Location: Williscroft Creek

Ck'd By: Date: August 4, 2004

SAMPLE #	W61	W62				
TEST HOLE #	654-2763D	654-2763D				
DEPTH (metres)	3.4-4.0	5.2-5.8				
MOISTURE CONTENT %	2.1	2.3				
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
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SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						
SAMPLE #						
TEST HOLE #						
DEPTH (metres)						
MOISTURE CONTENT %						

LABORATORY SAMPLE PHOTOS

W1

W2

W3

W4

W5

W6

W7

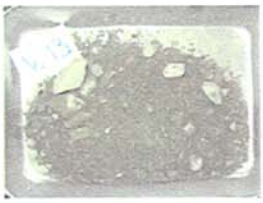
W8

W9

W10

W11

W12



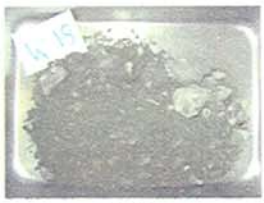
W13

W14

W15

W16

W17



W18

W19

W20

W21

W22

W23

W24

W25

W26

W27

W28

W29

W30

W31

W32

W33

W34

W35


W36


W37


W38


W39


W40


W41


W42


W43


W44


W45


W46


W47


W48


W49


W50


W51


W52


W53


W54


W55


W56


W57


W58


W59


W60


W61


W62

GRAIN SIZE ANALYSES RESULTS

HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. R. Paine & Associates Ltd.

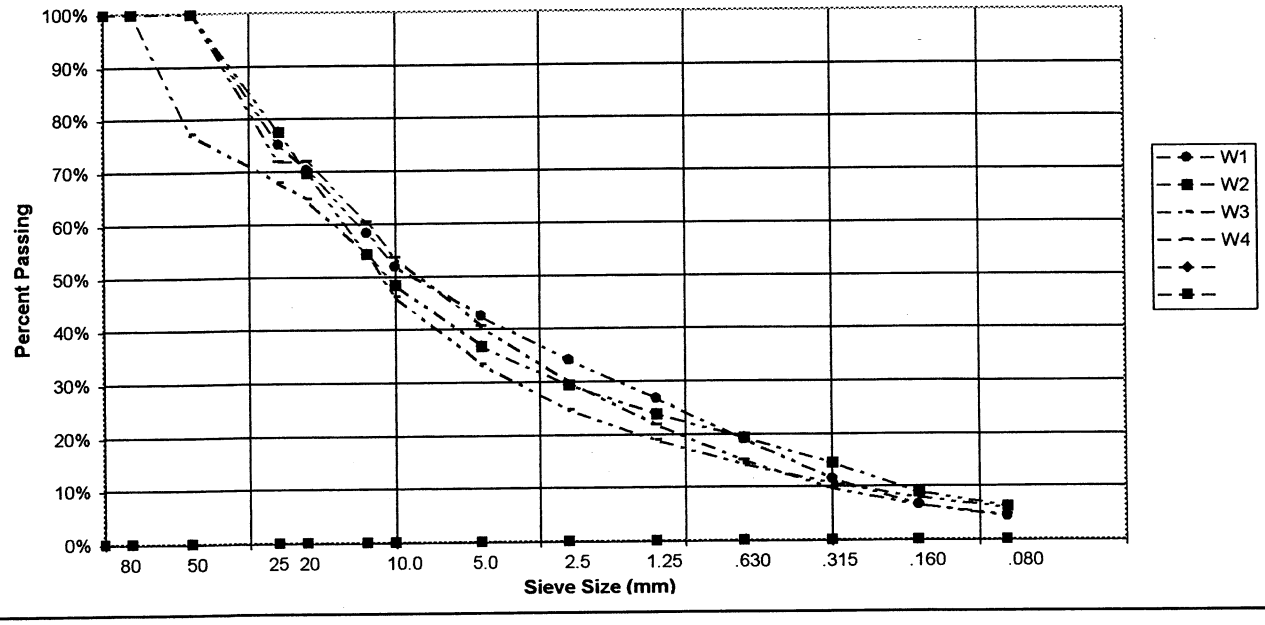
PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Hitatchi 450EX
HOLE LOCATION: 632523-6775028
LOGGED BY: RW

HOLE No.: 30137

DATE COMP: 07/31/2004

FIELD NO:	W1	W2	W3	W4		
LAB NO:	W1	W2	W3	W4		
DEPTH:	0.3-0.9	2.0-2.4	3.2-3.5	4.2-4.4		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	77%	100%		
25.0	75%	78%	68%	72%		
20.0	70%	70%	65%	72%		
12.5	58%	54%	54%	60%		
10.0	52%	48%	46%	54%		
5.0	43%	37%	33%	41%		
2.5	34%	30%	25%	30%		
1.25	27%	24%	19%	22%		
0.630	19%	19%	14%	15%		
0.315	12%	15%	11%	10%		
0.160	7%	9%	8%	7%		
0.080	4%	6%	6%	5%		
M.C.(%):	3%	5%	5%	7%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	57	63	67	59		
% SAND:	38	31	27	36		
% FINES:	4	6	6	5		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SAND (GP)	WELL-GRADED GRAVEL WITH SILT & SAND (GW-GM)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	WELL-GRADED GRAVEL WITH SAND (GW)		

Grain Size Analysis (Percent Passing vs Grain Size)



HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. H. Paine & Associates Ltd.

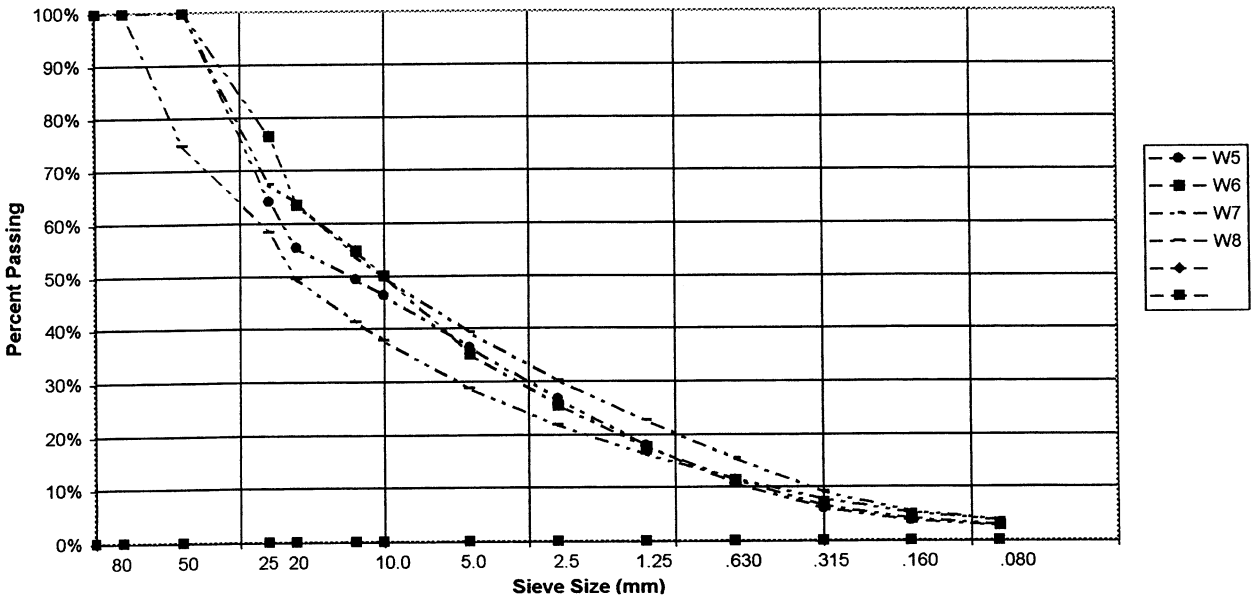
PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Hitatchi 450EX
HOLE LOCATION: 632578-6775066
LOGGED BY: RW

