

HIGHWAY CONSTRUCTION

**km 1915 to km 1932
ALASKA HIGHWAY, Y.T.**

**VOLUME 1
CENTRELINE TESTING**

This Data Package prepared for project viewing:

April, 1993

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GR-01-157

GEOTECHNICAL INVESTIGATION
HIGHWAY CONSTRUCTION
km 1915 to km 1932, ALASKA HIGHWAY, Y.T.
CENTRELINE TESTING

CONTENTS

INTRODUCTION

Investigation notes, classification methods and legends

VOLUME 1

CENTRELINE TESTING

Subsurface exploration and testing report sheets are provided. The reports for the centreline holes are arranged according to project location, starting at km 1915+600 and increasing to km 1932+900.

Auger and Backhoe Testing

1990	TEST HOLE 01	shown with prefix 107-
1991	TEST HOLES 56 to 138	shown with prefix 141- thru 144-
	TEST HOLES 158 to 183	shown with prefix 145-
	TEST HOLES 184 to 195	shown with prefix 157- and 158-
	TEST HOLES 200 to 215	shown with prefix 157-
1992	TEST HOLES 01 to 20	shown with prefix 174-
1993	TEST HOLES 05 to 18	shown with prefix 212-

Air Rotary Test Drilling

1993	TEST HOLES 100 to 118	shown with prefix 214- thru 216-
	TEST HOLES 119 to 122	shown with prefix 218-

NOTE: Gravel sizes larger than 12.5 mm are crushed during the air rotary drilling process, and therefore do not appear on the test hole logs. Maximum sizes are indicated in the backhoe test pit logs.

VOLUME 2

GRAIN SIZE SUMMARIES - CENTRELINE TESTING AND GRANULAR INVESTIGATIONS

GEOTECHNICAL INVESTIGATION
HIGHWAY CONSTRUCTION
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INTRODUCTION

GEOTECHNICAL INVESTIGATION
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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.

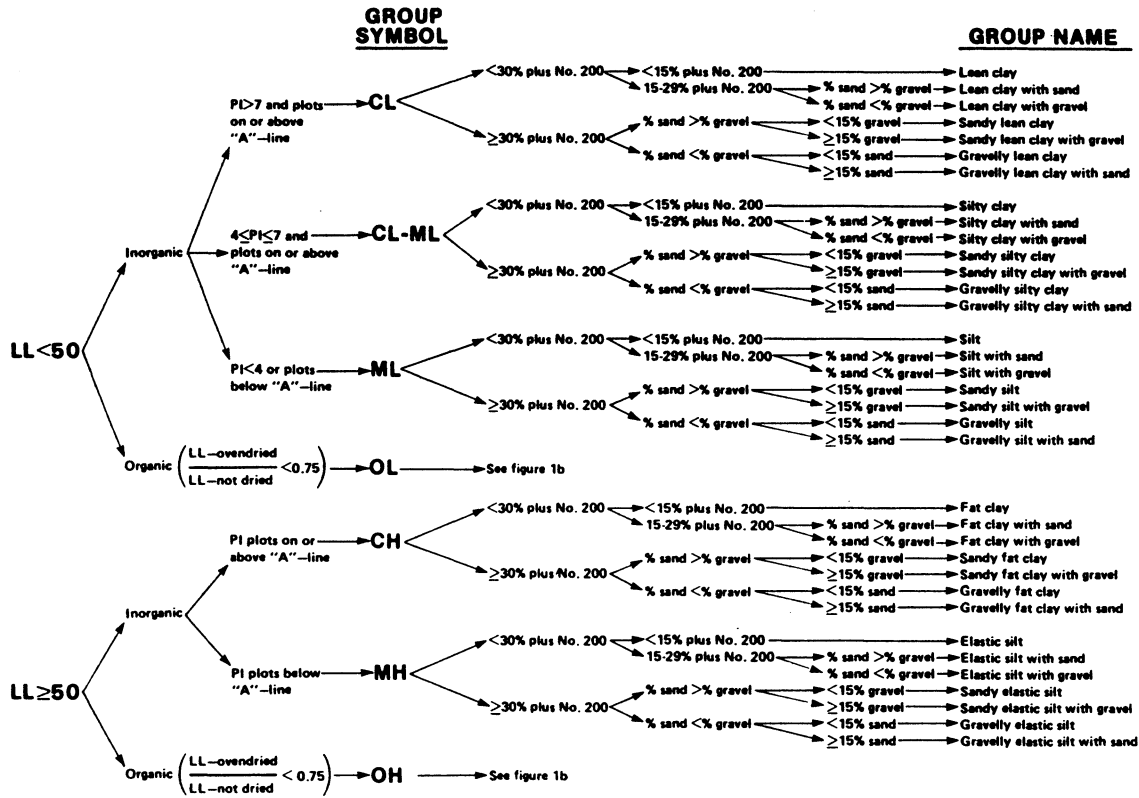
The description of material/soil description shown on the subsurface exploration and test reports is a textural description based on identification of retrieved material by the field drilling technician at the time of investigation. This description may be modified following laboratory testing and classification 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 identification and 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 or excavation equipment used.

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

Offset distances recorded for test holes located between km 1917+600 and 1919+000 are no longer valid. Locations for these test holes are as shown on the plans.

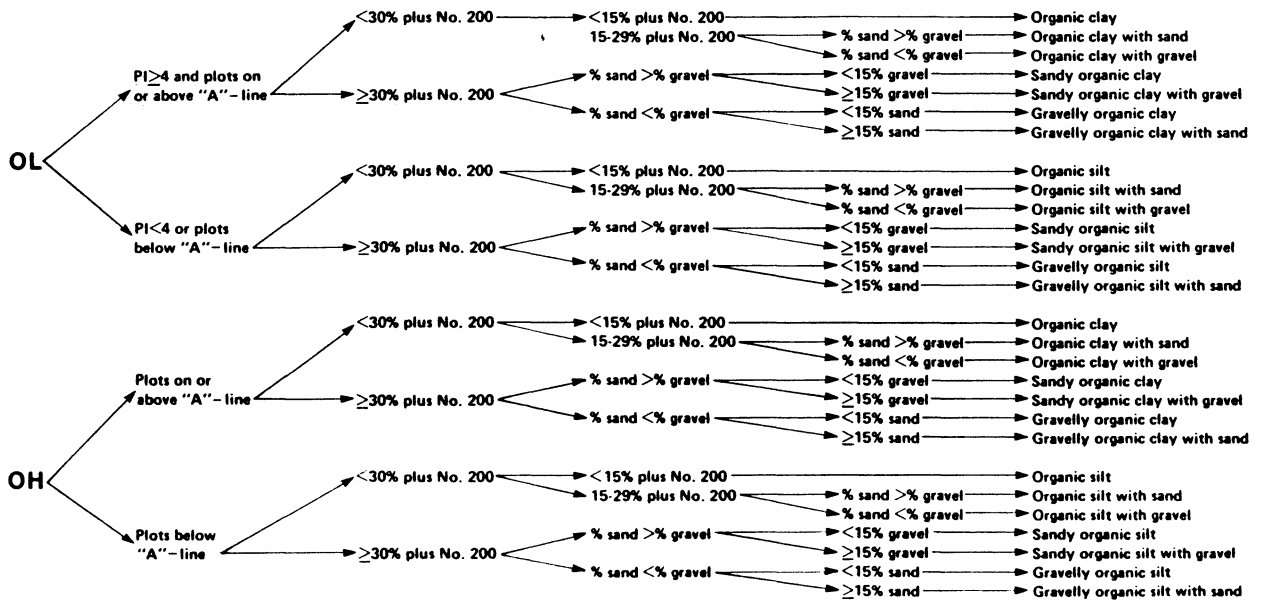
It is recommended that a site inspection, combined with consideration of the regional geology and climatic conditions be conducted. An evaluation of the investigation methods and development work done since the time of investigation should be done prior to interpreting the subsurface conditions for construction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



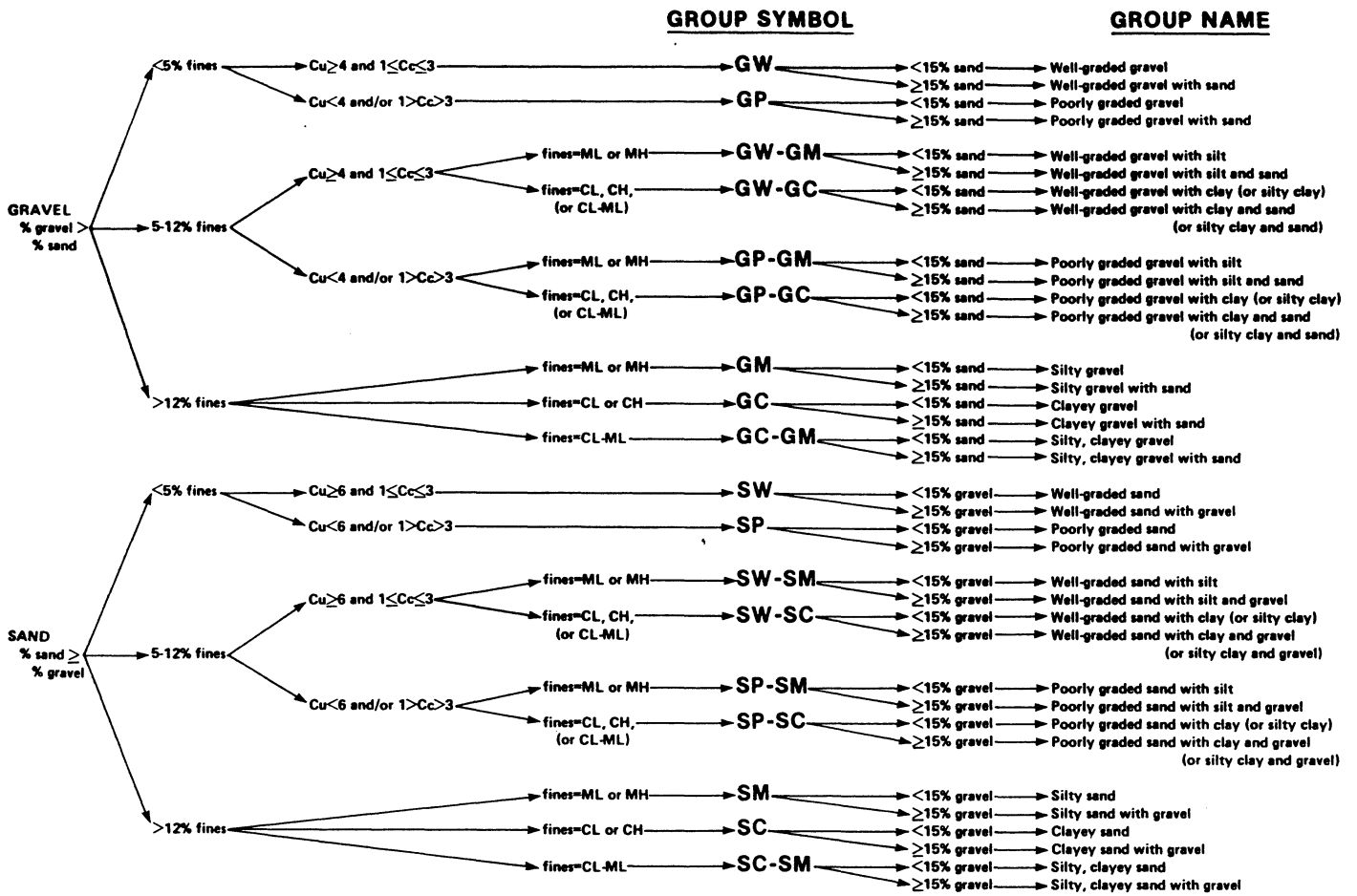
Flow chart for classifying fine-grained soil.

GROUP SYMBOL

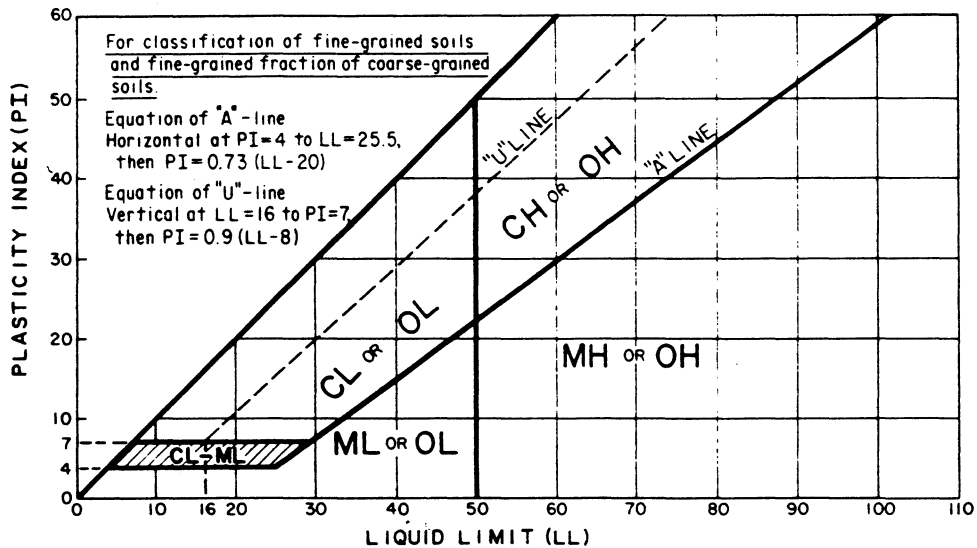
GROUP NAME



Flow chart for classifying organic soil.



Flow chart for classifying coarse-grained soil.



Plasticity chart.

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	$\frac{\text{Liquid limit - oven dried}}{\text{Liquid limit - not dried}} < 0.75$	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	CH	Fat clay ^{k, l, m}
			PI plots below "A" line	MH	Elastic silt ^{k, l, m}
		organic	$\frac{\text{Liquid limit - oven dried}}{\text{Liquid limit - not dried}} < 0.75$	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	Peat

- 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
GW-GM well graded gravel with silt
GW-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 > 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	
		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
			SANDS WITH FINES	SP	Poorly-graded sands and gravelly sands, little or no fines
	FINE-GRAINED SOILS 50% or more passes No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands	
			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	
			CH	Inorganic clay of high plasticity, fat clays	
			OH	Organic clays of medium to high plasticity	
HIGHLY ORGANIC SOILS		PT	Peat, muck and other highly organic soils		

Classification on basis of percentage of fines
 GW, GP, SW, SP
 Less than 5% pass No. 200 sieve
 GM, GC, SM, SC
 More than 12% pass No. 200 sieve
 Borderline classification requiring use of dual symbols

$C_u = D_{60}/D_{10}$ 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 plotting in hatched area are borderline classifications requiring use of dual symbols
 Atterberg limits plot above 'A' line and plasticity index greater than 7
 $C_u = D_{60}/D_{10}$ Greater than 6
 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3
 Not meeting both criteria for SW
 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
 Atterberg limits plot above 'A' line and plasticity index greater than 7

PLASTICITY CHART

For classification of fine-grained soils and fine fraction of coarse-grained soils
 Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols
 Equation of 'A' line: $PI = 0.73(LL - 20)$

*Based on the material passing the 3 in. (75 mm) sieve
 †ASTM Designation D 2487, for identification procedure see D 2488

GROUND ICE DESCRIPTION

ICE NOT VISIBLE

GROUP SYMBOLS	SYMBOLS	SUBGROUP DESCRIPTION	
N	Nf	Poorly-bonded or friable	
	Nbn	No excess ice, well-bonded	
	Nbe	Excess ice, well-bonded	

NOTE:

1. Dual symbols are used to indicate borderline or mixed ice classifications
2. Visual estimates of ice contents indicated on borehole logs $\pm 5\%$
3. 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

VISIBLE ICE LESS THAN 50% BY VOLUME

GROUP SYMBOLS	SYMBOLS	SUBGROUP DESCRIPTION	
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	
ICE	ICE + Soil Type	Ice with soil inclusions	
	ICE	Ice without soil inclusions (greater than 25 mm (1 in.) thick)	

GEOTECHNICAL INVESTIGATION
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CENTRELINE TESTING

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-18
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1915+625 o/s 20m Lt	ELEVATION 0.000 (m)

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

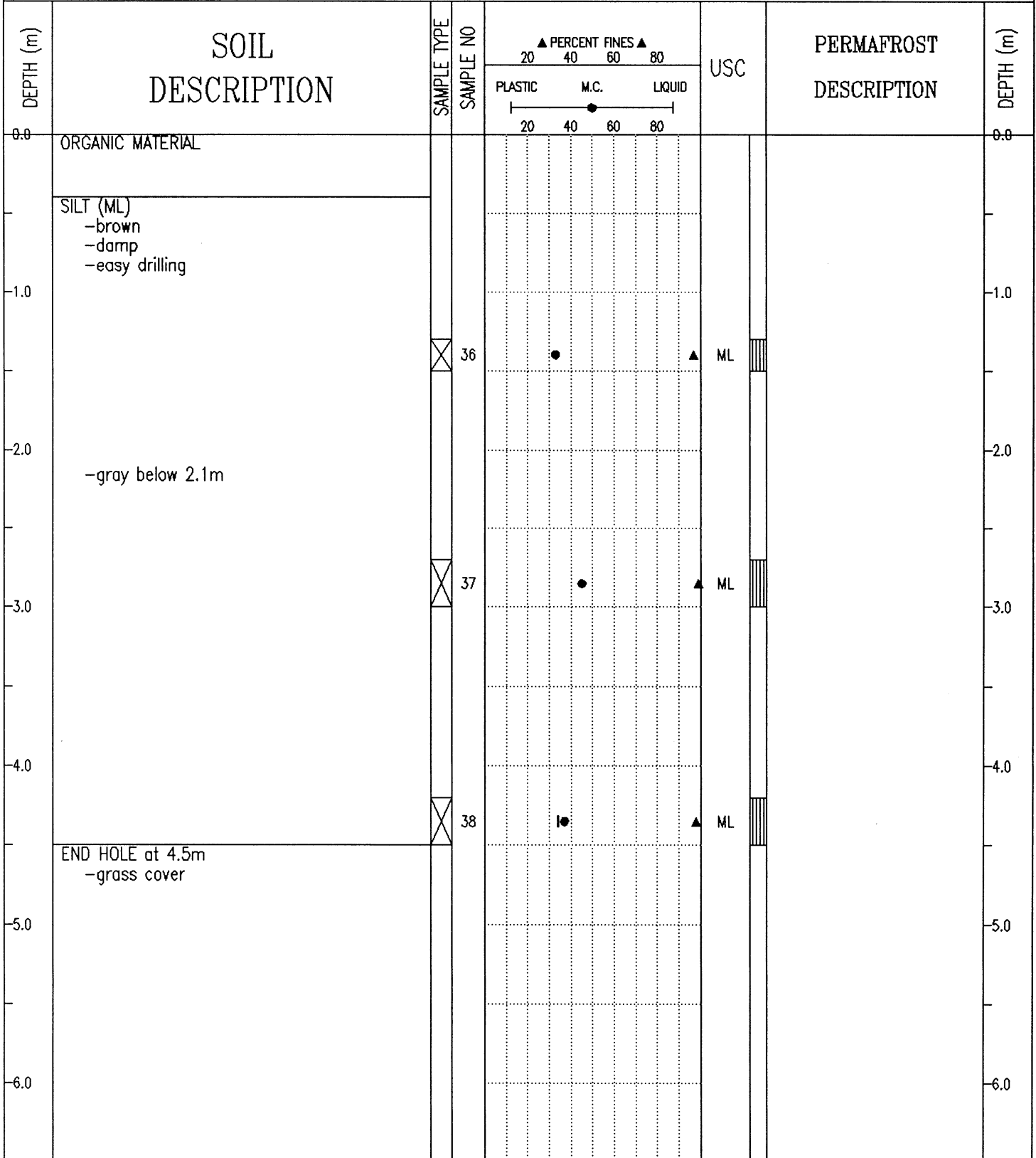
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL -visible ice (Vx) -easy drilling							0.0	
1.0	SILT (ML) -gray -frozen with visible ice (Vx)							1.0	
2.0	-harder drilling below 2.2m							2.0	
3.0	ICE WITH SOIL							3.0	
4.0								4.0	
5.0	END HOLE at 4.5m							5.0	
6.0								6.0	

Public Works Canada
Whitehorse, Yukon Territory.

COMPLETION DEPTH 4.5 m	COMPLETE 92/06/06
LOGGED BY AW	DWG NO. Page 1 of 1

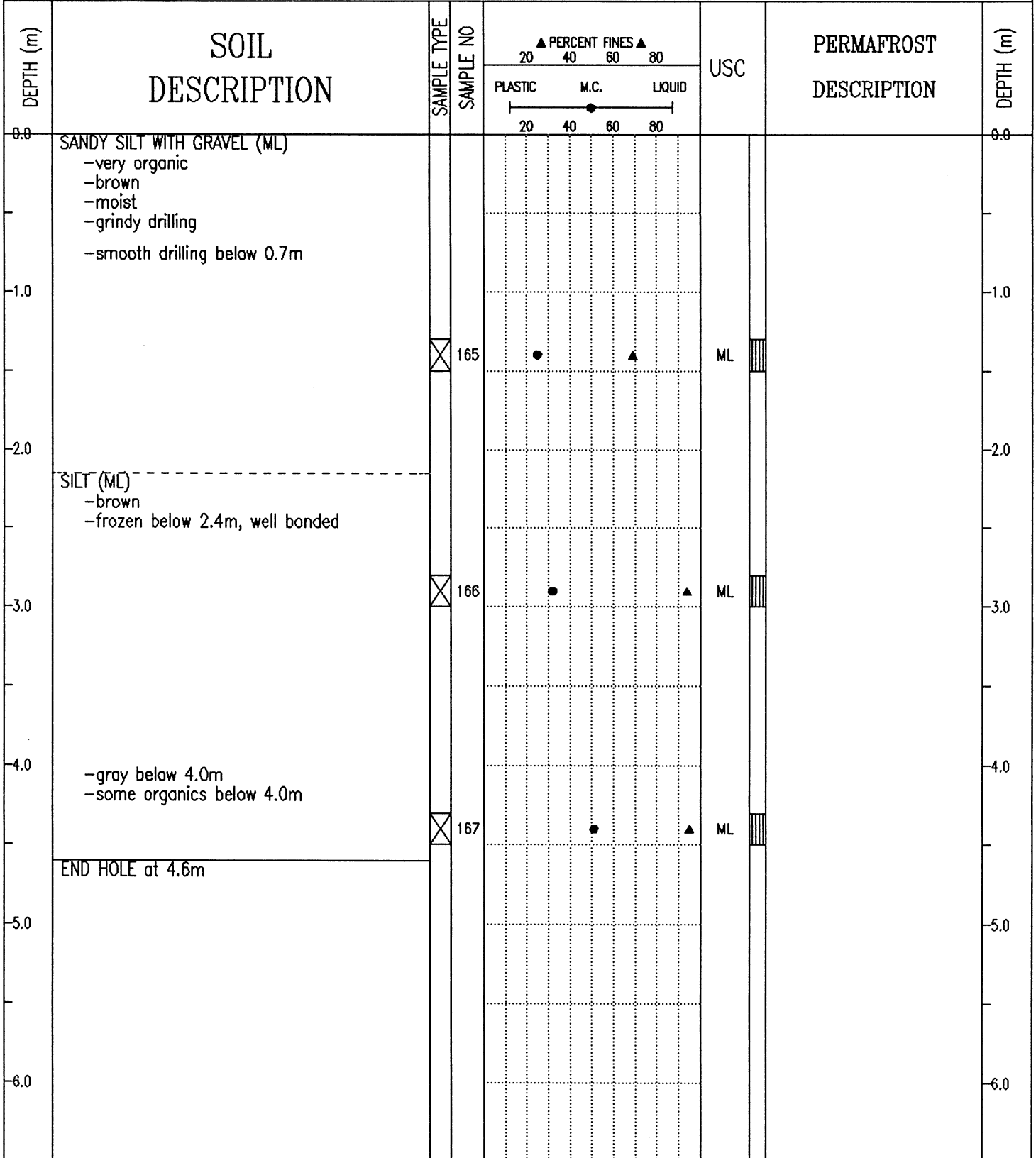
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-17
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1915+725 o/s 15m Lt	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 141-60
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1915+800 o/s 7m Rt.	ELEVATION 0.000 (m)

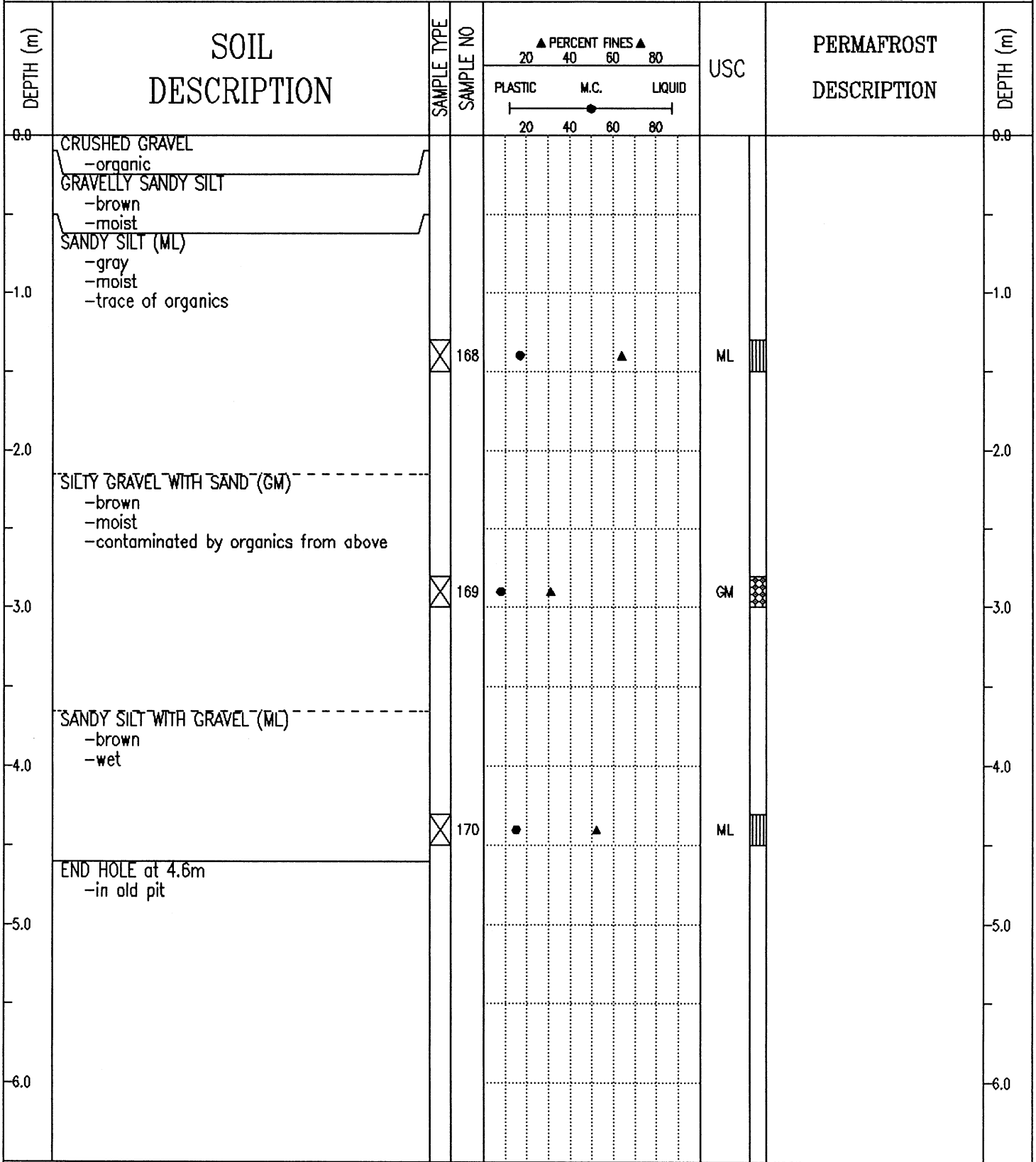
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



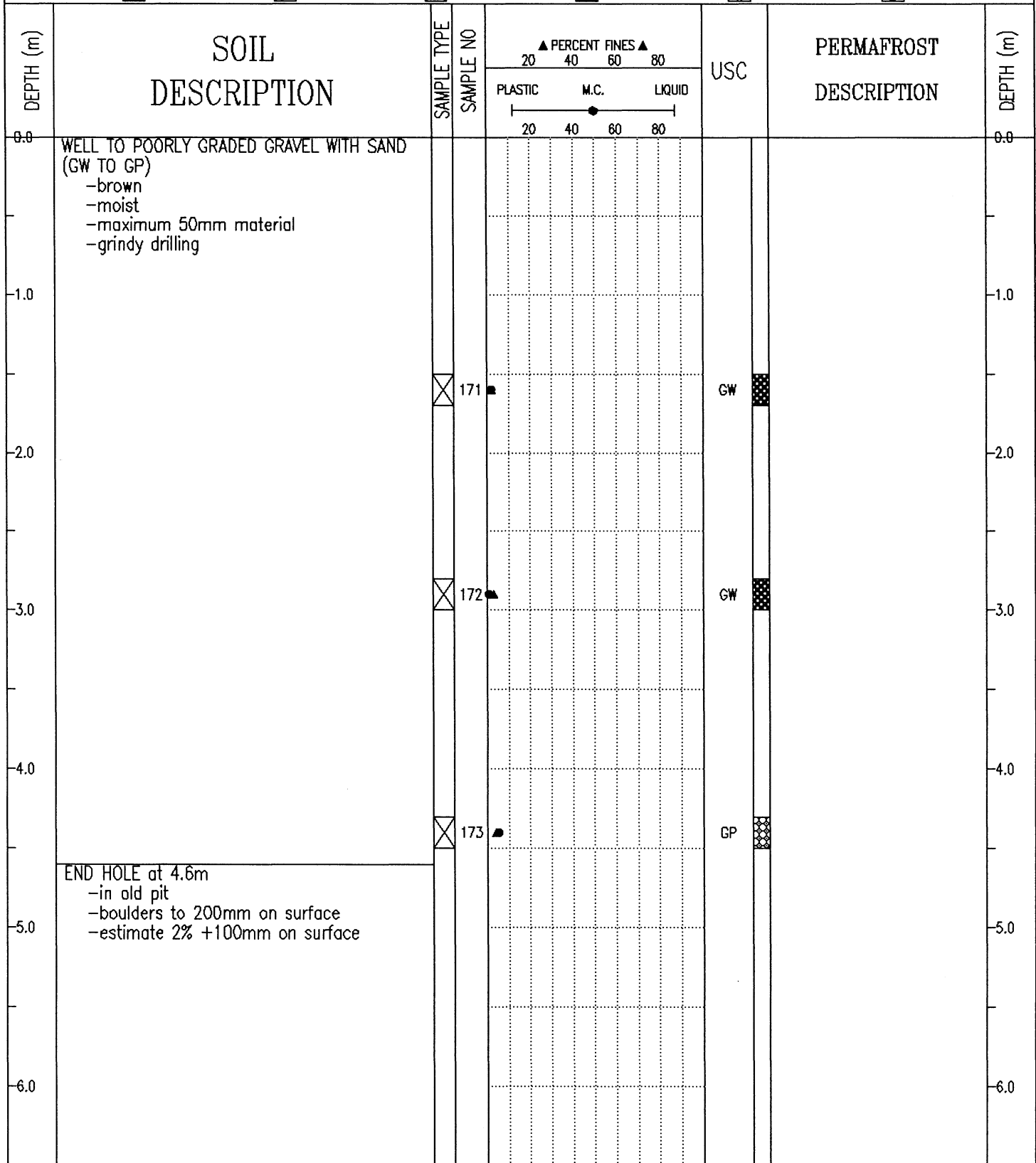
Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/15
	LOGGED BY	DWG NO.

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 141-61
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1915+975	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 141-62
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1916+060 o/s 5m Lt.	ELEVATION 0.000 (m)
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Public Works Canada
Whitehorse, Yukon Territory.

COMPLETION DEPTH 4.6 m

COMPLETE 91/08/15

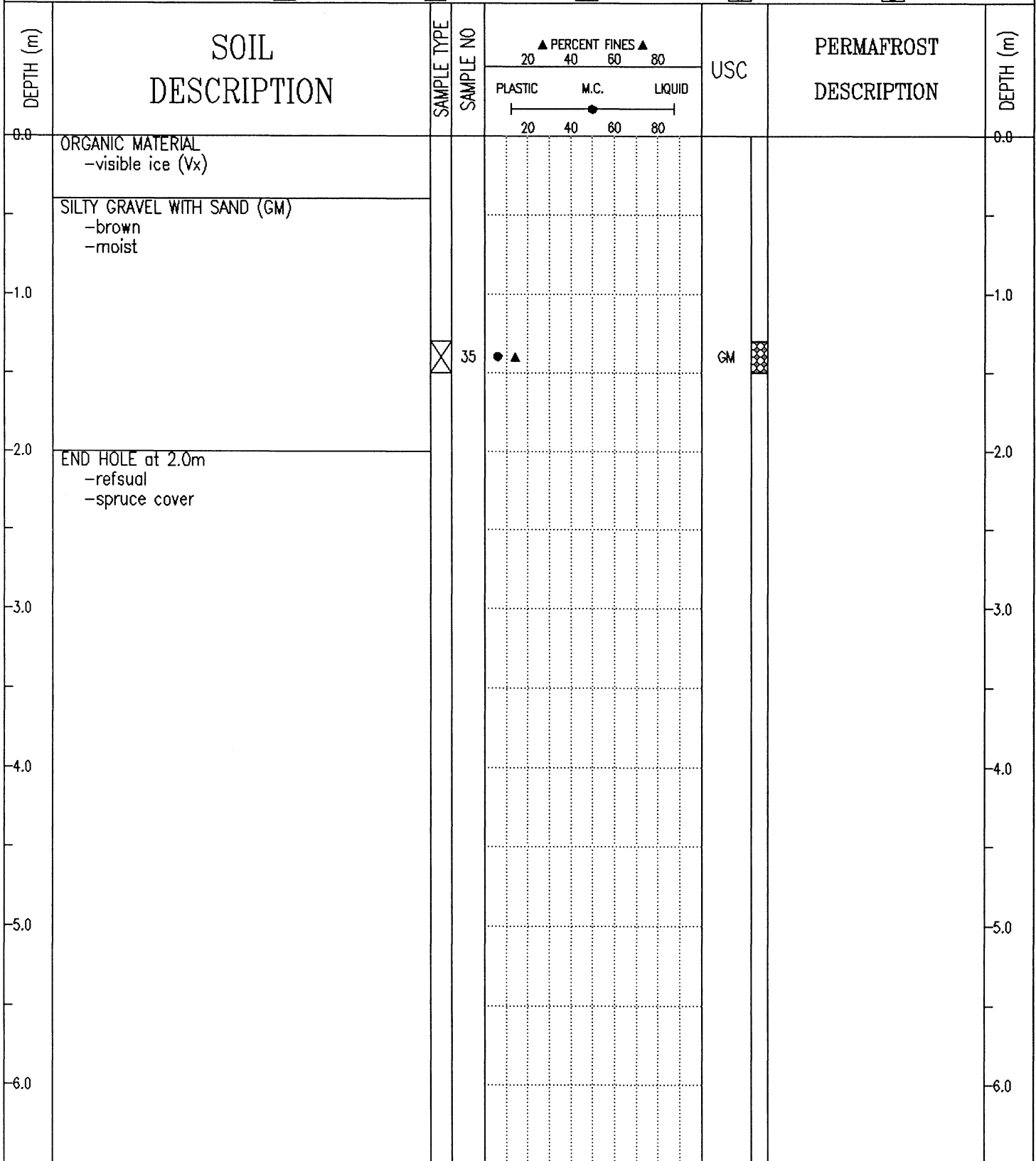
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DWG NO.

Page 1 of 1

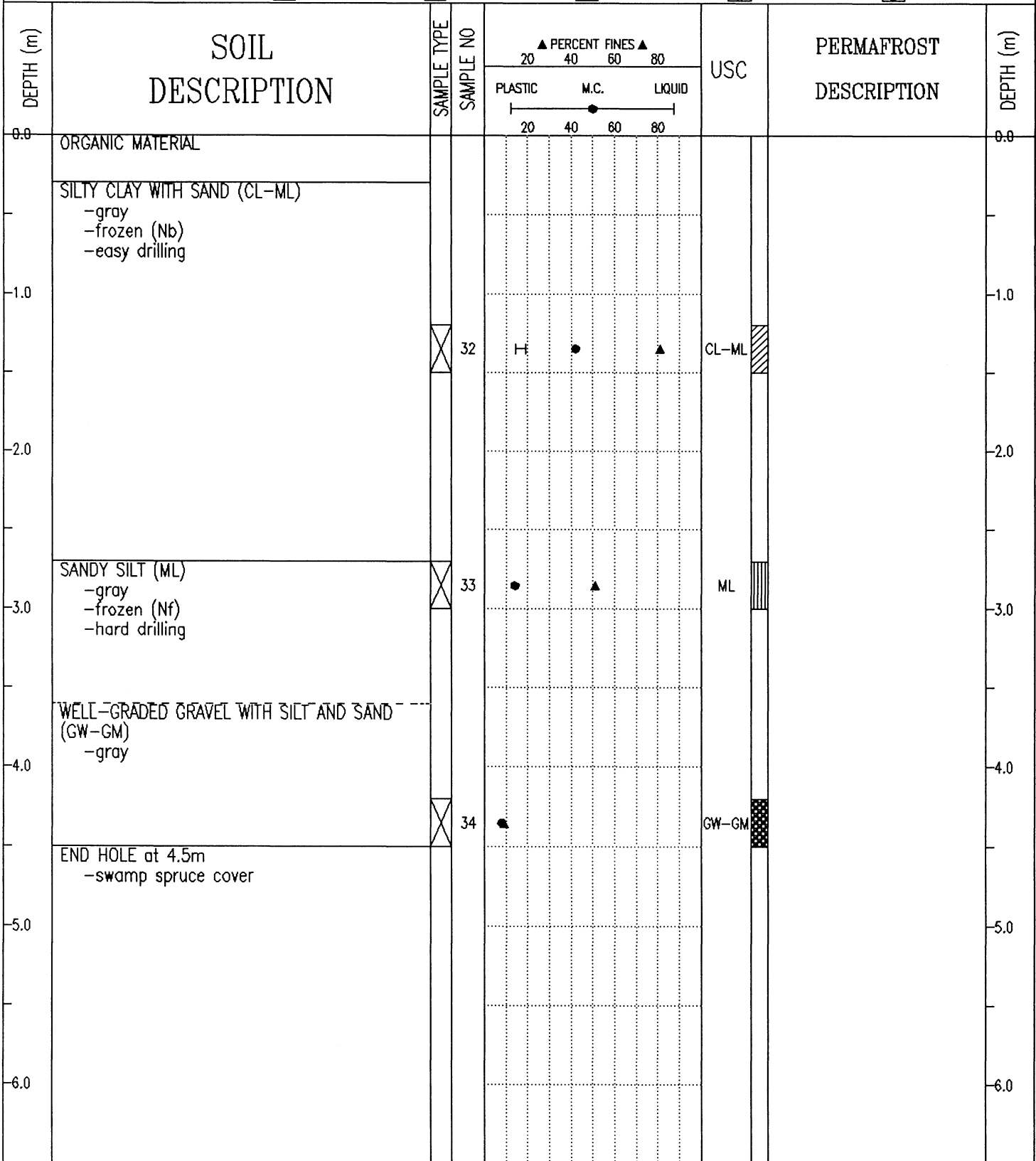
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SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1916+175	ELEVATION 0.000 (m)

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



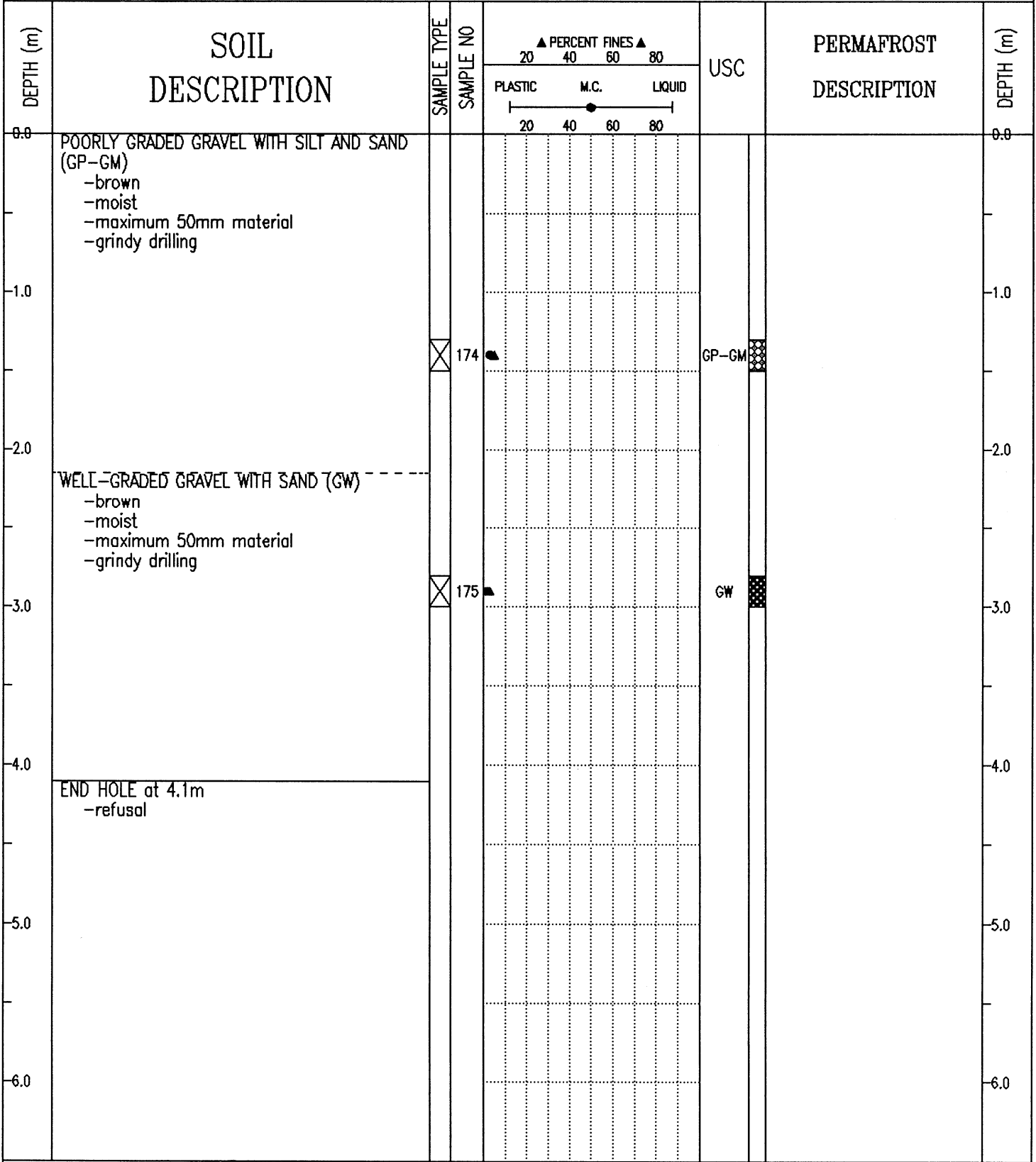
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-15
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1916+275	ELEVATION 0.000 (m)

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

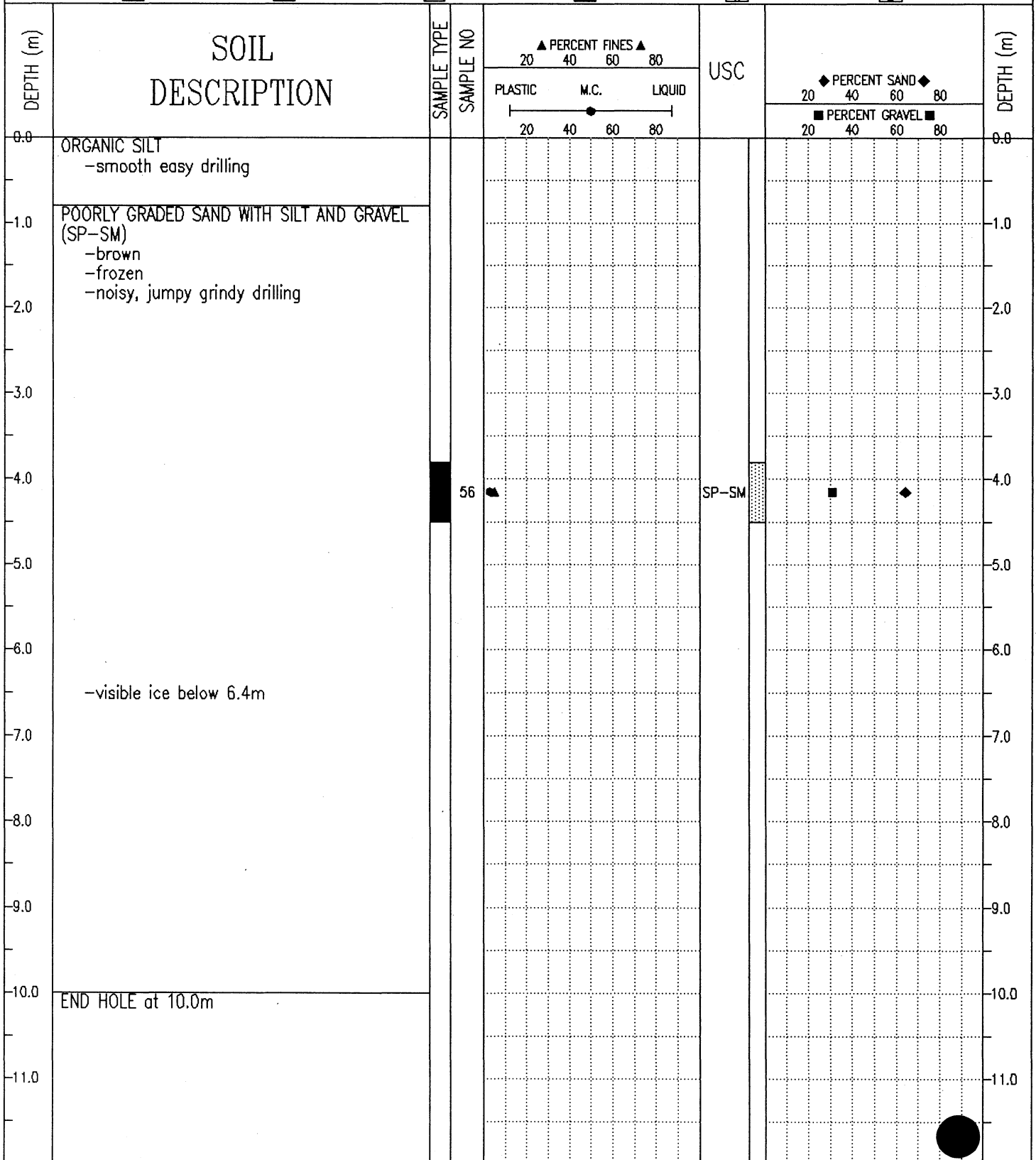


SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 141-63
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1916+375 o/s 4m Rt.	ELEVATION 0.000 (m)

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

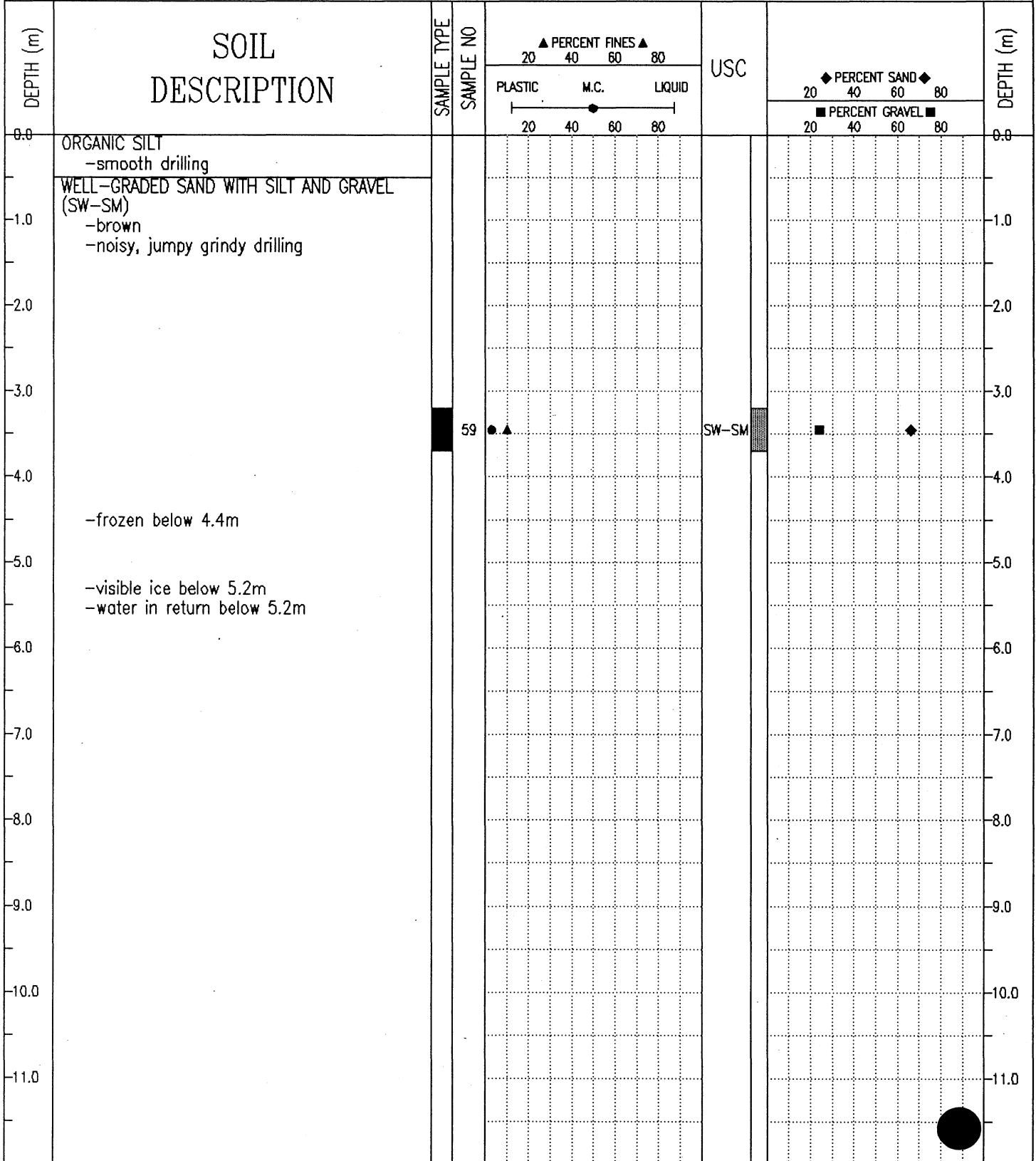


SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 218-119
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1916+450 o/s 50m Rt.	ELEVATION 0.000 (m)
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SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 218-122
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1916+450 o/s 100m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 218-122
SHAKWAK PROJECT		SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL		LOCATION: STA 1916+450 o/s 100m Rt.	ELEVATION 0.000 (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 ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■	DEPTH (m)
				20	40	60		80	20		
12.0	END HOLE at 12.5m										12.0
-13.0											-13.0
-14.0											-14.0
-15.0											-15.0
-16.0											-16.0
-17.0											-17.0
-18.0											-18.0
-19.0											-19.0
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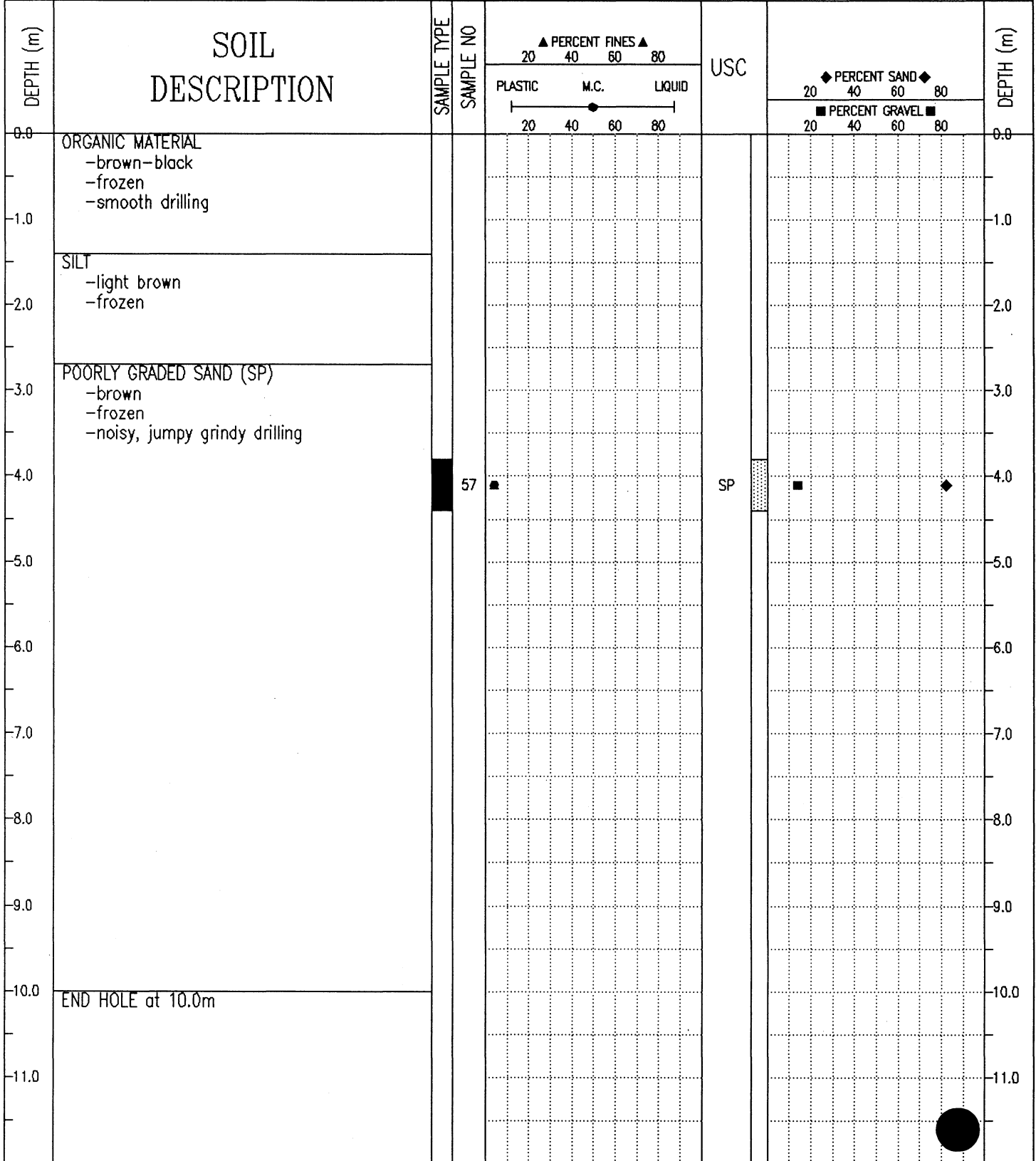
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 141-64
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1916+475 o/s 7m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC GRAVEL POORLY TO WELL-GRADED GRAVEL WITH SAND (GP TO GW) -brown -damp -maximum 50mm material							0.0	
1.76		X	176				GP	1.76	
3.0		X	177				GW	3.0	
4.6	END HOLE at 4.6m	X	178				GW	4.6	

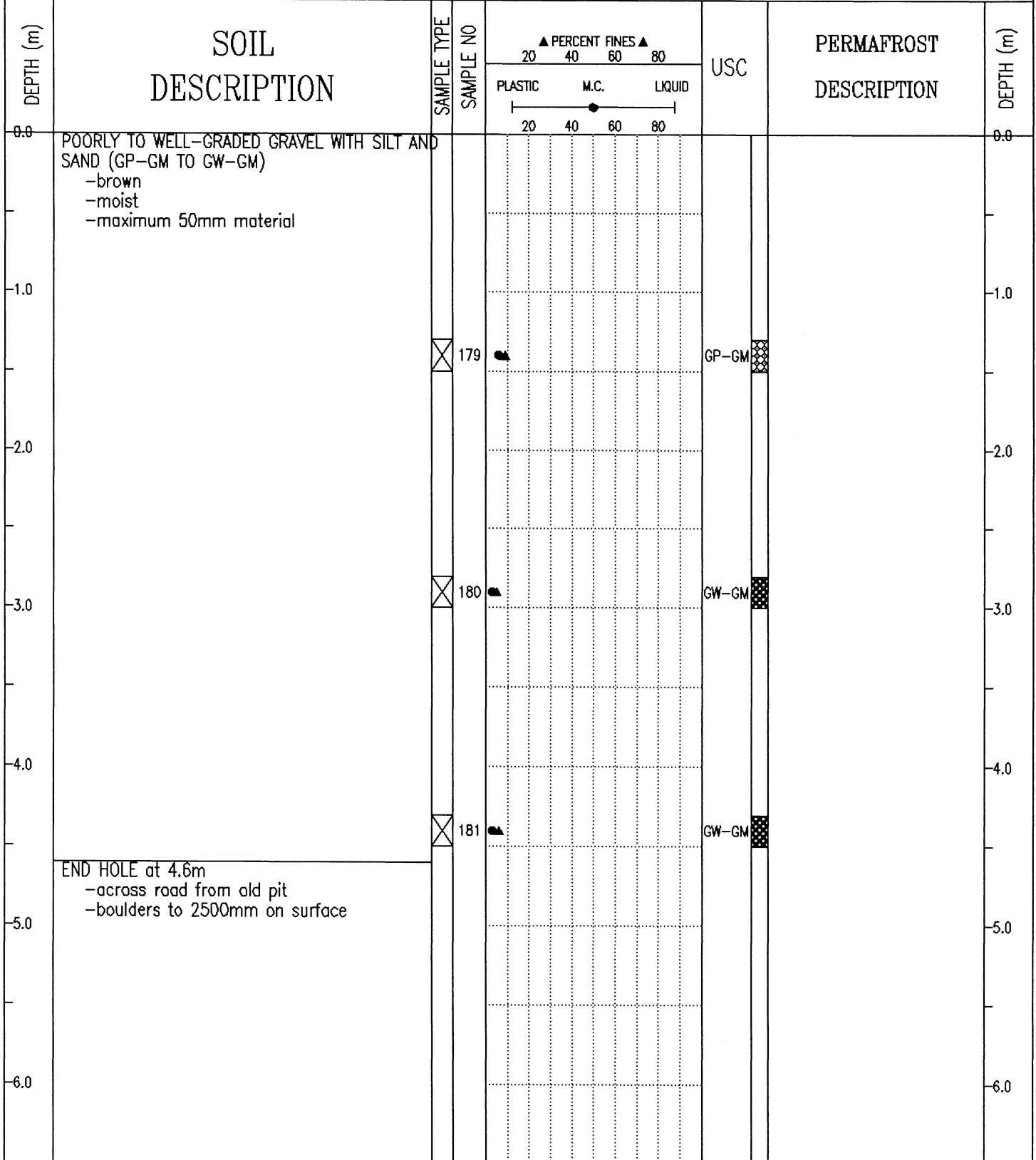
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SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1916+550 o/s 50m Rt.	ELEVATION 0.000 (m)

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

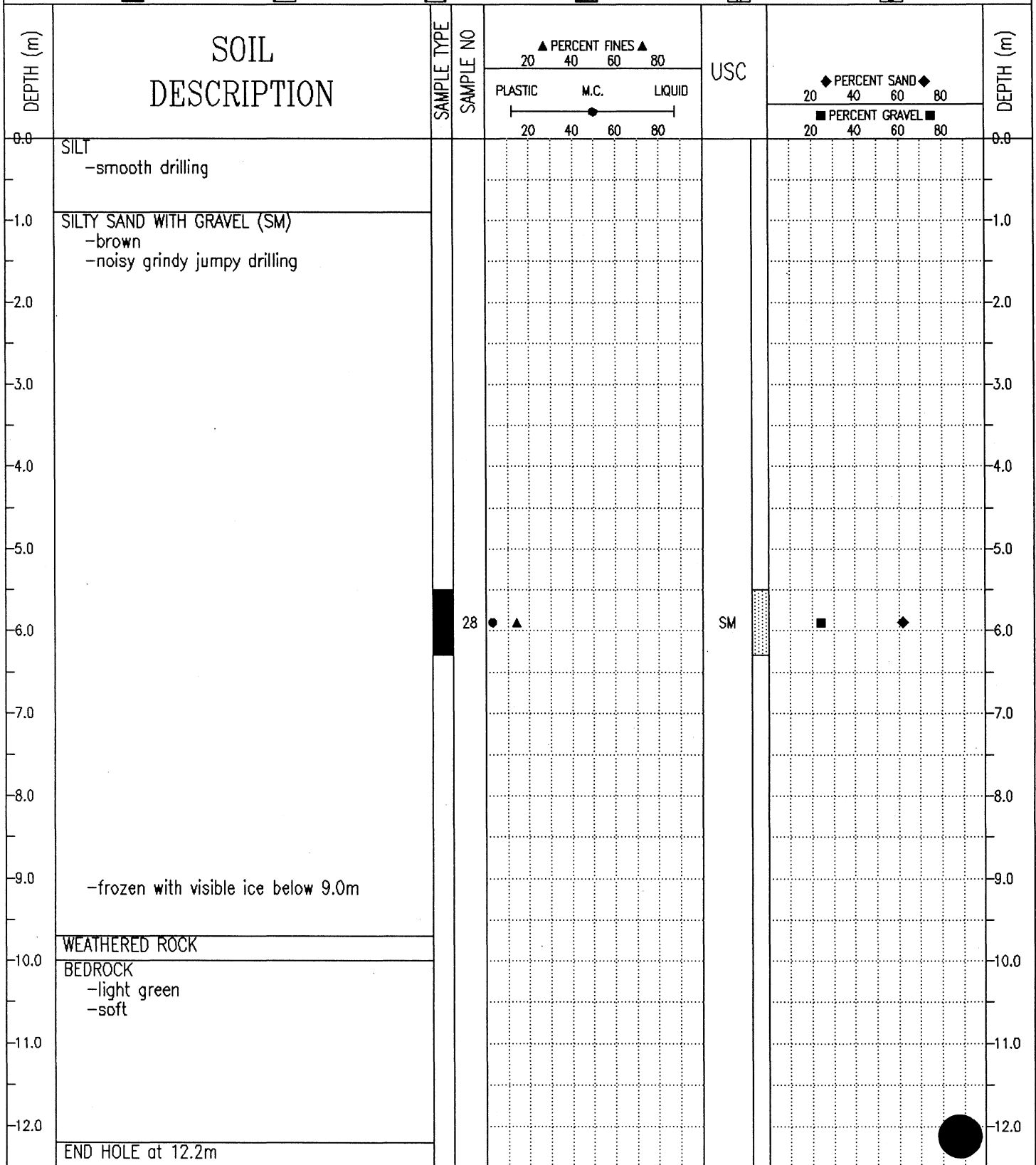


SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 141-65
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1916+575 o/s 8m Lt.	ELEVATION 0.000 (m)

