

GEOTECHNICAL INVESTIGATIONS

Highway Construction
km 1700.0 to 1707.7
Alaska Highway #1
Yukon, 2007-2008
Volume 1 of 2



Highways and Public Works
Transportation Engineering Branch

Geotechnical Services

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HIGHWAY CONSTRUCTION

GEOTECHNICAL INVESTIGATION

km 1700.0 to 1707.7
YUKON, 2007-2008

ALASKA HIGHWAY #1

Highway Construction
km 1700.0 to 1707.7
Alaska Highway #1
Yukon, 2007-2008
Volume 1 of 2

This Data Package prepared for project viewing:

March, 2007

Transportation Engineering Branch
Geotechnical Services
461 Range Road
Whitehorse, Yukon

CONTENTS

Volume 1 of 2

INTRODUCTION

Investigation notes, classification methods and legends.

CENTRELINE TESTING km 1700.0 to 1707.7 Alaska Highway

Subsurface Exploration and Test Report Sheets are provided.
The reports for the Centreline testing holes are arranged according to project location, starting at km 1700+080 and increasing to km 1707+675.

Auger Testing

2000	TEST HOLES 1275 to 1281	shown with prefix 539-
2000	TEST HOLES 1282 to 1291	shown with prefix 540-
2004	TEST HOLES 30045 to 30070	shown with no prefix
2004	TEST HOLES 30082 to 30096	shown with no prefix

Reverse Circulation Air Rotary Testing

2004	TEST HOLES 30084R to 30093R; 30096R	shown with no prefix
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Test Pit Testing

2004	TEST PITS 30072 to 30081	shown with no prefix
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CONTENTS (continued)**Volume 2 of 2****CENTRELINE TESTING km 1700.0 to 1707.7 Alaska Highway**

Laboratory Testing Result Sheets are provided.

The reports for the centreline holes are arranged according to test hole / test pit number, starting at 539-1275 and increasing to 540-1291 and starting at 30045 and increasing to 30096.

Auger Testing

2000	TEST HOLES 1275 to 1281	shown with prefix 539-
2000	TEST HOLES 1282 to 1291	shown with prefix 540-
2004	TEST HOLES 30045 to 30051	shown with no prefix
2004	TEST HOLES 30082 to 30096	shown with no prefix

Reverse Circulation Air Rotary Testing

2004	* NO LABORATORY TESTING DONE	
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Test Pit Testing

2004	TEST PITS 30076 & 30081	shown with no prefix
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PHOTOGRAPHS - CENTRELINE HOLES km 1700.0 to 1707.7 Alaska Highway

Sample and Test Pit Photographs are provided.

Auger Holes

2004	TEST HOLES 30045 to 30070	sample # 465 to 653
2004	TEST HOLES 30082 to 30096	sample # 295 to 351

Reverse Circulation Air Rotary Holes

2004	TEST HOLES 30084R to 30093R; 30096R	sample # R1 to R45
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Test Pits

2004	TEST PITS 30076 & 30081	sample # S1 & S3
2004	TEST PITS 30072 to 30081	excavation photos

CONTENTS (continued)

Volume 2 of 2 con't

GRANULAR SOURCE km 1691.3 RHS Alaska Highway Pit ID 115 G-07

A production history 2006-30 and location plans are provided.

GRANULAR SOURCE km 1712.5 LHS Alaska Highway Pit ID 115 G-12

A production history 2005-05 and location plans are provided.

HIGHWAY CONSTRUCTION

GEOTECHNICAL INVESTIGATION
km 1700.0 to 1707.7
YUKON, 2007-2008

ALASKA HIGHWAY #1

INTRODUCTION

GEOTECHNICAL INVESTIGATION DATA

This geotechnical investigation data is provided to assist in the interpretation of soil conditions encountered within this project area. The data presented was prepared solely for Departmental designing and estimating purposes.

The description of material / soil description shown on the Subsurface Exploration & Test Reports is a textural description based on identification of retrieved material by the field drilling technician at the time of investigation. This description may be modified following laboratory testing and classification of selected samples. The system used is based on the ASTM standards for identification and classification of soils. Permafrost classifications and groundwater levels are indicated as detected at time of drilling, unless otherwise noted. Changes in moisture or frost conditions should be anticipated depending on the season, time lapse or amount of development work done since the date of investigation.

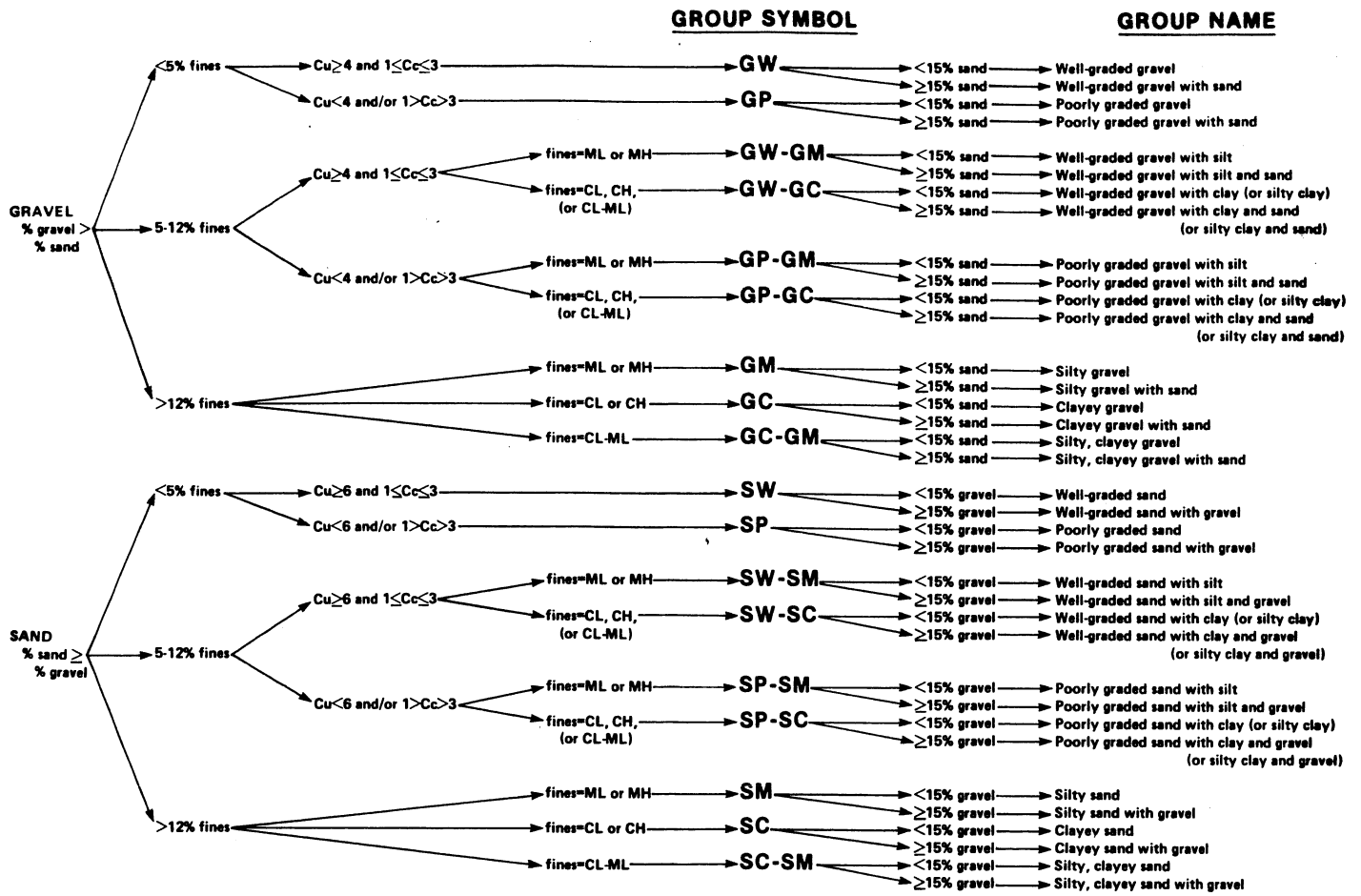
The sample laboratory testing data is provided to give detailed physical properties of selected retrieved samples within the subsurface profile. ***These tests may be conducted on disturbed samples and may exhibit properties different from the native materials. The sample classification may also vary from the soil description due to variations within the sampled strata or because of changes resulting from the sampling method, excavation equipment used or testing preparation procedures.***

History of Aggregate Production Averages shown provide an unweighted average of the total individual quality control tests performed during the production of the indicated stockpiles. Individual test results may fall outside of the material type specification limit. Fracture tests may not have been performed on all samples collected.

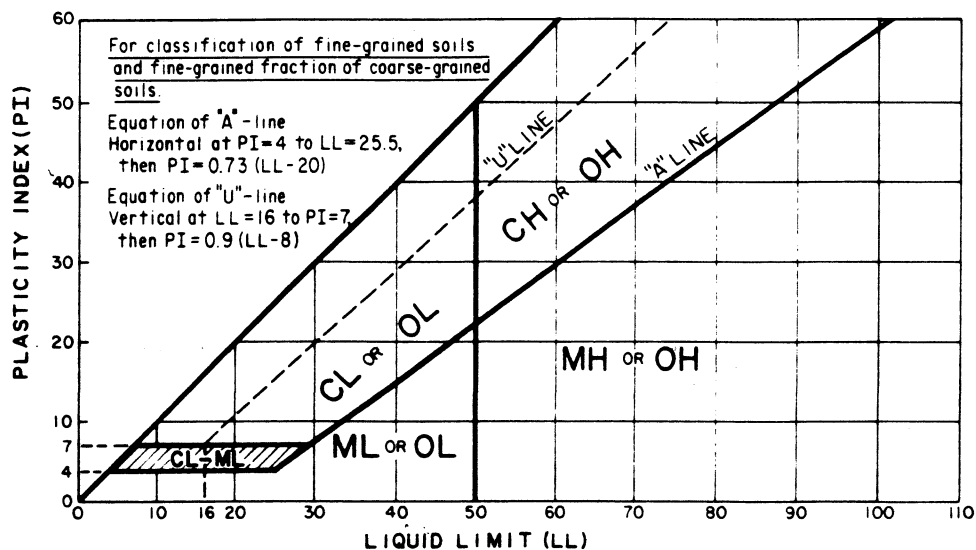
These descriptions and averages are not intended to be conclusive as to the nature of any material encountered, or to conditions between or around the test borings/pits.

Note: Development work may have taken place since the time of geotechnical investigation.

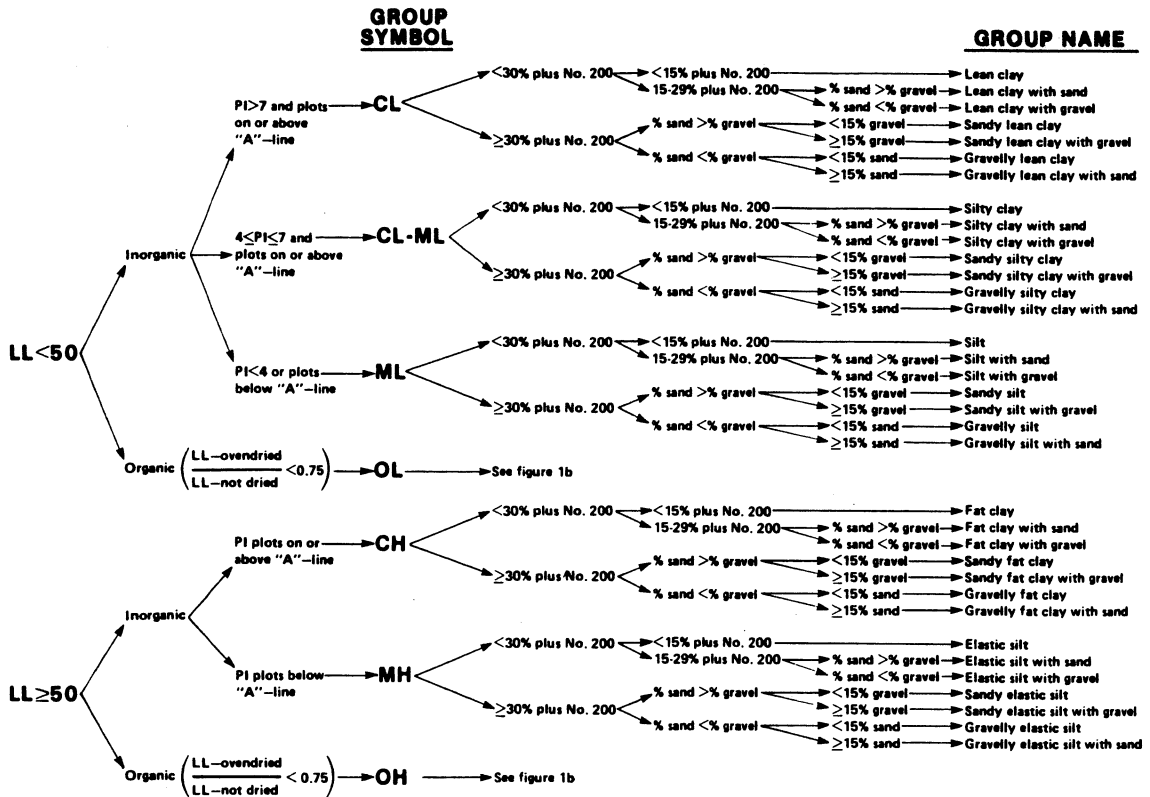
It is recommended that a site inspection, combined with consideration of the regional geology and climatic conditions be conducted. An evaluation of the investigation methods and development work done since the time of investigation should be done prior to interpreting the subsurface conditions at the site for construction purposes.



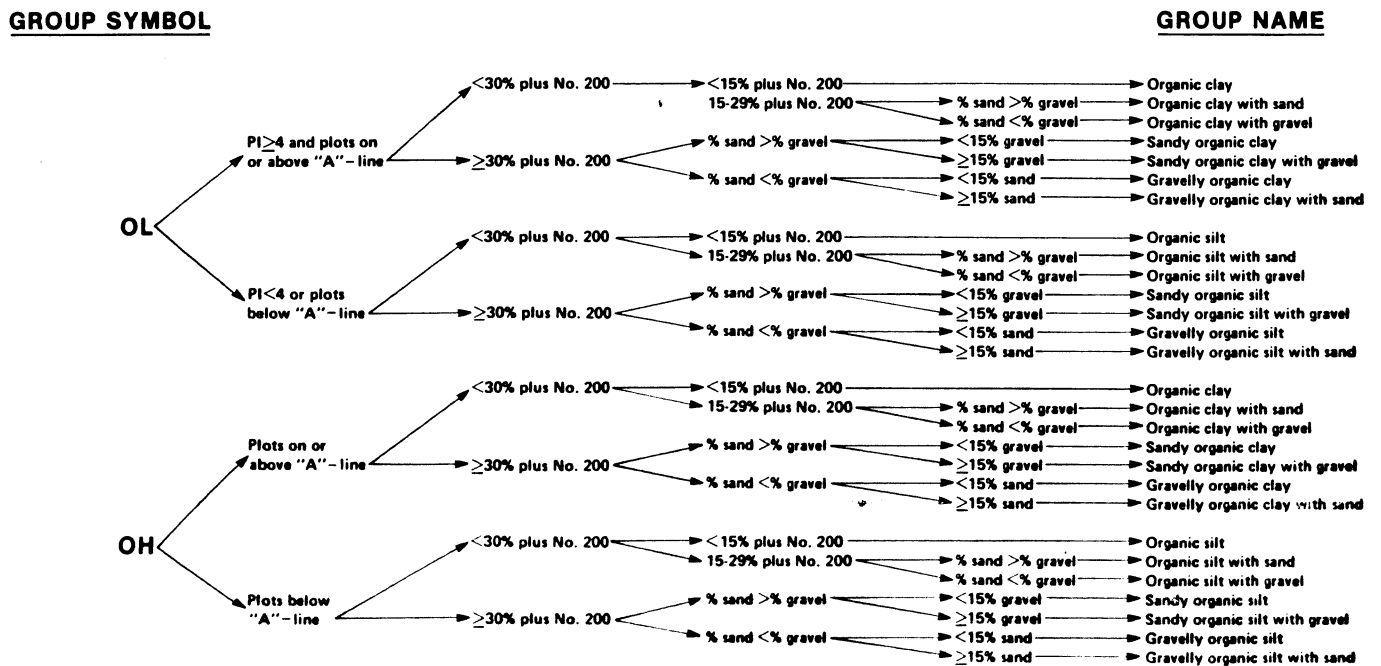
Flow chart for classifying coarse-grained soil.



Plasticity chart.



Flow chart for classifying fine-grained soil.



Flow chart for classifying organic soil.

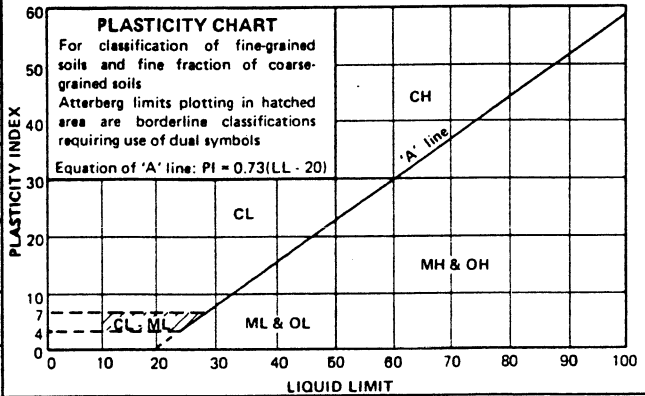
CRITERIA FOR ASSIGNING GROUP SYMBOLS AND GROUP NAMES USING LABORATORY TESTS ^a				SOIL CLASSIFICATION	
				GROUP SYMBOL	GROUP NAME ^b
COARSE-GRAINED SOILS more than 50% retained on No. 200 sieve	GRAVELS More than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS Less than 5% fines ^c	$C_u \geq 4$ and $1 \leq C_c \leq 3$ ^e	GW	Well-graded gravel ^f
			$C_u < 4$ and/or $1 > C_c > 3$ ^e	GP	Poorly graded gravel ^f
		GRAVELS WITH FINES More than 12% fines ^c	Fines classify as ML or MH	GM	Silty gravel ^{f, g, h}
			Fines classify as CL or CH	GC	Clayey gravel ^{f, g, h}
	SANDS 50% or more of coarse fraction passes No. 4 sieve	CLEAN SANDS Less than 5% fines ^d	$C_u \geq 6$ and $1 \leq C_c \leq 3$ ^e	SW	Well-graded sand ⁱ
			$C_u < 6$ and/or $1 > C_c > 3$ ^e	SP	Poorly graded sand ⁱ
		SANDS WITH FINES More than 12% fines ^d	Fines classify as ML or MH	SM	Silty sand ^{g, h, i}
			Fines classify as CL or CH	SC	Clayey sand ^{g, h, i}
FINE-GRAINED SOILS 50% or more passed the No. 200 sieve	SILTS AND CLAYS Liquid limit less than 50%	inorganic	PI > 7 and plots on or above "A" line ^j	CL	Lean clay ^{k, l, m}
			PI < 4 or plots below "A" line ^j	ML	Silt ^{k, l, m}
		organic	Liquid limit - oven dried < 0.75 Liquid limit - not dried	OL	Organic clay ^{k, l, m, n} Organic silt ^{k, l, m, o}
			SILTS AND CLAYS Liquid limit 50% or more	inorganic	PI plots on or above "A" line
	PI plots below "A" line	MH			Elastic silt ^{k, l, m}
	organic	Liquid limit - oven dried < 0.75 Liquid limit - not dried		OH	Organic clay ^{k, l, m, p} Organic silt ^{k, l, m, q}
		Highly organic soils		Primarily organic matter, dark in color, and organic odor	PT

- Based on the material passing the 3-in (75-mm) sieve.
- If field sample contained cobbles and/or boulders, add "with cobbles and/or boulders" to group name.
- Gravels with 5 to 12% fines require dual symbols
GM-GM well graded gravel with silt
GM-GC well graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
- Sands with 5 to 12% fines require dual symbols
SW-SM well graded sand with silt
SW-SC well graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay
- $C_u = D_{60}/D_{10}$ $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
- If soil contains > 15% sand, add "with sand" to group name.
- If fines classify as CL-ML, use dual symbol GC-GM, SC-SM.
- If fines are organic, add "with organic fines" to group name.
- If soil contains > 15% gravel, add "with gravel" to group name.
- If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
- If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel" whichever is predominant.
- If soil contains > 30% plus No. 200, predominantly sand, add "sandy" to group name.
- If soil contains \leq 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
- PI > 4 and plots on or above "A" line.
- PI < 4 or plots below "A" line.
- PI plots on or above "A" line.
- PI plots below "A" line.

Soil classification chart

UNIFIED SOIL CLASSIFICATION†

MAJOR DIVISIONS		GROUP SYMBOLS	TYPICAL NAMES	CLASSIFICATION CRITERIA				
COARSE-GRAINED SOILS	More than 50% retained on No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	Classification on basis of percentage of fines Less than 5% pass No. 200 sieve More than 12% pass No. 200 sieve 5% to 12% pass No. 200 sieve Borderline classification requiring use of dual symbols	$C_u = \frac{D_{60}}{D_{10}}$ Greater than 4 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 Not meeting both criteria for GW Atterberg limits plot below 'A' line or plasticity index less than 4 Atterberg limits plot above 'A' line and plasticity index greater than 7	
			GRAVELS WITH FINES	GP	Poorly-graded gravels and gravel-sand mixtures, little or no fines			
		SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS	SW	Well-graded sands and gravelly sands, little or no fines			$C_u = \frac{D_{60}}{D_{10}}$ Greater than 6 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 Not meeting both criteria for SW
			SANDS WITH FINES	SP	Poorly-graded sands and gravelly sands, little or no fines			
	FINE-GRAINED SOILS	SILTS AND CLAYS	Liquid limit 50% or less	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands	Atterberg limits plot below 'A' line or plasticity index less than 4 Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols		
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
				OL	Organic silts and organic silty clays of low plasticity			
		SILTS AND CLAYS	Liquid limit greater than 50%	MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts		Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols Equation of 'A' line: $PI = 0.73(LL - 20)$	
				CH	Inorganic clay of high plasticity, fat clays			
				OH	Organic clays of medium to high plasticity			
PT	Peat, muck and other highly organic soils	PT	Peat, muck and other highly organic soils	PT	Peat, muck and other highly organic soils			



GROUND ICE DESCRIPTION

ICE NOT VISIBLE			
GROUP SYMBOLS	SYMBOLS	SUBGROUP DESCRIPTION	IMAGE
N	Nf	Poorly-bonded or friable	
	Nbn	No excess ice, well-bonded	
	Nbe	Excess ice, well-bonded	

VISIBLE ICE LESS THAN 50% BY VOLUME			
GROUP SYMBOLS	SYMBOLS	SUBGROUP DESCRIPTION	IMAGE
V	Vx	Individual ice crystals or inclusions	
	Vc	Ice coatings on particles	
	Vr	Random or irregularly oriented ice formations	
	Vs	Stratified or distinctly oriented ice formations	

VISIBLE ICE GREATER THAN 50% BY VOLUME			
GROUP SYMBOLS	SYMBOLS	SUBGROUP DESCRIPTION	IMAGE
ICE	ICE + Soil Type	Ice with soil inclusions	
	ICE	Ice without soil inclusions (greater than 25 mm (1 in.) thick)	

- NOTE:**
- Dual symbols are used to indicate borderline or mixed ice classifications
 - Visual estimates of ice contents indicated on borehole logs $\pm 5\%$
 - This system of ground ice description has been modified from NRC Technical Memo 79, Guide to the Field Description of Permafrost for Engineering Purposes

LEGEND
Soil Ice

		BOUNDARY LINES ON DRILL LOGS			TEST HOLE NO: 3			
ENGINEERING-CAPITAL					Project No:			
					ELEVATION: 0.00 (m)			
SAMPLE TYPE		<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲ 20 40 60 80 PLASTIC M.C. LIQUID 20 40 60 80	USC	SOIL SYMBOL	◆ PERCENT SAND ◆ 20 40 60 80 ■ PERCENT GRAVEL ■ 20 40 60 80	DEPTH (m)
0.0	BOUNDARY LINES							0.0
	A solid line is used when a definite soil change is logged and a depth is known.							
1.0	A dashed line is used when a definite soil change is noted either by the field log or the sample test results and the depth of change is unknown.							1.0
2.0	A dotted line is used when a gradual or gradational change is noted by field notes and sample test results.							2.0
3.0								3.0
4.0	▼ A triangle over two lines indicates water level detected at the time of drilling, unless otherwise noted							4.0
5.0								5.0
6.0								6.0

Government of Yukon
Transportation Engineering

LOGGED BY:	COMPLETION DEPTH: 6.0 m
REVIEWED BY:	COMPLETE: / /
Fig. No:	Page 1 of 1

HIGHWAY CONSTRUCTION

GEOTECHNICAL INVESTIGATION

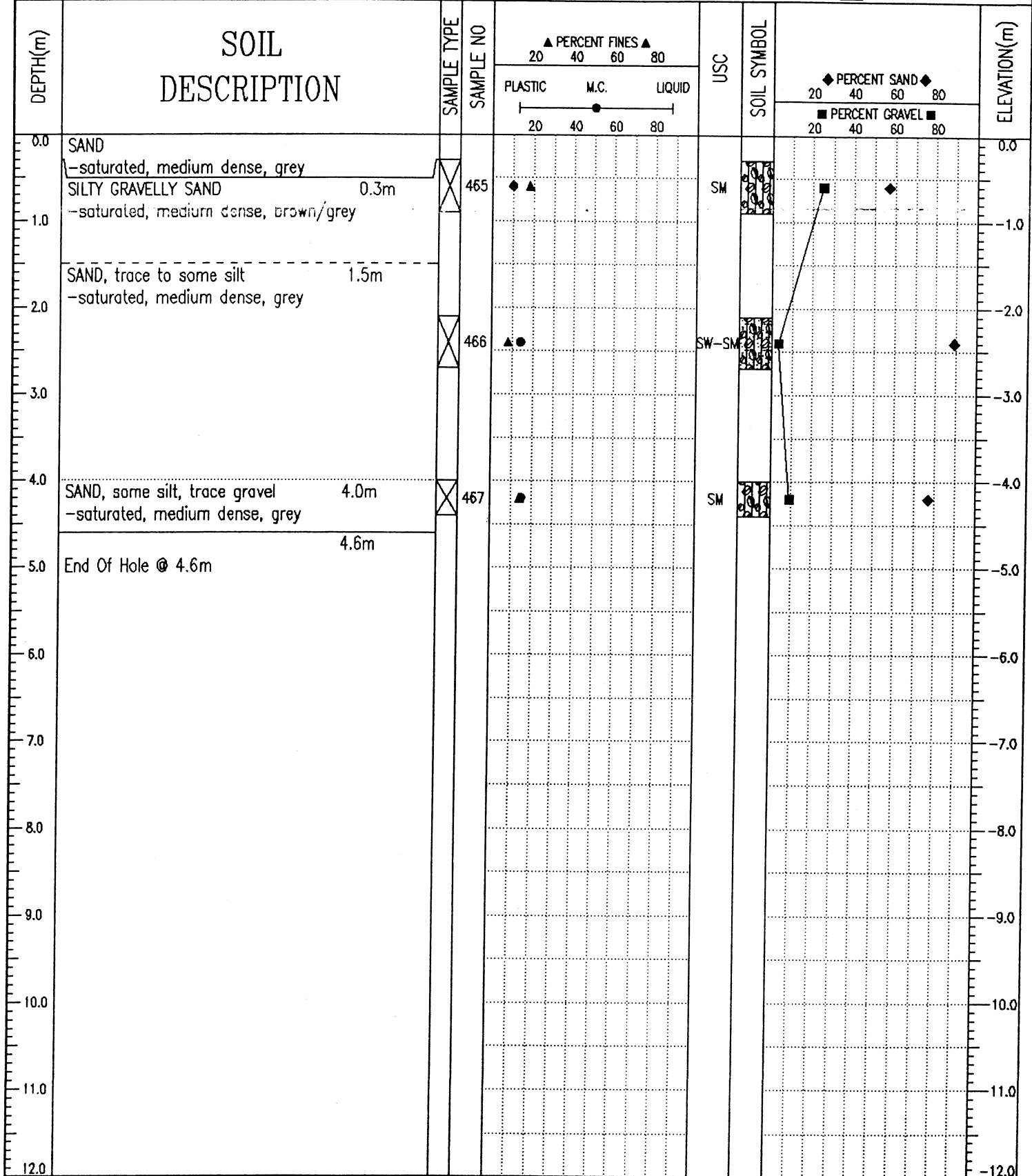
km 1700.0 to 1707.7
YUKON, 2007-2008

ALASKA HIGHWAY #1

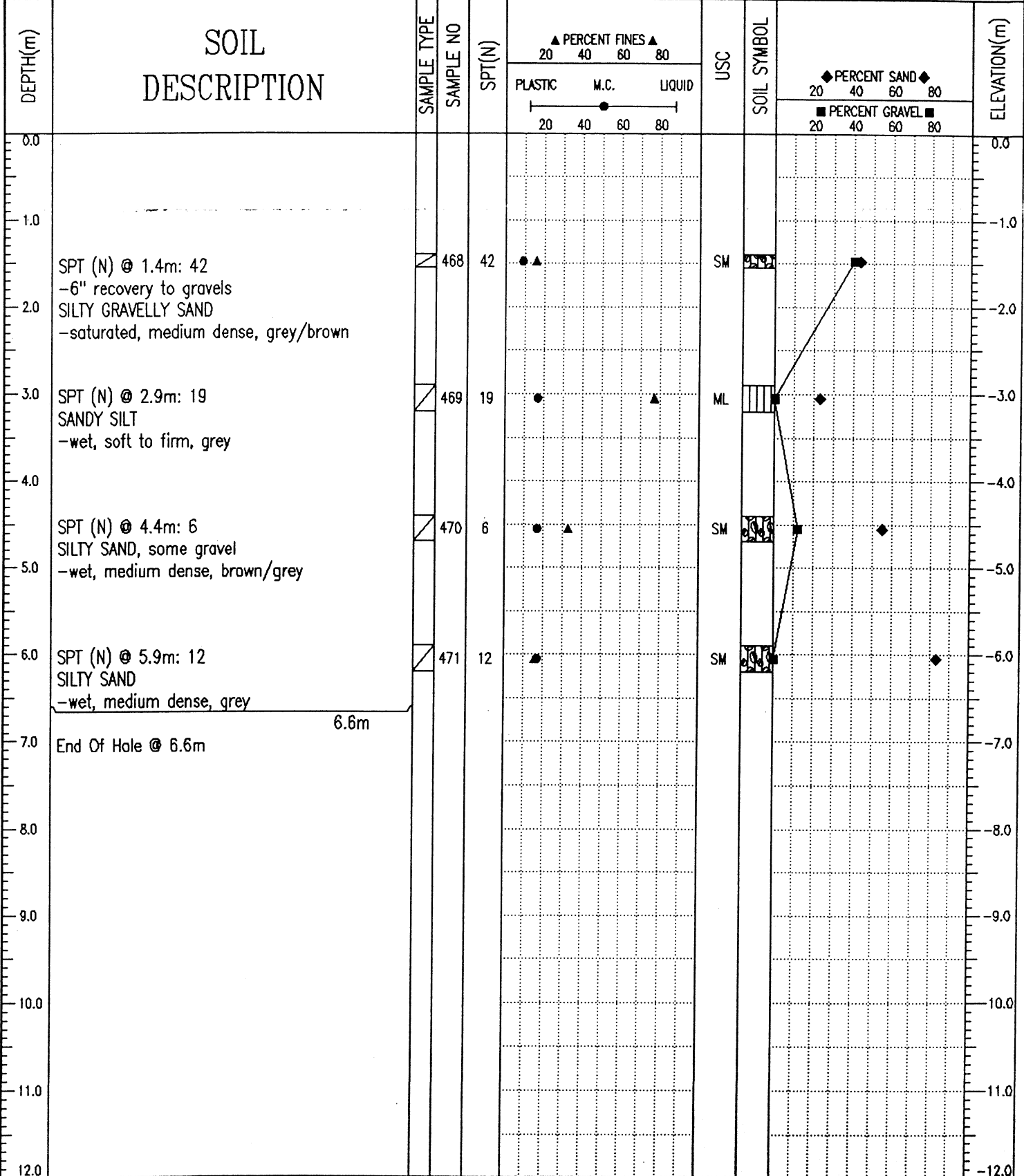
**CENTRELINE TESTING
1700.0 to 1707.7
ALASKA HIGHWAY**

**Subsurface Exploration
and
Test Report Sheets**

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

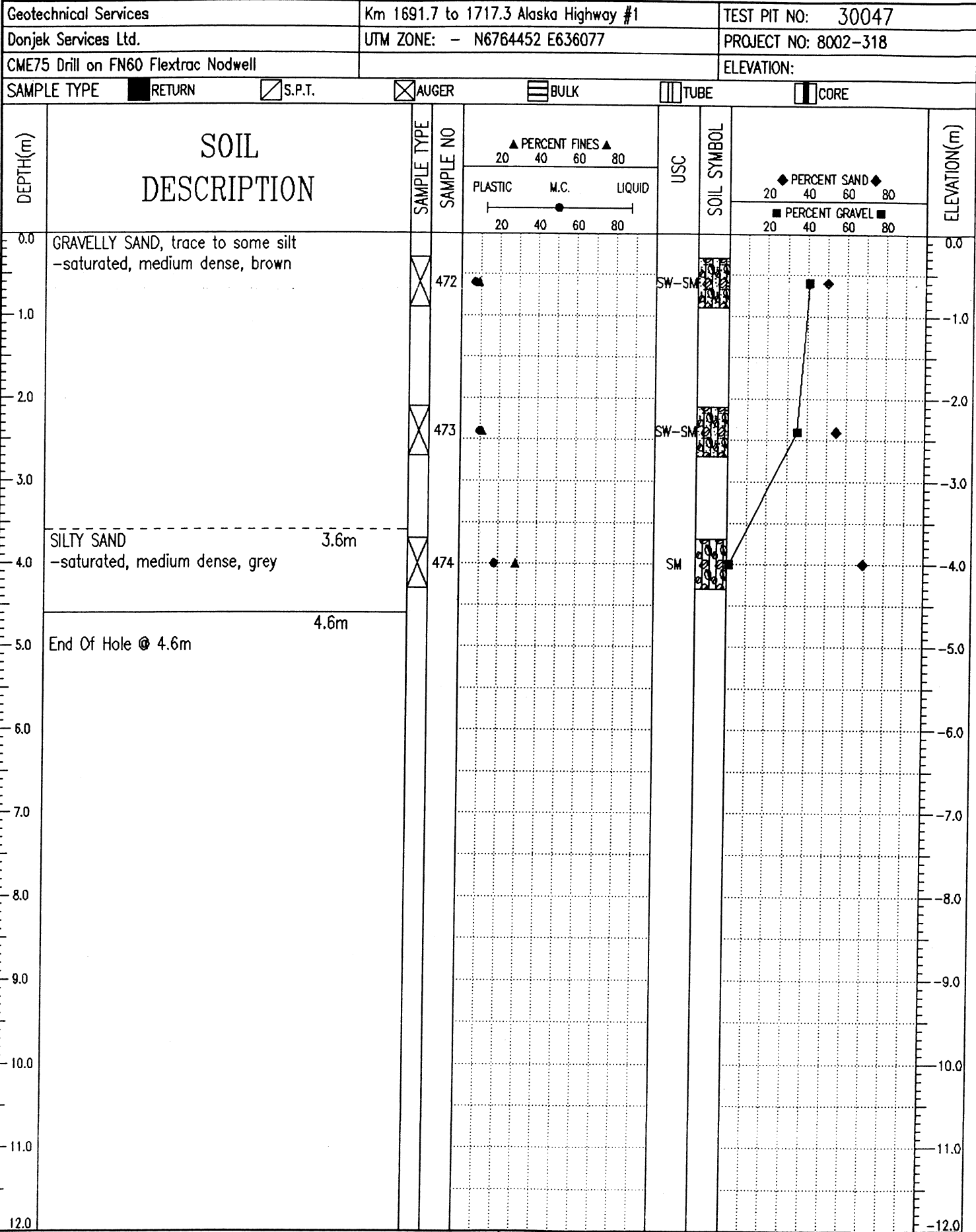


Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30046
Donjek Services Ltd.	UTM ZONE: - N6764571 E636230	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:
SAMPLE TYPE	<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.
	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK
	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE



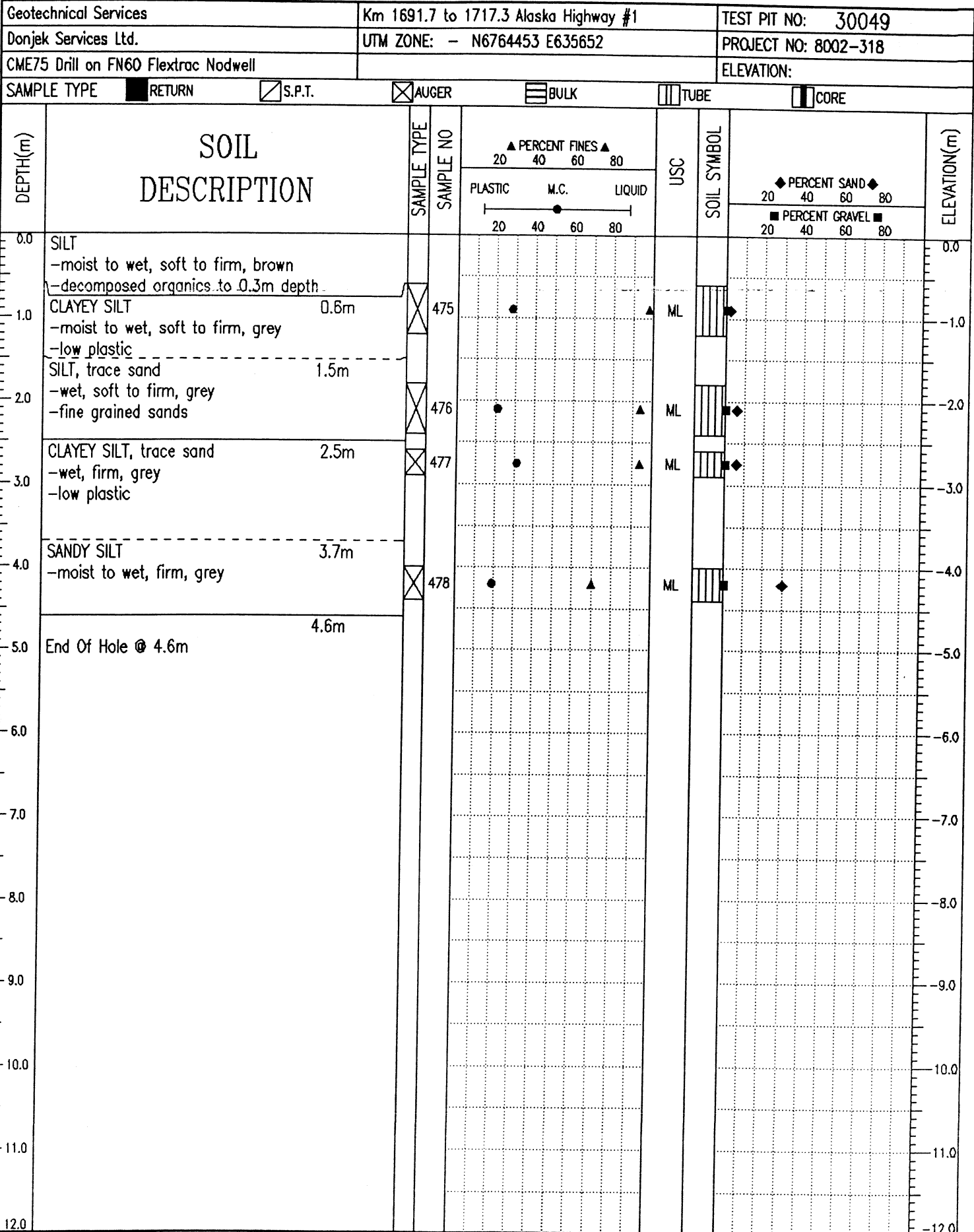
J. R. Paine & Associates Ltd.
Whitehorse, Yukon

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REVIEWED BY: -	COMPLETE: 08/21/04
Fig. No: 206	Page 1 of 1



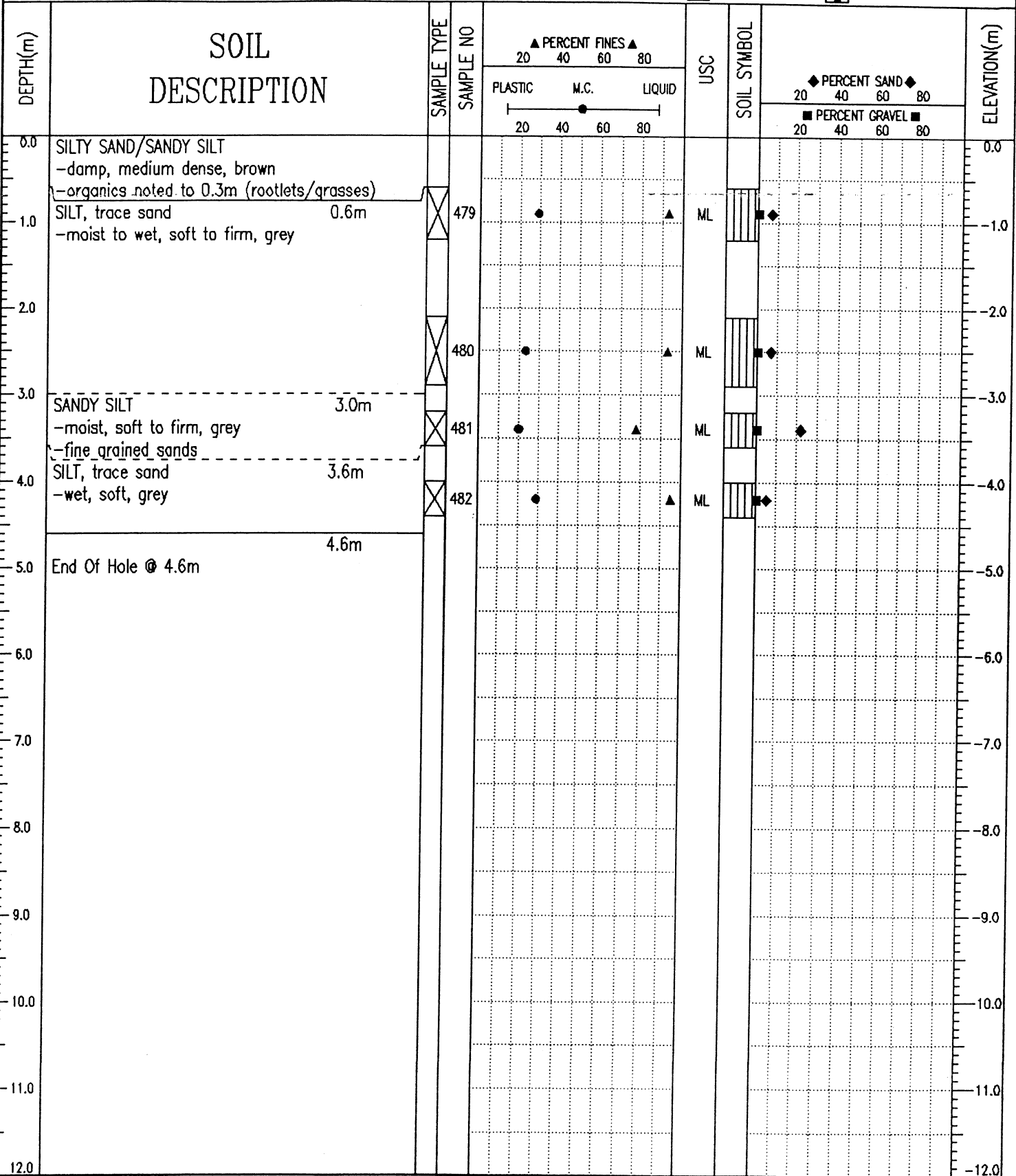
J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW	COMPLETION DEPTH: 4.6 m
REVIEWED BY: -	COMPLETE: 08/21/04
Fig. No: 207	Page 1 of 1



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Whitehorse, Yukon

LOGGED BY: RW	COMPLETION DEPTH: 4.6 m
REVIEWED BY: -	COMPLETE: 08/21/04
Fig. No: 208	Page 1 of 1



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Whitehorse, Yukon

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REVIEWED BY: -	COMPLETE: 08/21/04
Fig. No: 209	Page 1 of 1

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30051									
Donjek Services Ltd.		UTM ZONE: - N6764643 E635301		PROJECT NO: 8002-318									
CME75 Drill on FN60 Flextrac Nodwell				ELEVATION:									
SAMPLE TYPE		<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE						
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT (N)	▲ PERCENT FINES ▲ 20 40 60 80			USC	SOIL SYMBOL	◆ PERCENT SAND ◆ 20 40 60 80			ELEVATION (m)
					PLASTIC M.C. LIQUID 20 40 60 80					■ PERCENT GRAVEL ■ 20 40 60 80			
0.0												0.0	
1.0												-1.0	
2.0	SPT (N) @ 1.4m: 9 SANDY SILT -saturated, grey		483	9	●	▲	ML	▨	◆			-2.0	
3.0	SPT (N) @ 2.9m: 6 SILTY SAND -saturated, grey		484	6	●	▲	SM	▨	◆			-3.0	
4.0												-4.0	
5.0	SPT (N) @ 4.4m: 5 SILTY SAND -saturated, grey		485	5	●	▲	SM	▨	◆			-5.0	
6.0	SPT (N) @ 5.9m: 2 SILTY SAND -saturated, grey		486	2	●	▲	SM	▨	◆			-6.0	
7.0	End Of Hole @ 6.4m											-7.0	
8.0												-8.0	
9.0												-9.0	
10.0												-10.0	
11.0												-11.0	
12.0												-12.0	
J. R. Paine & Associates Ltd. Whitehorse, Yukon				LOGGED BY: RW		COMPLETION DEPTH: 6.4 m							
				REVIEWED BY: -		COMPLETE: 08/22/04							
				Fig. No: 210				Page 1 of 1					

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30052					
Donjek Services Ltd.		UTM ZONE: - N6764793 E635196		PROJECT NO: 8002-318					
CME75 Drill on FN60 Flextrac Nodwell				ELEVATION:					
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T.		<input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE							
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT(N)	▲ PERCENT FINES ▲ 20 40 60 80 PLASTIC M.C. LIQUID 20 40 60 80	USC	SOIL SYMBOL	◆ PERCENT SAND ◆ 20 40 60 80 ■ PERCENT GRAVEL ■ 20 40 60 80	ELEVATION(m)
0.0									0.0
1.0									-1.0
2.0	SPT (N) @ 1.4m: 14 SILTY SAND -saturated, grey	<input checked="" type="checkbox"/>	487	14	●	SM			-2.0
3.0	SPT (N) @ 2.9m: No sample. Hollow stem infilled >1.0m								-3.0
4.0	SPT (N) @ 4.4m: No sample. Hollow stem infilled >1.0m								-4.0
5.0	4.4m End Of Hole @ 4.4m -hollows infilled @ 2.9m - move north 4m -hollows infilled @ 2.9 and 4.4m - EOH								-5.0
6.0									-6.0
7.0									-7.0
8.0									-8.0
9.0									-9.0
10.0									-10.0
11.0									-11.0
12.0									-12.0

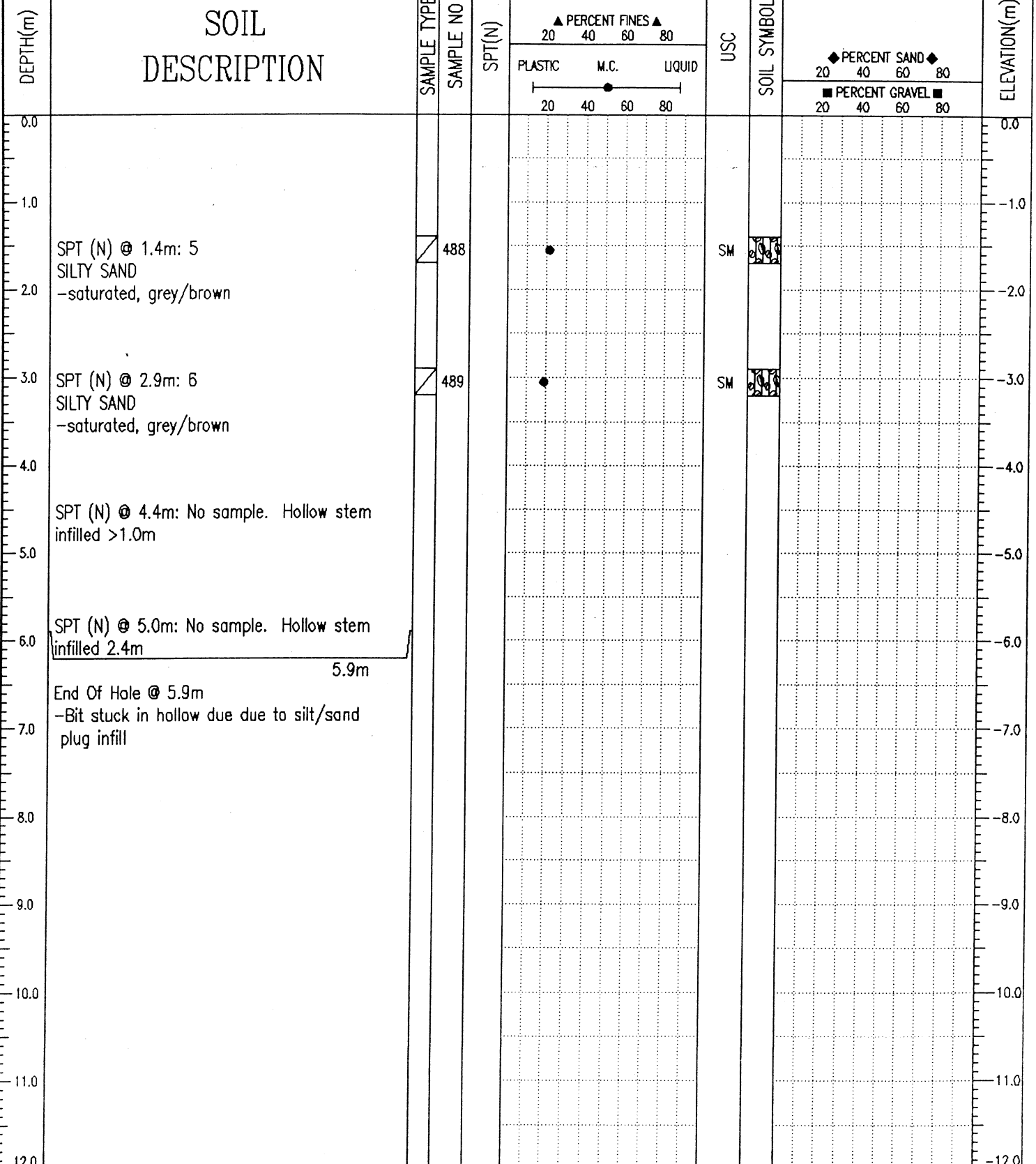
J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW
REVIEWED BY: -
Fig. No: 211

COMPLETION DEPTH: 4.4 m
COMPLETE: 08/25/04

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30053
Donjek Services Ltd.	UTM ZONE: - N6764972 E635055	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



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Whitehorse, Yukon

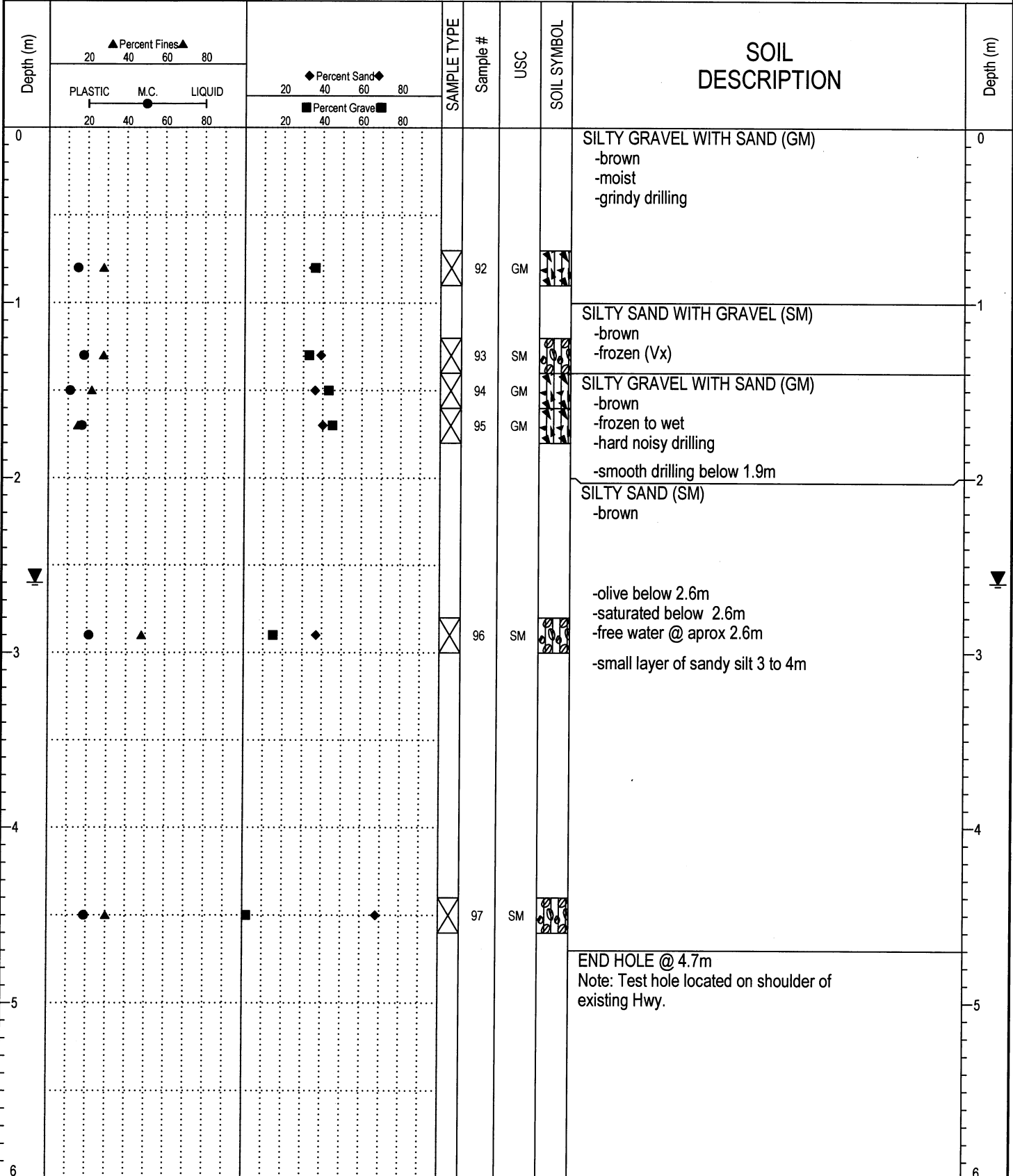
LOGGED BY: RW	COMPLETION DEPTH: 5.9 m
REVIEWED BY:	COMPLETE: 08/25/04
Fig. No: 212	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT SHAKWAK SEG 10 BOREHOLE NO: 539-1275

ENGINEERING CAPITAL KM 1692.6-1729.6 A/H PROJECT NO: 092-202101-0362

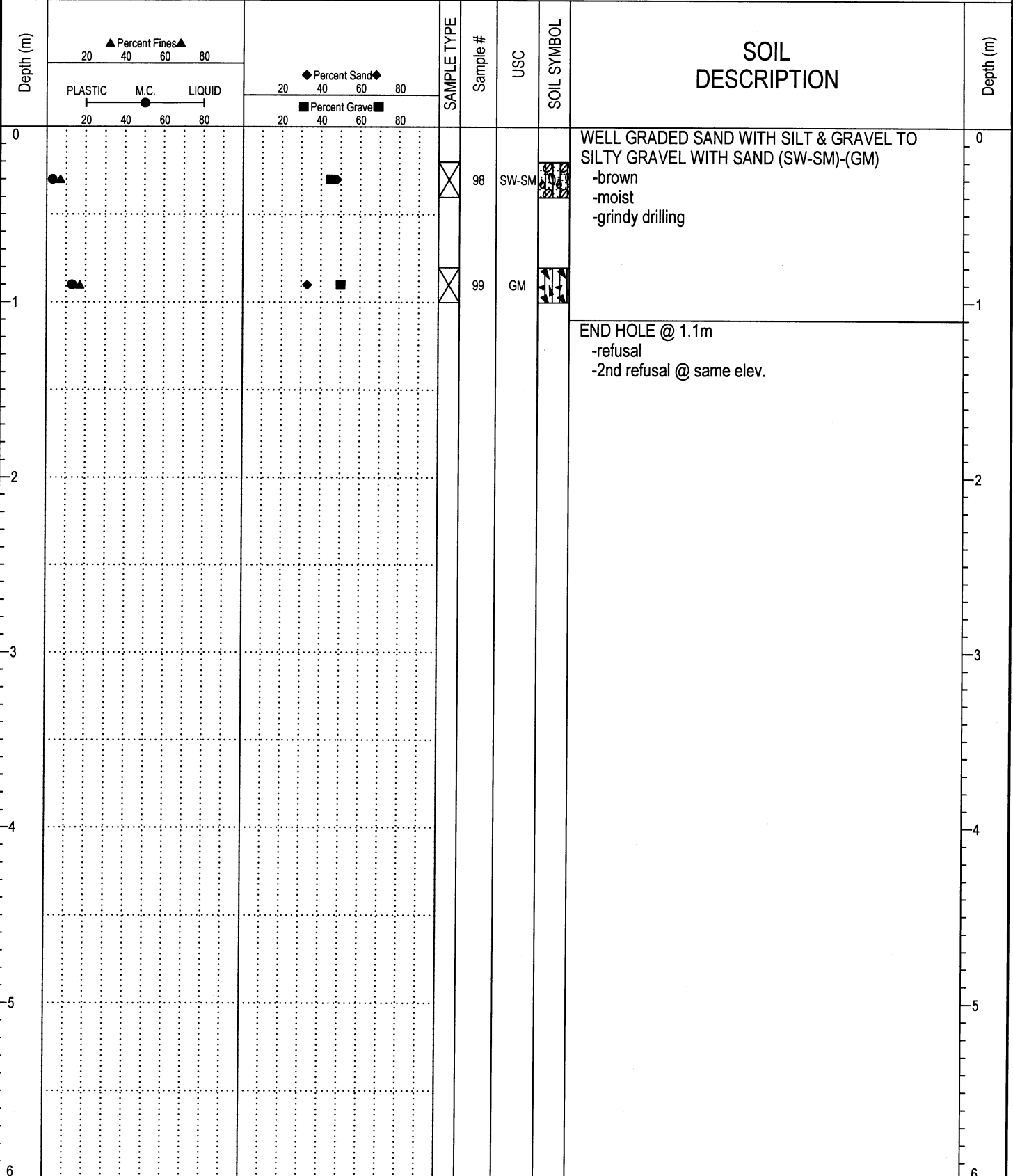
B-40L LOCATION: 1701+747 5M RT ELEVATION:

SAMPLE TYPE RETURN S.P.T. Auger BULK TUBE CORE



ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22

SUBSURFACE EXPLORATION AND TEST REPORT		SHAKWAK SEG 10	BOREHOLE NO: 539-1276
ENGINEERING CAPITAL		KM 1692.6-1729.6 A/H	PROJECT NO: 092-202101-0362
B-40L		LOCATION: 1701+850 8M RT	ELEVATION:
SAMPLE TYPE	<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> Auger
			<input type="checkbox"/> BULK
			<input type="checkbox"/> TUBE
			<input type="checkbox"/> CORE



ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30054							
Donjek Services Ltd.		UTM ZONE: - N6765115 E634942		PROJECT NO: 8002-318							
CME75 Drill on FN60 Flextrac Nodwell				ELEVATION:							
SAMPLE TYPE		<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE				
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	SPT(N)	▲ PERCENT FINES ▲ 20 40 60 80		USC	SOIL SYMBOL	◆ PERCENT SAND ◆ 20 40 60 80		ELEVATION(m)
					PLASTIC	M.C.			LIQUID	■ PERCENT GRAVEL ■ 20 40 60 80	
0.0											0.0
1.0											-1.0
2.0	SPT (N) @ 1.4m: 8 SAND, some silt -saturated, brown/grey		490				SM				-2.0
3.0	SPT (N) @ 2.9m: No sample. Hollow stem infilled 0.8m										-3.0
4.0	End Of Hole @ 2.9m -move north 3m (redrill with solid stem)										-4.0
5.0											-5.0
6.0											-6.0
7.0											-7.0
8.0											-8.0
9.0											-9.0
10.0											-10.0
11.0											-11.0
12.0											-12.0

J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW
REVIEWED BY: -
Fig. No: 213

COMPLETION DEPTH: 2.9 m
COMPLETE: 08/25/04

SUBSURFACE EXPLORATION AND TEST REPORT		SHAKWAK SEG 10		BOREHOLE NO: 539-1277					
ENGINEERING CAPITAL		KM 1692.6-1729.6 A/H		PROJECT NO: 092-202101-0362					
B-40L		LOCATION: 1701+953 8M RT		ELEVATION:					
SAMPLE TYPE		<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> Auger	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE		
Depth (m)	▲ Percent Fines ▲ 20 40 60 80 PLASTIC M.C. LIQUID 20 40 60 80		◆ Percent Sand ◆ 20 40 60 80 ■ Percent Gravel ■ 20 40 60 80		SAMPLE TYPE Sample #	USC	SOIL SYMBOL	SOIL DESCRIPTION	Depth (m)
	0								
1					101	SM	SILTY SAND WITH GRAVEL TO SILTY GRAVEL WITH SAND (SM)-(GM) -brown -moist -grindy drilling	1	
2					102	GM		2	
3					103	GM		3	
4					104	SM	SILTY SAND (SM) -brown -saturated -gravel contamination	4	
5							END HOLE @ 4.5m	5	
6								6	

ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22

SUBSURFACE EXPLORATION AND TEST REPORT SHAKWAK SEG 10 BOREHOLE NO: 539-1278

ENGINEERING CAPITAL KM 1692.6-1729.6 A/H PROJECT NO: 092-202101-0362

B-40L LOCATION: 1702+051 7M RT ELEVATION:

SAMPLE TYPE RETURN S.P.T. Auger BULK TUBE CORE

Depth (m)	Percent Fines			SAMPLE TYPE	Sample #	USC	SOIL SYMBOL	SOIL DESCRIPTION	Depth (m)
	PLASTIC	M.C.	LIQUID						
0									0
0.5	20	40	60	<input checked="" type="checkbox"/>	105	GM		SILTY GRAVEL WITH SAND TO SILTY SAND WITH GRAVEL TO SILTY GRAVEL WITH SAND (GM)-(SM)-(GM) -grey / brown -moist -grindy drilling	0.5
1.5	20	40	60	<input checked="" type="checkbox"/>	106	SM			1.5
2.2	20	40	60	<input checked="" type="checkbox"/>	107	GM			2.2
2.4								END HOLE @ 2.4m -Unable to drill deeper due to augers curving. Couldn't put stablizer legs down	2.4
3.0									3.0
4.0									4.0
5.0									5.0
6.0									6.0

ESE_IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30055								
Donjek Services Ltd.		UTM ZONE: - N6765279 E634837		PROJECT NO: 8002-318								
CME75 Drill on FN60 Flextrac Nodwell				ELEVATION:								
SAMPLE TYPE		<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE					
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲		USC	SOIL SYMBOL	◆ PERCENT SAND ◆	ELEVATION(m)			
				PLASTIC	M.C.			LIQUID		◆ PERCENT GRAVEL ◆		
0.0	SILT, some sand -moist to wet, soft to firm, brown w/ some grey seams -organics noted to 0.9m depth	X	498	20	40	60	80	20	40	60	80	0.0
1.0	SILT -wet to saturated, soft, grey											-1.0
2.0	SILT -wet to saturated, soft, grey											-2.0
3.0	SILTY SAND/SANDY SILT -saturated, soft, grey/brown -very soupy	X	499									-3.0
4.0	SILTY SAND/SANDY SILT -saturated, soft, grey/brown -silt seam noted @ 5.2m (200mm thick)	X	500									-4.0
5.0	SILTY SAND/SANDY SILT -saturated, soft, grey/brown -silt seam noted @ 5.2m (200mm thick)	X	501									-5.0
6.0	SILTY SAND -saturated, medium dense, brown/grey	X	502									-6.0
7.0	SILTY SAND -saturated, medium dense, brown/grey	X	503									-7.0
8.0	SILTY SAND -saturated, medium dense, brown/grey	X	504									-8.0
9.0	SILTY SAND to SAND, some silt -saturated, medium dense, brown/grey -silt seam noted @ 11.0m (200mm thick) -silt seam noted @ 12.8m (200mm thick)	X	505									-9.0
10.0	SILTY SAND to SAND, some silt -saturated, medium dense, brown/grey -silt seam noted @ 11.0m (200mm thick) -silt seam noted @ 12.8m (200mm thick)	X	504									-10.0
11.0	SILTY SAND to SAND, some silt -saturated, medium dense, brown/grey -silt seam noted @ 11.0m (200mm thick) -silt seam noted @ 12.8m (200mm thick)	X	505									-11.0
12.0	SILTY SAND to SAND, some silt -saturated, medium dense, brown/grey -silt seam noted @ 11.0m (200mm thick) -silt seam noted @ 12.8m (200mm thick)	X	505									-12.0

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Whitehorse, Yukon

LOGGED BY: RW

REVIEWED BY: -

Fig. No: 215

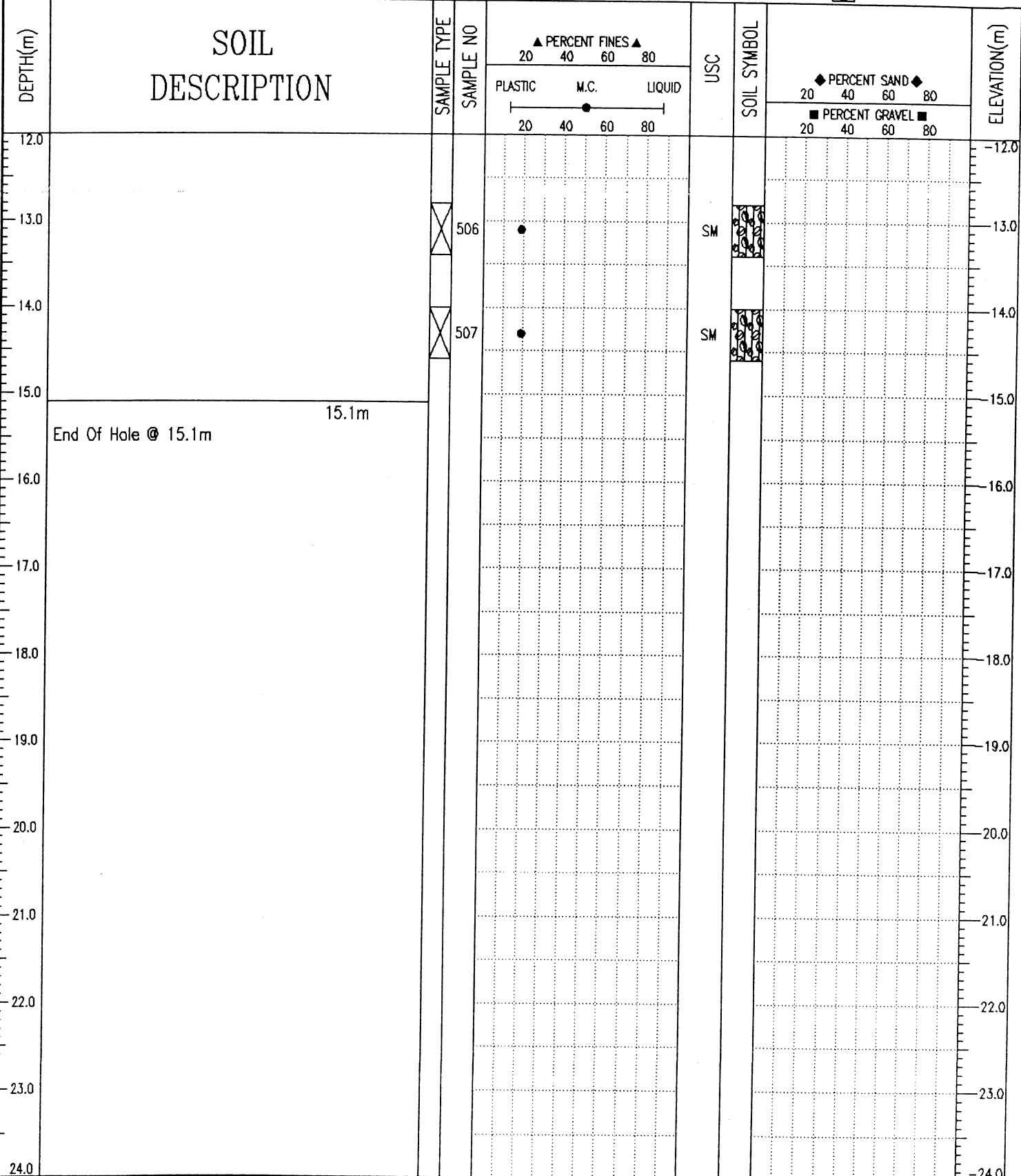
COMPLETION DEPTH: 15.1 m

COMPLETE: 08/26/04

Page 1 of 2

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30055
Donjek Services Ltd.	UTM ZONE: - N6765279 E634837	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



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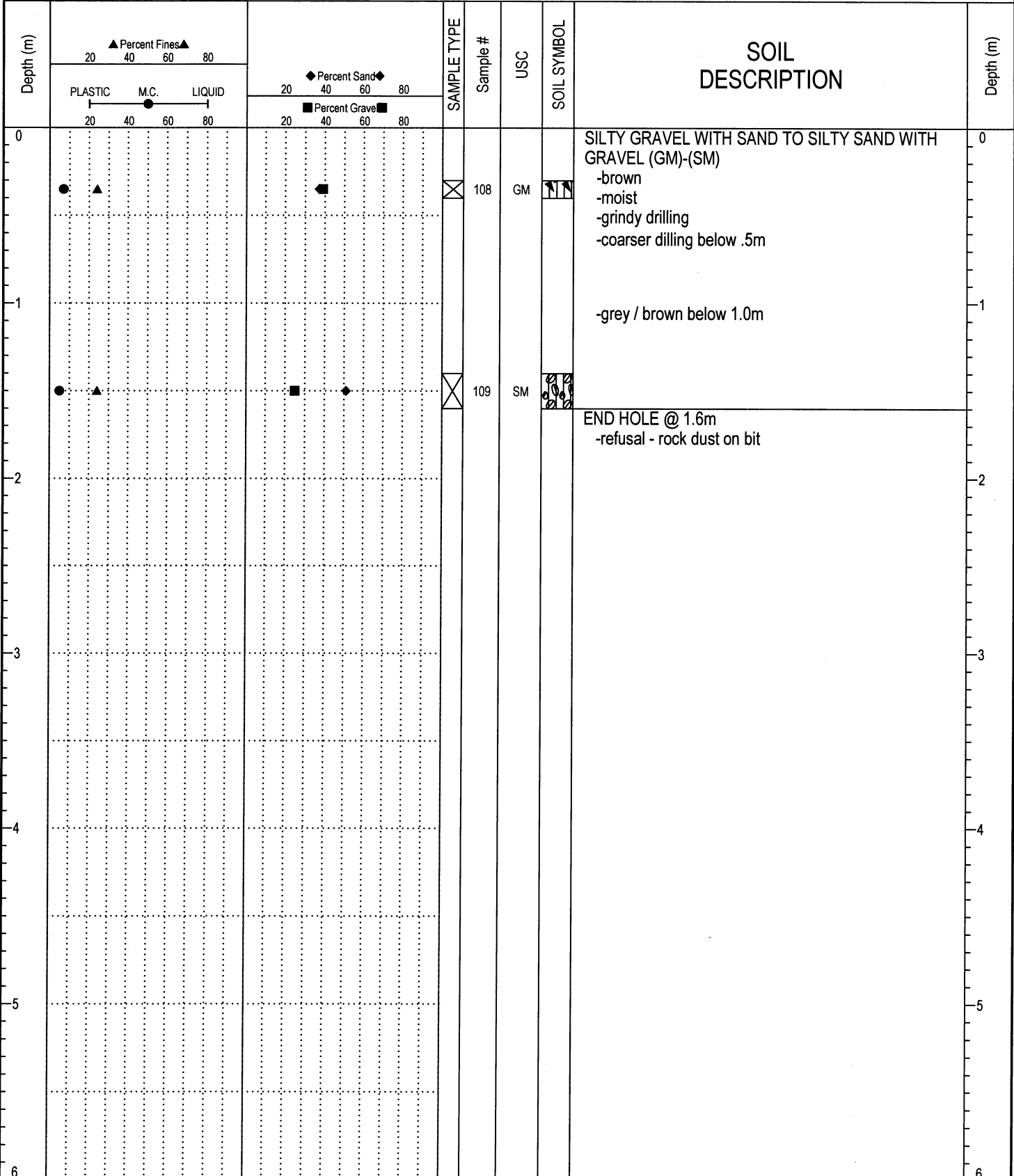
LOGGED BY: RW	COMPLETION DEPTH: 15.1 m
REVIEWED BY: -	COMPLETE: 08/26/04
Fig. No: 215	Page 2 of 2