HOLE No.: 30138

DATE COMP: 08/01/2004

FIELD NO:	W5	W6	W7	W8		
LAB NO:	W5	W6	W7	W8		
DEPTH:	1.5-2.0	2.5-3.0	3.8-4.2	4.8-5.3		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	100%	75%		
25.0	64%	77%	67%	58%		
20.0	56%	64%	64%	50%		
12.5	49%	55%	54%	41%		
10.0	46%	50%	50%	38%		
5.0	37%	35%	39%	29%		
2.5	27%	26%	30%	22%		
1.25	18%	18%	23%	16%		
0.630	11%	12%	15%	12%		
0.315	6%	7%	9%	8%		
0.160	4%	4%	6%	5%		
0.080	3%	3%	4%	4%		
M.C.(%):	3%	4%	4%	2%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	63	65	61	71		
% SAND:	34	32	35	25		
% FINES:	3	3	4	4		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SAND (GP)	WELL-GRADED GRAVEL WITH SAND (GW)	POORLY GRADED GRAVEL WITH SAND (GP)	WELL-GRADED GRAVEL WITH SAND (GW)		

Grain Size Analysis (Percent Passing vs Grain Size)



HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. H. Paine & Associates Ltd.

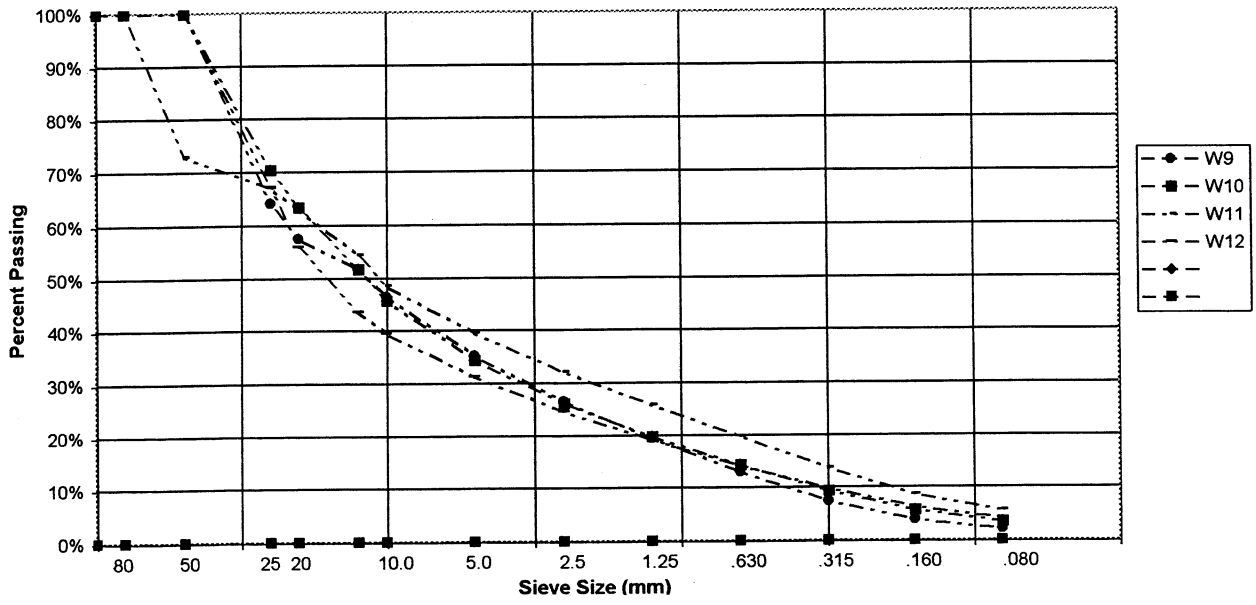
PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Hitatchi 450EX
HOLE LOCATION: 632665-6775122
LOGGED BY: RW

HOLE No.: 30139

DATE COMP: 08/01/2004

FIELD NO:	W9	W10	W11	W12		
LAB NO:	W9	W10	W11	W12		
DEPTH:	1.0-1.5	2.0-2.5	3.5-4.0	5.0-5.5		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	73%	100%		
25.0	64%	70%	67%	67%		
20.0	58%	64%	63%	56%		
12.5	52%	52%	54%	44%		
10.0	47%	46%	49%	39%		
5.0	35%	34%	40%	31%		
2.5	27%	26%	32%	25%		
1.25	19%	20%	26%	19%		
0.630	13%	14%	20%	14%		
0.315	7%	9%	14%	10%		
0.160	4%	6%	9%	6%		
0.080	2%	4%	6%	4%		
M.C.(%):	1%	2%	4%	2%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	65	66	60	69		
% SAND:	33	31	34	27		
% FINES:	2	4	6	4		
CLASSIFICATION	WELL-GRADED GRAVEL WITH SAND (GW)	WELL-GRADED GRAVEL WITH SAND (GW)	WELL-GRADED GRAVEL WITH SILT & SAND (GW-GM)	WELL-GRADED GRAVEL WITH SAND (GW)		

Grain Size Analysis (Percent Passing vs Grain Size)



HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. R. Paine & Associates Ltd.

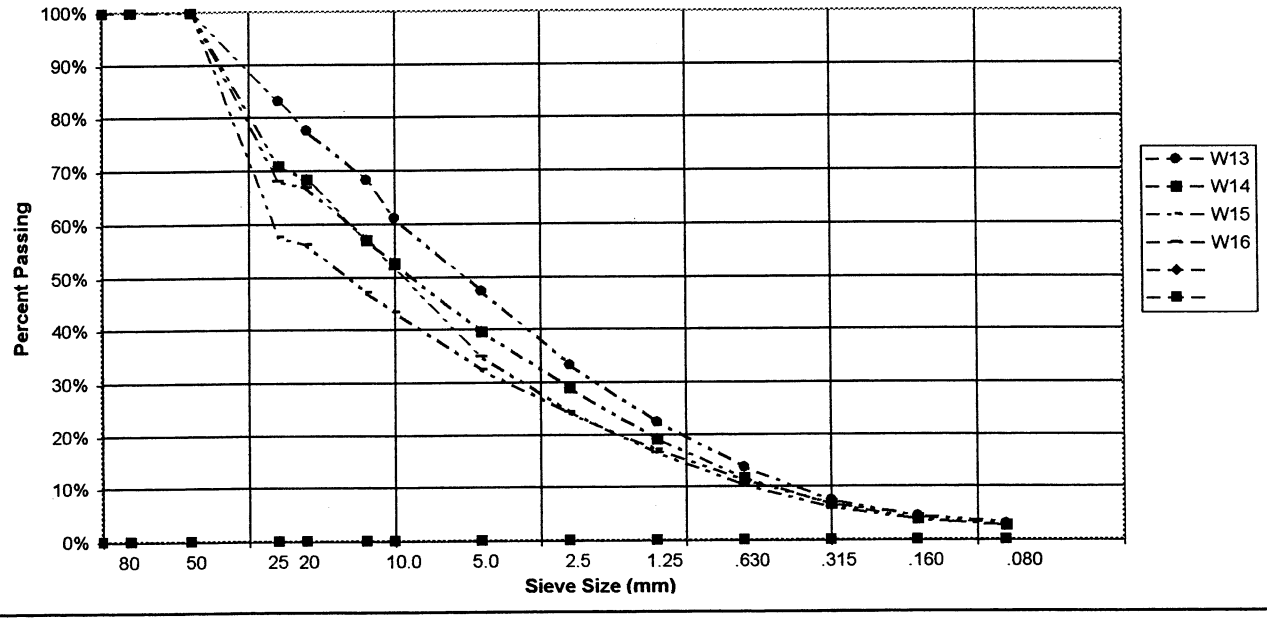
PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Hitatchi 450EX
HOLE LOCATION: 632440-6775097
LOGGED BY: RW