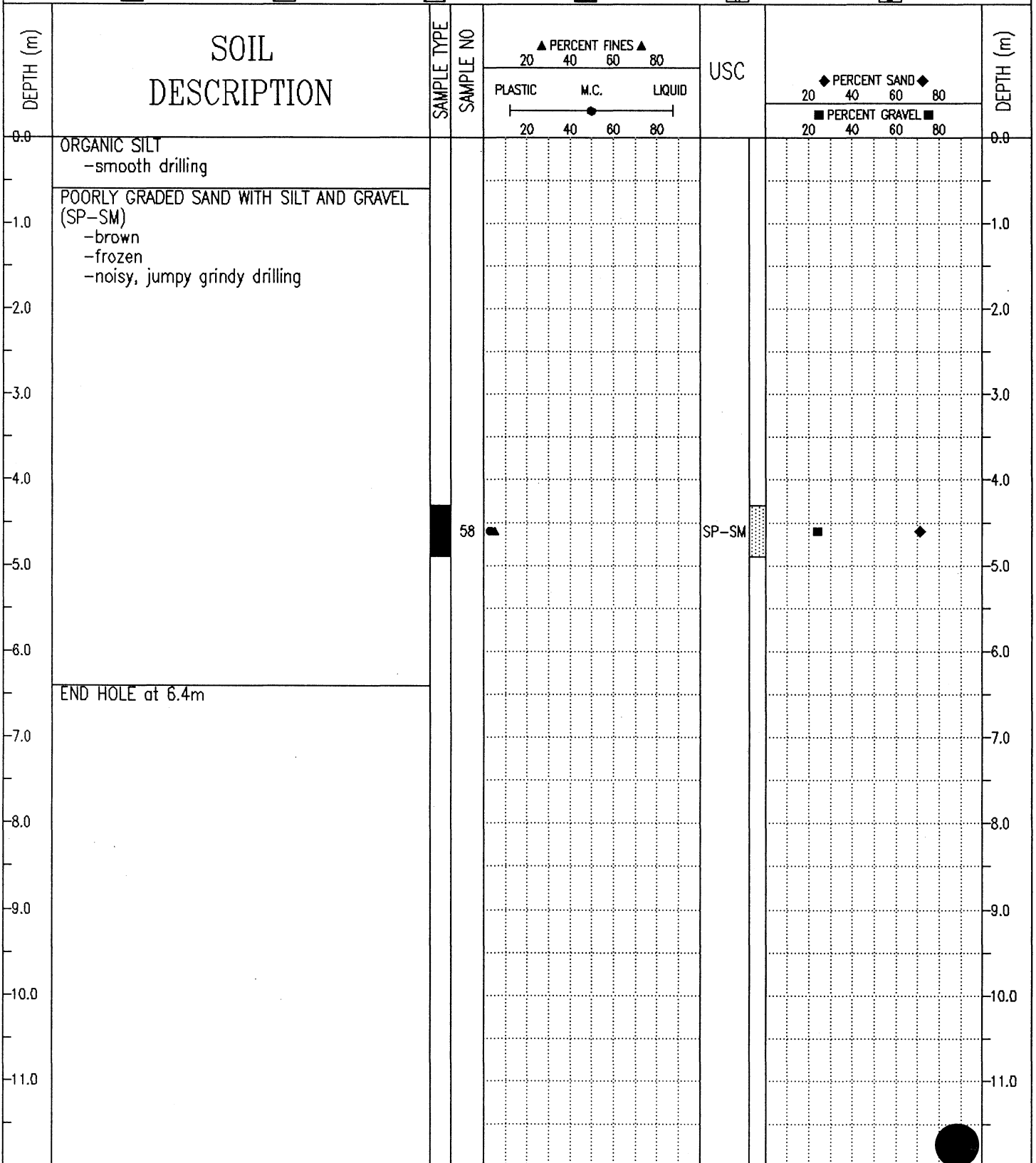
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 214-107
SHAKWAK PROJECT		SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL		LOCATION: STA 1917+600 o/s 50m Rt.	ELEVATION 0.000 (m)
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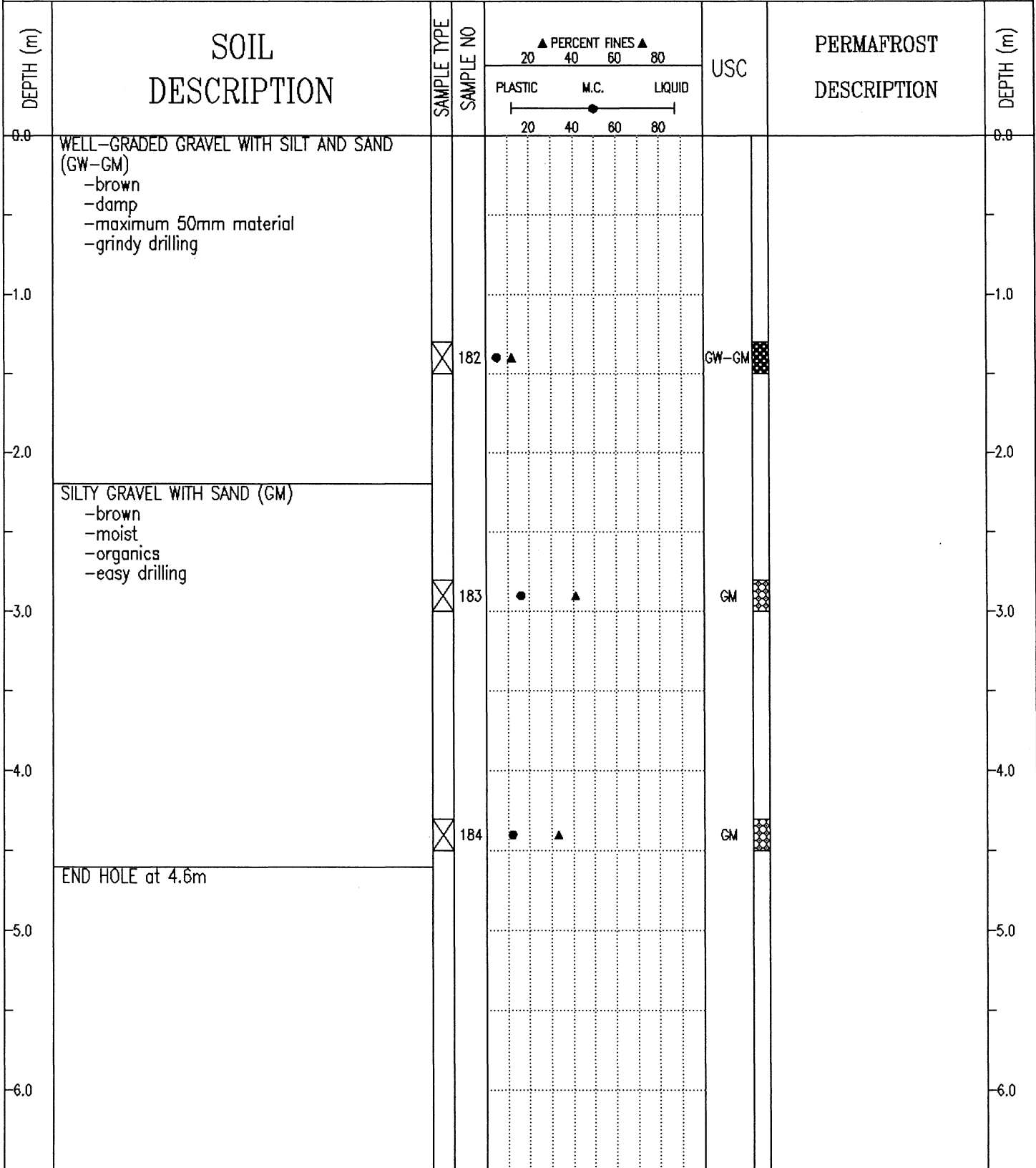


SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 218-121
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1916+650 o/s 75m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



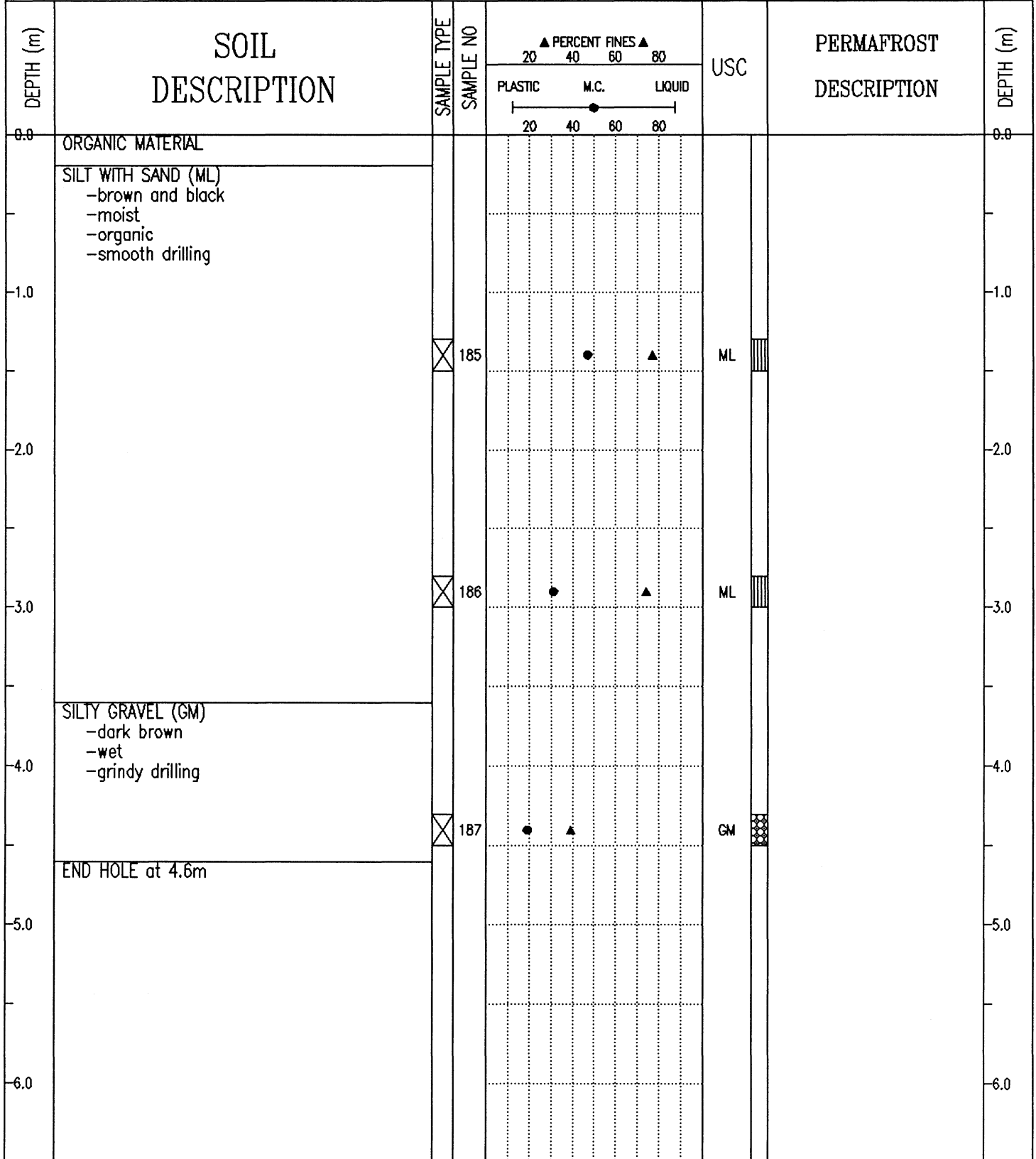
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 141-66
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1916+675 o/s 7m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-67
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1916+780 o/s 7m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-68
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1916+875 o/s 10m Rt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	SILTY SANDY GRAVEL -brown -damp -road fill								0.0
1.0	SANDY SILT WITH GRAVEL (ML) -gray -wet -some organics	<input checked="" type="checkbox"/>	188	●	▲		ML		1.0
3.0	GRAVELLY SAND	<input checked="" type="checkbox"/>	189	●	▲		ML		3.0
4.0	SILTY SAND WITH GRAVEL (SM) -brown -saturated	<input checked="" type="checkbox"/>	190	●	▲		SM		4.0
5.0	END HOLE at 4.6m -on shoulder of road								5.0
6.0									6.0

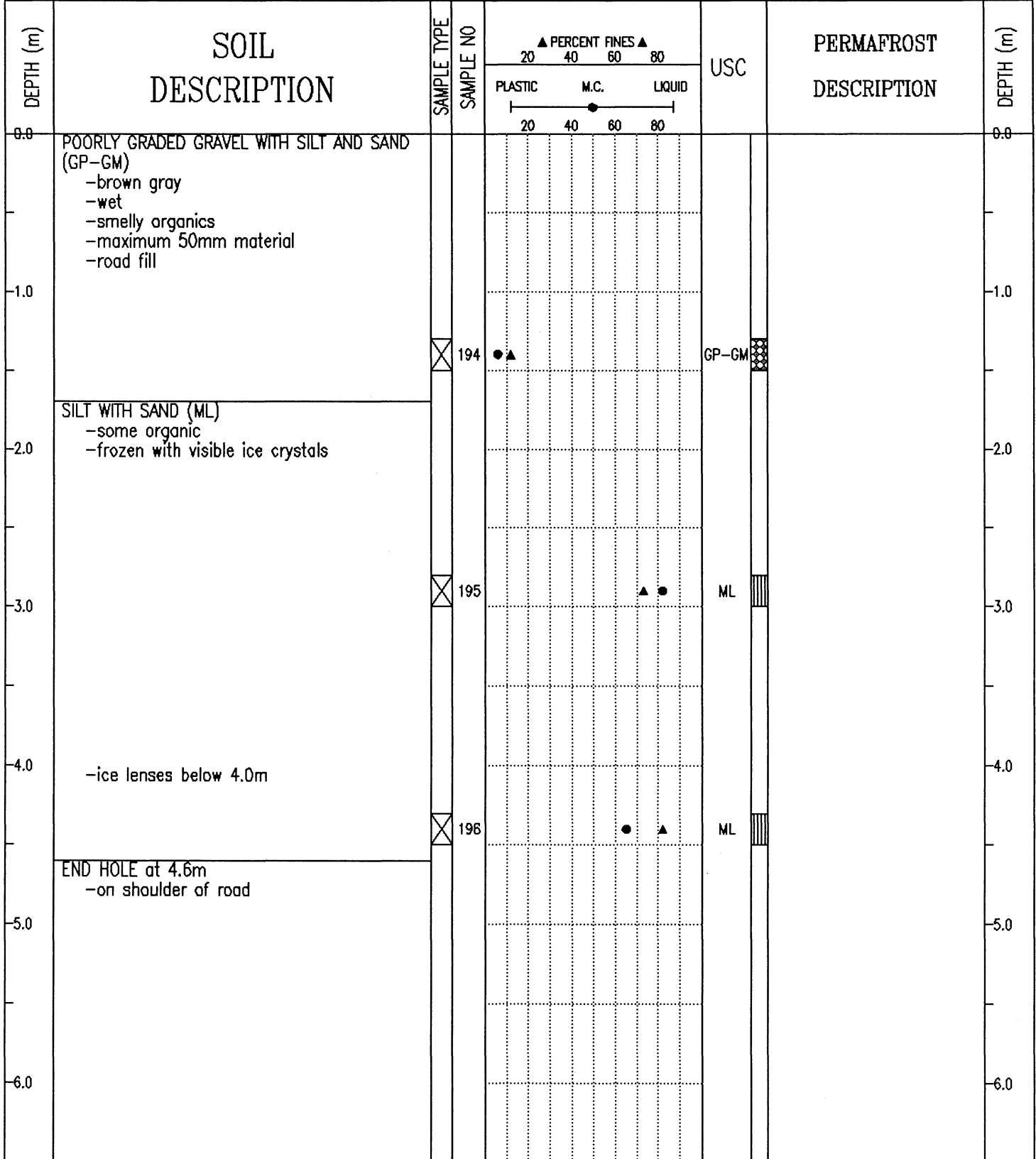
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-69
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1916+975 o/s 9m Rt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	SANDY SILTY GRAVEL -brown -damp -road fill -maximum 50mm material								0.0
1.0									1.0
2.0	SILTY SAND WITH GRAVEL (SM) -brown -wet -smooth drilling								2.0
3.0									3.0
4.0	SILTY GRAVEL WITH SAND (GM) -dark brown -wet -grindy drilling								4.0
5.0	END HOLE at 4.6m -on shoulder of road								5.0
6.0									6.0

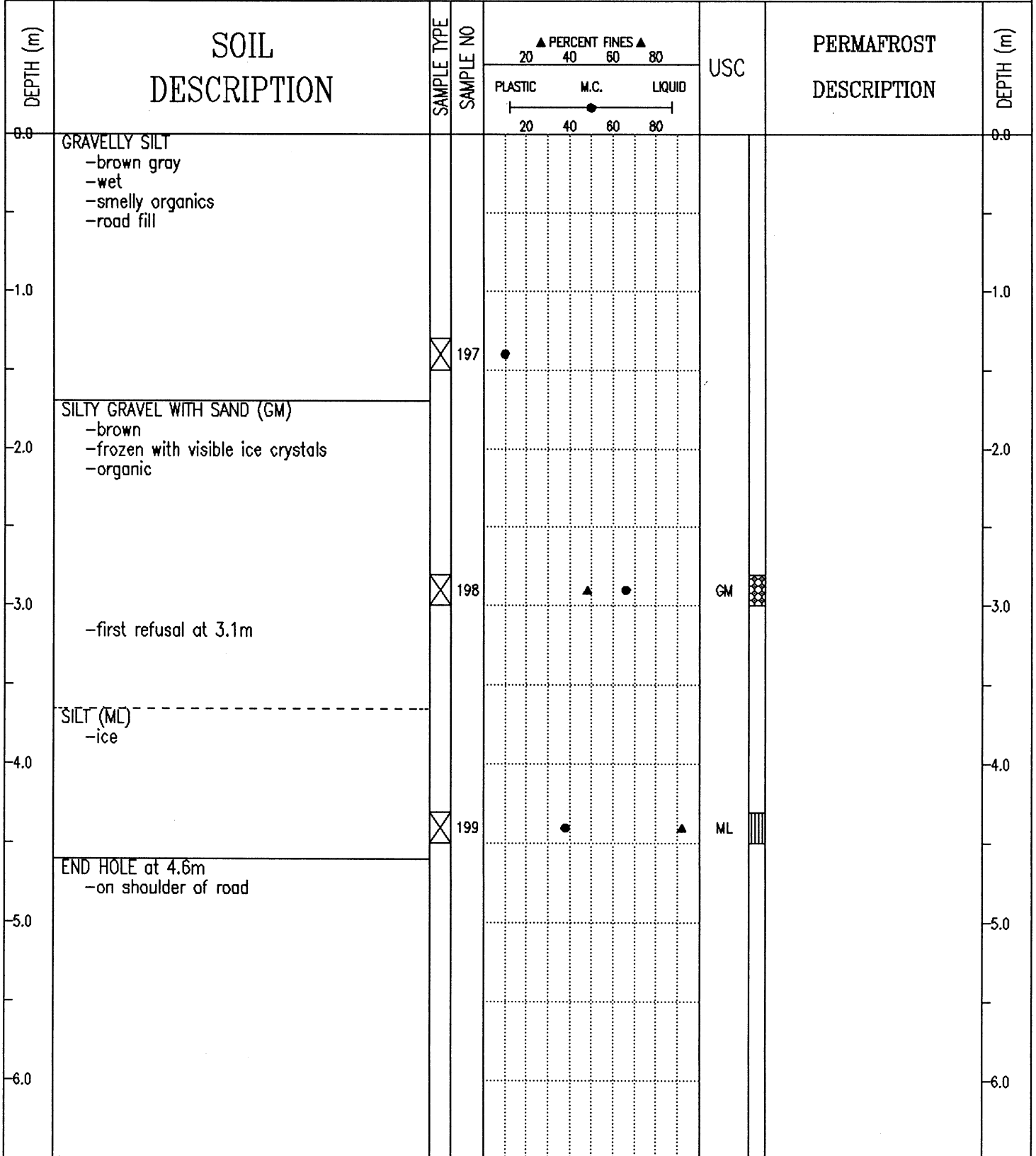
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SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1917+075 o/s 6m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-71
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1917+175 o/s 5m Rt.	ELEVATION 0.000 (m)

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



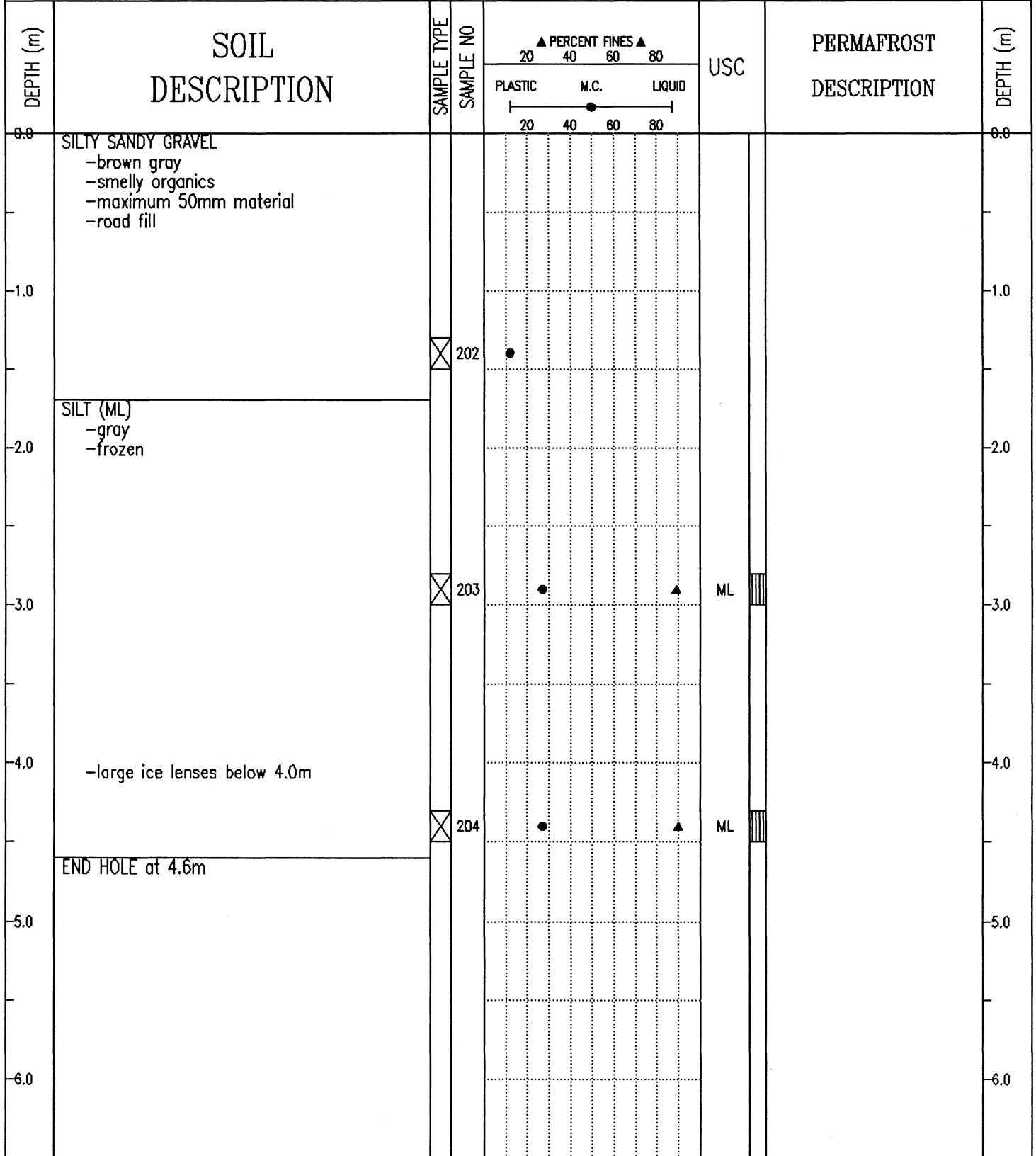
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SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1917+300 o/s 4m Rt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	SILTY SANDY GRAVEL -brown gray -wet -some organics -maximum 50mm material -road fill								0.0
2.0	SANDY SILT (ML) -organic -frozen with visible ice crystals -well bonded		200						2.0
3.0	END HOLE at 3.6m -refusal -on shoulder of road		201				ML		3.0
4.0									4.0
5.0									5.0
6.0									6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-73
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1917+400 o/s 7m Rt.	ELEVATION 0.000 (m)

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



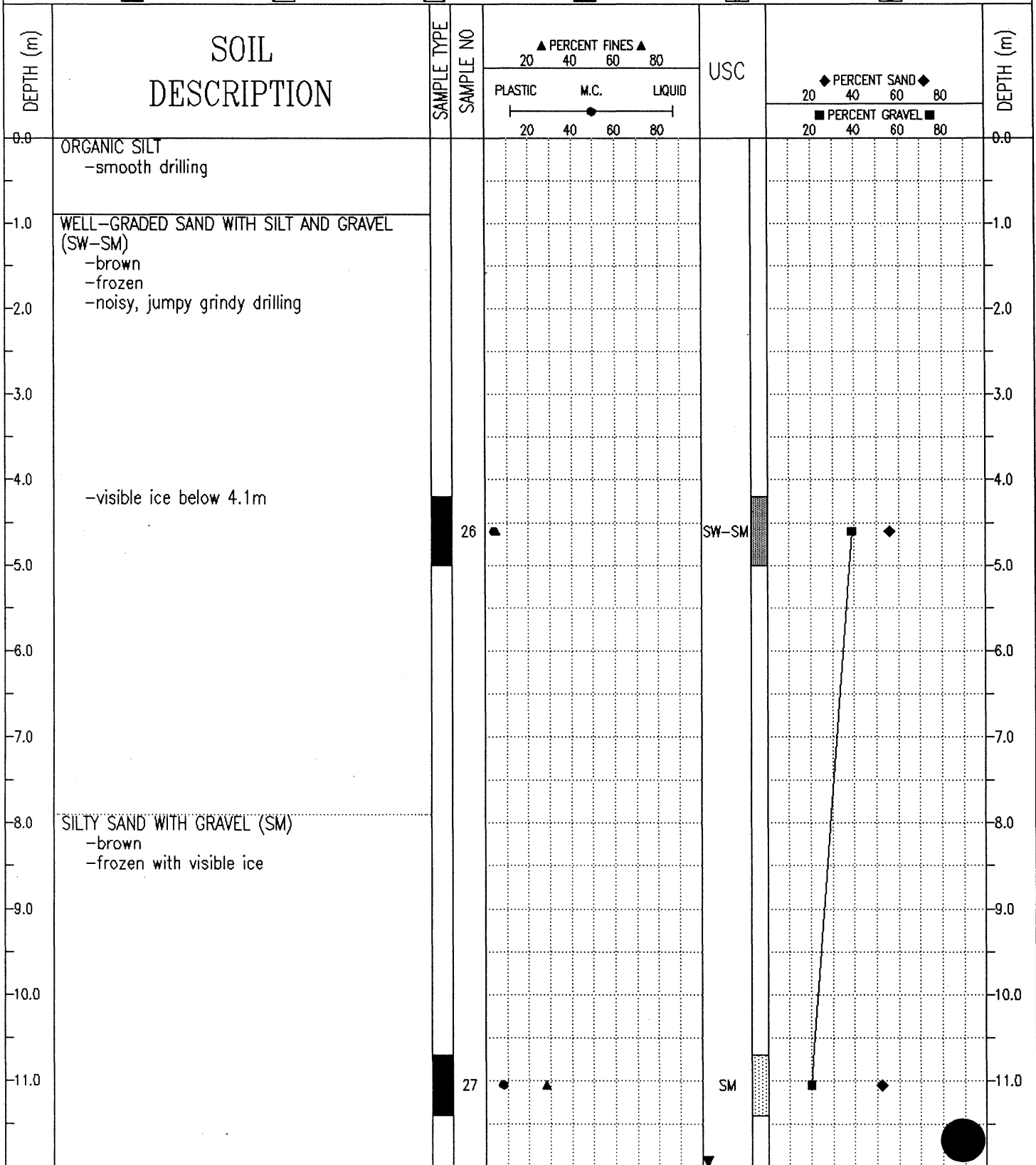
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-75
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1917+700 o/s 5m Rt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	POORLY TO WELL-GRADED GRAVEL WITH SILT AND SAND (GP-GM TO GW-GM) -brown -moist -grindy drilling								0.0
1.0									1.0
2.0									2.0
3.0									3.0
4.0									4.0
5.0	END HOLE at 4.6m -on shoulder of road								5.0
6.0									6.0

Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/21
	LOGGED BY	DWG NO.

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 214-106
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1917+700 o/s 50m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		

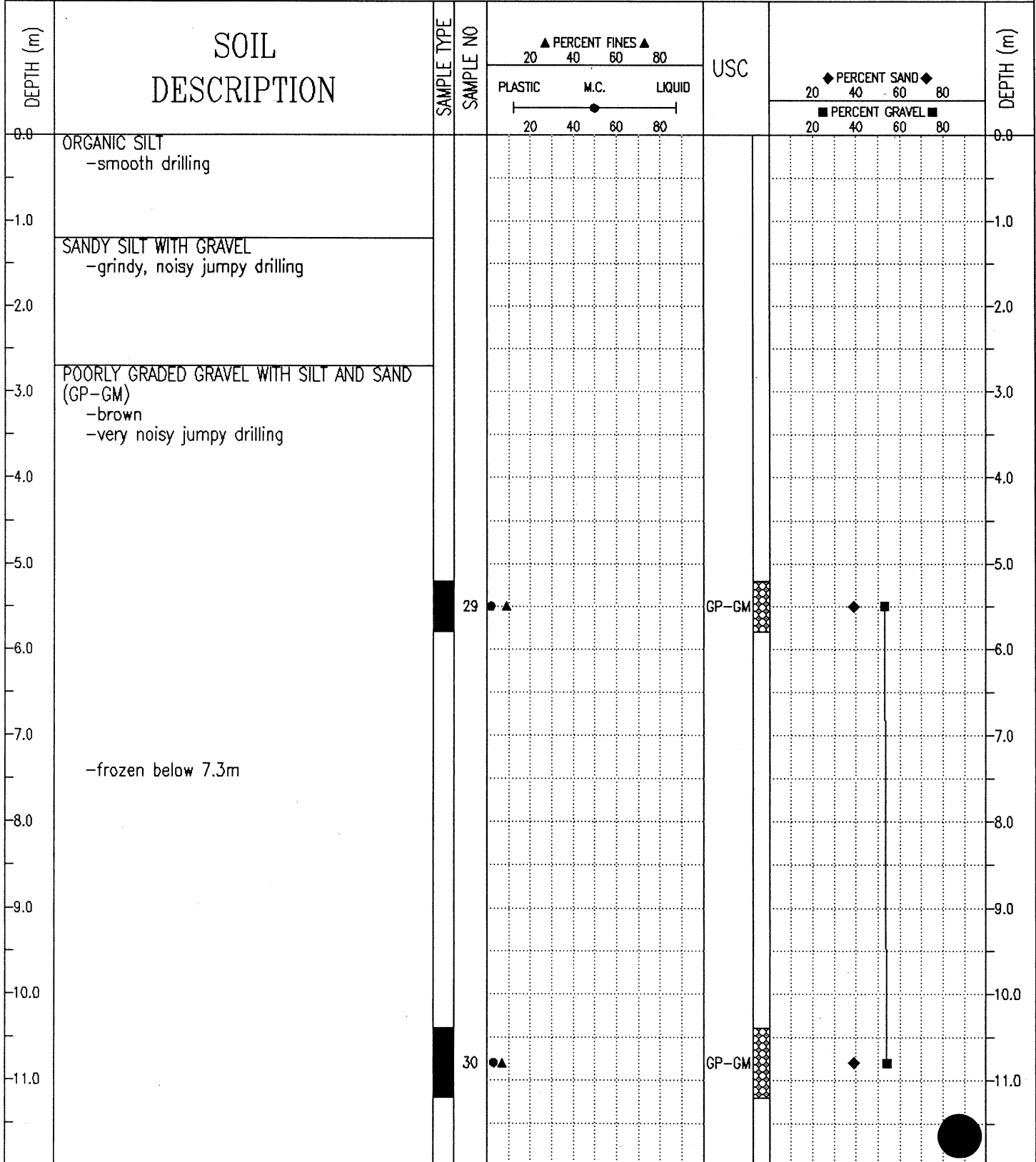


SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 214-106
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1917+700 o/s 50m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> 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 ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■	DEPTH (m)
				20	40	60		80	20		
12.0	-water produced at 12.0m										12.0
13.0											13.0
14.0											14.0
15.0	END HOLE at 15.0m										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

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 215-108
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1917+750 o/s 100m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 215-108
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1917+750 o/s 100m Rt.	ELEVATION 0.000 (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	USC			DEPTH (m)
				▲ PERCENT FINES ▲	◆ PERCENT SAND ◆	■ PERCENT GRAVEL ■	
				20 40 60 80	20 40 60 80	20 40 60 80	
				PLASTIC M.C. LIQUID			
				20 40 60 80			
12.0							12.0
-13.0	-frozen with visible ice below 13.1m						-13.0
-14.0							-14.0
-15.0							-15.0
-16.0	BEDROCK -green						-16.0
-17.0	END HOLE at 16.3m						-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

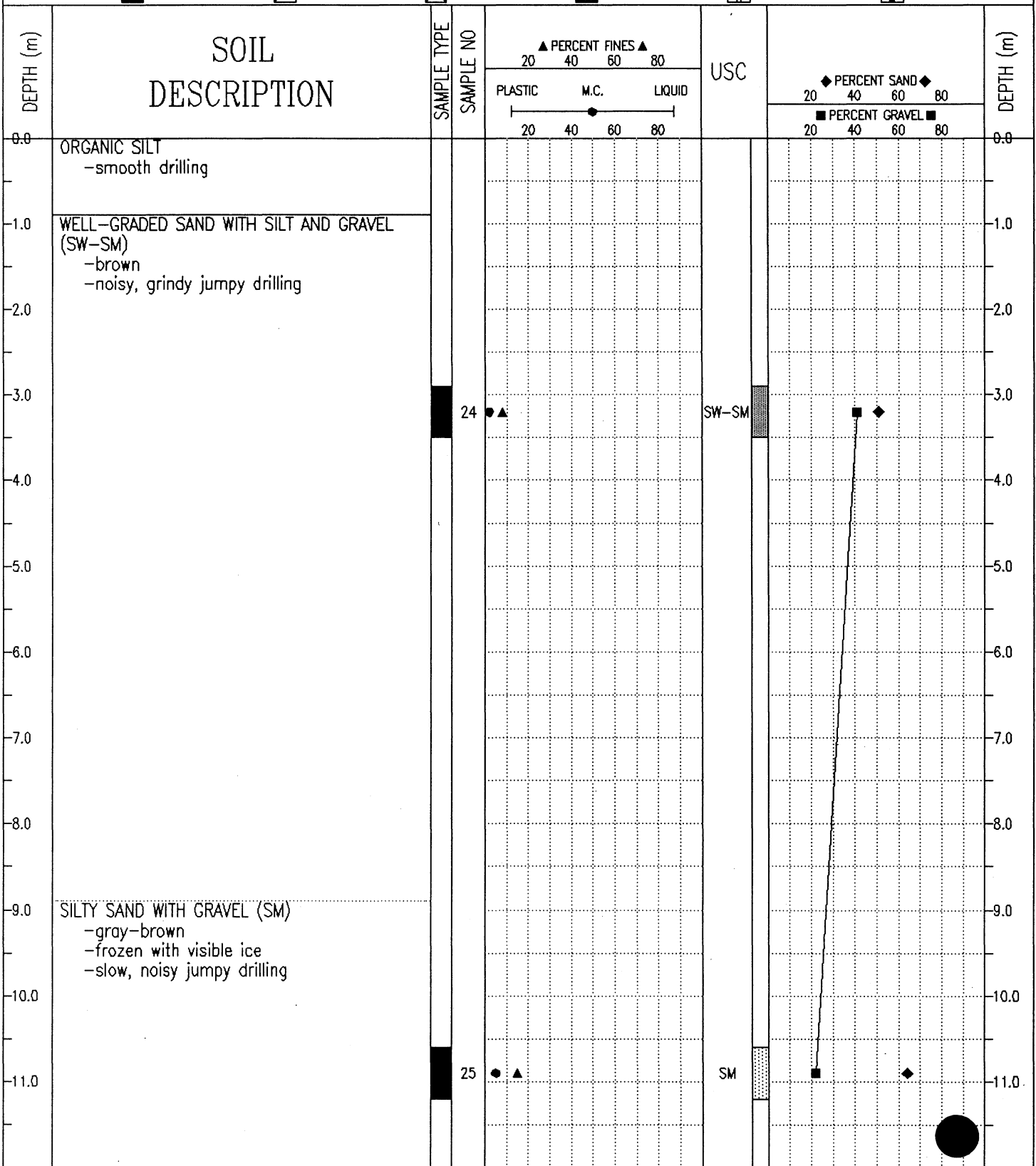
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-76
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1917+800 o/s 5m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input 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			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	POORLY TO WELL-GRADED GRAVEL WITH SAND (GP TO GW) -brown -damp -maximum 50mm material -grindy drilling								0.0
-1.0									-1.0
-2.0									-2.0
-3.0		<input checked="" type="checkbox"/>	211				GP		-3.0
-4.0									-4.0
-5.0		<input checked="" type="checkbox"/>	212				GW		-5.0
-6.0									-6.0
-7.0		<input checked="" type="checkbox"/>	213				GW		-7.0
-8.0									-8.0
-9.0									-9.0
-10.0									-10.0
-11.0									-11.0
-12.0									-12.0
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Public Works Canada
Whitehorse, Yukon Territory.

COMPLETION DEPTH 4.6 m	COMPLETE 91/08/21
LOGGED BY	DWG NO.
	Page 1 of 1

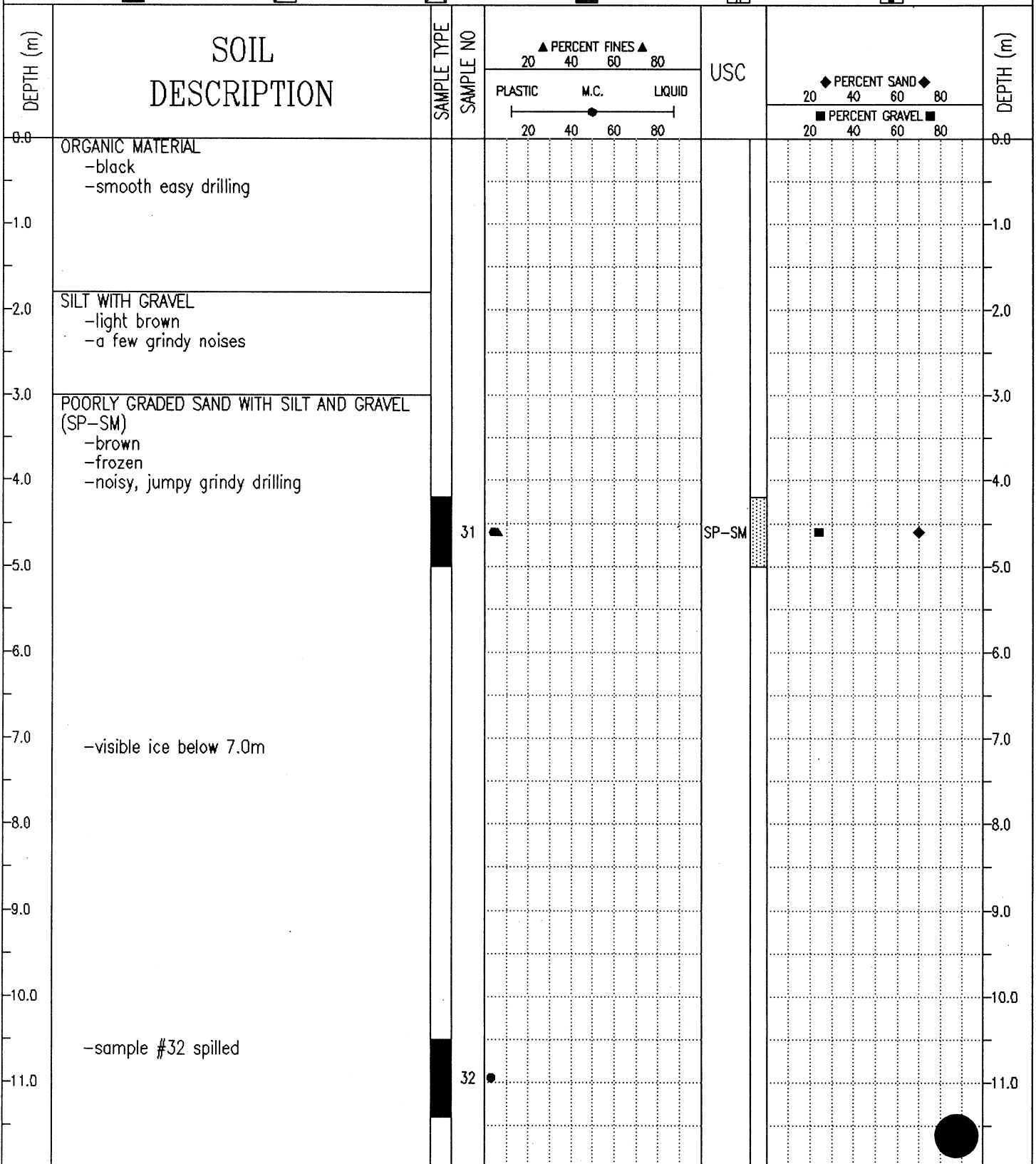
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 214-105
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1917+800 o/s 50m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 214-105
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1917+800 o/s 50m Rt.	ELEVATION 0.000 (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	USC			DEPTH (m)
				▲ PERCENT FINES ▲ 20 40 60 80	PLASTIC M.C. LIQUID 20 40 60 80	◆ PERCENT SAND ◆ 20 40 60 80	
12.8							12.8
13.0							13.0
14.0							14.0
15.0	END HOLE at 15.0m						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

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 215-109
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1917+850 o/s 100m Rt.	ELEVATION 0.000 (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		



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 215-109
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1917+850 o/s 100m Rt.	ELEVATION 0.000 (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		

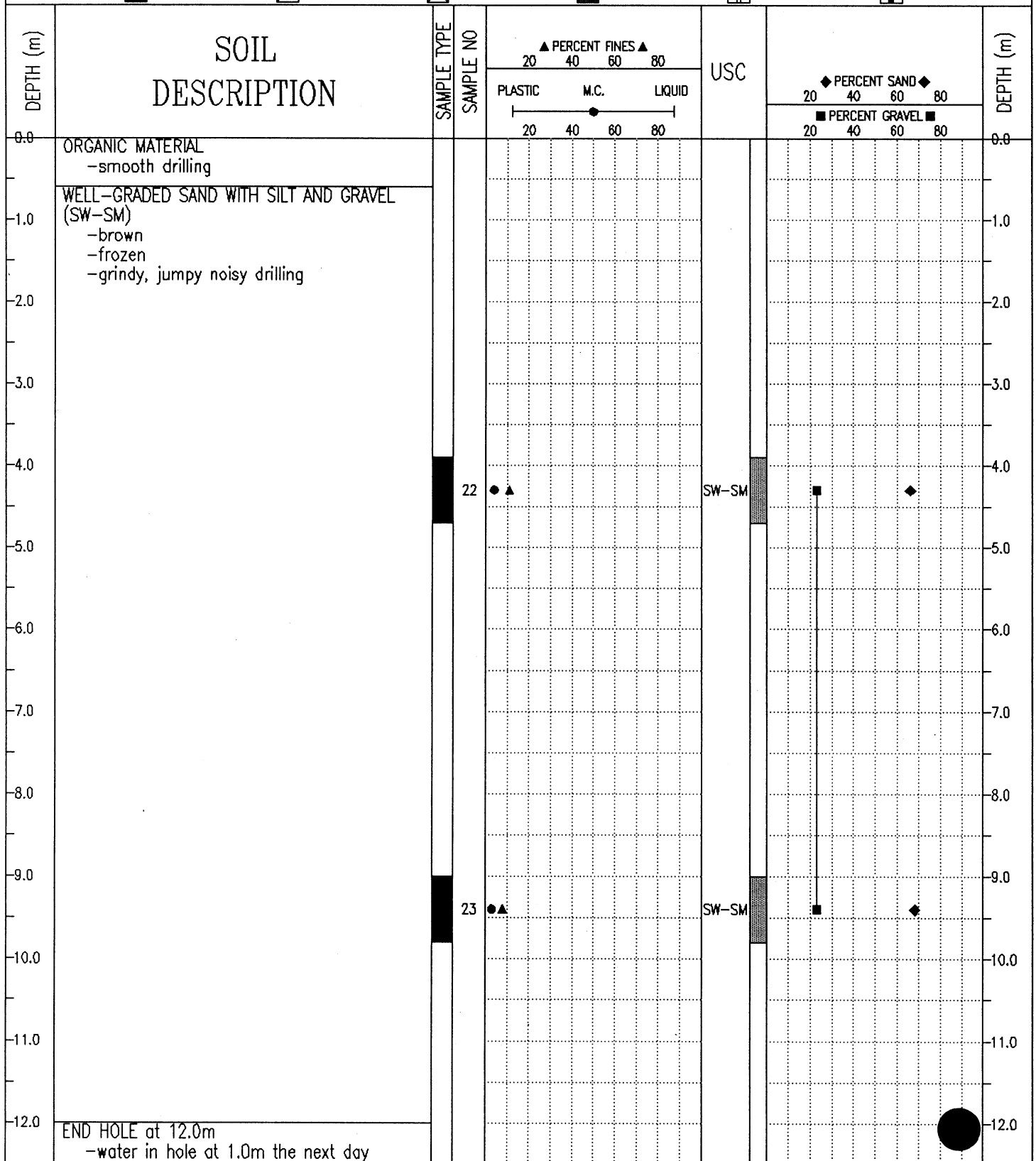
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■	DEPTH (m)
				20	40	60		80	20		
12.0				PLASTIC	M.C.	LIQUID					12.0
13.0											13.0
14.0											14.0
15.0											15.0
16.0											16.0
17.0											17.0
18.0											18.0
18.6	END HOLE at 18.6m										18.6
19.0											19.0
20.0											20.0
21.0											21.0
22.0											22.0
23.0											23.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-77
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1917+900 o/s 9m Rt.	ELEVATION 0.000 (m)

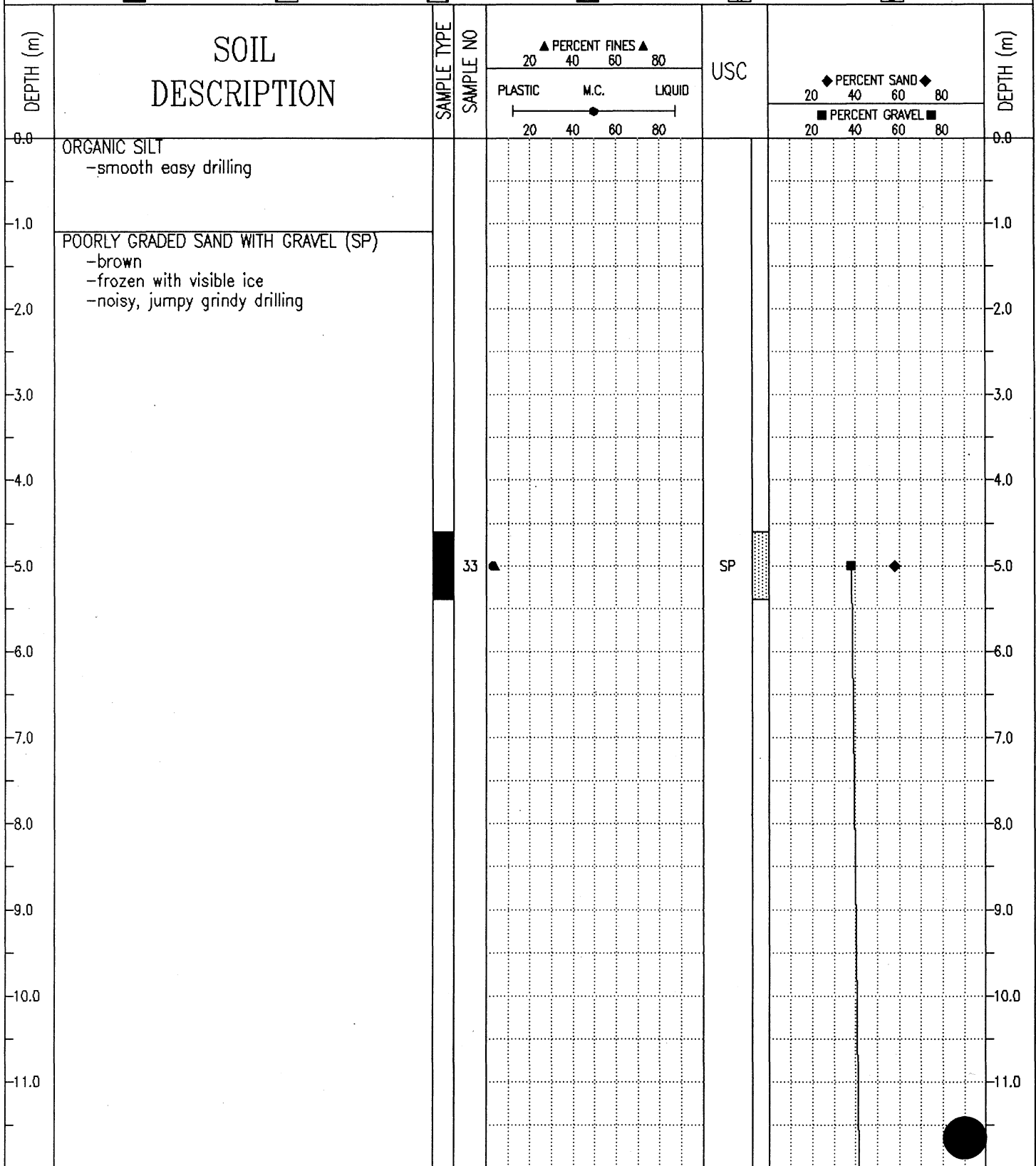
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	WELL-GRADED GRAVEL WITH SILT AND SAND (GW-GM) -brown -damp -maximum 50mm material -grindy drilling								0.0
-1.0	-ash layer 1.0m to 1.1m								-1.0
-2.0			214	▲			GW-GM		-2.0
-3.0	POORLY GRADED GRAVEL WITH SAND (GP) -brown -damp -jumpy grindy drilling		215	▲			GP		-3.0
-4.0			216	▲			GP		-4.0
-5.0	END HOLE at 4.6m -on shoulder of road								-5.0
-6.0									-6.0

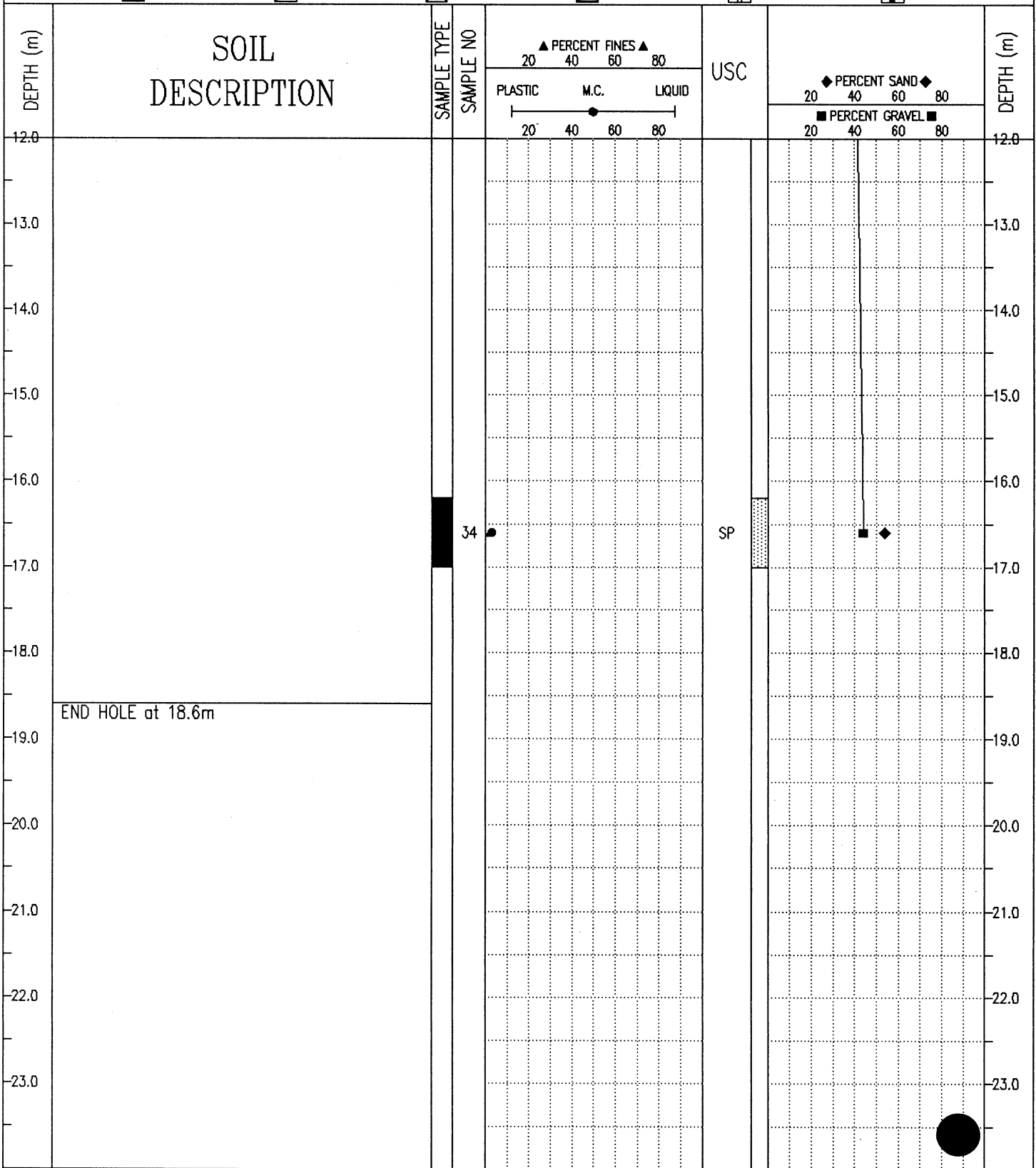
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SHAKWAK PROJECT		SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL		LOCATION: STA 1917+900 o/s 50m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER
			<input checked="" type="checkbox"/> BULK
			<input type="checkbox"/> TUBE
			<input type="checkbox"/> CORE



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 215-110
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1917+950 o/s 100m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 215-110
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1917+950 o/s 100m Rt.	ELEVATION 0.000 (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		

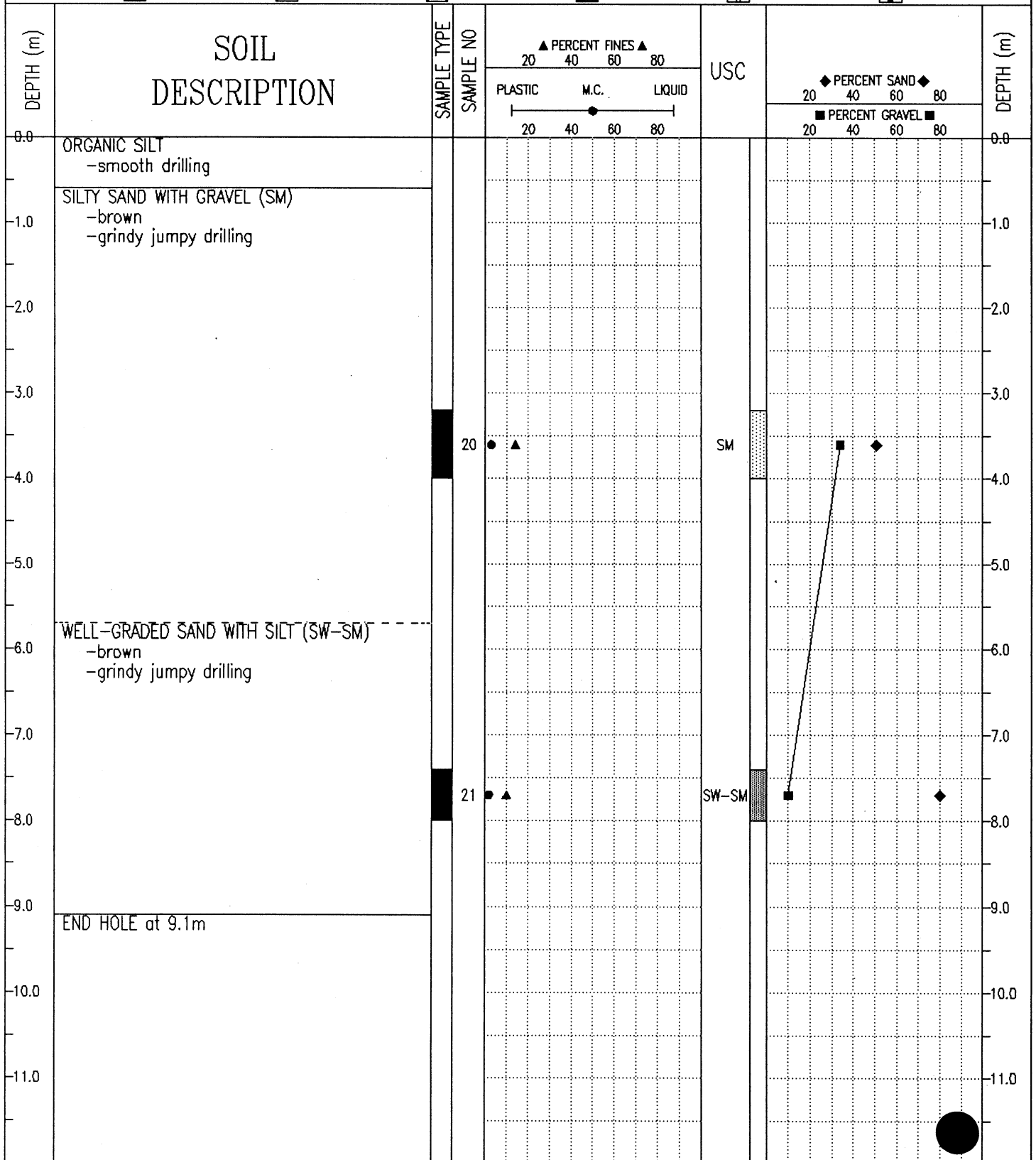


SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-78
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1918+000 o/s 3m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		

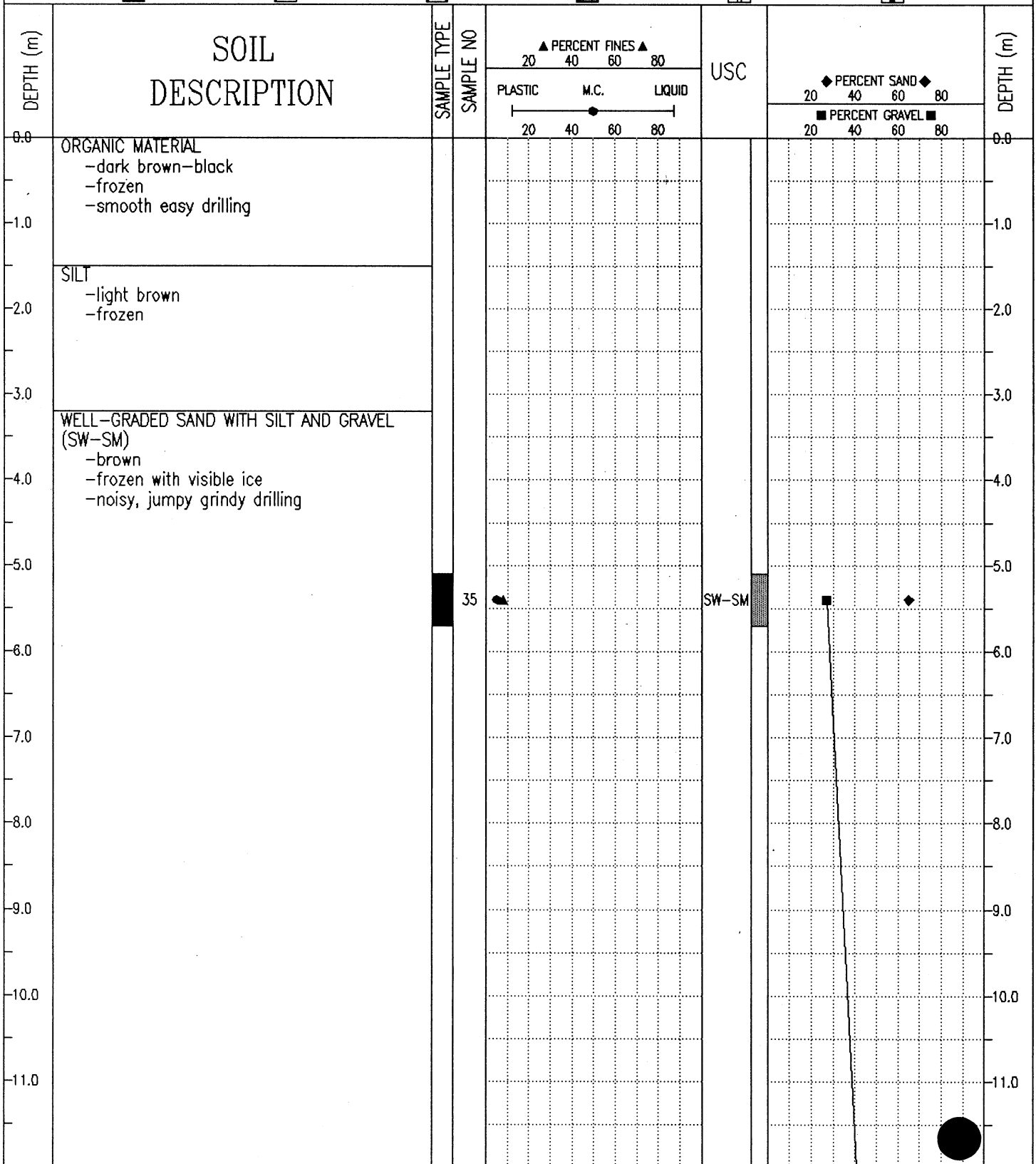
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) -brown -damp -maximum 75mm material -grindy drilling								0.0
1.0									1.0
2.0									2.0
2.1		X	217				GP-GM		2.1
3.0	WELL-GRADED GRAVEL WITH SAND (GW) -brown -damp -maximum 50mm material -grindy drilling								3.0
3.1		X	218				GW		3.1
4.0									4.0
4.5		X	219				GW		4.5
5.0	END HOLE at 4.6m -on shoulder of road								5.0
6.0									6.0

Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/21
	LOGGED BY	DWG NO.