SUBSURFACE EXPLORATION AND TEST REPORT SHAKWAK SEG 10 BOREHOLE NO: 539-1279

ENGINEERING CAPITAL KM 1692.6-1729.6 A/H PROJECT NO: 092-202101-0362

B-40L LOCATION: 1702+151 5M RT ELEVATION:

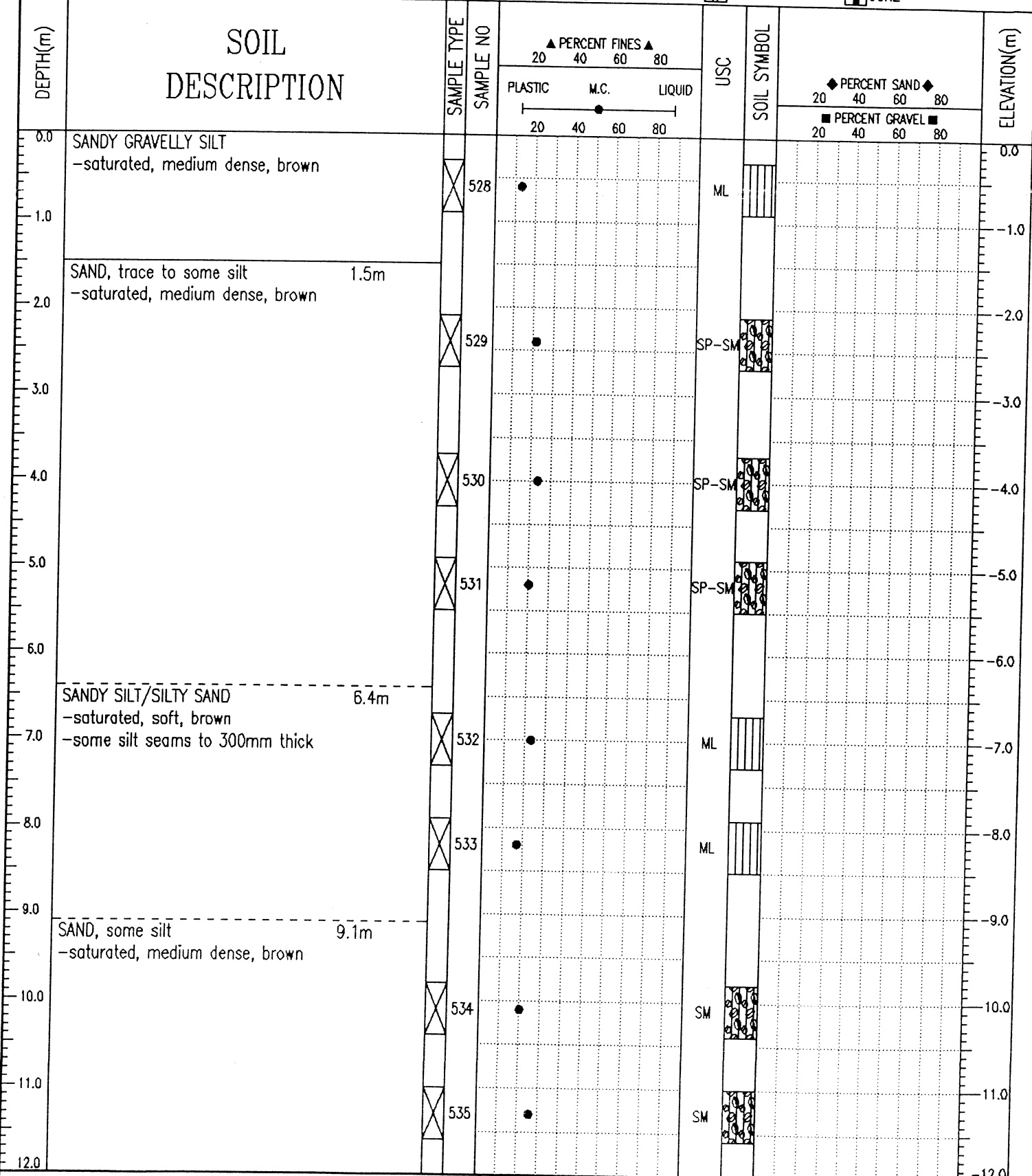
SAMPLE TYPE RETURN S.P.T. Auger BULK TUBE CORE



ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30056
Donjek Services Ltd.	UTM ZONE: - N6765296 E634757	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

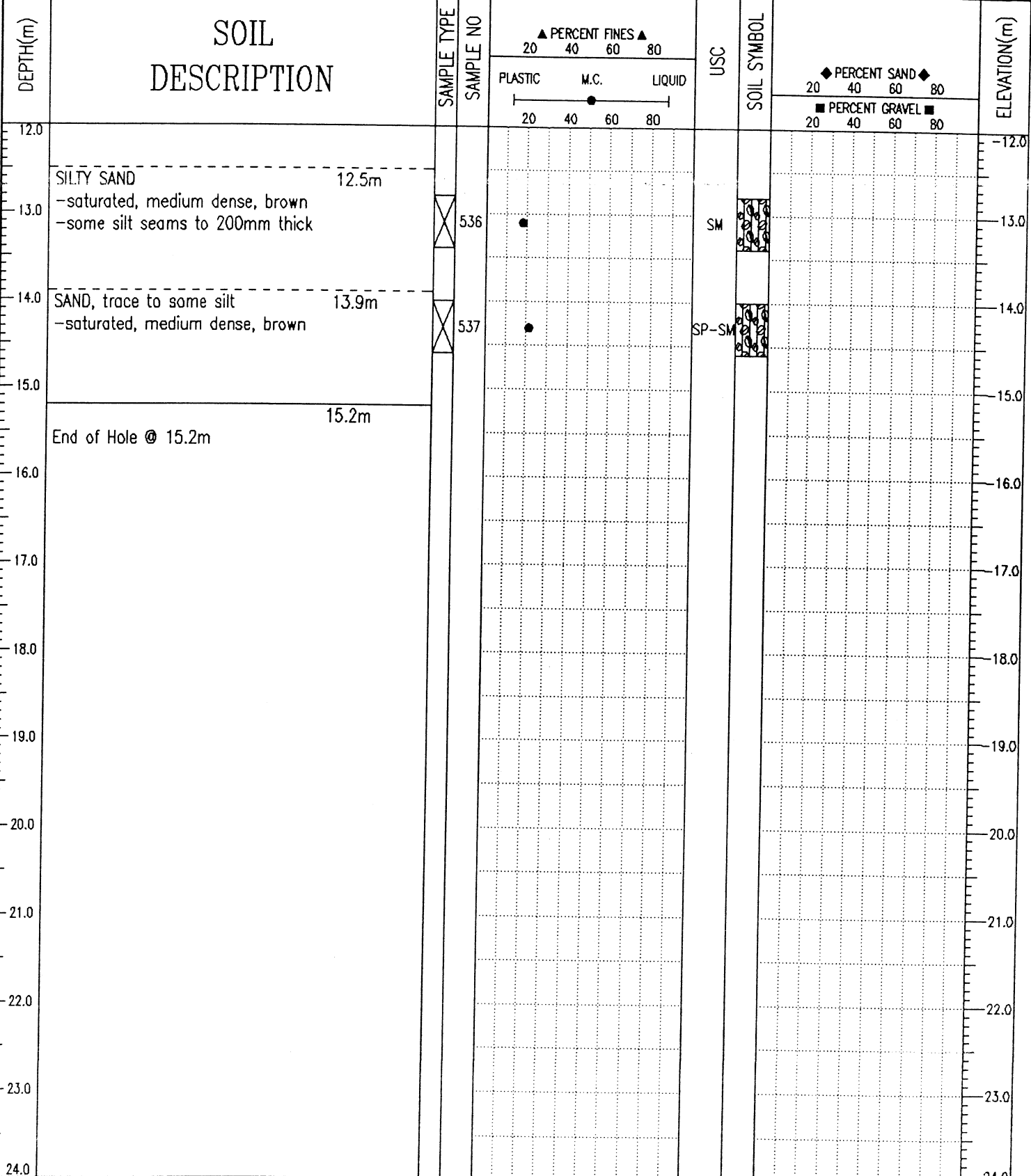


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Whitehorse, Yukon

LOGGED BY: RW	COMPLETION DEPTH: 15.2 m
REVIEWED BY: -	COMPLETE: 08/27/04
Fig. No: 216	

05/02/03 04:50PM (YIG_HWS)

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30056
Donjek Services Ltd.	UTM ZONE: - N6765296 E634757	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:
SAMPLE TYPE	<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.
	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK
	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE



J. R. Paine & Associates Ltd. Whitehorse, Yukon	LOGGED BY: RW	COMPLETION DEPTH: 15.2 m
	REVIEWED BY: -	COMPLETE: 08/27/04
	Fig. No: 216	Page 2 of 2

SUBSURFACE EXPLORATION AND TEST REPORT	SHAKWAK SEG 10	BOREHOLE NO: 539-1280
ENGINEERING CAPITAL	KM 1692.6-1729.6 A/H	PROJECT NO: 092-202101-0362
B-40L	LOCATION: 1702+225 6M RT	ELEVATION:

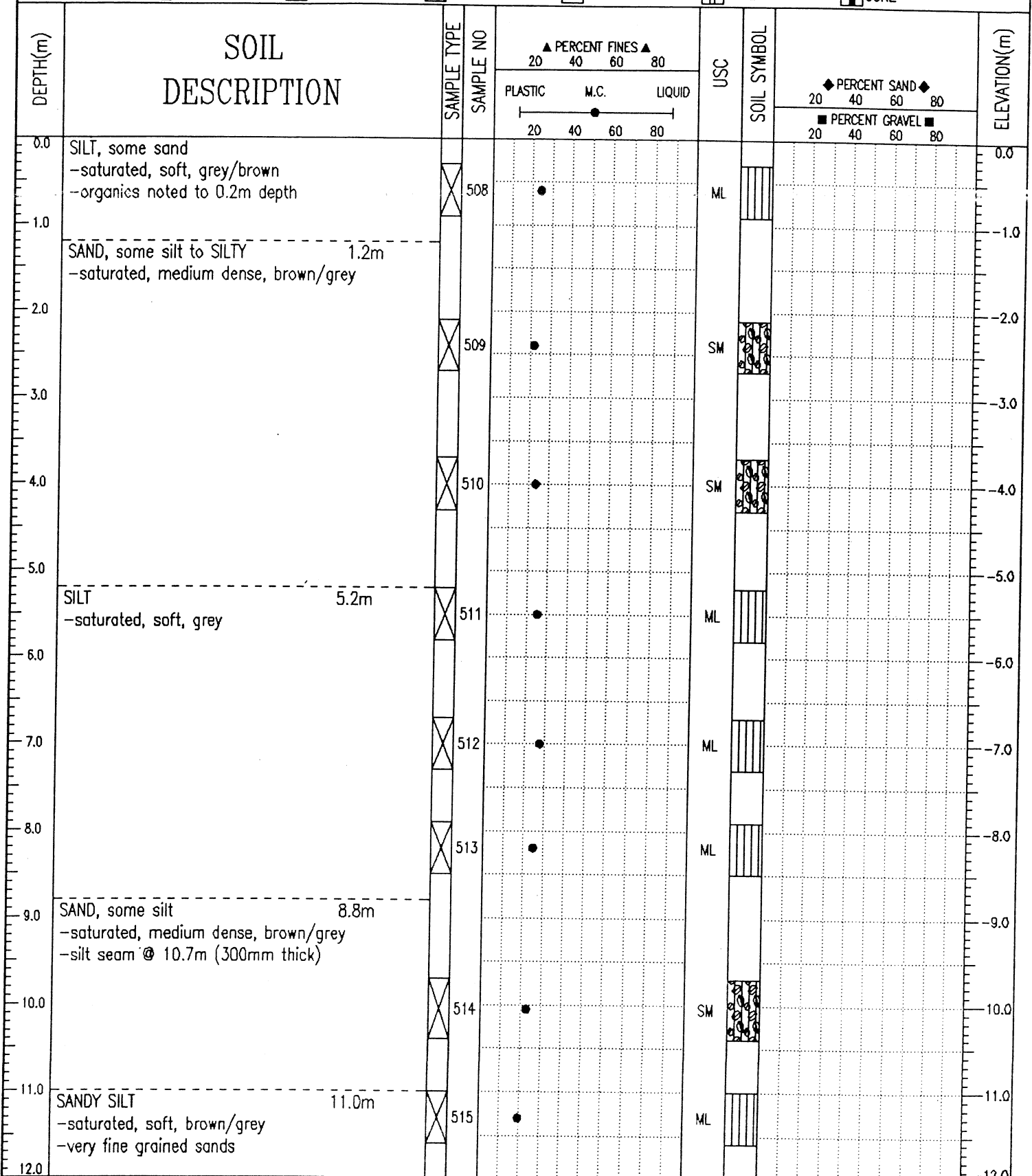
SAMPLE TYPE RETURN S.P.T. Auger BULK TUBE CORE

Depth (m)	▲ Percent Fines ▲ 20 40 60 80		◆ Percent Sand ◆ 20 40 60 80		SAMPLE TYPE	Sample #	USC	SOIL SYMBOL	SOIL DESCRIPTION	Depth (m)
	PLASTIC 20 40 60 80	M.C. 20 40 60 80	■ Percent Gravel ■ 20 40 60 80							
0									POORLY GRADED GRAVEL (GP) -rock fill -dark grey -grindy drilling -some sand & silt	0
1						110	GP			1
2										2
3										3
4						111	GM		SILTY GRAVEL WITH SAND (GM) -wet -contaminated from above -smoother drilling	4
5										5
6									END HOLE @ 5.5m	6

ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30057
Donjek Services Ltd.	UTM ZONE: - N6765406 E634728	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:

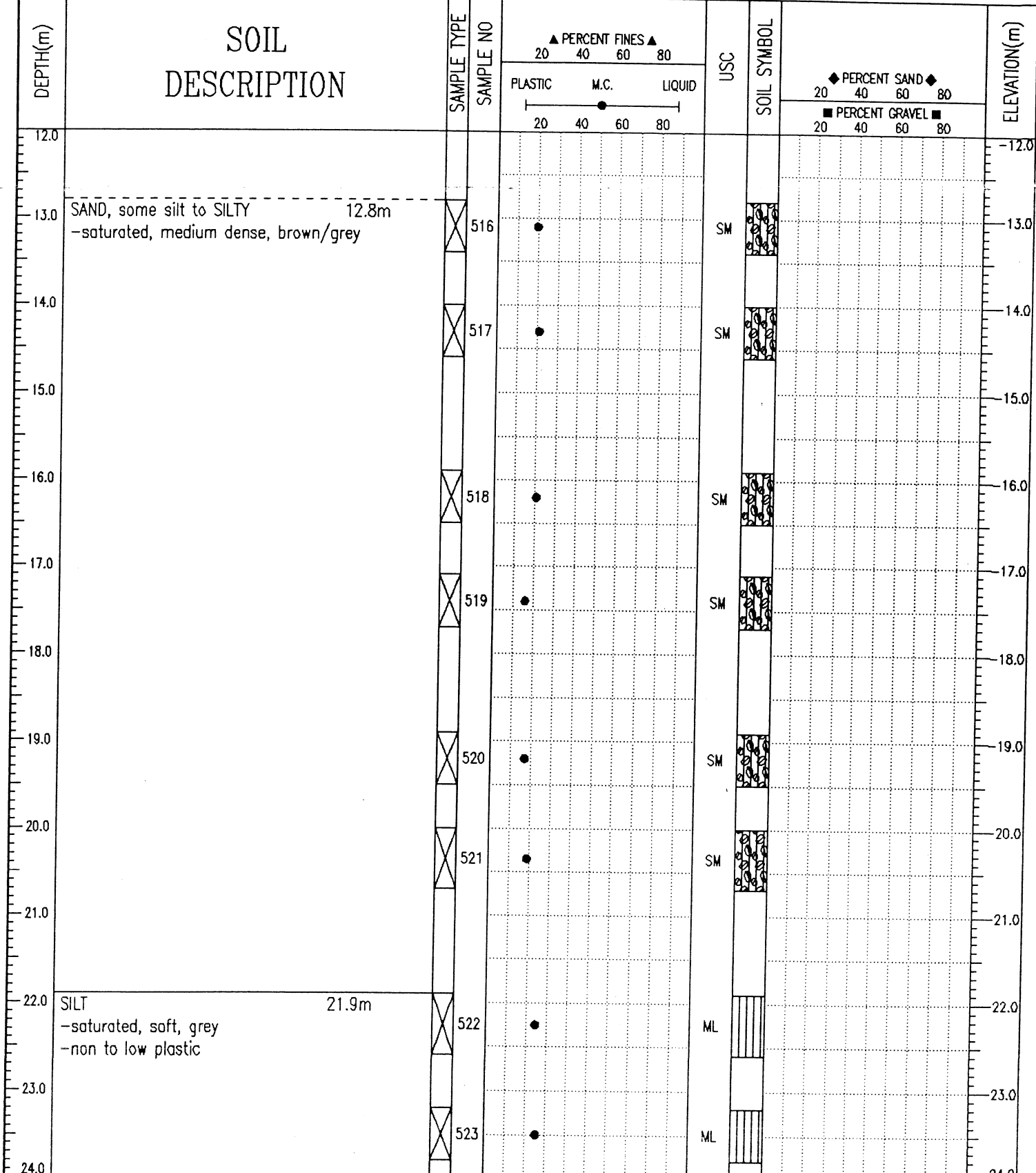
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



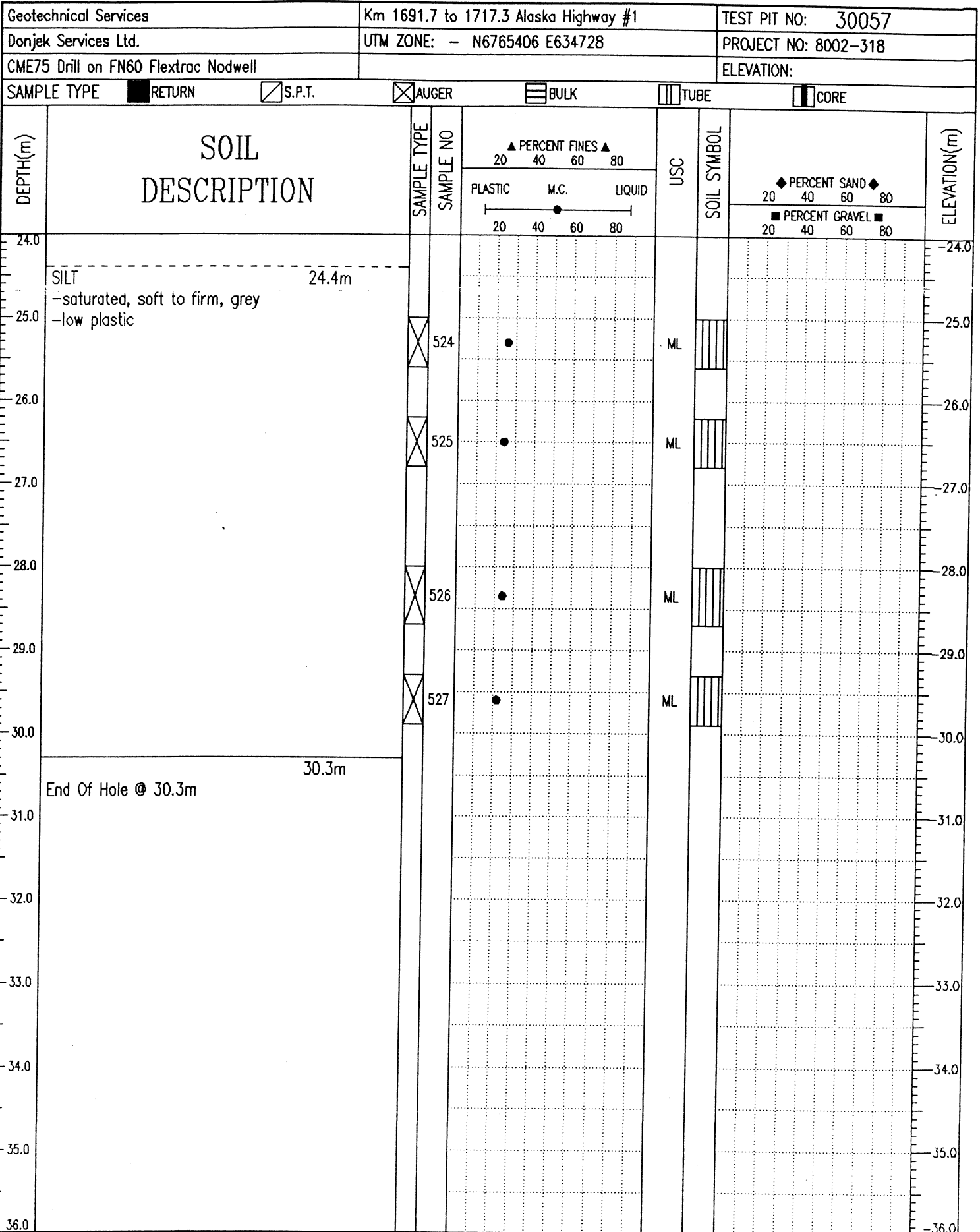
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Whitehorse, Yukon

LOGGED BY: RW	COMPLETION DEPTH: 30.3 m
REVIEWED BY: -	COMPLETE: 08/26/04
Fig. No: 217	Page 1 of 3

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

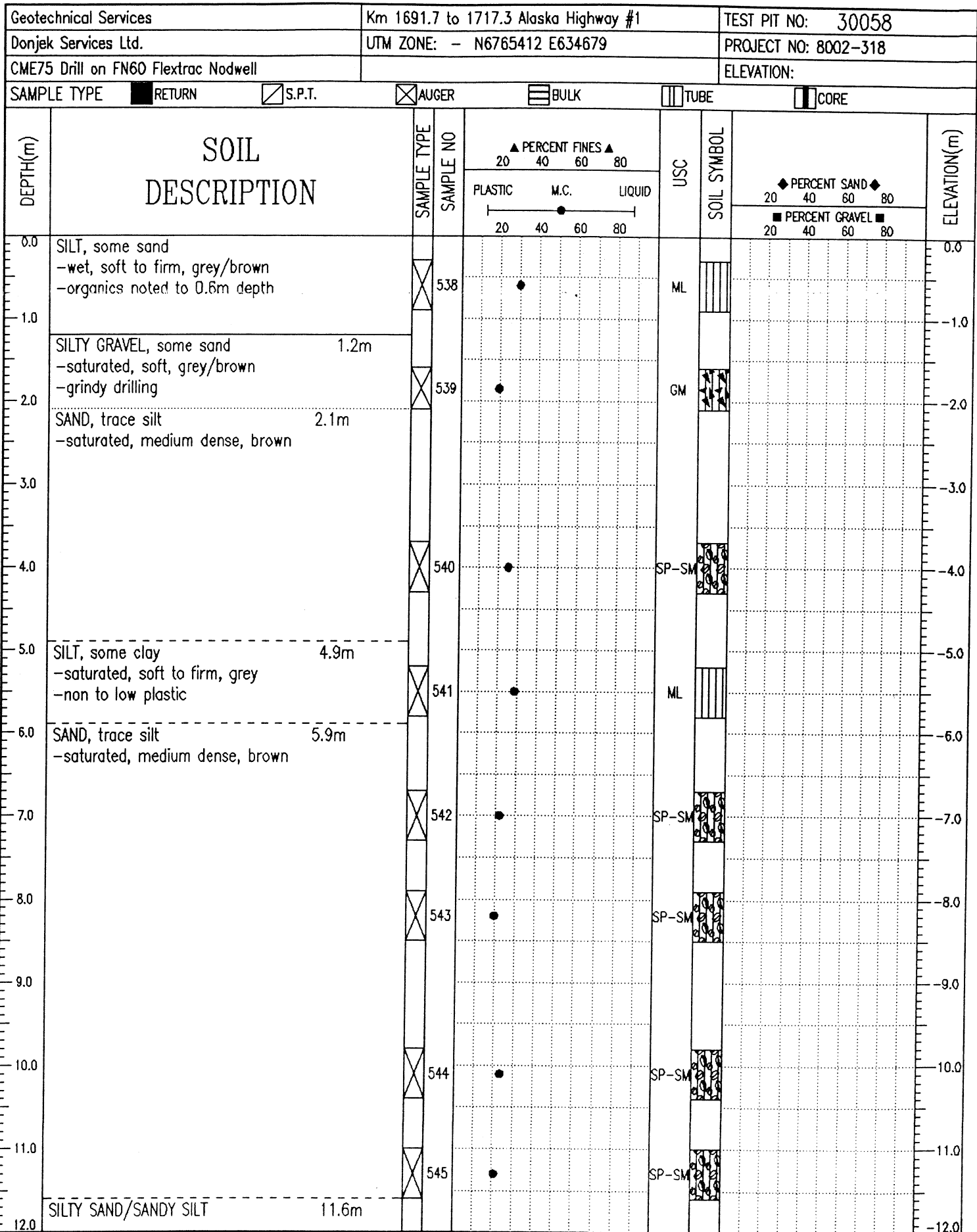


05/02/23 04:58PM (YIC_HMS)



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Whitehorse, Yukon

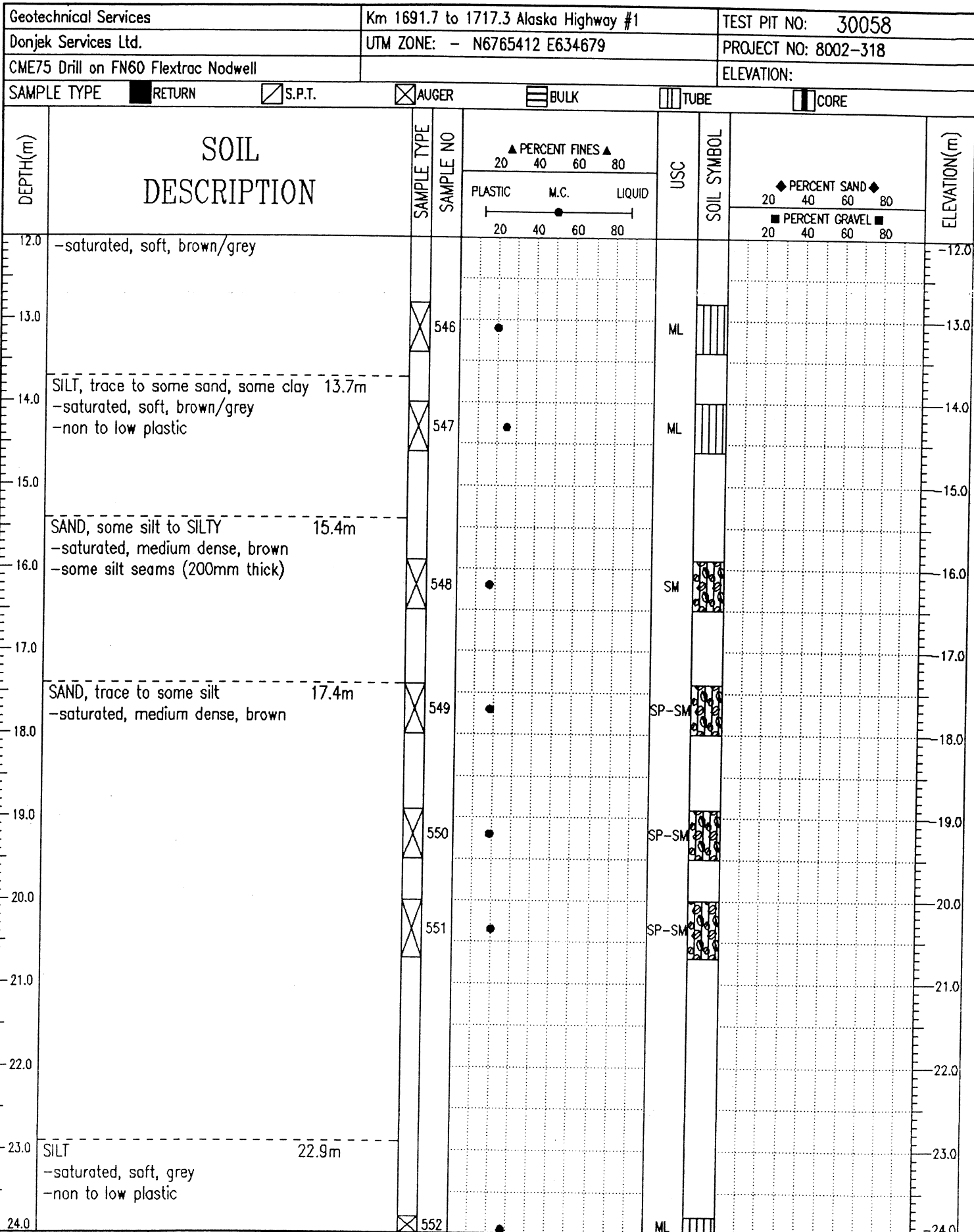
LOGGED BY: RW	COMPLETION DEPTH: 30.3 m
REVIEWED BY: -	COMPLETE: 08/26/04
Fig. No: 217	Page 3 of 3



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LOGGED BY: RW
REVIEWED BY: -
Fig. No: 218

COMPLETION DEPTH: 30.5 m
COMPLETE: 08/28/04



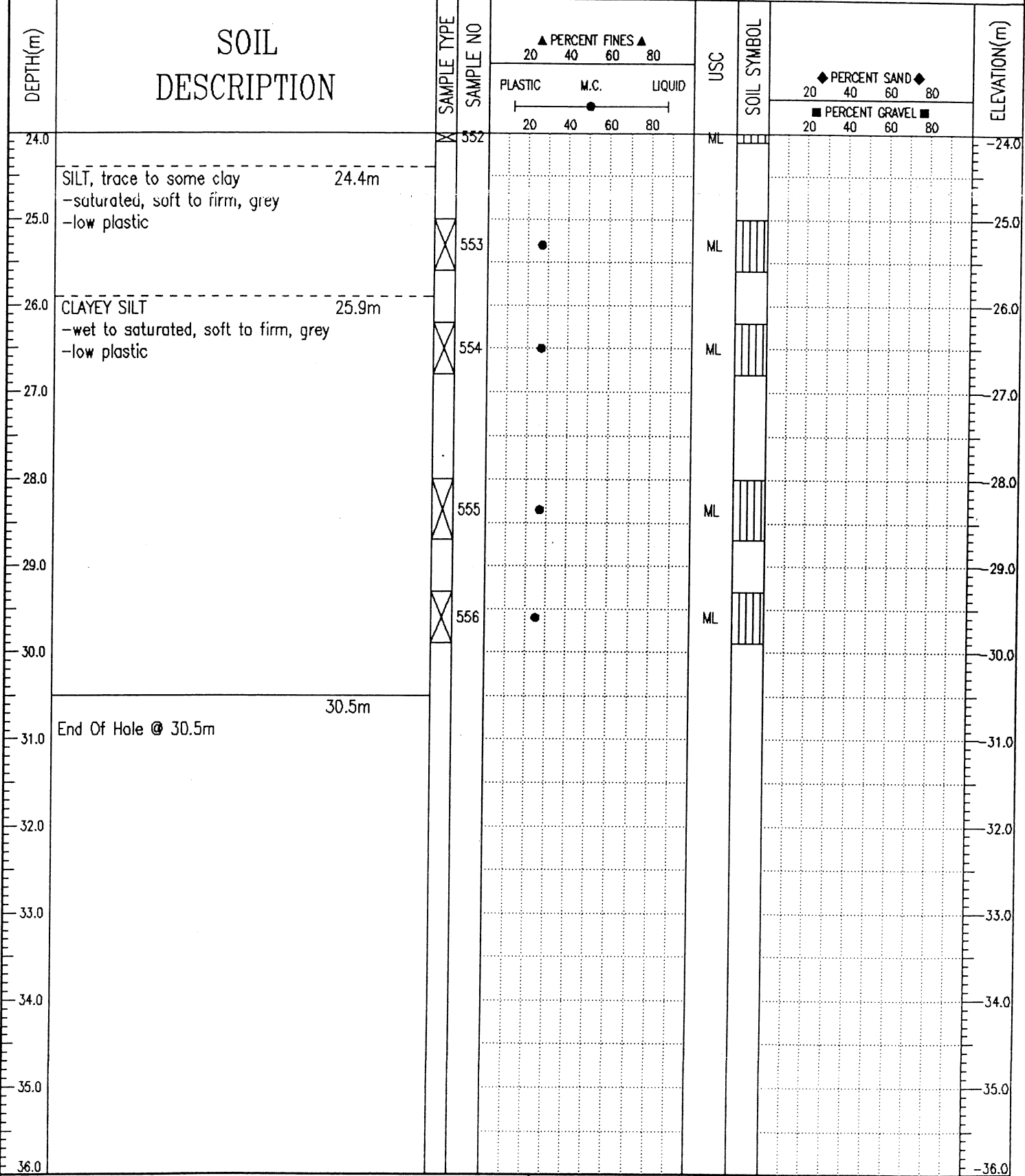
J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW
REVIEWED BY: -
Fig. No: 218

COMPLETION DEPTH: 30.5 m
COMPLETE: 08/28/04

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30058
Donjek Services Ltd.	UTM ZONE: - N6765412 E634679	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:

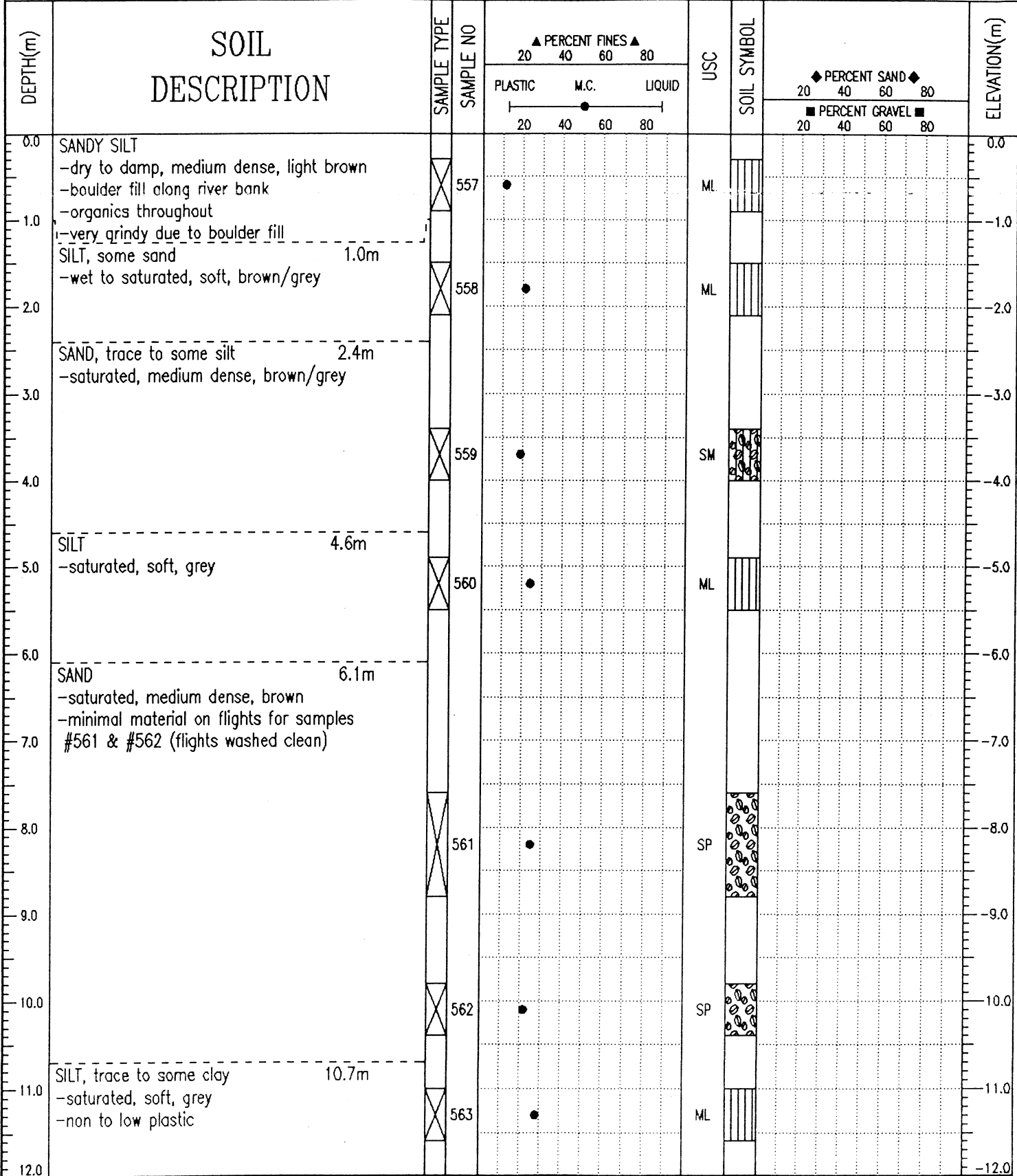
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