HOLE No.: 30140

DATE COMP: 08/01/2004

FIELD NO:	W13	W14	W15	W16		
LAB NO:	W13	W14	W15	W16		
DEPTH:	1.0-1.5	2.0-2.5	3.2-3.6	4.8-5.1		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	100%	100%		
25.0	83%	71%	58%	68%		
20.0	78%	68%	56%	67%		
12.5	68%	57%	47%	57%		
10.0	61%	53%	43%	52%		
5.0	47%	40%	33%	35%		
2.5	33%	29%	24%	24%		
1.25	23%	19%	17%	17%		
0.630	14%	12%	11%	10%		
0.315	7%	7%	7%	6%		
0.160	4%	4%	5%	4%		
0.080	3%	3%	3%	3%		
M.C.(%):	2%	2%	3%	3%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	53	60	67	65		
% SAND:	44	37	29	32		
% FINES:	3	3	3	3		
CLASSIFICATION	WELL-GRADED GRAVEL WITH SAND (GW)	POORLY GRADED GRAVEL WITH SAND (GP)	WELL-GRADED GRAVEL WITH SAND (GW)	WELL-GRADED GRAVEL WITH SAND (GW)		

Grain Size Analysis (Percent Passing vs Grain Size)



HOGGAN ENGINEERING & TESTING (1980) LTD.

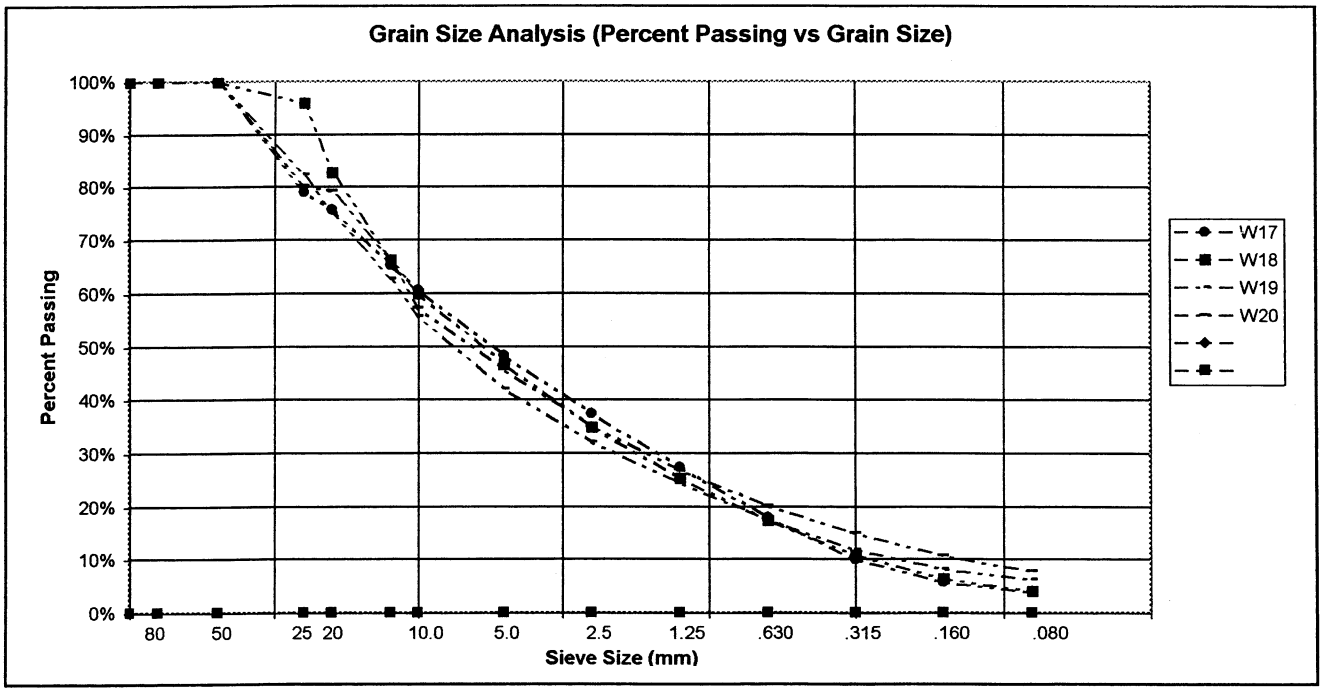
An Affiliate of J. R. Paine & Associates Ltd.

PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Hitatchi 450EX
HOLE LOCATION: 632495-6775140
LOGGED BY: RW

HOLE No.: 30141

DATE COMP: 08/01/2004

FIELD NO:	W17	W18	W19	W20		
LAB NO:	W17	W18	W19	W20		
DEPTH:	0.5-1.0	1.8-2.3	3.2-3.6	4.7-5.0		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	100%	100%		
25.0	79%	96%	82%	80%		
20.0	76%	83%	75%	79%		
12.5	65%	66%	63%	66%		
10.0	61%	60%	56%	57%		
5.0	48%	47%	42%	46%		
2.5	38%	35%	32%	35%		
1.25	27%	25%	25%	27%		
0.630	18%	17%	18%	20%		
0.315	10%	11%	12%	15%		
0.160	6%	6%	8%	11%		
0.080	4%	4%	6%	8%		
M.C.(%):	2%	3%	6%	7%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	52	53	58	54		
% SAND:	44	43	36	38		
% FINES:	4	4	6	8		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SAND (GP)	WELL-GRADED GRAVEL WITH SAND (GW)	WELL-GRADED GRAVEL WITH SILT & SAND (GW-GM)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)		



HOGGAN ENGINEERING & TESTING (1980) LTD.

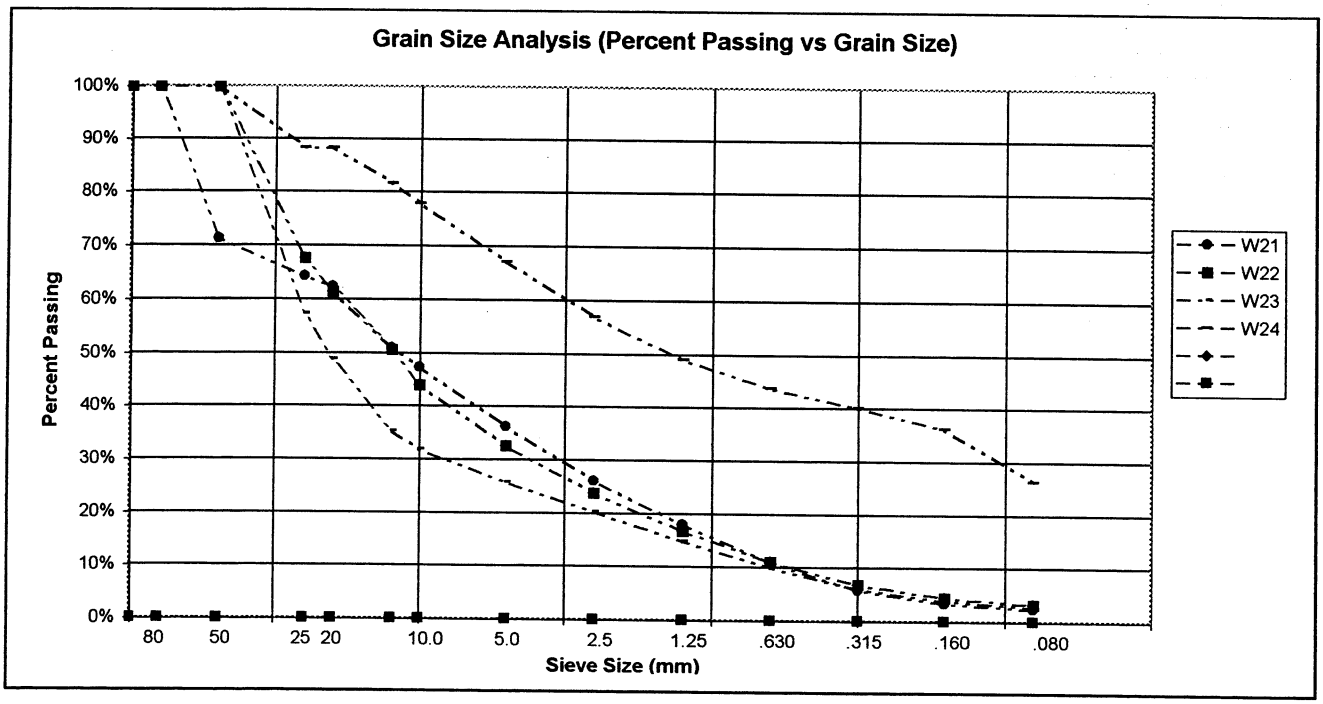
An Affiliate of J. R. Paine & Associates Ltd.

PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Hitatchi 450EX
HOLE LOCATION: 632545-6775194
LOGGED BY: RW

HOLE No.: 30142

DATE COMP: 08/01/2004

FIELD NO:	W21	W22	W23	W24		
LAB NO:	W21	W22	W23	W24		
DEPTH:	1.0-1.5	2.5-3.0	3.2-3.8	4.6-5.0		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	71%	100%	100%	100%		
25.0	64%	68%	57%	88%		
20.0	62%	61%	49%	88%		
12.5	51%	51%	35%	82%		
10.0	47%	44%	32%	78%		
5.0	36%	33%	26%	67%		
2.5	26%	24%	20%	57%		
1.25	18%	17%	15%	49%		
0.630	11%	11%	10%	44%		
0.315	6%	7%	6%	40%		
0.160	3%	4%	4%	36%		
0.080	2%	3%	3%	26%		
M.C.(%):	5%	5%	3%	13%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	64	67	74	33		
% SAND:	34	29	23	41		
% FINES:	2	3	3	26		
CLASSIFICATION	WELL-GRADED GRAVEL WITH SAND (GW)	WELL-GRADED GRAVEL WITH SAND (GW)	POORLY GRADED GRAVEL WITH SAND (GP)	SILTY SAND WITH GRAVEL (SM)		

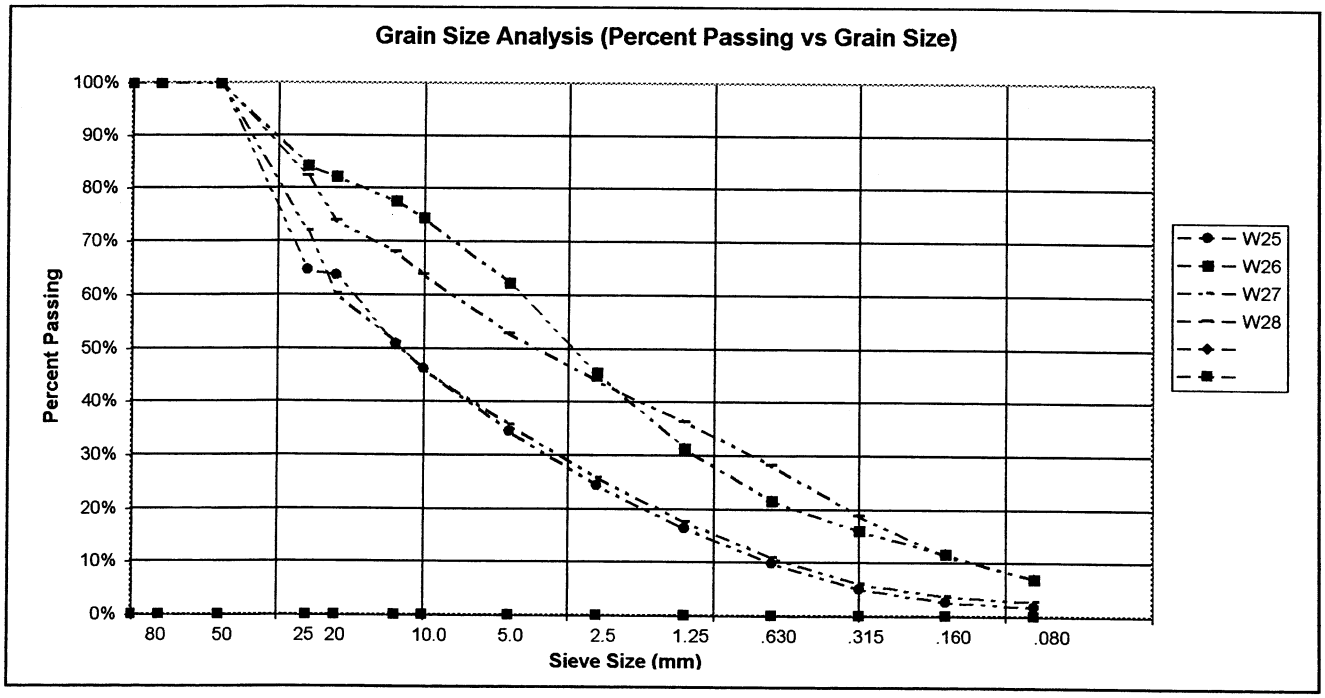


HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. R. Paine & Associates Ltd.

PROJECT NUMBER: 8002-318 HOLE No.: 30143
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Hitatchi 450EX
HOLE LOCATION: 632619-6775245
LOGGED BY: RW DATE COMP: 08/01/2004

FIELD NO:	W25	W26	W27	W28		
LAB NO:	W25	W26	W27	W28		
DEPTH:	0.5-1.0	2.2-2.7	3.6-3.9	4.6-5.0		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	100%	100%		
25.0	65%	84%	72%	82%		
20.0	64%	82%	60%	74%		
12.5	51%	78%	51%	68%		
10.0	46%	74%	46%	64%		
5.0	35%	62%	36%	53%		
2.5	24%	46%	26%	44%		
1.25	16%	31%	18%	36%		
0.630	10%	22%	11%	28%		
0.315	5%	16%	6%	19%		
0.160	3%	12%	4%	11%		
0.080	2%	7%	3%	7%		
M.C.(%):	2%	7%	3%	4%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	65	38	64	47		
% SAND:	33	55	33	46		
% FINES:	2	7	3	7		
CLASSIFICATION	WELL-GRADED GRAVEL WITH SAND (GW)	WELL-GRADED SAND WITH SILT & GRAVEL (SW-SM)	WELL-GRADED GRAVEL WITH SAND (GW)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)		