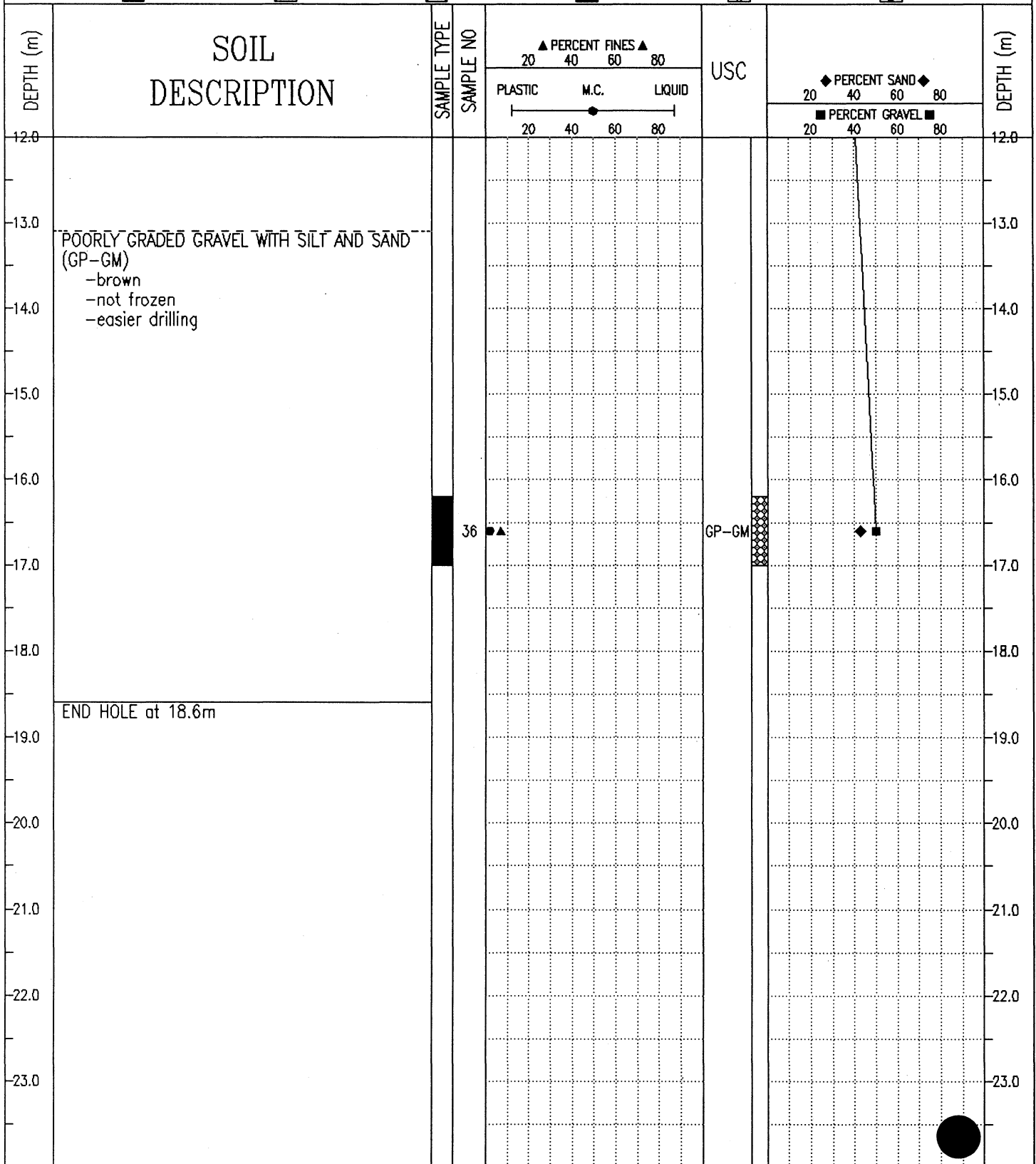
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 214-103
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+000 o/s 50m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 215-111
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+050 o/s 100m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 215-111
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+050 o/s 100m Rt.	ELEVATION 0.000 (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		

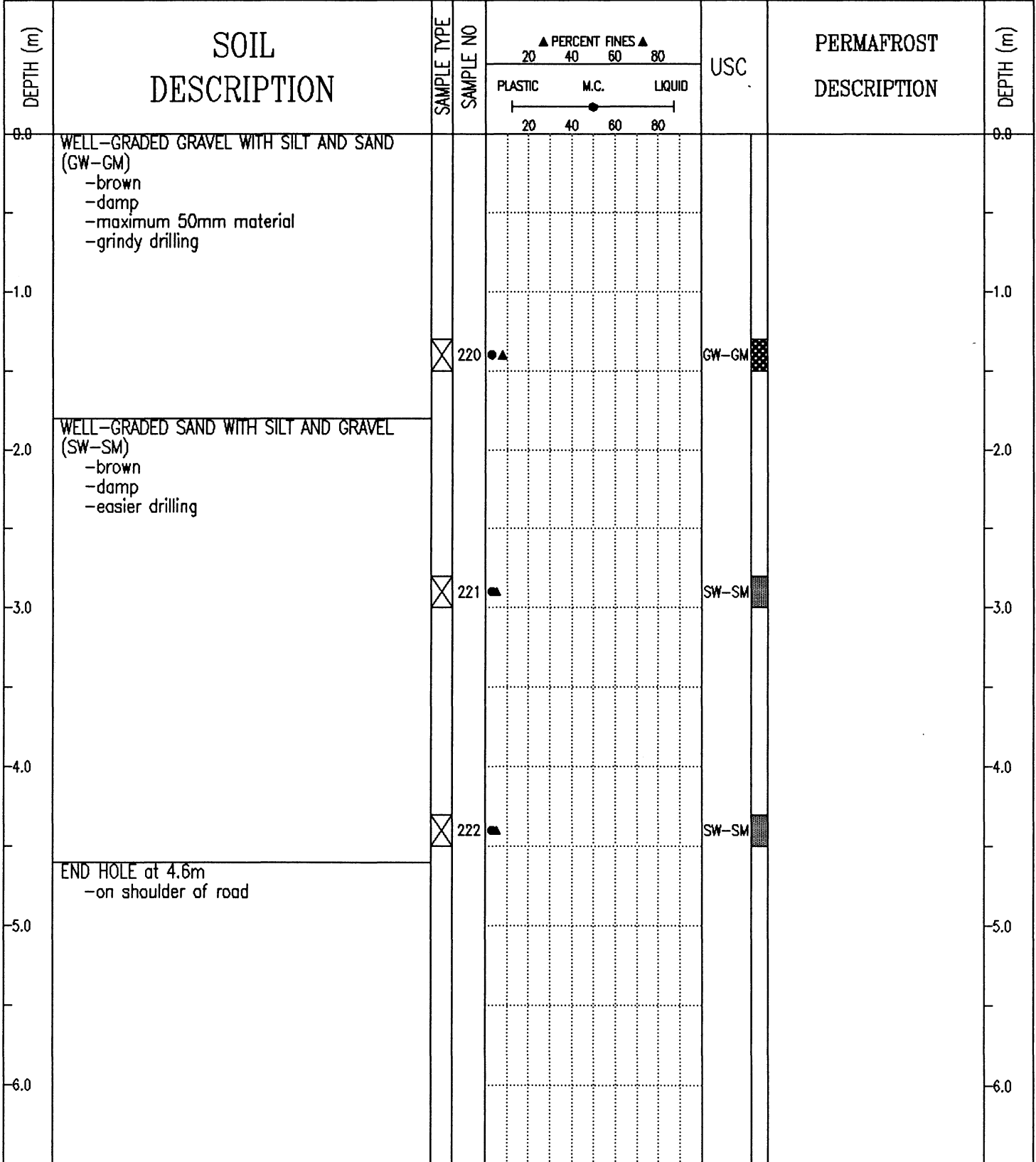


SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-16
SHAKWAK PROJECT		SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235		LOCATION: See Plan	ELEVATION 0.000 (m)
SAMPLE TYPE	<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER
		<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE
			<input type="checkbox"/> CORE

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	USC			DEPTH (m)
				▲ PERCENT FINES ▲ 20 40 60 80	PLASTIC M.C. LIQUID 20 40 60 80	◆ PERCENT SAND ◆ 20 40 60 80	
0.0	ORGANIC MATERIAL -frozen						0.0
1.0	SILT -frozen -some rock						1.0
2.0	GRAVEL -frozen -maximum 300mm material -very hard digging						2.0
2.0	END HOLE at 1.7m -refusal						2.0
3.0							3.0
4.0							4.0
5.0							5.0
6.0							6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-79
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1918+100 o/s 2m Rt.	ELEVATION 0.000 (m)

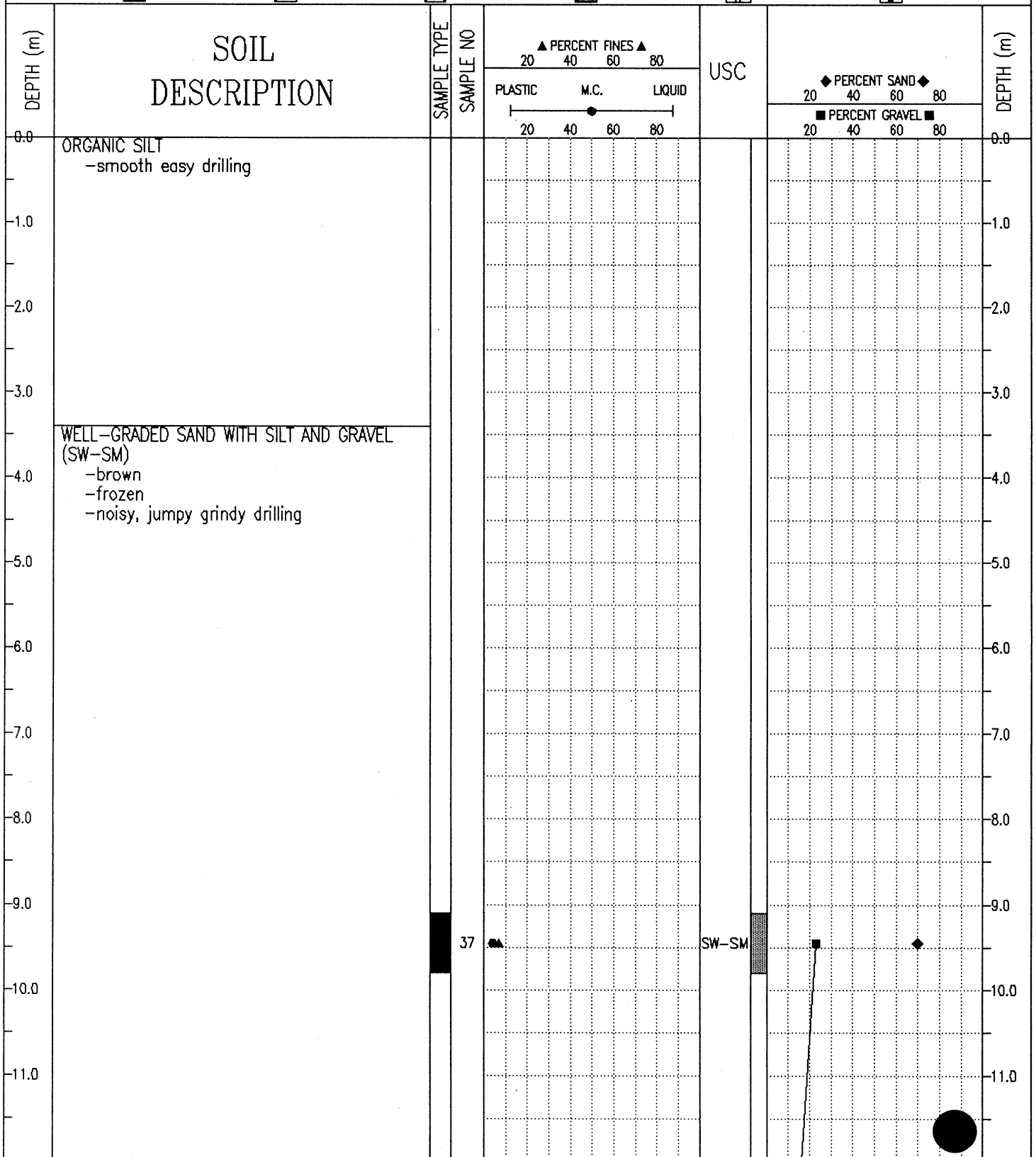
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



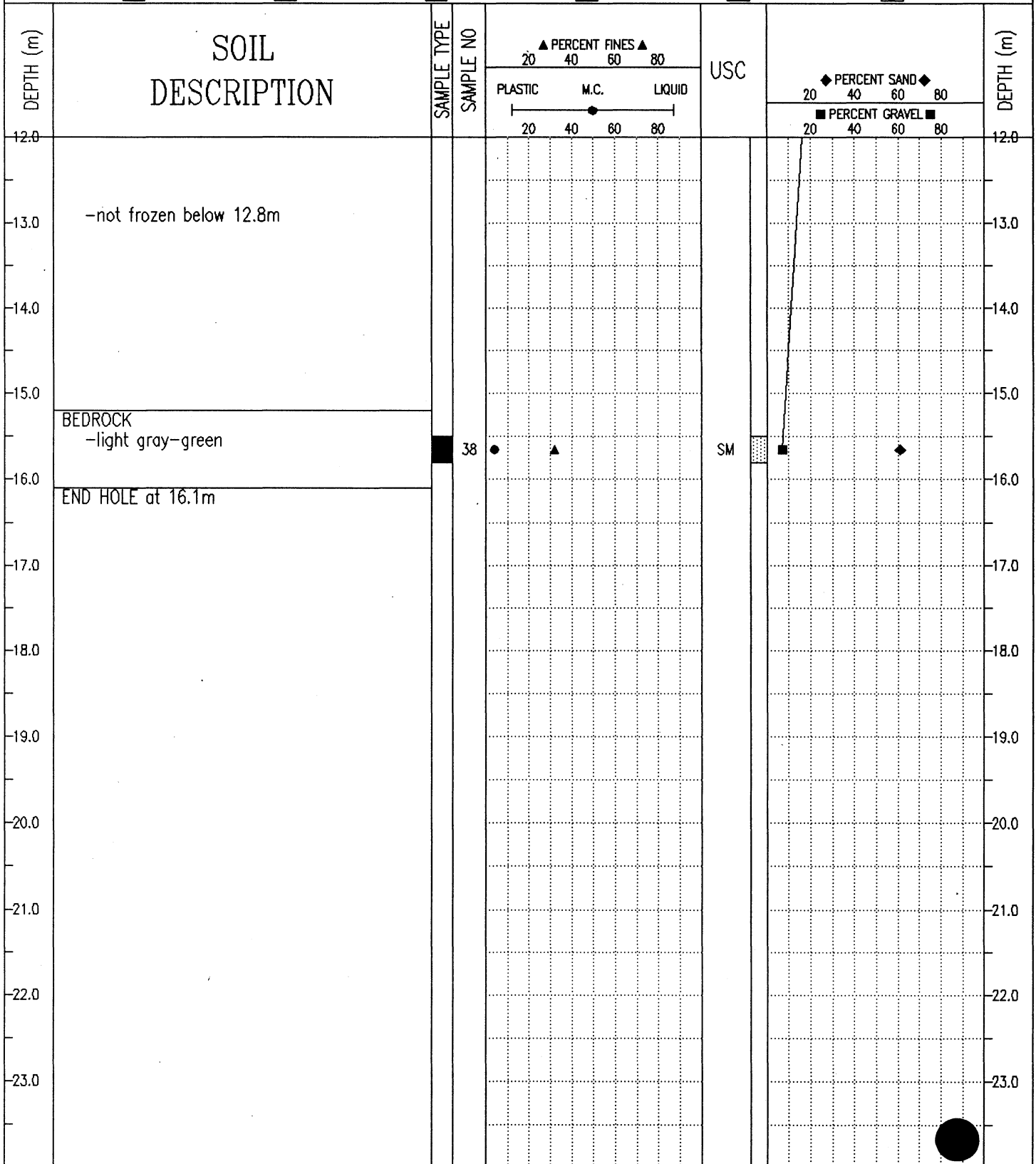
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-15
SHAKWAK PROJECT	SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235	LOCATION: STA 1918+100 o/s 15m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK	<input type="checkbox"/> TUBE <input type="checkbox"/> CORE

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■		DEPTH (m)
				20	40	60		80	20	40	60	
0.0	ORGANIC MATERIAL -frozen with visible ice											0.0
	SILT -frozen with visible ice											
-1.0												-1.0
-2.0												-2.0
-3.0												-3.0
-4.0	END HOLE at 3.3m -refusal -cobbles visible on bottom											-4.0
-5.0												-5.0
-6.0												-6.0

SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 215-112
SHAKWAK PROJECT		SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL		LOCATION: STA 1918+175 o/s 100m Rt.	ELEVATION 0.000 (m)
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



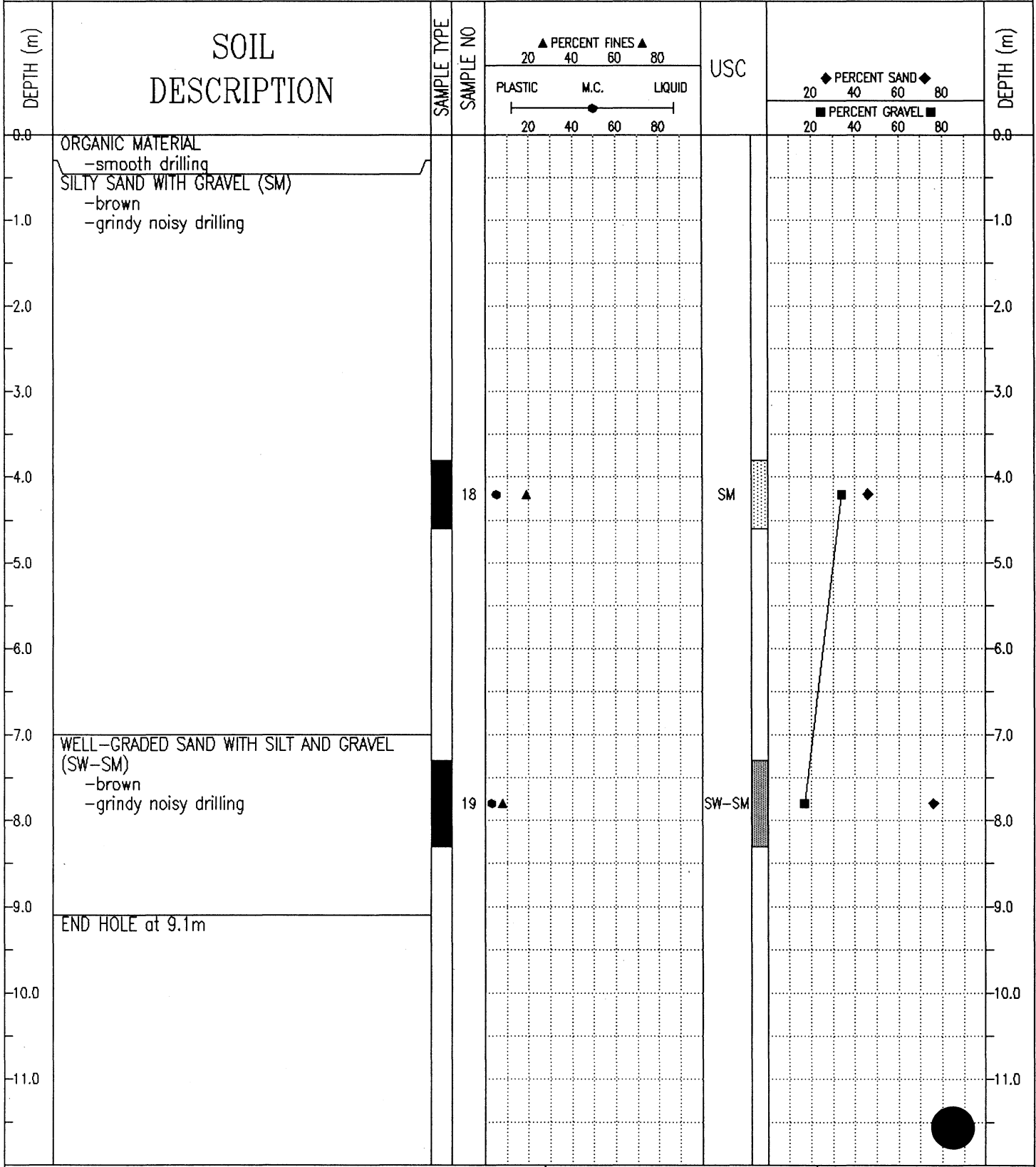
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 215-112
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+175 o/s 100m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



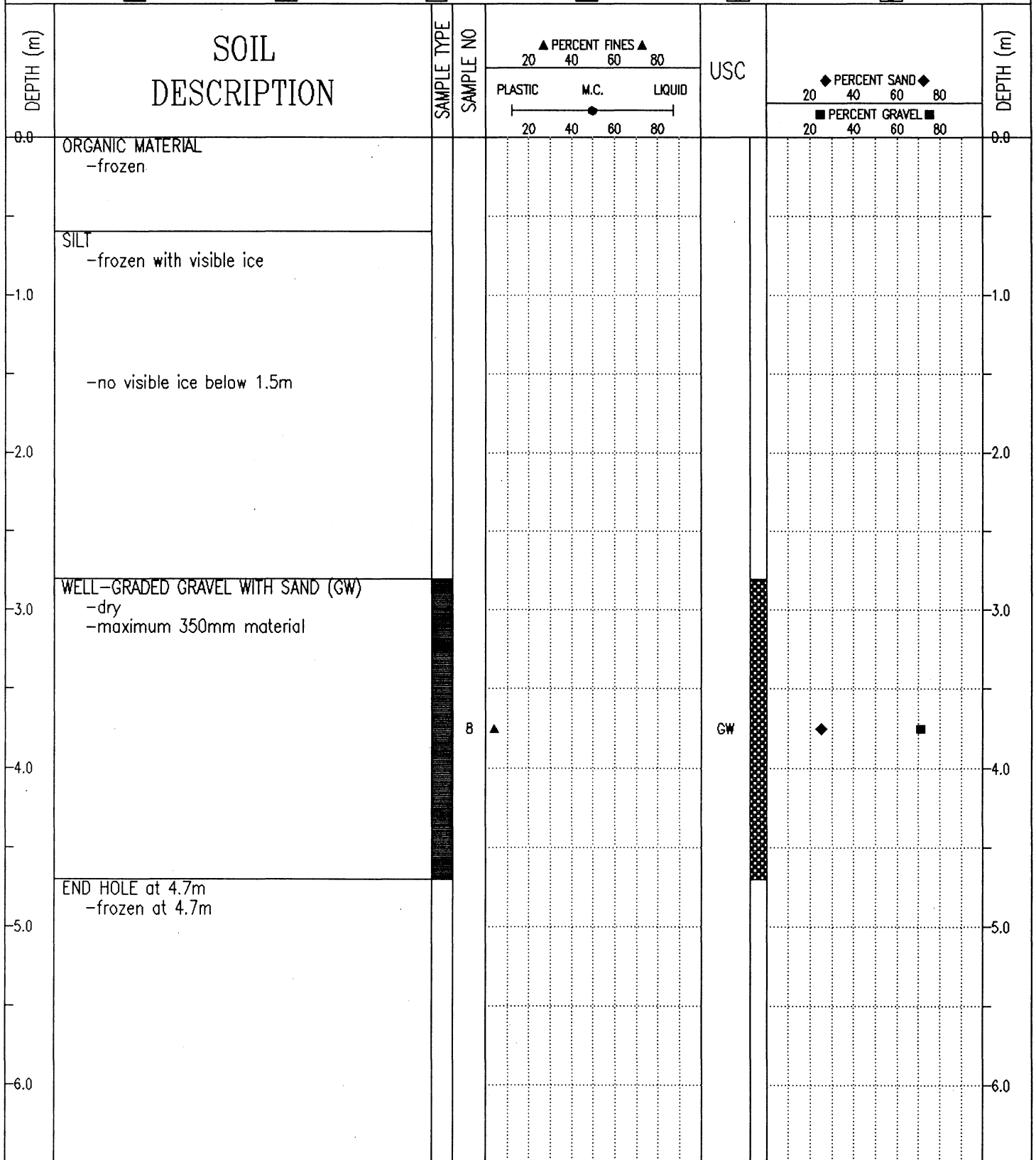
SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-14
SHAKWAK PROJECT		SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER		LOCATION: STA 1918+200 o/s 12m Lt	ELEVATION 0.000 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER
			<input checked="" type="checkbox"/> BULK
			<input type="checkbox"/> TUBE
			<input type="checkbox"/> CORE

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL								0.0
1.0	POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) -light brown -damp	<input checked="" type="checkbox"/>	29				GP-GM		1.0
2.0	WELL-GRADED GRAVEL WITH SAND (GW) -light brown -damp	<input checked="" type="checkbox"/>	30				GW		2.0
3.0	WELL-GRADED GRAVEL WITH SILT AND SAND (GW-GM) -light brown -damp	<input checked="" type="checkbox"/>	31				GW-GM		3.0
4.0	WELL-GRADED GRAVEL WITH SILT AND SAND (GW-GM) -light brown -damp	<input checked="" type="checkbox"/>							4.0
5.0	END HOLE at 4.5m -spruce and willow cover								5.0
6.0									6.0

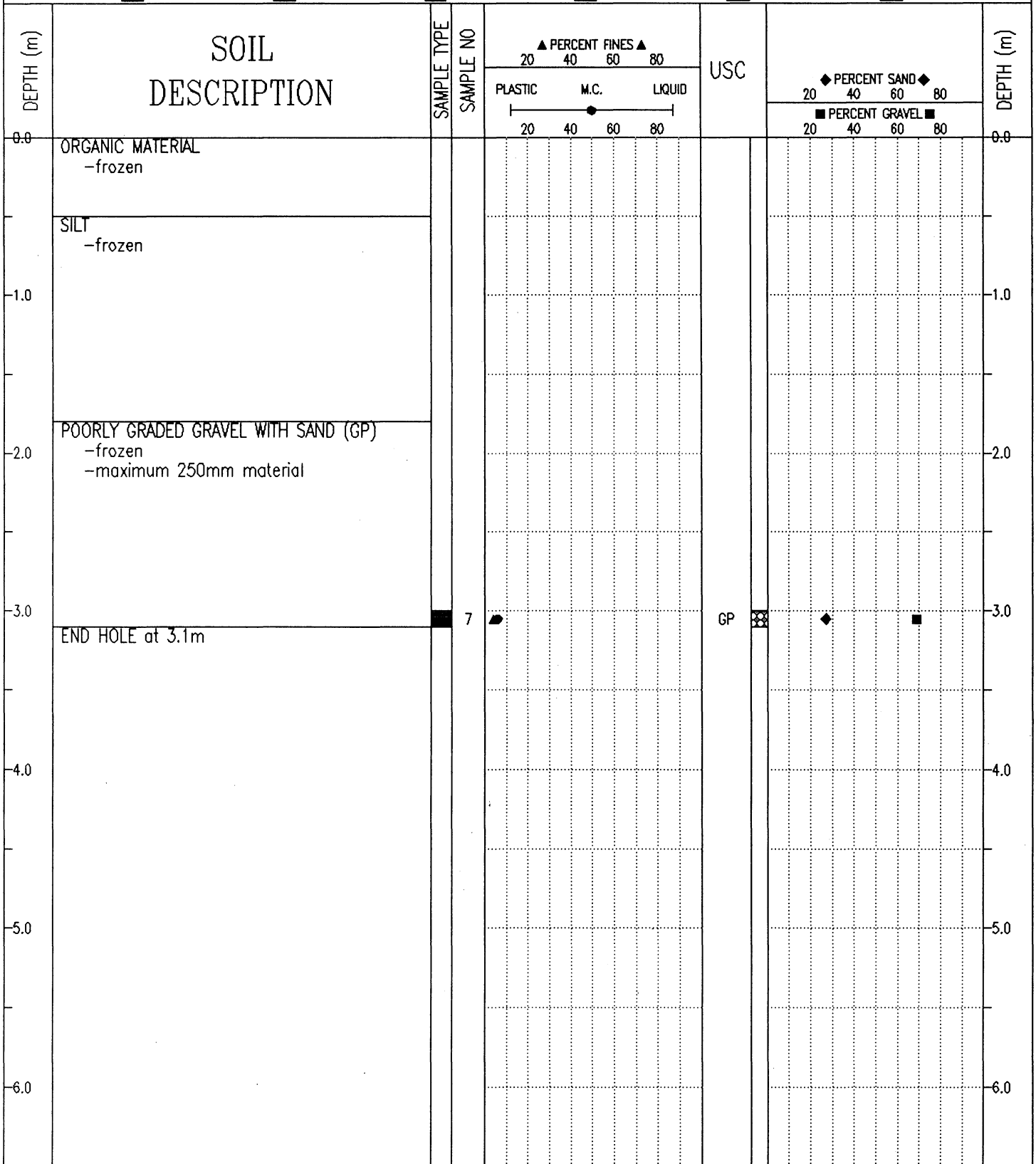
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 214-102
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+200 o/s 50m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



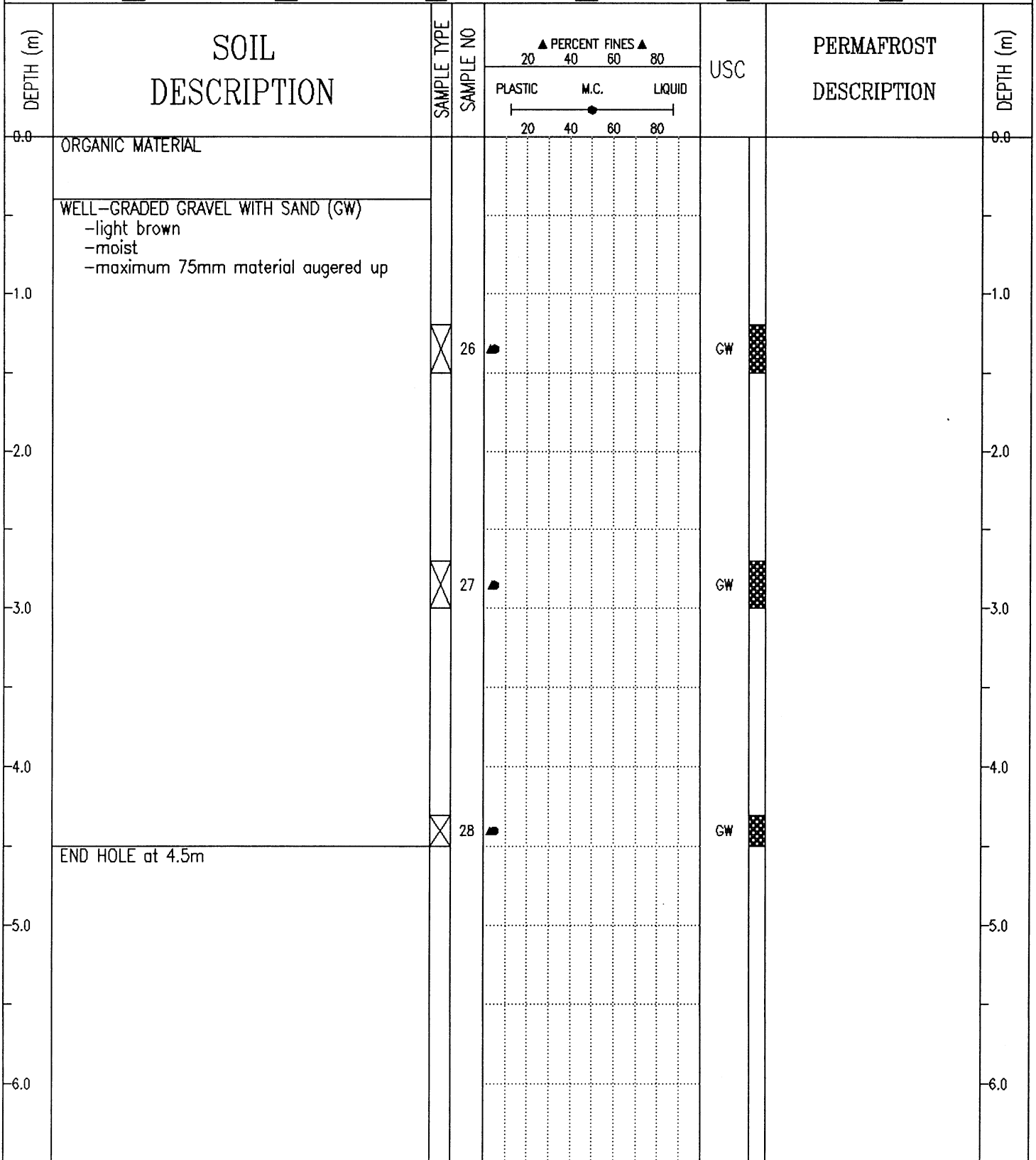
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-18
SHAKWAK PROJECT	SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235	LOCATION: STA 1918+230 o/s 100m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



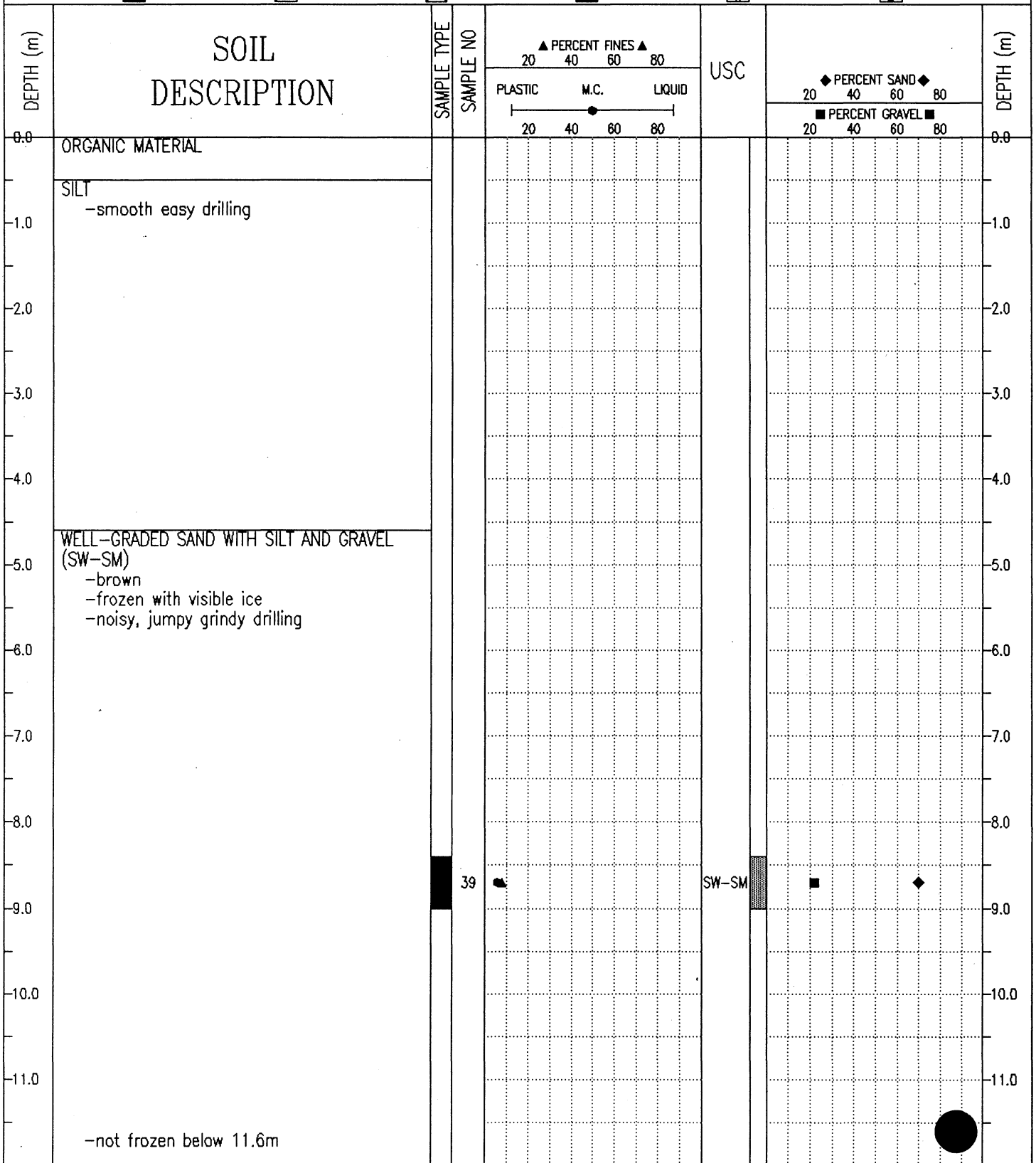
SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-17
SHAKWAK PROJECT		SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235		LOCATION: STA 1918+285 o/s 15m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER
		<input checked="" type="checkbox"/> BULK	<input type="checkbox"/> TUBE
			<input type="checkbox"/> CORE



SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-13
SHAKWAK PROJECT		SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER		LOCATION: STA 1918+300	ELEVATION 0.000 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER
			<input checked="" type="checkbox"/> BULK
			<input type="checkbox"/> TUBE
			<input type="checkbox"/> CORE



SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 215-113
SHAKWAK PROJECT		SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL		LOCATION: STA 1918+300 o/s 100m Rt.	ELEVATION 0.000 (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



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COMPLETION DEPTH 18.6 m

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Page 1 of 2

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 215-113
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+300 o/s 100m Rt.	ELEVATION 0.000 (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 ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■	DEPTH (m)
				20	40	60		80	20		
12.0											12.0
-13.0											-13.0
-14.0											-14.0
-15.0											-15.0
-16.0											-16.0
-17.0											-17.0
-18.0											-18.0
-19.0	END HOLE at 18.6m										-19.0
-20.0											-20.0
-21.0											-21.0
-22.0											-22.0
-23.0											-23.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-12
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1918+400	ELEVATION 0.000 (m)

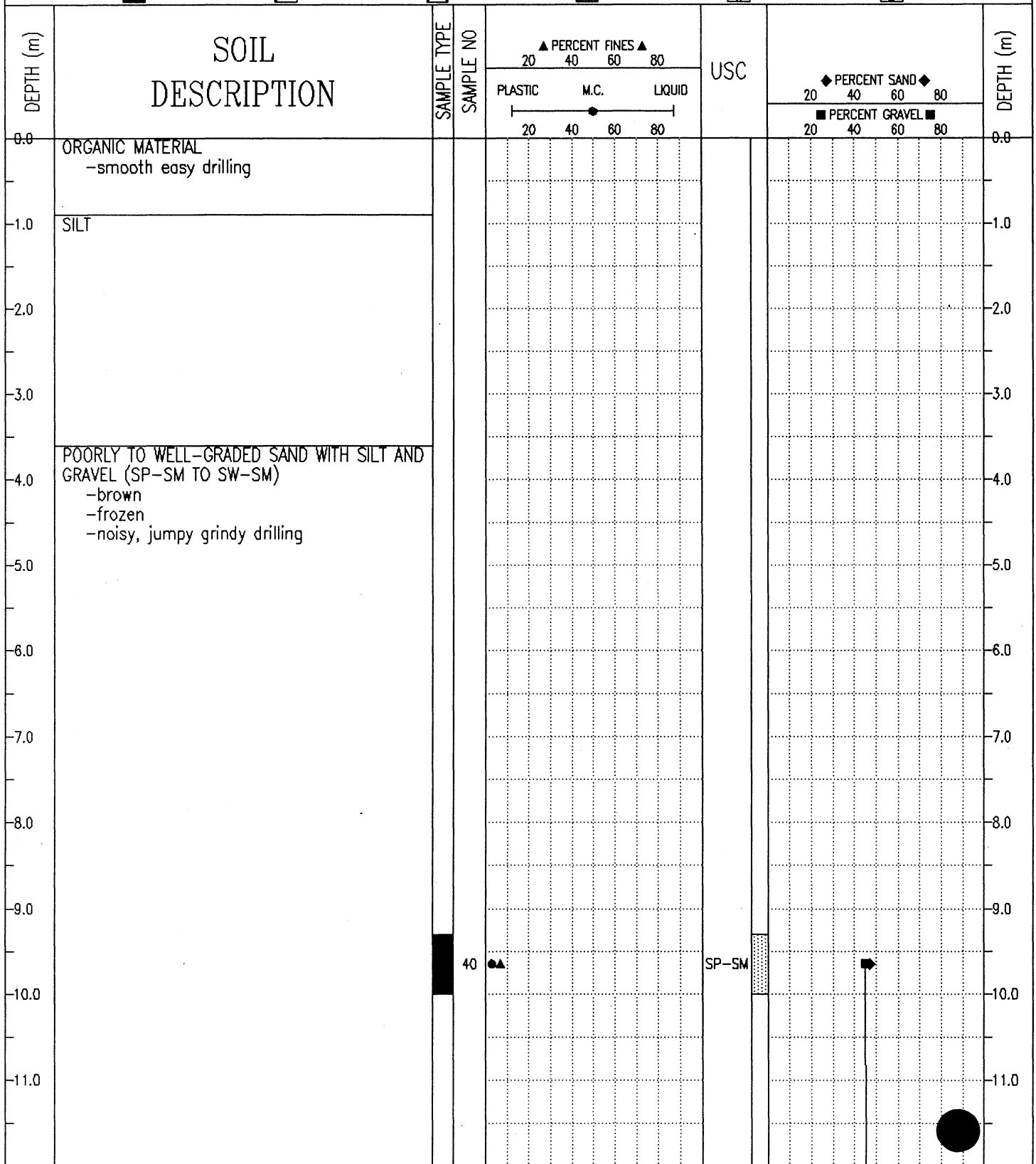
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL							0.0	
	ICE WITH SOIL								
1.0	POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) -brown -moist -maximum 40mm material augered up	<input checked="" type="checkbox"/>	25				GP-GM	1.0	
	END HOLE at 1.5m -refusal -small spruce cover								
2.0								2.0	
3.0								3.0	
4.0								4.0	
5.0								5.0	
6.0								6.0	

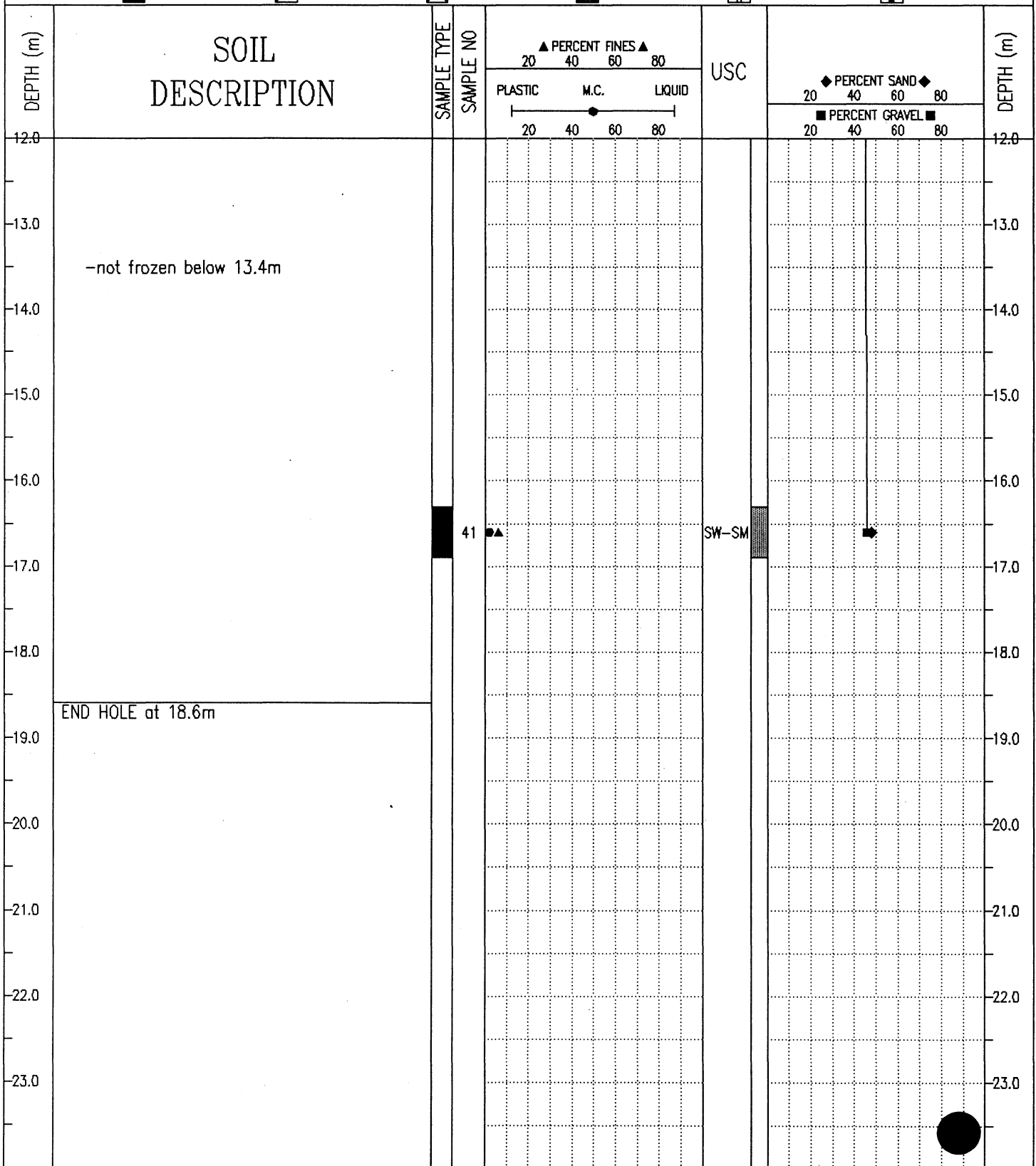
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-14
SHAKWAK PROJECT	SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235	LOCATION: STA 1918+400 o/s 10m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> 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 ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■		DEPTH (m)
				PLASTIC	M.C.	LIQUID		20	40	60	80	
0.0	ORGANIC MATERIAL											0.0
1.0	SILT											1.0
2.0	WELL-GRADED GRAVEL WITH SAND (GW) -frozen -maximum 300mm material											2.0
3.0												3.0
4.0												4.0
4.5	END HOLE at 4.5m -on pole line		6				GW					4.5
5.0												5.0
6.0												6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 216-114
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+425 o/s 100m Rt.	ELEVATION 0.000 (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		



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 216-114
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+425 o/s 100m Rt.	ELEVATION 0.000 (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		

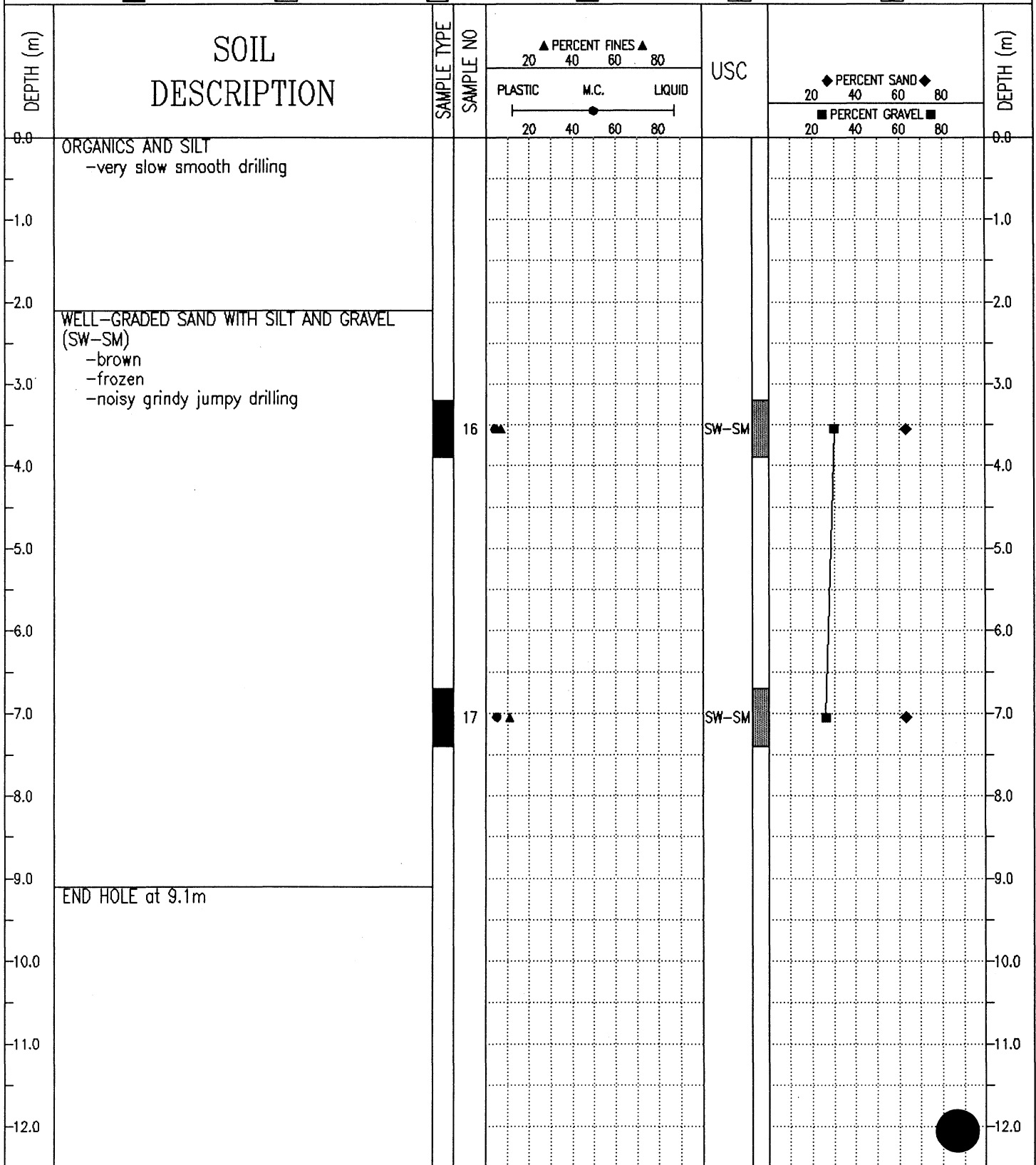


SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-11
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1918+500	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL -water at 0.5m								0.0
1.0	SILTY GRAVEL WITH SAND (GM) -brown -moist								1.0
1.6	END HOLE at 1.6m -refusal -swamp spruce cover	<input checked="" type="checkbox"/>	24	▲	●		GM		1.6
2.0									2.0
3.0									3.0
4.0									4.0
5.0									5.0
6.0									6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 214-101
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+500 o/s 50m Rt.	ELEVATION 0.000 (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		



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-10
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1918+600	ELEVATION 0.000 (m)

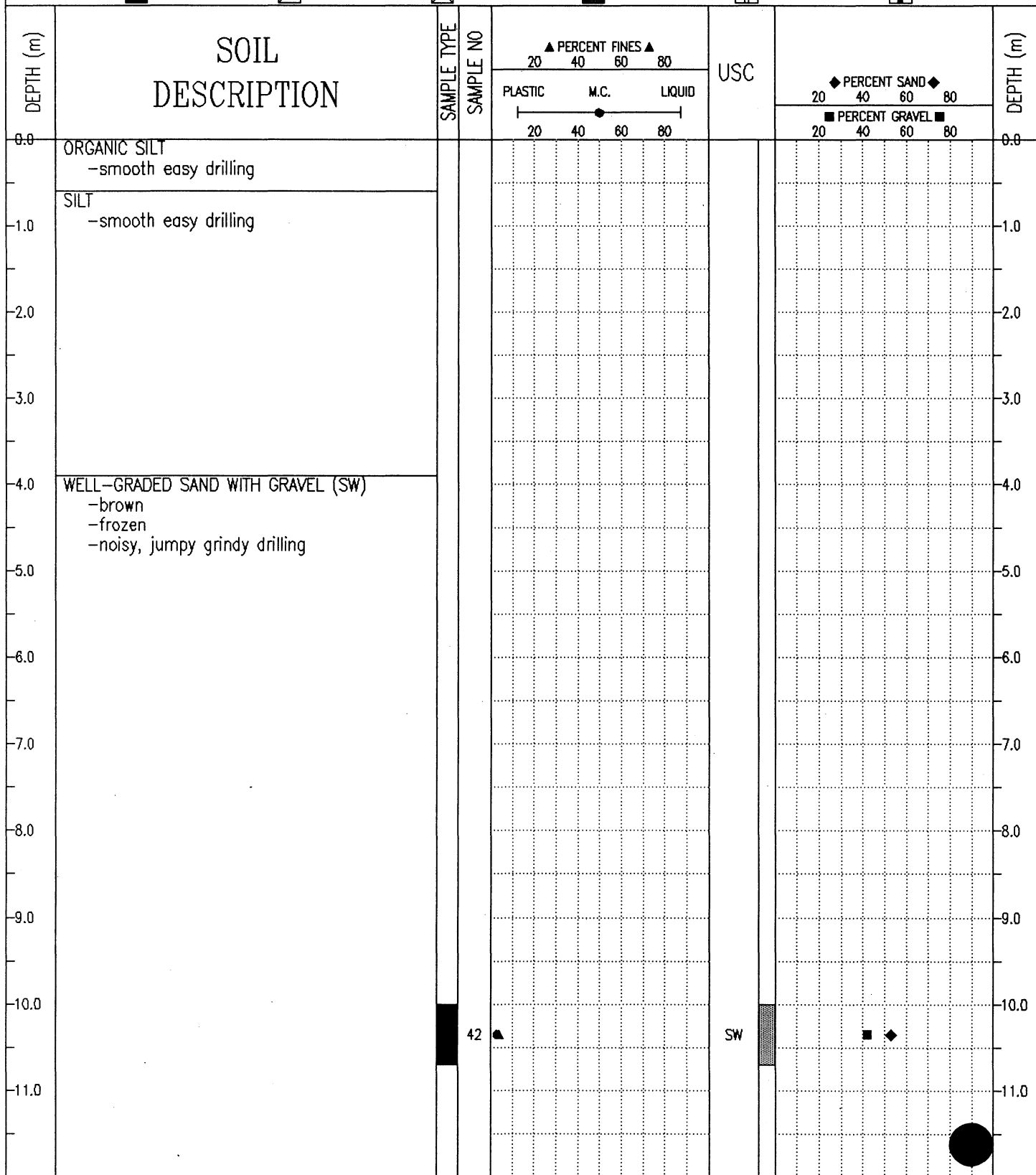
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL							0.0	
	SILTY SAND (SM) -gray -moist -easy drilling								
-1.0								-1.0	
	-harder drilling below 1.6m	<input checked="" type="checkbox"/>	23	●	▲		SM		
-2.0	END HOLE at 2.0m -refusal -spruce cover							-2.0	
-3.0								-3.0	
-4.0								-4.0	
-5.0								-5.0	
-6.0								-6.0	

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-13
SHAKWAK PROJECT	SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235	LOCATION: STA 1918+600 o/s 10m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■		DEPTH (m)
				20	40	60		80	20	40	60	
0.0	ORGANIC MATERIAL -frozen											0.0
	SILT -frozen with visible ice											
-1.0												-1.0
	WELL-GRADED GRAVEL WITH SAND (GW) -frozen with visible ice -maximum 500mm material											
-2.0												-2.0
-3.0												-3.0
-4.0	END HOLE at 4.1m		5				GW					-4.0
-5.0												-5.0
-6.0												-6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 216-115
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+600 o/s 100m Rt.	ELEVATION 0.000 (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		



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COMPLETION DEPTH 18.3 m

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Page 1 of 2

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 216-115
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+600 o/s 100m Rt.	ELEVATION 0.000 (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 ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■	DEPTH (m)
				20	40	60		80	20		
12.0				PLASTIC	M.C.	LIQUID					12.0
13.0											13.0
14.0											14.0
15.0											15.0
16.0											16.0
17.0											17.0
18.0											18.0
18.3	END HOLE at 18.3m										18.3
19.0											19.0
20.0											20.0
21.0											21.0
22.0											22.0
23.0											23.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 216-118
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+625 o/s 75m Rt.	ELEVATION 0.000 (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 ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■	DEPTH (m)
				PLASTIC	M.C.	LIQUID		20	40		
0.0	ORGANIC SILT -smooth easy drilling										0.0
1.0	SANDY GRAVEL WITH SILT -brown -frozen with visible ice -noisy, jumpy grindy drilling										1.0
2.0											2.0
3.0											3.0
4.0											4.0
5.0	END HOLE at 4.6m -drill rods plugged up										5.0
6.0											6.0

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COMPLETION DEPTH 4.6 m

COMPLETE 93/04/14

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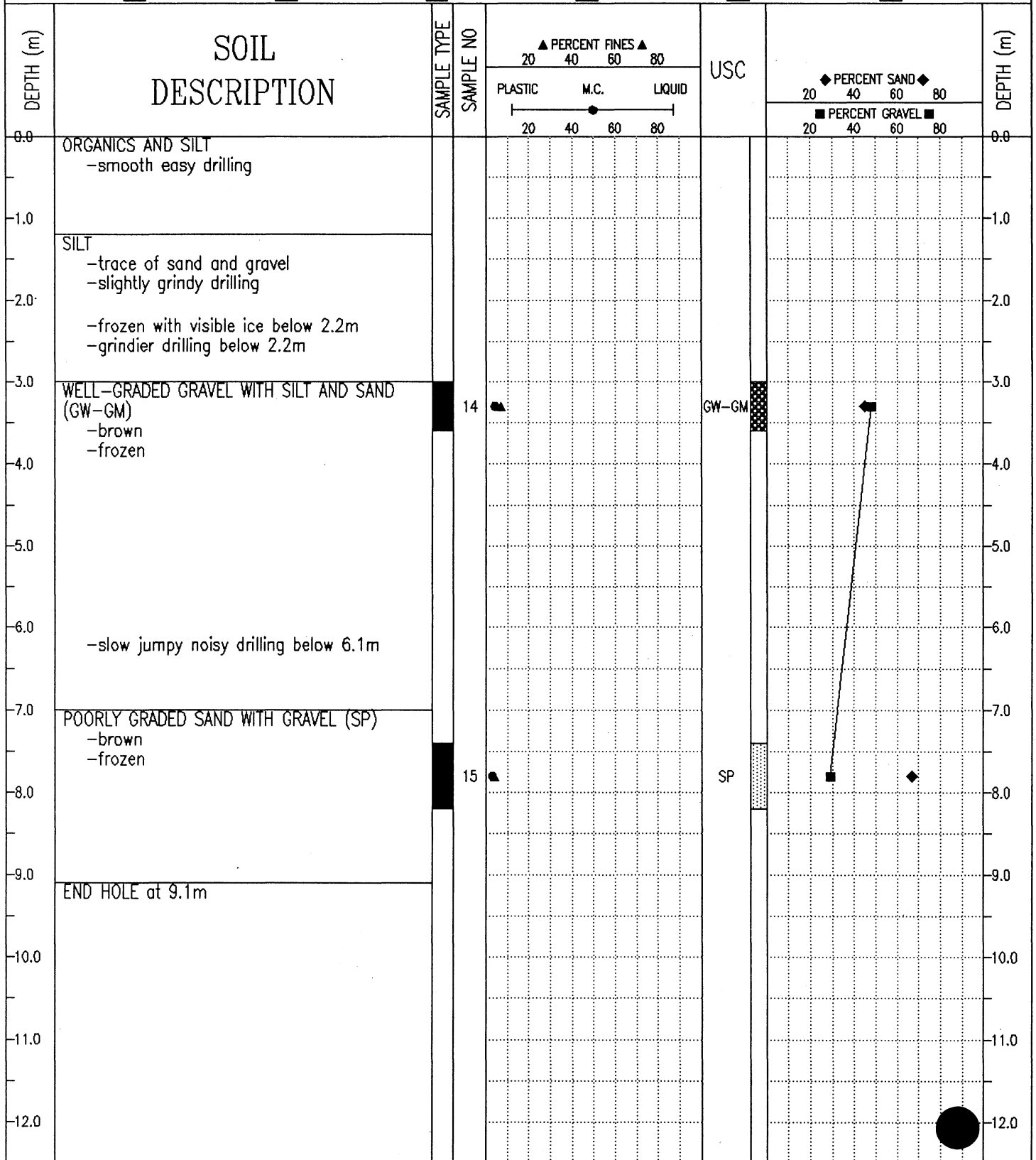
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Page 1 of 1