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Whitehorse, Yukon

LOGGED BY: RW	COMPLETION DEPTH: 30.5 m
REVIEWED BY: -	COMPLETE: 08/28/04
Fig. No: 218	Page 3 of 3

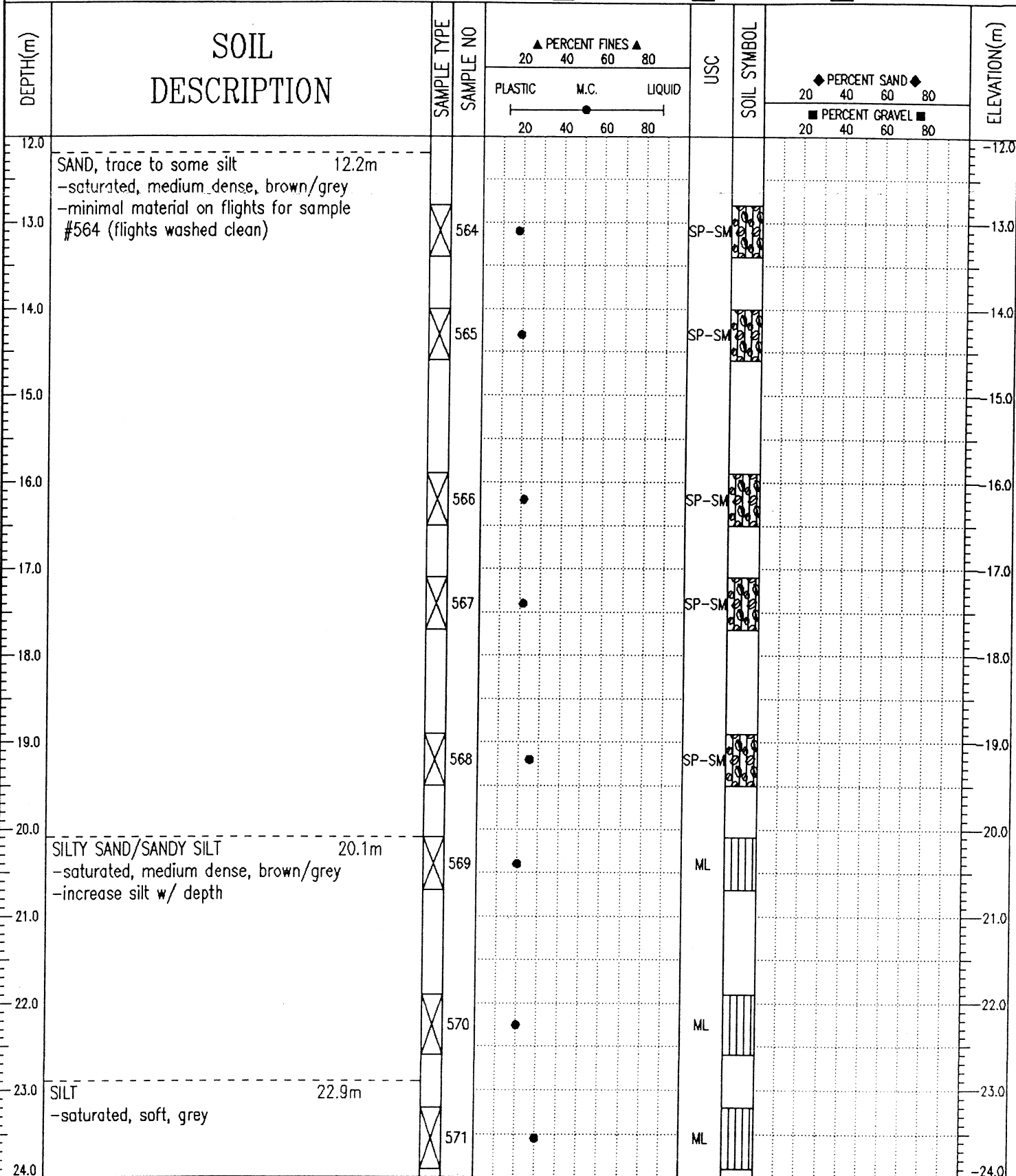
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



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LOGGED BY: RW	COMPLETION DEPTH: 30.3 m
REVIEWED BY:	COMPLETE: 08/28/04
Fig. No: 219	Page 1 of 3

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



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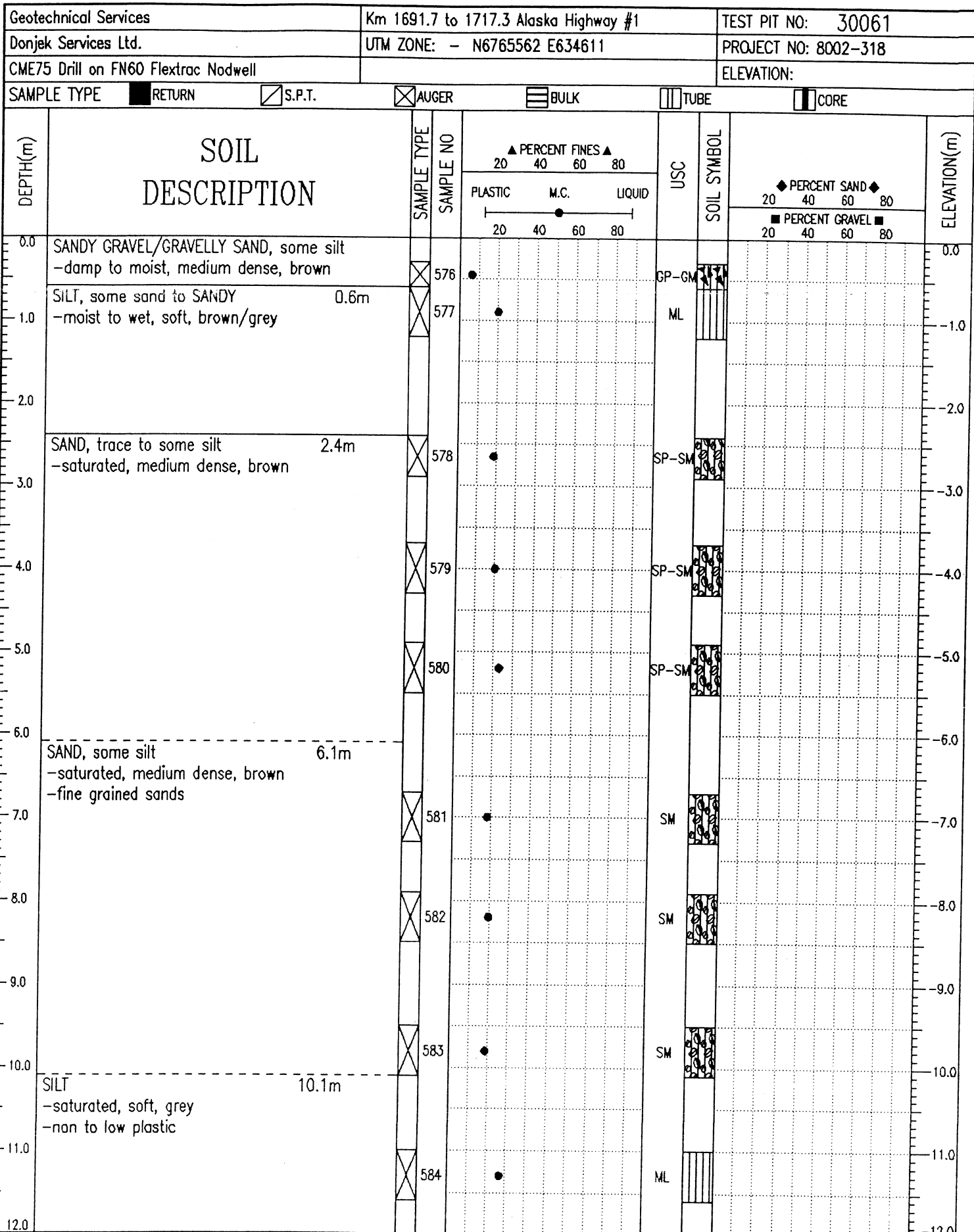
LOGGED BY: RW	COMPLETION DEPTH: 30.3 m
REVIEWED BY:	COMPLETE: 08/28/04
Fig. No: 219	Page 2 of 3

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30059								
Donjek Services Ltd.		UTM ZONE: - N6765507 E634609		PROJECT NO: 8002-318								
CME75 Drill on FN60 Flextrac Nodwell				ELEVATION:								
SAMPLE TYPE		<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE					
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲ 20 40 60 80		USC	SOIL SYMBOL	◆ PERCENT SAND ◆ 20 40 60 80		ELEVATION(m)		
				PLASTIC	M.C.			LIQUID	■ PERCENT GRAVEL ■ 20 40 60 80			
24.0	SILT -saturated, soft to firm, grey 24.4m	X	572	●			ML			-24.0		
25.0											-25.0	
26.0												-26.0
27.0												-27.0
28.0	End Of Hole @ 30.3 30.3m	X	574	●			ML			-28.0		
29.0											-29.0	
30.0												-30.0
31.0												-31.0
32.0									-32.0			
33.0										-33.0		
34.0										-34.0		
35.0										-35.0		
36.0										-36.0		

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LOGGED BY: RW
REVIEWED BY:
Fig. No: 219

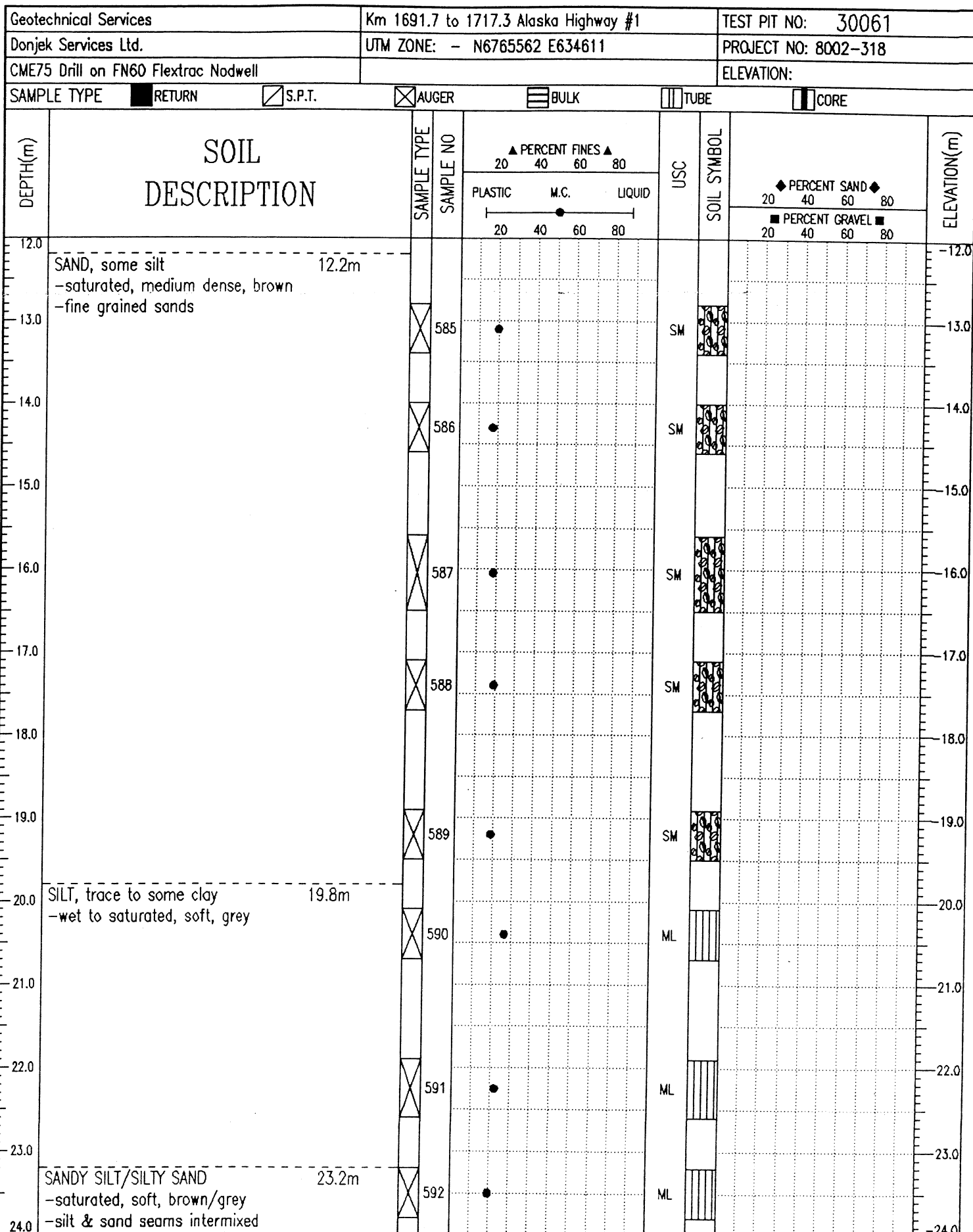
COMPLETION DEPTH: 30.3 m
COMPLETE: 08/28/04



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LOGGED BY: RW
REVIEWED BY: -
Fig. No: 220

COMPLETION DEPTH: 30.3 m
COMPLETE: 08/29/04

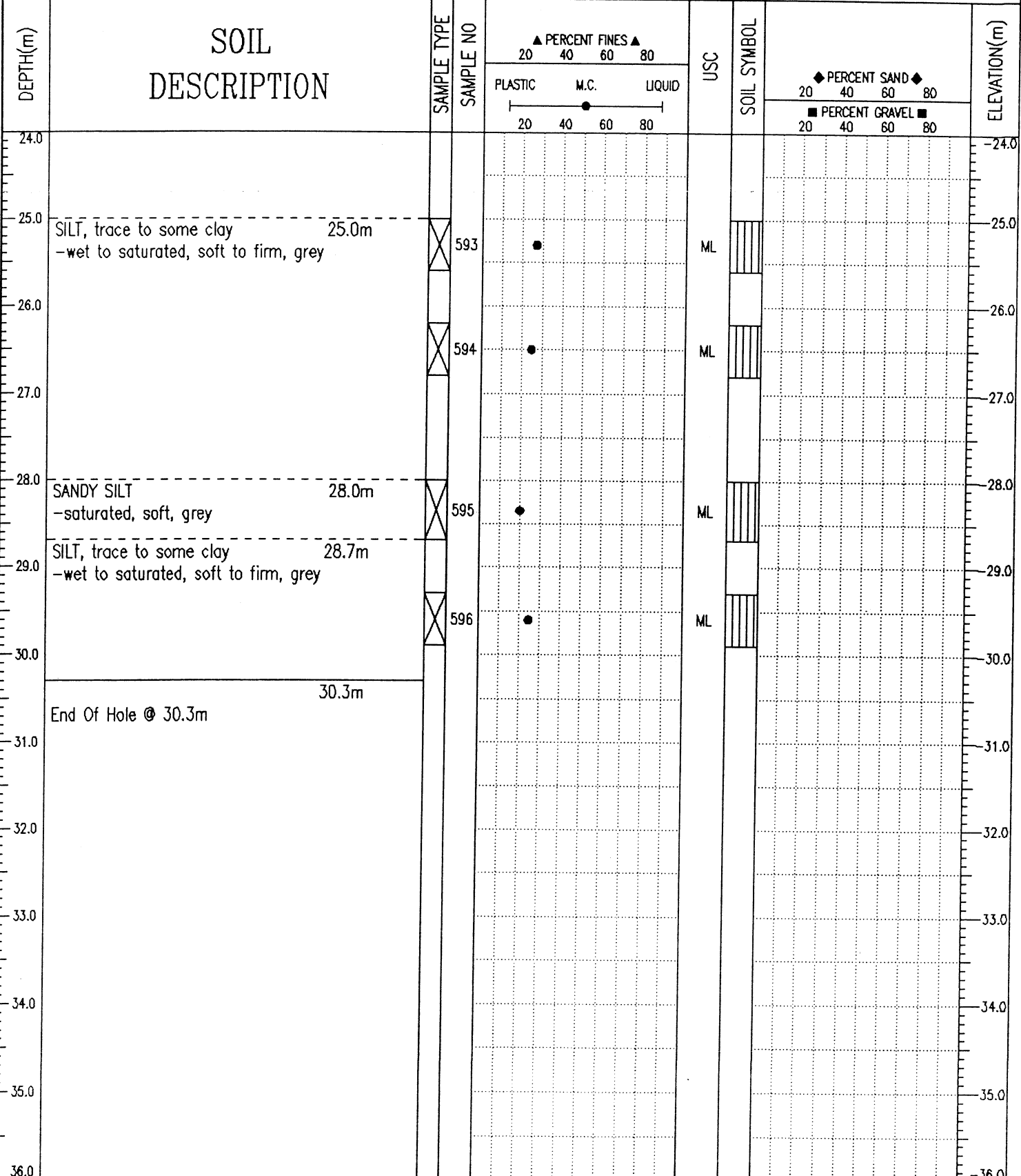


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LOGGED BY: RW	COMPLETION DEPTH: 30.3 m
REVIEWED BY: -	COMPLETE: 08/29/04
Fig. No: 220	Page 2 of 3

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30061
Donjek Services Ltd.	UTM ZONE: - N6765562 E634611	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



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LOGGED BY: RW	COMPLETION DEPTH: 30.3 m
REVIEWED BY:	COMPLETE: 08/29/04
Fig. No: 220	Page 3 of 3

SUBSURFACE EXPLORATION AND TEST REPORT		SHAKWAK SEG 10		BOREHOLE NO: 539-1281						
ENGINEERING CAPITAL		KM 1692.6-1729.6 A/H		PROJECT NO: 092-202101-0362						
B-40L		LOCATION: 1702+500 15M RT		ELEVATION:						
SAMPLE TYPE		<input checked="" type="checkbox"/> RETURN	<input type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> Auger	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE			
Depth (m)	▲ Percent Fines ▲		◆ Percent Sand ◆		SAMPLE TYPE	Sample #	USC	SOIL SYMBOL	SOIL DESCRIPTION	Depth (m)
	PLASTIC	M.C.	20	40						
0									SILT WITH SAND (ML) -brown -wet -smooth easy drilling -1m of snow cover - material not frozen	0
1										
2									SILTY SAND (SM) -brown -saturated	2
3										
4										
4.7									END HOLE @ 4.7m	4.7
5										
6										

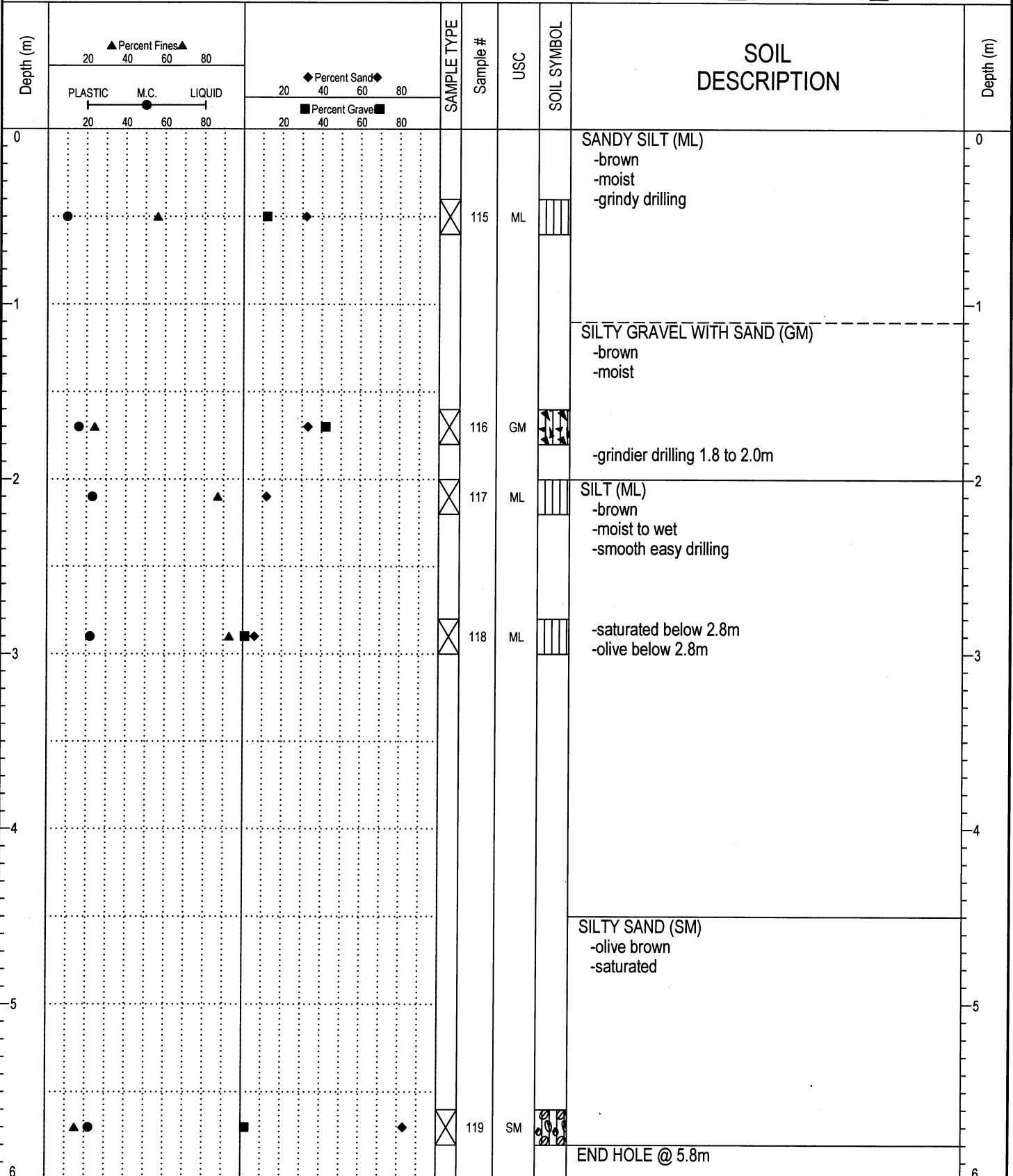
ESE_IMPORT_LOG_SOIL_536-540.GPJ_YTG.GDT_07/2/22

SUBSURFACE EXPLORATION AND TEST REPORT SHAKWAK SEG 10 BOREHOLE NO: 540-1282

ENGINEERING CAPITAL KM 1692.6-1729.6 A/H PROJECT NO: 092-202101-0362

B-40L LOCATION: 1702+575 7M RT ELEVATION:

SAMPLE TYPE RETURN S.P.T. Auger BULK TUBE CORE



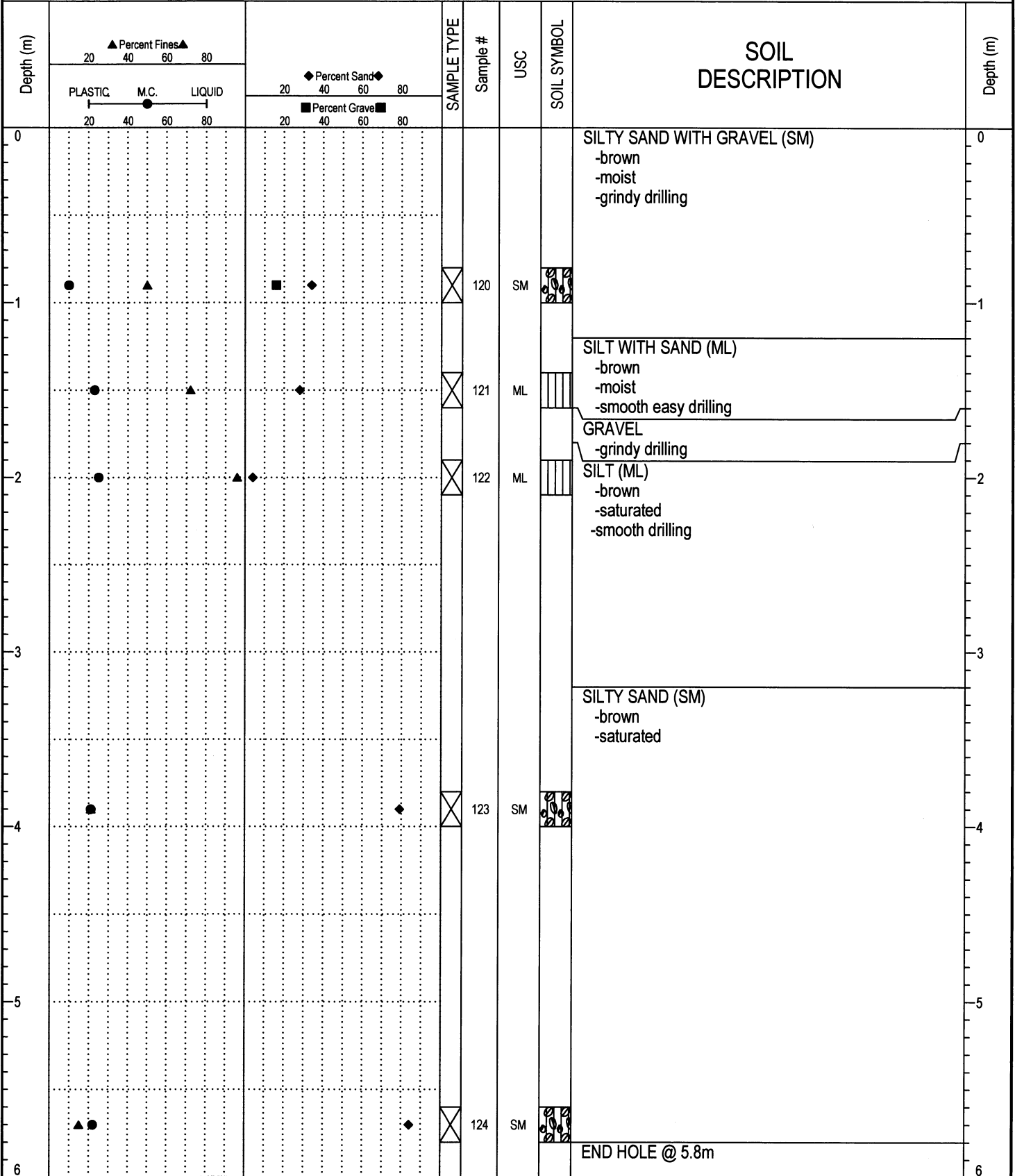
ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22

SUBSURFACE EXPLORATION AND TEST REPORT SHAKWAK SEG 10 BOREHOLE NO: 540-1283

ENGINEERING CAPITAL KM 1692.6-1729.6 A/H PROJECT NO: 092-202101-0362

B-40L LOCATION: 1702+650 6M RT ELEVATION:

SAMPLE TYPE RETURN S.P.T. Auger BULK TUBE CORE



ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/3/21

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30062								
Donjek Services Ltd.		UTM ZONE: - N6765721 E634495		PROJECT NO: 8002-318								
CME75 Drill on FN60 Flextrac Nodwell				ELEVATION:								
SAMPLE TYPE		<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE					
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES			USC	SOIL SYMBOL	PERCENT SAND		PERCENT GRAVEL	ELEVATION (m)
				PLASTIC	M.C.	LIQUID			20	40		
0.0	SAND, some silt to SILTY -damp to moist, medium dense, brown	<input checked="" type="checkbox"/>	597	●			SM					0.0
0.6	SILT, some sand to SANDY -damp, soft to firm, light brown											
1.5	AS ABOVE -wet to saturated -sand seam noted @ 2.1m (200mm thick)	<input checked="" type="checkbox"/>	598	●			ML					
2.4	SILT -saturated, soft, grey											
3.0	SAND, trace silt -saturated, medium dense, brown -silt seam noted @ 5.3m (300mm thick)	<input checked="" type="checkbox"/>	599	●			SP-SM					
4.0		<input checked="" type="checkbox"/>	600	●			SP-SM					
6.1	SILT -saturated, soft, grey	<input checked="" type="checkbox"/>	601	●			ML					
7.6	SAND, trace silt -saturated, medium dense, brown	<input checked="" type="checkbox"/>	602	●			SP-SM					
8.2	SILTY SAND/SANDY SILT -saturated, soft, brown/grey -variable silt and sand seams											
10.0		<input checked="" type="checkbox"/>	603	●			ML					
11.0	SAND, trace to some silt -saturated, medium dense, brown	<input checked="" type="checkbox"/>	604	●			SP-SM					
12.0												

J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW
REVIEWED BY: -
Fig. No: 221

COMPLETION DEPTH: 15.1 m
COMPLETE: 08/29/04

Page 1 of 2

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30062						
Donjek Services Ltd.		UTM ZONE: - N6765721 E634495		PROJECT NO: 8002-318						
CME75 Drill on FN60 Flextrac Nodwell				ELEVATION:						
SAMPLE TYPE		<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE			
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲ 20 40 60 80		USC	SOIL SYMBOL	◆ PERCENT SAND ◆ 20 40 60 80		ELEVATION(m)
				PLASTIC	M.C.			LIQUID	■ PERCENT GRAVEL ■ 20 40 60 80	
12.0	SAND, some silt to SILTY -saturated, medium dense, brown									-12.0
13.0		X	605	●		SM				-13.0
14.0		X	606	●		SM				-14.0
15.0	End Of Hole @ 15.1m									-15.0
16.0										-16.0
17.0										-17.0
18.0										-18.0
19.0										-19.0
20.0										-20.0
21.0										-21.0
22.0										-22.0
23.0										-23.0
24.0										-24.0

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LOGGED BY: RW
REVIEWED BY:
Fig. No: 221

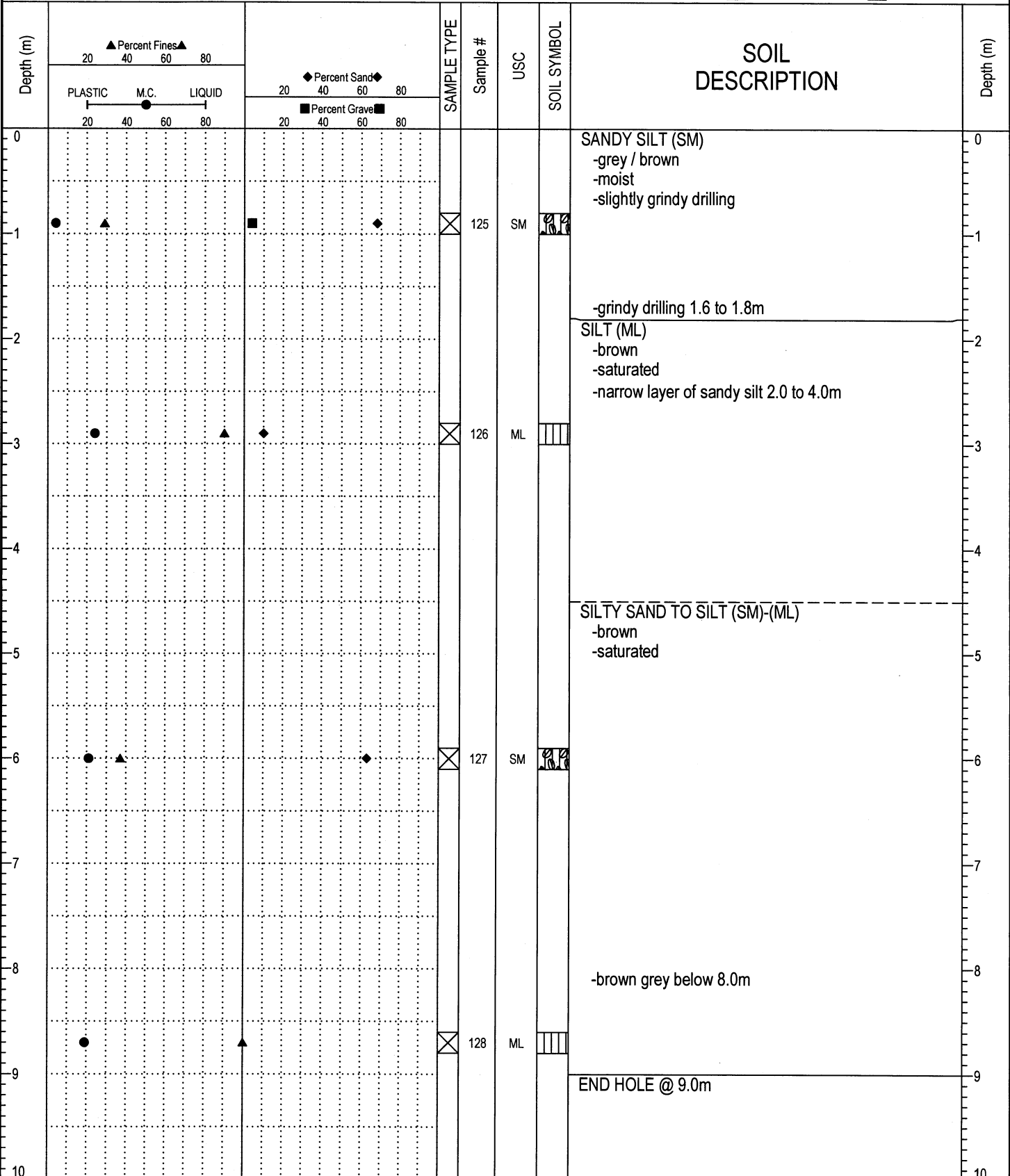
COMPLETION DEPTH: 15.1 m
COMPLETE: 08/29/04

SUBSURFACE EXPLORATION AND TEST REPORT SHAKWAK SEG 10 BOREHOLE NO: 540-1284

ENGINEERING CAPITAL KM 1692.6-1729.6 A/H PROJECT NO: 092-202101-0362

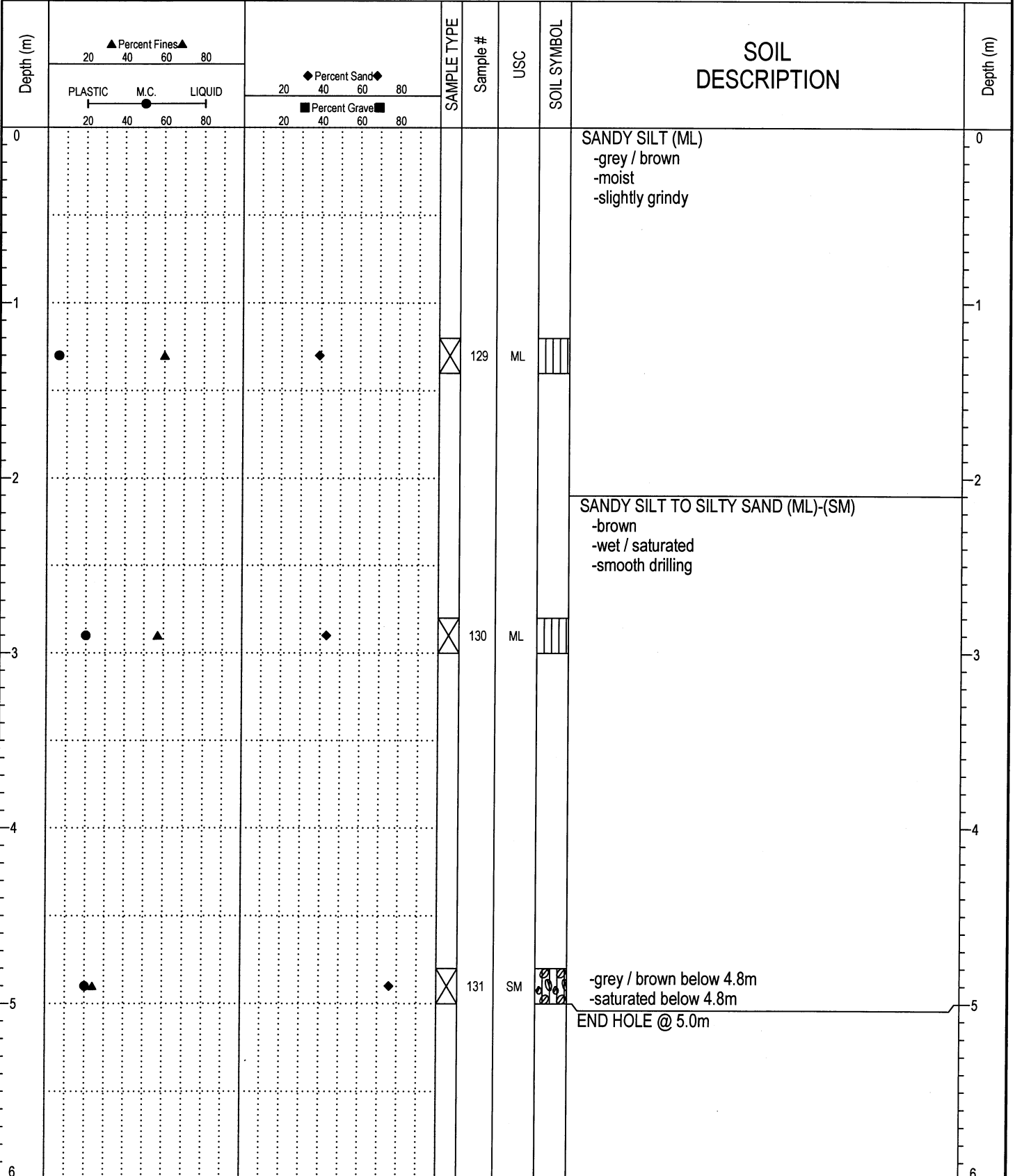
B-40L LOCATION: 1702+750 6M RT ELEVATION:

SAMPLE TYPE RETURN S.P.T. Auger BULK TUBE CORE



ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22

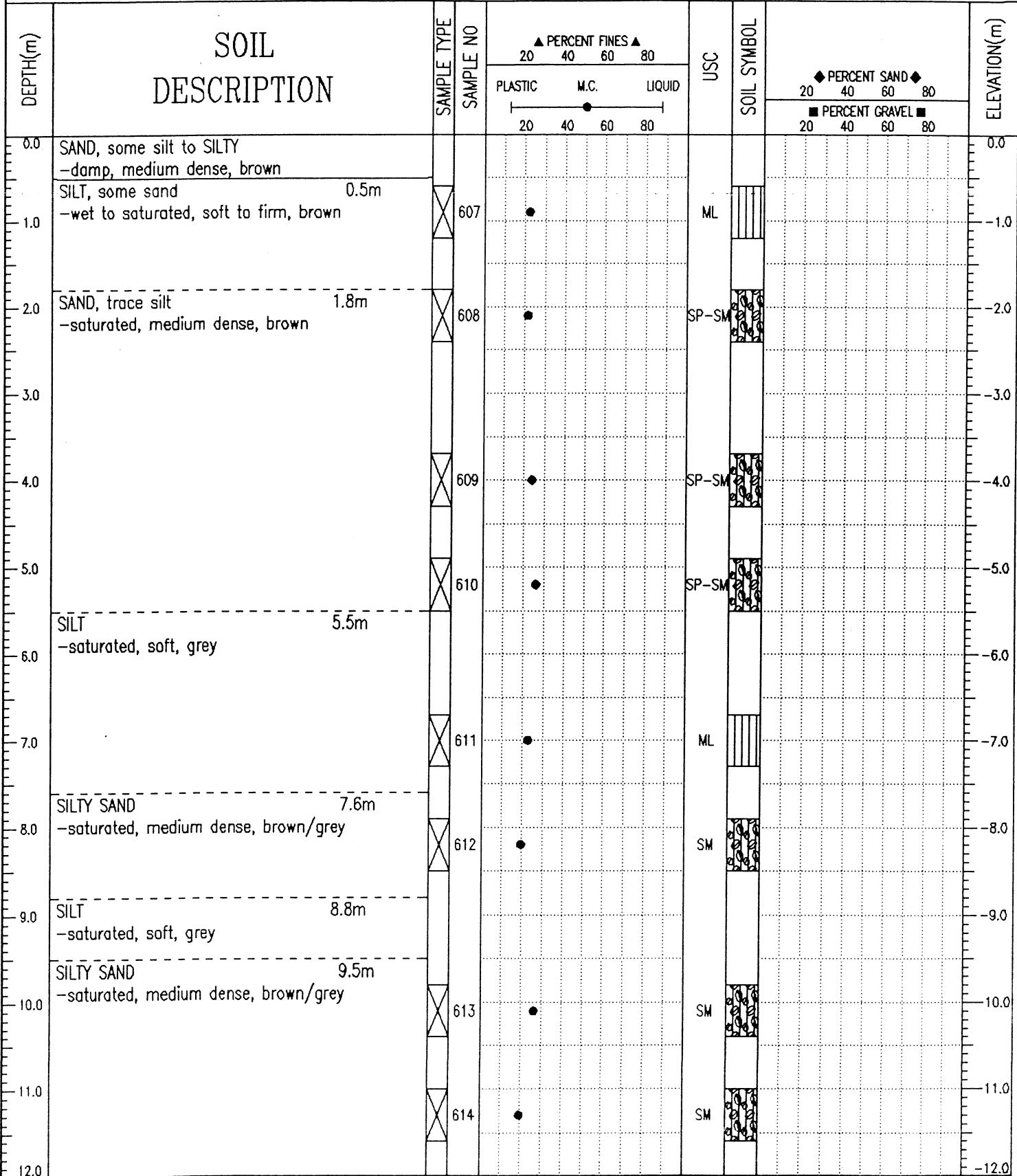
SUBSURFACE EXPLORATION AND TEST REPORT		SHAKWAK SEG 10	BOREHOLE NO: 540-1285
ENGINEERING CAPITAL		KM 1692.6-1729.6 A/H	PROJECT NO: 092-202101-0362
B-40L		LOCATION: 1702+850 7M RT	ELEVATION:
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> Auger <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE			



ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30063
Donjek Services Ltd.	UTM ZONE: - N6765883 E634376	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW
REVIEWED BY: -
Fig. No: 222

COMPLETION DEPTH: 15.1 m
COMPLETE: 08/29/04
Page 1 of 2

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30063						
Donjek Services Ltd.		UTM ZONE: - N6765883 E634376		PROJECT NO: 8002-318						
CME75 Drill on FN60 Flextrac Nodwell				ELEVATION:						
SAMPLE TYPE		<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE			
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲ 20 40 60 80		USC	SOIL SYMBOL	◆ PERCENT SAND ◆ 20 40 60 80		ELEVATION(m)
				PLASTIC	M.C.			LIQUID	■ PERCENT GRAVEL ■ 20 40 60 80	
12.0										-12.0
13.0			615				SM			-13.0
14.0	SILT, some sand to SILTY -saturated, soft, grey w/ brown -varibale seams of silts and sands intermixed		616				ML			-14.0
15.0	End Of Hole @ 15.1m									-15.0
16.0										-16.0
17.0										-17.0
18.0										-18.0
19.0										-19.0
20.0										-20.0
21.0										-21.0
22.0										-22.0
23.0										-23.0
24.0										-24.0

J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW
REVIEWED BY:
Fig. No: 222

COMPLETION DEPTH: 15.1 m
COMPLETE: 08/29/04

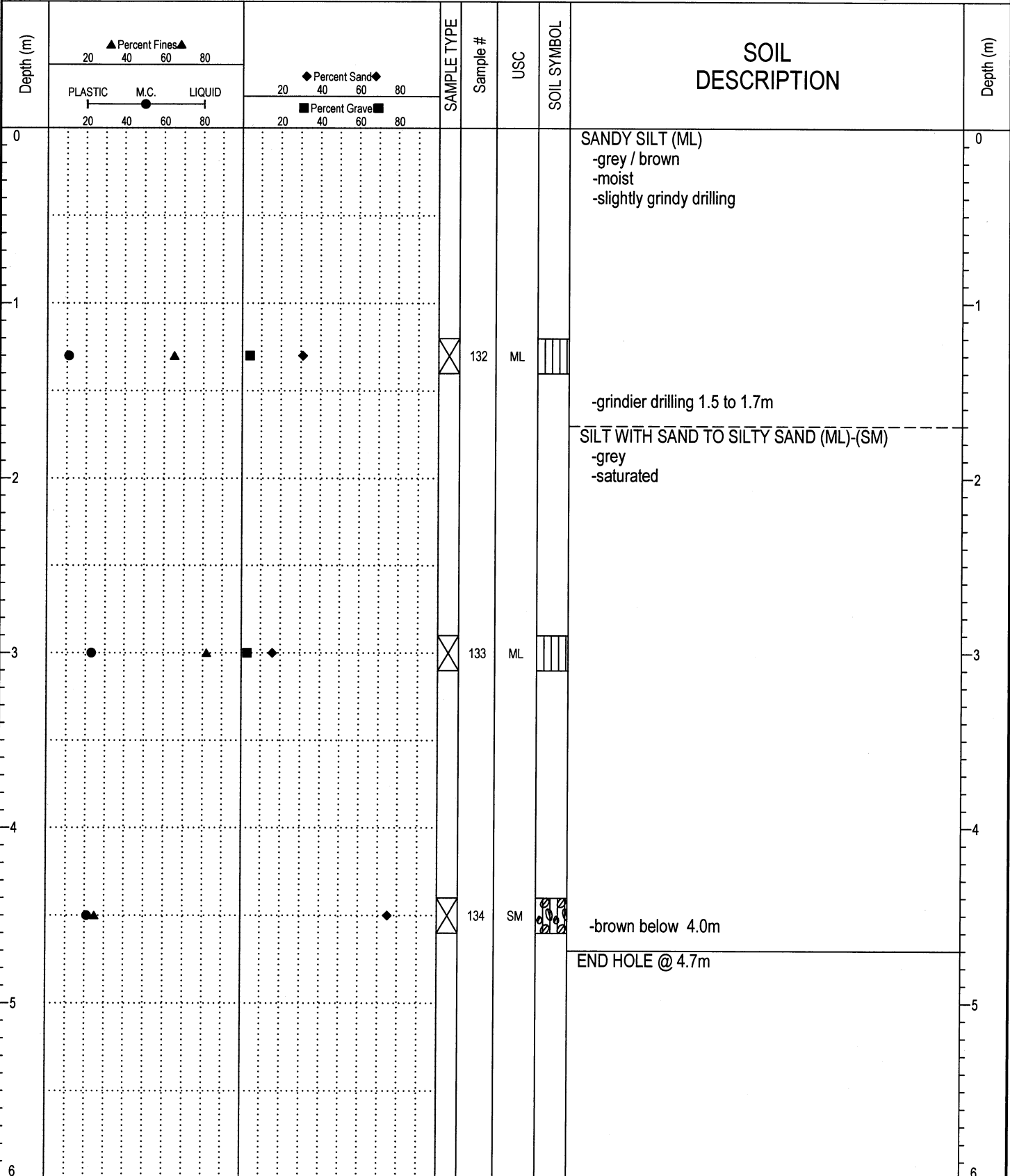
05/02/23 05:01PM (716_HHTS)

SUBSURFACE EXPLORATION AND TEST REPORT SHAKWAK SEG 10 BOREHOLE NO: 540-1286

ENGINEERING CAPITAL KM 1692.6-1729.6 A/H PROJECT NO: 092-202101-0362

B-40L LOCATION: 1702+950 8M RT ELEVATION:

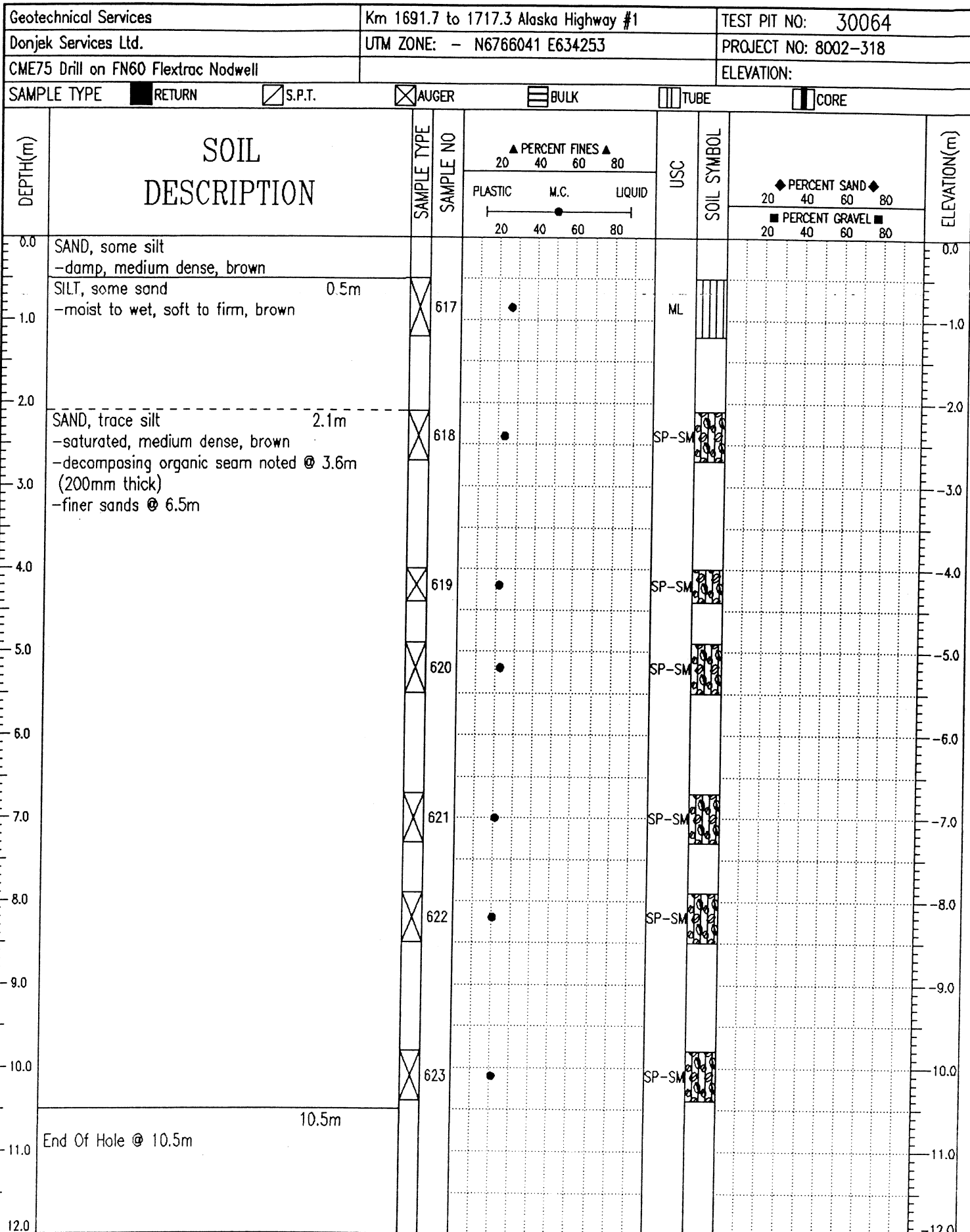
SAMPLE TYPE RETURN S.P.T. Auger BULK TUBE CORE



ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22

SUBSURFACE EXPLORATION AND TEST REPORT		SHAKWAK SEG 10		BOREHOLE NO: 540-1287				
ENGINEERING CAPITAL		KM 1692.6-1729.6 A/H		PROJECT NO: 092-202101-0362				
B-40L		LOCATION: 1703+050 2M RT		ELEVATION:				
SAMPLE TYPE		<input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> Auger <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE						
Depth (m)	▲ Percent Fines ▲ 20 40 60 80 PLASTIC M.C. LIQUID 20 40 60 80		SAMPLE TYPE	Sample #	USC	SOIL SYMBOL	SOIL DESCRIPTION	Depth (m)
	◆ Percent Sand ◆ 20 40 60 80 ■ Percent Gravel ■ 20 40 60 80							
0							SILTY SAND WITH GRAVEL (SM) -brown -frozen (Vx) -slightly grindy drilling	0
1				135	SM			
1				136	ML		SILT (ML) -brown -saturated -smooth easy drilling	1
2							SILTY SAND (SM) -wet to moist	2
3				137	SM			3
4							-grey / brown below 3.5m	4
5				138	SM			5
6							END HOLE @ 4.7m	6

ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22



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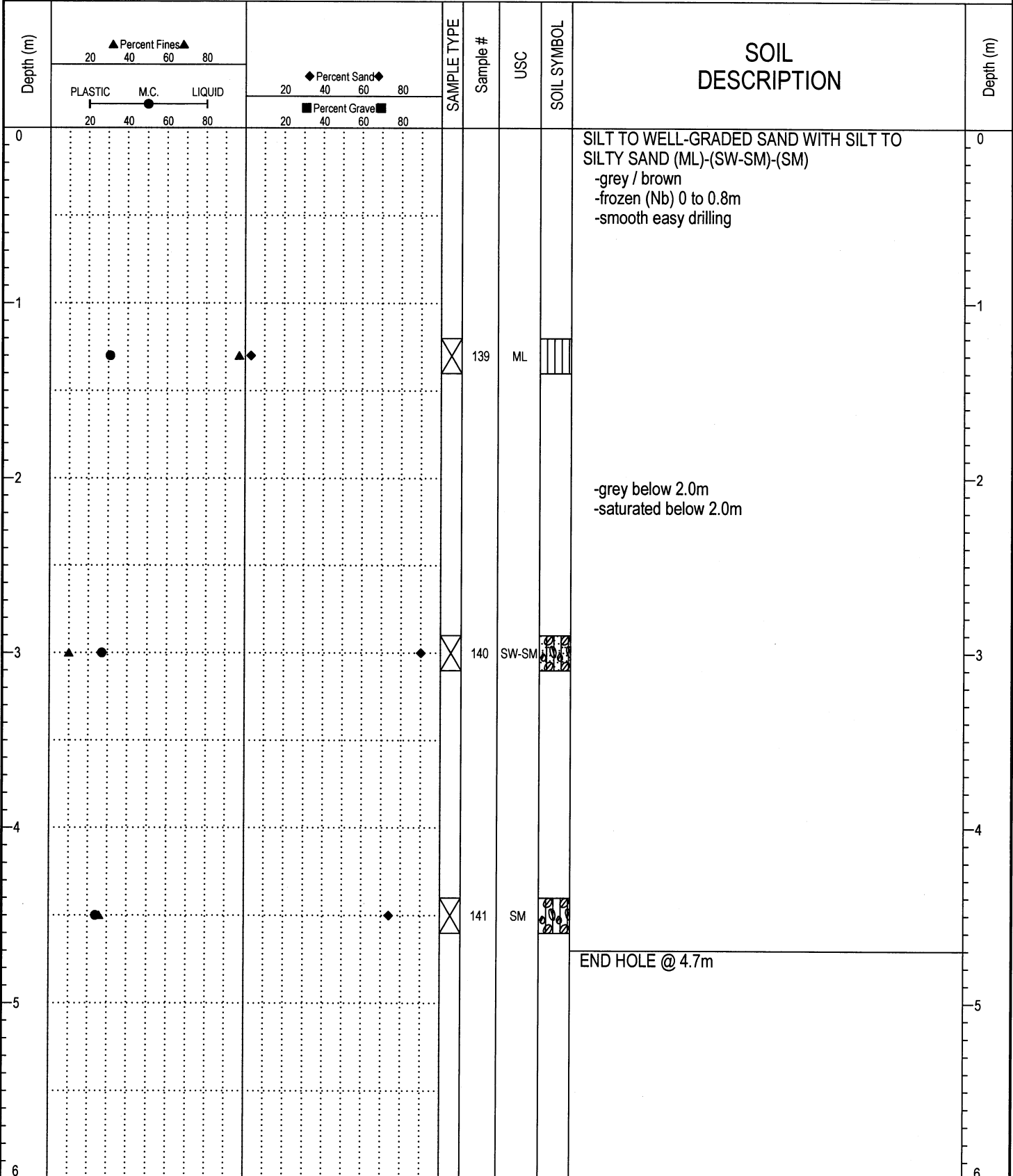
LOGGED BY: RW	COMPLETION DEPTH: 10.5 m
REVIEWED BY:	COMPLETE: 08/29/04
Fig. No: 223	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT SHAKWAK SEG 10 BOREHOLE NO: 540-1288

ENGINEERING CAPITAL KM 1692.6-1729.6 A/H PROJECT NO: 092-202101-0362

B-40L LOCATION: 1703+150 7M RT ELEVATION:

SAMPLE TYPE RETURN S.P.T. Auger BULK TUBE CORE



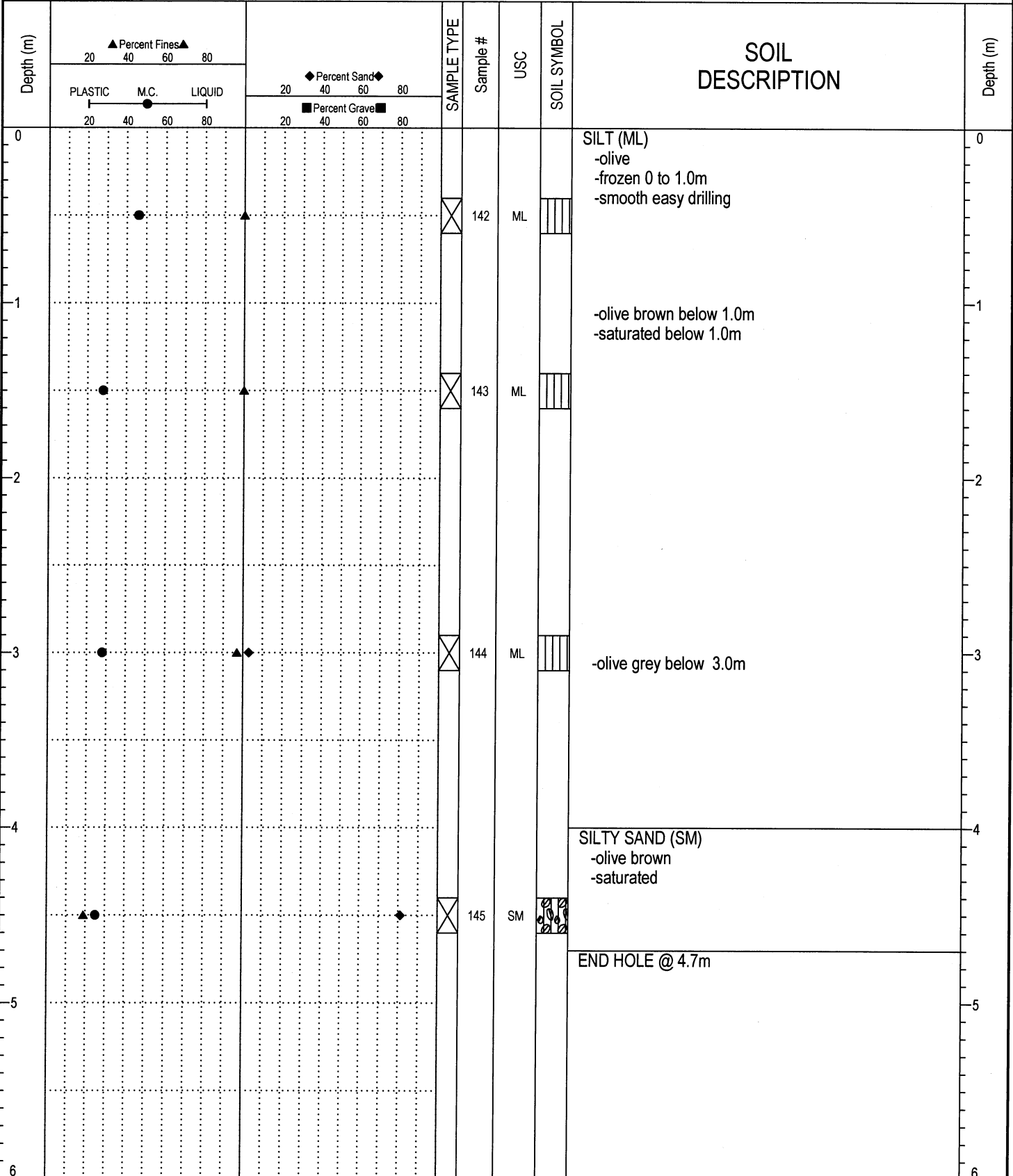
ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22

SUBSURFACE EXPLORATION AND TEST REPORT SHAKWAK SEG 10 BOREHOLE NO: 540-1289

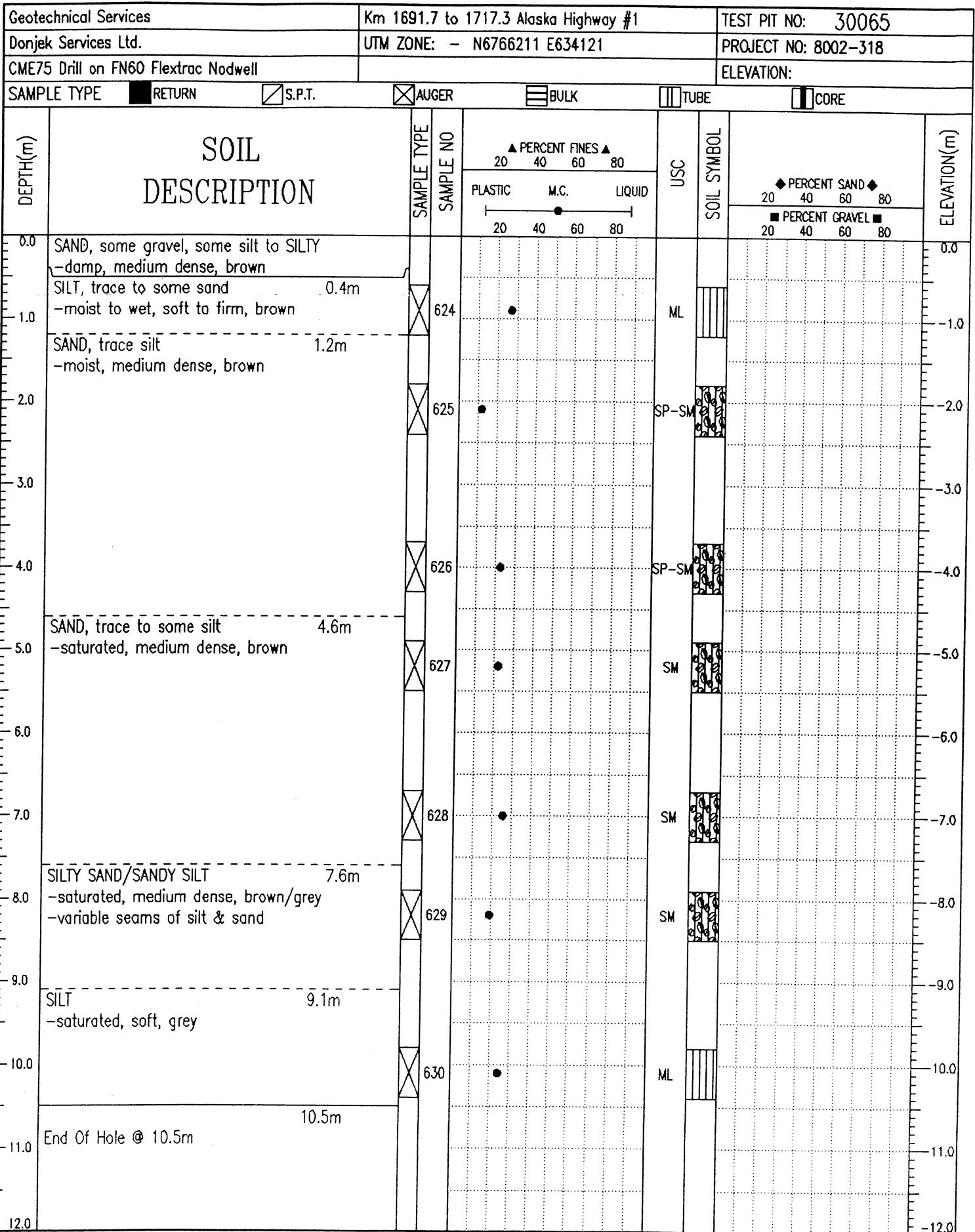
ENGINEERING CAPITAL KM 1692.6-1729.6 A/H PROJECT NO: 092-202101-0362

B-40L LOCATION: 1703+250 14M RT ELEVATION:

SAMPLE TYPE RETURN S.P.T. Auger BULK TUBE CORE



ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22



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LOGGED BY: RW
REVIEWED BY: -
Fig. No: 224

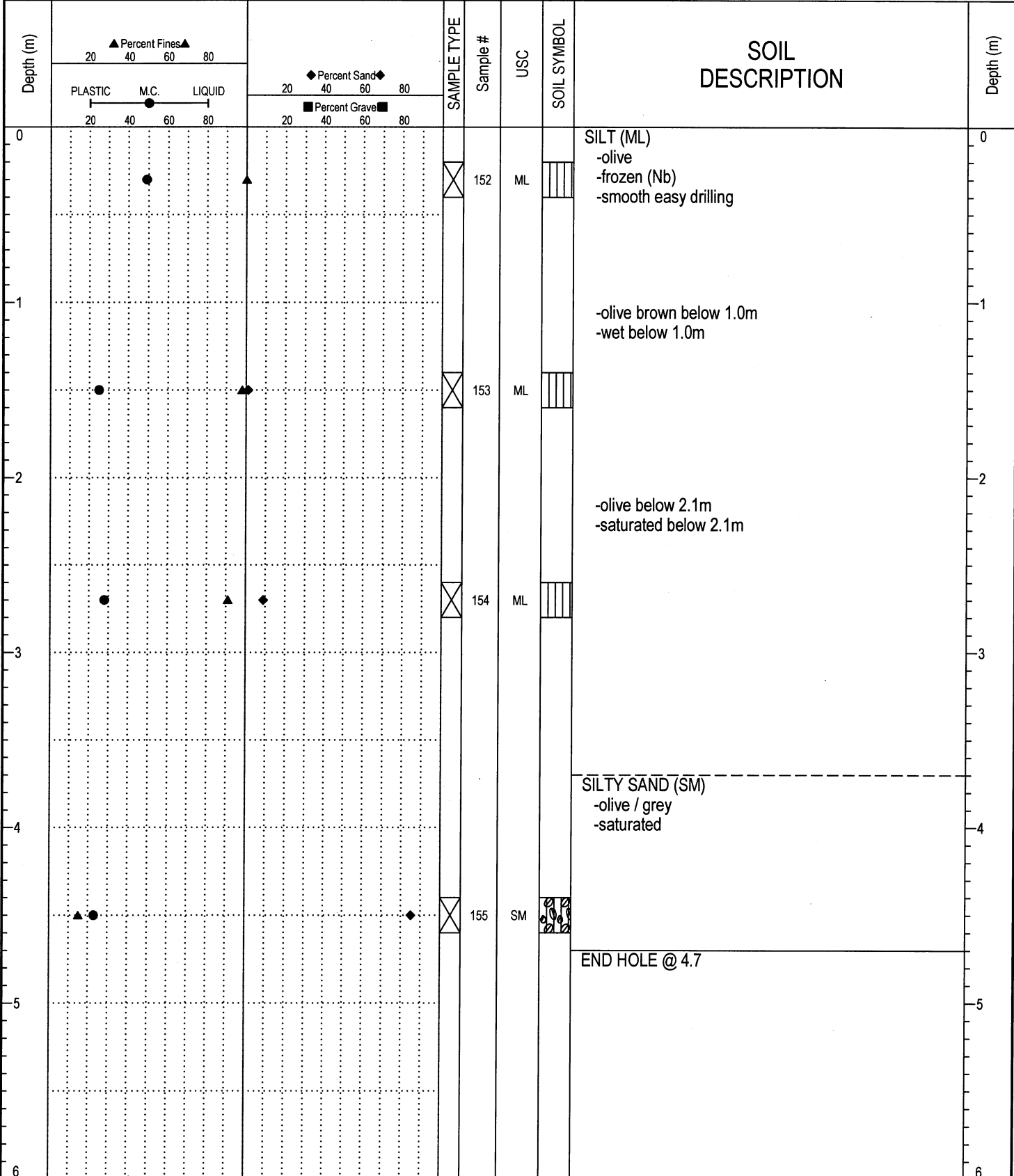
COMPLETION DEPTH: 10.5 m
COMPLETE: 08/30/04

SUBSURFACE EXPLORATION AND TEST REPORT		SHAKWAK SEG 10		BOREHOLE NO: 540-1290				
ENGINEERING CAPITAL		KM 1692.6-1729.6 A/H		PROJECT NO: 092-202101-0362				
B-40L		LOCATION: 1703+350 15M RT		ELEVATION:				
SAMPLE TYPE		<input checked="" type="checkbox"/> RETURN	<input type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> Auger	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE	
Depth (m)			SAMPLE TYPE	Sample #	USC	SOIL SYMBOL	SOIL DESCRIPTION	Depth (m)
0			<input checked="" type="checkbox"/>	146	ML		SILT (ML) -grey -frozen (Nf) to 1.0m -smooth easy drilling	0
1			<input checked="" type="checkbox"/>	147	ML		-grey / olive below 1.0m -wet / saturated below 1.0m	1
3			<input checked="" type="checkbox"/>	148	SM		SILTY SAND (SM) -brown -wet / saturated	3
5			<input checked="" type="checkbox"/>	148	SM		-olive grey below 3.5m -saturated below 3.5m	5
6			<input checked="" type="checkbox"/>	150	SM			6
9			<input checked="" type="checkbox"/>	151	SM			9
10							END HOLE @ 9.0m	10

ESE: IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/21/22

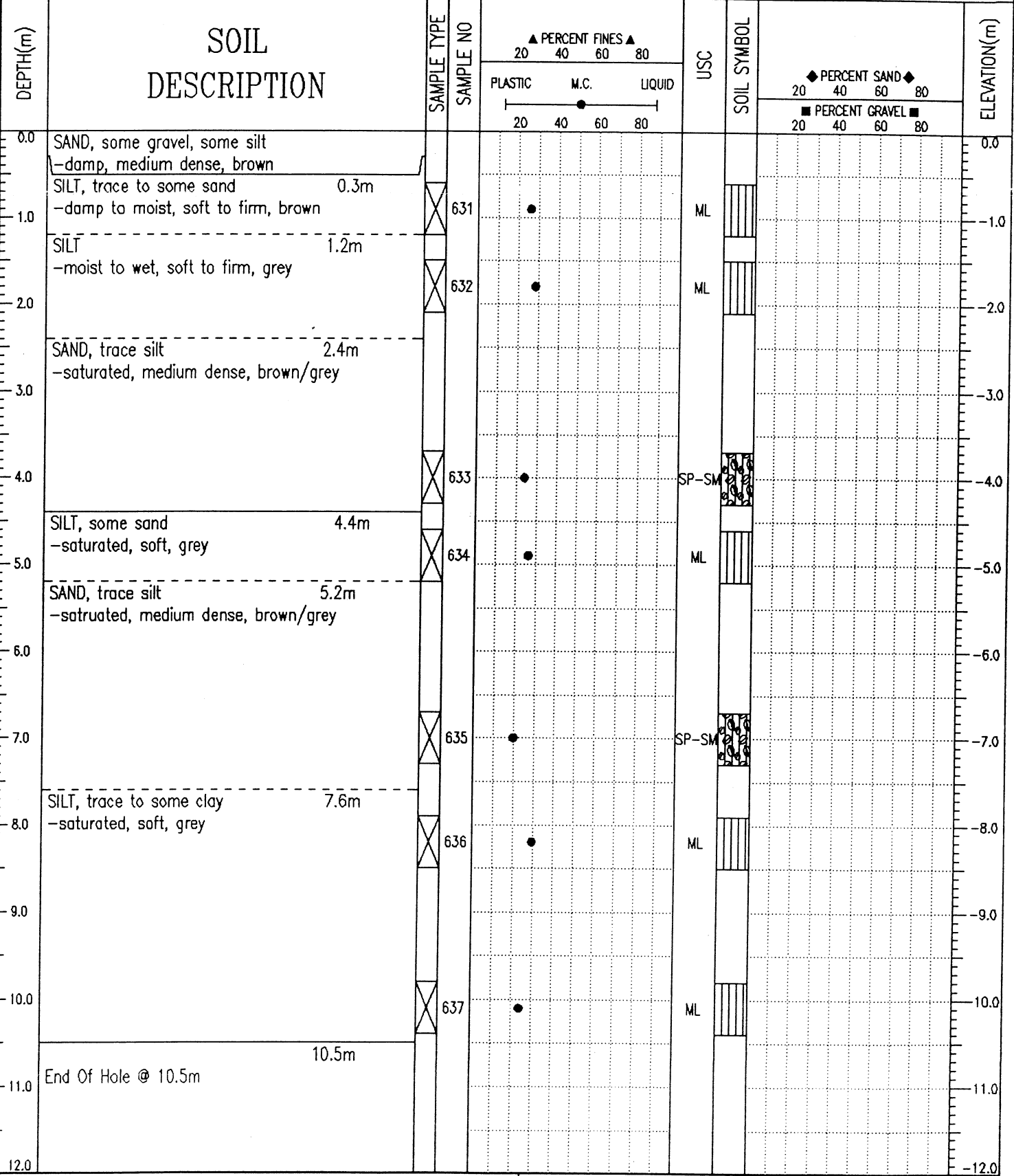
SUBSURFACE EXPLORATION AND TEST REPORT	SHAKWAK SEG 10	BOREHOLE NO: 540-1291
ENGINEERING CAPITAL	KM 1692.6-1729.6 A/H	PROJECT NO: 092-202101-0362
B-40L	LOCATION: 1703+450 19M RT	ELEVATION:

SAMPLE TYPE RETURN S.P.T. Auger BULK TUBE CORE



ESE IMPORT LOG SOIL 536-540.GPJ YTG.GDT 07/2/22

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



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Whitehorse, Yukon

LOGGED BY: RW	COMPLETION DEPTH: 10.5 m
REVIEWED BY: -	COMPLETE: 08/30/04
Fig. No: 225	Page 1 of 1

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30067						
Donjek Services Ltd.		UTM ZONE: - N6766554 E633887		PROJECT NO: 8002-318						
CME75 Drill on FN60 Flextrac Nodwell				ELEVATION:						
SAMPLE TYPE		<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE			
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲ 20 40 60 80		USC	SOIL SYMBOL	◆ PERCENT SAND ◆ 20 40 60 80		ELEVATION(m)
				PLASTIC	M.C.			LIQUID	■ PERCENT GRAVEL ■ 20 40 60 80	
0.0	SILT, trace to some sand -moist, firm, brown									0.0
1.0	SILTY SAND 1.2m -damp, medium dense, brown		638			ML				-1.0
2.0	SILT, trace clay 1.8m -moist to wet, soft to firm, grey									-2.0
3.0	SAND, trace silt 2.1m -moist to wet, medium dense, brown		639			SP-SM				-3.0
4.0	SAND, some silt to SILTY 3.0m -saturated, medium dense, brown/grey -fine grained sands		640			SM				-4.0
5.0			641			SM				-5.0
6.0	End Of Hole @ 5.9m 5.9m									-6.0
7.0										-7.0
8.0										-8.0
9.0										-9.0
10.0										-10.0
11.0										-11.0
12.0										-12.0

J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW

REVIEWED BY: -

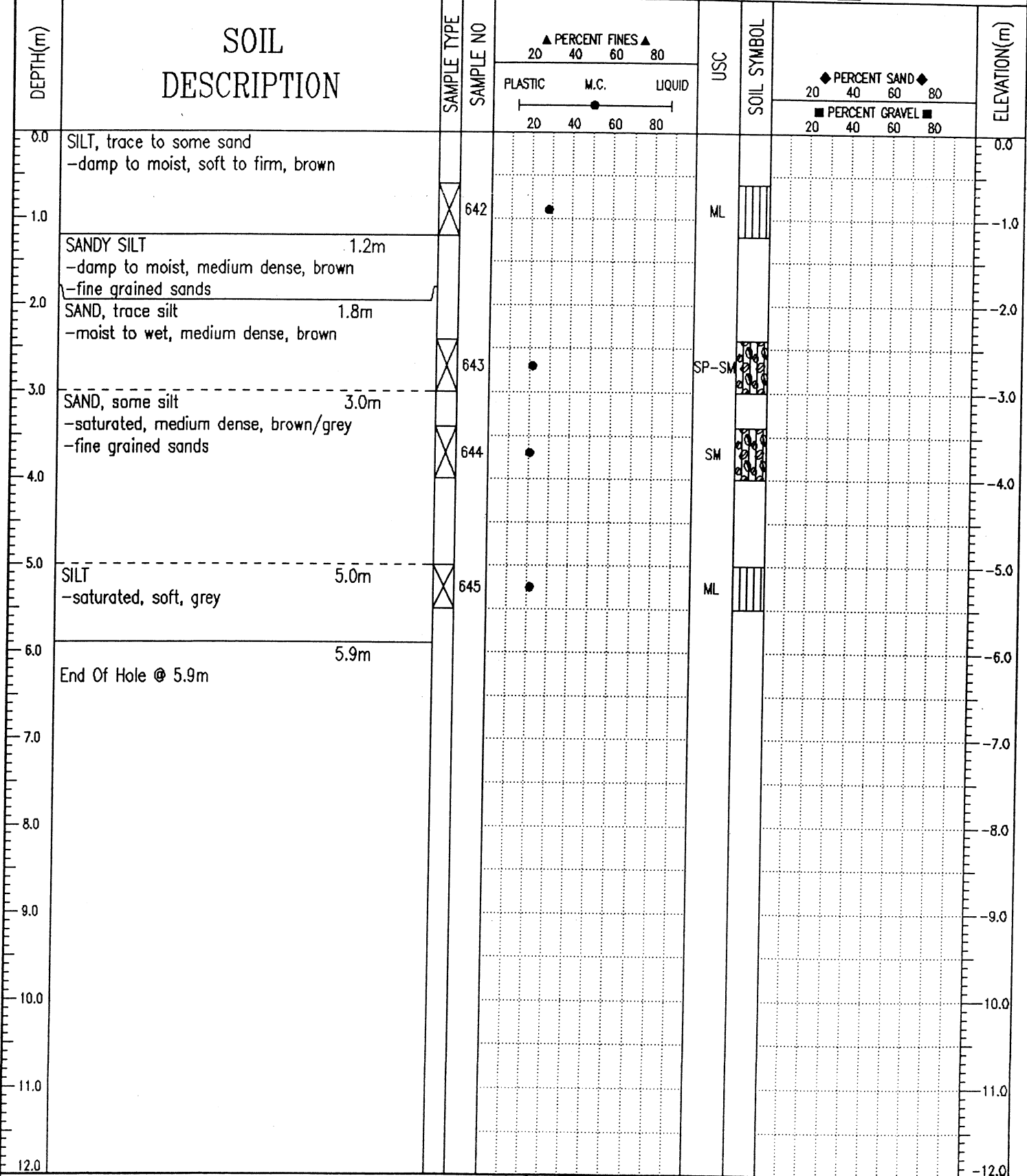
Fig. No: 226

COMPLETION DEPTH: 5.9 m

COMPLETE: 08/30/04

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30068
Donjek Services Ltd.	UTM ZONE: - N6766749 E633842	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

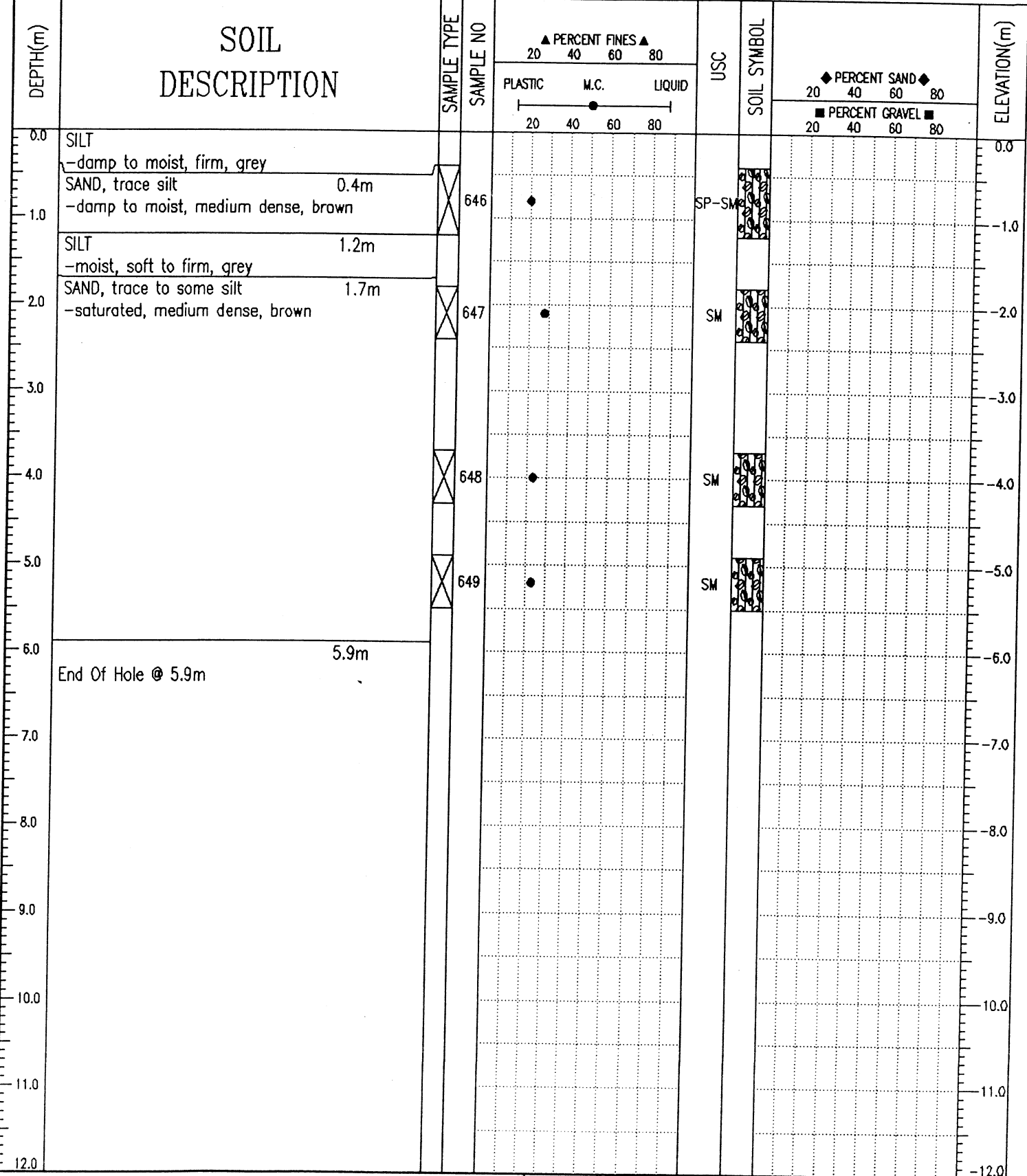


J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW	COMPLETION DEPTH: 5.9 m
REVIEWED BY: -	COMPLETE: 08/30/04
Fig. No: 227	Page 1 of 1

Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1 TEST PIT NO: 30069
 Donjek Services Ltd. UTM ZONE: - N6766937 E633865 PROJECT NO: 8002-318
 CME75 Drill on FN60 Flextrac Nodwell ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



J. R. Paine & Associates Ltd.
 Whitehorse, Yukon

LOGGED BY: RW COMPLETION DEPTH: 5.9 m
 REVIEWED BY: COMPLETE: 08/30/04
 Fig. No: 228 Page 1 of 1

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30070							
Donjek Services Ltd.		UTM ZONE: - N6767128 E633921		PROJECT NO: 8002-318							
CME75 Drill on FN60 Flextrac Nodwell				ELEVATION:							
SAMPLE TYPE		<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE				
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	SOIL SYMBOL	◆ PERCENT SAND ◆		ELEVATION(m)
				20	40	60			80	20	
0.0	SILT, some sand -damp to moist, soft to firm, brown -organics noted to 0.3m depth										0.0
1.0			650				ML				-1.0
1.2m	GRAVEL, some sand, some silt -saturated, medium dense, brown -grindy drilling -silt contamination from sidewalls -broken/angular gravels to 40mm dia.										
2.0			651				GM				-2.0
2.8m	SANDY SILTY GRAVEL -saturated, medium dense, brown/grey										
3.0			652				GM				-3.0
4.0			653				GM				-4.0
5.0											-5.0
5.9m	End Of Hole @ 5.9m										-5.9
6.0											-6.0
7.0											-7.0
8.0											-8.0
9.0											-9.0
10.0											-10.0
11.0											-11.0
12.0											-12.0

J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW
REVIEWED BY: -
Fig. No: 229

COMPLETION DEPTH: 5.9 m
COMPLETE: 08/30/04
Page 1 of 1

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30072
Glacier Drilling	UTM ZONE: - N6768366 E634882	PROJECT NO: 8002-318
Hitachi 450EX Tracked Hoe	Soldier Summit	ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES			USC	SOIL SYMBOL	PERCENT SAND			PERCENT GRAVEL	ELEVATION(m)
				PLASTIC	M.C.	LIQUID			20	40	60		
0.0	Cobbles & Boulders, some silt, some sand -boulders to 1.0m dia. encountered -fracturing rock -boulders to 3.0m dia. adjacent to testpit on surface												0.0
1.0													-1.0
2.0													-2.0
3.0													-3.0
4.0													-4.0
5.0													-5.0
5.3	End Of Hole @ 5.3m												-5.3
6.0													-6.0

J. R. Paine & Associates Ltd. Whitehorse, Yukon	LOGGED BY: RW	COMPLETION DEPTH: 5.3 m
	REVIEWED BY:	COMPLETE: 07/26/04
	Fig. No: 148	Page 1 of 1

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30073
Glacier Drilling	UTM ZONE: - N6768367 E635014	PROJECT NO: 8002-318
Hitachi 450EX Tracked Hoe	Soldier Summit	ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	SOIL SYMBOL	PERCENT SAND ◆			ELEVATION(m)
				PLASTIC	M.C.	LIQUID			20	40	60	
0.0	BOULDERS/COBBLES -some surficial organics											0.0
0.3	BOULDERS/COBBLES, some sand & silt -boulders to 0.5m in dia. -boulders 30 to 40% by Vol.											
1.0												
2.0												
3.0												
4.0												
5.0												
5.3	End Of Hole @ 5.3m											
6.0												

J. R. Paine & Associates Ltd. Whitehorse, Yukon	LOGGED BY: MF	COMPLETION DEPTH: 5.3 m
	REVIEWED BY:	COMPLETE: 07/29/04
	Fig. No: 149	Page 1 of 1

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30074
Glacier Drilling	UTM ZONE: - N6768449 E634943	PROJECT NO: 8002-318
Hitachi 450EX Tracked Hoe	Soldier Summit	ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	SOIL SYMBOL	PERCENT SAND ◆		ELEVATION(m)
				20	40	60			80	20	
0.0	BOULDERS/COBBLES -some surficial organics										0.0
0.3	BOULDERS/COBBLES, some silt -boulders encountered to 1.0m in dia. -boulders and cobbles 40 to 50% by Vol.										
1.0											
2.0											
3.0											
4.0											
5.0											
5.2	End Of Hole @ 5.2m										
6.0											

J. R. Paine & Associates Ltd. Whitehorse, Yukon	LOGGED BY: MF	COMPLETION DEPTH: 5.2 m
	REVIEWED BY: -	COMPLETE: 07/29/04
	Fig. No: 150	Page 1 of 1

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30075
Glacier Drilling	UTM ZONE: - N6768519 E634961	PROJECT NO: 8002-318
Hitachi 450EX Tracked Hoe	Soldier Summit	ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	SOIL SYMBOL	PERCENT SAND ◆			ELEVATION(m)
				PLASTIC	M.C.	LIQUID			20	40	60	
0.0	BOULDERS/COBBLES -some surficial organics											0.0
0.3	BOULDERS/COBBLES, trace silt & sand -boulders encountered to 1.0m in dia. -boulders and cobbles 40 to 50% by Vol.											
1.0												
2.0												
3.0												
4.0												
5.0												
5.4	End Of Hole @ 5.4m											
6.0												

J. R. Paine & Associates Ltd. Whitehorse, Yukon	LOGGED BY: MF	COMPLETION DEPTH: 5.4 m
	REVIEWED BY:	COMPLETE: 07/29/04
	Fig. No: 151	Page 1 of 1

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30076			
Glacier Drilling		UTM ZONE: - N6768523 E635054		PROJECT NO: 8002-318			
Hitachi 450EX Tracked Hoe		Soldier Summit		ELEVATION:			
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE							
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲ 20 40 60 80 PLASTIC M.C. LIQUID 20 40 60 80	USC	SOIL SYMBOL ◆ PERCENT SAND ◆ 20 40 60 80 ■ PERCENT GRAVEL ■ 20 40 60 80	ELEVATION(m)
0.0	BOULDERS/COBBLES -some surficial organics						0.0
	BOULDERS/COBBLES, some silt & sand 0.3m -boulders encountered to 1.0m in dia. -boulders and cobbles 30 to 40% by Vol.						
1.0							-1.0
	SANDY GRAVEL, trace to some silt 1.5m -damp, dense, brown/grey -boulders 20 to 30% by Vol.						
2.0							-2.0
3.0							-3.0
4.0		SI	●▲		GP-GM	◆ ■	-4.0
5.0							-5.0
6.0	End Of Hole @ 5.4m						-6.0

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Whitehorse, Yukon

LOGGED BY: MF	COMPLETION DEPTH: 5.4 m
REVIEWED BY: -	COMPLETE: 07/29/04
Fig. No: 152	Page 1 of 1

Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1 TEST PIT NO: 30078
 Glacier Drilling UTM ZONE: - N6768663 E634997 PROJECT NO: 8002-318
 Hitachi 450EX Tracked Hoe Soldier Summit ELEVATION:
 SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	SOIL SYMBOL	PERCENT SAND ◆			ELEVATION(m)
				PLASTIC	M.C.	LIQUID			20	40	60	
0.0	BOULDERS/COBBLES -some surficial organics											0.0
0.3	SILTY GRAVEL, some sand -boulders encountered to 1.5m in dia. -boulders and cobbles 50% by Vol.											
1.0												-1.0
2.0												-2.0
3.0												-3.0
4.0												-4.0
5.0	End Of Hole @ 5.0m											-5.0
6.0												-6.0

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 Whitehorse, Yukon

LOGGED BY: MF COMPLETION DEPTH: 5 m
 REVIEWED BY: COMPLETE: 07/31/04
 Fig. No: 154 Page 1 of 1

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30079
Glacier Drilling	UTM ZONE: - N6768745 E635028	PROJECT NO: 8002-318
Hitachi 450EX Tracked Hoe	Soldier Summit	ELEVATION:
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		

DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	SOIL SYMBOL	PERCENT SAND ◆			ELEVATION(m)
				PLASTIC	M.C.	LIQUID			PERCENT GRAVEL ■			
0.0	BOULDERS/COBBLES -surficial organics										0.0	
0.3	SILTY SAND GRAVEL 0.3m -boulders encountered to 1.5m in dia. -boulders and cobbles 20% by Vol. -sample #S2 lost in transport											
1.0											-1.0	
2.0											-2.0	
3.0											-3.0	
4.0			S2								-4.0	
5.0											-5.0	
5.1	End Of Hole 5.1m										-5.1	
6.0											-6.0	

J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: MF	COMPLETION DEPTH: 5.1 m
REVIEWED BY: -	COMPLETE: 07/31/04
Fig. No: 155	Page 1 of 1

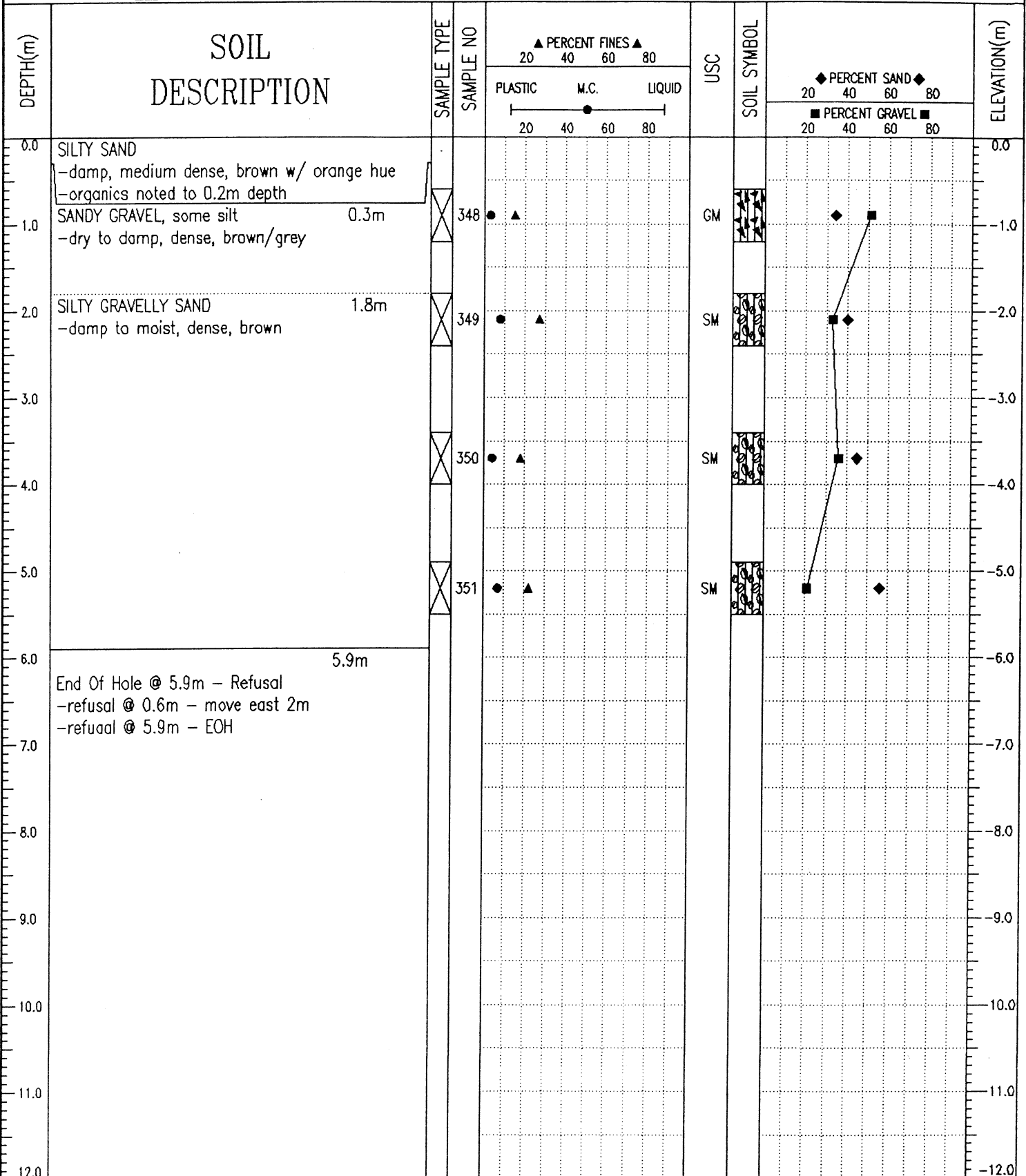
Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30081							
Glacier Drilling		UTM ZONE: - N6768752 E635160		PROJECT NO: 8002-318							
Hitachi 450EX Tracked Hoe		Soldier Summit		ELEVATION:							
SAMPLE TYPE		<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE				
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	SOIL SYMBOL	PERCENT SAND ◆		ELEVATION(m)
				PLASTIC	M.C.	LIQUID			20	40	
0.0	BOULDERS/COBBLES -surficial organics										0.0
0.3m	BOULDERS/COBBLES, some silt & sand -boulders encountered to 1.0m in dia. -boulders and cobbles 60 to 70% by Vol.										
1.5m	SANDY SILTY GRAVEL -boulders encountered to 1.0m in dia. -boulders and cobbles 20 to 30% by Vol.										
5.0m	End Of Hole 5.0m										

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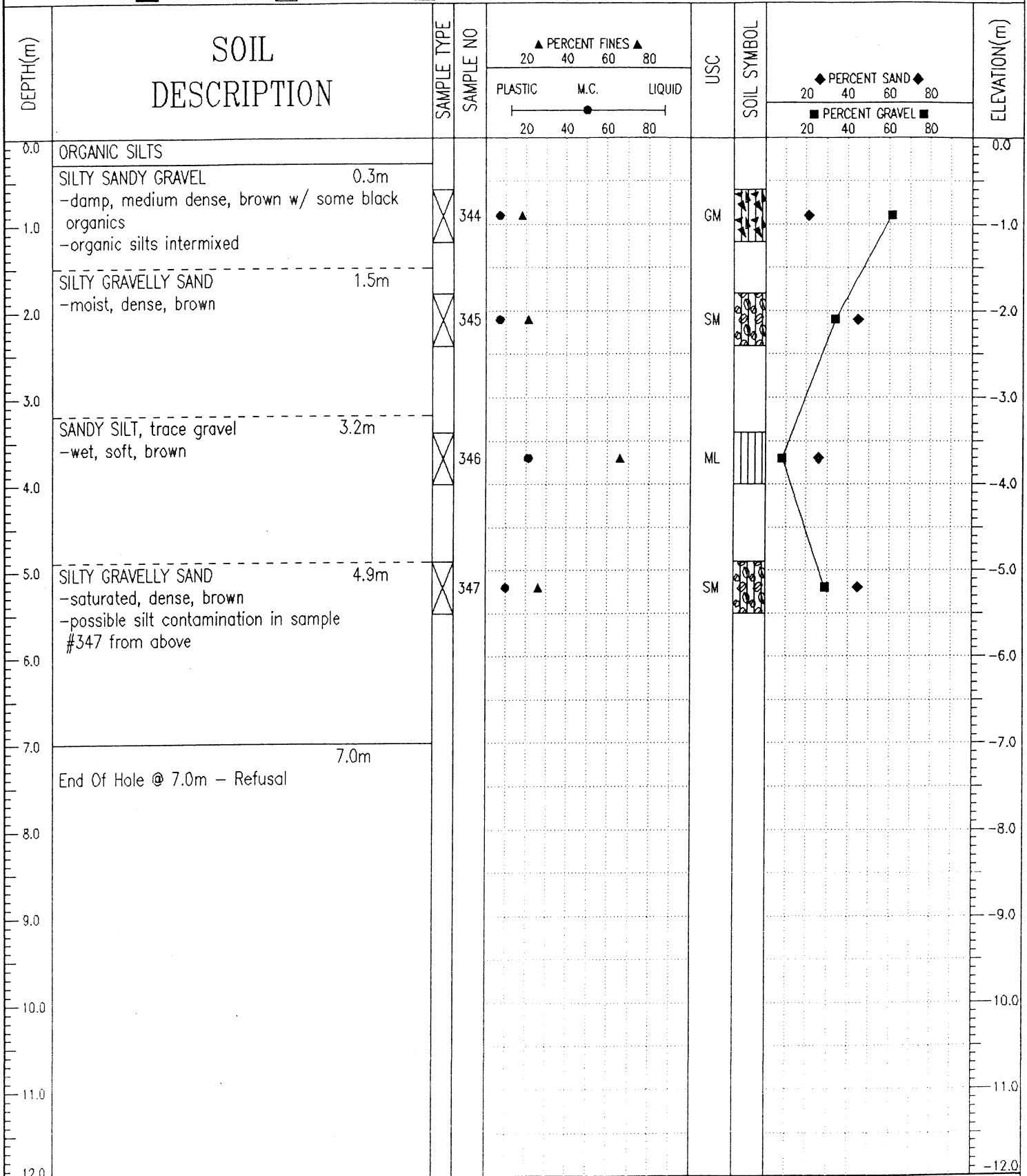
LOGGED BY: MF
REVIEWED BY:
Fig. No: 157

COMPLETION DEPTH: 5 m
COMPLETE: 07/31/04

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

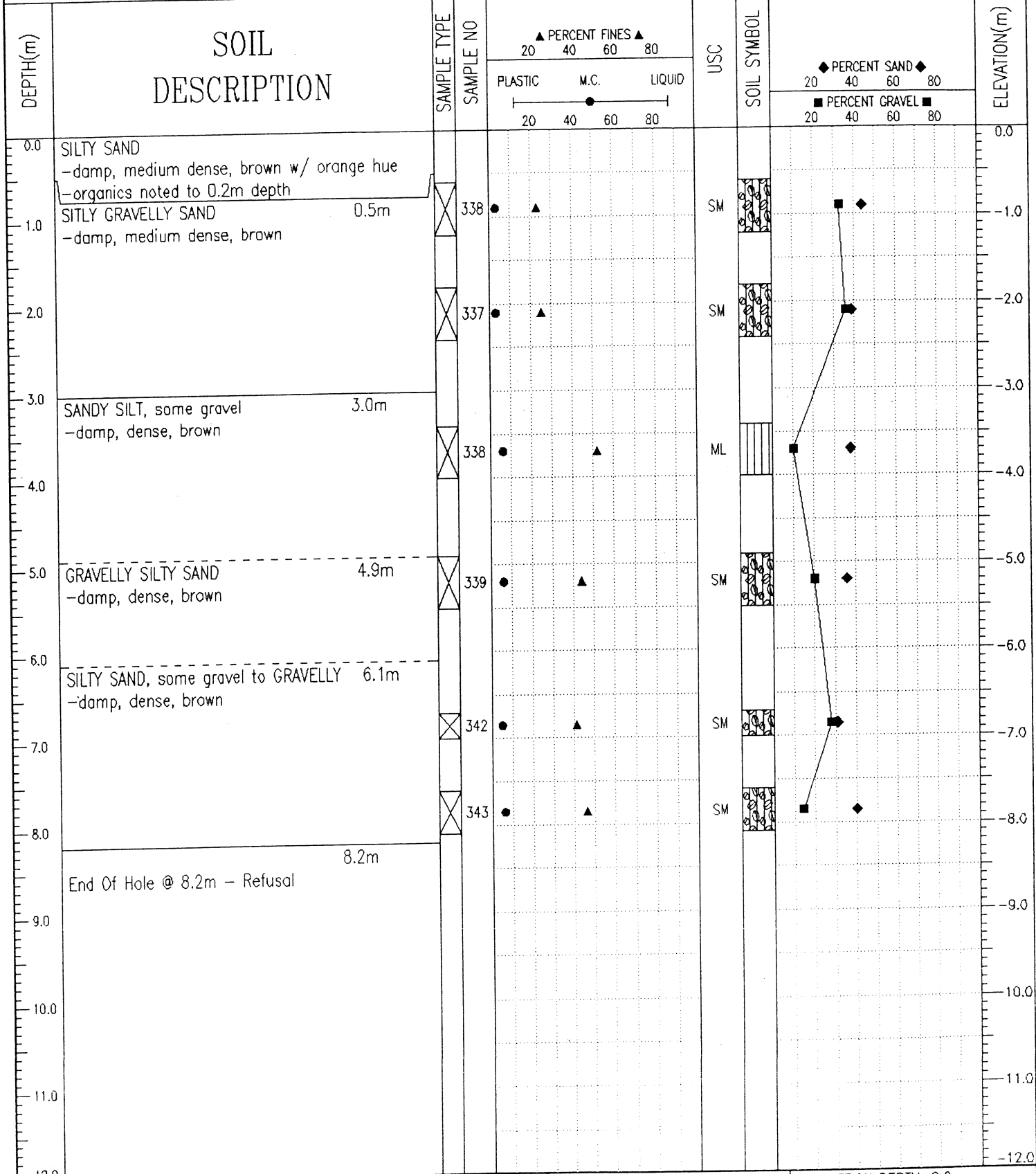


08/02/10 01:24AM (YIG_HMYS)



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LOGGED BY: RW	COMPLETION DEPTH: 7 m
REVIEWED BY:	COMPLETE: 08/15/04
Fig. No: 83	Page 1 of 1



05/02/10 07:24AM (YIG_HMYS)

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30084R
Midnight Sun Drilling Ltd.	UTM ZONE: - N6769273 E635167	PROJECT NO: 8002-318
Reverse Circulation Air Rotary Drill		ELEVATION:

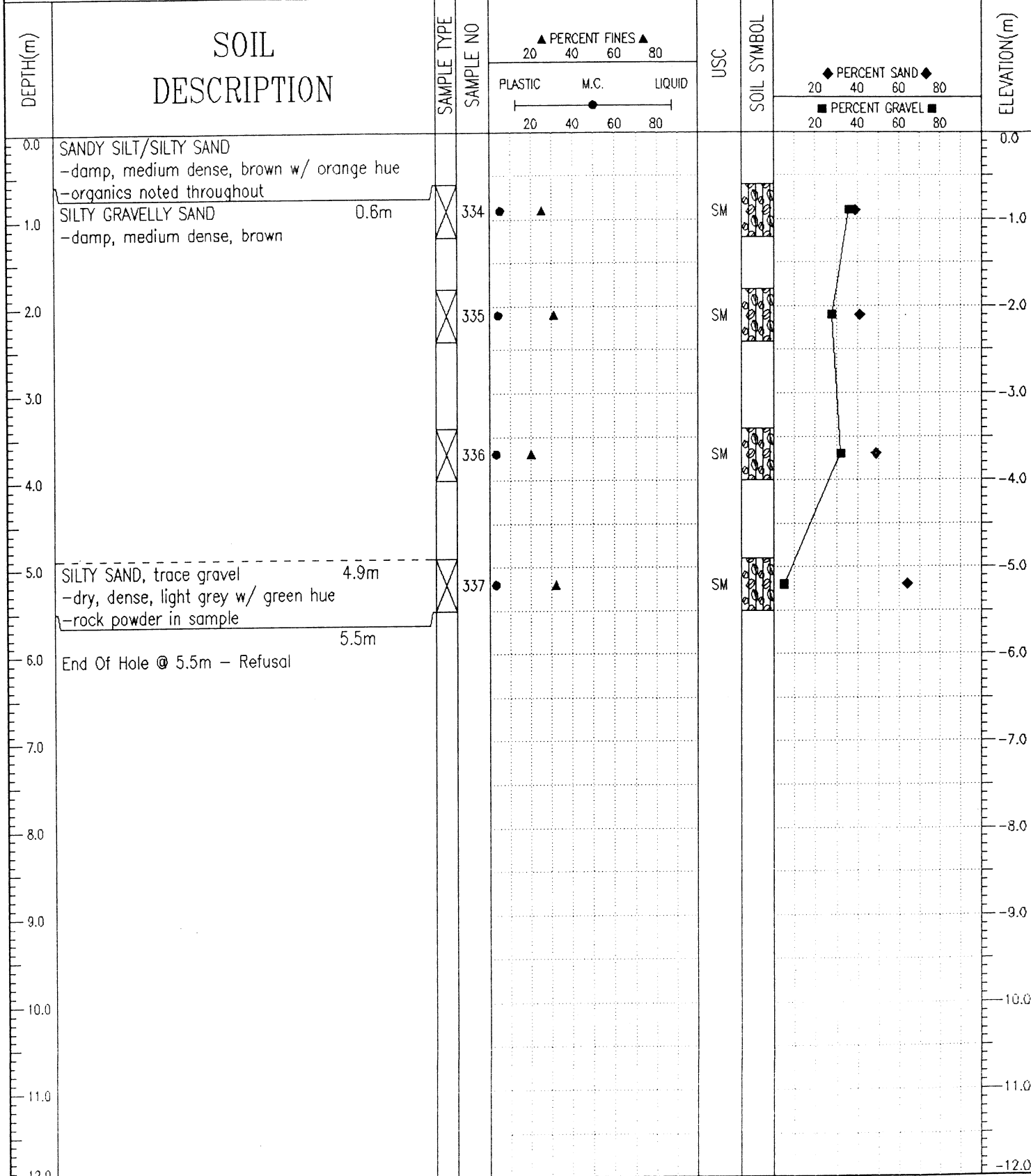
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	SOIL SYMBOL	PERCENT SAND ◆			ELEVATION(m)
				PLASTIC	M.C.	LIQUID			20	40	60	
0.0	AS PER SOILS LOG 30084 -refusal @ 8.2m											0.0
1.0												-1.0
2.0			R1									-2.0
3.0												-3.0
4.0			R2									-4.0
5.0												-5.0
6.0			R3									-6.0
7.0												-7.0
7.0	ROCK 6.9m -dense, light grey/biege -mostly powder -minimal chips		R5				ROCK					-7.0
8.0												-8.0
9.0			R6				ROCK					-9.0
10.0	End Of Hole @ 9.9m 9.9m											-10.0
11.0												-11.0
12.0												-12.0

J. R. Paine & Associates Ltd. Whitehorse, Yukon	LOGGED BY: RW	COMPLETION DEPTH: 9.9 m
	REVIEWED BY:	COMPLETE: 09/22/04
	Fig. No: 99	Page 1 of 1

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30085
Donjek Services Ltd.	UTM ZONE: - N6769371 E635155	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:

SAMPLE TYPE: RETURN S.P.T. AUGER BULK TUBE CORE



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Whitehorse, Yukon

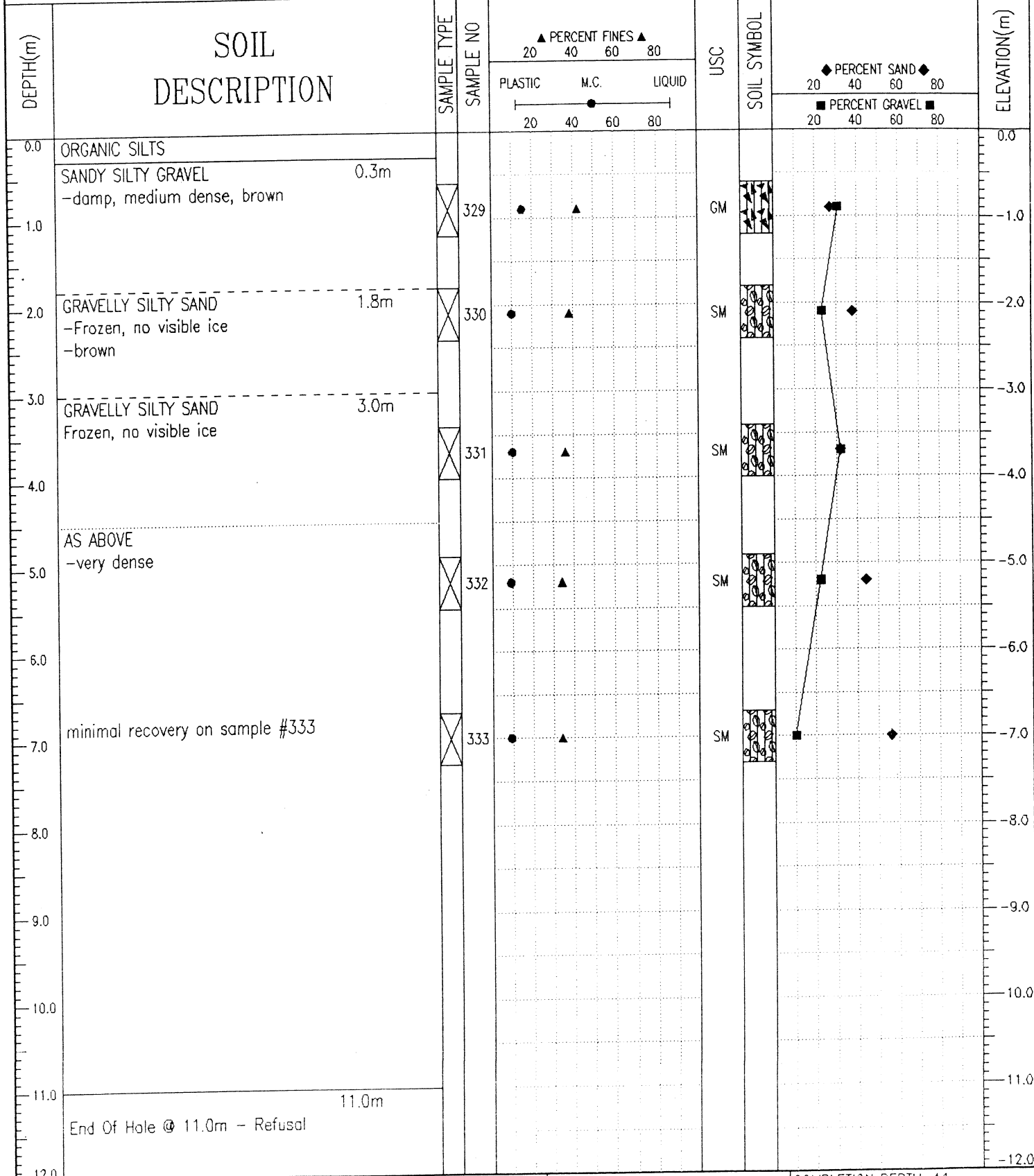
LOGGED BY: RW	COMPLETION DEPTH: 5.5 m
REVIEWED BY:	COMPLETE: 08/15/04
Fig. No: 81	Page 1 of 1

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30085R									
Midnight Sun Drilling Ltd.		UTM ZONE: - N6769366 E635154		PROJECT NO: 8002-318									
Reverse Circulation Air Rotary Drill				ELEVATION:									
SAMPLE TYPE		<input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE											
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES			USC	SOIL SYMBOL	PERCENT SAND			PERCENT GRAVEL	ELEVATION(m)
				PLASTIC	M.C.	LIQUID			20	40	60		
0.0	AS PER SOILS LOG 30085 -refusal @ 5.5m												0.0
3.0			R7										-3.0
4.0	ROCK 3.8m -dense, grey -rock chips to 20mm in size		R8				ROCK						-4.0
5.0	AS ABOVE 5.2m -rock chips to 15mm in size		R9				ROCK						-5.0
6.0	AS ABOVE 6.1m -rock chips to 5mm in size		R10				ROCK						-6.0
7.0	End Of Hole @ 7.0m												-7.0
8.0													-8.0
9.0													-9.0
10.0													-10.0
11.0													-11.0
12.0													-12.0

J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW
REVIEWED BY:
Fig. No: 100

COMPLETION DEPTH: 7 m
COMPLETE: 09/22/04



J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW	COMPLETION DEPTH: 11 m
REVIEWED BY:	COMPLETE: 08/15/04
Fig. No: 80	Page 1 of 1

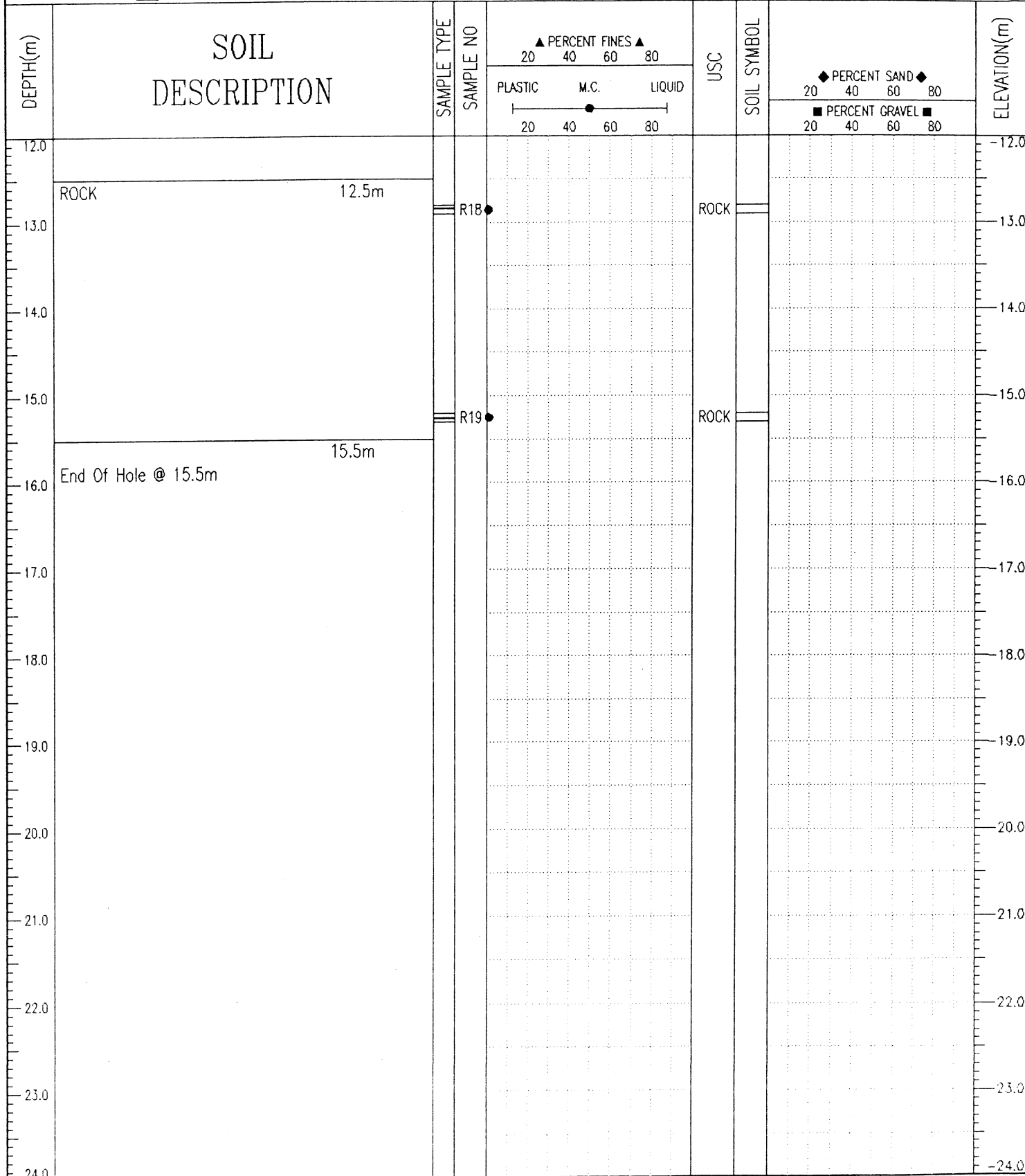
Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30086R						
Midnight Sun Drilling Ltd.		UTM ZONE: - N6769428 E635135		PROJECT NO: 8002-318						
Reverse Circulation Air Rotary Drill				ELEVATION:						
SAMPLE TYPE - <input checked="" type="checkbox"/> RETURN - <input checked="" type="checkbox"/> S.P.T. - <input checked="" type="checkbox"/> AUGER - <input type="checkbox"/> BULK - <input type="checkbox"/> TUBE - <input type="checkbox"/> CORE										
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲ 20 40 60 80		USC	SOIL SYMBOL	◆ PERCENT SAND ◆ 20 40 60 80		ELEVATION(m)
				PLASTIC M.C. LIQUID 20 40 60 80				■ PERCENT GRAVEL ■ 20 40 60 80		
0.0	AS PER SOILS LOG 30086 -refusal @ 11.0m									0.0
1.0										-1.0
2.0			R11							-2.0
3.0										-3.0
4.0			R12							-4.0
5.0										-5.0
6.0			R13							-6.0
7.0										-7.0
8.0			R14							-8.0
9.0										-9.0
10.0			R15							-10.0
11.0	SANDY SILT 7.6m -powder -some rock chips and some rounded stone -dry, light beige									-11.0
12.0			R16							-12.0
			R17							

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LOGGED BY: RW
REVIEWED BY:
Fig. No: 101

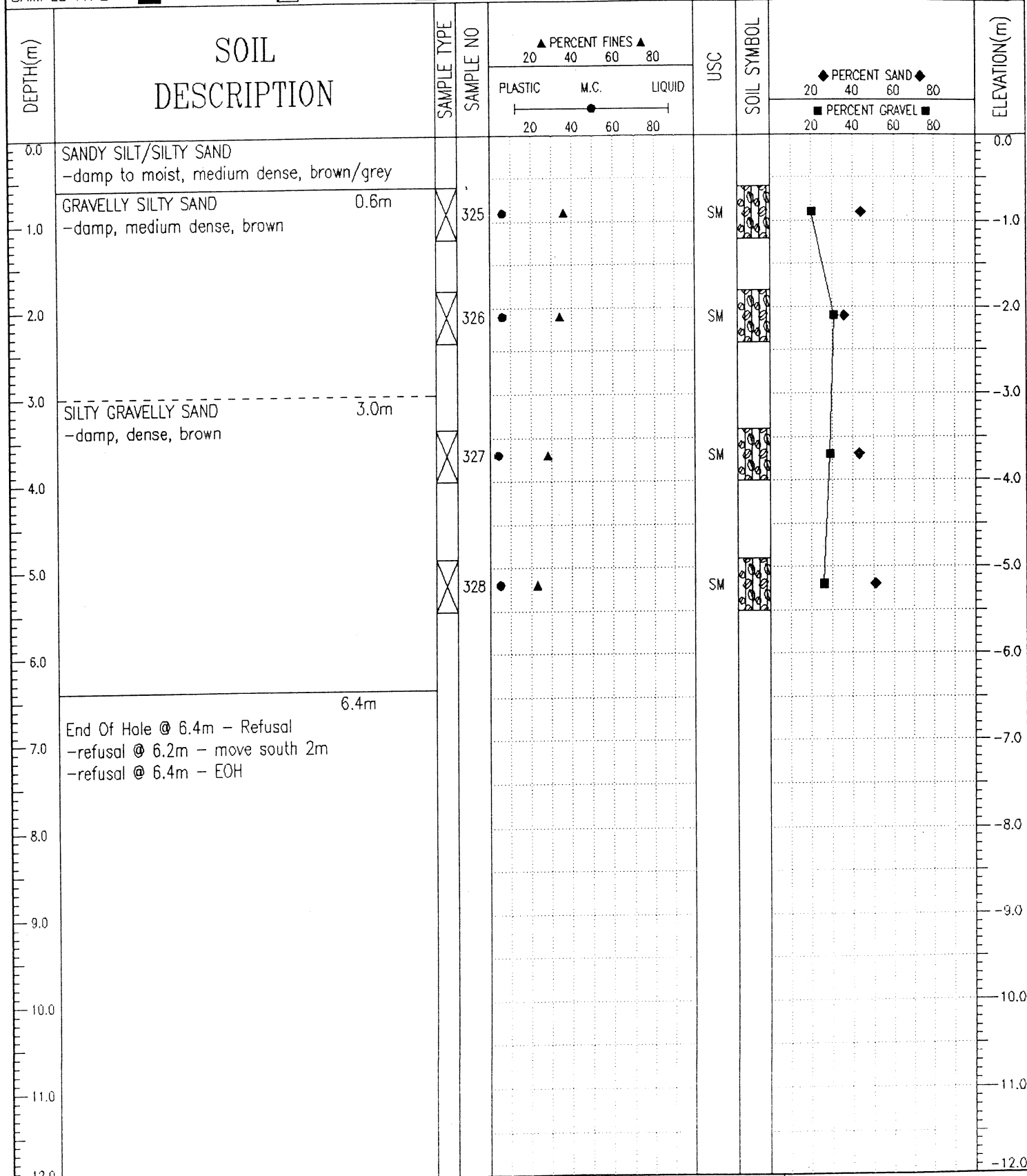
COMPLETION DEPTH: 15.5 m
COMPLETE: 09/23/04

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30086R
Midnight Sun Drilling Ltd.	UTM ZONE: - N6769428 E635135	PROJECT NO: 8002-318
Reverse Circulation Air Rotary Drill		ELEVATION:
SAMPLE TYPE: <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



J. R. Paine & Associates Ltd. Whitehorse, Yukon	LOGGED BY: RW	COMPLETION DEPTH: 15.5 m
	REVIEWED BY:	COMPLETE: 09/23/04
	Fig. No: 101	Page 2 of 2

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



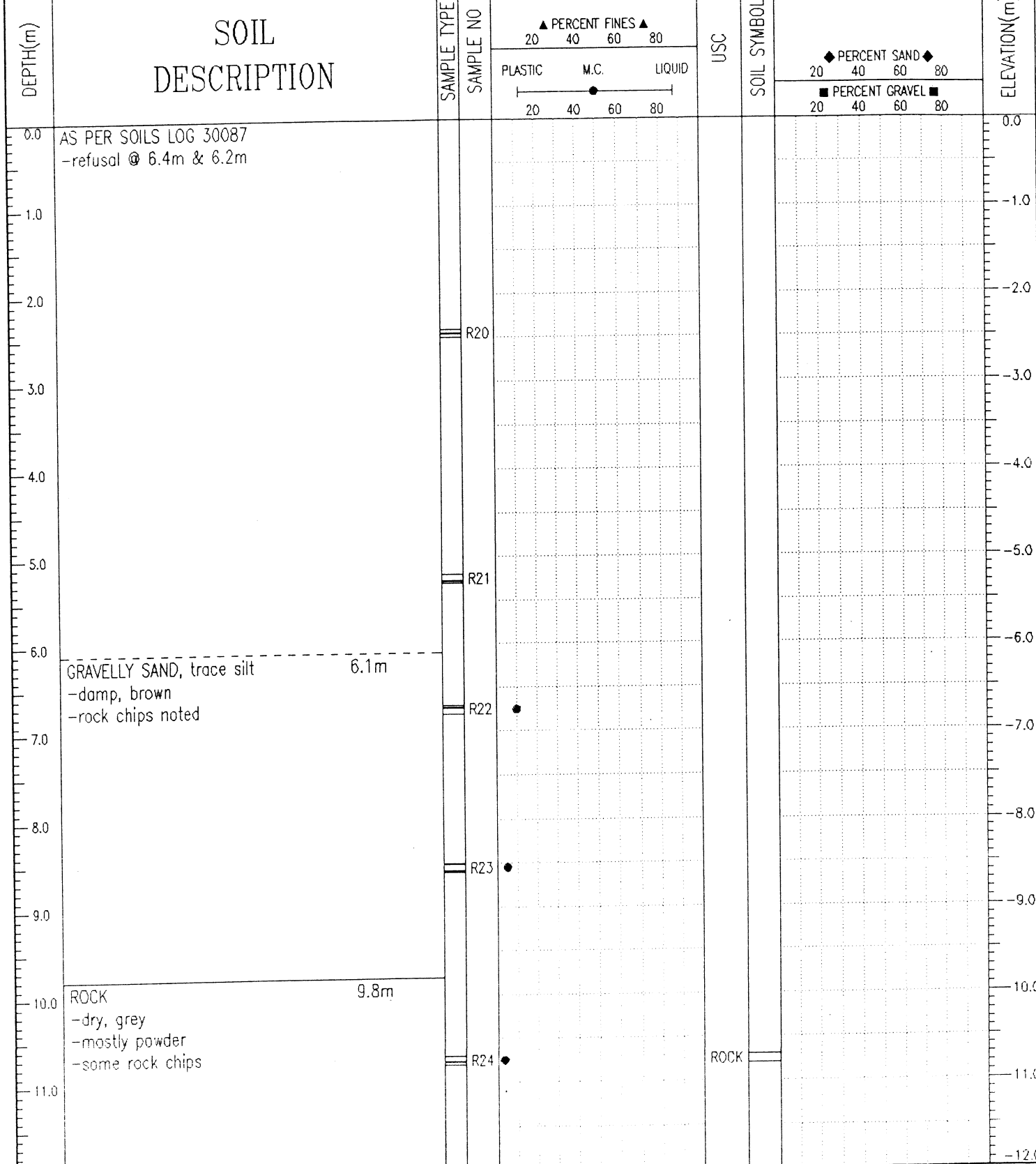
J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW
REVIEWED BY:
Fig. No: 79

COMPLETION DEPTH: 6.4 m
COMPLETE: 08/15/04

Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1 TEST PIT NO: 30087R
 Midnight Sun Drilling Ltd. UTM ZONE: - N6769474 E635128 PROJECT NO: 8002-318
 Reverse Circulation Air Rotary Drill ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

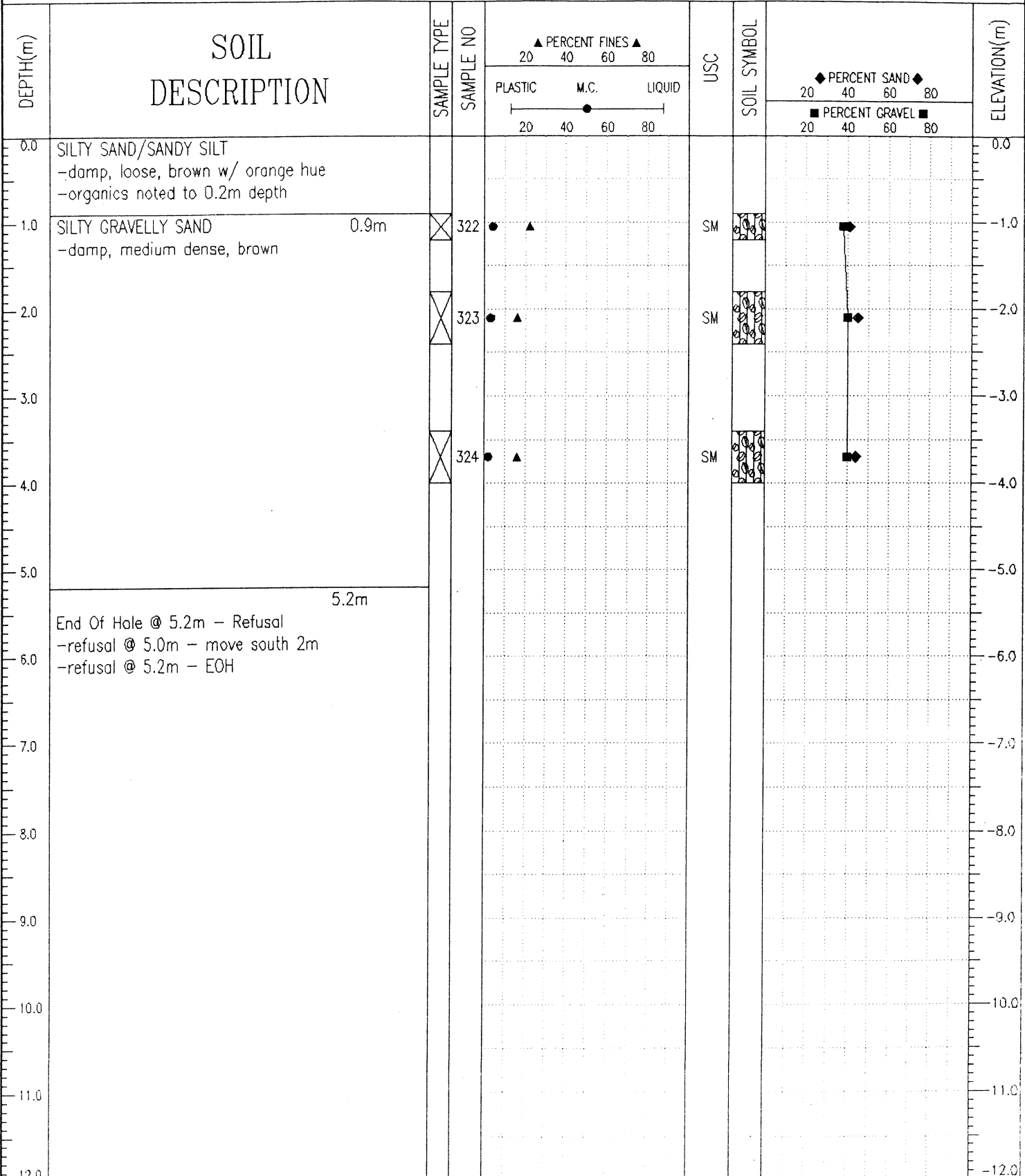


J. R. Paine & Associates Ltd. LOGGED BY: RW COMPLETION DEPTH: 12.8 m
 Whitehorse, Yukon REVIEWED BY: COMPLETE: 09/23/04
 Fig. No: 102 Page 1 of 2

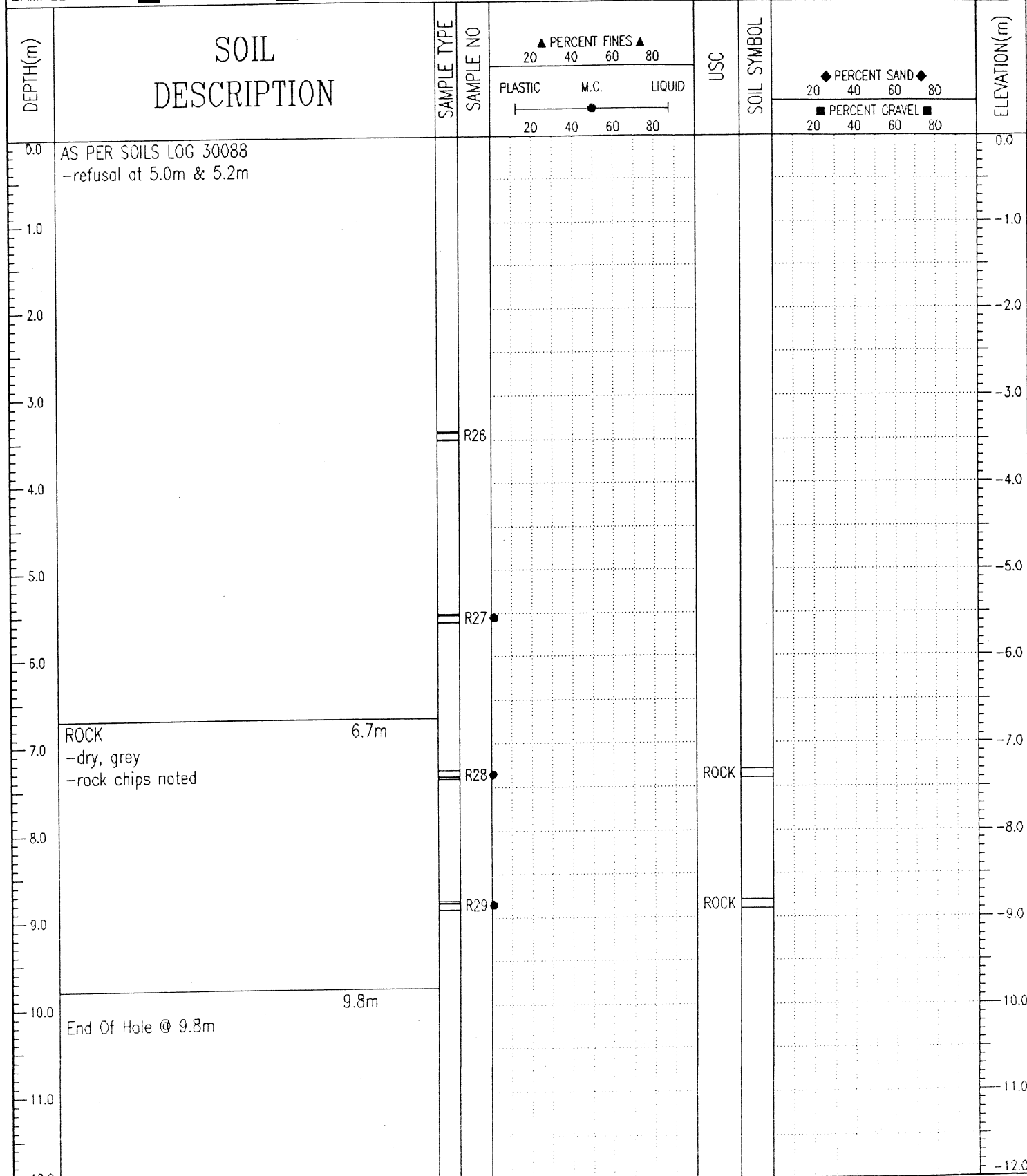
Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30087R
Midnight Sun Drilling Ltd.	UTM ZONE: - N6769474 E635128	PROJECT NO: 8002-318
Reverse Circulation Air Rotary Drill		ELEVATION:
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		

DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲ 20 40 60 80 ▲ PLASTIC M.C. LIQUID ----- ----- ----- 20 40 60 80	USC	SOIL SYMBOL ◆ PERCENT SAND ◆ 20 40 60 80 ■ PERCENT GRAVEL ■ 20 40 60 80	ELEVATION(m)
12.0			R25		ROCK		-12.0
13.0	12.8m						-13.0
14.0	End Of Hole @ 12.8m -note: when adding 7.3m to 10.4m stem, H2O/mud came out of cone. Possibly water seepage near 7.4m						-14.0
15.0							-15.0
16.0							-16.0
17.0							-17.0
18.0							-18.0
19.0							-19.0
20.0							-20.0
21.0							-21.0
22.0							-22.0
23.0							-23.0
24.0							-24.0

J. R. Paine & Associates Ltd. Whitehorse, Yukon	LOGGED BY: RW REVIEWED BY: Fig. No: 102	COMPLETION DEPTH: 12.8 m COMPLETE: 09/23/04 Page 2 of 2
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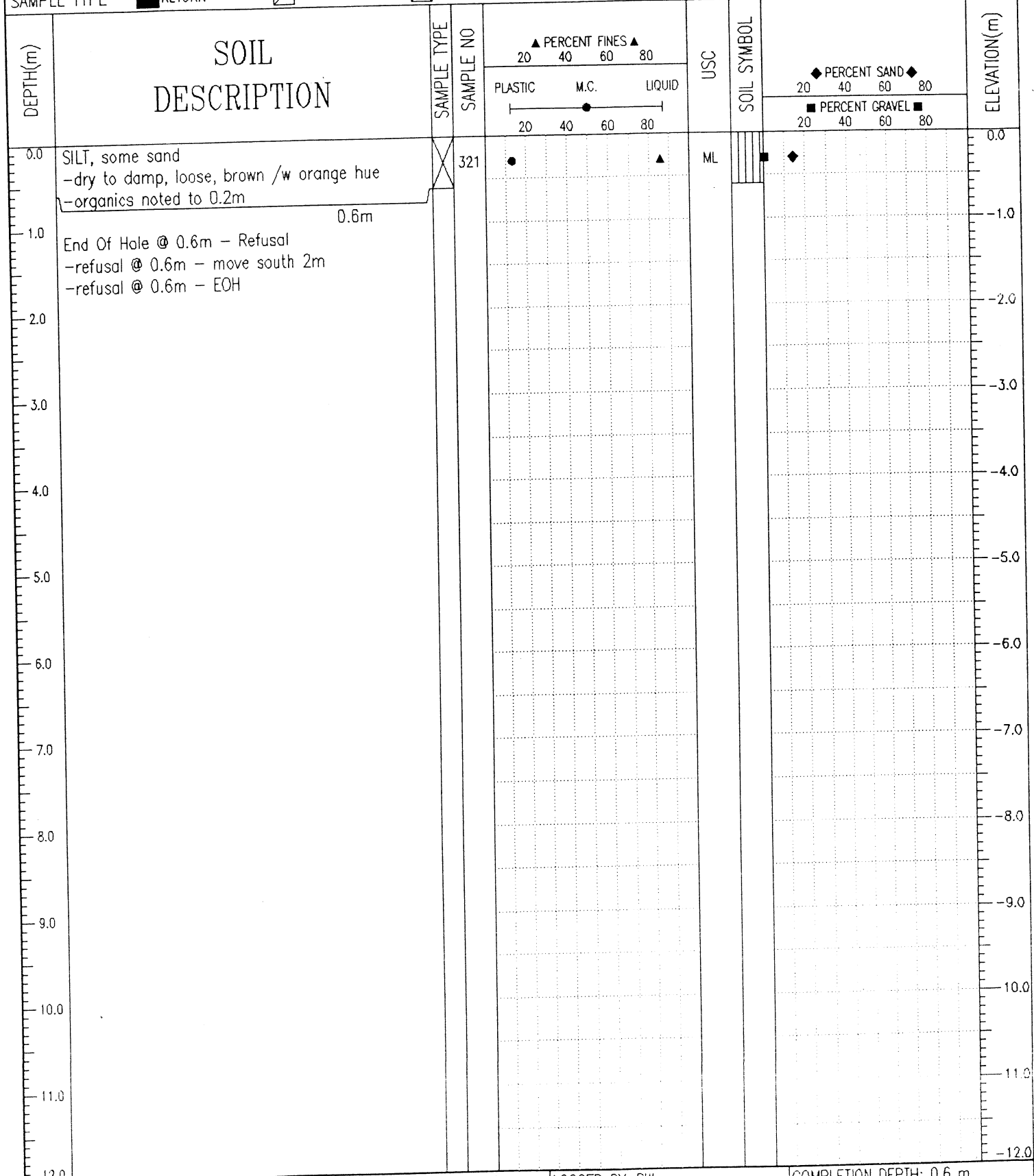
Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30088R
Midnight Sun Drilling	UTM ZONE: - N6769513 E635110	PROJECT NO: 8002-318
Reverse Circulation Air Rotary Drill		ELEVATION:
SAMPLE TYPE: <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



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LOGGED BY: RW	COMPLETION DEPTH: 9.8 m
REVIEWED BY:	COMPLETE: 09/23/04
Fig. No: 103	Page 1 of 1

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30089
Donjek Services Ltd.	UTM ZONE: - N6769606 E635078	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:
SAMPLE TYPE: <input type="checkbox"/> RETURN <input type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



J. R. Paine & Associates Ltd. Whitehorse, Yukon	LOGGED BY: RW	COMPLETION DEPTH: 0.6 m
	REVIEWED BY:	COMPLETE: 08/15/04
	Fig. No: 77	Page 1 of 1

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30089R						
Midnight Sun Drilling Ltd.		UTM ZONE: - N6769602 E635080		PROJECT NO: 8002-318						
Reverse Circulation Air Rotaty Drill				ELEVATION:						
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input checked="" type="checkbox"/> CORE										
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES		USC	SOIL SYMBOL	PERCENT SAND	PERCENT GRAVEL	ELEVATION (m)
				PLASTIC	M.C.					
0.0	AS PER SOILS LOG 30089									0.0
0.5	ROCK -dry, grey									-1.0
2.0			R30			ROCK				-2.0
3.0			R31			ROCK				-3.0
3.4	End Of Hole @ 3.4m -continue drilling to 4.6m to allow casing to be pulled									-4.0
4.0										-5.0
5.0										-6.0
6.0										-7.0
7.0										-8.0
8.0										-9.0
9.0										-10.0
10.0										-11.0
11.0										-12.0

J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW
REVIEWED BY:
Fig. No: 104

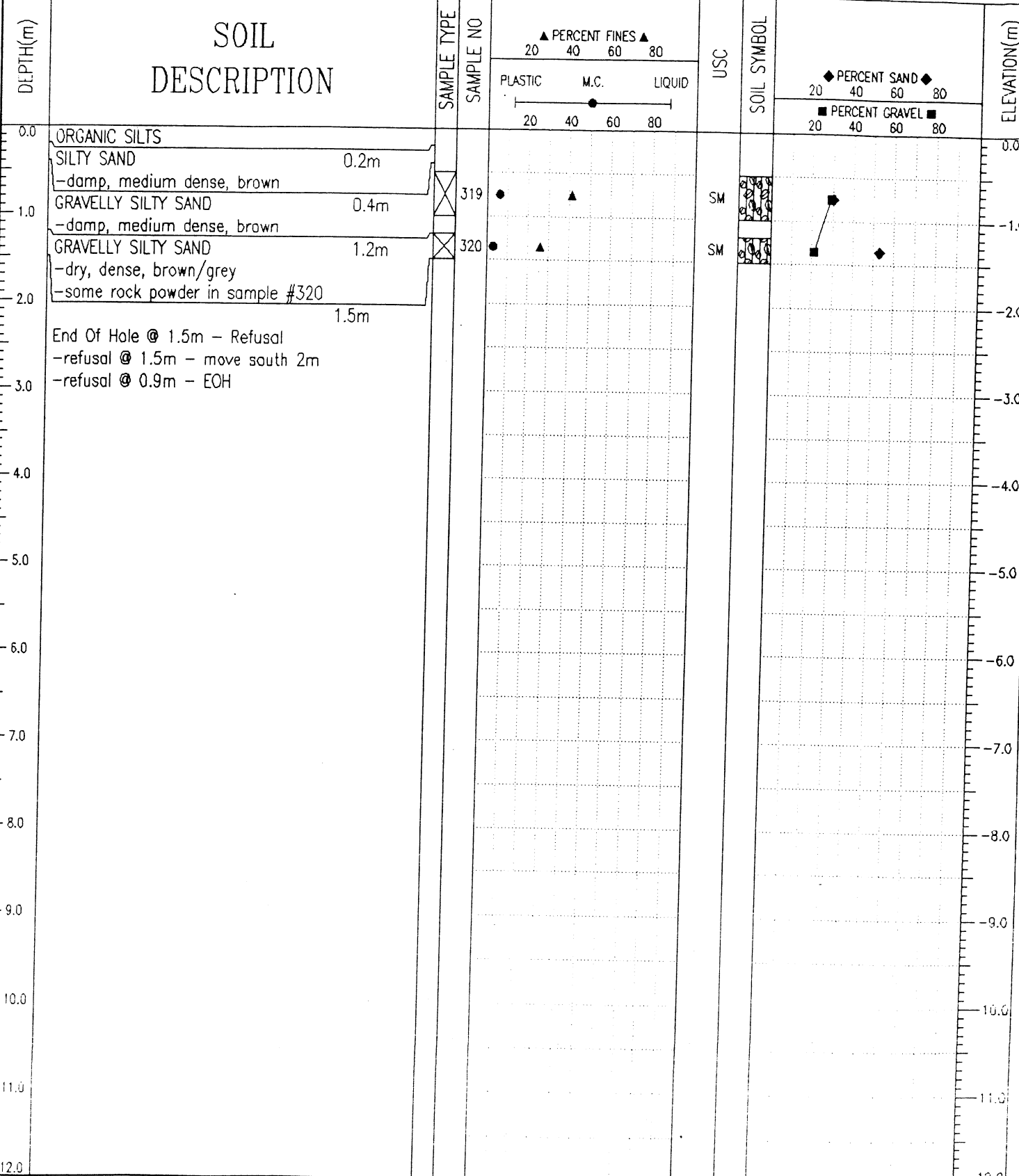
COMPLETION DEPTH: 3.4 m
COMPLETE: 09/24/04

Geotechnical Services
 Donjek Services Ltd.
 CME75 Drill on FN60 Flextrac Nodwell

Km 1691.7 to 1717.3 Alaska Highway #1
 UTM ZONE: - N6769660 E635061

TEST PIT NO: 30090
 PROJECT NO: 8002-318
 ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



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 Whitehorse, Yukon

LOGGED BY: RW
 REVIEWED BY:
 Fig. No: 76

COMPLETION DEPTH: 1.5 m
 COMPLETE: 08/15/04

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Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30090R
Midnight Sun Drilling Ltd.	UTM ZONE: - N6769661 E635065	PROJECT NO: 8002-318
Reverse Circulation Air Rotary Drill		ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