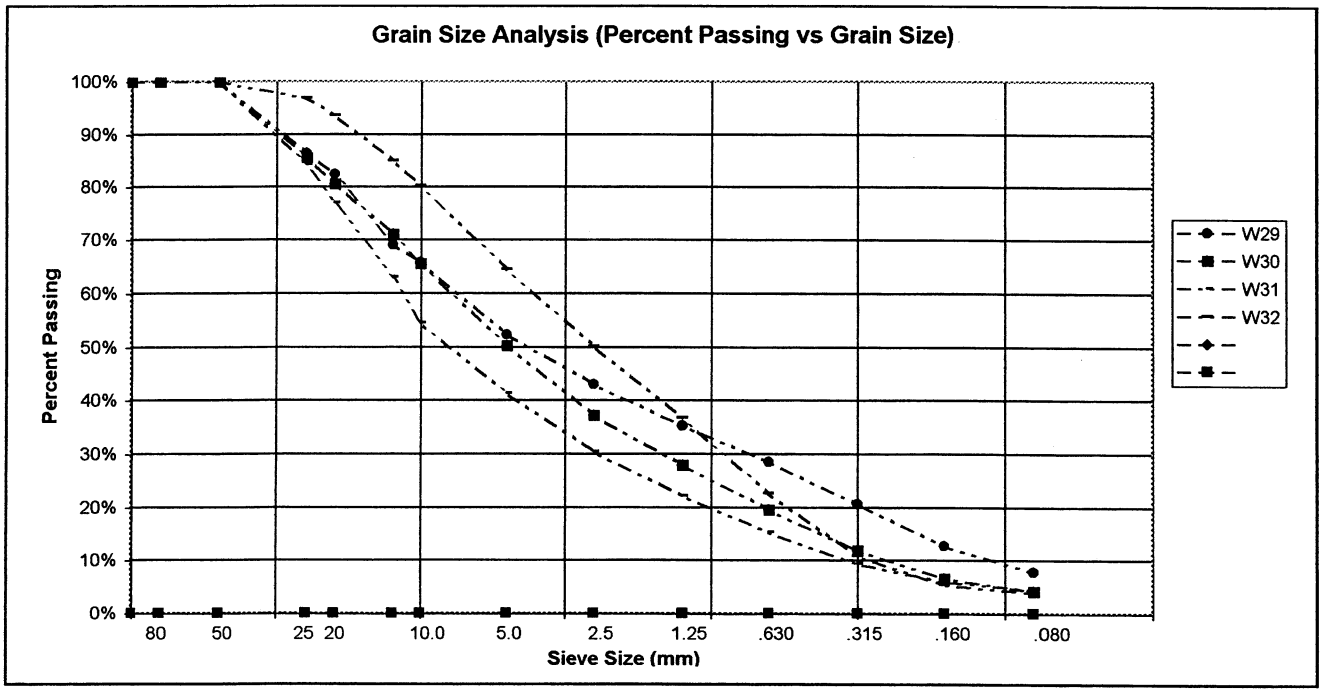


HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. R. Paine & Associates Ltd.

PROJECT NUMBER: 8002-318 HOLE No.: 30144
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Hitatchi 450EX
HOLE LOCATION: 632303-6775254
LOGGED BY: RW DATE COMP: 08/02/2004

FIELD NO:	W29	W30	W31	W32		
LAB NO:	W29	W30	W31	W32		
DEPTH:	1.4-1.8	2.5-2.8	3.6-3.9	4.8-5.0		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	100%	100%		
25.0	86%	86%	84%	97%		
20.0	82%	81%	77%	94%		
12.5	69%	71%	63%	85%		
10.0	66%	66%	55%	80%		
5.0	52%	50%	41%	64%		
2.5	43%	37%	30%	50%		
1.25	35%	28%	22%	37%		
0.630	29%	20%	15%	23%		
0.315	21%	12%	9%	11%		
0.160	13%	7%	6%	5%		
0.080	8%	4%	5%	4%		
M.C.(%):	9%	7%	5%	10%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	48	50	59	36		
% SAND:	45	46	37	61		
% FINES:	8	4	5	4		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	WELL-GRADED GRAVEL WITH SAND (GW)	WELL-GRADED GRAVEL WITH SAND (GW)	WELL-GRADED SAND WITH GRAVEL (SW)		



HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. R. Paine & Associates Ltd.

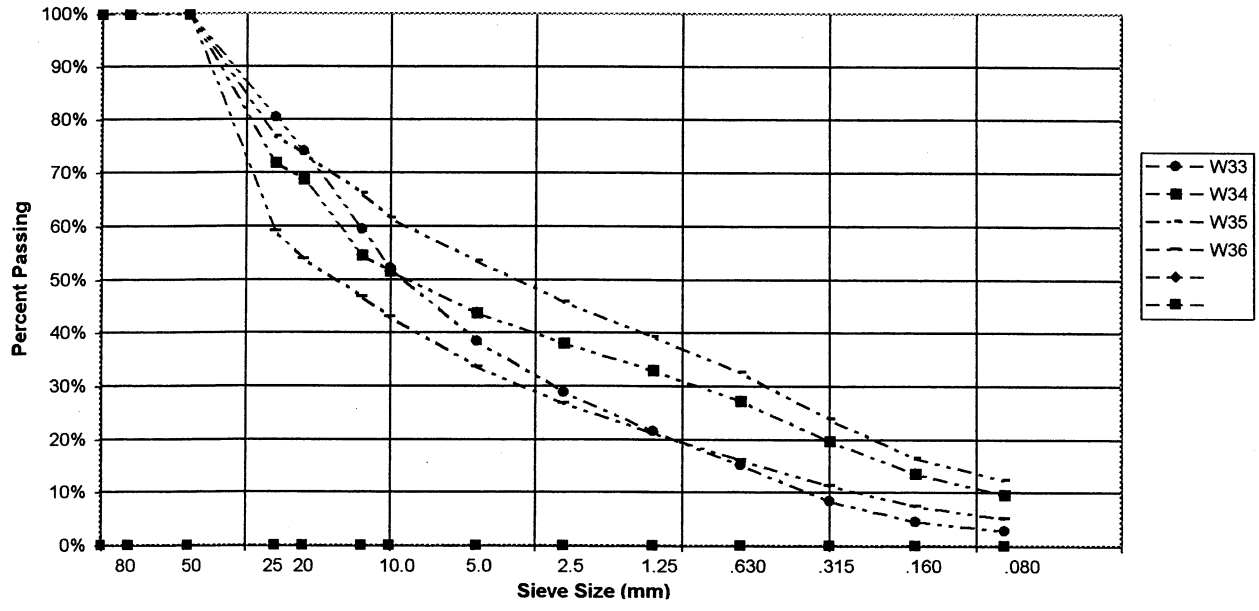
PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Hitatchi 450EX
HOLE LOCATION: 632345-6775287
LOGGED BY: RW

HOLE No.: 30145

DATE COMP: 08/02/2004

FIELD NO:	W33	W34	W35	W36		
LAB NO:	W33	W34	W35	W36		
DEPTH:	1.0-1.4	2.0-2.3	3.0-3.3	4.6-4.8		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	100%	100%		
25.0	81%	72%	77%	59%		
20.0	74%	69%	74%	54%		
12.5	59%	55%	66%	47%		
10.0	52%	52%	62%	43%		
5.0	38%	44%	54%	34%		
2.5	29%	38%	46%	27%		
1.25	22%	33%	39%	21%		
0.630	15%	27%	33%	16%		
0.315	8%	20%	24%	11%		
0.160	5%	14%	17%	8%		
0.080	3%	10%	12%	5%		
M.C.(%):	3%	8%	15%	5%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	62	56	46	66		
% SAND:	36	34	41	28		
% FINES:	3	10	12	5		
CLASSIFICATION	WELL-GRADED GRAVEL WITH SAND (GW)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	SILTY GRAVEL WITH SAND (GM)	WELL-GRADED GRAVEL WITH SILT & SAND (GW-GM)		

Grain Size Analysis (Percent Passing vs Grain Size)