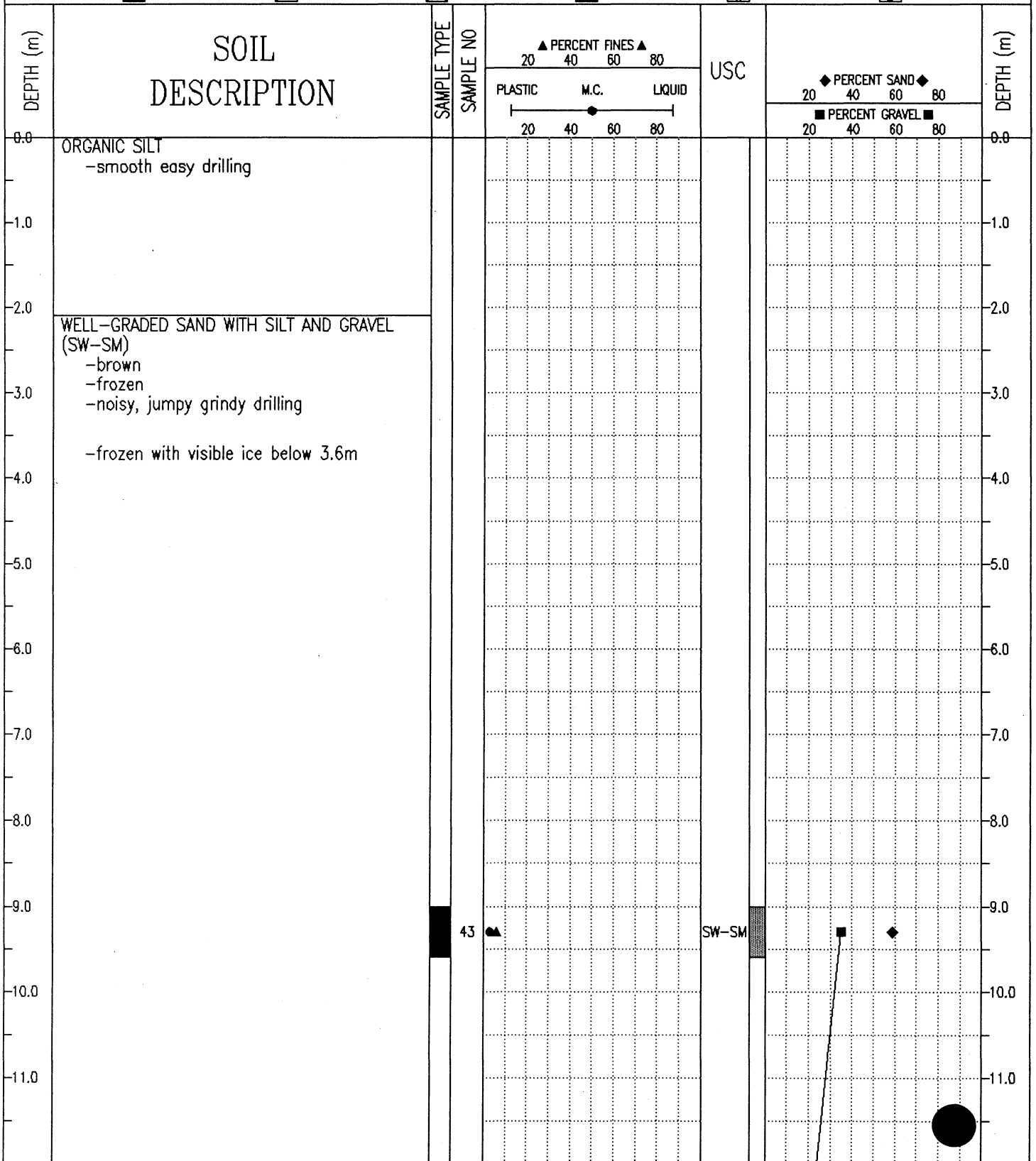
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-09
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1918+700	ELEVATION 0.000 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <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 ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL								0.0
	SILTY GRAVEL WITH SAND (GM) -brown -moist -maximum 40mm material augered up -hard drilling								
-1.0			22	●▲			GM		-1.0
	END HOLE at 1.3m -refusal -spruce cover								
-2.0									-2.0
-3.0									-3.0
-4.0									-4.0
-5.0									-5.0
-6.0									-6.0

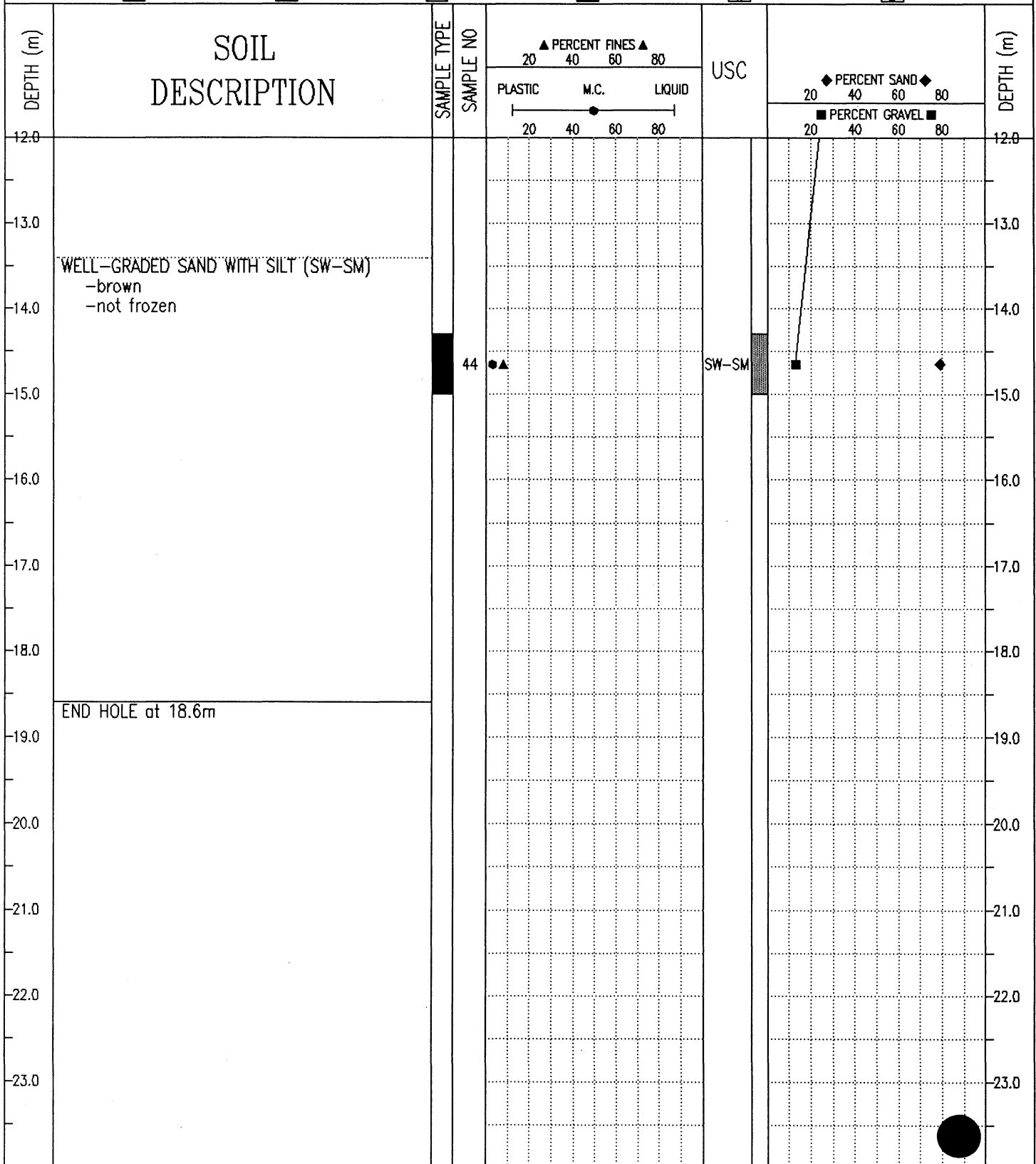
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 214-100
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+700	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 216-116
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+700 o/s 75m Rt.	ELEVATION 0.000 (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		



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 216-116
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+700 o/s 75m Rt.	ELEVATION 0.000 (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		



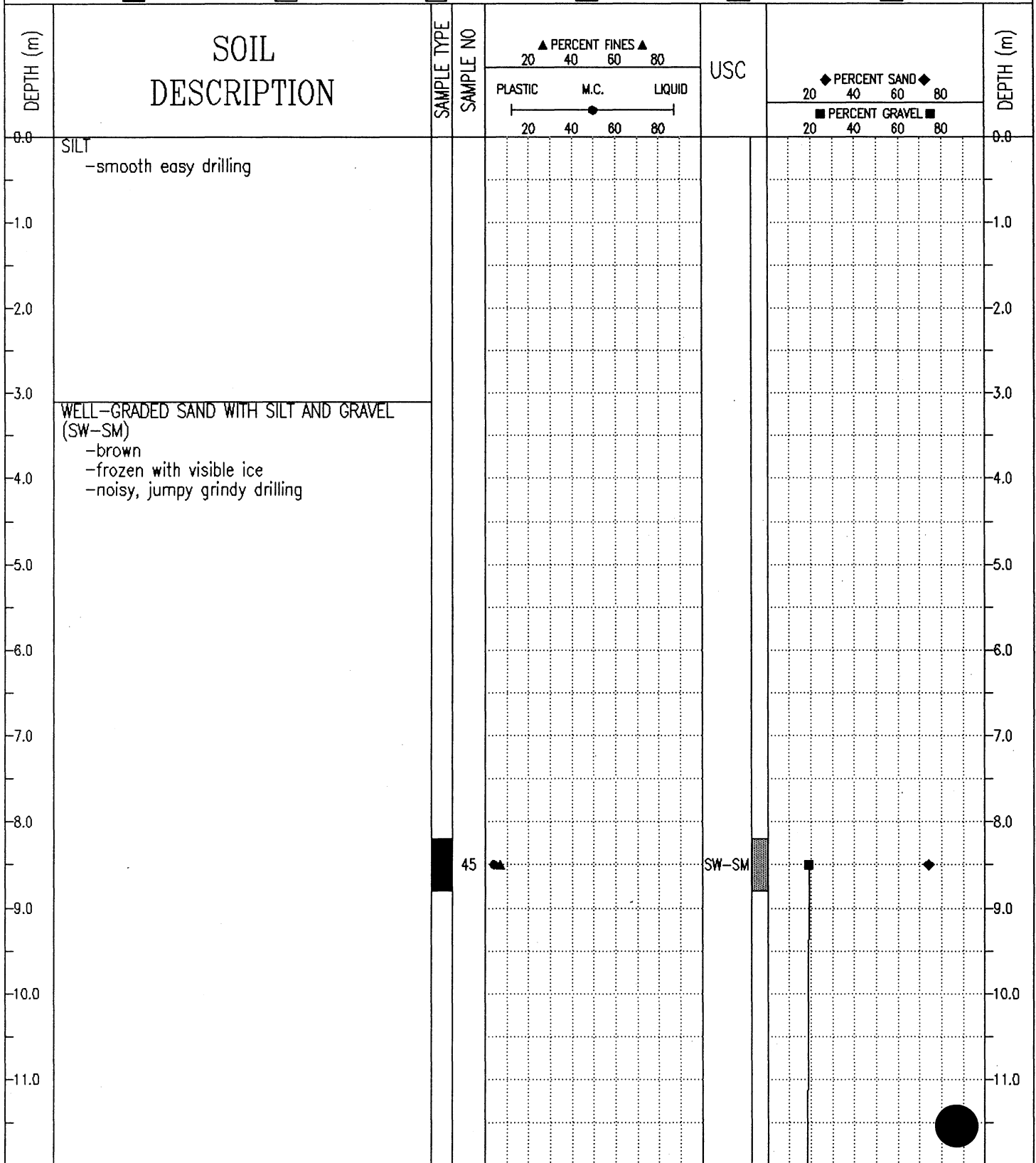
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-08
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1918+800	ELEVATION 0.000 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <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 ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL -frozen (Nf)								0.0
1.0	WELL-GRADED GRAVEL WITH SILT AND SAND (GW-GM) -brown -dry -maximum 100mm material augered up -tight drilling -refusal at 1.5m	<input checked="" type="checkbox"/>	20	● ▲			GW-GM		1.0
2.0	END HOLE at 1.7m -refusal -spruce and willow cover								2.0
3.0									3.0
4.0									4.0
5.0									5.0
6.0									6.0

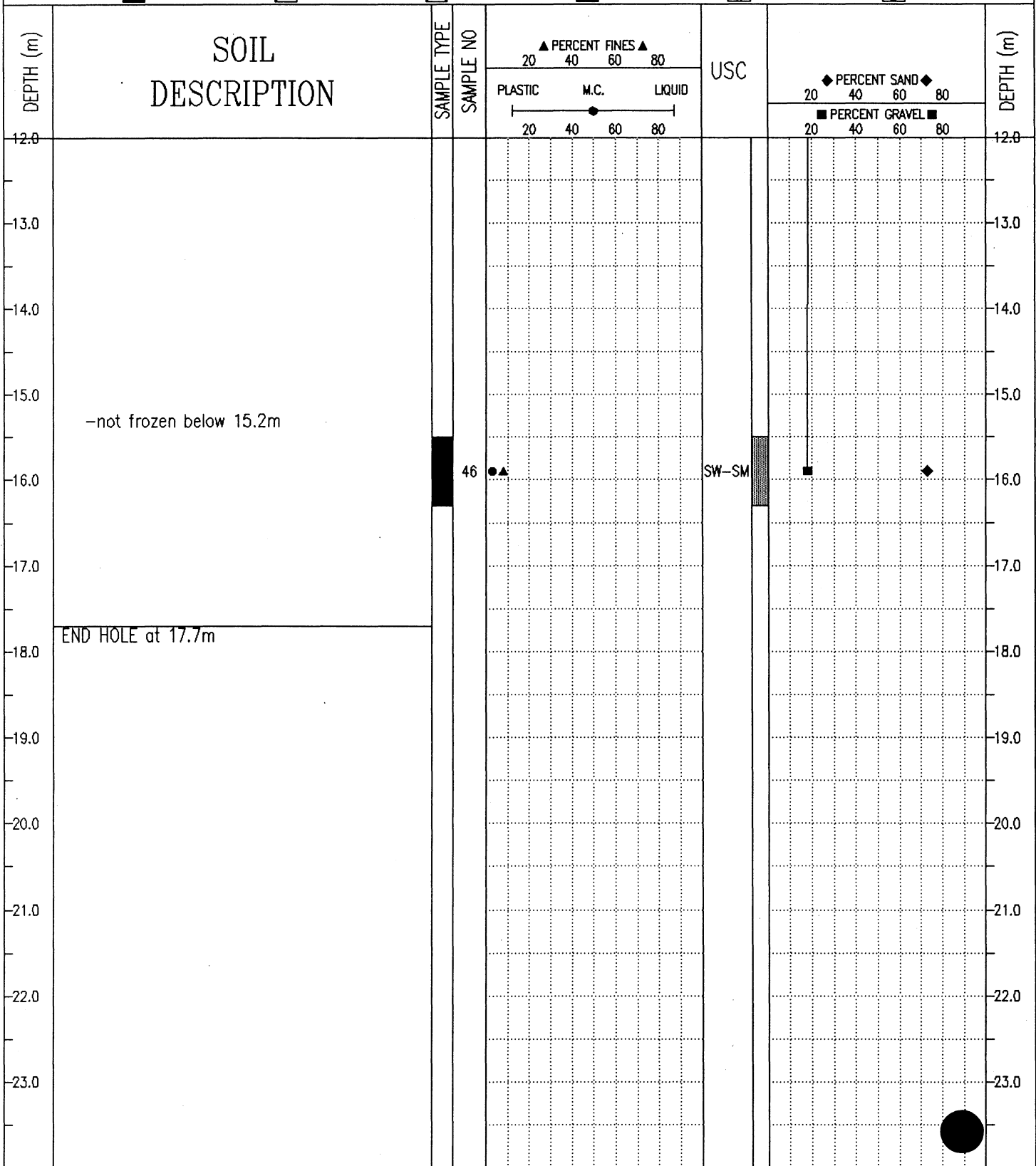
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-12
SHAKWAK PROJECT	SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235	LOCATION: STA 1918+800 o/s 10m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■	DEPTH (m)
				20	40	60		80	20		
0.0	ORGANIC MATERIAL -frozen										0.0
	SILT -frozen with visible ice										
-1.0											-1.0
-2.0											-2.0
	WELL-GRADED GRAVEL WITH SAND (GW) -frozen with ice particles to 100mm -maximum 400mm material -very hard digging										
-3.0											-3.0
	END HOLE at 3.1m		4	▲			GW	◆	■		
-4.0											-4.0
-5.0											-5.0
-6.0											-6.0

SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 216-117
SHAKWAK PROJECT		SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL		LOCATION: STA 1918+800 o/s 75m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER
		<input checked="" type="checkbox"/> BULK	<input type="checkbox"/> TUBE
			<input type="checkbox"/> CORE

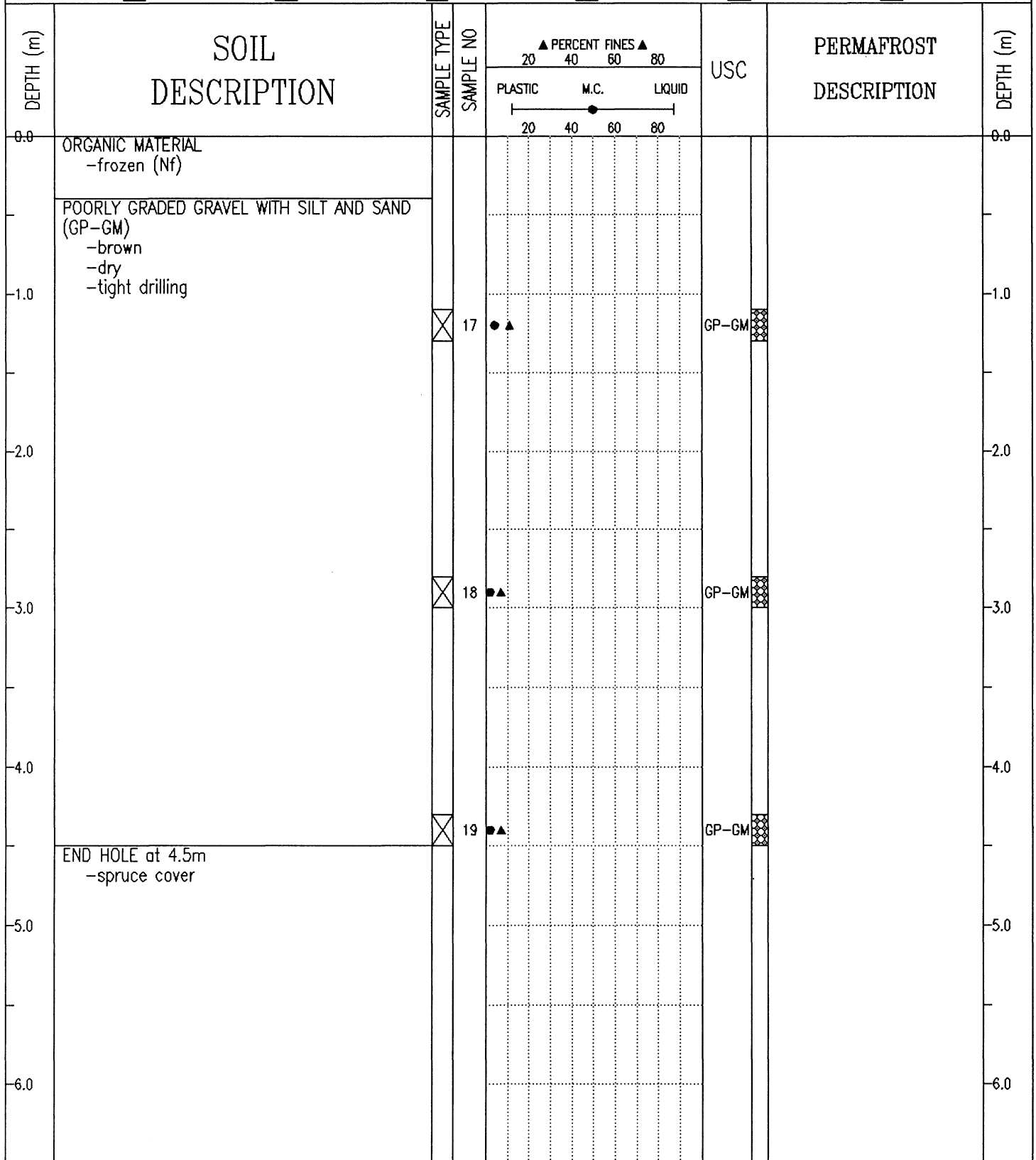


SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 216-117
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0302
DRILL: SCHRAMM ROTARY DRILL	LOCATION: STA 1918+800 o/s 75m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		

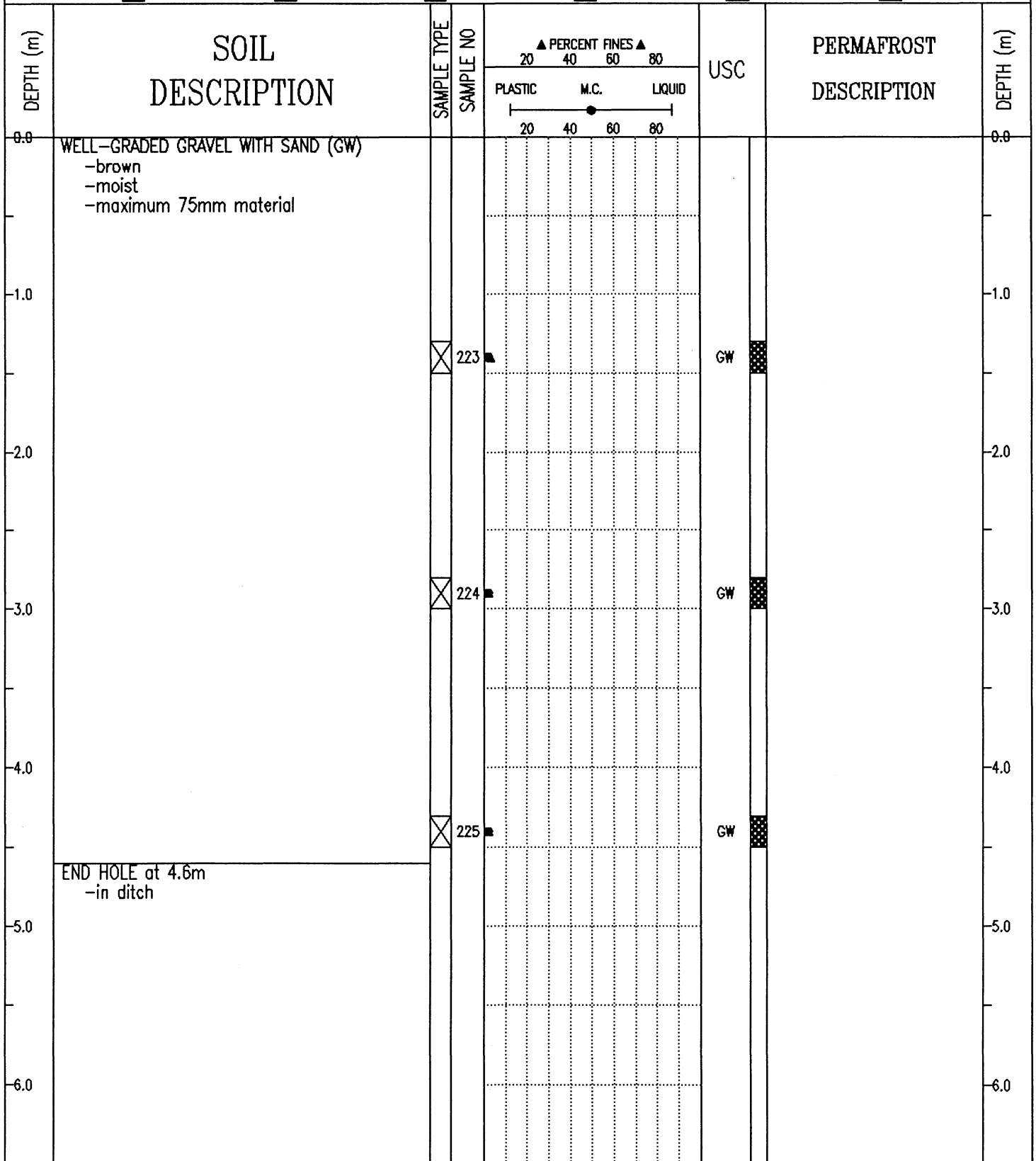


Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 17.7 m	COMPLETE 93/04/14
	LOGGED BY DT	DWG NO.

SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-07
SHAKWAK PROJECT		SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER		LOCATION: STA 1918+900 o/s 4m Lt	ELEVATION 0.000 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER
			<input checked="" type="checkbox"/> BULK
			<input type="checkbox"/> TUBE
			<input type="checkbox"/> CORE



SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-80
SHAKWAK PROJECT		A/H KM 1904-1932	Project No: 745927
17-225 & 17-174		LOCATION: 1919+000 o/s 3m Lt.	ELEVATION 0.000 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER
			<input checked="" type="checkbox"/> BULK
			<input type="checkbox"/> TUBE
			<input type="checkbox"/> CORE



Public Works Canada
Whitehorse, Yukon Territory.

COMPLETION DEPTH 4.6 m

COMPLETE 91/08/21

LOGGED BY

DWG NO.

Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-81
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1919+100 o/s 4m Rt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	WELL-GRADED GRAVEL WITH SILT AND SAND (GW-GM) -brown -moist -maximum 75mm material -very grindy jumpy drilling								0.0
1.0									1.0
2.0									2.0
2.6		X	226				GW-GM		2.6
3.0	WELL-GRADED GRAVEL WITH SAND (GW) -brown -moist -maximum 75mm material -very jumpy grindy drilling								3.0
3.4		X	227				GW		3.4
4.0									4.0
4.6		X	228				GW		4.6
5.0	END HOLE at 4.6m -boulders to 600mm on surface -in old side borrow area								5.0
6.0									6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-82
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1919+200 o/s 7m Rt.	ELEVATION 0.000 (m)

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

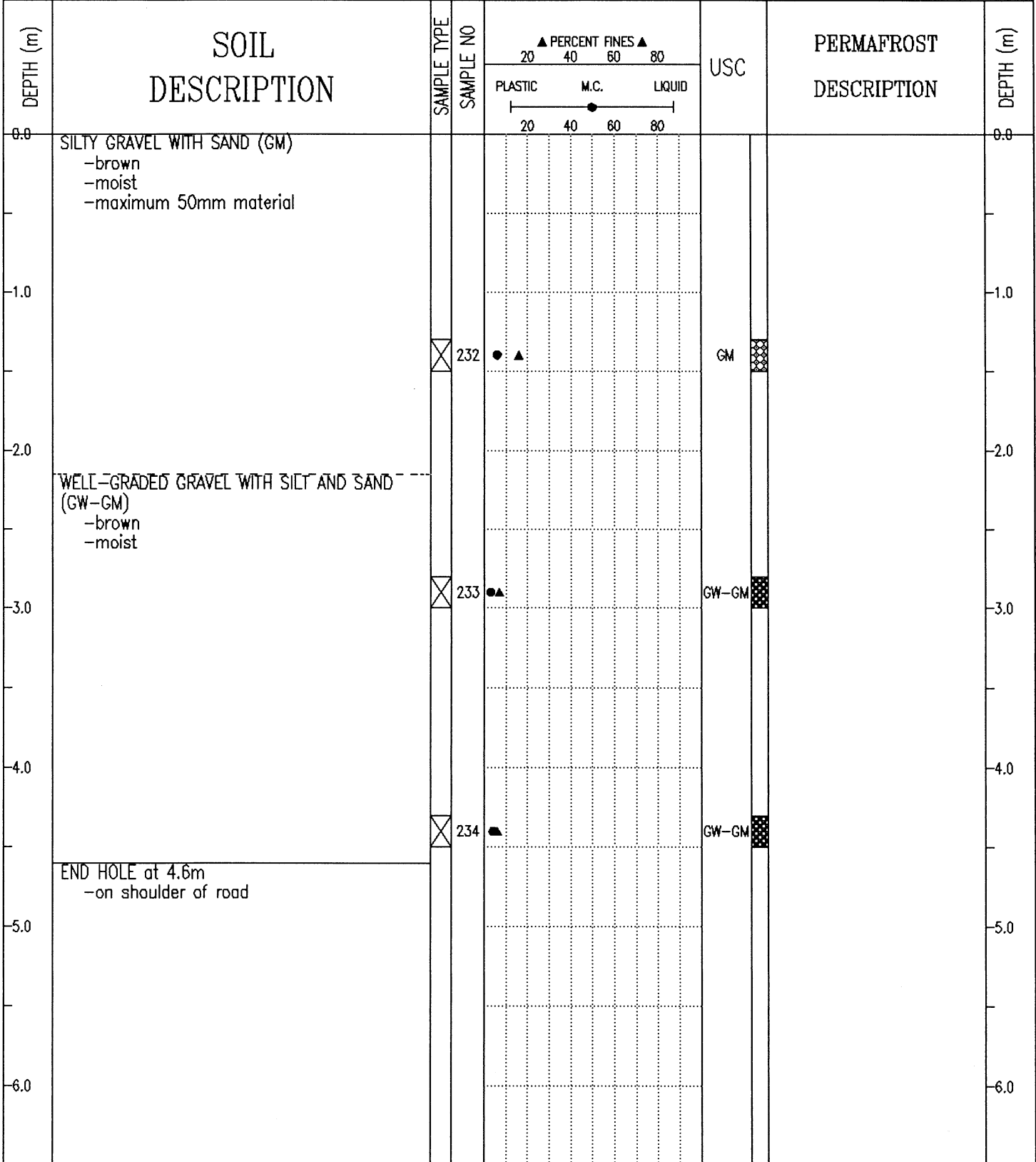
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	WELL-GRADED GRAVEL WITH SAND (GW) -brown -moist -maximum 75mm material -jumpy grindy drilling								0.0
1.0									1.0
2.0									2.0
3.0									3.0
4.0									4.0
5.0									5.0
6.0									6.0

END HOLE at 4.6m
-boulders to 450mm on surface
-in ditch

Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/21
	LOGGED BY	DWG NO.

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-83
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1919+300 o/s 2m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-84
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1919+400	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	SANDY GRAVEL -some silt -grindy drilling								0.0
1.0	ASH WELL TO POORLY GRADED GRAVEL WITH SILT AND SAND (GW-GM TO GP-GM) -brown -damp -maximum 50mm material		235				GW-GM		1.0
3.0			236				GP-GM		3.0
4.0	WELL-GRADED GRAVEL WITH SAND (GW) -brown -damp		237				GW		4.0
5.0	END HOLE at 4.6m -in ditch								5.0
6.0									6.0

Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/21
	LOGGED BY	DWG NO.

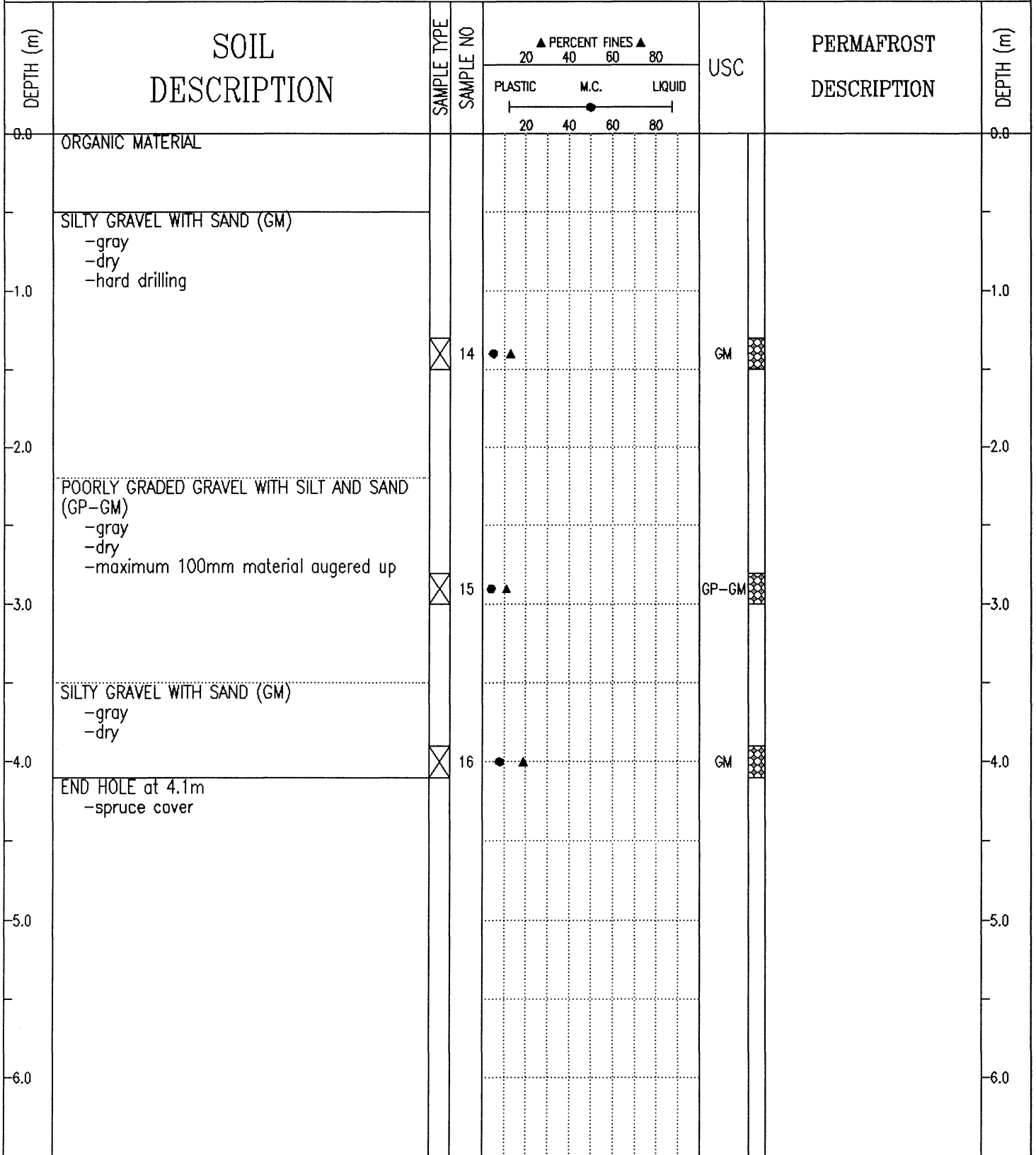
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-85
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1919+500 o/s 2m Lt.	ELEVATION 0.000 (m)

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

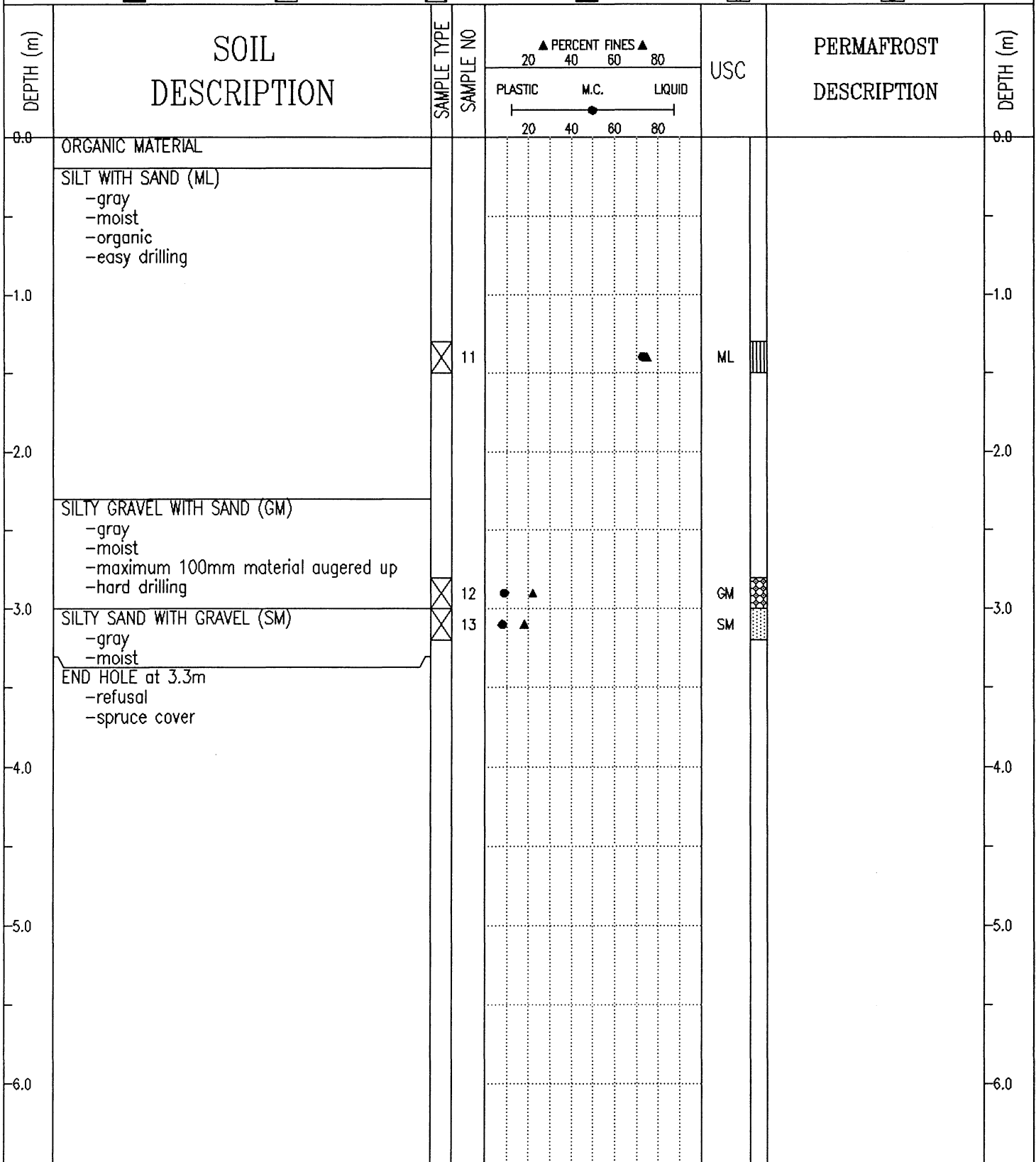
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	WELL-GRADED GRAVEL WITH SAND (GW) -brown -damp -maximum 50mm material -grindy drilling								0.0
1.0									1.0
2.0									2.0
3.0			238				GW		3.0
4.0									4.0
5.0			239				GW		5.0
6.0									6.0
7.0			240				GW		7.0
8.0									8.0
9.0									9.0
10.0									10.0
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95.0									95.0
96.0									96.0
97.0									97.0
98.0									98.0
99.0									99.0
100.0									100.0

END HOLE at 4.6m
-boulders to 300mm on surface
-in old side borrow

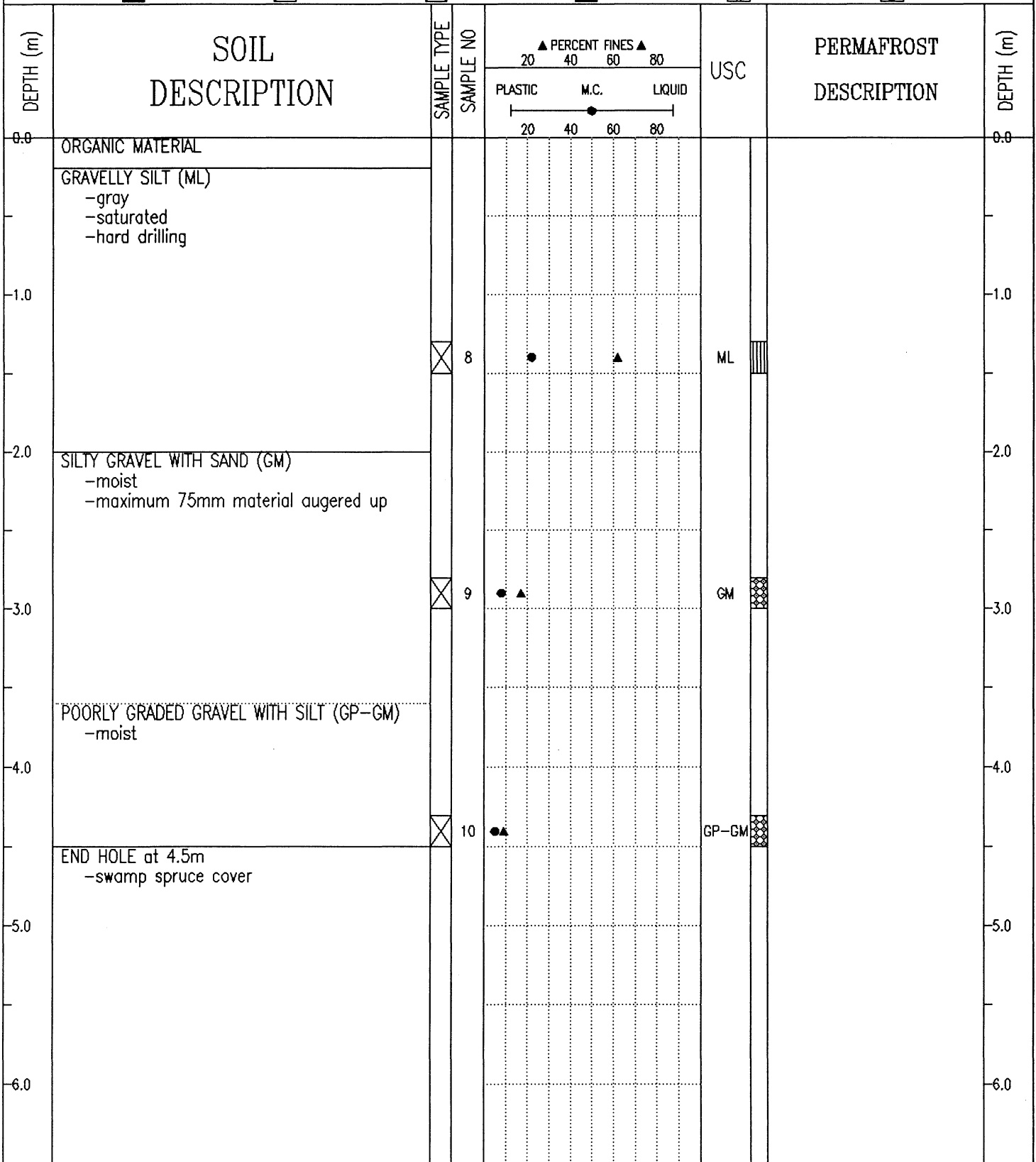
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-06
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1919+600 o/s 2m Lt	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



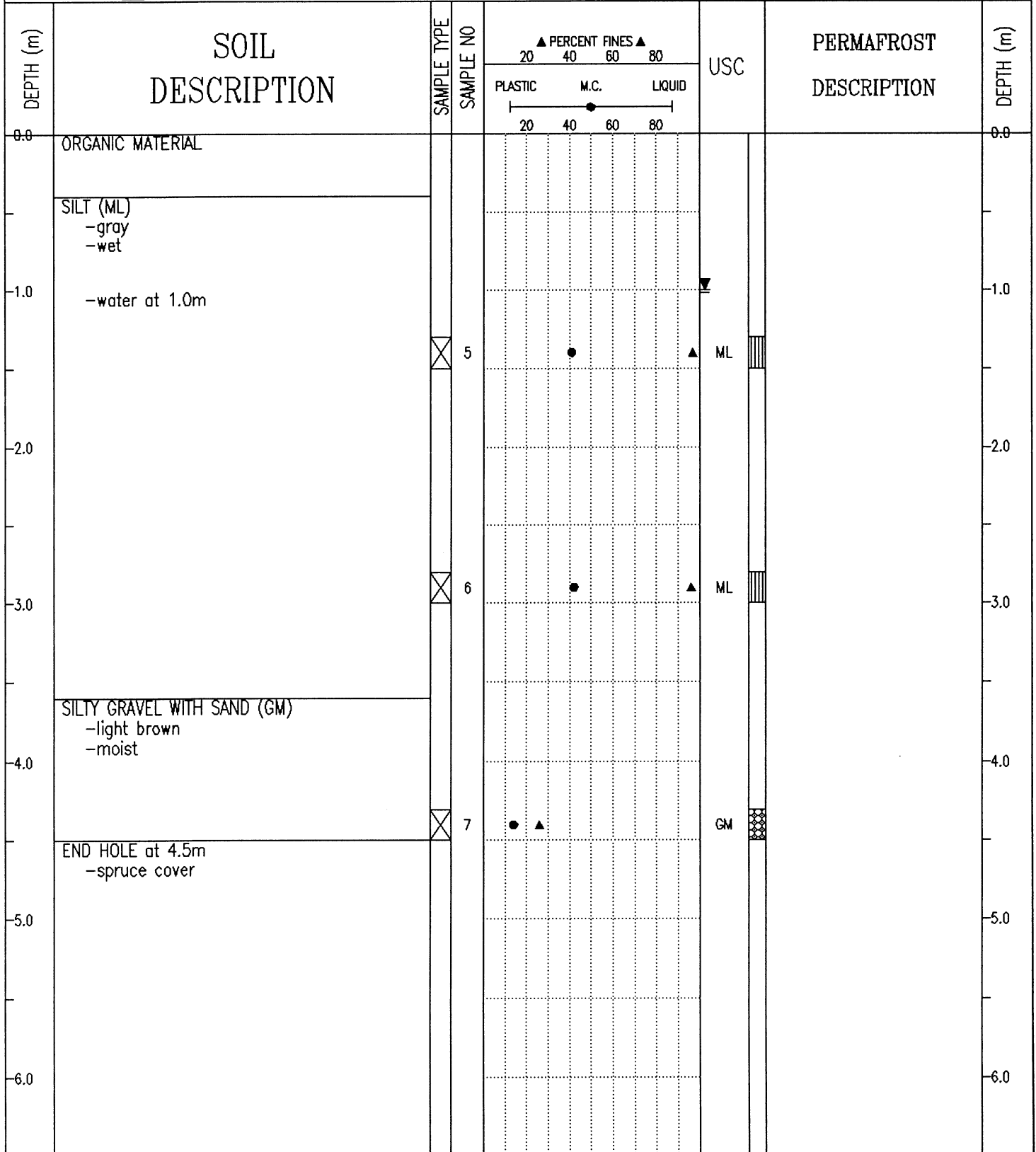
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-05
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1919+700 o/s 2m Lt	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



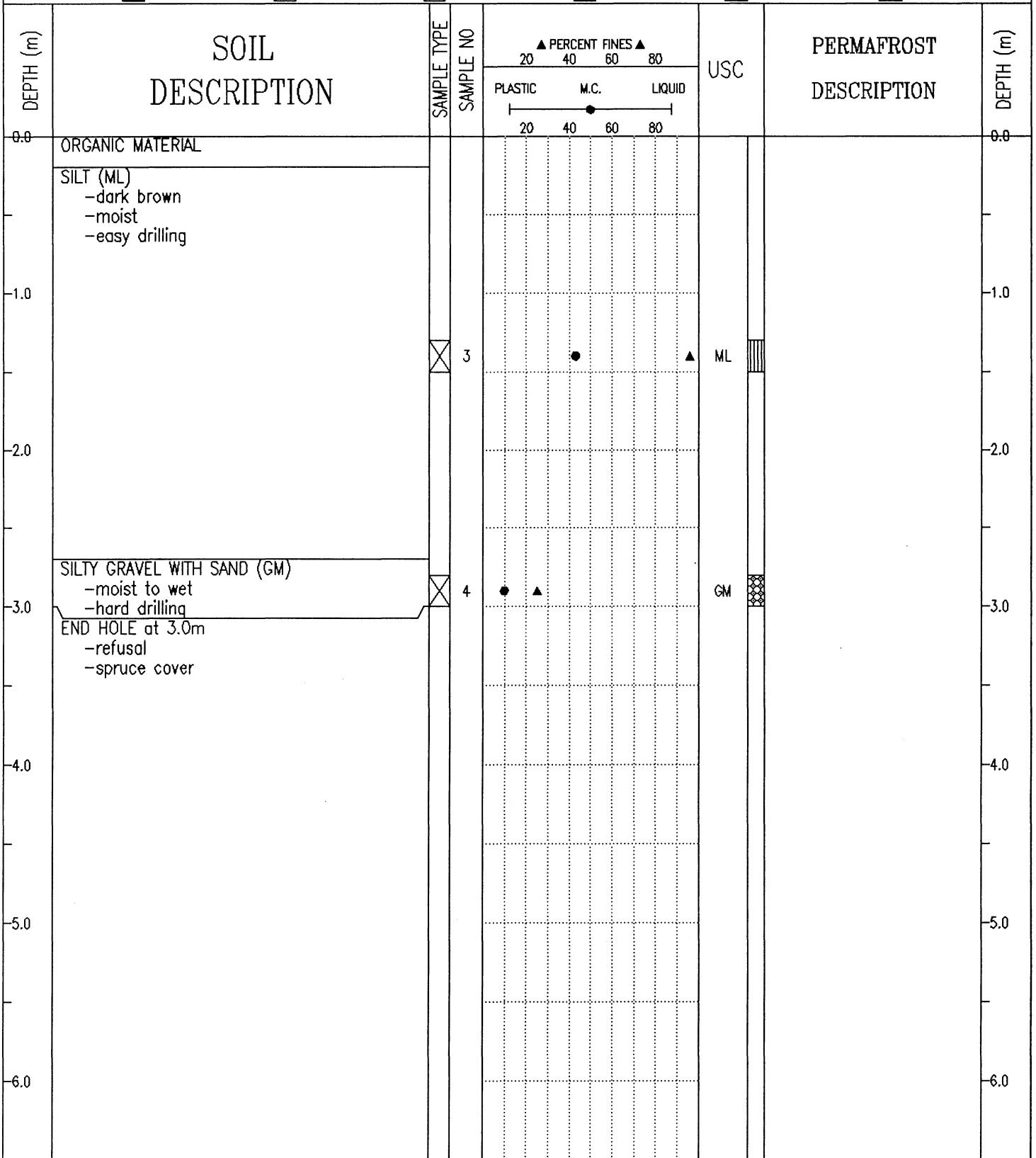
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SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1919+800 o/s 2m Lt	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-03
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1919+900 o/s 2m Rt	ELEVATION 0.000 (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		



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-02
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1920+000 o/s 2m Lt	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



Public Works Canada
Whitehorse, Yukon Territory.

COMPLETION DEPTH 3.0 m

COMPLETE 92/06/04

LOGGED BY AW

DWG NO.

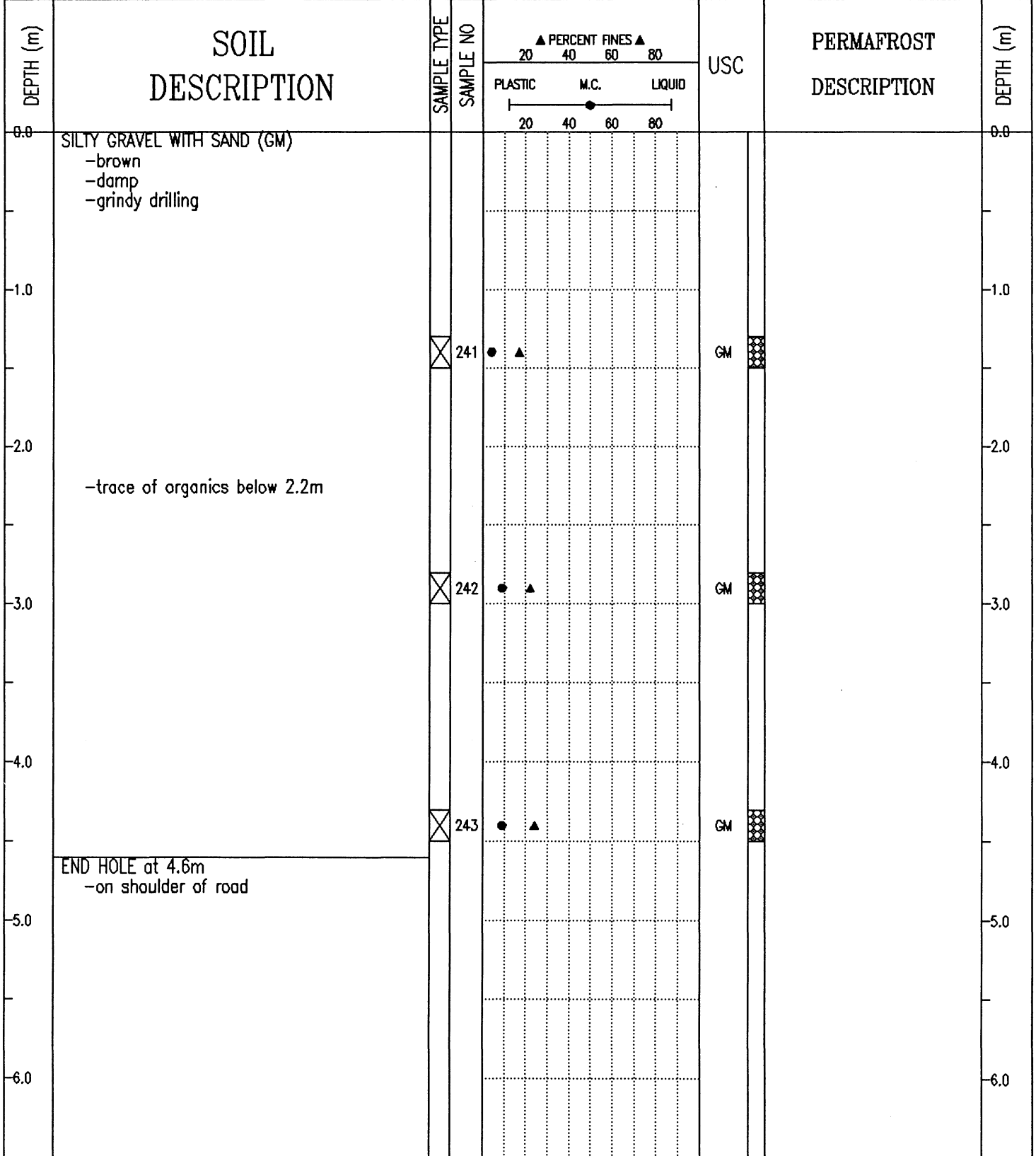
Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 174-01
SHAKWAK PROJECT	SEGMENT 17	Project No: 202101 0304
DRILL: B40L 150mm SOLID STEM AUGER	LOCATION: STA 1920+100	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL -wet								0.0
1.0	POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) -dry -hard drilling								1.0
1.8		X	1	●▲			GP-GM		
2.0		X	2	●▲			GP-GM		
2.0	END HOLE at 2.0m -refusal -willow and spruce cover								2.0
3.0									3.0
4.0									4.0
5.0									5.0
6.0									6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-86
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1920+175 o/s 4m Rt.	ELEVATION 0.000 (m)

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



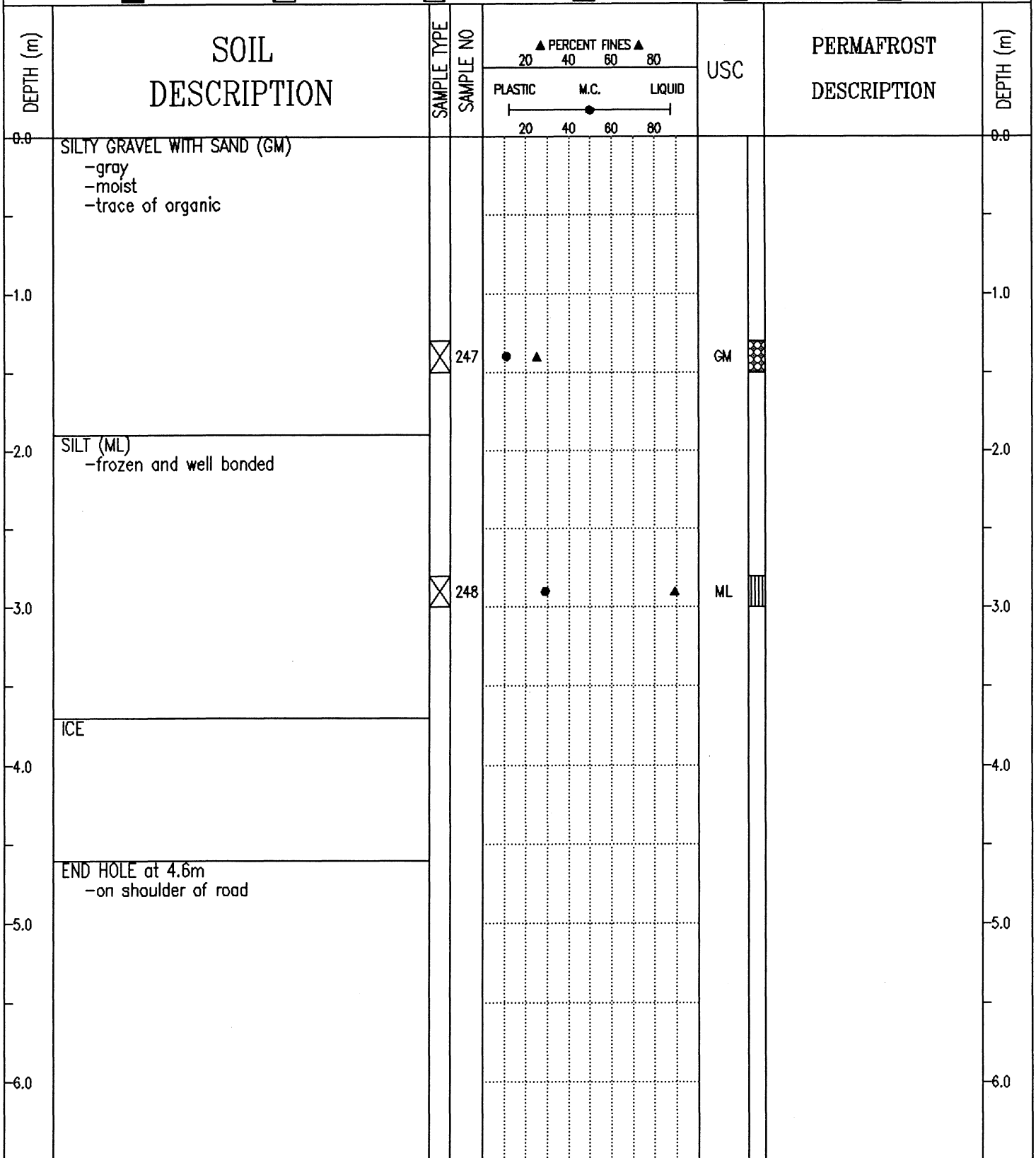
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-87
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1920+275 o/s 8m Rt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	SILTY GRAVEL WITH SAND (GM) -brown -moist -maximum 50mm material -grindy drilling								0.0
1.0		X	244	●	▲		GM		1.0
2.0	SILT (ML) -brown -saturated								2.0
3.0		X	245	●	▲		ML		3.0
4.0	-frozen, well bonded below 3.6m								4.0
5.0		X	246	●	▲		ML		5.0
6.0	END HOLE at 4.6m -on shoulder of road								6.0

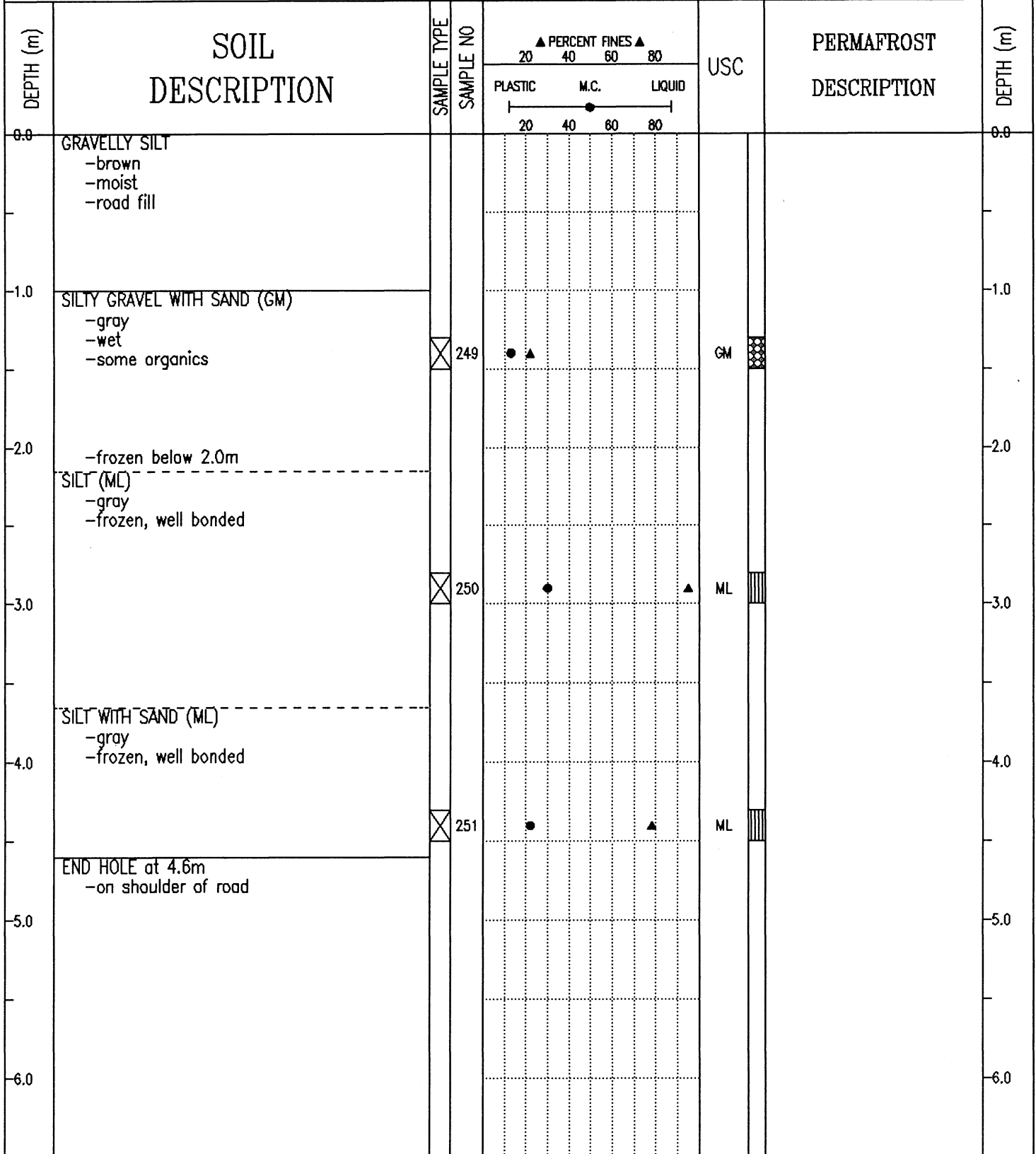
Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/21
	LOGGED BY	DWG NO.