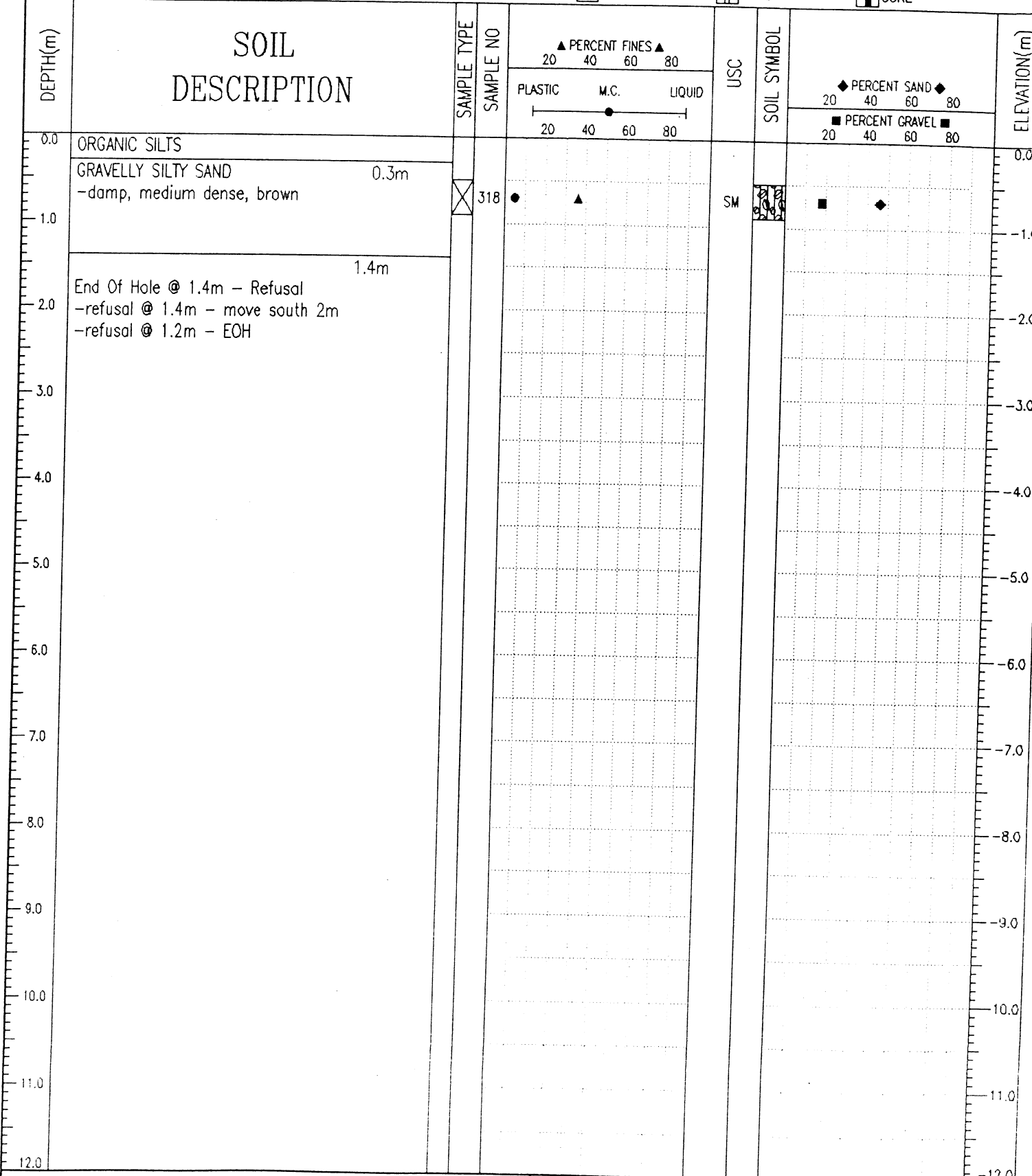
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲ 20 40 60 80 PLASTIC M.C. LIQUID 20 40 60 80	USC	SOIL SYMBOL	PERCENT SAND ▲ 20 40 60 80 PERCENT GRAVEL ■ 20 40 60 80	ELEVATION(m)
0.0	AS PER SOILS LOG 30090 -refusal @ 1.5m & 0.9m							0.0
1.5	ROCK -dry, grey		R32		ROCK			-1.5
4.3	End Of Hole @ 4.3m -no casing used		R33		ROCK			-4.3
12.0								-12.0

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Whitehorse, Yukon

LOGGED BY: RW	COMPLETION DEPTH: 4.3 m
REVIEWED BY:	COMPLETE: 09/24/04
Fig. No: 105	Page 1 of 1

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30091
Donjek Services Ltd.	UTM ZONE: - N6769701 E635044	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



J. R. Paine & Associates Ltd.
Whitehorse, Yukon

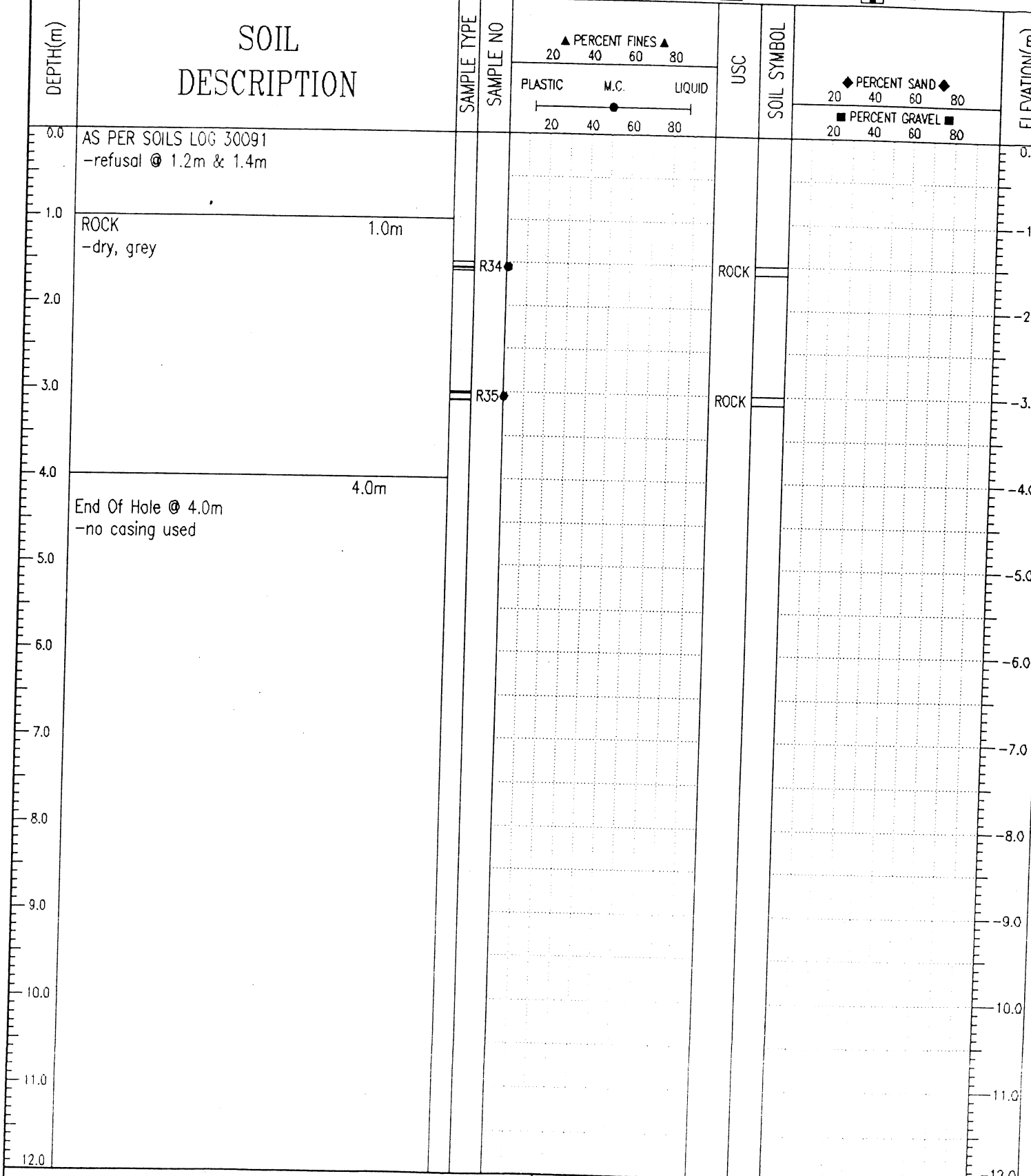
LOGGED BY: RW	COMPLETION DEPTH: 1.4 m
REVIEWED BY:	COMPLETE: 08/15/04
Fig. No: 75	Page 1 of 1

Geotechnical Services
 Midnight Sun Drilling Ltd.
 Reverse Circulation Air Rotary Drill

Km 1691.7 to 1717.3 Alaska Highway #1
 UTM ZONE: - N6769700 E635045

TEST PIT NO: 30091R
 PROJECT NO: 8002-318
 ELEVATION:

SAMPLE TYPE: RETURN S.P.T. AUGER BULK TUBE CORE



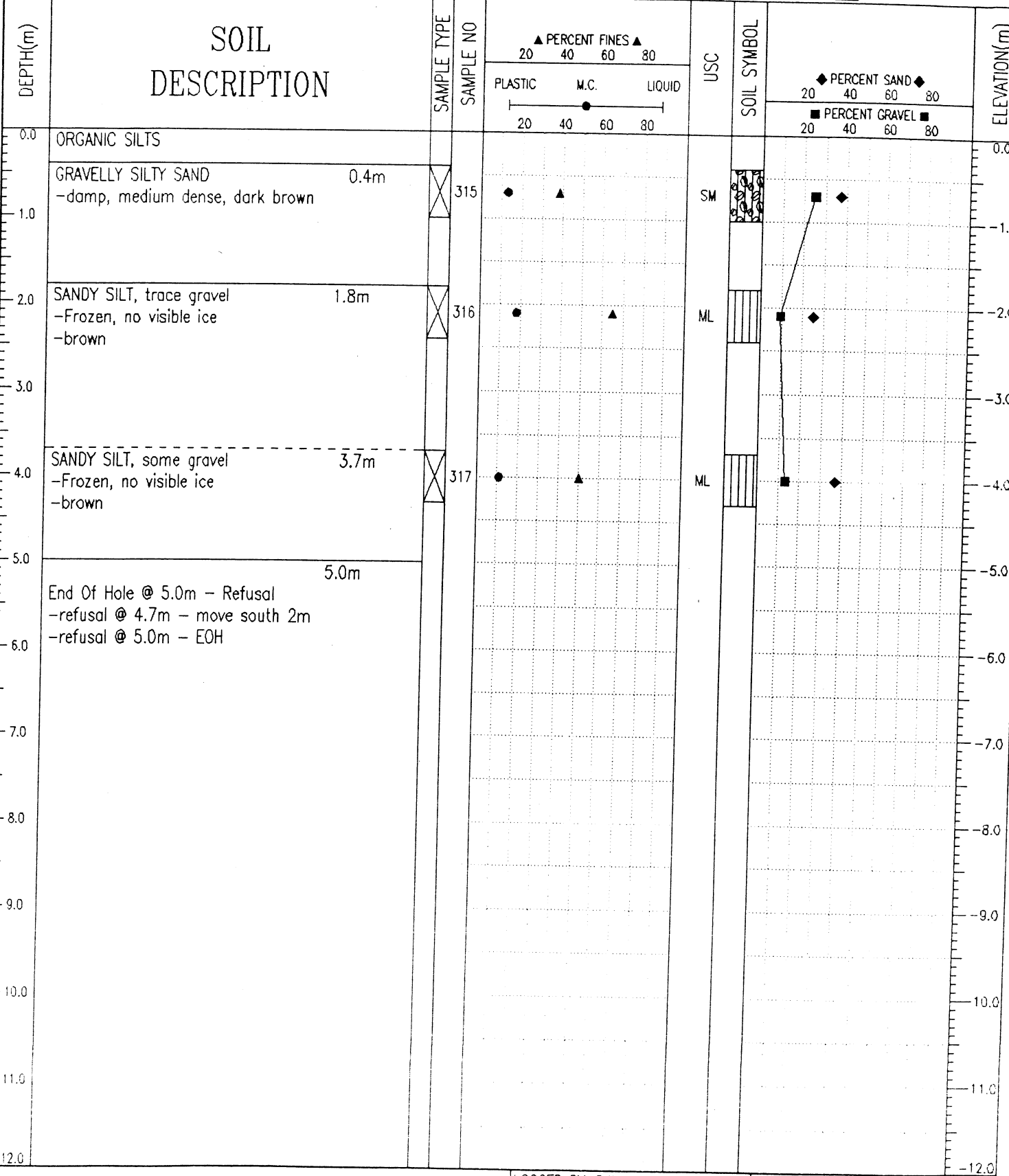
J. R. Paine & Associates Ltd.
 Whitehorse, Yukon

LOGGED BY: RW
 REVIEWED BY:
 Fig. No: 106

COMPLETION DEPTH: 4 m
 COMPLETE: 09/24/04

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30092
Donjek Services Ltd.	UTM ZONE: - N6769764 E635000	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:

SAMPLE TYPE: RETURN S.P.T. AUGER BULK TUBE CORE



J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW
REVIEWED BY:
Fig. No: 74

COMPLETION DEPTH: 5 m
COMPLETE: 08/15/04

Geotechnical Services Km 1691.7 to 1717.3 Alaska Highway #1 TEST PIT NO: 30092R

Midnight Sun Drilling Ltd. UTM ZONE: - N6769762 E634998 PROJECT NO: 8002-318

Reverse Circulation Air Rotary Drill ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	SOIL SYMBOL	◆ PERCENT SAND ◆			ELEVATION(m)
				PLASTIC	M.C.	LIQUID			20	40	60	
0.0	AS PER SOILS LOG -refusal @ 4.7m & 5.0m											0.0
5.0	ROCK -dry, grey 4.9m		R36				ROCK					-5.0
7.0			R37				ROCK					-7.0
8.0	End Of Hole @ 7.9m 7.9m											-8.0
12.0												-12.0

J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW

REVIEWED BY:

Fig. No: 107

COMPLETION DEPTH: 7.9 m

COMPLETE: 09/24/04

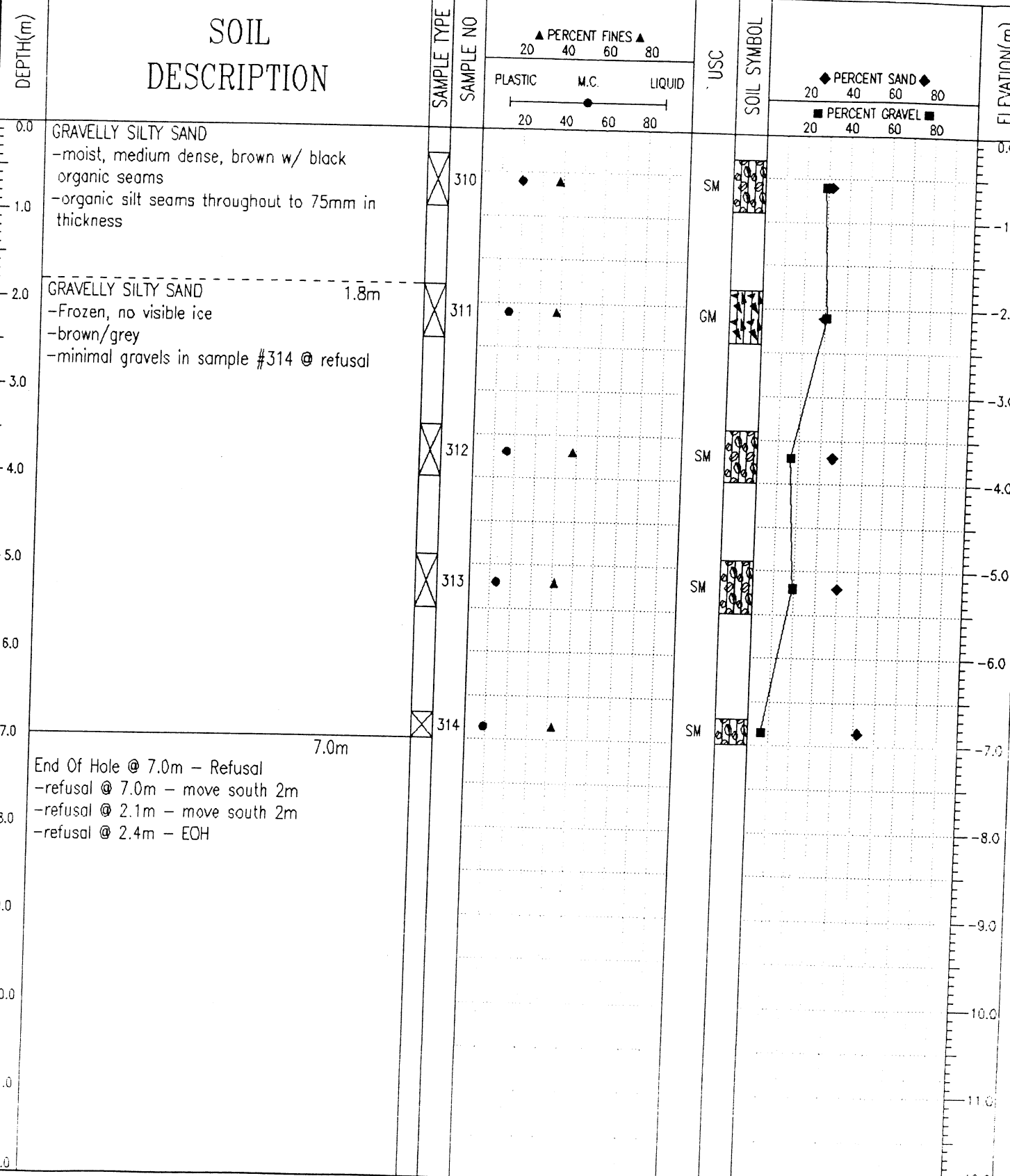
Page 1 of 1

Geotechnical Services
 Donjek Services Ltd.
 CME75 Drill on FN60 Flextrac Nodwell

Km 1691.7 to 1717.3 Alaska Highway #1
 UTM ZONE: - N6769809 E634966

TEST PIT NO: 30093
 PROJECT NO: 8002-318
 ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

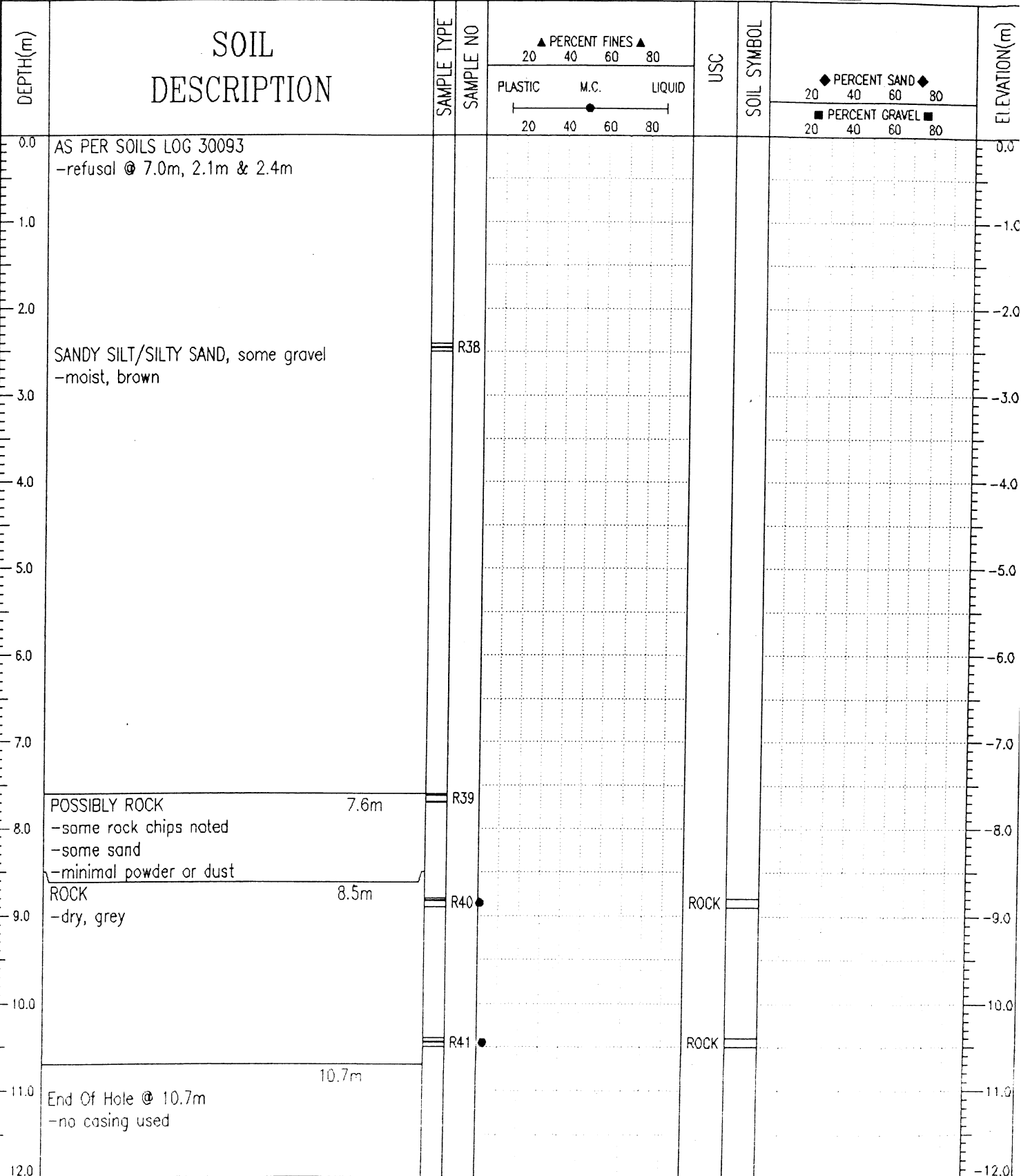


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 Whitehorse, Yukon

LOGGED BY: RW
 REVIEWED BY:
 Fig. No: 73

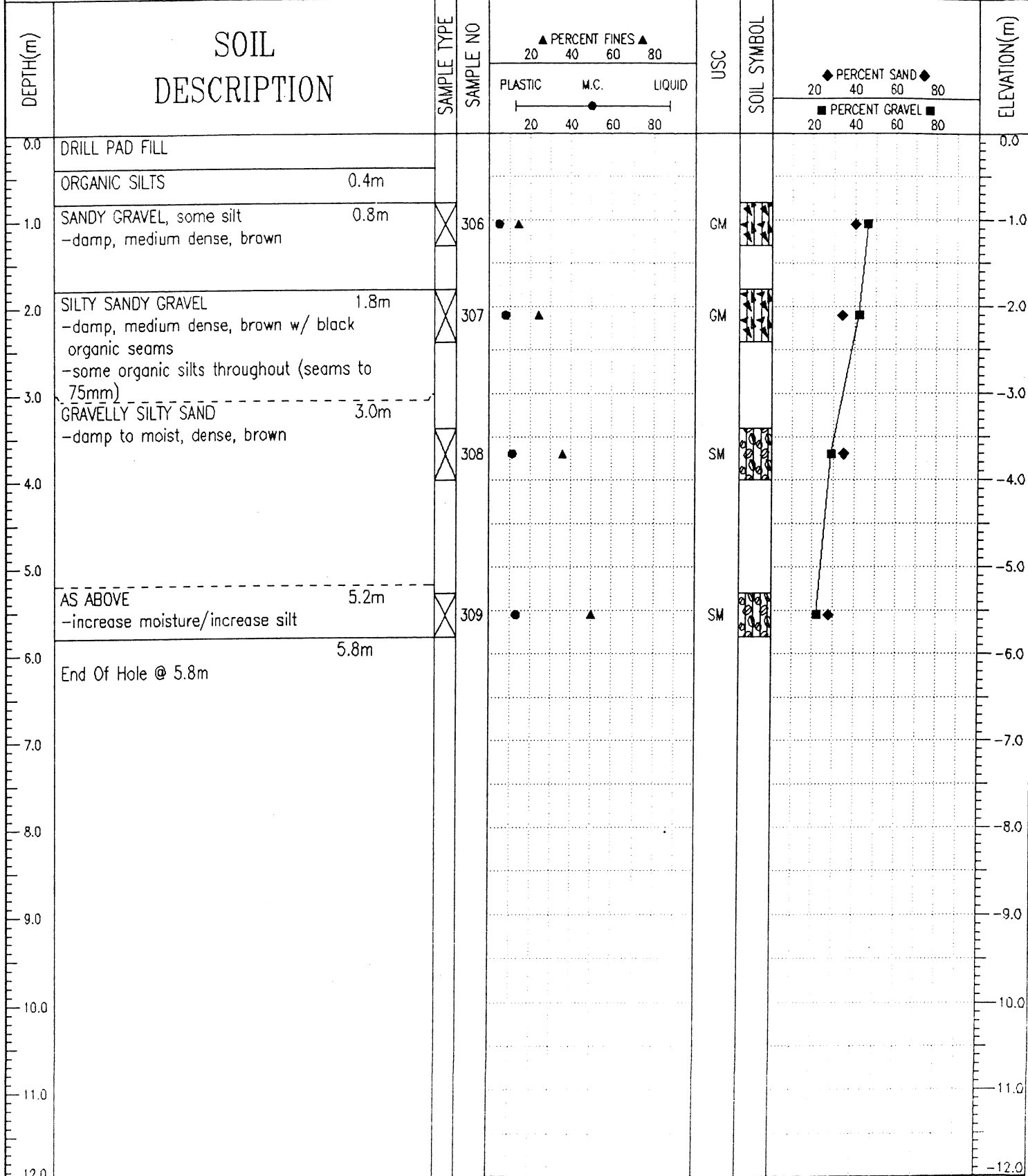
COMPLETION DEPTH: 7 m
 COMPLETE: 08/15/04

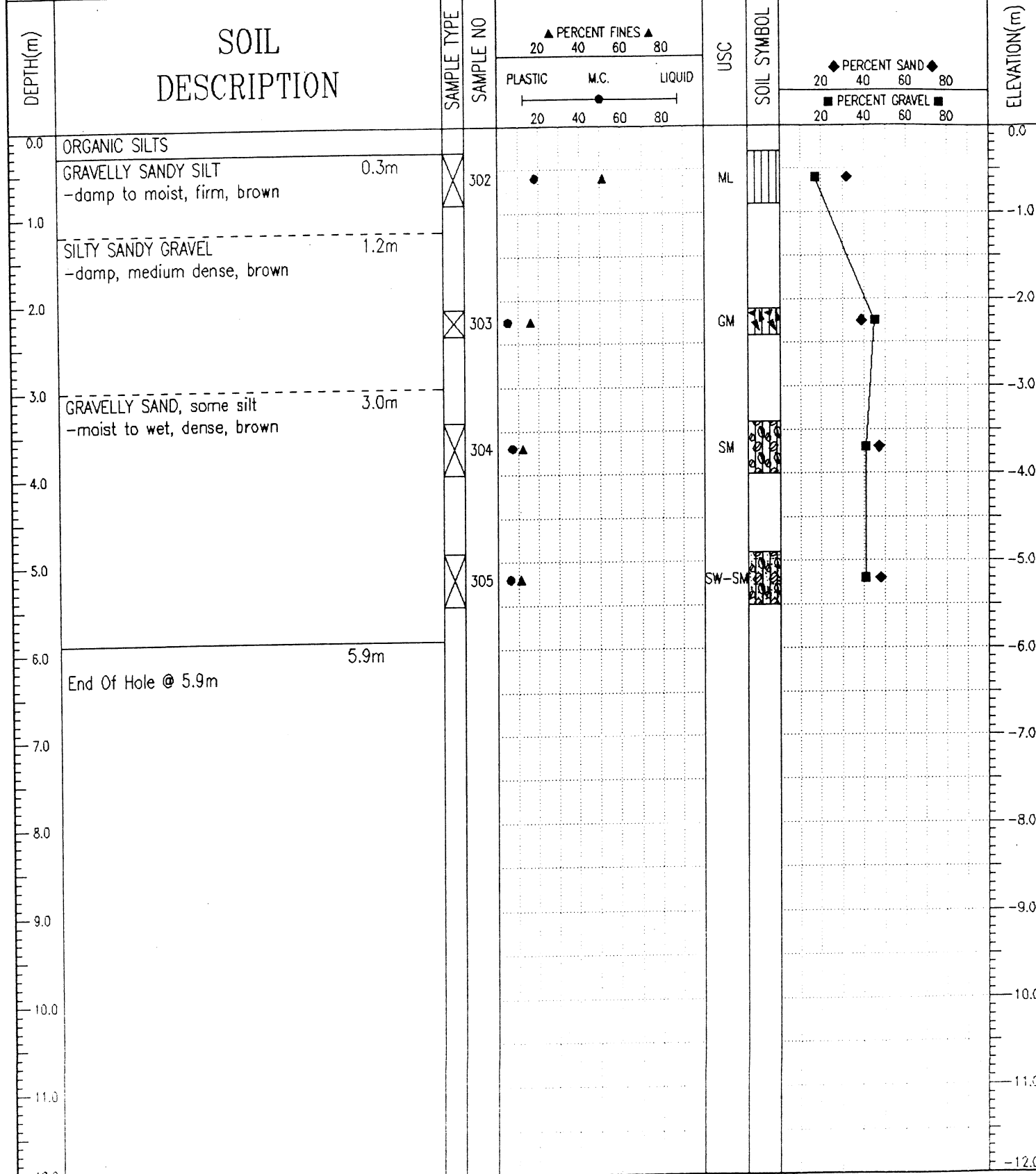
Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30093R
Midnight Sun Drilling Ltd.	UTM ZONE: - N6769812 E634965	PROJECT NO: 8002-318
Reverse Circulation Air Rotary Drill		ELEVATION:
SAMPLE TYPE	<input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE	



J. R. Paine & Associates Ltd. Whitehorse, Yukon	LOGGED BY: RW	COMPLETION DEPTH: 10.7 m
	REVIEWED BY:	COMPLETE: 09/24/04
	Fig. No: 108	Page 1 of 1

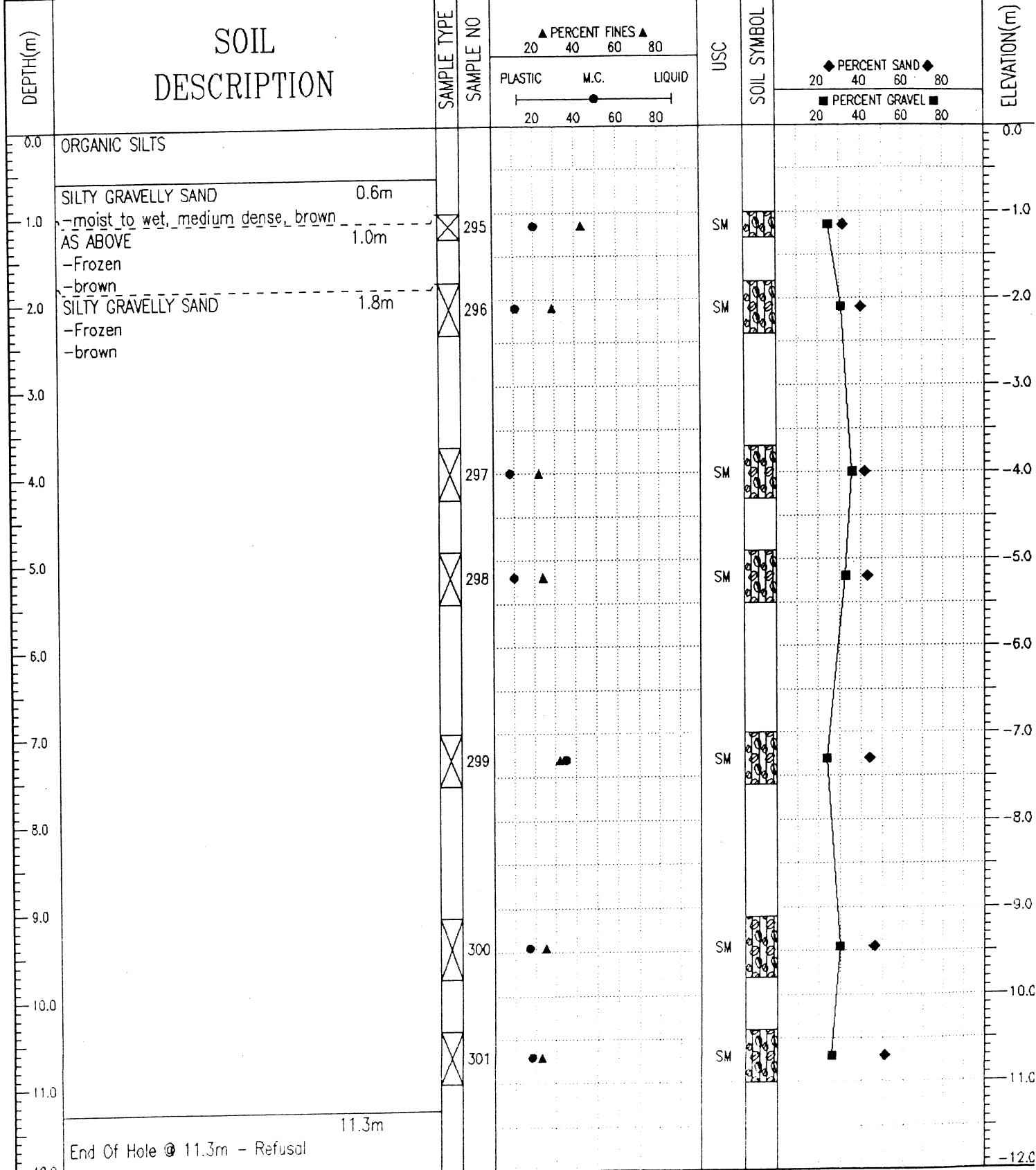
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE





05/02/10 07:29AM (YIG_HMIS)

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30096
Donjek Services Ltd.	UTM ZONE: - N6769994 E634847	PROJECT NO: 8002-318
CME75 Drill on FN60 Flextrac Nodwell		ELEVATION:
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



J. R. Paine & Associates Ltd. Whitehorse, Yukon	LOGGED BY: RW	COMPLETION DEPTH: 11.3 m
	REVIEWED BY:	COMPLETE: 08/14/04
	Fig. No: 70	Page 1 of 1

Geotechnical Services		Km 1691.7 to 1717.3 Alaska Highway #1		TEST PIT NO: 30096R							
Midnight Sun Drilling Ltd.		UTM ZONE: - N6769986 E634847		PROJECT NO: 8002-318							
Reverse Circulation Air Rotary Drill				ELEVATION:							
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE											
DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	SOIL SYMBOL	◆ PERCENT SAND ◆		ELEVATION(m)
				PLASTIC	M.C.	LIQUID			20	40	
0.0	AS PER SOILS LOG 30096 -refusal @ 11.3m & 8.7m										0.0
1.0											-1.0
2.0											-2.0
3.0											-3.0
4.0											-4.0
5.0											-5.0
6.0											-6.0
7.0	GRAVELLY SILTY SAND -moist to wet, brown		R42								-7.0
8.0											-8.0
9.0											-9.0
10.0	GRAVELLY SAND, some silt -damp, brown		R43								-10.0
11.0	Very dense slow drilling -no indication of rock										-11.0
12.0											-12.0

J. R. Paine & Associates Ltd.
Whitehorse, Yukon

LOGGED BY: RW
REVIEWED BY:
Fig. No: 109

COMPLETION DEPTH: 14.3 m
COMPLETE: 09/24/04

Geotechnical Services	Km 1691.7 to 1717.3 Alaska Highway #1	TEST PIT NO: 30096R
Midnight Sun Drilling Ltd.	UTM ZONE: - N6769986 E634847	PROJECT NO: 8002-318
Reverse Circulation Air Rotary Drill		ELEVATION:

SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

DEPTH(m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲ PLASTIC M.C. LIQUID 20 40 60 80	USC	SOIL SYMBOL	PERCENT SAND ◆ 20 40 60 80 PERCENT GRAVEL ■ 20 40 60 80	ELEVATION(m)
12.0	GRAVELLY SILTY SAND -damp to moist, brown		R44	●				-12.0
13.0								-13.0
14.0	POSSIBLY ROCK or GRAVEL/COBBLE LAYER 13.7m -moist, brown -bit freezing/plugging up (not pounding) -some rounded stone -minimal powder from cone		R45	●				-14.0
15.0	14.3m							-15.0
16.0	End Of Hole 14.3m							-16.0
17.0								-17.0
18.0								-18.0
19.0								-19.0
20.0								-20.0
21.0								-21.0
22.0								-22.0
23.0								-23.0
24.0								-24.0

J. R. Paine & Associates Ltd. Whitehorse, Yukon	LOGGED BY: RW REVIEWED BY: Fig. No: 109	COMPLETION DEPTH: 14.3 m COMPLETE: 09/24/04
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