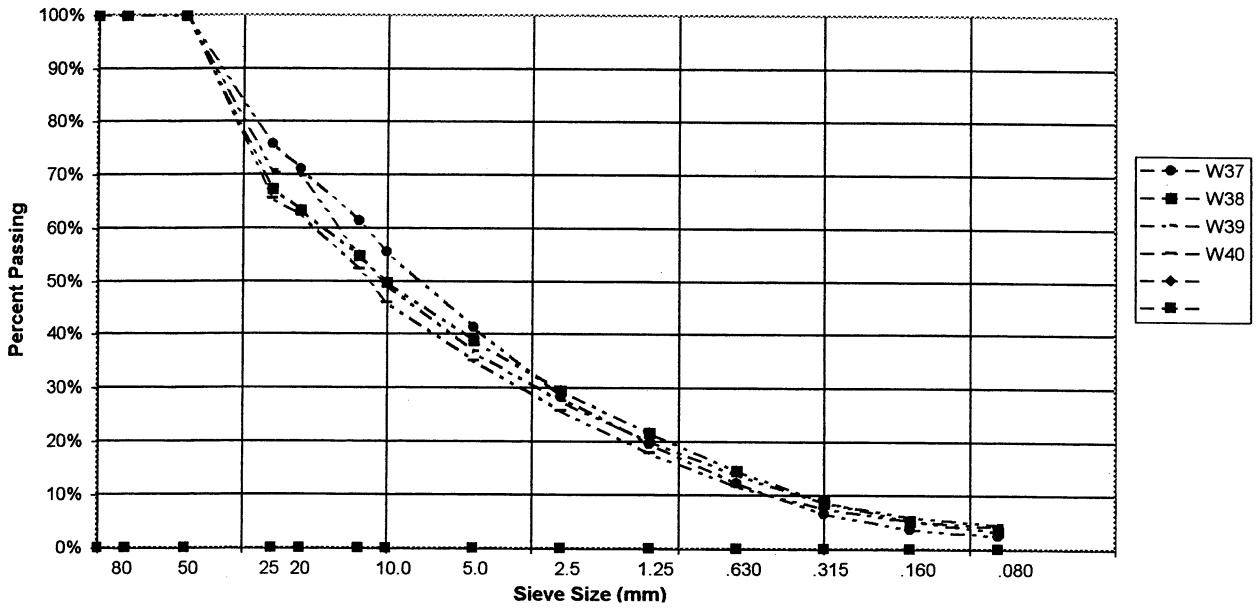
HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. H. Paine & Associates Ltd.

PROJECT NUMBER: 8002-318 HOLE No.: 30146
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Hitatchi 450EX
HOLE LOCATION: 632400-6775326
LOGGED BY: RW DATE COMP: 08/02/2004

FIELD NO:	W37	W38	W39	W40		
LAB NO:	W37	W38	W39	W40		
DEPTH:	1.0-1.5	2.6-2.9	3.5-3.8	4.5-4.8		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	100%	100%		
25.0	76%	67%	71%	66%		
20.0	71%	63%	70%	63%		
12.5	61%	55%	55%	52%		
10.0	56%	50%	49%	46%		
5.0	41%	39%	37%	35%		
2.5	28%	30%	28%	26%		
1.25	20%	22%	20%	18%		
0.630	12%	15%	14%	12%		
0.315	7%	9%	9%	8%		
0.160	4%	5%	6%	5%		
0.080	3%	3%	5%	4%		
M.C.(%):	3%	3%	5%	4%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	59	61	63	65		
% SAND:	39	35	32	31		
% FINES:	3	3	5	4		
CLASSIFICATION	WELL-GRADED GRAVEL WITH SAND (GW)	WELL-GRADED GRAVEL WITH SAND (GW)	WELL-GRADED GRAVEL WITH SAND (GW)	WELL-GRADED GRAVEL WITH SAND (GW)		

Grain Size Analysis (Percent Passing vs Grain Size)



HOGGAN ENGINEERING & TESTING (1980) LTD.

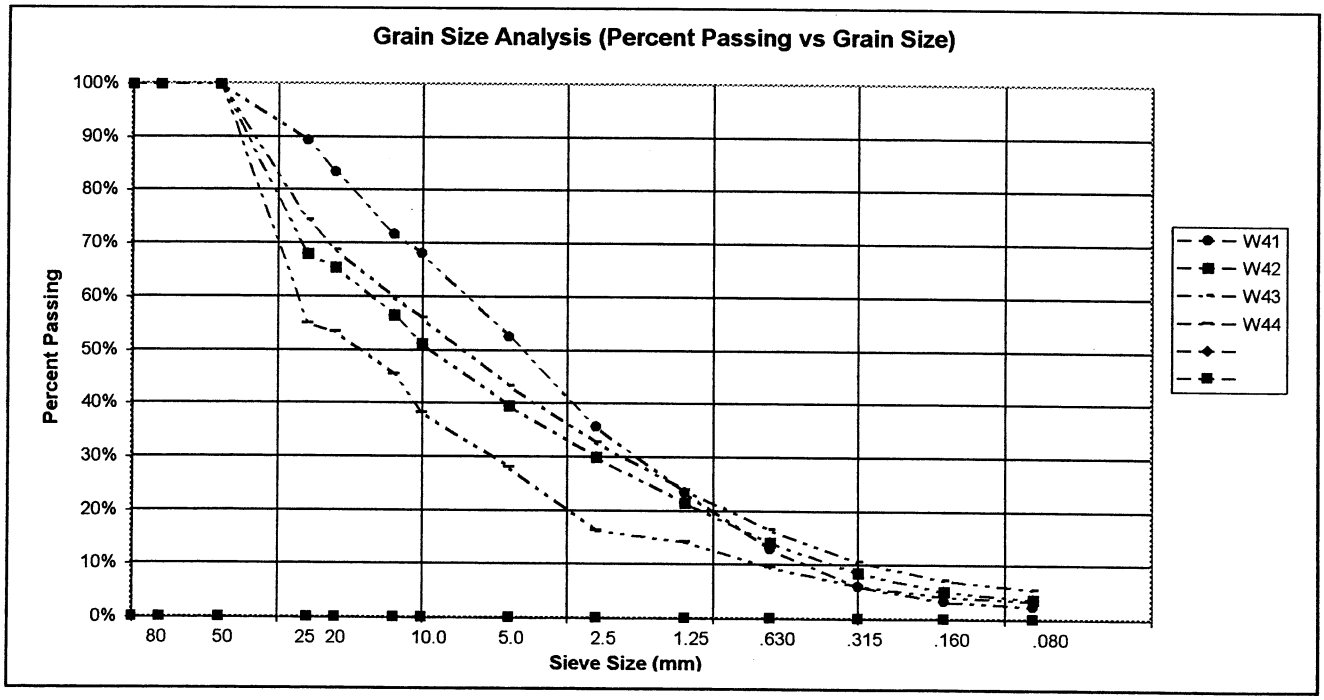
An Affiliate of J. R. Paine & Associates Ltd.

PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: Hitatchi 450EX
HOLE LOCATION: 632444-6775365
LOGGED BY: RW

HOLE No.: 30147

DATE COMP: 08/02/2004

FIELD NO:	W41	W42	W43	W44		
LAB NO:	W41	W42	W43	W44		
DEPTH:	0.6-1.1	2.3-2.8	3.7-4.1	4.6-4.8		
TYPE:	BULK	BULK	BULK	BULK		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	100%	100%		
25.0	89%	68%	74%	55%		
20.0	83%	65%	69%	53%		
12.5	72%	57%	60%	45%		
10.0	68%	51%	56%	38%		
5.0	53%	40%	43%	28%		
2.5	36%	30%	33%	16%		
1.25	23%	22%	24%	14%		
0.630	13%	14%	17%	10%		
0.315	6%	9%	11%	6%		
0.160	3%	5%	7%	4%		
0.080	2%	4%	6%	4%		
M.C.(%):	5%	3%	6%	3%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	47	60	57	72		
% SAND:	50	36	38	25		
% FINES:	2	4	6	4		
CLASSIFICATION	WELL-GRADED SAND WITH GRAVEL (SW)	WELL-GRADED GRAVEL WITH SAND (GW)	WELL-GRADED GRAVEL WITH SILT & SAND (GW-GM)	WELL-GRADED GRAVEL WITH SAND (GW)		



HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. R. Paine & Associates Ltd.