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-88
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1920+375 o/s 7m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



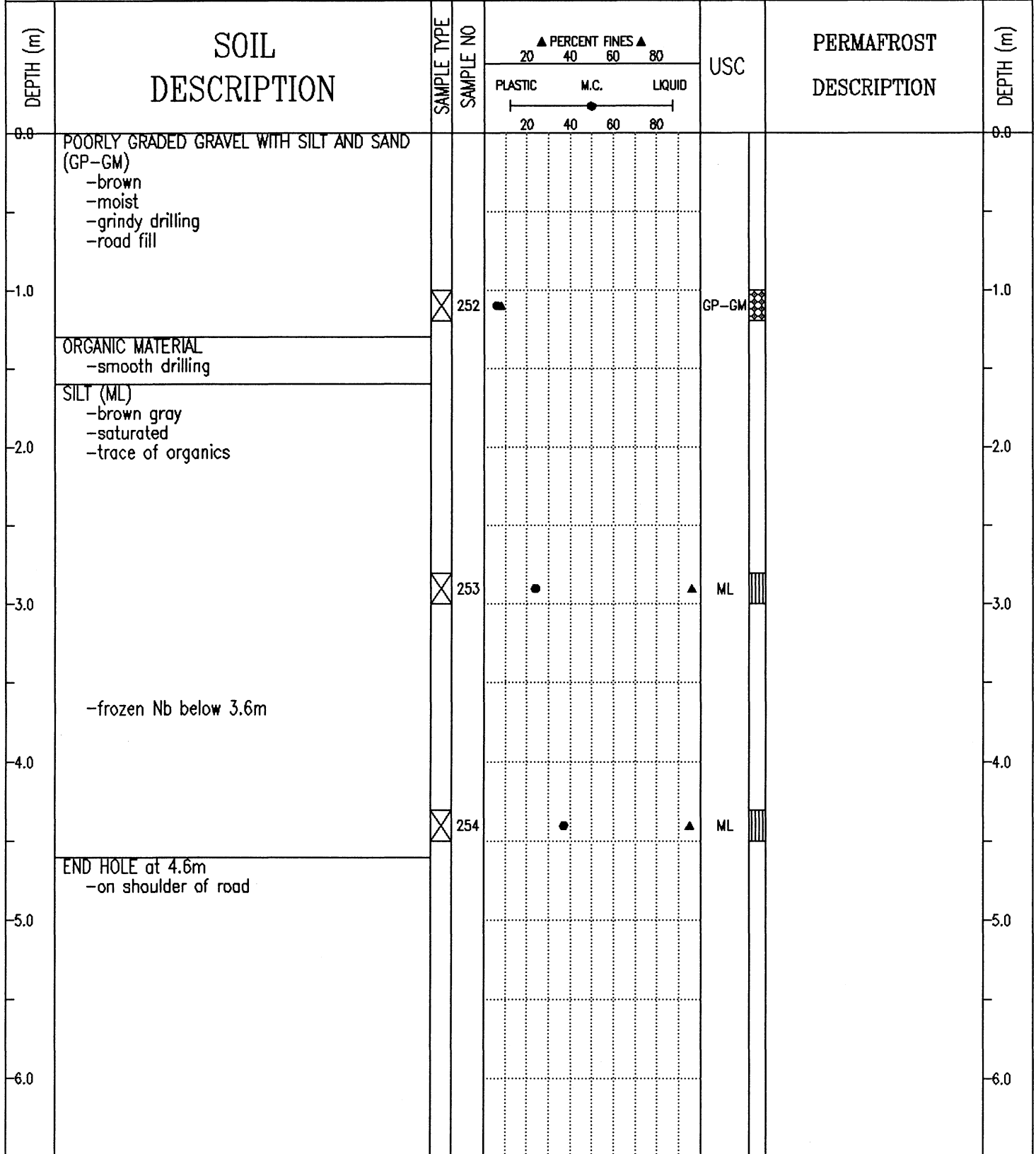
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-89
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1920+475 o/s 7m Rt.	ELEVATION 0.000 (m)

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



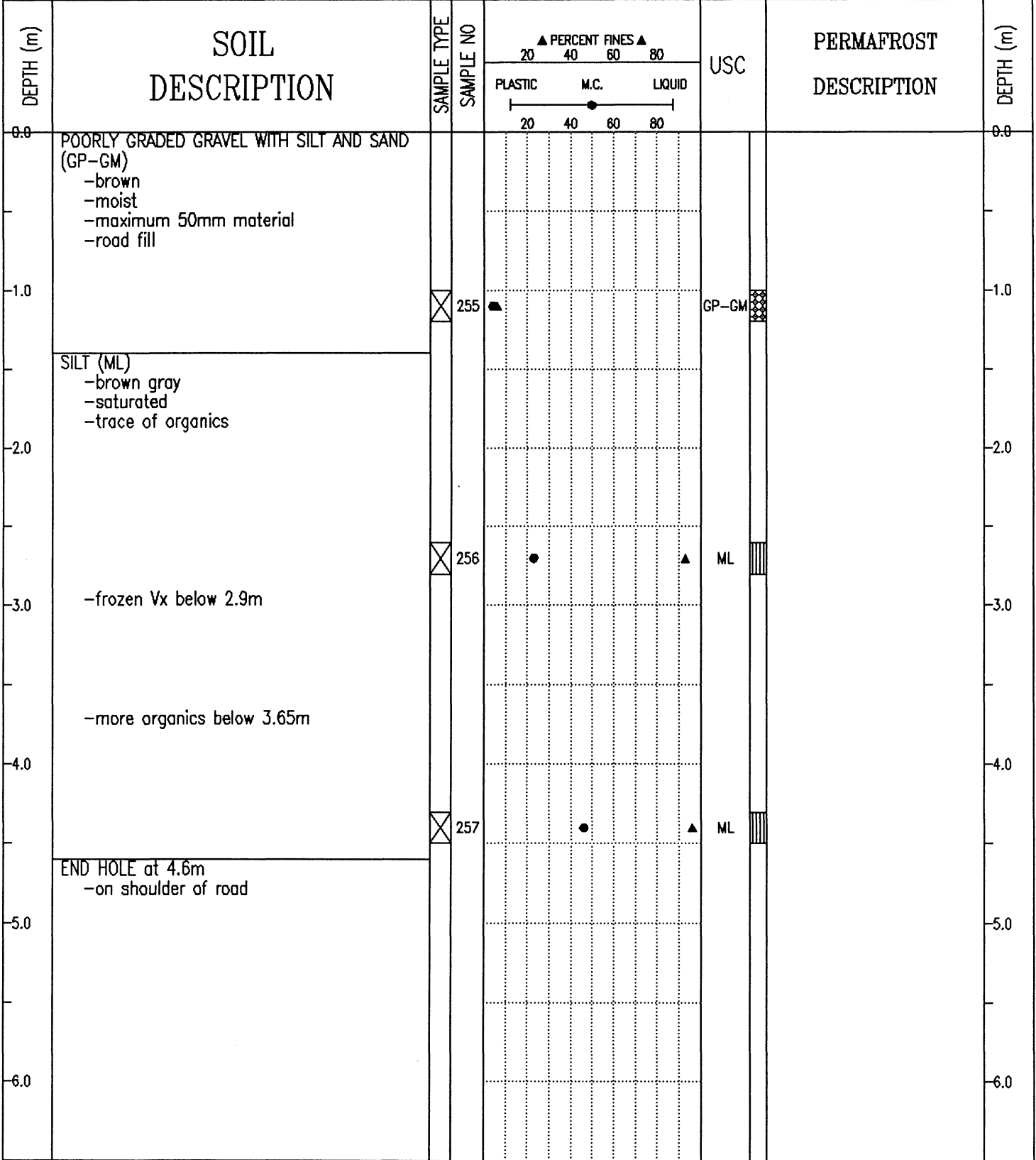
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-90
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1920+575 o/s 4m Lt.	ELEVATION 0.000 (m)

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

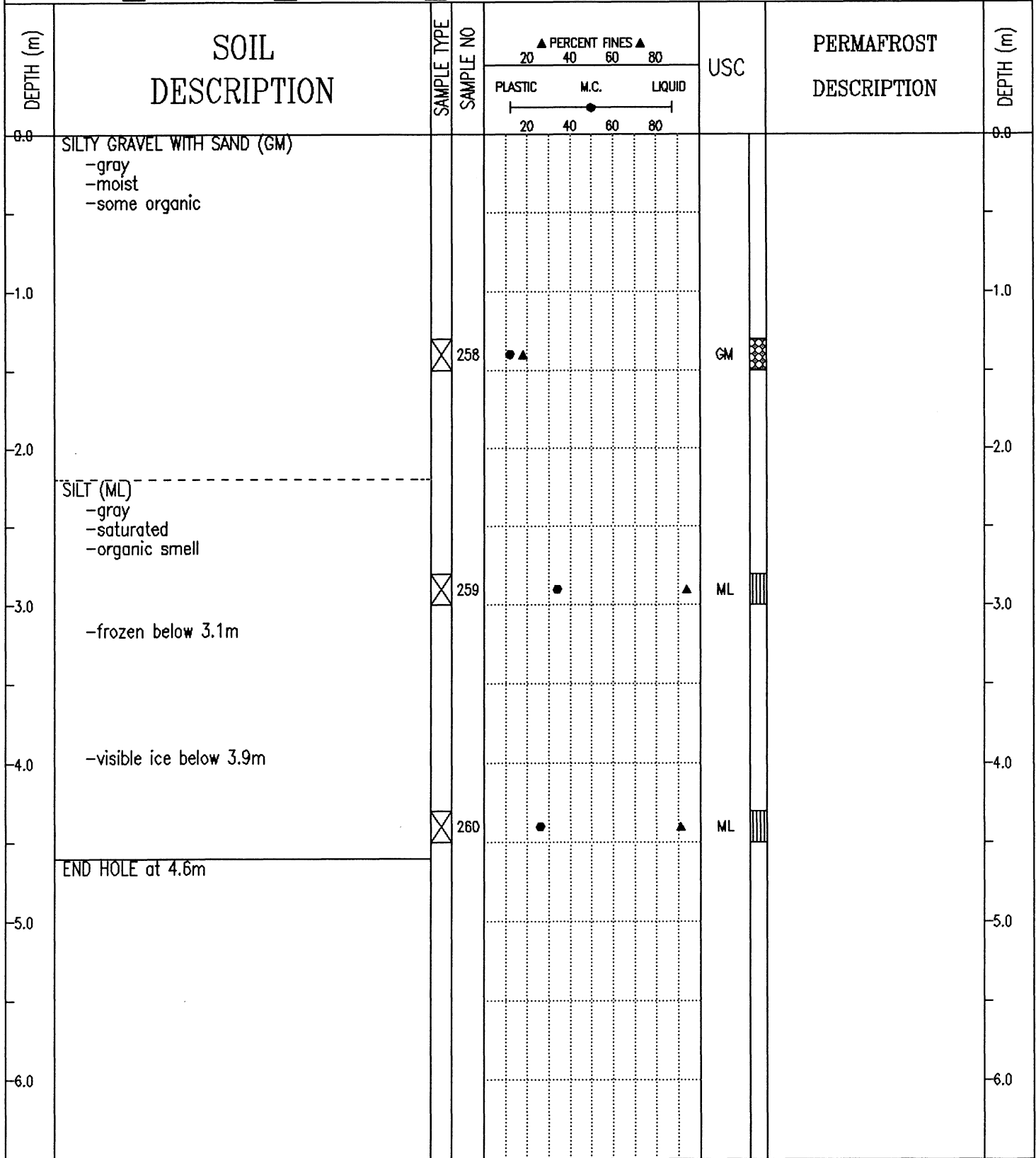


SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 142-91
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1920+675 o/s 5m Lt.	ELEVATION 0.000 (m)

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



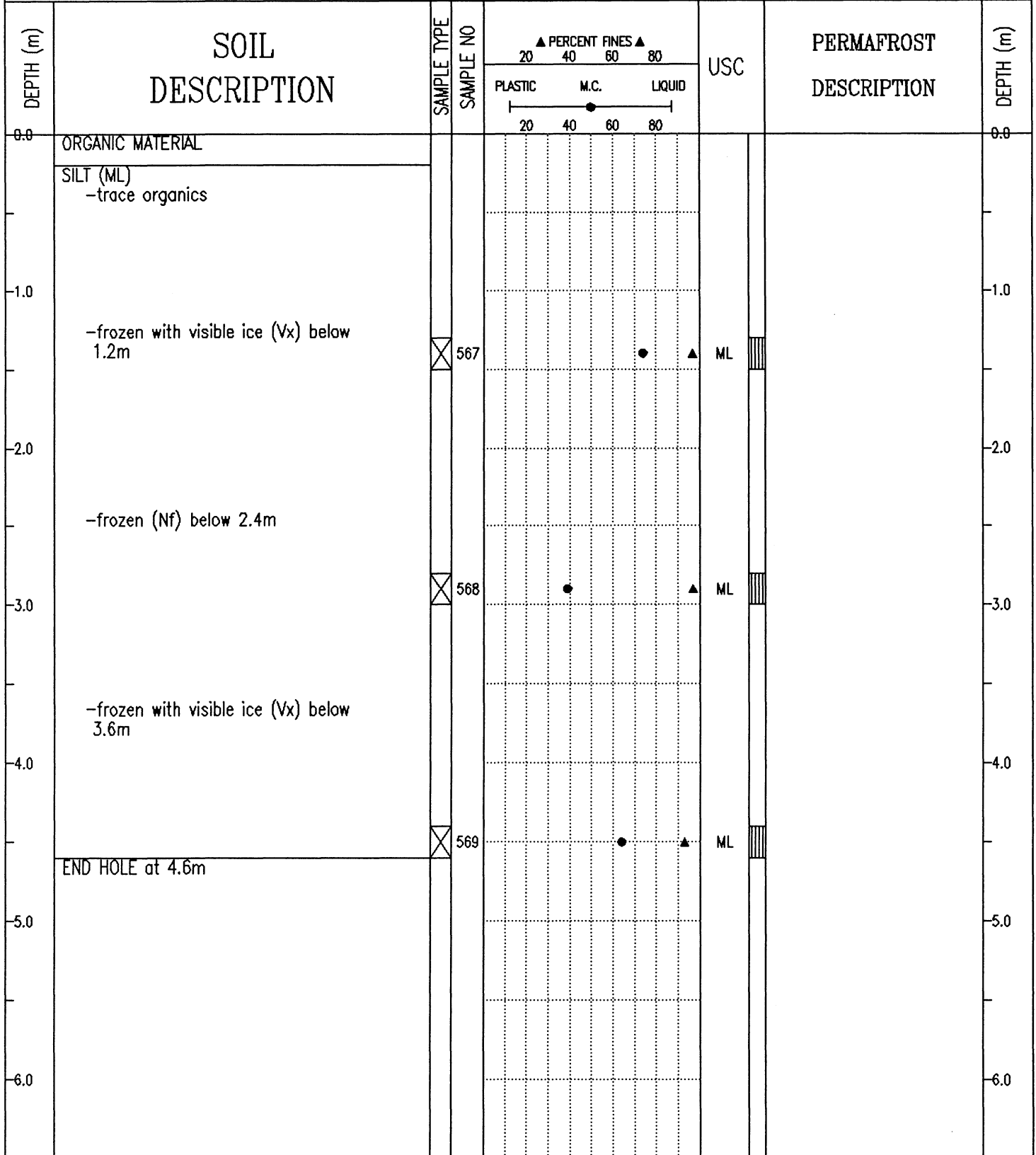
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-92
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1920+775 o/s 5m Lt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/22
	LOGGED BY	DWG NO.

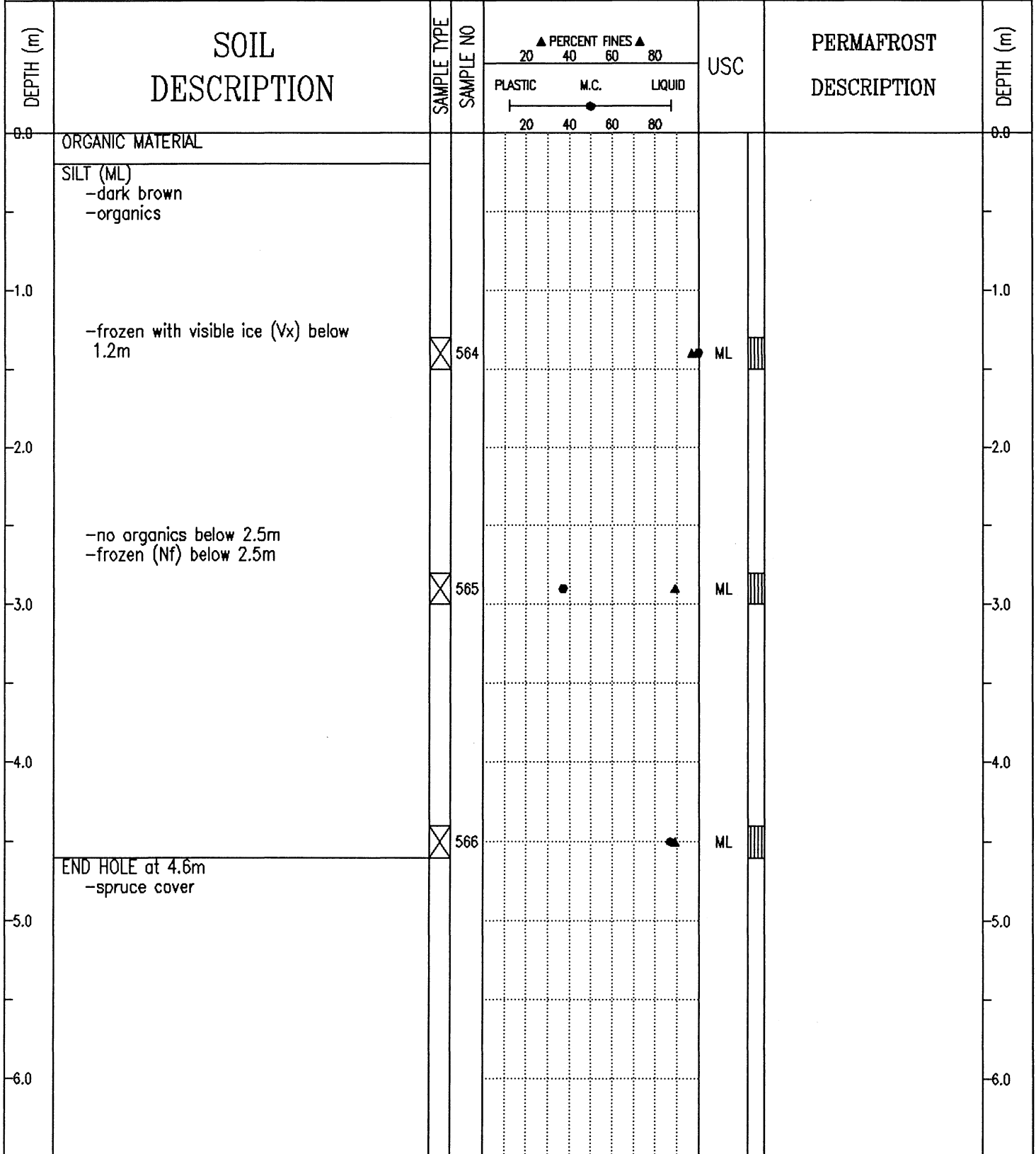
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 158-215
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1920+850 o/s 15m Rt.	ELEVATION 0.000 (m)

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



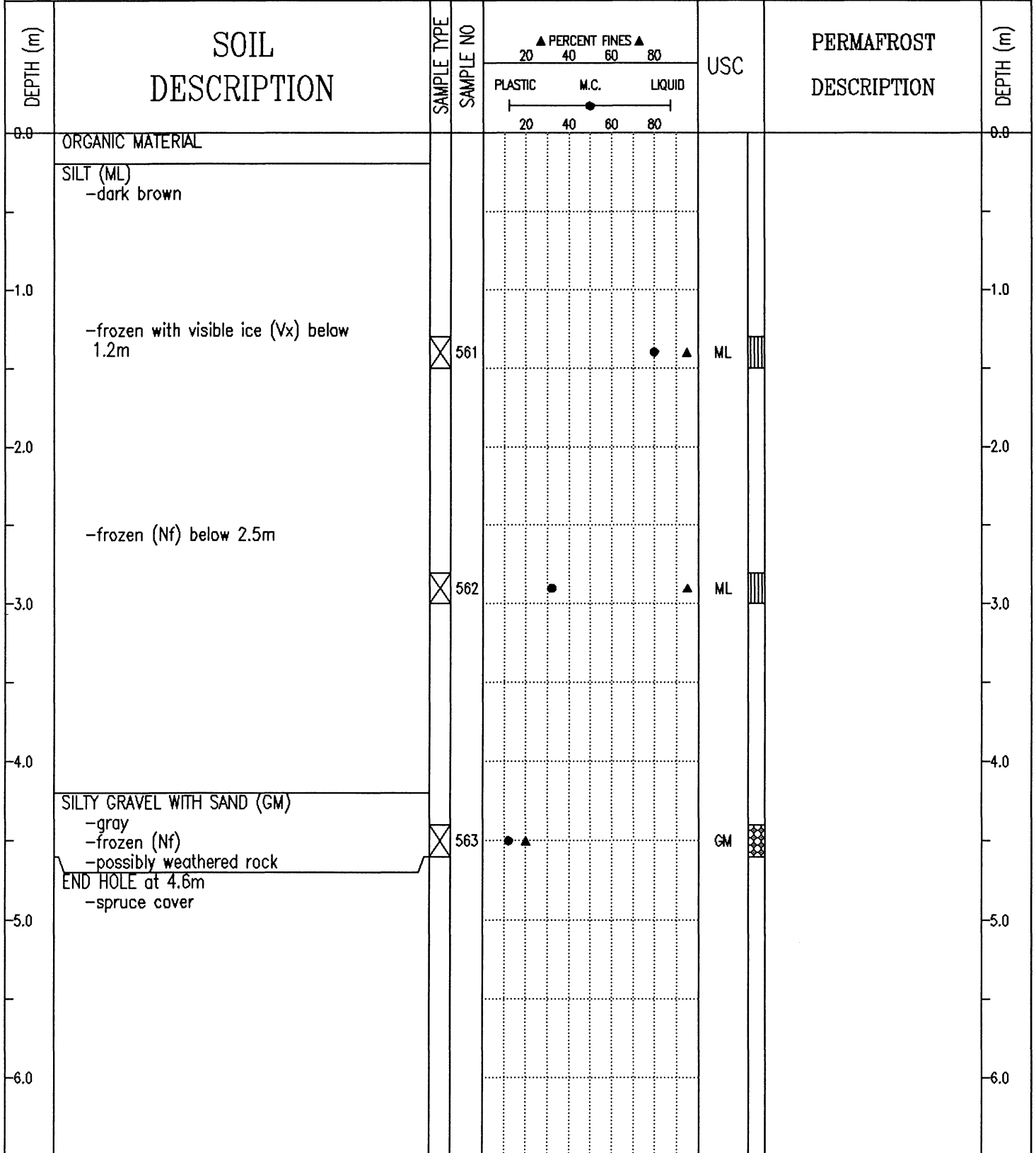
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 158-214
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1920+950 o/s 15m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 158-213
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1921+050 o/s 15m Rt.	ELEVATION 0.000 (m)

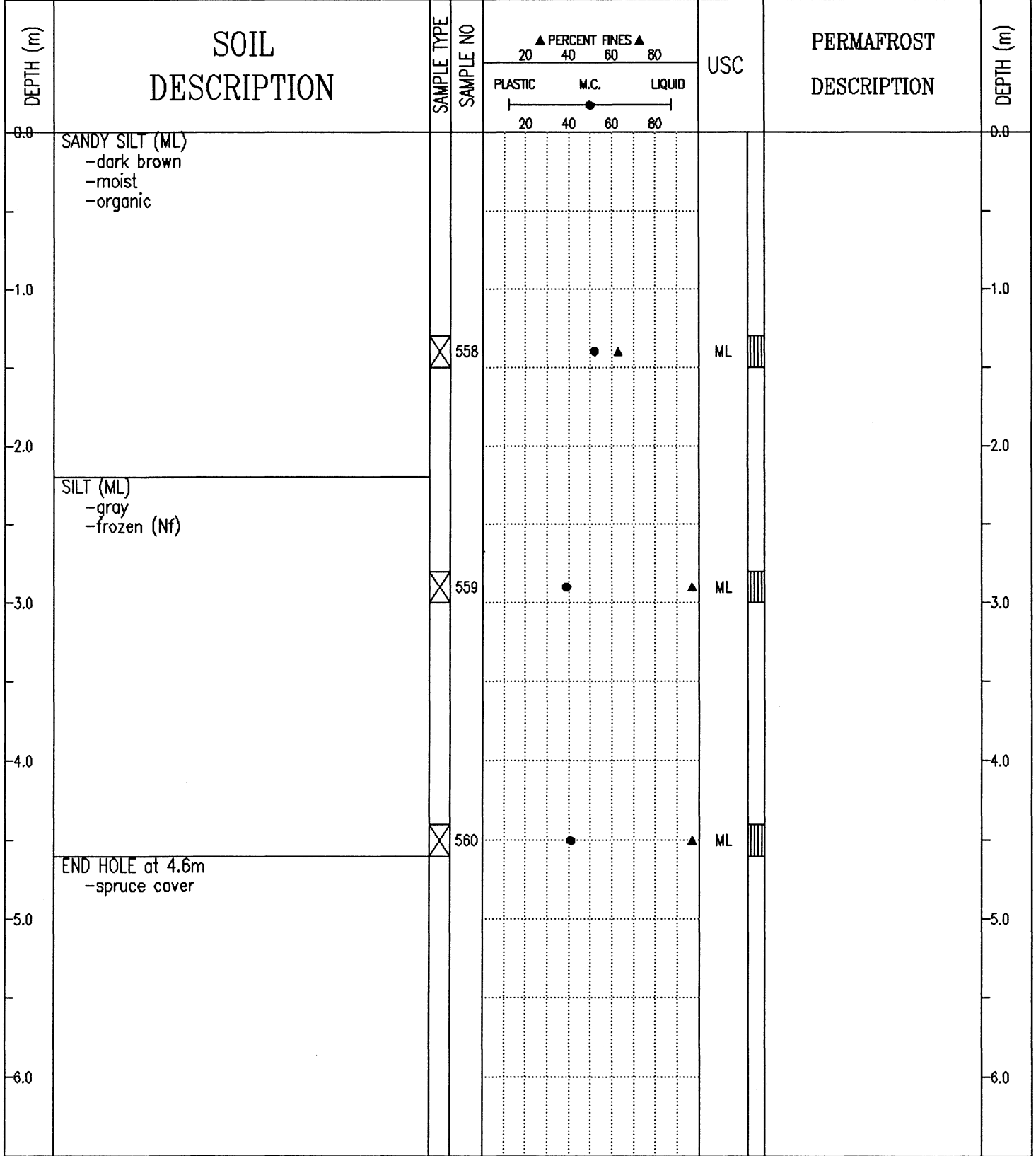
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/11/17
	LOGGED BY CB	DWG NO.

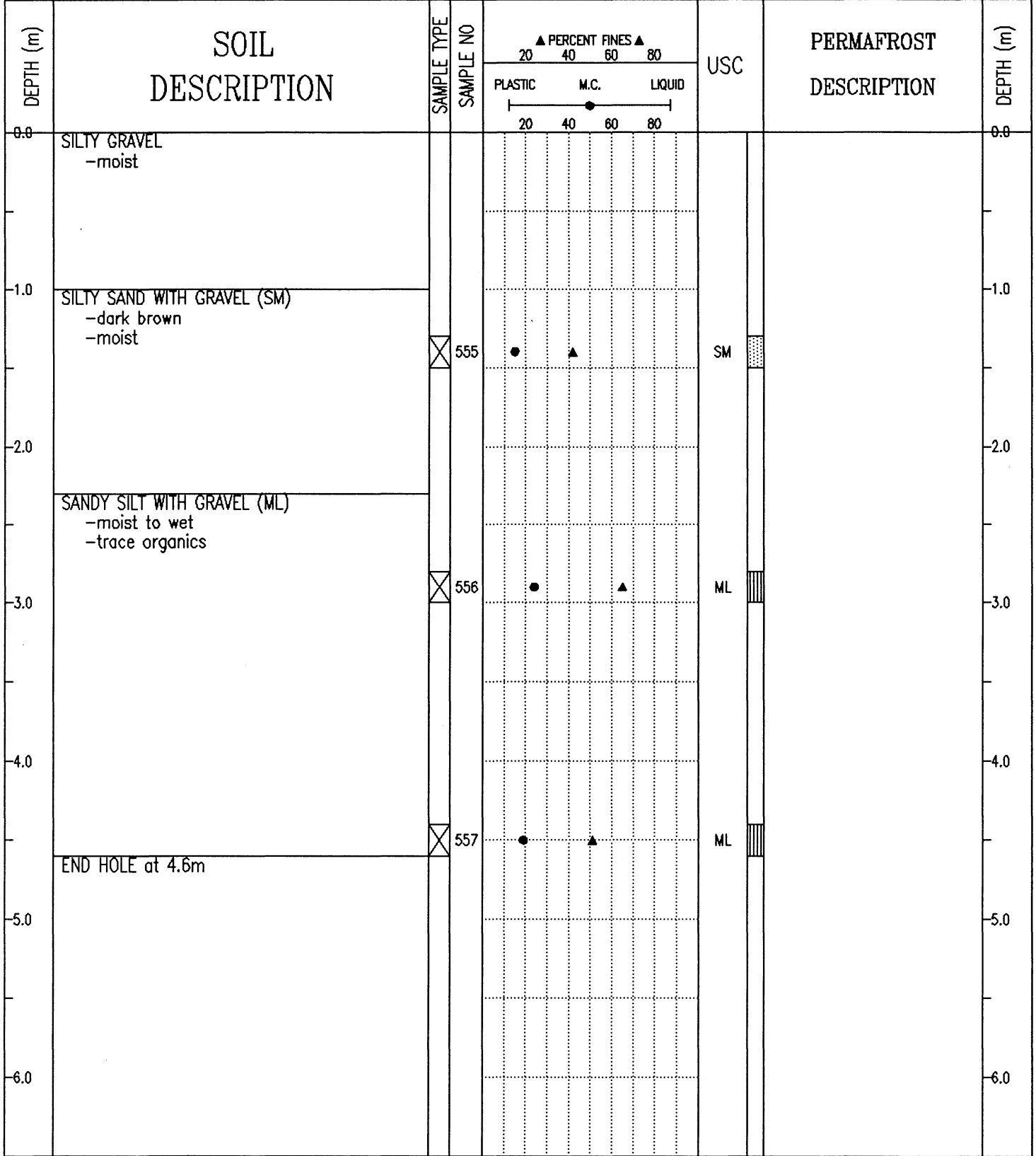
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 158-212
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1921+175 o/s 15m Rt.	ELEVATION 0.000 (m)

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



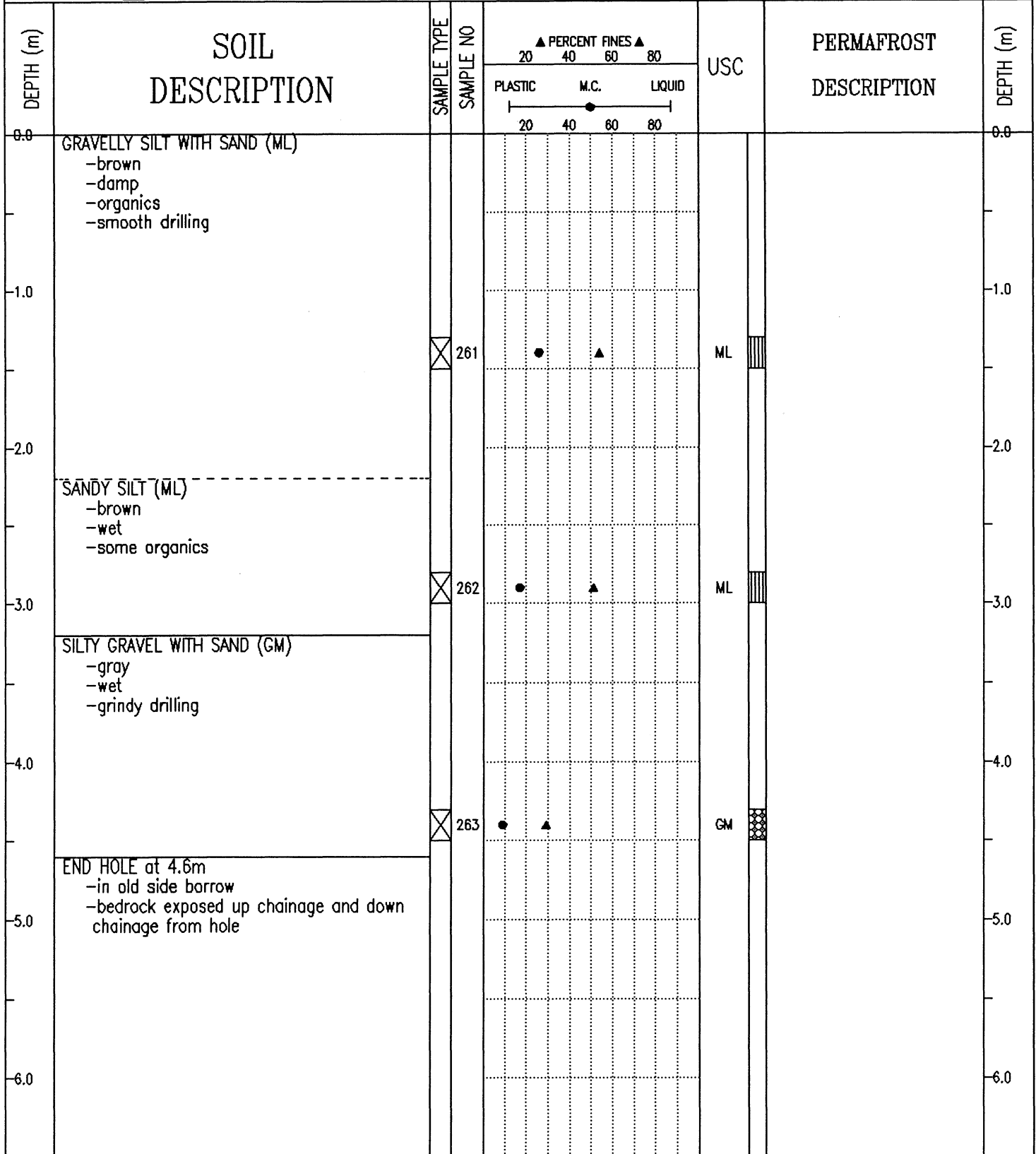
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 158-211
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1921+275 o/s 15m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-93
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1921+325 o/s 7m Rt.	ELEVATION 0.000 (m)

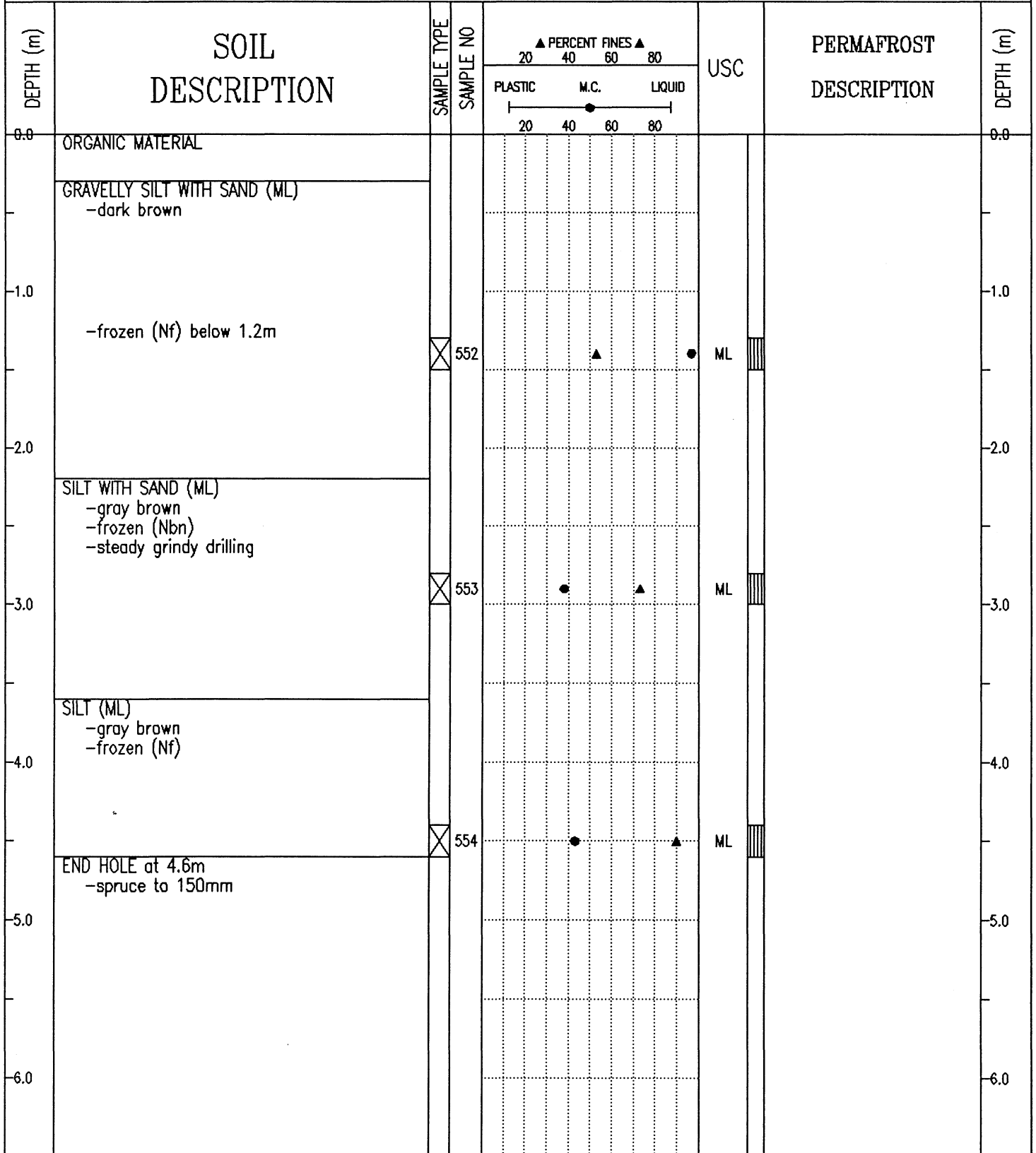
SAMPLE TYPE	<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input checked="" type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE
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Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/22
	LOGGED BY	DWG NO.

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 158-210
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1921+502	ELEVATION 0.000 (m)

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



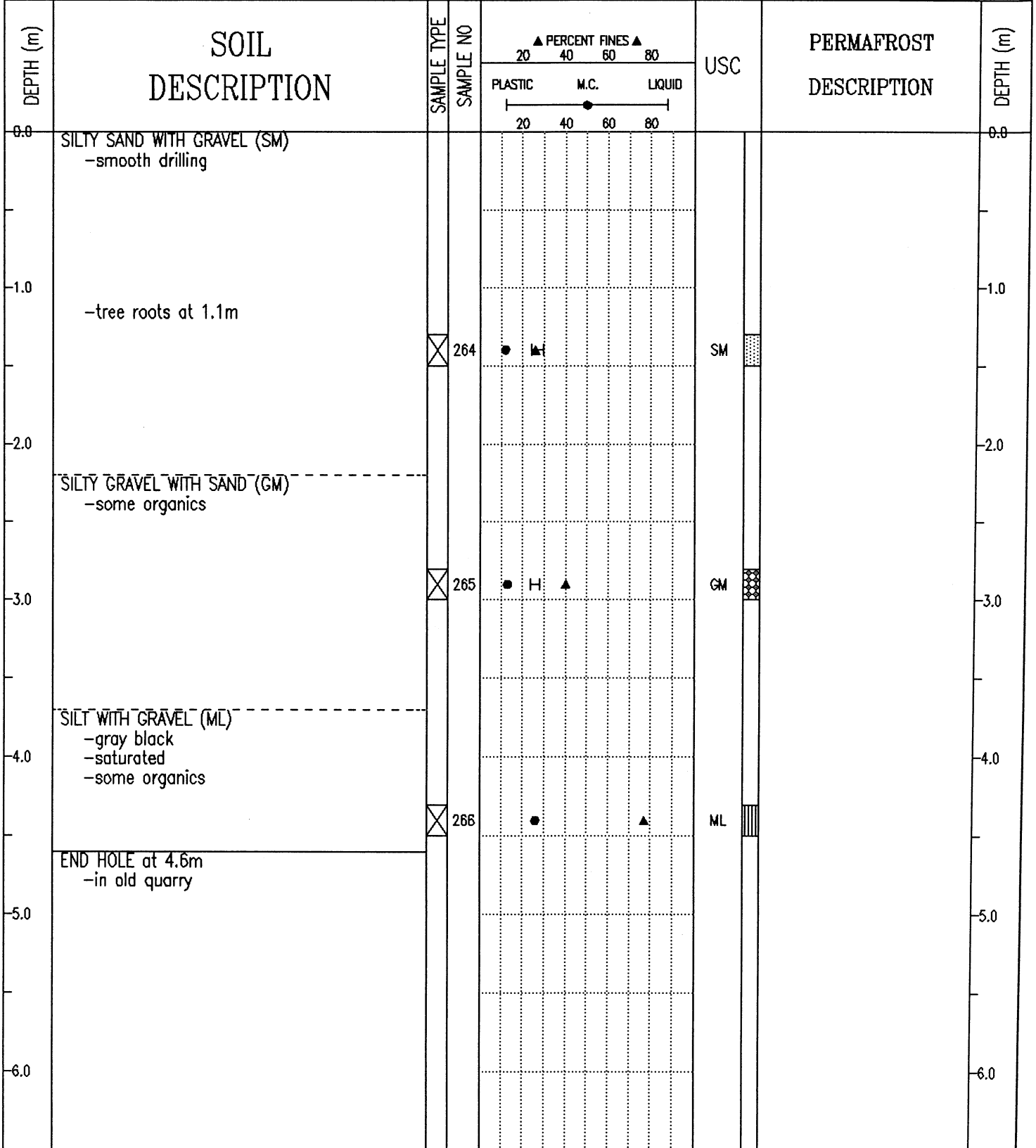
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 158-209
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1921+625 o/s 2m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL							0.0	
0.0 - 1.0	SANDY SILT WITH GRAVEL (ML) -dark brown								
1.0 - 2.5	-frozen with visible ice (Vr) below 1.2m								
2.5 - 3.0	-frozen (Nbn) below 2.5m								
3.0		⊗	549	●	▲		ML		
3.0		⊗	550	●	▲		ML		
3.0 - 4.0	SILT (ML) -gray -frozen (Nf)								
4.0		⊗	551	●	▲		ML		
4.0 - 4.6	END HOLE at 4.6m -in rock quarry area								
4.6 - 6.0									

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-94
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1921+675 o/s 8m Lt.	ELEVATION 0.000 (m)

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



Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/22
	LOGGED BY	DWG NO.

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 158-208
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1921+775	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	WEATHERED BEDROCK -black -moist -decomposed rock -steady grindy drilling								0.0
1.0									1.0
2.0									2.0
2.5		<input checked="" type="checkbox"/>	546	●	▲		GM		
3.0	WEATHERED BEDROCK -black -moist -decomposed rock -steady grindy drilling								3.0
3.5		<input checked="" type="checkbox"/>	547	●	▲		SM		
4.0									4.0
4.5		<input checked="" type="checkbox"/>	548	●	▲		SM		
5.0	END HOLE at 4.6m -in rock quarry area								5.0
6.0									6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-207
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1921+925 o/s 2m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL							0.0	
	SILT -organics								
1.0	SILTY SAND WITH GRAVEL (SM) -gray brown -moist -grinding drilling	<input checked="" type="checkbox"/>	544	●	▲		SM		
2.0									
3.0	SILT (ML) -gray brown -frozen (Nf) -dark brown below 3.0m	<input checked="" type="checkbox"/>	545	●	▲		ML		
4.0	END HOLE at 4.0m -refusal								
5.0									
6.0									

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-206
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1922+075 o/s 2m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL							0.0	
	SILT (ML) -dark brown								
-1.0	-frozen with visible ice (Vr) below 0.9m							-1.0	
		<input checked="" type="checkbox"/>	542			▲●	ML		
-2.0	SILTY SAND WITH GRAVEL (SM) -frozen (Nf) -slow grindy drilling							-2.0	
		<input checked="" type="checkbox"/>	543	●▲			SM		
-3.0	END HOLE at 2.7m -refusal -spruce cover							-3.0	
-4.0								-4.0	
-5.0								-5.0	
-6.0								-6.0	

Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 2.7 m	COMPLETE 91/11/15
	LOGGED BY CB	DWG NO.

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-08
SHAKWAK PROJECT	SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235	LOCATION: See Plan	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	◆ PERCENT SAND ◆		■ PERCENT GRAVEL ■	DEPTH (m)
				PLASTIC	M.C.	LIQUID		20	40		
0.0	ORGANIC MATERIAL -frozen										0.0
	SILT -frozen with visible ice										
-1.0											-1.0
	-some gravel below 1.2m										
-2.0											-2.0
	END HOLE at 2.5m										
-3.0											-3.0
-4.0											-4.0
-5.0											-5.0
-6.0											-6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-205
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1922+200 o/s 2m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL							0.0	
1.0	GRAVELLY SILT (ML) -dark brown -organic -frozen with visible ice (Vx) below 1.2m		540				ML	1.0	
2.0	SILTY SAND WITH GRAVEL (SM) -dark brown -frozen (Nf) -grindy drilling							2.0	
3.0	END HOLE at 3.0m -refusal -spruce cover		541				SM	3.0	
4.0								4.0	
5.0								5.0	
6.0								6.0	

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-07
SHAKWAK PROJECT	SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235	LOCATION: STA 1922+300 o/s Rt.	ELEVATION 0.000 (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 ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■		DEPTH (m)
				20	40	60		80	20	40	60	
0.0	FRACTURED ROCK -rippable											0.0
-1.0												-1.0
-2.0	END HOLE at 1.7m -bottom of old pit											-2.0
-3.0												-3.0
-4.0												-4.0
-5.0												-5.0
-6.0												-6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-11
SHAKWAK PROJECT	SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235	LOCATION: STA 1922+300	ELEVATION 0.000 (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 ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■		DEPTH (m)
				20	40	60		80	20	40	60	
0.0	ORGANIC MATERIAL -frozen											0.0
	SILT -frozen											
1.0												1.0
	END HOLE at 1.6m											
2.0												2.0
3.0												3.0
4.0												4.0
5.0												5.0
6.0												6.0

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COMPLETION DEPTH 1.6 m

COMPLETE 93/04/01

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Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-10
SHAKWAK PROJECT	SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235	LOCATION: See Plan	ELEVATION 0.000 (m)

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	◆ PERCENT SAND ◆ 20 40 60 80 ■ PERCENT GRAVEL ■ 20 40 60 80	DEPTH (m)
0.0	ORGANIC MATERIAL -frozen						0.0
	SILT -frozen -easy digging						
	FRACTURED ROCK						
1.0	END HOLE at 1.0m -on steep slope facing southwest						1.0
2.0							2.0
3.0							3.0
4.0							4.0
5.0							5.0
6.0							6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-204
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1922+325 o/s 2m Lt.	ELEVATION 0.000 (m)

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

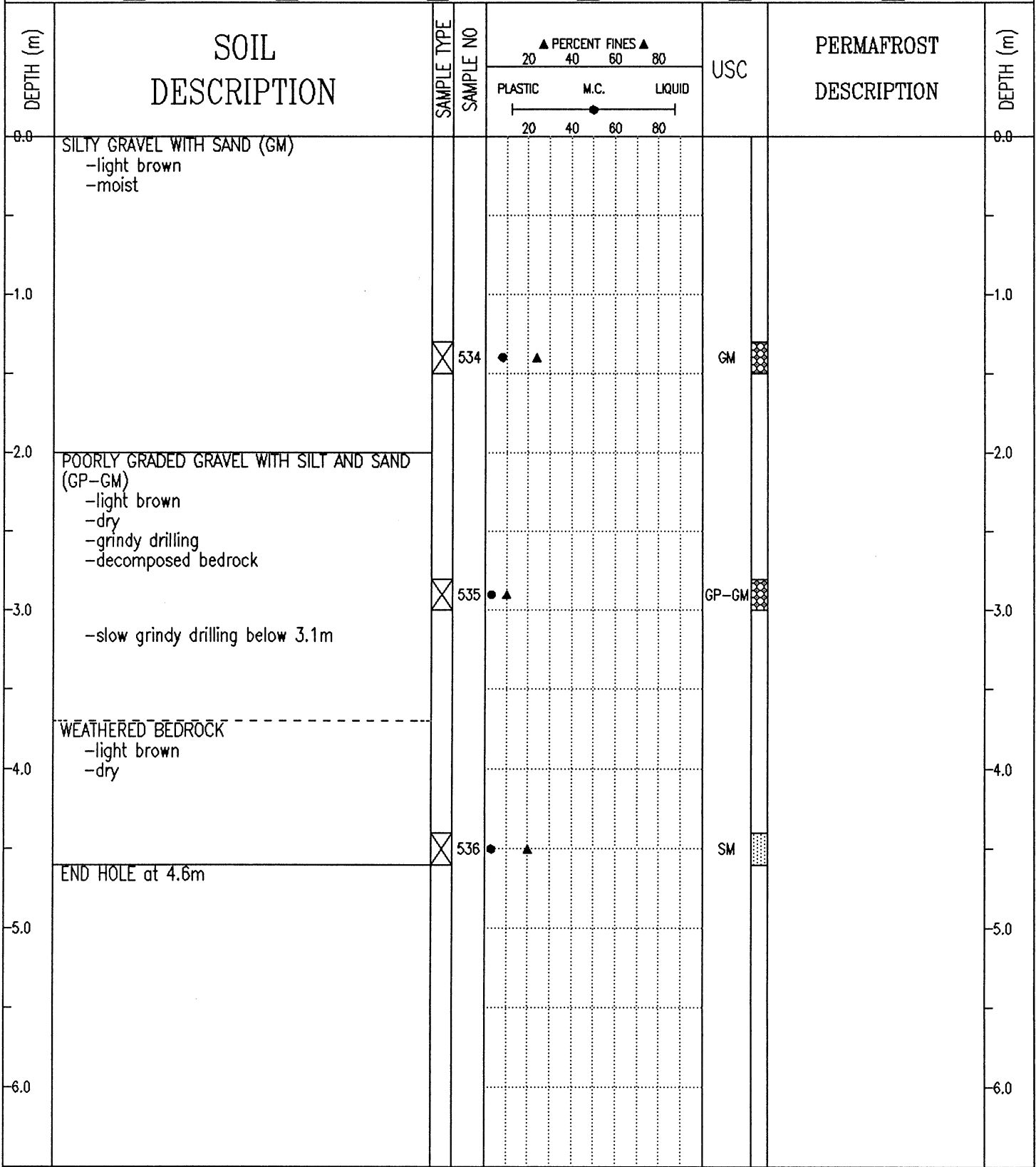
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL								0.0
1.0	SANDY SILT WITH GRAVEL (ML) -dark brown -frozen with visible ice (Vx) below 1.2m	<input checked="" type="checkbox"/>	537		60	75	ML		1.0
3.0	SANDY SILT (ML) -dark brown -frozen (Nf)	<input checked="" type="checkbox"/>	538	25	55	70	ML		3.0
4.6	SILT (ML) -dark brown -frozen (Nf)	<input checked="" type="checkbox"/>	539	25	55	70	ML		4.6
4.6	END HOLE at 4.6m -spruce cover								4.6

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COMPLETION DEPTH 4.6 m	COMPLETE 91/11/15
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	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-203
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1922+400 o/s 15m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-09
SHAKWAK PROJECT	SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235	LOCATION: STA 1922+400 o/s Rt.	ELEVATION 0.000 (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 ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■		DEPTH (m)
				20	40	60		80	20	40	60	
0.0	ORGANIC MATERIAL -frozen SILT -frozen with thin layers of ice											0.0
1.0	FRACTURED ROCK -dry -some silt											1.0
2.0												2.0
3.0												3.0
4.0												4.0
5.0												5.0
6.0												6.0

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COMPLETION DEPTH 3.2 m	COMPLETE 93/04/01
LOGGED BY BS	DWG NO.
	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-95
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1922+425 o/s 11m Rt.	ELEVATION 0.000 (m)

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

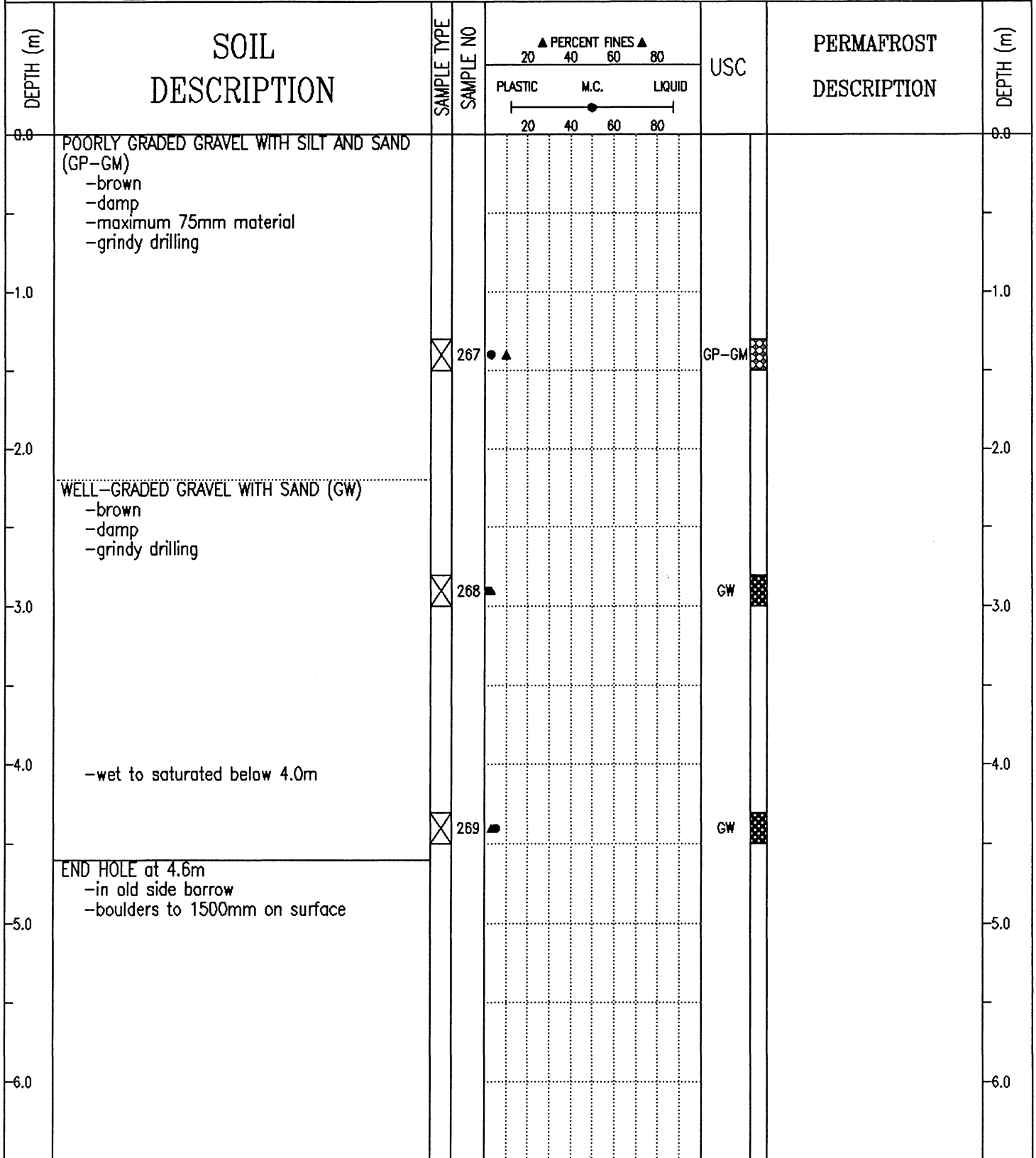
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	SILTY GRAVEL WITH SAND (GM) -brown -damp								0.0
1.0									1.0
2.0									2.0
2.67		⊗	267	●	▲		GM		2.67
3.0									3.0
3.6		⊗	268	●	▲		GM		3.6
4.0									4.0
5.0	END HOLE at 3.6m -refusal -in ditch								5.0
6.0									6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-06
SHAKWAK PROJECT	SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235	LOCATION: STA 1922+500 o/s Rt.	ELEVATION 0.000 (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 ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■		DEPTH (m)
				20	40	60		80	20	40	60	
0.0	ORGANIC MATERIAL -frozen SILT -frozen with visible ice											0.0
-1.0												-1.0
-2.0												-2.0
-3.0	END HOLE at 2.2m -on pole line											-3.0
-4.0												-4.0
-5.0												-5.0
-6.0												-6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-96
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1922+525 o/s 7m Rt.	ELEVATION 0.000 (m)

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



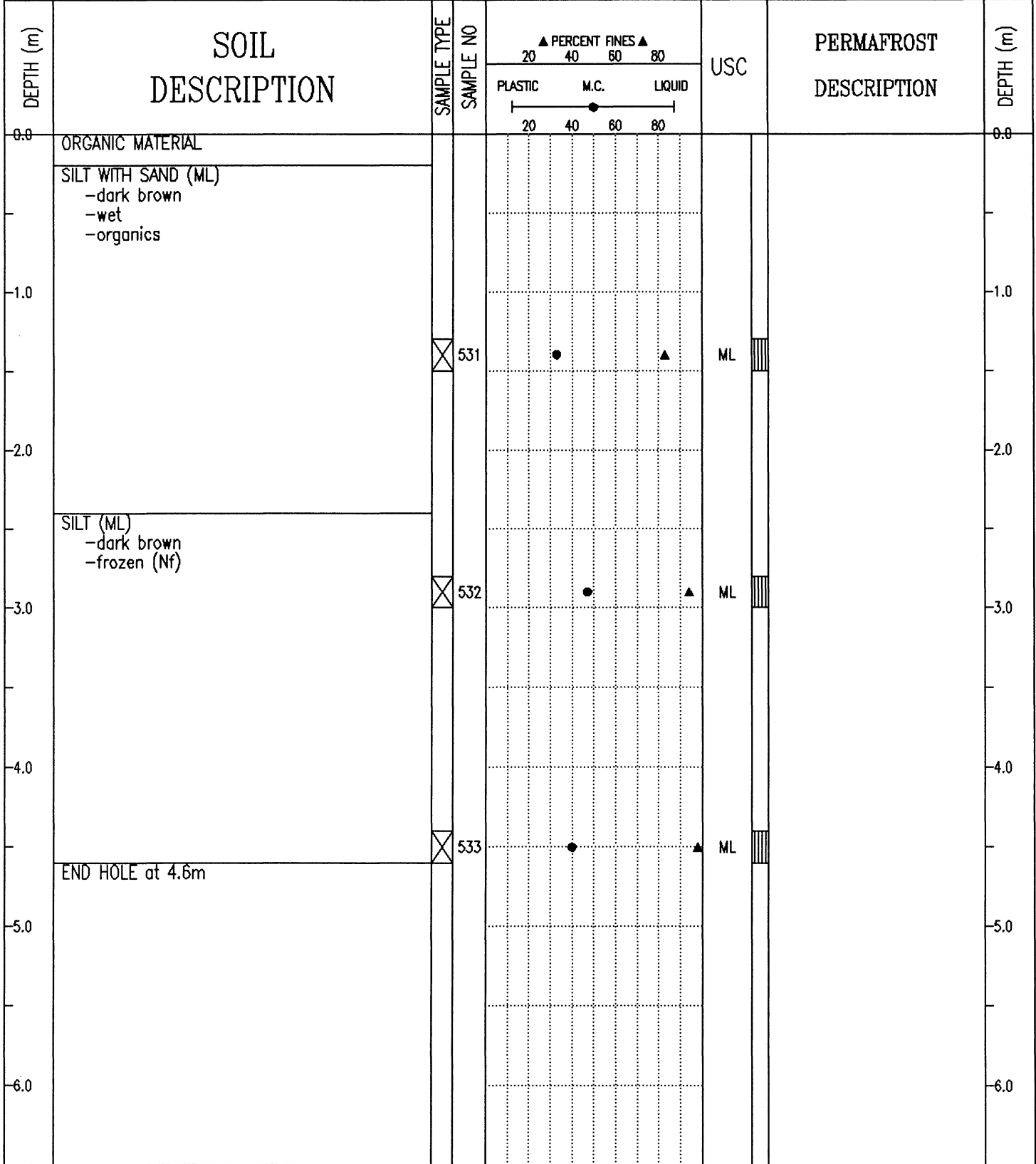
Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/22
	LOGGED BY	DWG NO.

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY RE-CONSTRUCTION	BOREHOLE No. 212-05
SHAKWAK PROJECT	SEGMENT 17B	Project No: 202101 0310
DRILL: BACKHOE: CAT 235	LOCATION: STA 1922+570 o/s Rt.	ELEVATION 0.000 (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 ▲			USC	PERCENT SAND ◆		PERCENT GRAVEL ■		DEPTH (m)
				20	40	60		80	20	40	60	
0.0	ORGANIC MATERIAL -frozen											0.0
	SILT -frozen with ice lenses											
-1.0												-1.0
-2.0	END HOLE at 2.0m -on pole line											-2.0
-3.0												-3.0
-4.0												-4.0
-5.0												-5.0
-6.0												-6.0

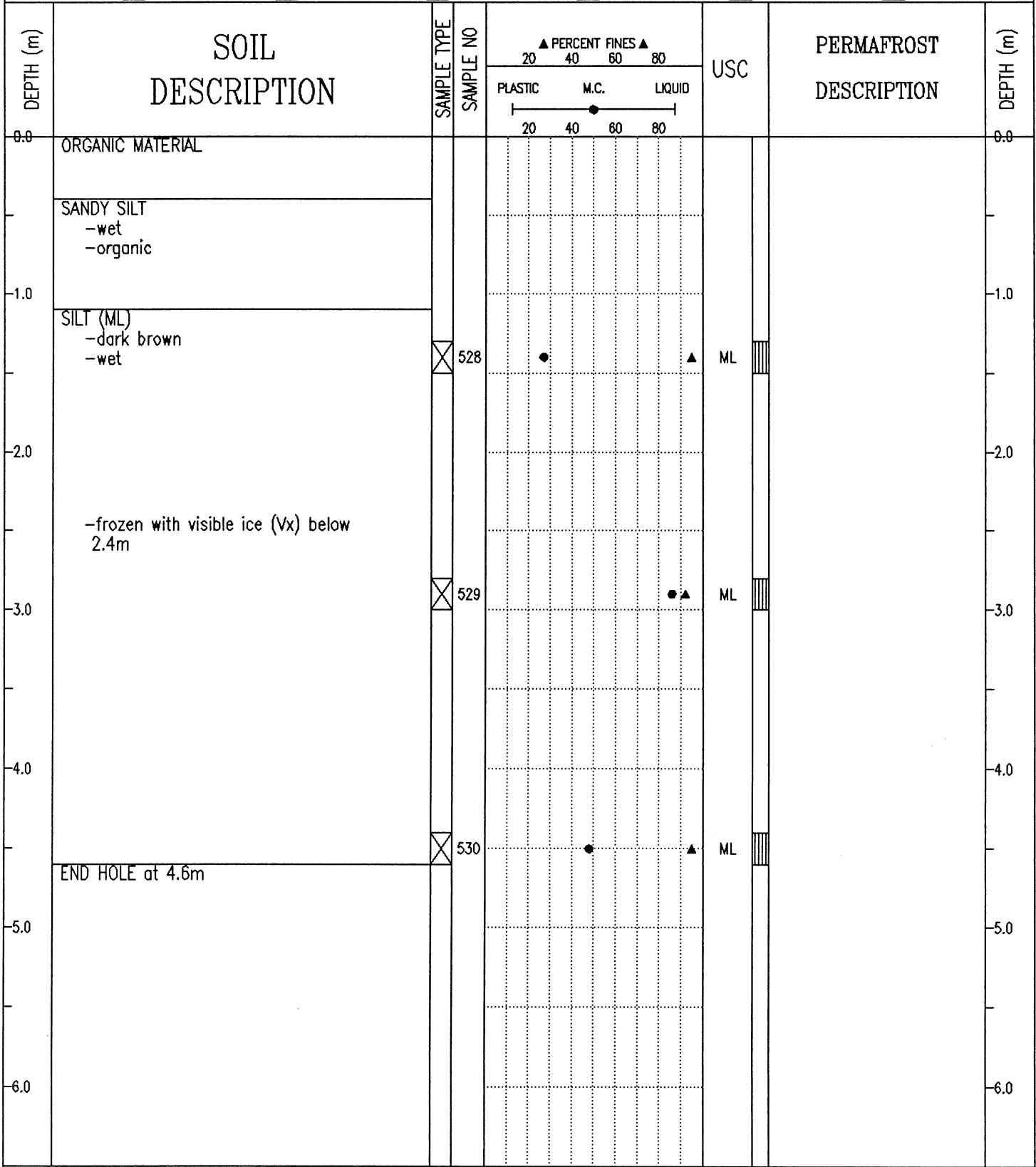
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-202
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1922+630 o/s 5m Rt.	ELEVATION 0.000 (m)

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



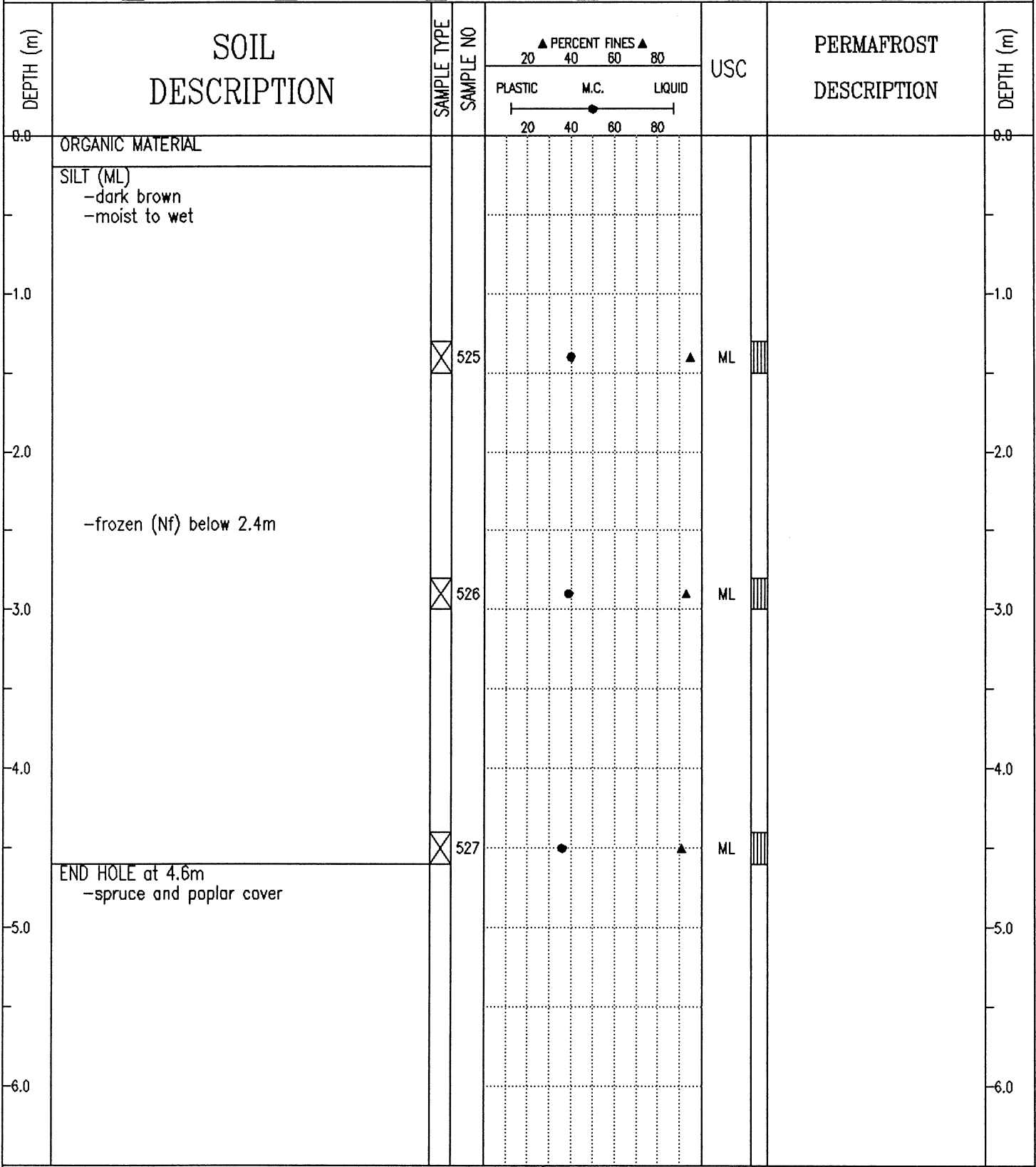
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-201
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1922+725 o/s 5m Rt.	ELEVATION 0.000 (m)

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



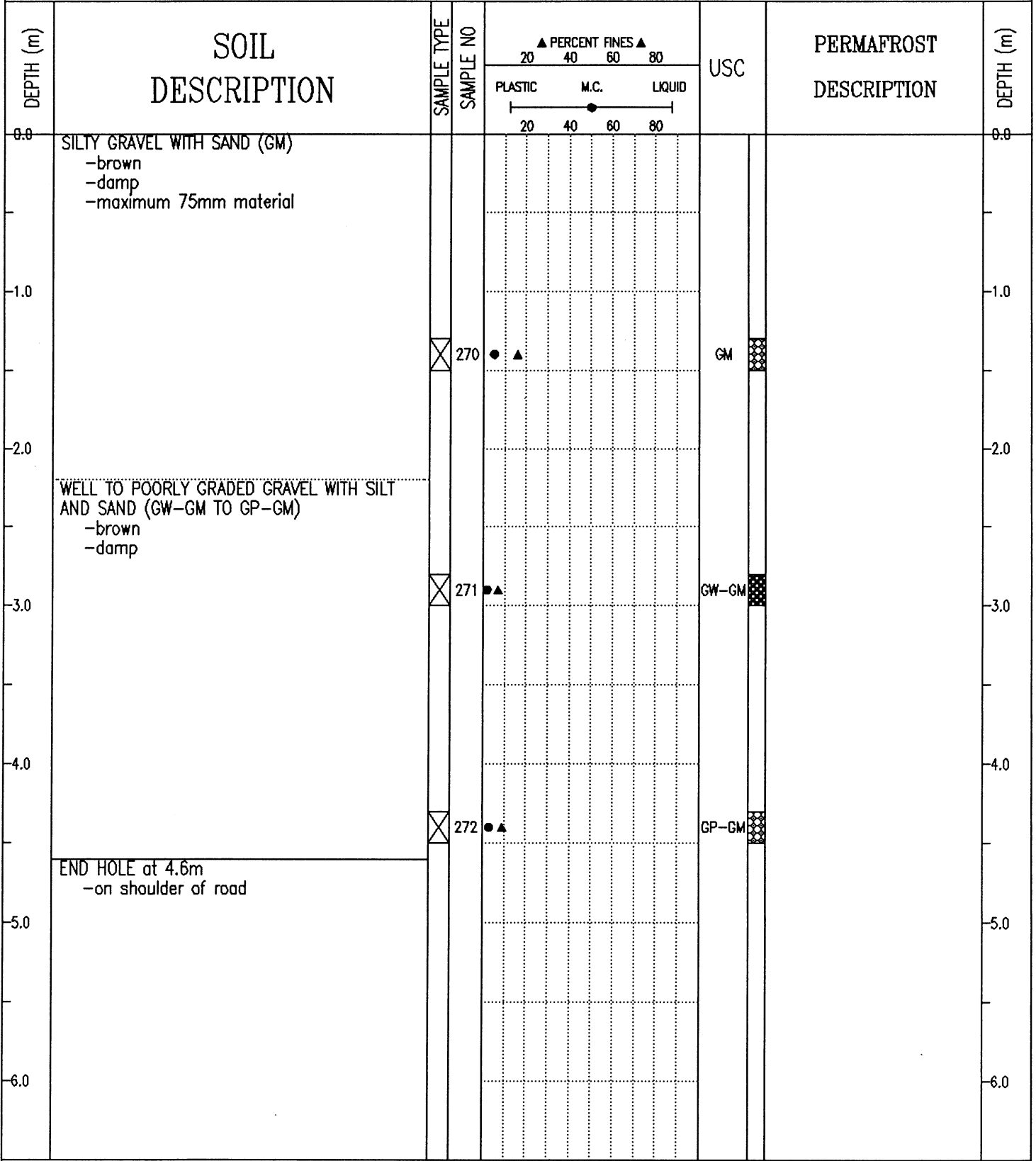
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-200
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1922+825 o/s 11m Lt.	ELEVATION 0.000 (m)

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



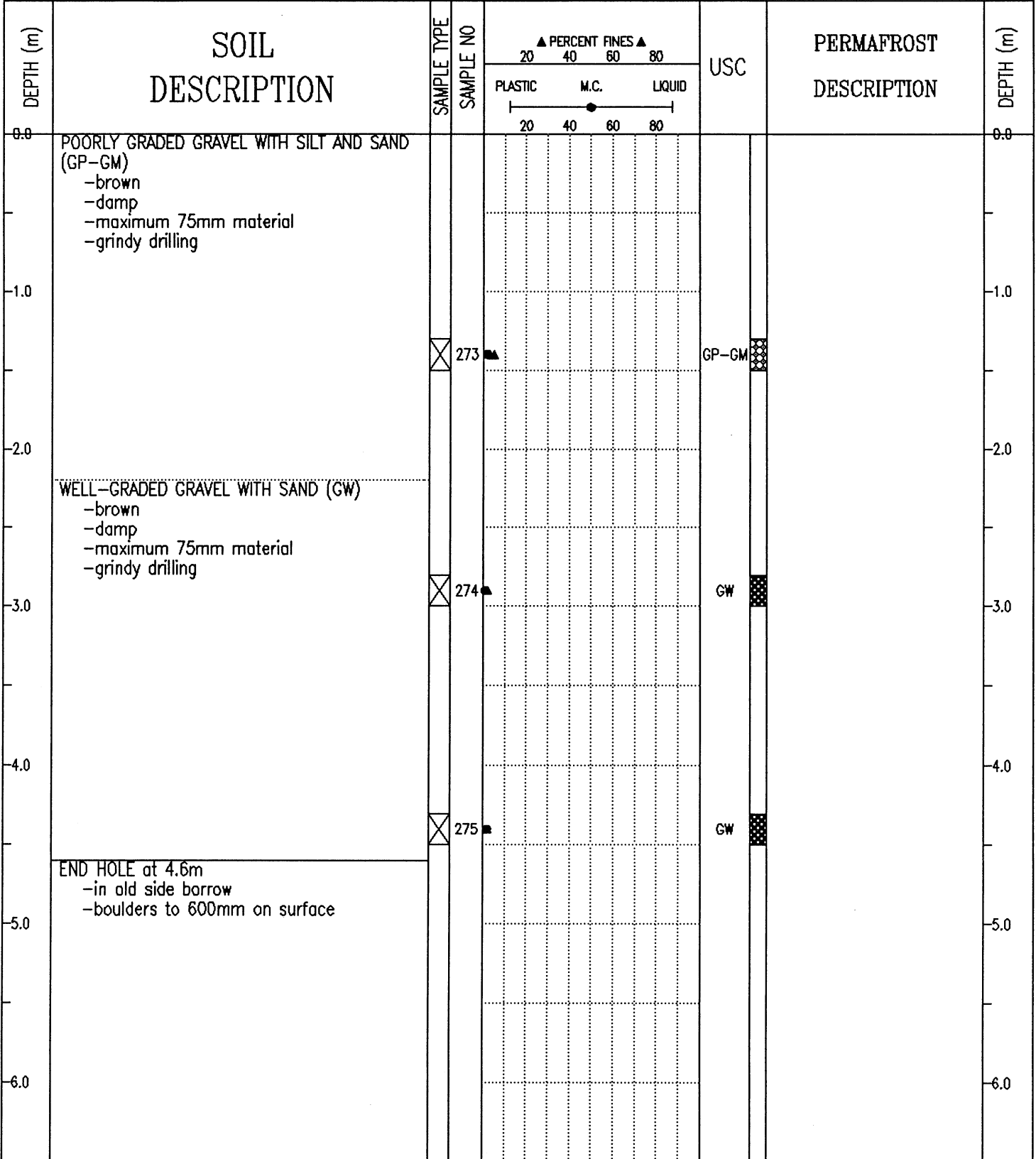
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-97
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1922+925 o/s 8m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-98
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1923+025 o/s 9m Lt.	ELEVATION 0.000 (m)

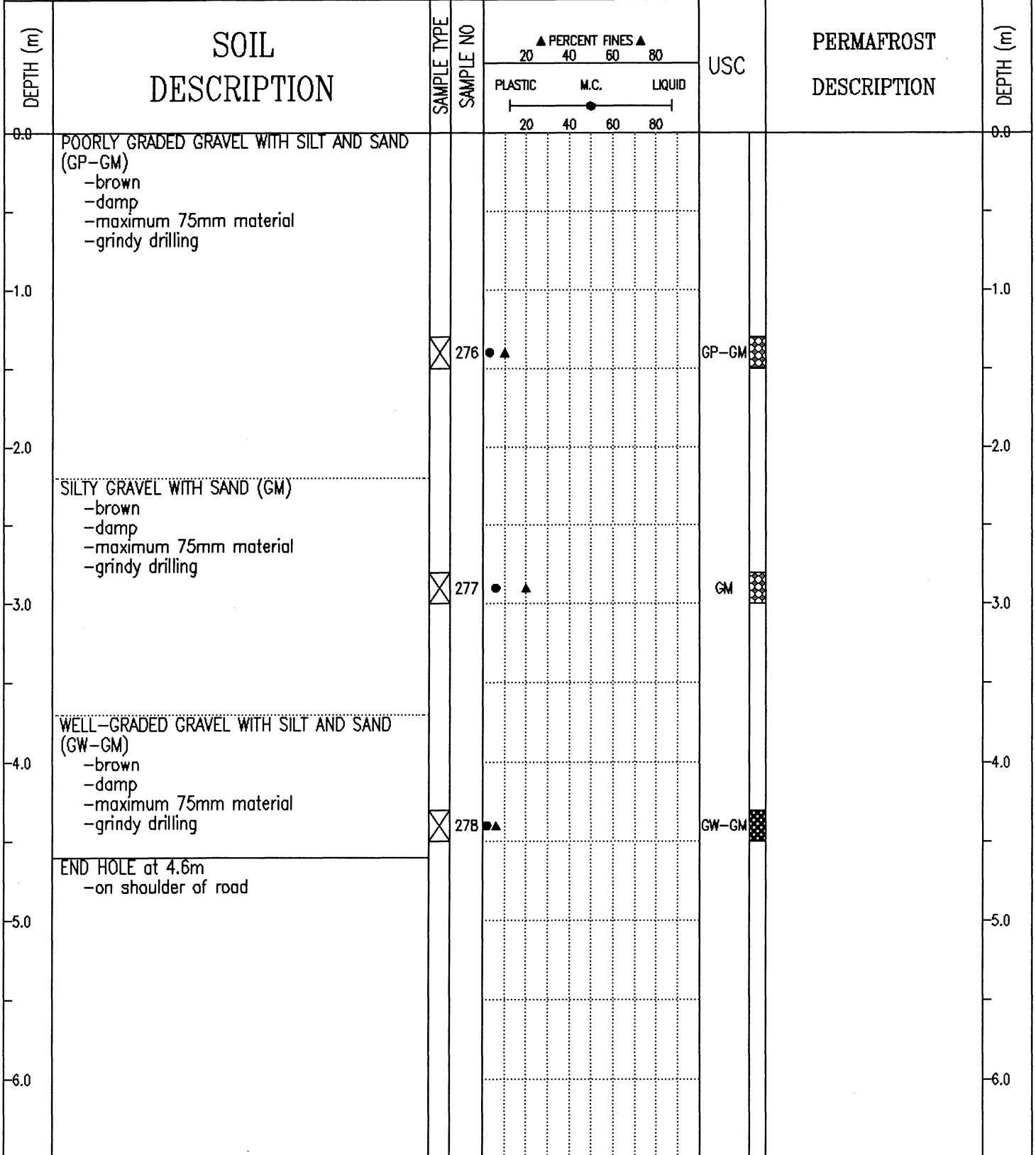
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/22
	LOGGED BY	DWG NO.

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-99
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1923+125 o/s 5m Rt.	ELEVATION 0.000 (m)

SAMPLE TYPE	<input checked="" type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input checked="" type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE
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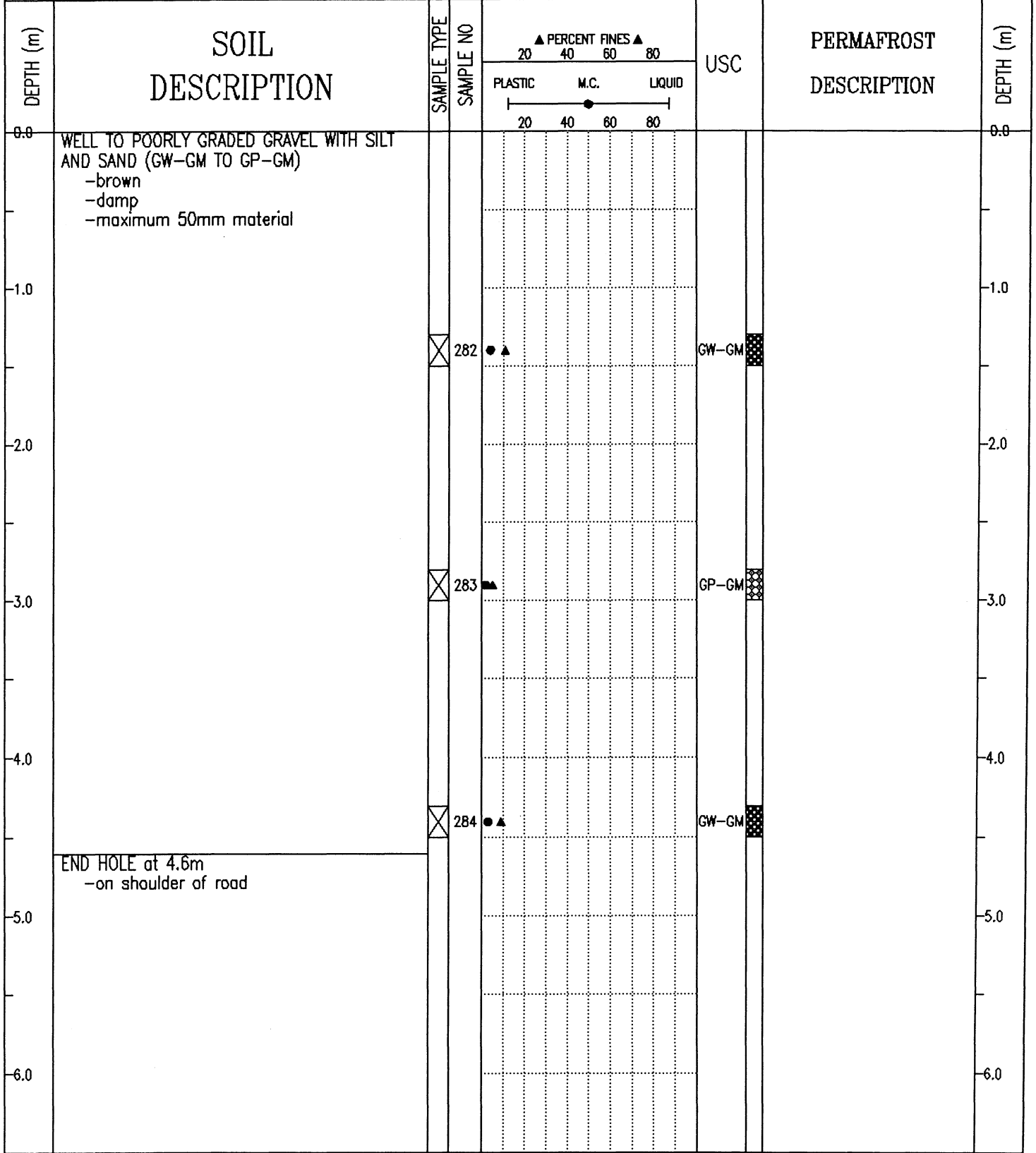
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-100
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1923+225 o/s 9m Rt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	SILTY GRAVEL WITH SAND (GM) -brown -moist -maximum 75mm material -grindy drilling								0.0
1.0									1.0
2.0	SILT WITH GRAVEL (ML) -brown -wet -smooth drilling		279	●	▲		GM		2.0
3.0									3.0
4.0	GRAVELLY SAND		280	●	▲		ML		4.0
5.0	SILTY GRAVEL WITH SAND (GM) -brown -wet		281	●	▲		GM		5.0
6.0	END HOLE at 4.6m -at entrance to old borrow pit								6.0

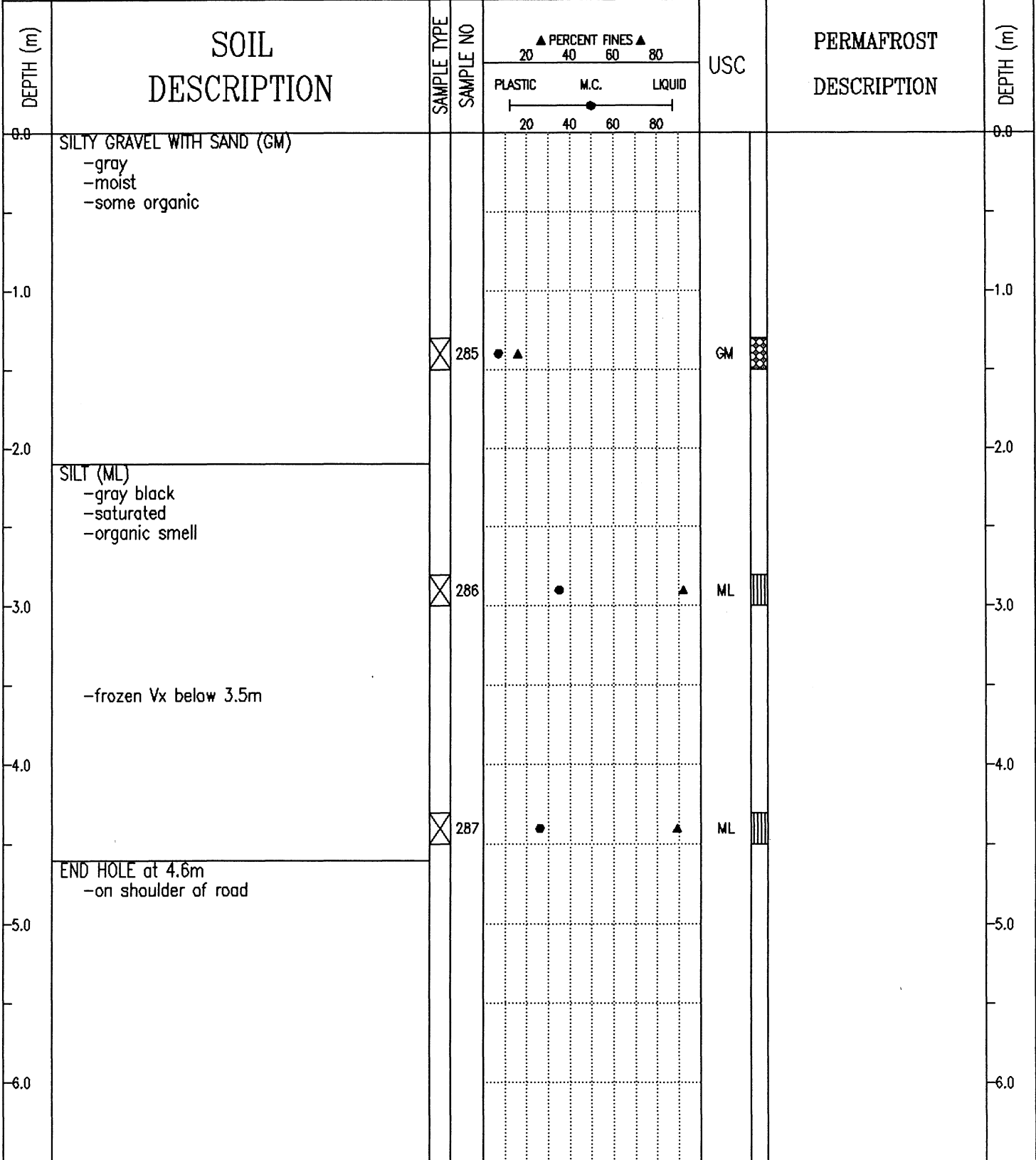
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-101
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1923+325 o/s 7m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-102
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1923+425 o/s 7m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-103
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1923+525 o/s 6m Rt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	SILTY GRAVEL -brown -moist -road fill -grindy drilling								0.0
1.0	SILTY GRAVEL WITH SAND (GM) -gray -moist -organic smell								1.0
2.0									2.0
3.0									3.0
4.0									4.0
5.0									5.0
6.0									6.0

Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/24
	LOGGED BY	DWG NO.

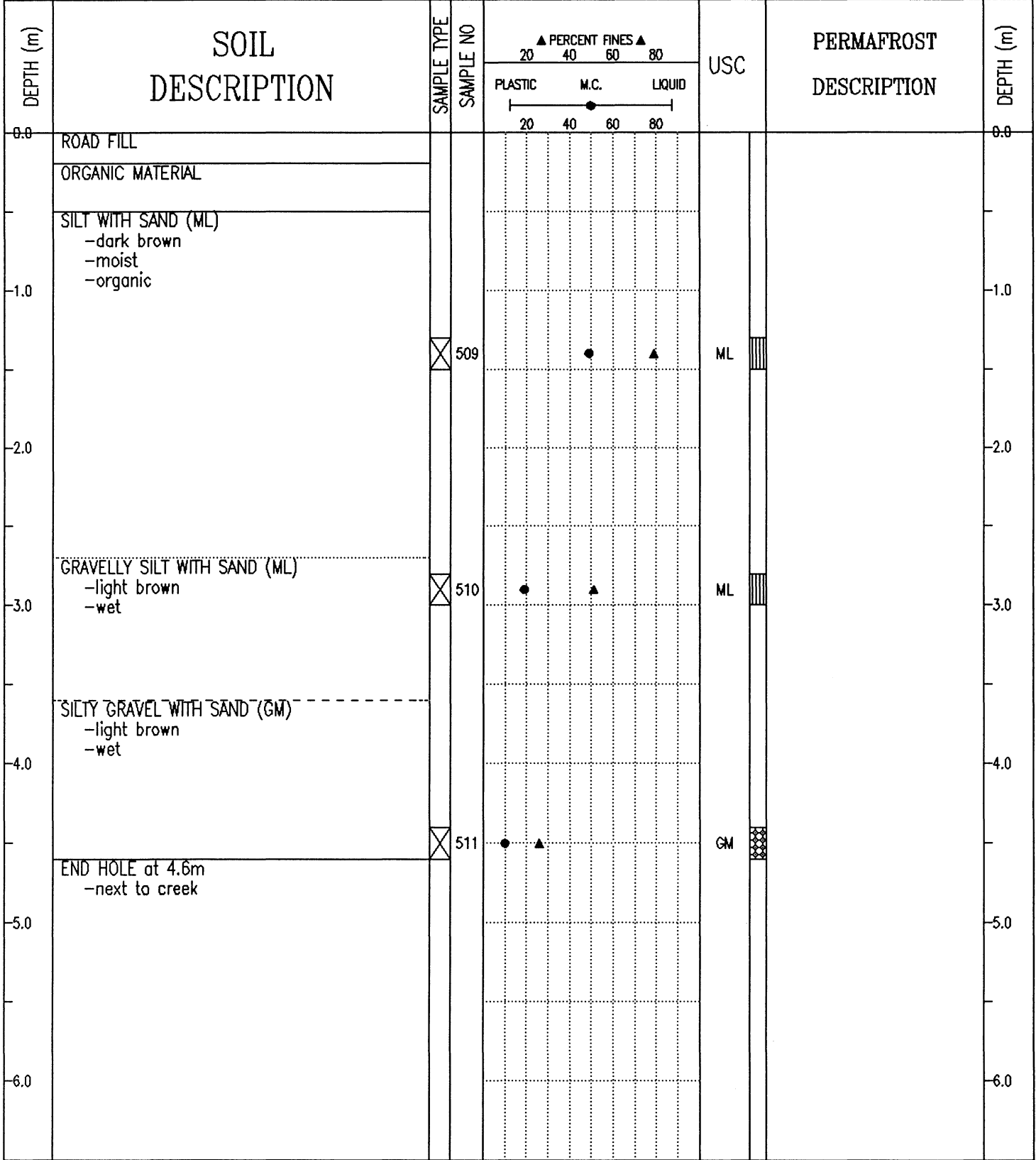
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-195
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1923+625 o/s 8m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL							0.0	
	SILTY SAND WITH GRAVEL -road fill -wet								
1.0	ORGANIC MATERIAL -wet							1.0	
	SANDY SILT (ML) -wet -organics -grindy drilling	<input checked="" type="checkbox"/>	512				SM		
2.0								2.0	
		<input checked="" type="checkbox"/>	513				ML		
3.0								3.0	
	SILTY SAND WITH GRAVEL (SM) -wet -slow grindy drilling	<input checked="" type="checkbox"/>	514				SM		
4.0								4.0	
	END HOLE at 4.2m -refusal -near creek								
5.0								5.0	
6.0								6.0	

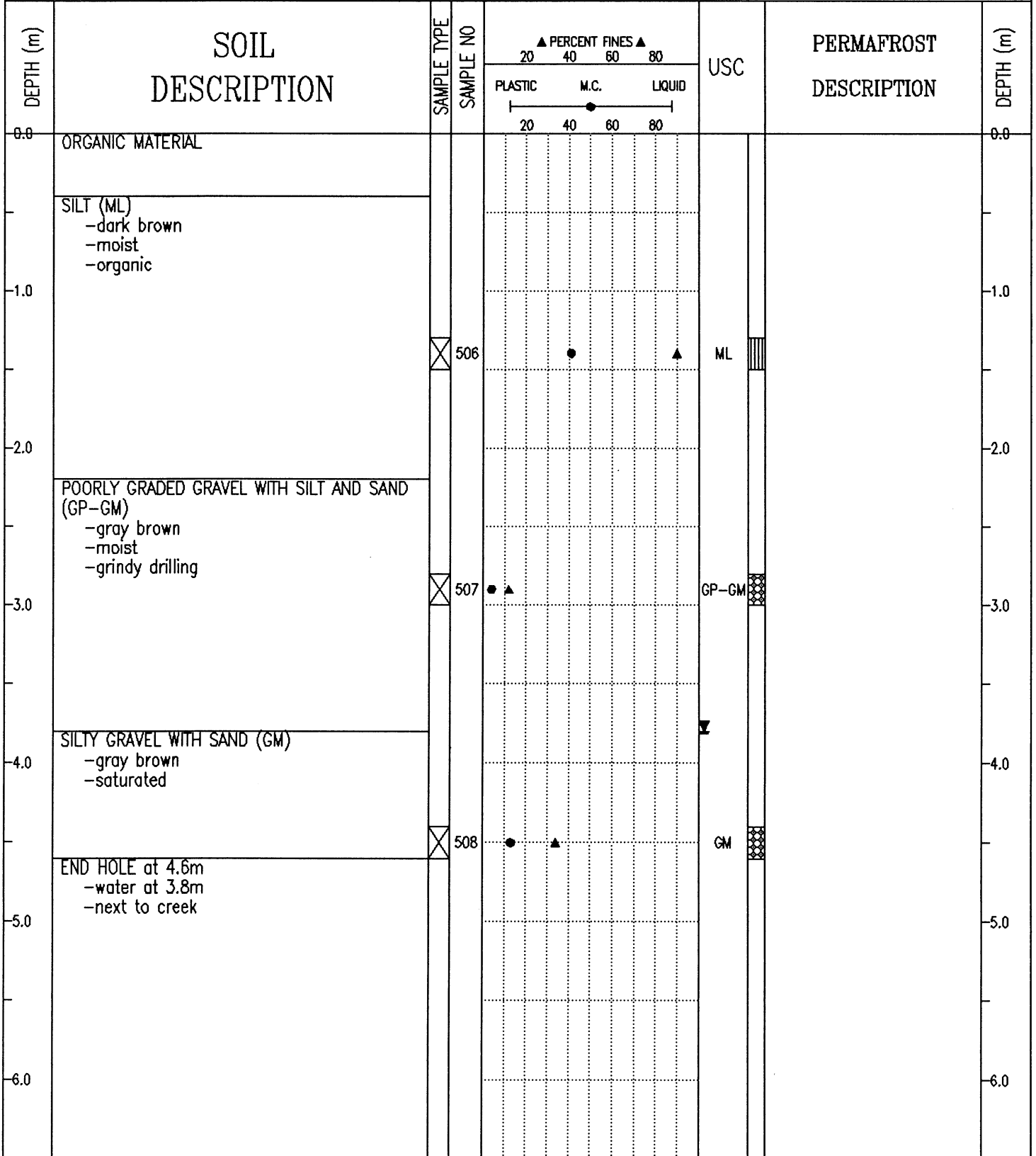
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-194
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1923+725 o/s 10m Lt.	ELEVATION 0.000 (m)

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



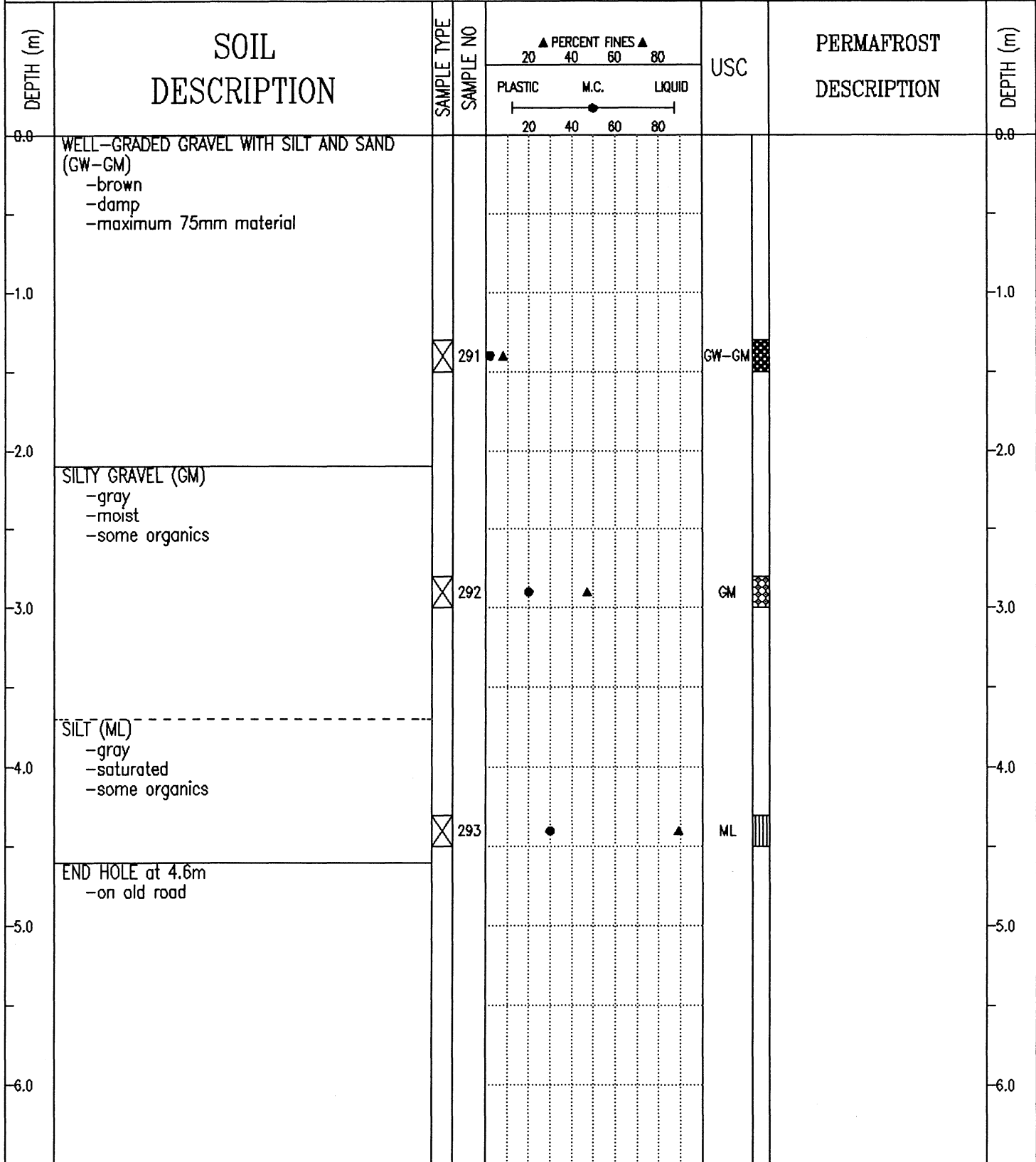
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-193
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1923+825 o/s 11m Lt.	ELEVATION 0.000 (m)

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



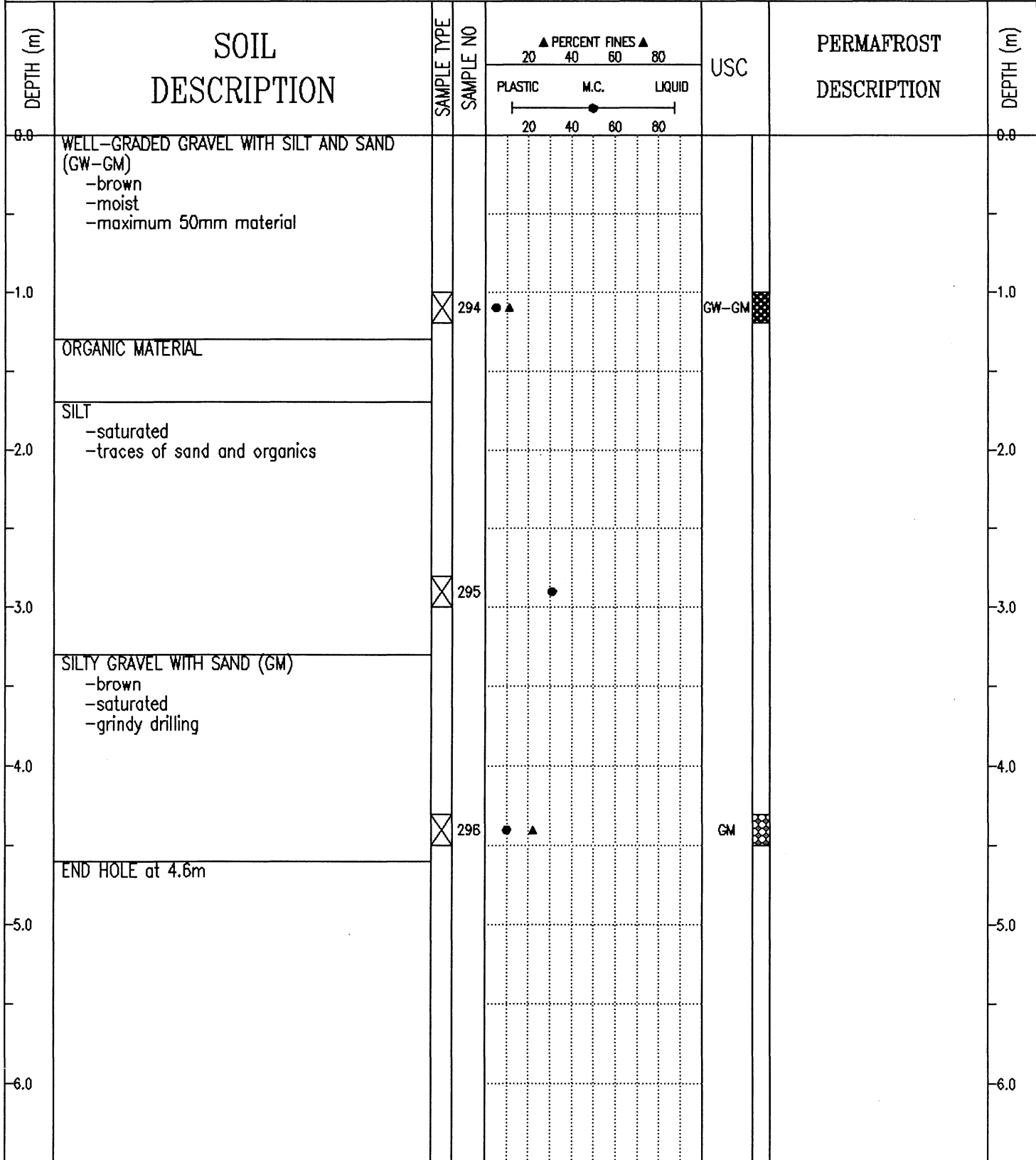
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-104
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1923+900 o/s 7m Rt.	ELEVATION 0.000 (m)

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

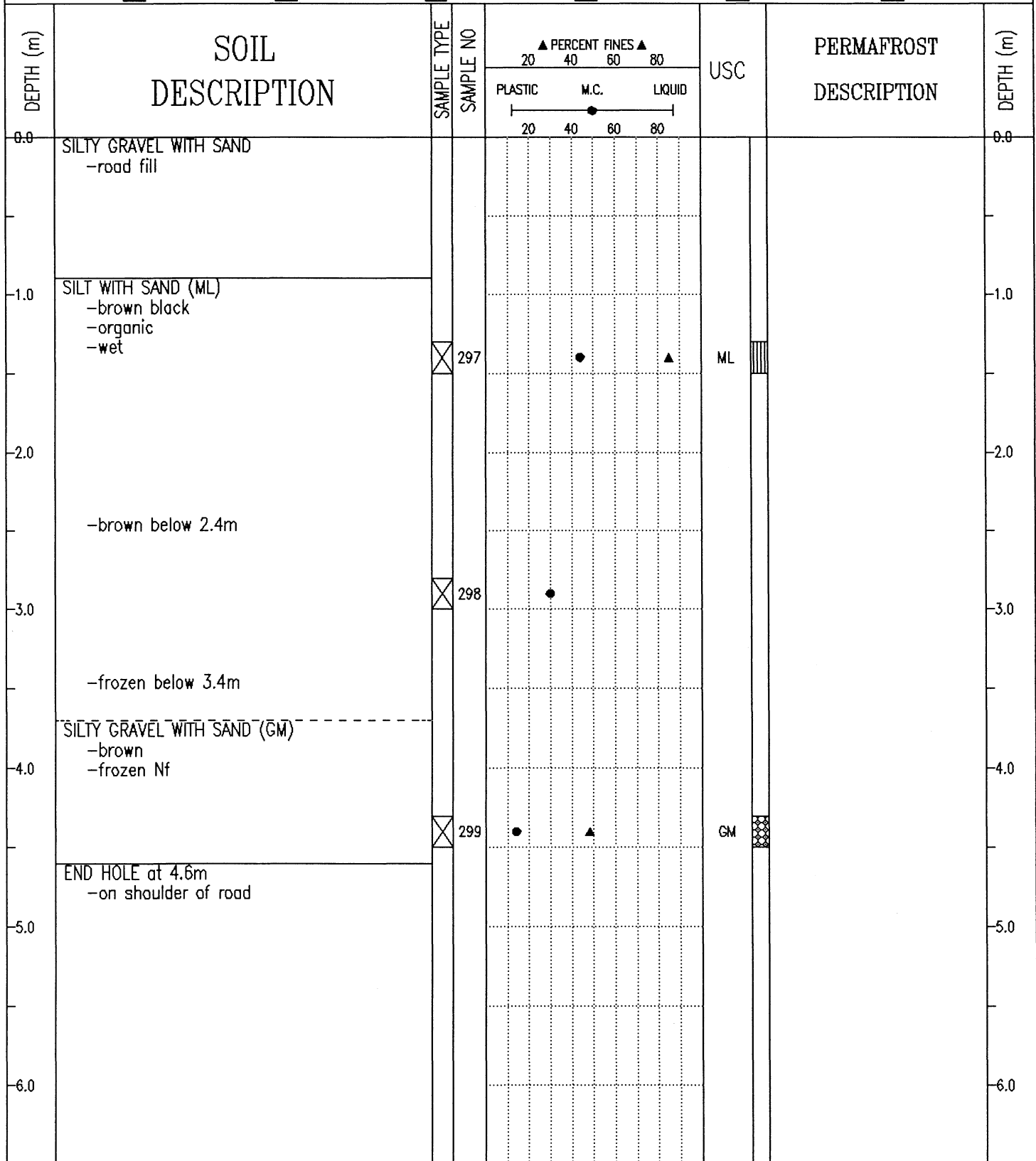


SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-105
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1924+010 o/s 5m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-106
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1924+100 o/s 5m Lt.	ELEVATION 0.000 (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		



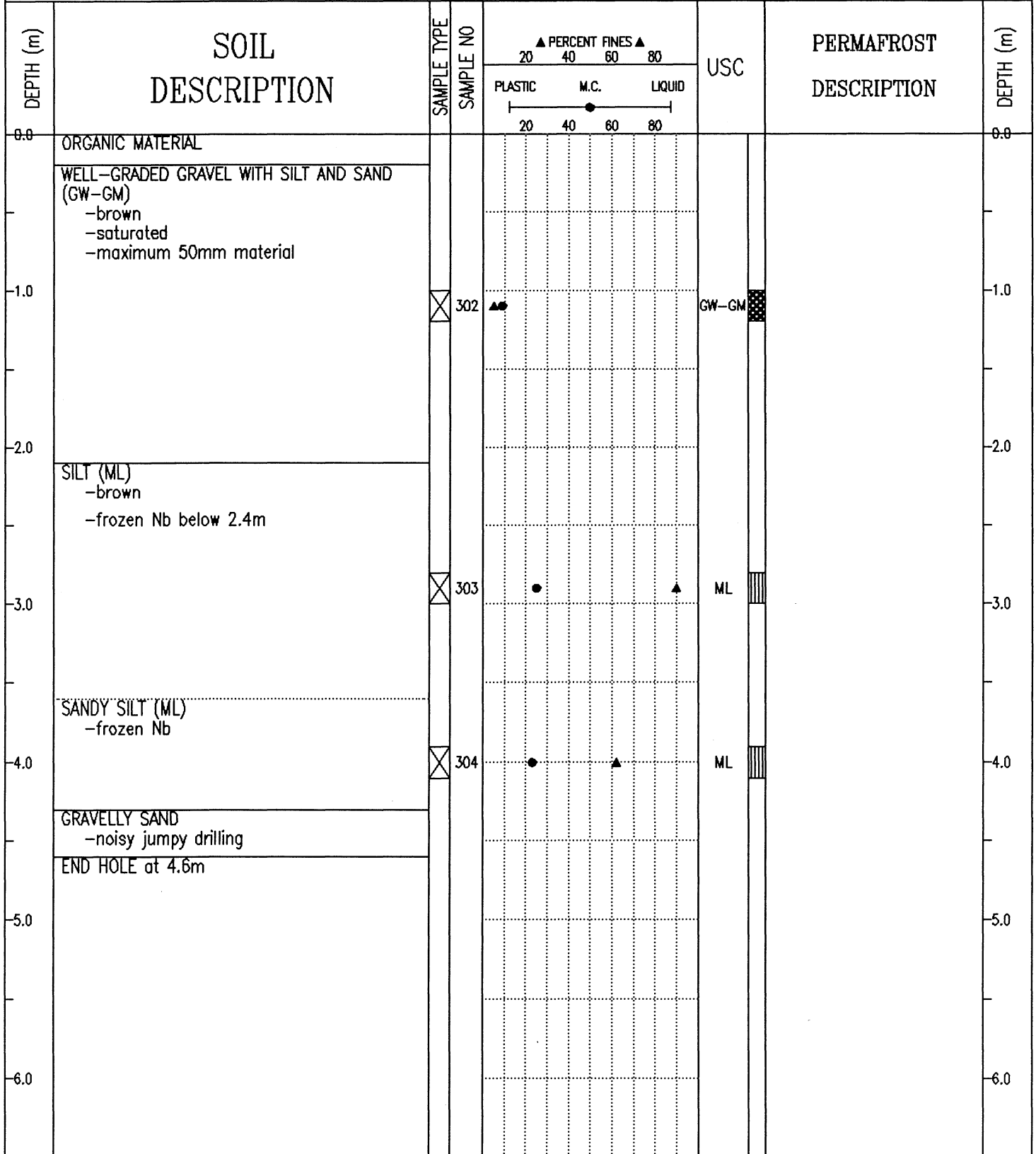
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-107
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1924+200 o/s 5m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	SILTY GRAVEL WITH SAND -road fill								0.0
1.0	ORGANIC MATERIAL		300	●					1.0
2.0	SILT WITH SAND (ML) -brown -frozen Vx below 2.1m								2.0
3.0			301	●		▲	ML		3.0
4.0	END HOLE at 3.9m -refusal -on shoulder of road								4.0
5.0									5.0
6.0									6.0

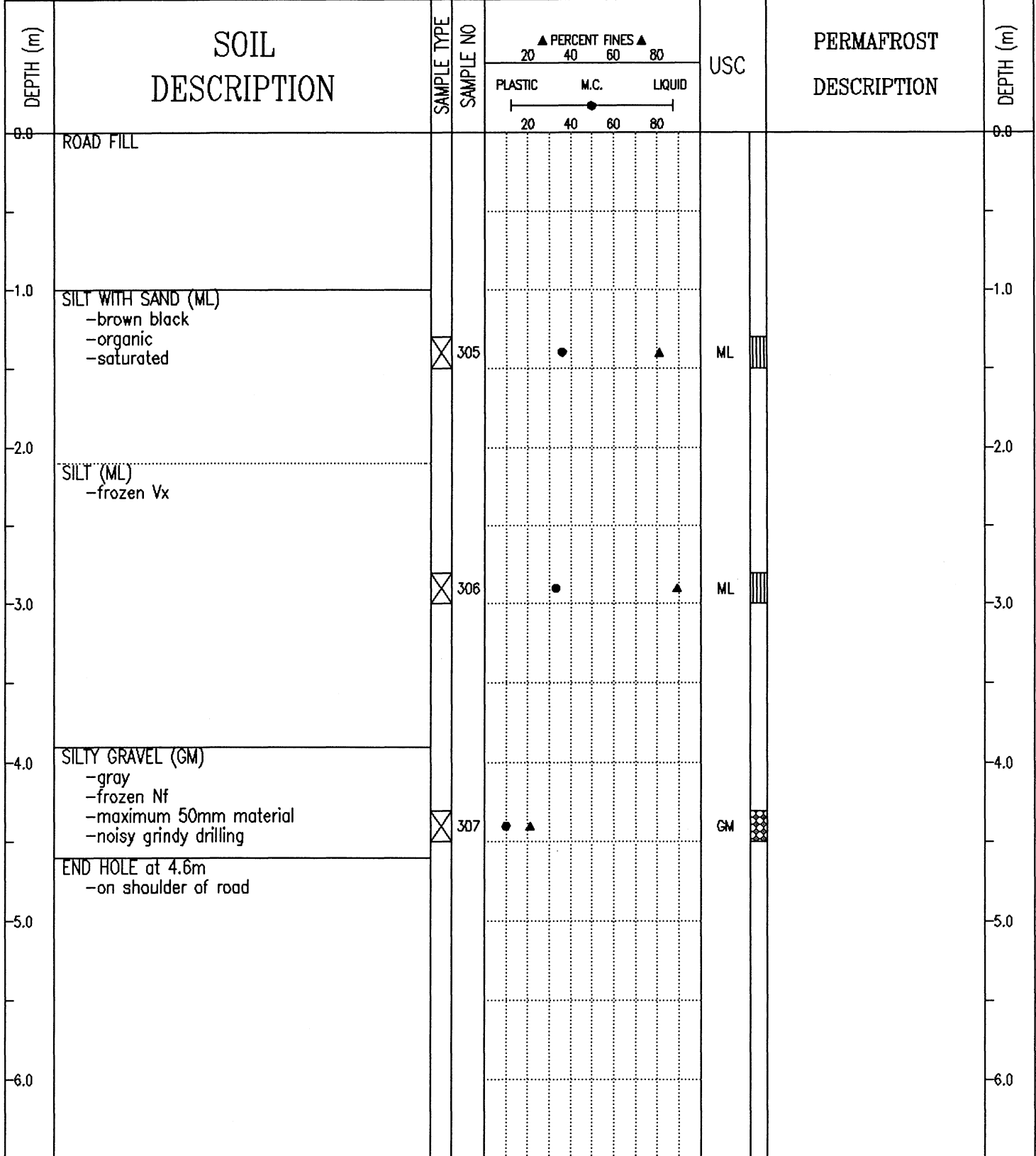
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-108
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1924+300 o/s 6m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-109
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1924+400 o/s 6m Lt.	ELEVATION 0.000 (m)

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



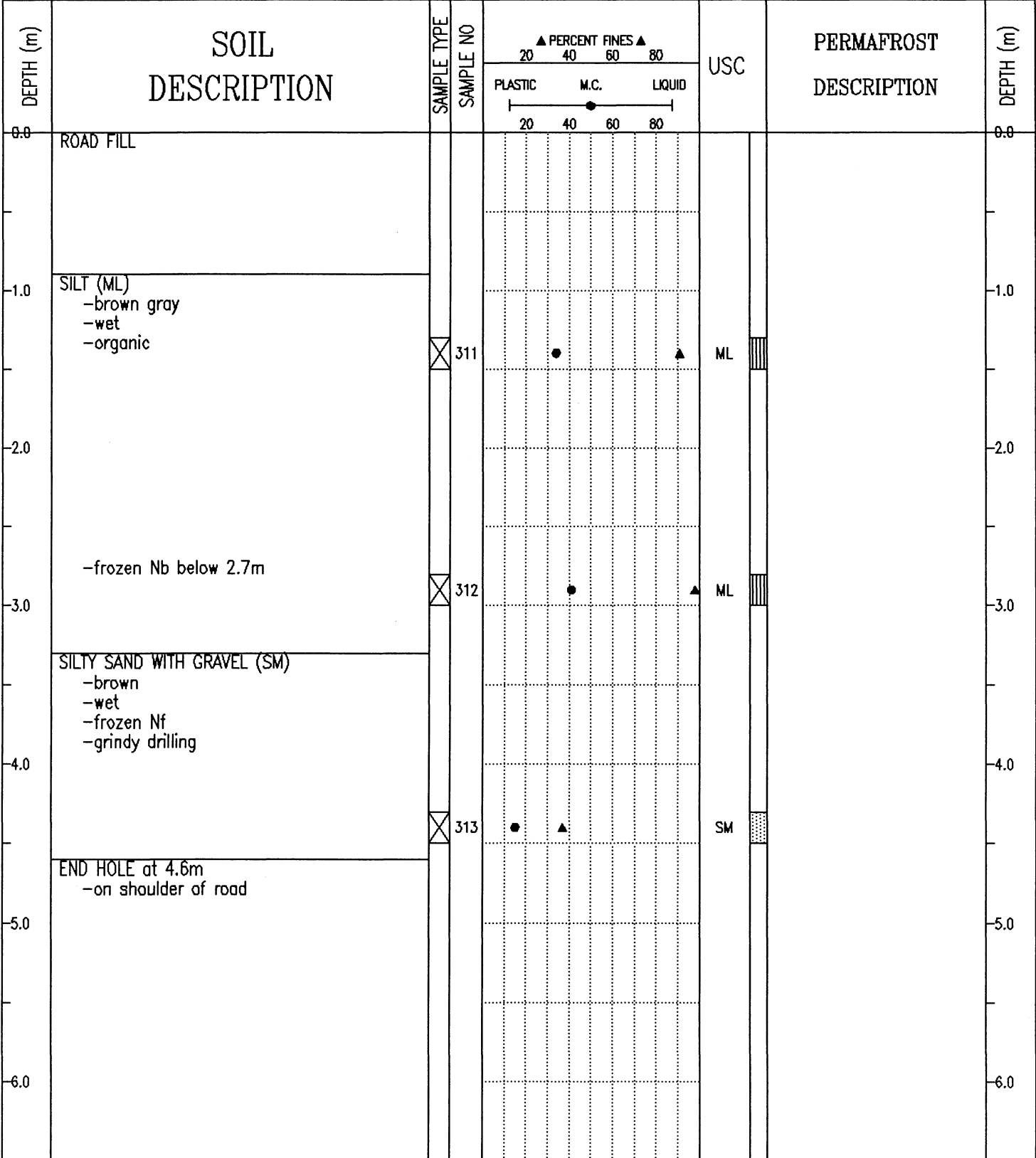
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-110
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1924+500 o/s 6m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ROAD FILL							0.0	
1.0	SILT WITH SAND (ML) -brown black -wet -organic	<input checked="" type="checkbox"/>	308	●		▲	ML	1.0	
2.0								2.0	
3.0	SILT (ML) -brown -wet	<input checked="" type="checkbox"/>	309	●		▲	ML	3.0	
4.0	SILTY GRAVEL WITH SAND (GM) -brown -saturated -very noisy grindy jumpy drilling	<input checked="" type="checkbox"/>	310	●	▲		GM	4.0	
5.0	END HOLE at 4.6m -on shoulder of road							5.0	
6.0								6.0	