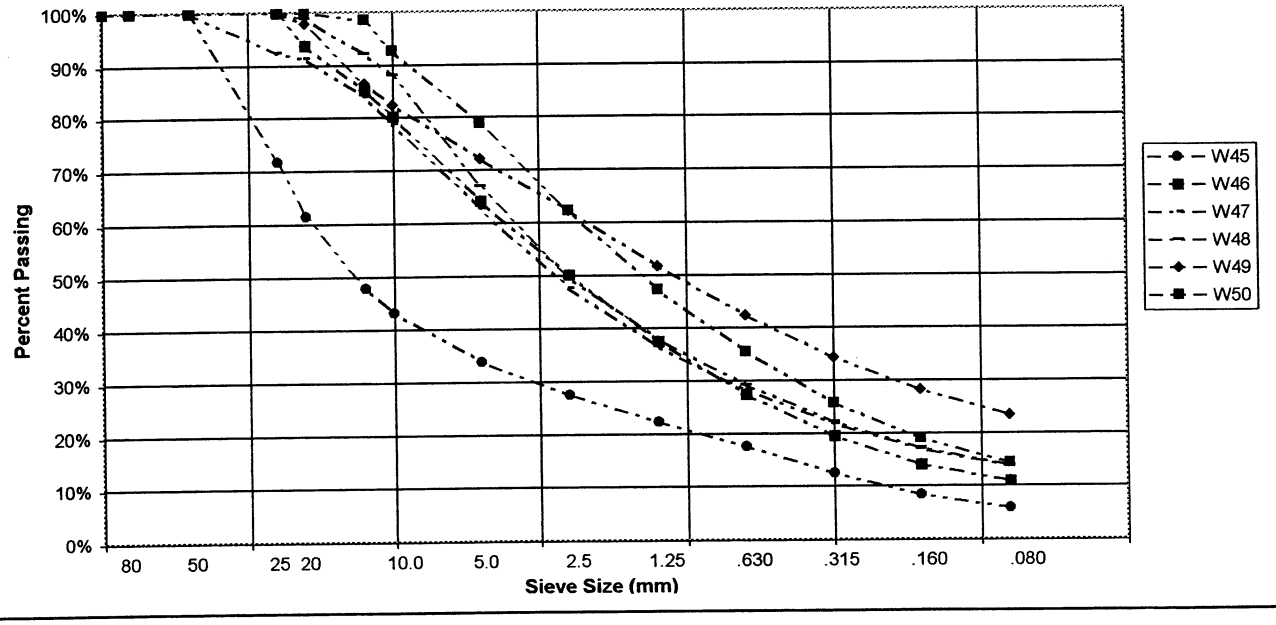
PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: CME75
HOLE LOCATION: 632406-6775322
LOGGED BY: RW

HOLE No.: 30146Drill

DATE COMP: 11/01/2004

FIELD NO:	W45	W46	W47	W48	W49	W50
LAB NO:	W45	W46	W47	W48	W49	W50
DEPTH:	0.3-0.9	1.8-2.1	3.4-4.0	5.2-5.8	7.3-7.6	8.2-8.8
TYPE:	AUGER	AUGER	AUGER	AUGER	AUGER	AUGER
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING
100.0	100%	100%	100%	100%	100%	100%
80.0	100%	100%	100%	100%	100%	100%
50.0	100%	100%	100%	100%	100%	100%
25.0	72%	100%	92%	100%	100%	100%
20.0	62%	94%	91%	99%	98%	100%
12.5	48%	85%	84%	92%	87%	99%
10.0	43%	80%	79%	88%	82%	93%
5.0	34%	64%	63%	67%	72%	79%
2.5	28%	50%	48%	50%	62%	62%
1.25	22%	38%	37%	38%	52%	47%
0.630	18%	27%	28%	29%	42%	36%
0.315	13%	20%	22%	22%	34%	26%
0.160	8%	14%	17%	17%	28%	19%
0.080	6%	11%	14%	14%	23%	14%
M.C.(%):	3%	4%	6%	5%	7%	3%
LIQUID LIMIT:	0.0	0.0	0.0	0.0	0.0	0.0
PLASTIC LIMIT:	0.0	0.0	0.0	0.0	0.0	0.0
PLASTIC INDEX.:	0.0	0.0	0.0	0.0	0.0	0.0
% GRAVEL:	66	36	37	33	28	21
% SAND:	28	53	49	53	49	64
% FINES:	6	11	14	14	23	14
CLASSIFICATION	WELL-GRADED GRAVEL WITH SILT & SAND (GW-GM)	WELL-GRADED SAND WITH SILT & GRAVEL (SW-SM)	SILTY SAND WITH GRAVEL (SM)	SILTY SAND WITH GRAVEL (SM)	SILTY SAND WITH GRAVEL (SM)	SILTY SAND WITH GRAVEL (SM)

Grain Size Analysis (Percent Passing vs Grain Size)



HOGGAN ENGINEERING & TESTING (1980) LTD.

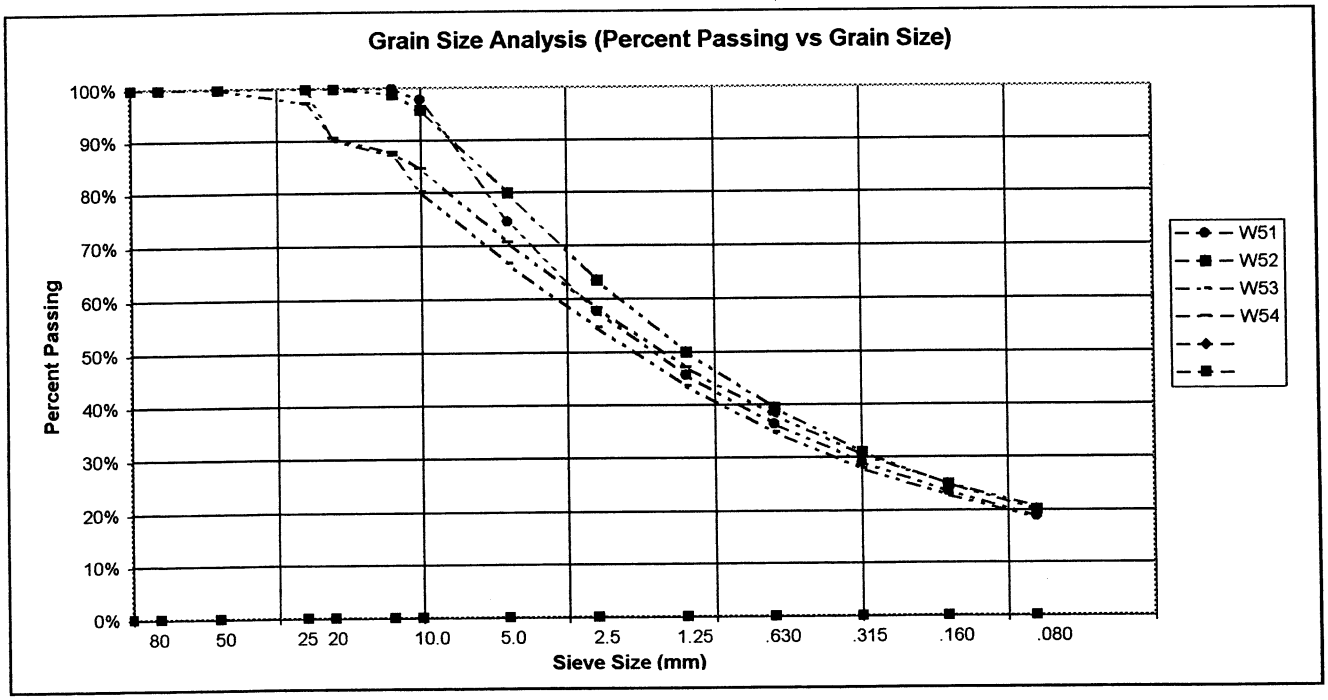
An Affiliate of J. R. Paine & Associates Ltd.

PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: CME75
HOLE LOCATION: 632406-6775322
LOGGED BY: RW

HOLE No.: 30146Drill B

DATE COMP: 11/01/2004

FIELD NO:	W51	W52	W53	W54		
LAB NO:	W51	W52	W53	W54		
DEPTH:	9.8-10.4	11.0-11.6	12.8-13.4	14.0-14.6		
TYPE:	AUGER	AUGER	AUGER	AUGER		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	100%	100%		
25.0	100%	100%	100%	97%		
20.0	100%	100%	90%	91%		
12.5	100%	99%	87%	88%		
10.0	98%	96%	80%	85%		
5.0	75%	80%	67%	71%		
2.5	58%	64%	55%	58%		
1.25	46%	50%	44%	47%		
0.630	36%	40%	35%	38%		
0.315	29%	31%	28%	31%		
0.160	24%	25%	23%	25%		
0.080	19%	20%	19%	21%		
M.C.(%):	4%	4%	4%	4%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	25	20	33	29		
% SAND:	56	60	48	50		
% FINES:	19	20	19	21		
CLASSIFICATION	SILTY SAND WITH GRAVEL (SM)	SILTY SAND WITH GRAVEL (SM)	SILTY SAND WITH GRAVEL (SM)	SILTY SAND WITH GRAVEL (SM)		



HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. R. Paine & Associates Ltd.

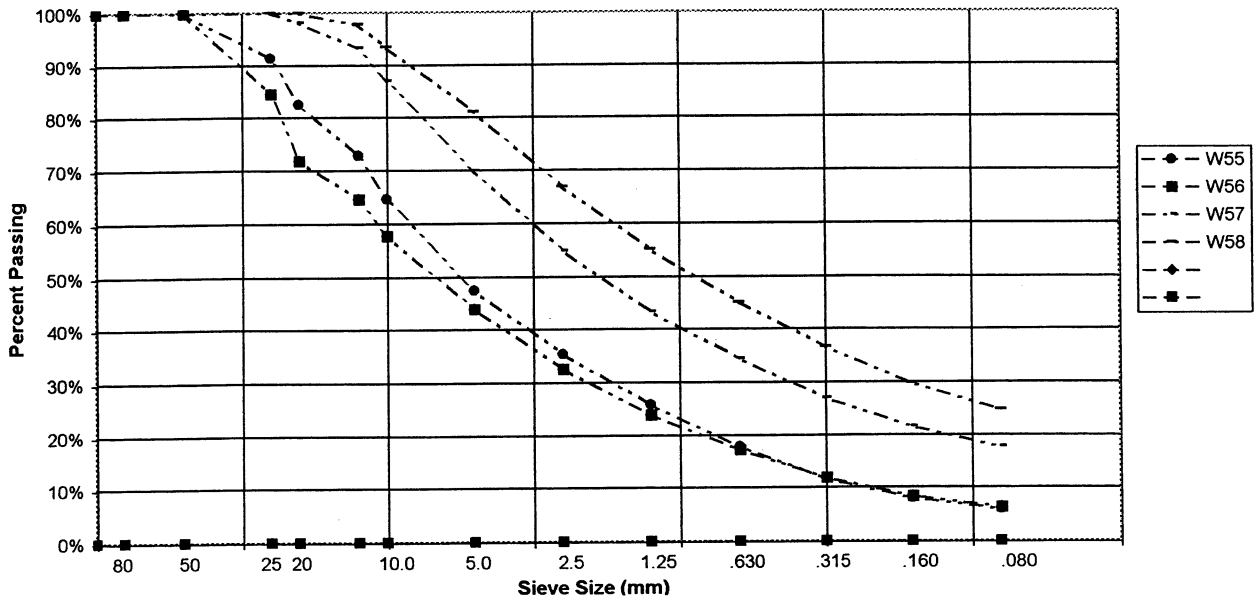
PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: CME75
HOLE LOCATION: 632558-6775193
LOGGED BY: RW

HOLE No.: 30142Drill

DATE COMP: 11/01/2004

FIELD NO:	W55	W56	W57	W58		
LAB NO:	W55	W56	W57	W58		
DEPTH:	0.5-1.0	1.8-2.1	3.4-4.0	4.9-5.5		
TYPE:	AUGER	AUGER	AUGER	AUGER		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	100%	100%		
25.0	91%	85%	100%	100%		
20.0	83%	72%	98%	100%		
12.5	73%	65%	93%	98%		
10.0	65%	58%	87%	94%		
5.0	48%	44%	70%	81%		
2.5	35%	33%	55%	67%		
1.25	26%	24%	43%	55%		
0.630	18%	17%	34%	45%		
0.315	12%	12%	27%	37%		
0.160	8%	9%	22%	30%		
0.080	6%	6%	18%	25%		
M.C.(%):	2%	2%	7%	7%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	52	56	30	19		
% SAND:	41	38	52	56		
% FINES:	6	6	18	25		
CLASSIFICATION	WELL-GRADED GRAVEL WITH SILT & SAND (GW-GM)	WELL-GRADED GRAVEL WITH SILT & SAND (GW-GM)	SILTY SAND WITH GRAVEL (SM)	SILTY SAND WITH GRAVEL (SM)		

Grain Size Analysis (Percent Passing vs Grain Size)



HOGGAN ENGINEERING & TESTING (1980) LTD.

An Affiliate of J. H. Faline & Associates Ltd.

PROJECT NUMBER: 8002-318
CLIENT: YTG, Transportation & Engineering
PROJECT NAME: Geotechnical Services
PROJECT LOCATION: Km 1691.7-1717.3
DRILL UNIT: CME75
HOLE LOCATION: 632672-6774951
LOGGED BY: RW

HOLE No.: 654-2763Drill

DATE COMP: 11/01/2004

FIELD NO:	W59	W60	W61	W62		
LAB NO:	W59	W60	W61	W62		
DEPTH:	0.5-1.0	1.8-2.4	3.4-4.0	5.2-5.8		
TYPE:	AUGER	AUGER	AUGER	AUGER		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	100%	100%		
25.0	100%	87%	100%	97%		
20.0	98%	87%	97%	97%		
12.5	84%	75%	89%	92%		
10.0	76%	70%	83%	87%		
5.0	54%	53%	69%	69%		
2.5	38%	41%	53%	52%		
1.25	27%	30%	40%	41%		
0.630	19%	22%	30%	32%		
0.315	12%	15%	22%	24%		
0.160	7%	11%	17%	19%		
0.080	5%	8%	14%	15%		
M.C.(%):	1%	1%	2%	2%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	46	47	31	31		
% SAND:	49	45	55	54		
% FINES:	5	8	14	15		
CLASSIFICATION	WELL-GRADED SAND WITH GRAVEL (SW)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	SILTY SAND WITH GRAVEL (SM)	SILTY SAND WITH GRAVEL (SM)		

Grain Size Analysis (Percent Passing vs Grain Size)