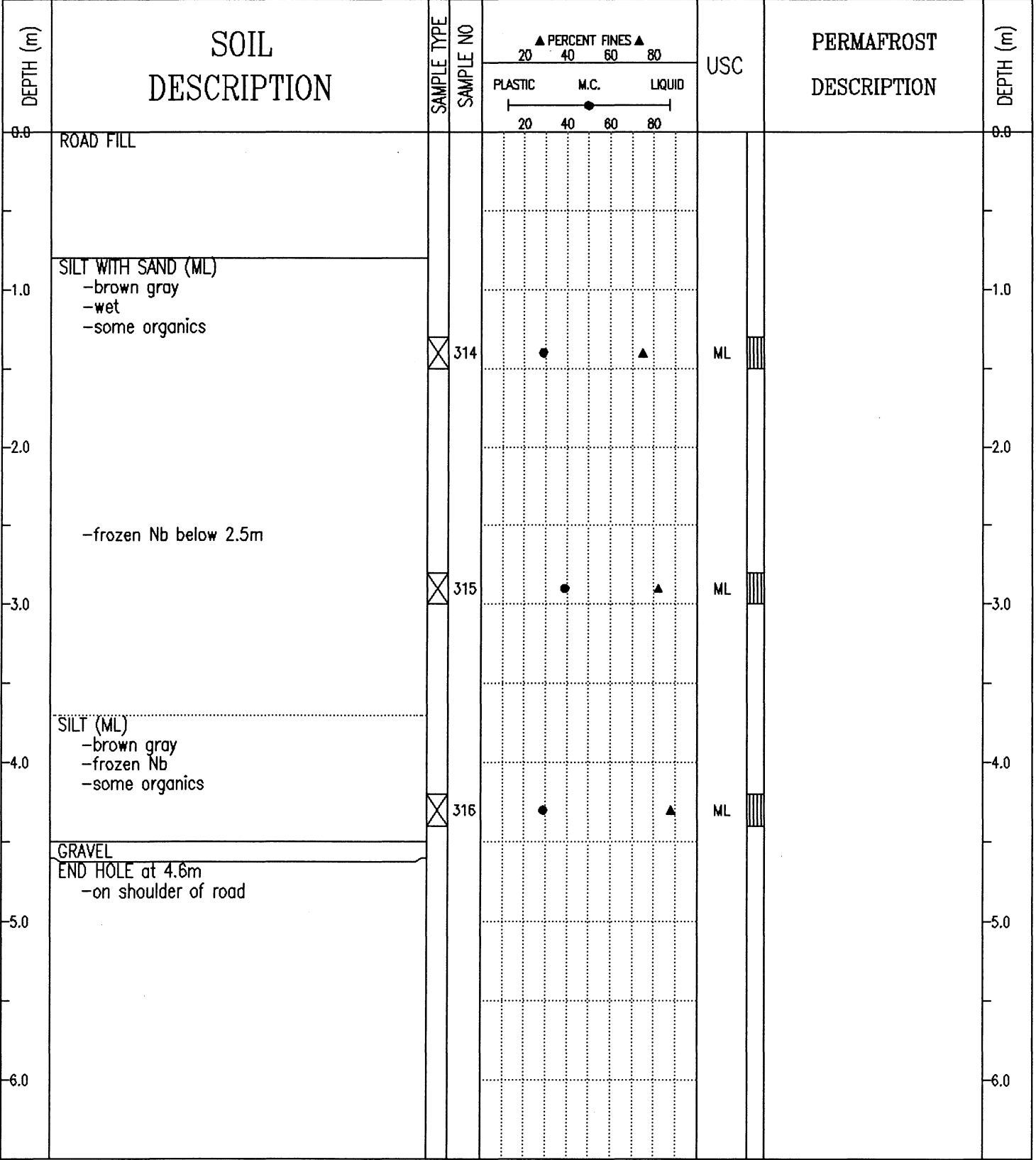
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-111
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1924+600 o/s 6m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-112
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1924+700 o/s 6m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-113
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1924+800 o/s 4m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ROAD FILL								0.0
1.0	SILT WITH SAND (ML) -brown black -wet -some organics	<input checked="" type="checkbox"/>	317	●		▲	ML		1.0
2.0									2.0
3.0	SILT (ML) -brown black -wet -some organics -frozen below 3.0m	<input checked="" type="checkbox"/>	318	●		▲	ML		3.0
4.0	GRAVELLY SAND -some silt -frozen Nf -grindy drilling	<input checked="" type="checkbox"/>	319	●					4.0
5.0	END HOLE at 4.6m -on shoulder of road								5.0
6.0									6.0

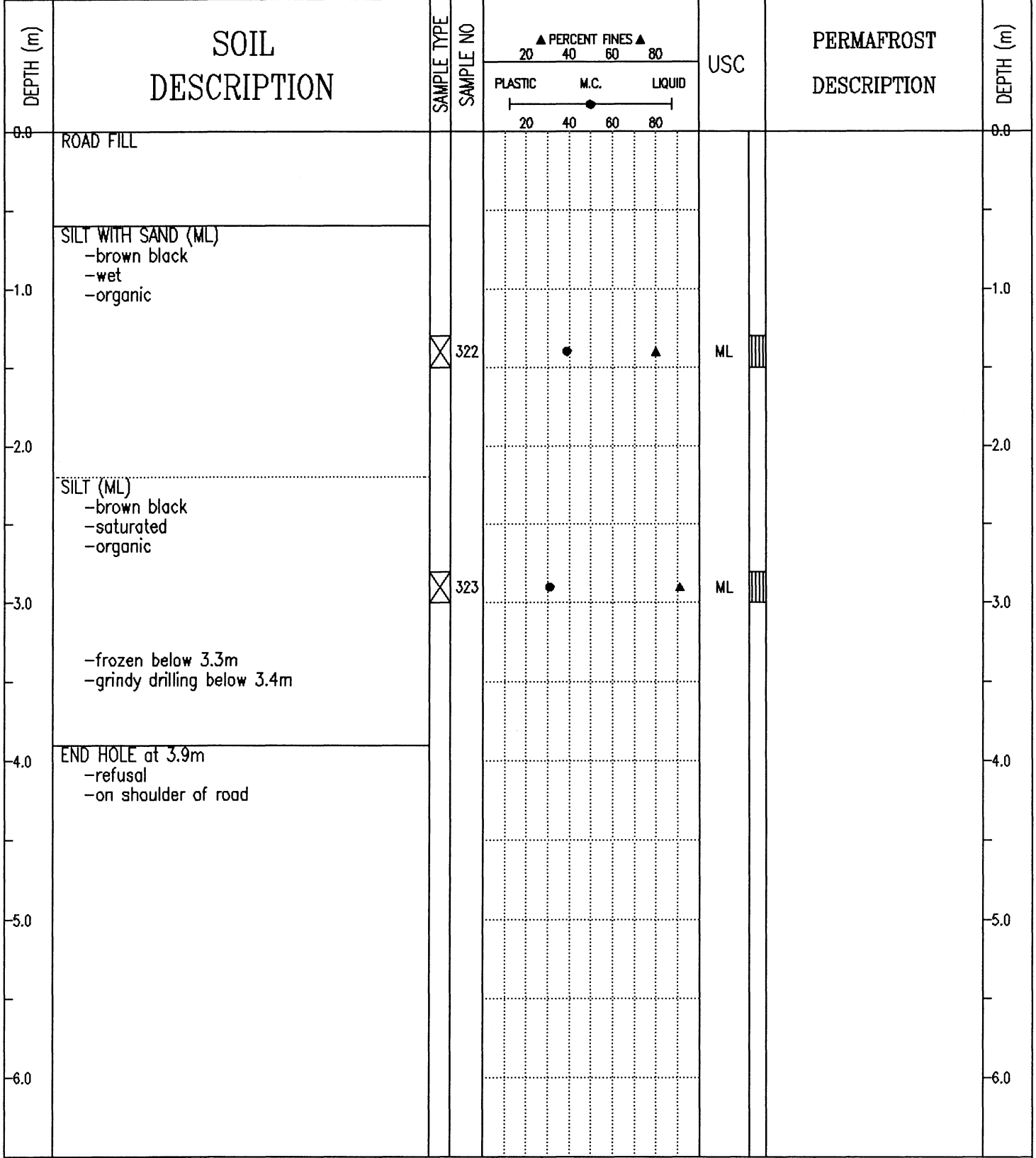
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-114
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1924+900 o/s 3m Rt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ROAD FILL							0.0	
0.0 - 1.0	SANDY SILT (ML) -brown black -wet -organic -some ash								
1.0 - 2.4		<input checked="" type="checkbox"/>	320	45	55	75	ML		
2.4 - 3.0	SILT WITH SAND (ML) -brown -frozen Nb below 2.4m								
3.0 - 3.8	-grindy drilling below 3.0m	<input checked="" type="checkbox"/>	321	45	55	75	ML		
3.8 - 4.0	END HOLE at 3.8m -refusal -on shoulder of road								
4.0 - 6.0									

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-115
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1925+000 o/s 4m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 143-116
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1925+100 o/s 5m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ROAD FILL							0.0	
1.0	SILT (ML) -brown black -wet -organic	<input checked="" type="checkbox"/>	324				ML	1.0	
2.0	SILT WITH SAND (ML) -brown -frozen Nb -organic	<input checked="" type="checkbox"/>	325				ML	2.0	
3.0								3.0	
4.0	WELL-GRADED SAND WITH SILT AND GRAVEL (SW-SM) -brown -frozen Nf -grindy drilling	<input checked="" type="checkbox"/>	326				SW-SM	4.0	
5.0	END HOLE at 4.6m -on shoulder of road							5.0	
6.0								6.0	

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-117
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1925+200 o/s 3m Rt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ROAD FILL							0.0	
1.0	ORGANIC MATERIAL		327					1.0	
2.0	SILT -organics -frozen below 2.1m							2.0	
3.0	SILTY SAND WITH GRAVEL (SM) -brown -frozen Nf -grindy drilling		328				SM	3.0	
4.0	END HOLE at 3.6m -refusal -on shoulder of road							4.0	
5.0								5.0	
6.0								6.0	

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-118
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1925+300 o/s 3m Rt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ROAD FILL							0.0	
1.0	GRAVELLY SILT WITH SAND (ML) -brown -wet -organic	<input checked="" type="checkbox"/>	329		55	75	ML	1.0	
2.0	SILT (ML) -frozen Nb -organics	<input checked="" type="checkbox"/>	330		55	75	ML	2.0	
3.0	WELL-GRADED GRAVEL WITH SILT AND SAND (GW-GM) -brown -frozen Nf -grindy drilling	<input checked="" type="checkbox"/>	331	15	55	75	GW-GM	3.0	
4.0								4.0	
5.0	END HOLE at 4.6m -on shoulder of road							5.0	
6.0								6.0	

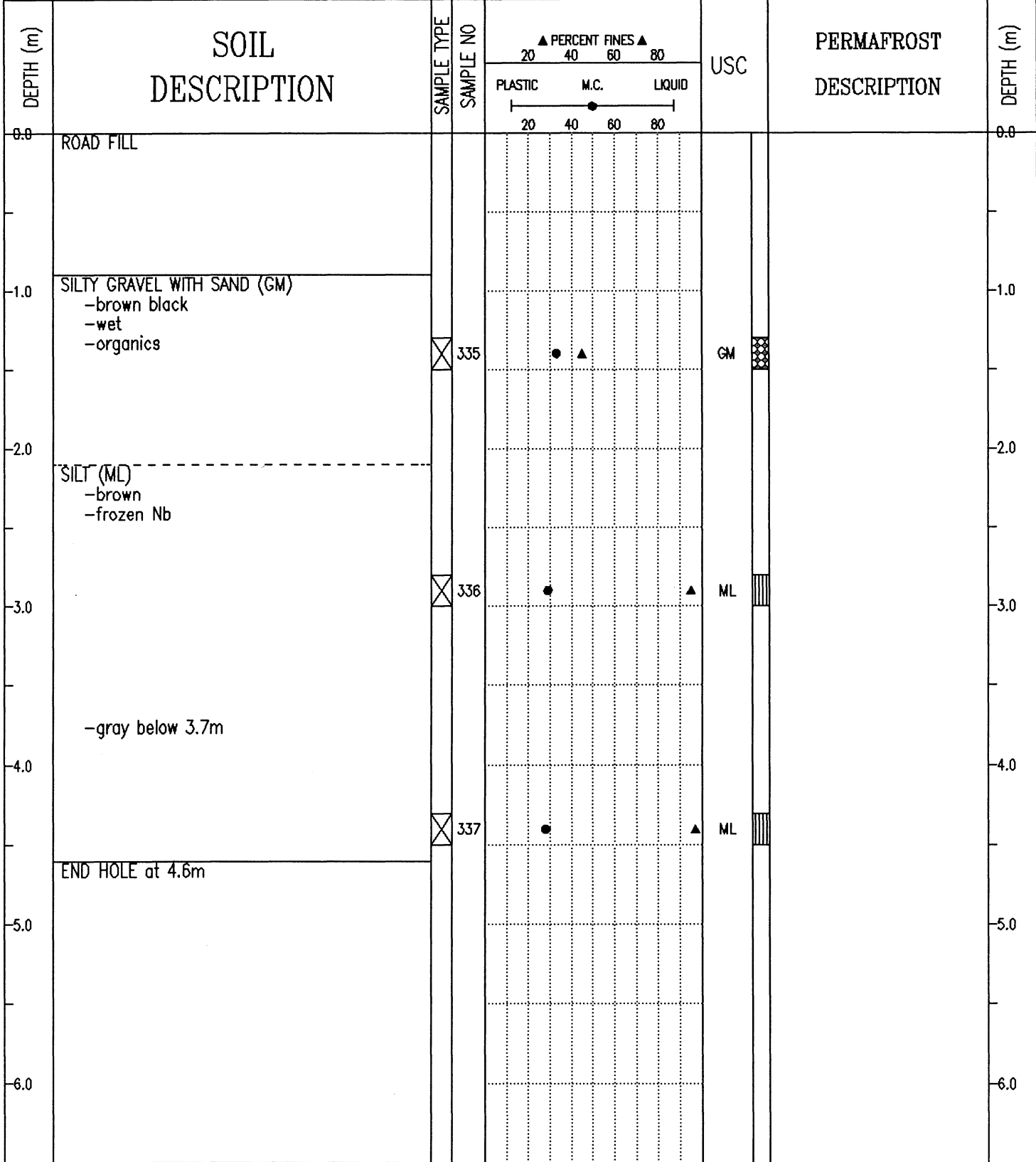
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-119
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1925+425 o/s 6m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ROAD FILL								0.0
1.0									1.0
1.8	ORGANIC MATERIAL		332	●					1.8
2.0	SILT (ML) -brown -trace organics -frozen below 2.1m								2.0
3.0			333		●	▲	ML		3.0
3.8	SILTY SAND WITH GRAVEL (SM) -brown -frozen Nf -grindy drilling								3.8
4.0			334	●	▲		SM		4.0
4.6	END HOLE at 4.6m								4.6
5.0									5.0
6.0									6.0

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-120
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1925+525 o/s 5m Lt.	ELEVATION 0.000 (m)

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



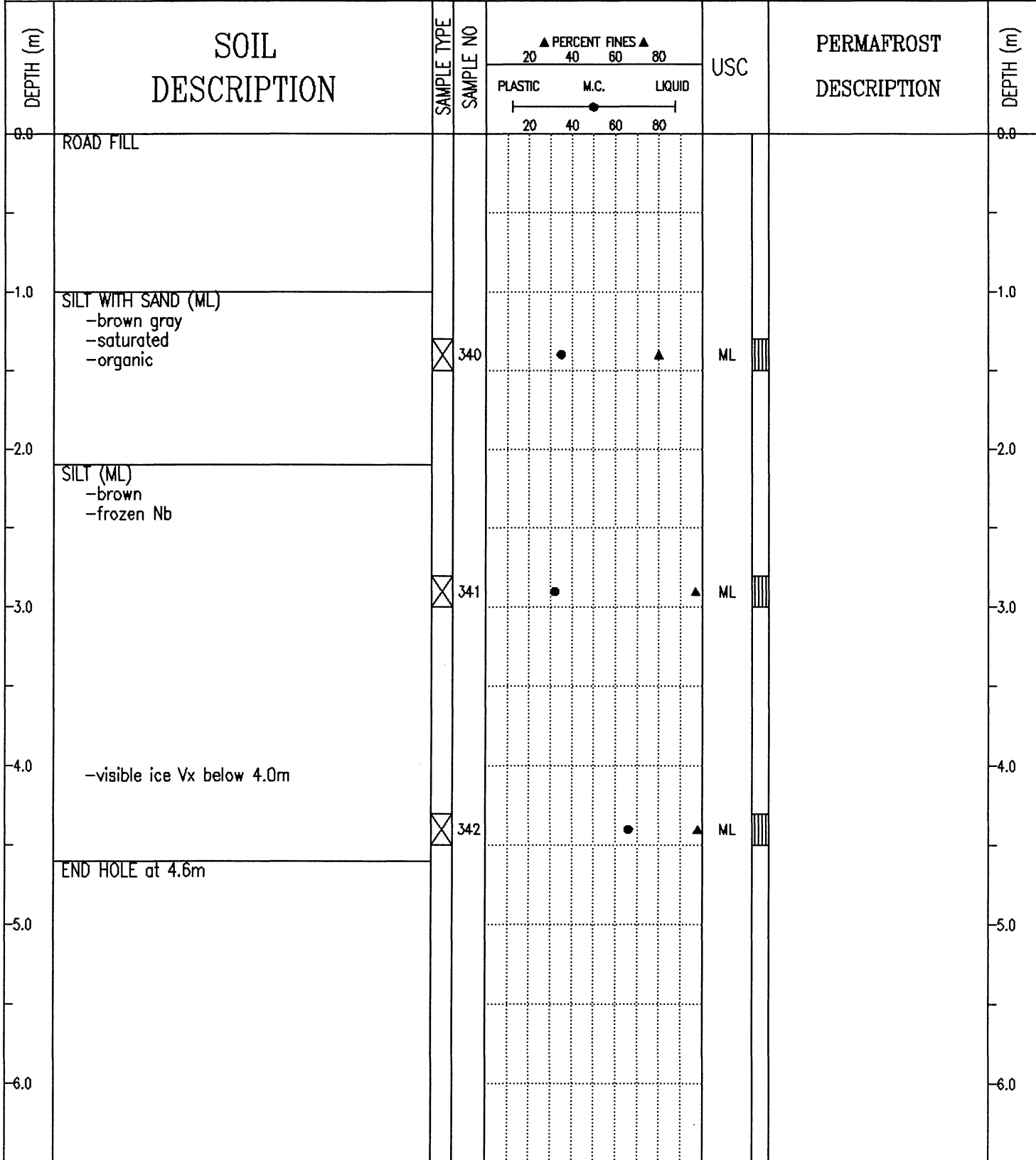
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-121
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1925+625 o/s 6m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ROAD FILL							0.0	
1.0		<input checked="" type="checkbox"/>	338					1.0	
	ORGANIC MATERIAL								
2.0	SILT (ML) -saturated -trace of organics							2.0	
3.0		<input checked="" type="checkbox"/>	339				ML	3.0	
	ICE								
4.0								4.0	
5.0	END HOLE at 4.6m							5.0	
6.0								6.0	

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-122
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1925+725 o/s 5m Lt.	ELEVATION 0.000 (m)

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



Public Works Canada
Whitehorse, Yukon Territory.

COMPLETION DEPTH 4.6 m

COMPLETE 91/08/27

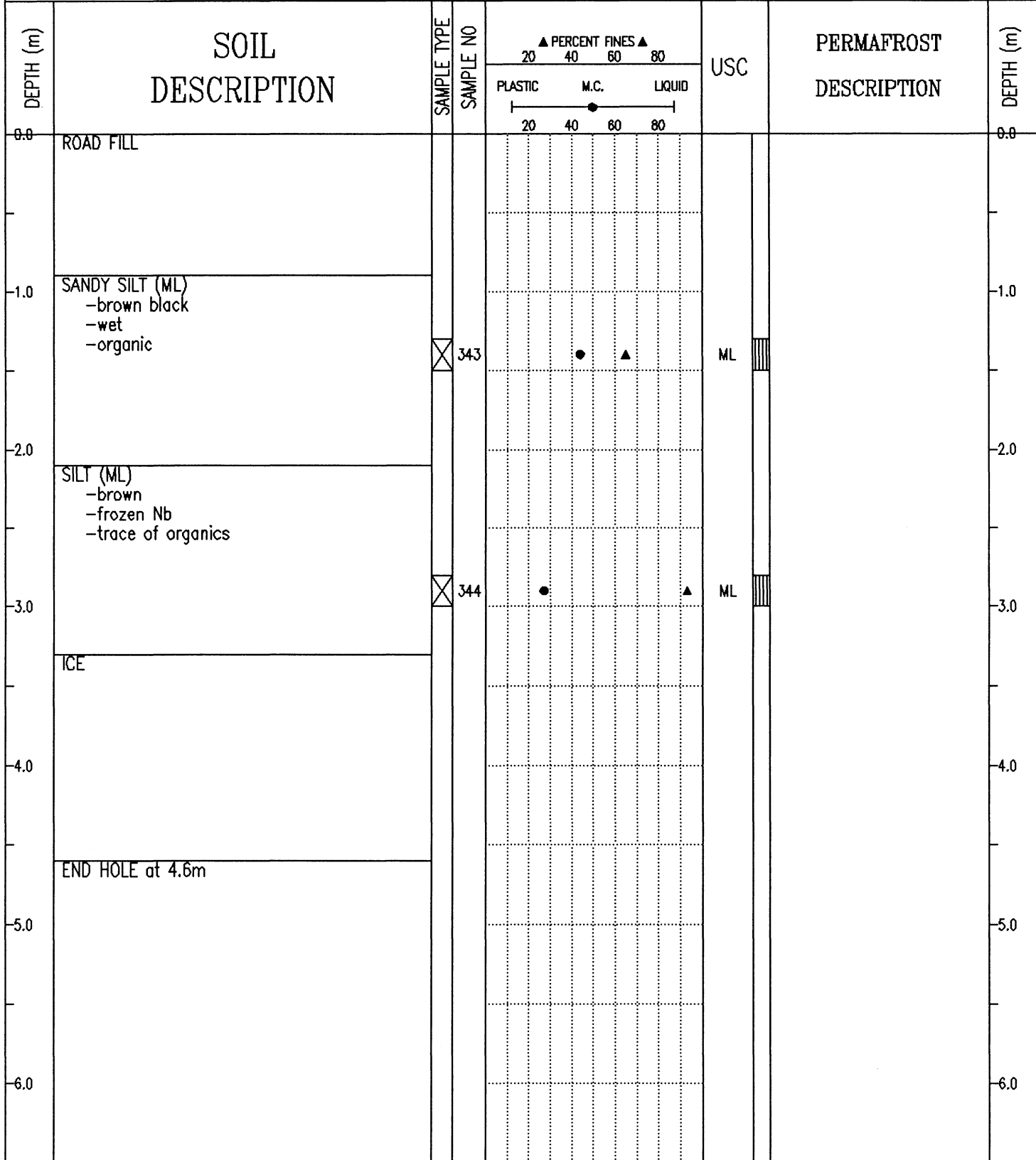
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Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-123
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1925+825 o/s 5m Lt.	ELEVATION 0.000 (m)

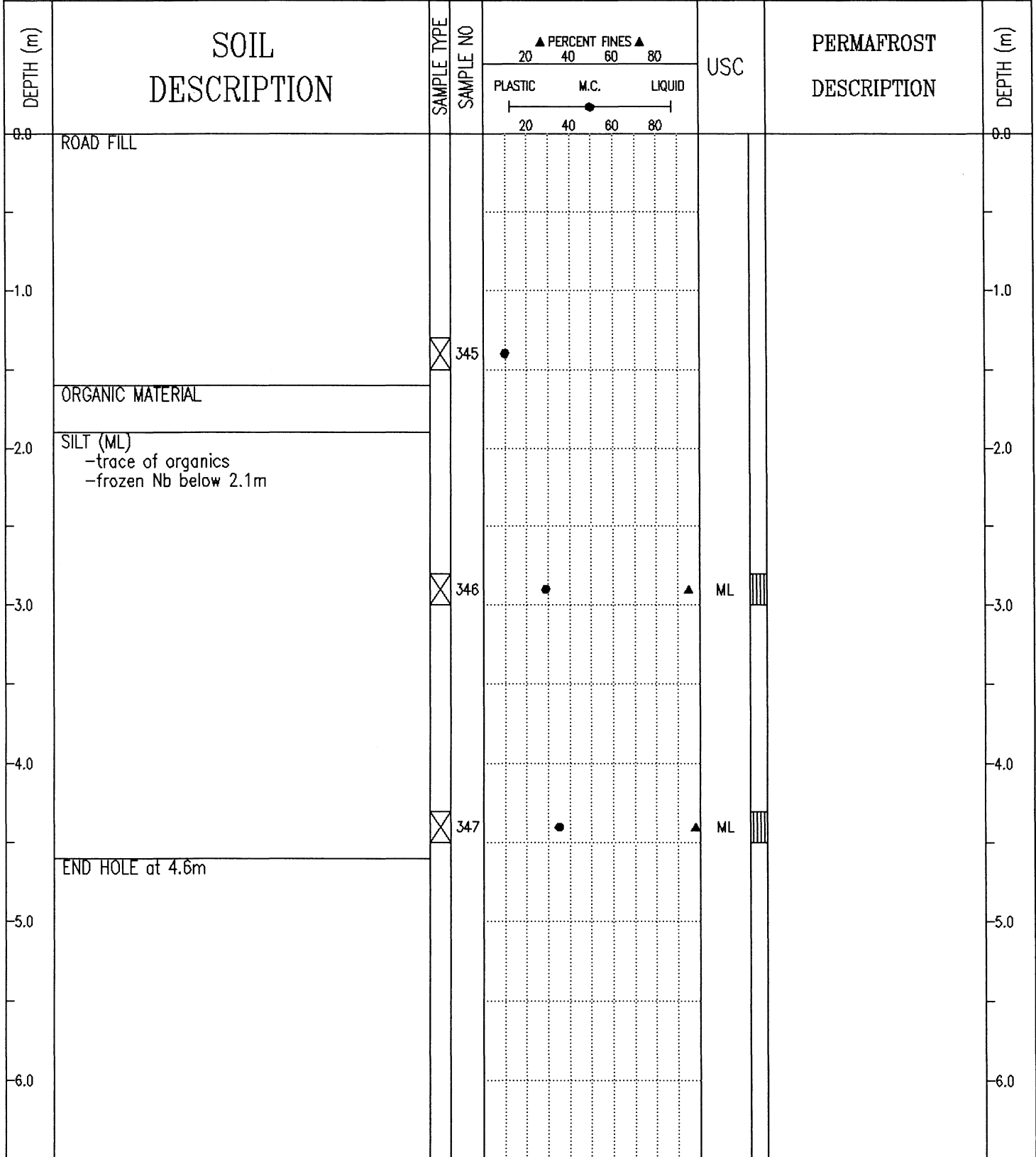
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



Public Works Canada Whitehorse, Yukon Territory.	COMPLETION DEPTH 4.6 m	COMPLETE 91/08/27
	LOGGED BY	DWG NO.

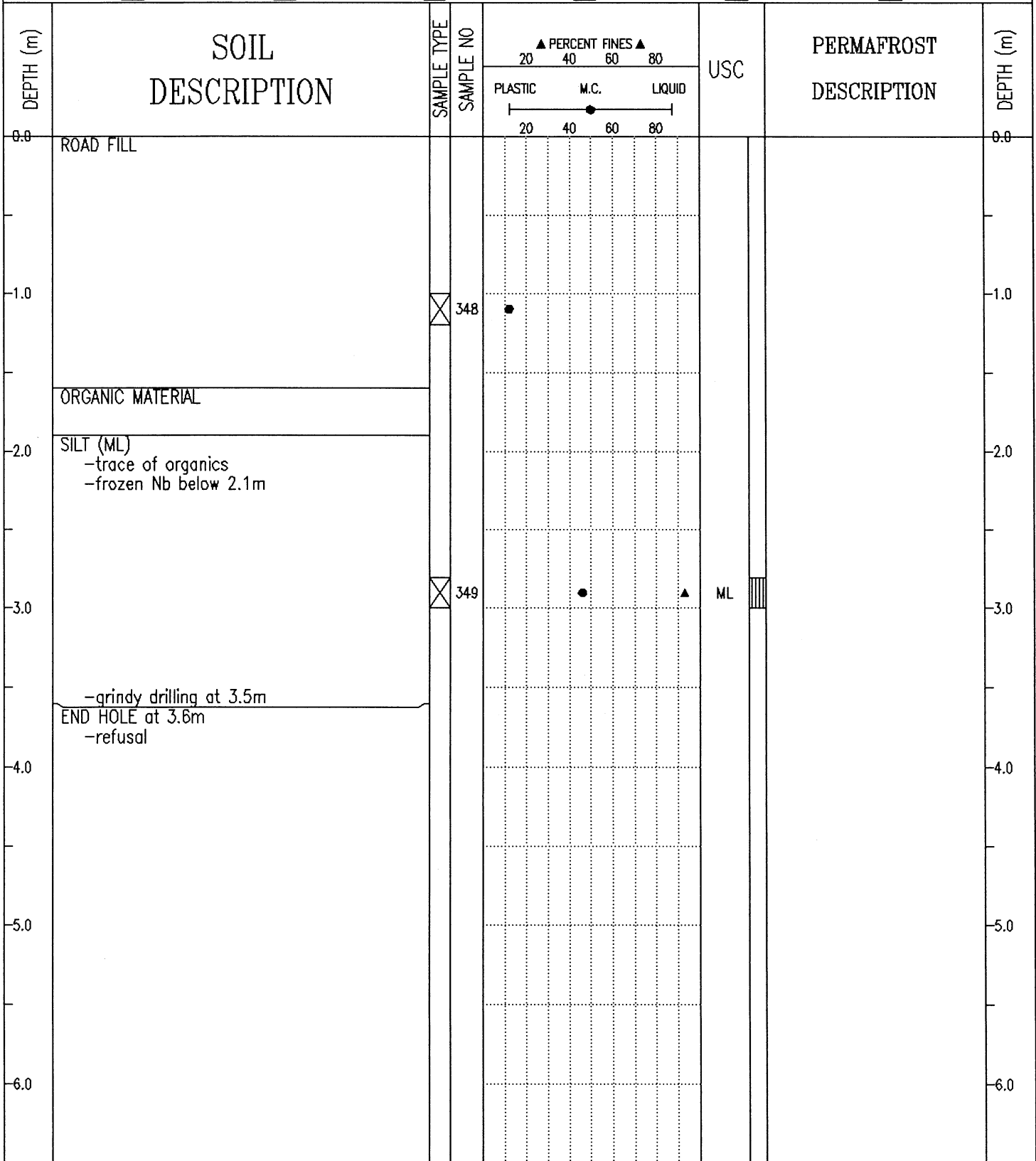
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-124
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1925+925	ELEVATION 0.000 (m)

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



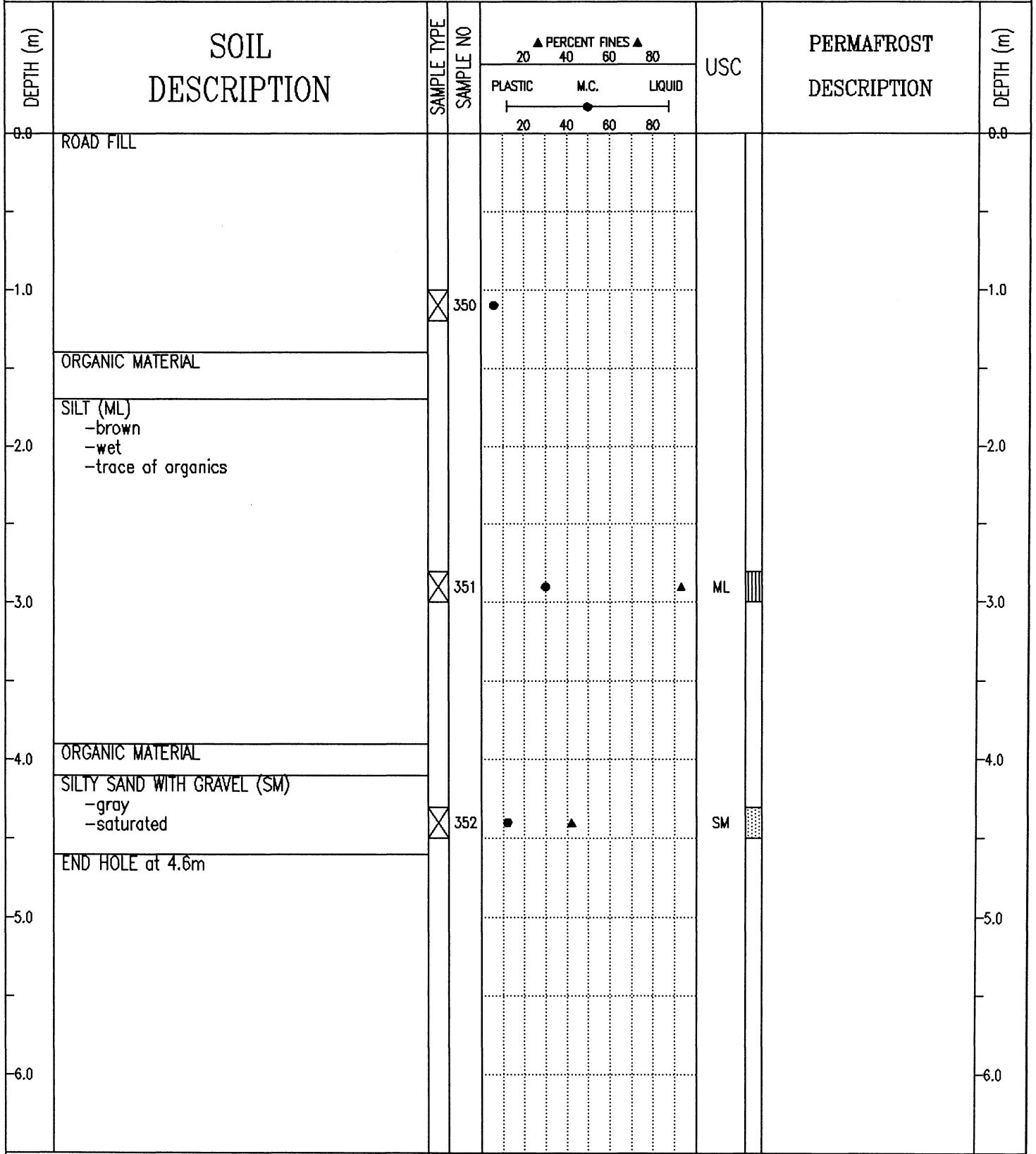
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-125
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1926+025 o/s 4m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-126
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1926+125 o/s 7m Rt.	ELEVATION 0.000 (m)

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



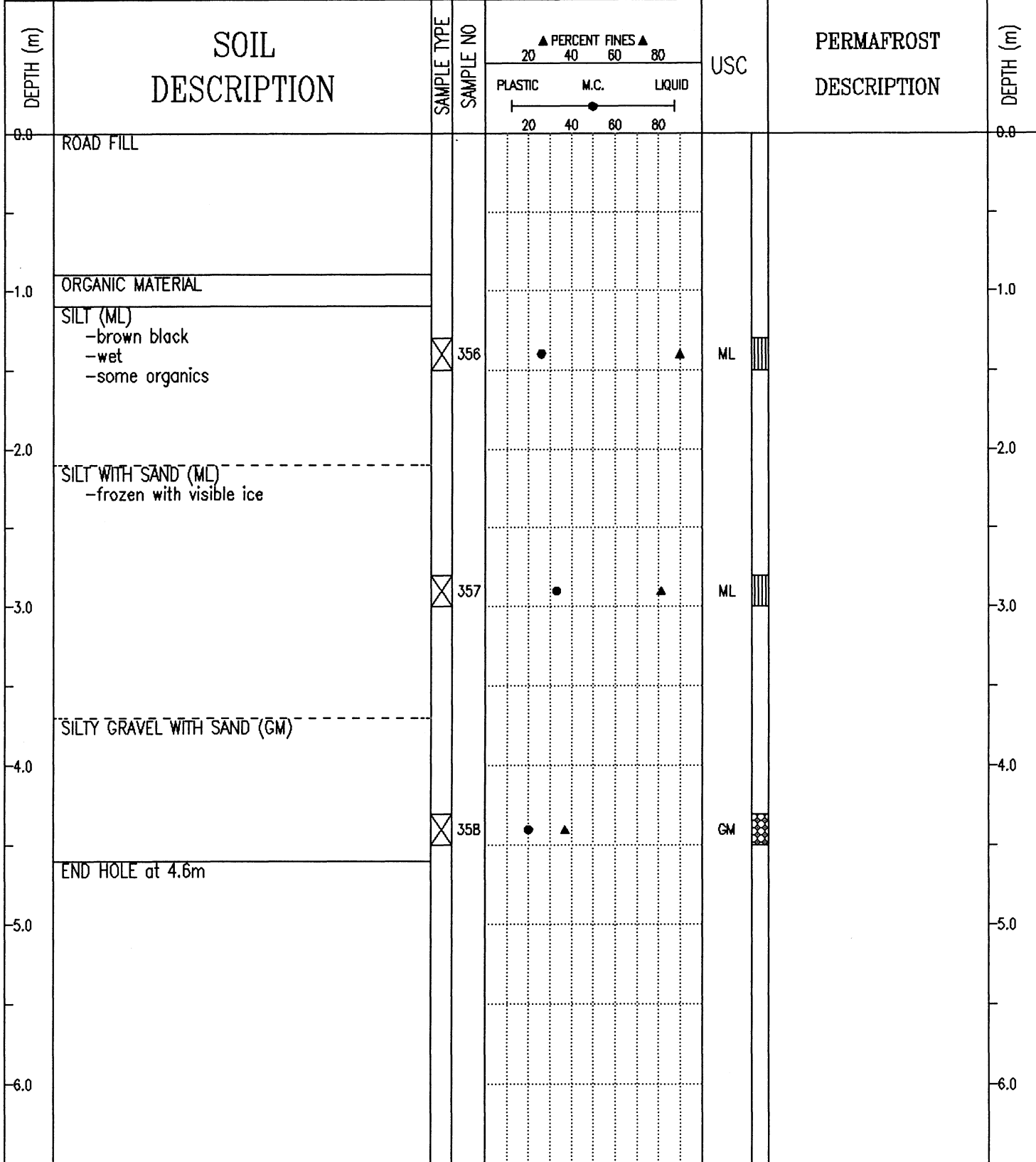
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-127
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1926+225 o/s 5m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ROAD FILL							0.0	
1.0	SILT -gray brown -wet -some sand and organics	<input checked="" type="checkbox"/>	353	●				1.0	
2.0	ORGANIC MATERIAL							2.0	
3.0	SILT (ML) -gray brown -frozen Nb	<input checked="" type="checkbox"/>	354	●		▲	ML	3.0	
4.0	-visible ice Vr	<input checked="" type="checkbox"/>	355			●	ML	4.0	
5.0	END HOLE at 4.6m							5.0	
6.0								6.0	

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-128
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1926+325 o/s 5m Lt.	ELEVATION 0.000 (m)

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



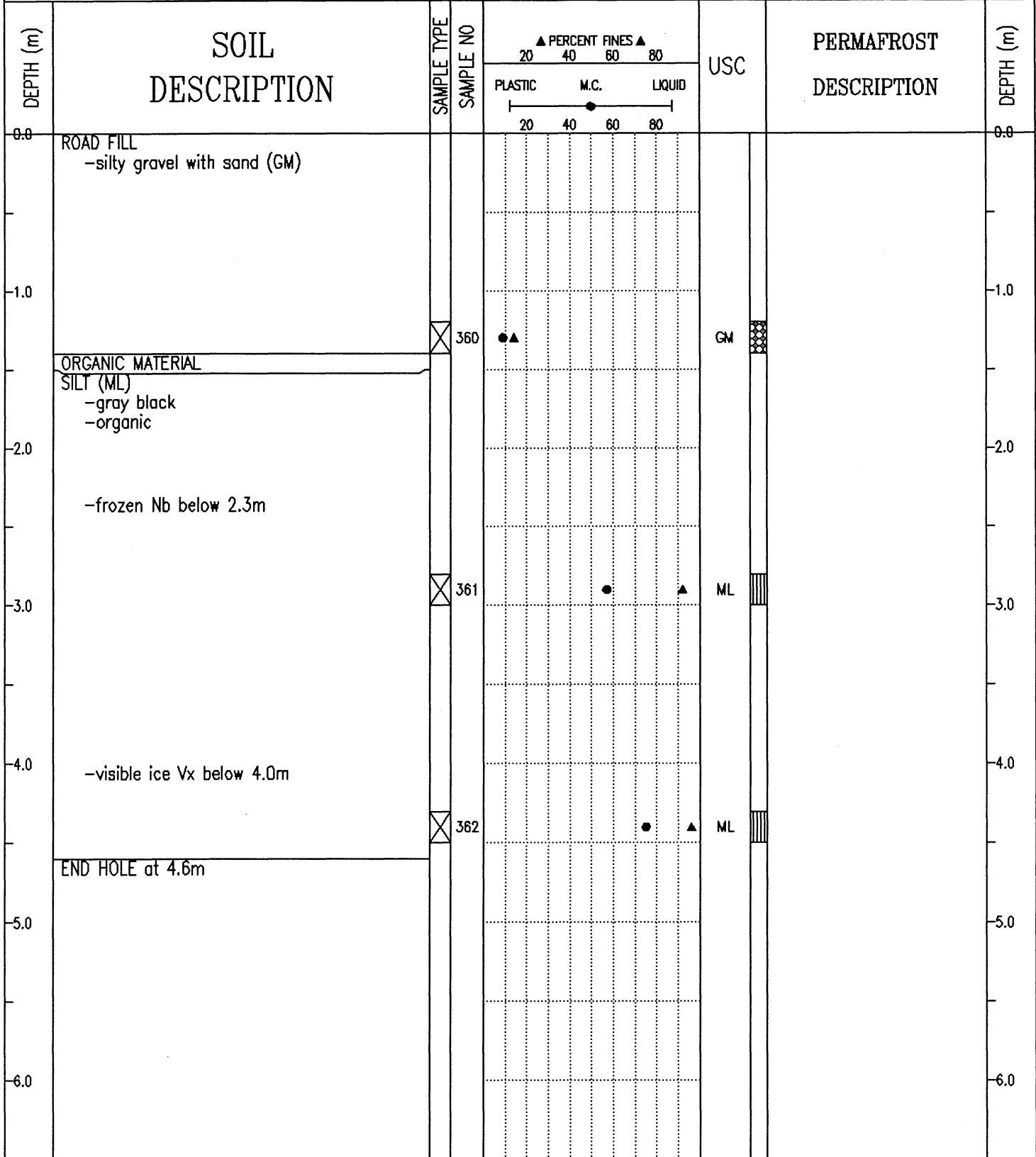
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-129
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1926+425 o/s 5m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ROAD FILL -silty gravel with sand (GM)								0.0
1.0		<input checked="" type="checkbox"/>	359	●	▲		GM		1.0
1.5	ORGANIC MATERIAL								
2.0	SILT -brown -saturated								
3.0	ICE								
4.0	END HOLE at 3.6m -refusal								
5.0									
6.0									

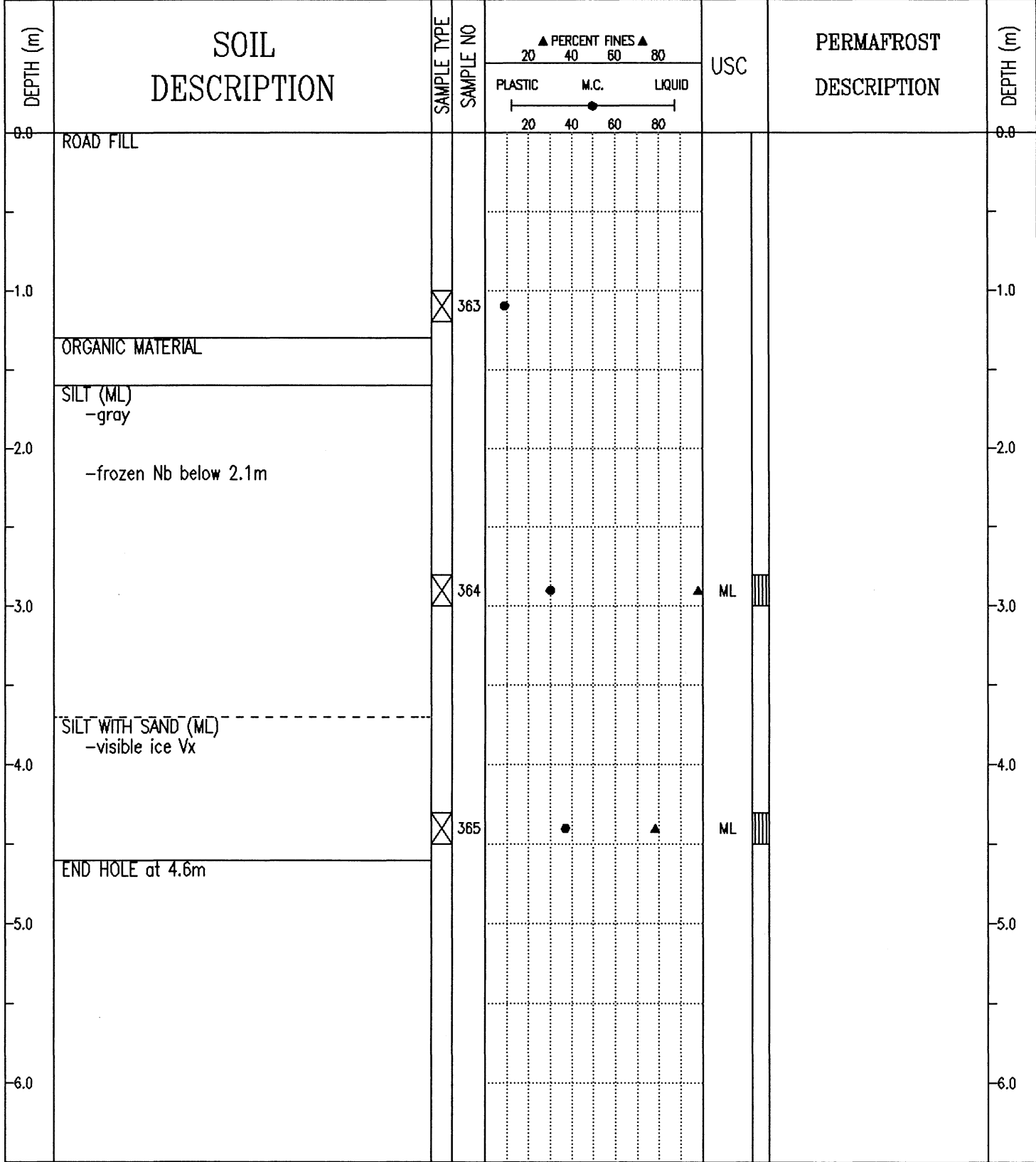
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-130
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1926+525 o/s 4m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-131
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1926+625 o/s 5m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-132
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1926+725 o/s 5m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ROAD FILL -poorly graded gravel with silt and sand (GP-GM)								0.0
1.0	ORGANIC MATERIAL		366	●			GP-GM		1.0
2.0	SILT (ML) -brown -organic -frozen Nb below 2.1m								2.0
3.0			367		●	▲	ML		3.0
4.0	-visible ice Vx below 4.0m								4.0
5.0	END HOLE at 4.6m		368	●		▲	ML		5.0
6.0									6.0

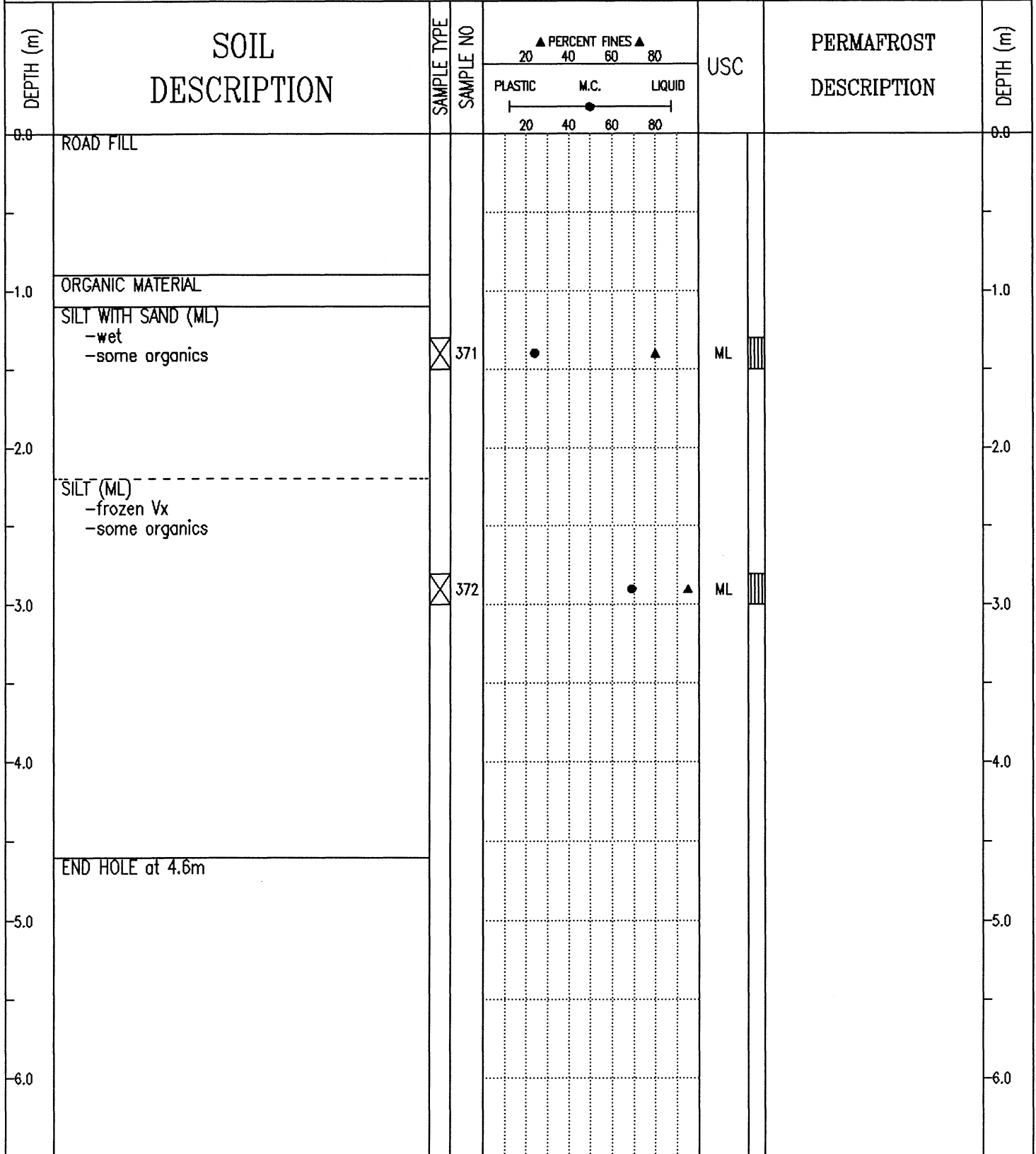
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-133
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1926+925 o/s 4m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ROAD FILL							0.0	
1.0			369					1.0	
2.0	ORGANIC MATERIAL							2.0	
	-frozen Vx below 2.1m								
3.0			370				OL	3.0	
	END HOLE at 3.1m -refusal								
4.0								4.0	
5.0								5.0	
6.0								6.0	

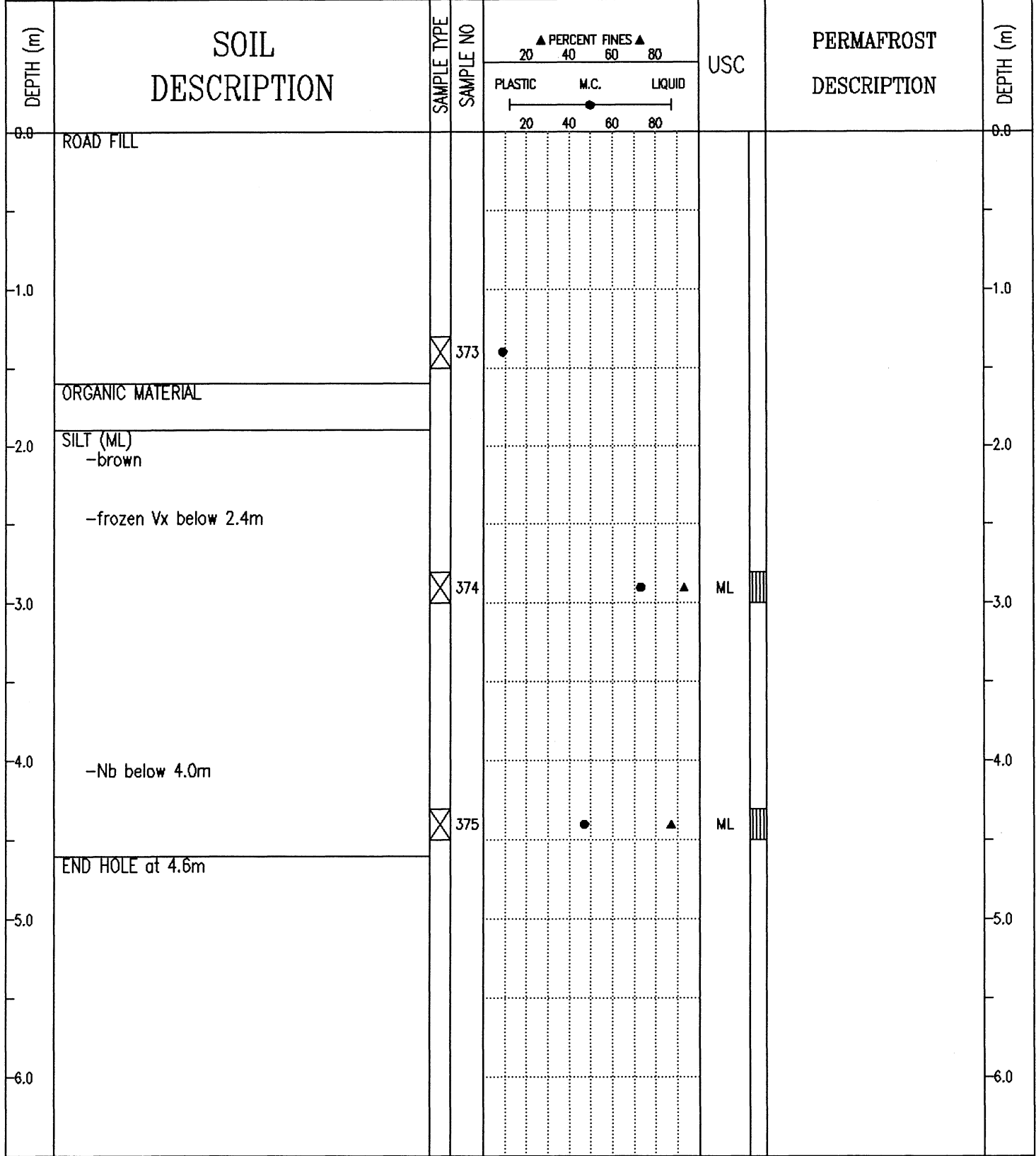
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-134
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1927+125 o/s 4m Lt.	ELEVATION 0.000 (m)

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



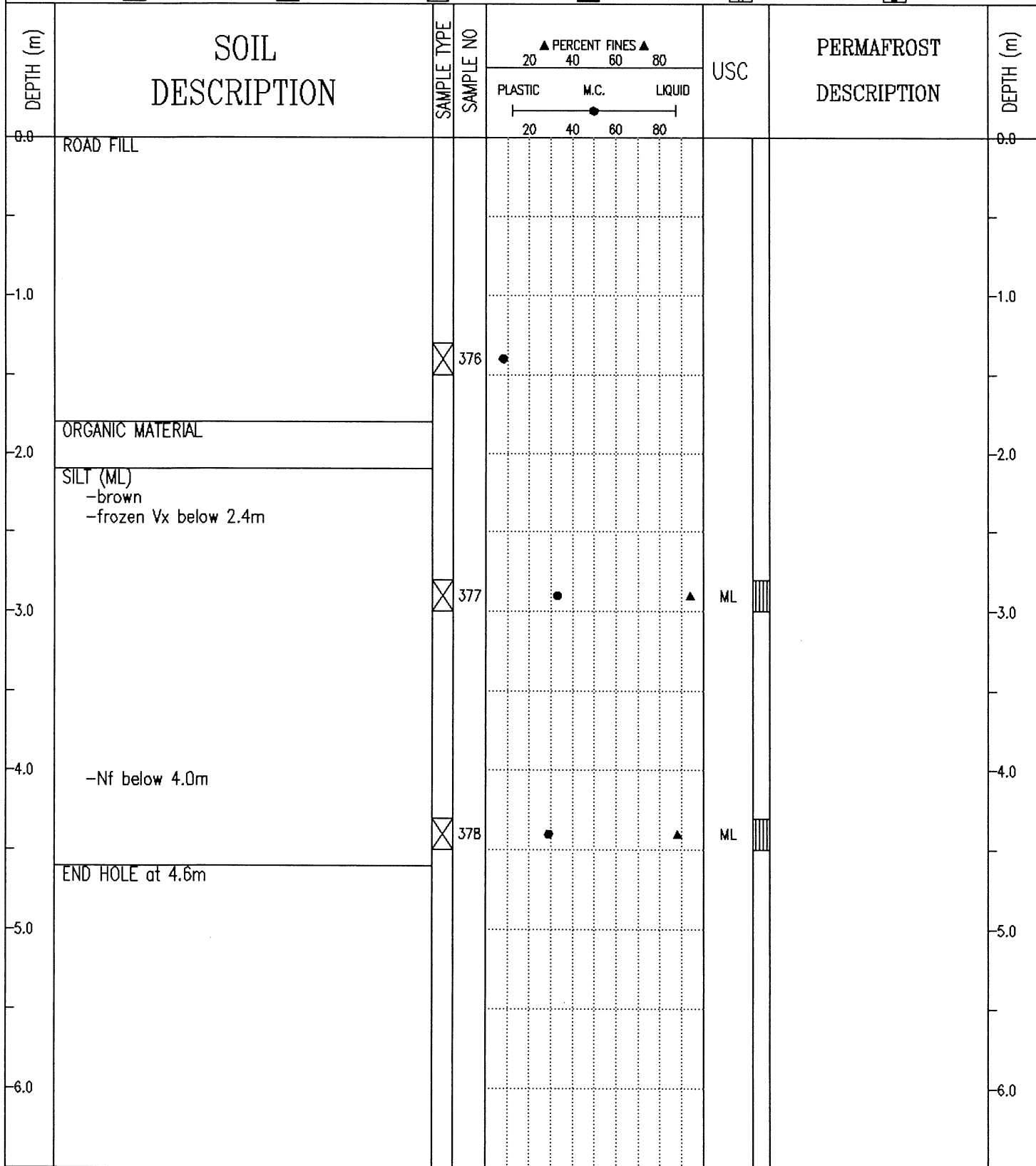
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-135
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1927+325 o/s 4m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-136
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1927+525 o/s 5m Lt.	ELEVATION 0.000 (m)

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



Public Works Canada
Whitehorse, Yukon Territory.

COMPLETION DEPTH 4.6 m

COMPLETE 91/08/27

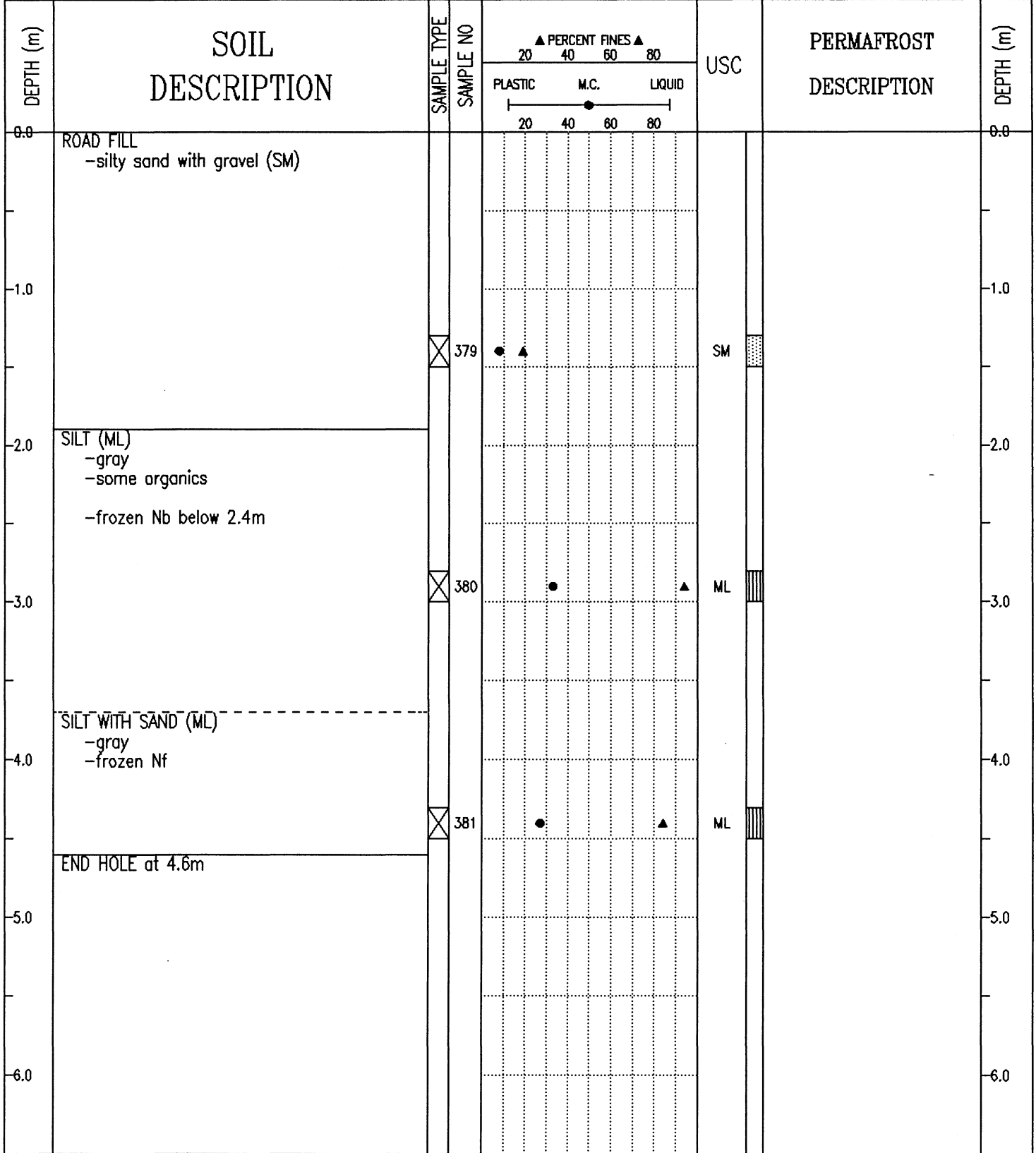
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Page 1 of 1

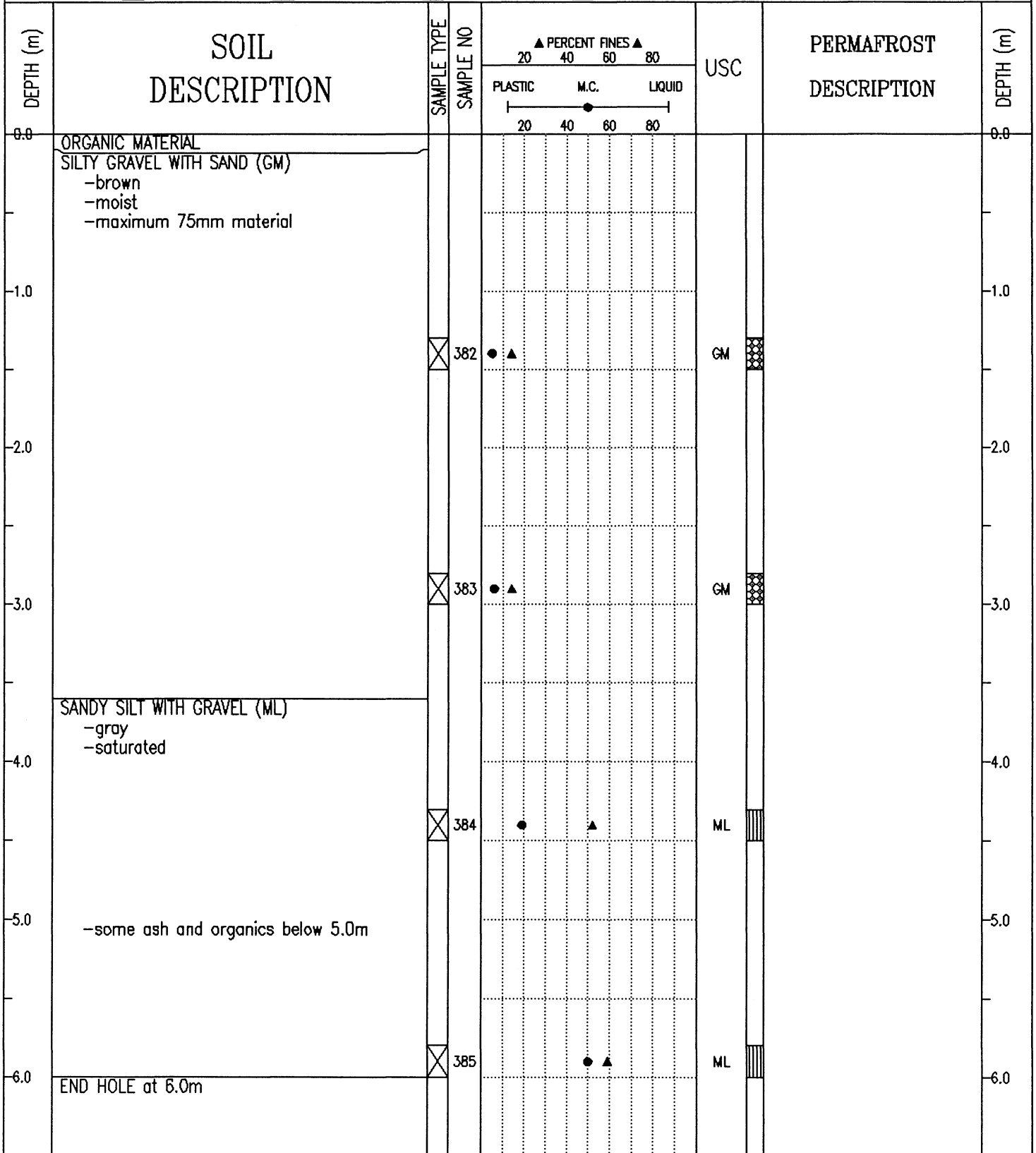
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-137
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1927+725 o/s 6m Lt.	ELEVATION 0.000 (m)

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



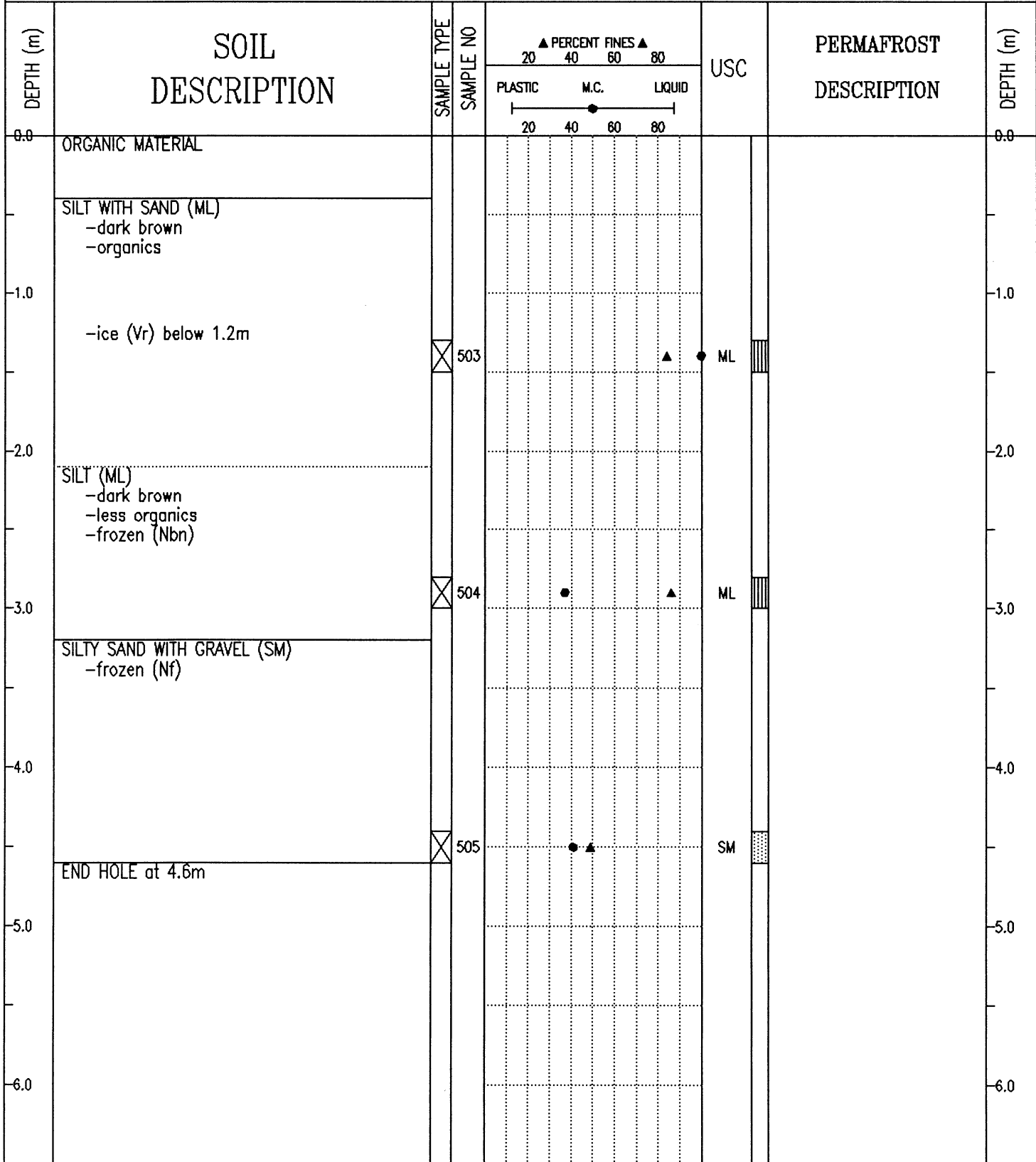
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 144-138
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1927+925 o/s 7m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-192
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1928+095	ELEVATION 0.000 (m)

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



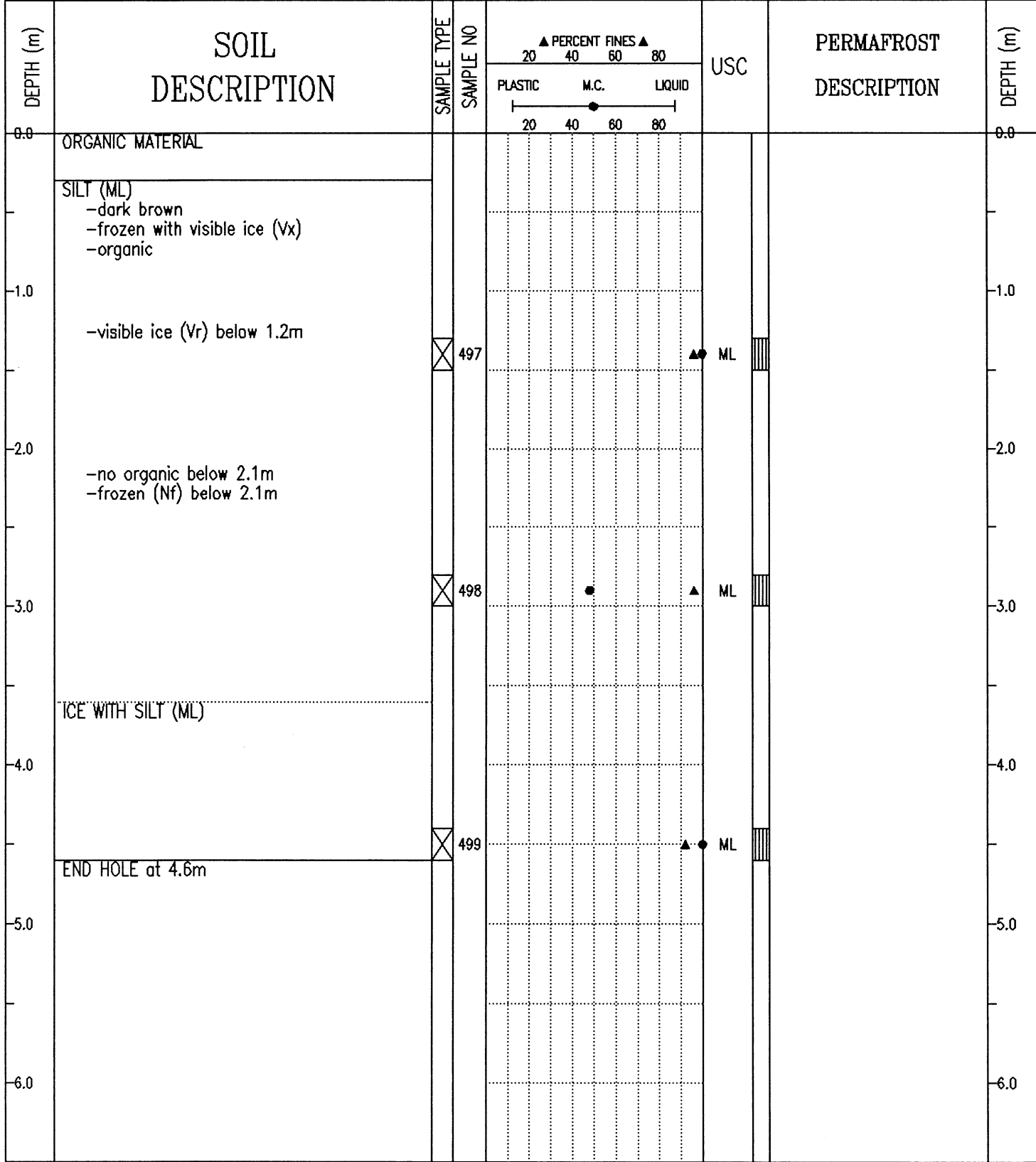
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-191
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1928+225	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL							0.0	
	SILT (ML) -dark brown								
-1.0	-frozen with visible ice (Vr) below 1.0m							-1.0	
		<input checked="" type="checkbox"/>	500				ML		
-2.0								-2.0	
-3.0	ICE WITH SILT (ML)							-3.0	
		<input checked="" type="checkbox"/>	501				ML		
-4.0	SILT (ML) -frozen with visible ice (Vr) -organic -foul odor							-4.0	
		<input checked="" type="checkbox"/>	502				ML		
-5.0	END HOLE at 4.6m							-5.0	
-6.0								-6.0	

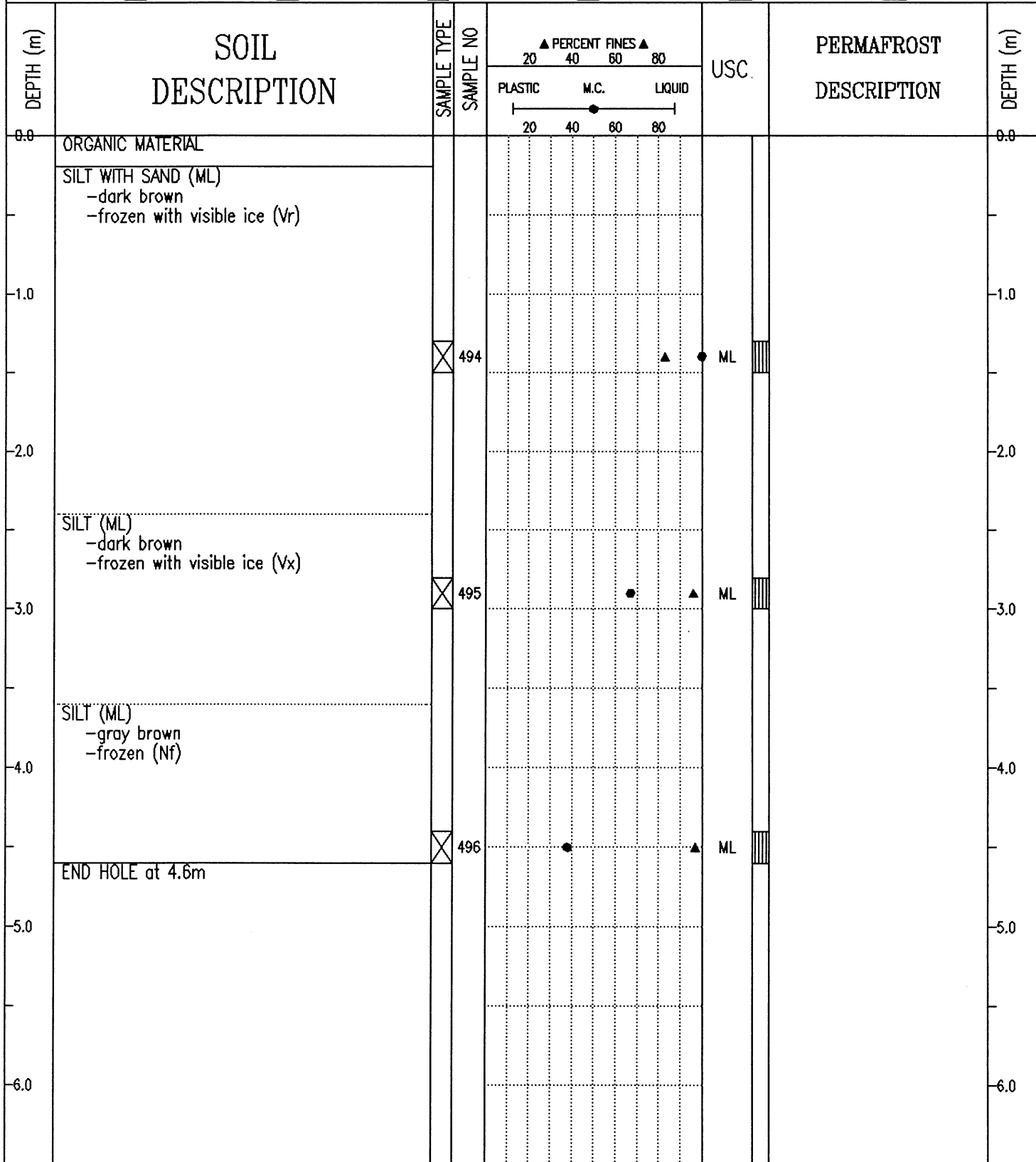
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-190
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1928+375	ELEVATION 0.000 (m)

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



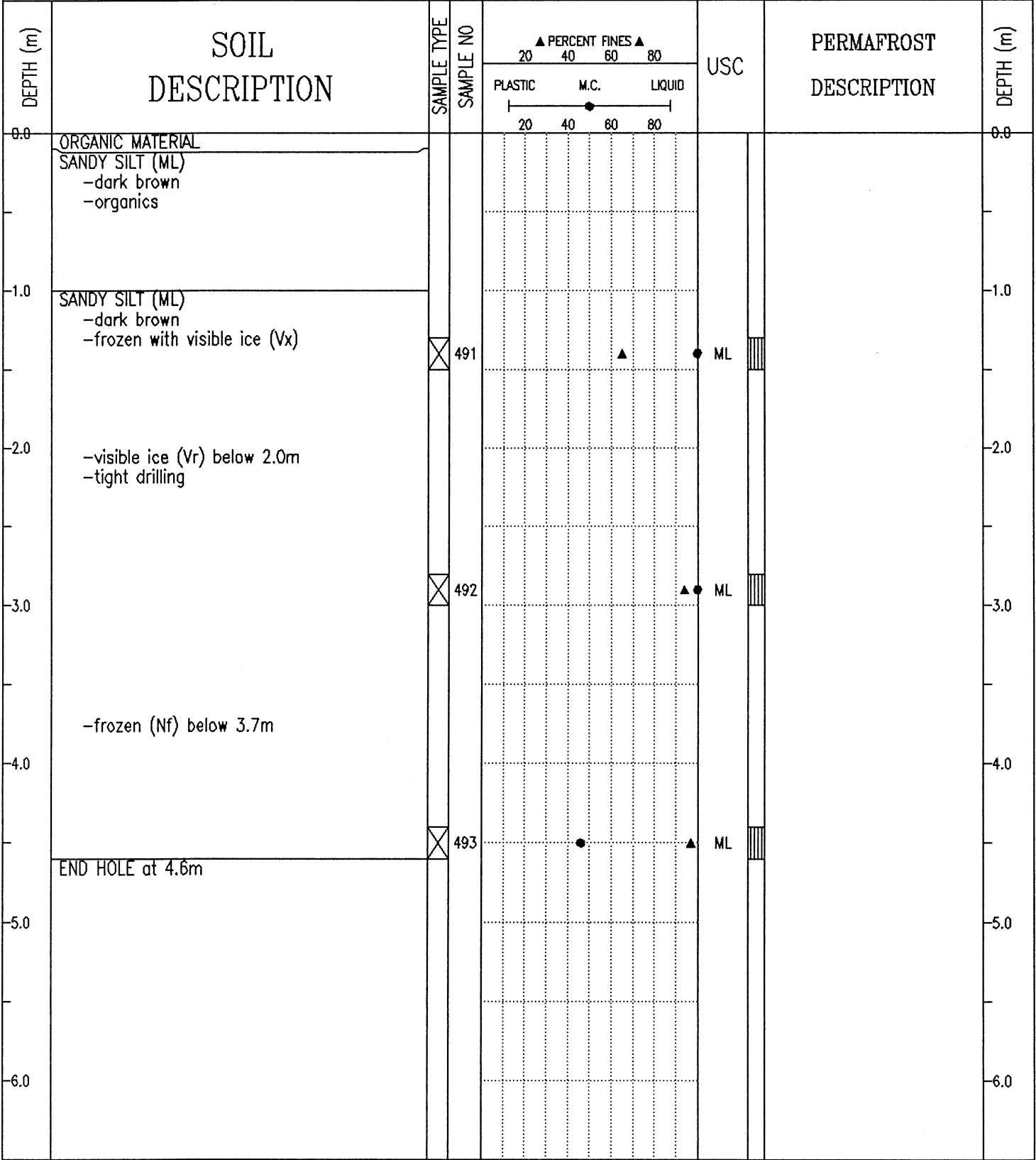
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-189
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1928+500	ELEVATION 0.000 (m)

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



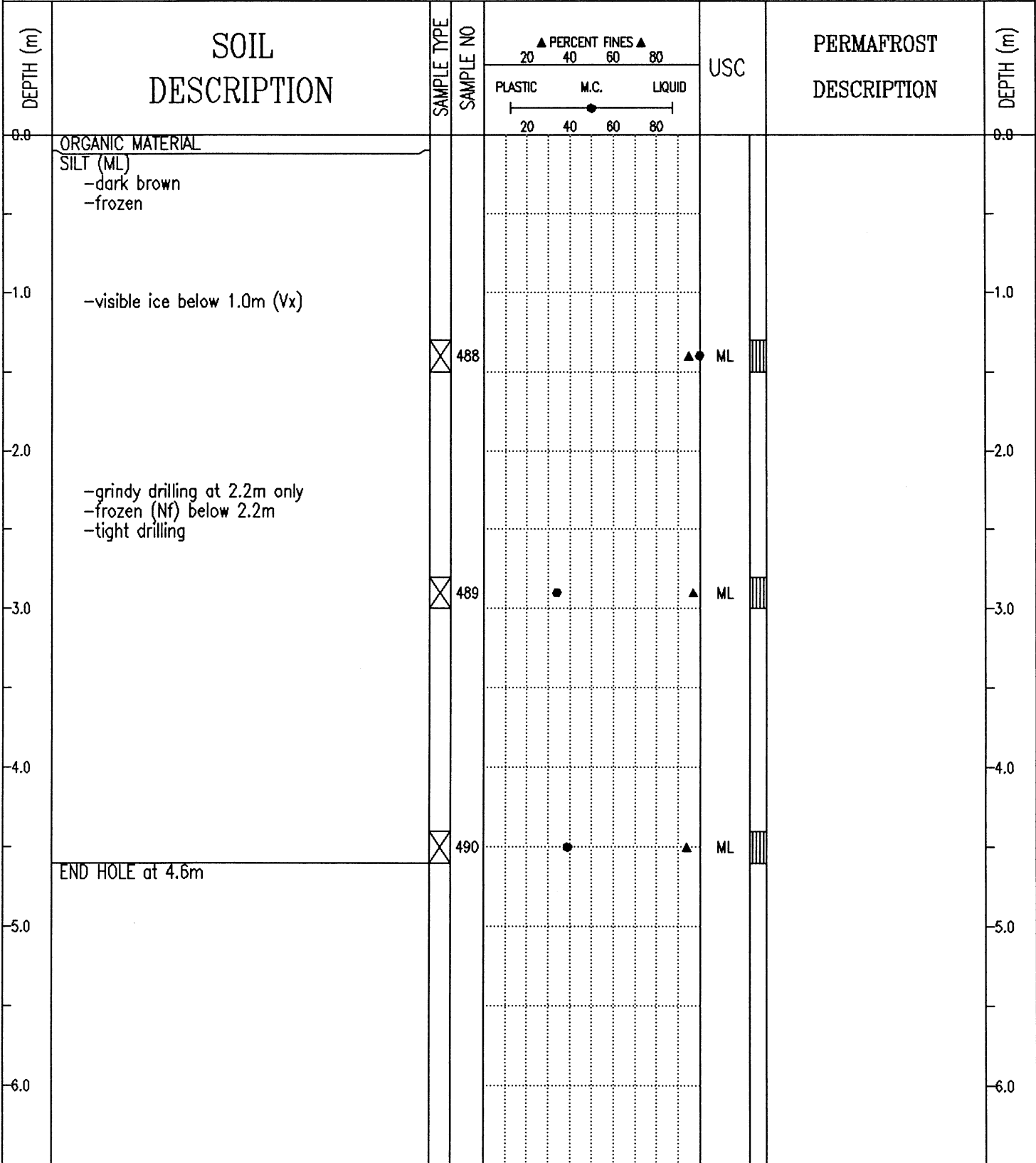
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-188
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1928+600	ELEVATION 0.000 (m)

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



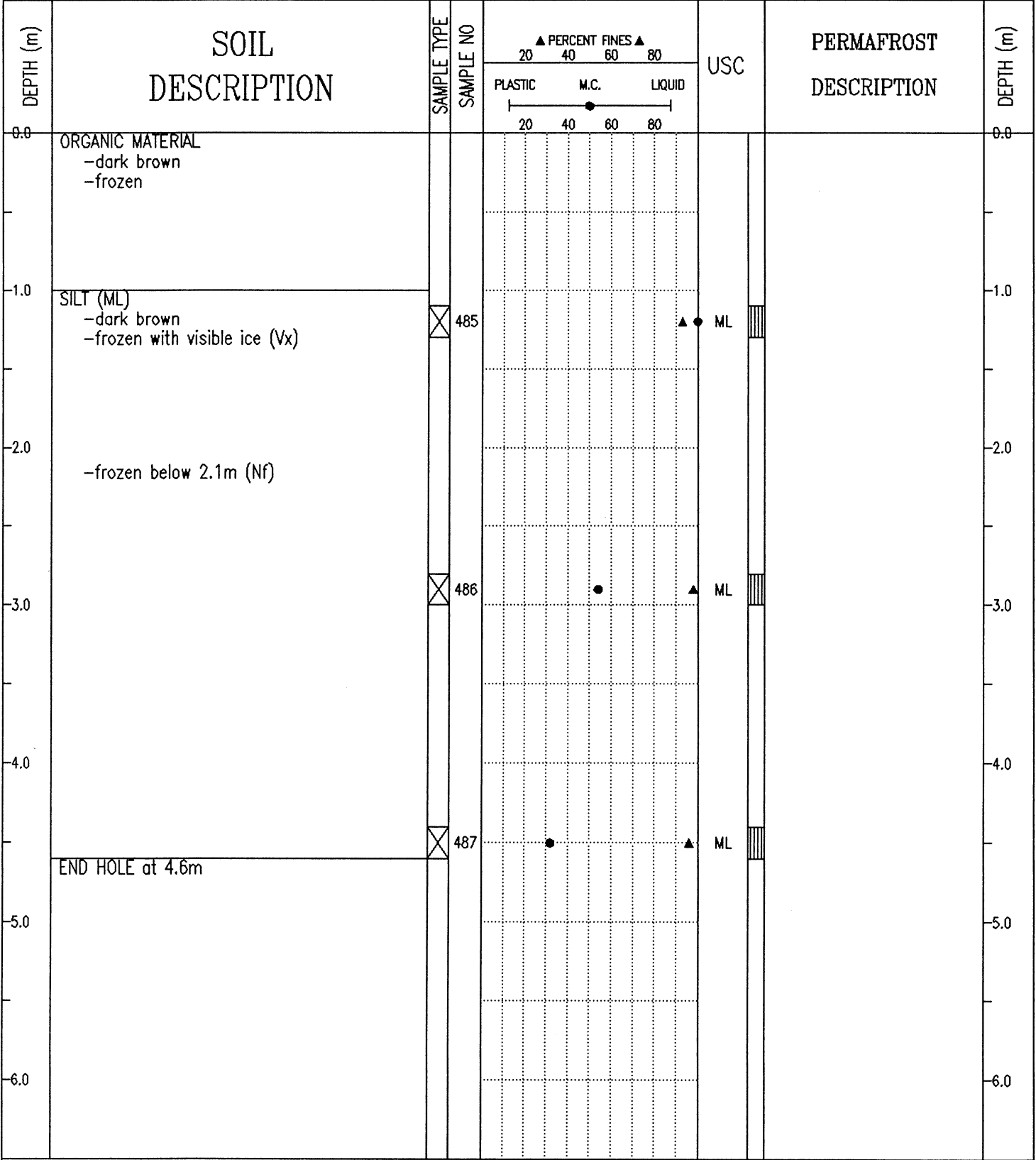
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-187
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1928+725	ELEVATION 0.000 (m)

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



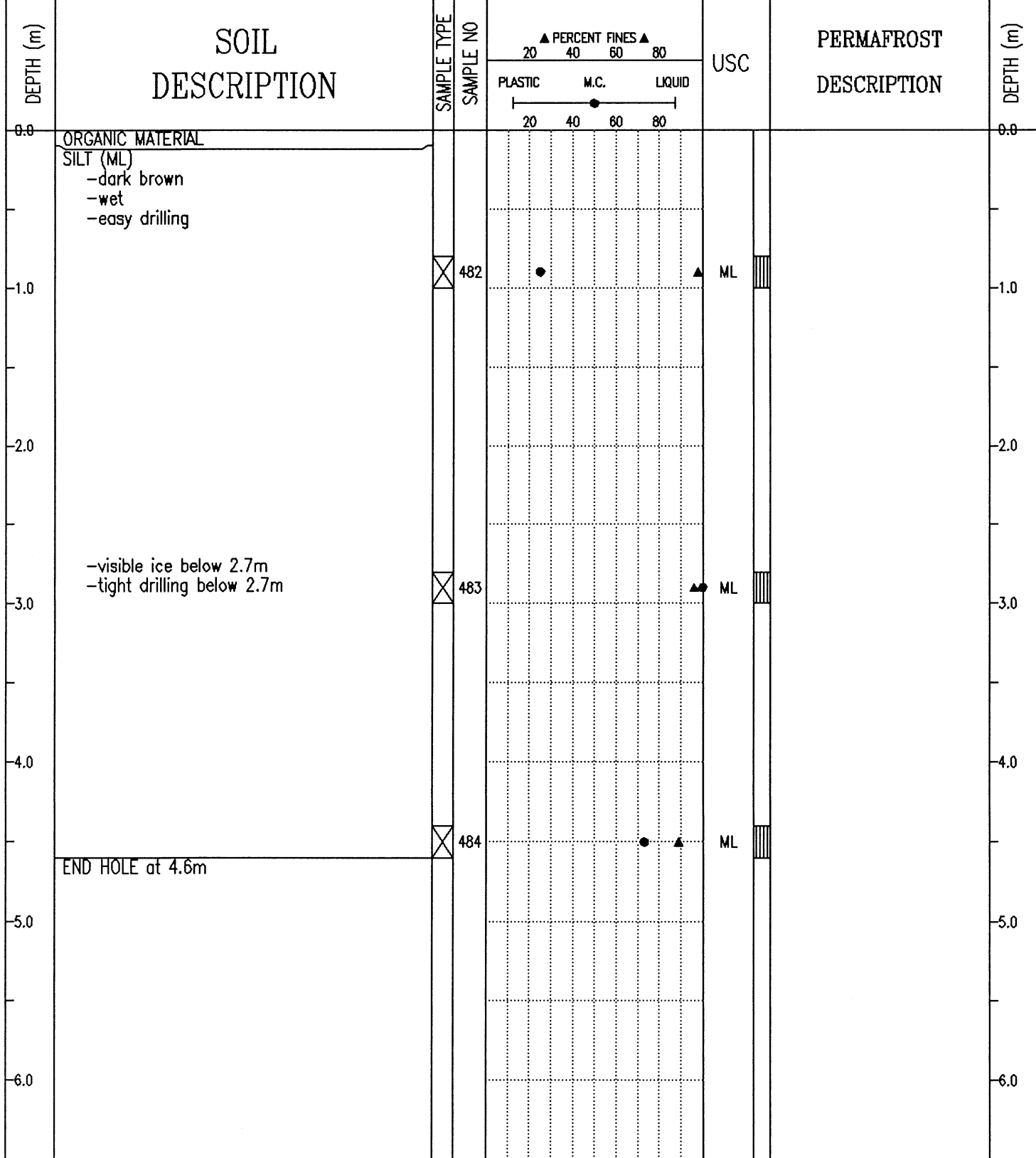
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-186
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1928+850	ELEVATION 0.000 (m)

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



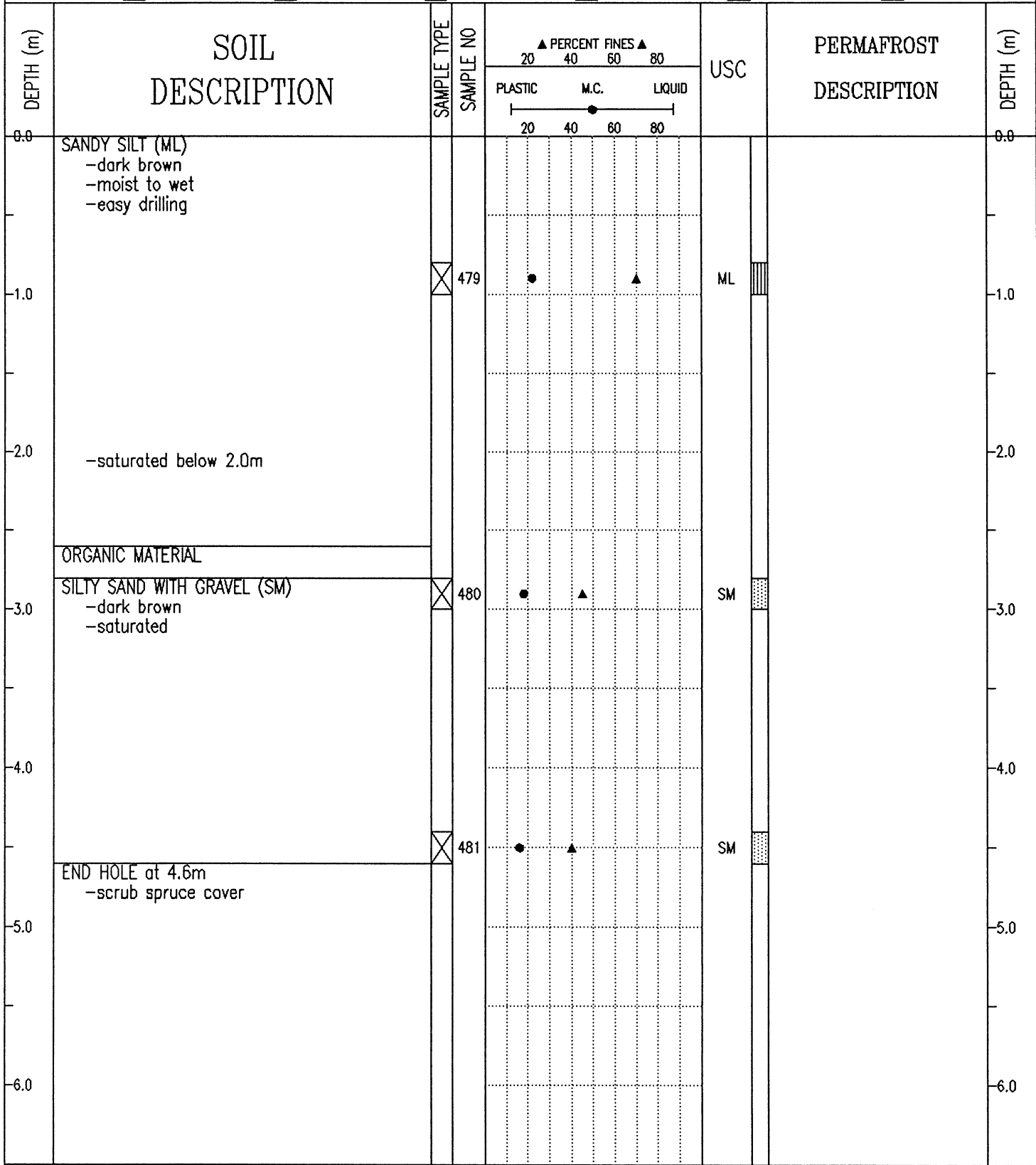
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-185
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1929+025 o/s 11m Lt.	ELEVATION 0.000 (m)

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



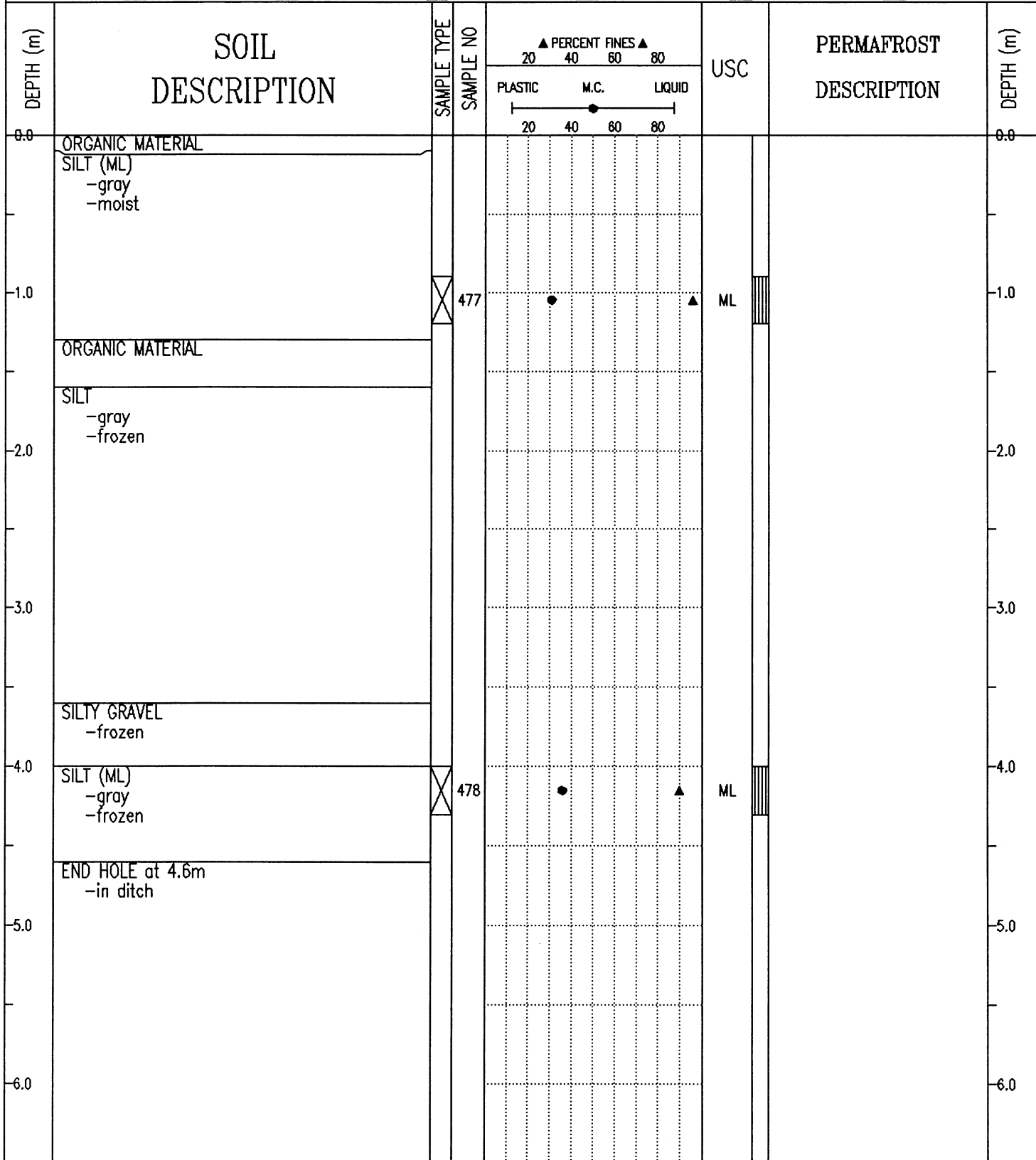
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 157-184
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-174	LOCATION: 1929+225 o/s 9m Lt.	ELEVATION 0.000 (m)

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



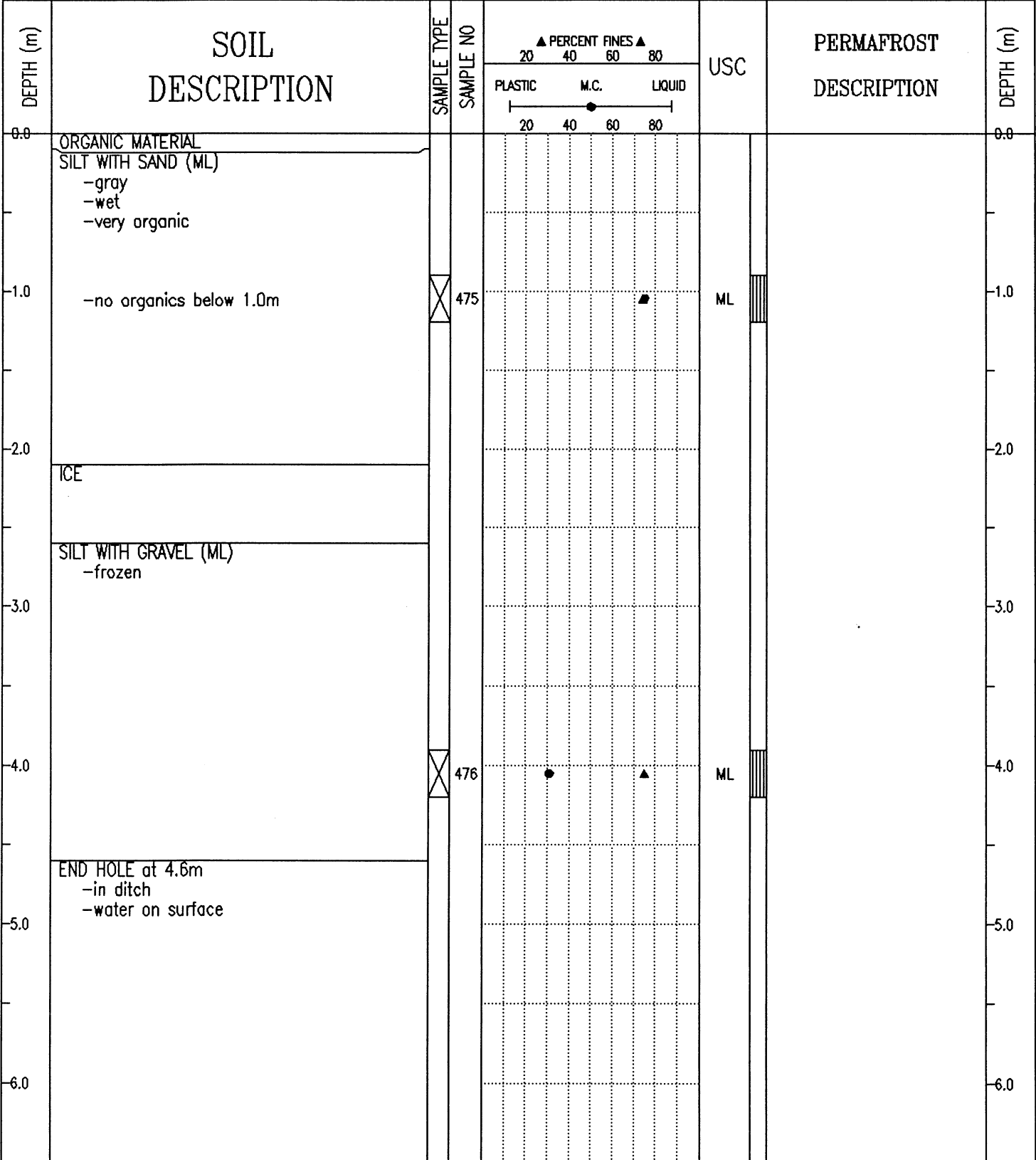
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-183
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1929+325 o/s 9m Lt.	ELEVATION 0.000 (m)

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



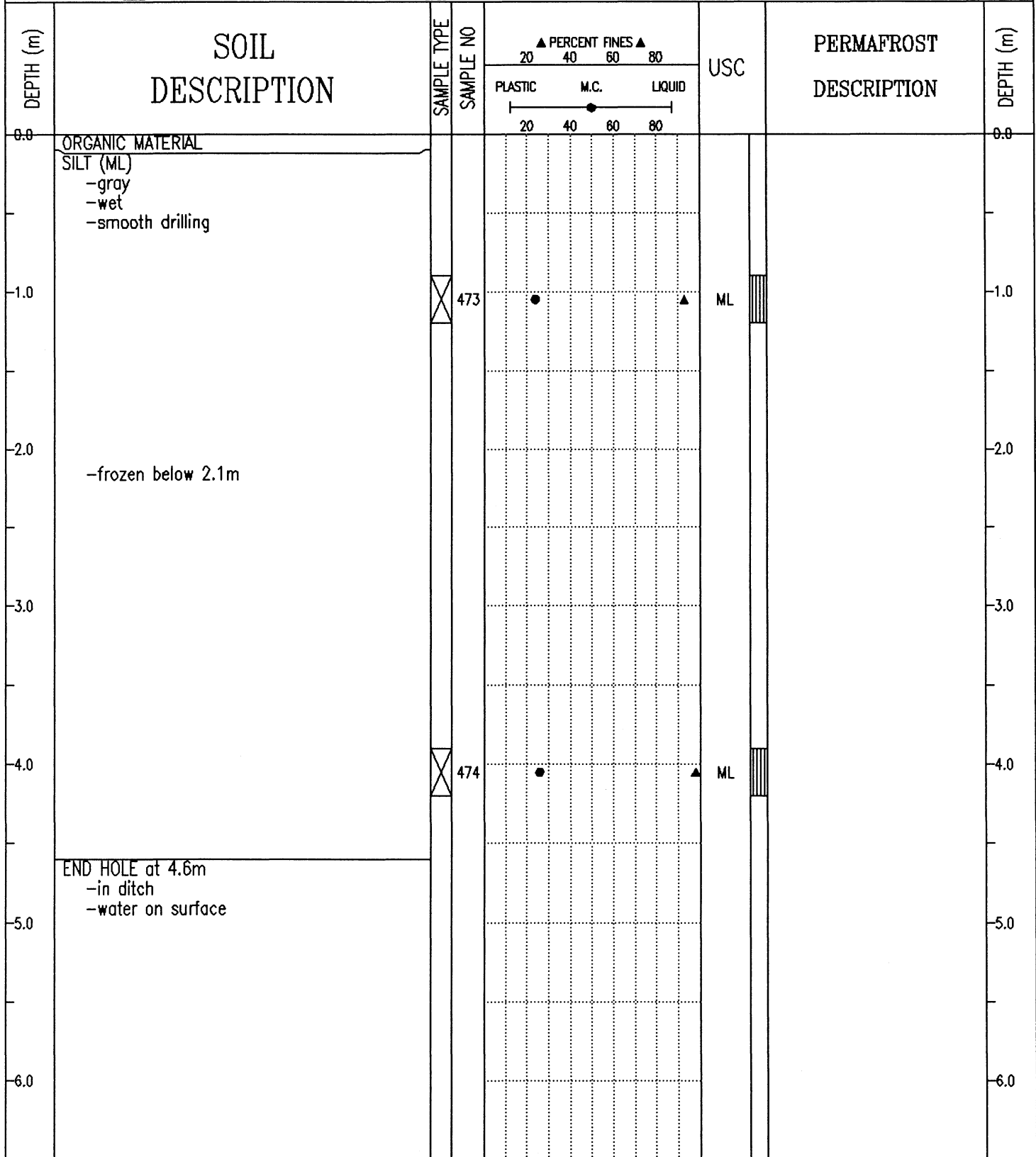
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-182
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1929+450 o/s 8m Lt.	ELEVATION 0.000 (m)

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



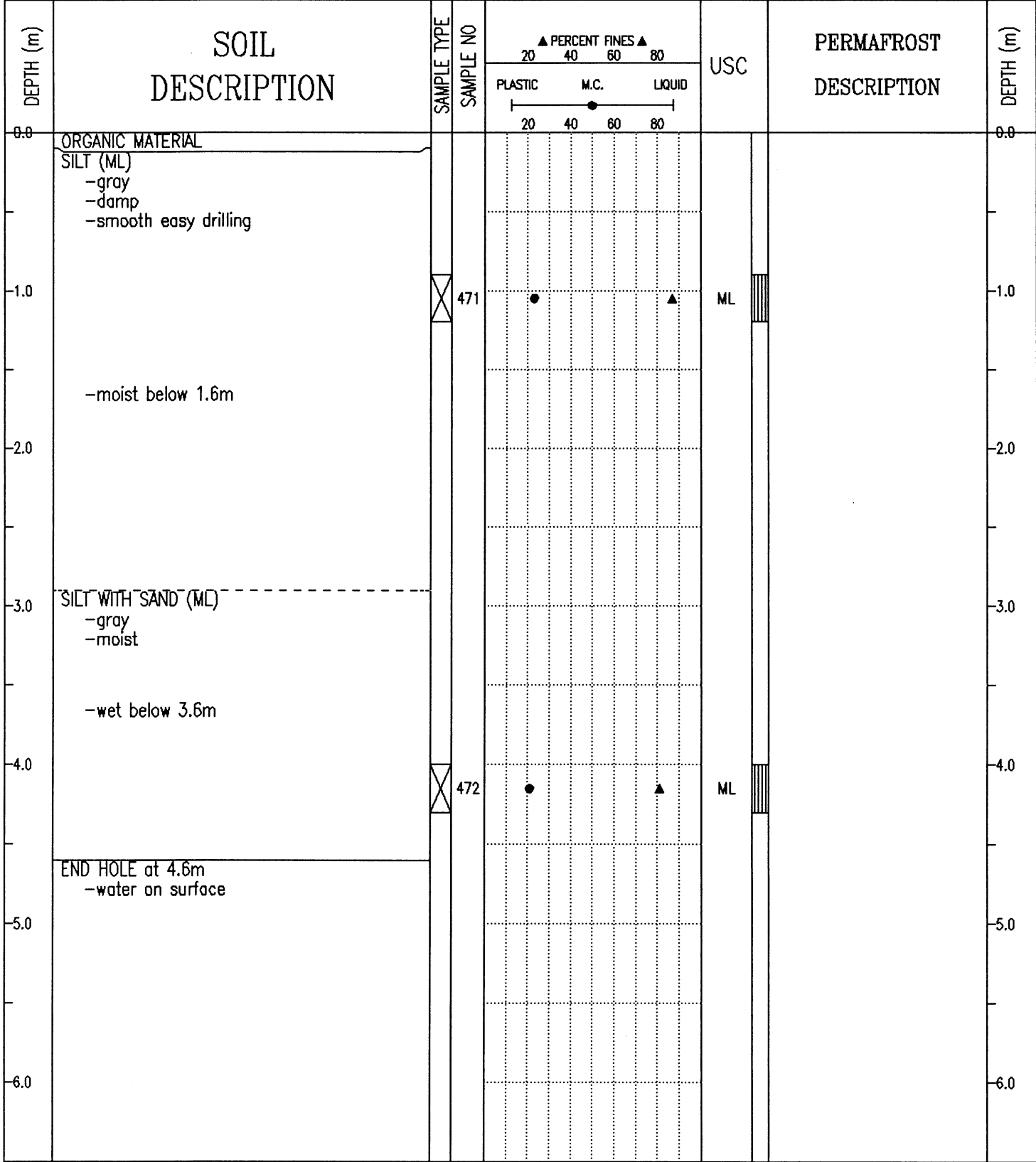
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-181
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1929+550 o/s 10m Lt.	ELEVATION 0.000 (m)

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



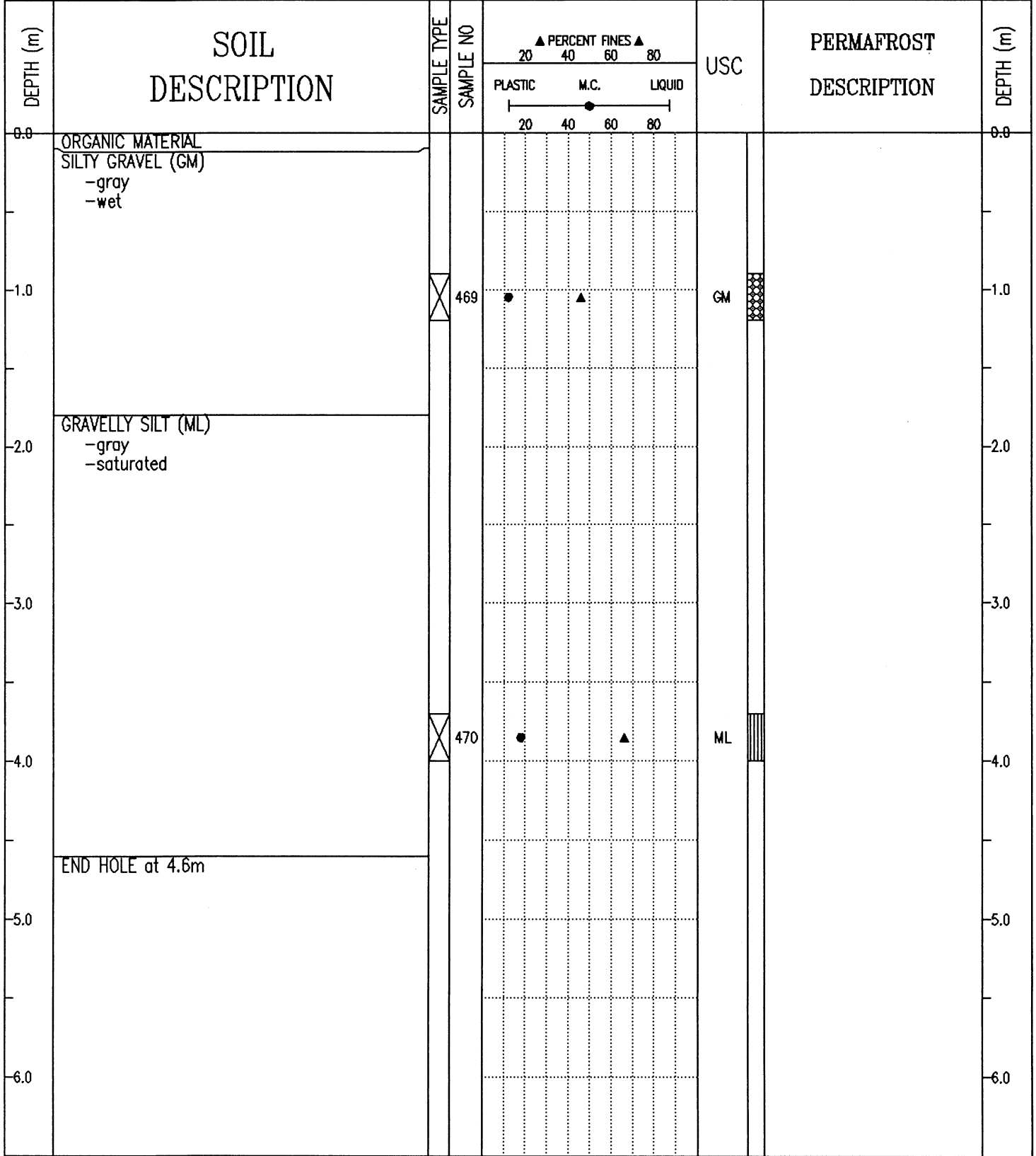
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-180
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1929+650 o/s 16m Lt.	ELEVATION 0.000 (m)

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



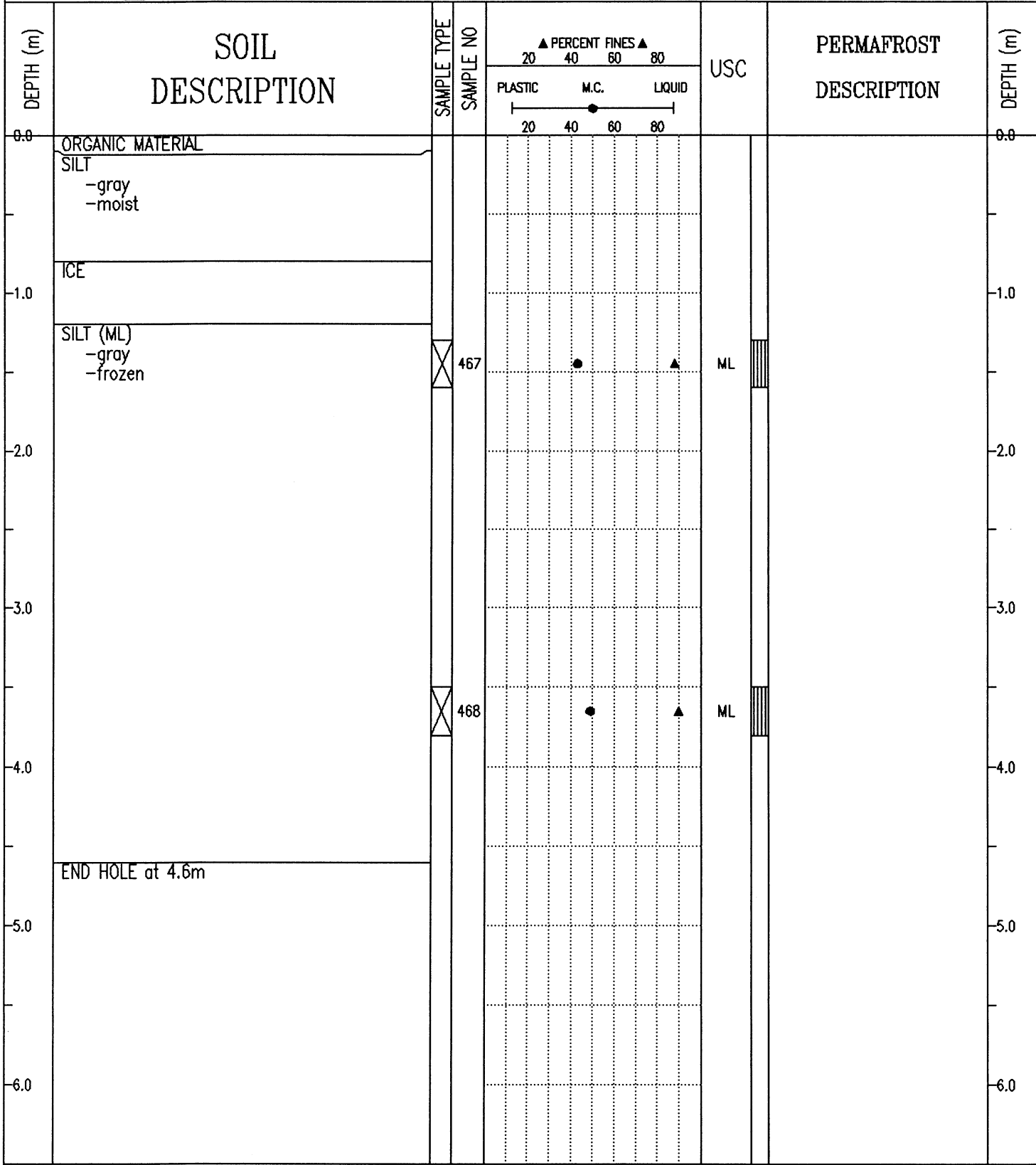
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-179
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1929+750 o/s 18m Lt.	ELEVATION 0.000 (m)

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



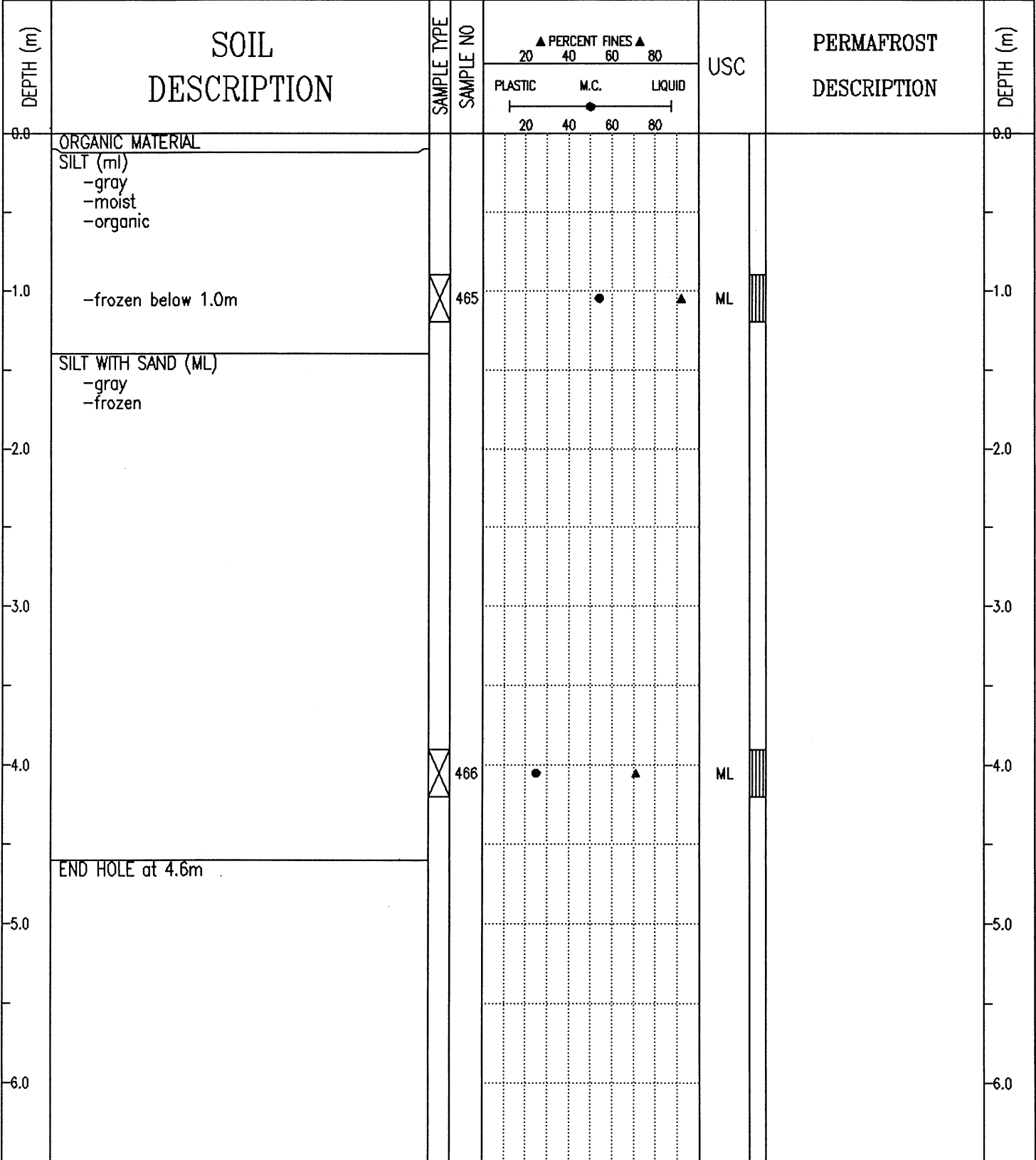
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-178
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1929+850 o/s 1m Lt.	ELEVATION 0.000 (m)

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



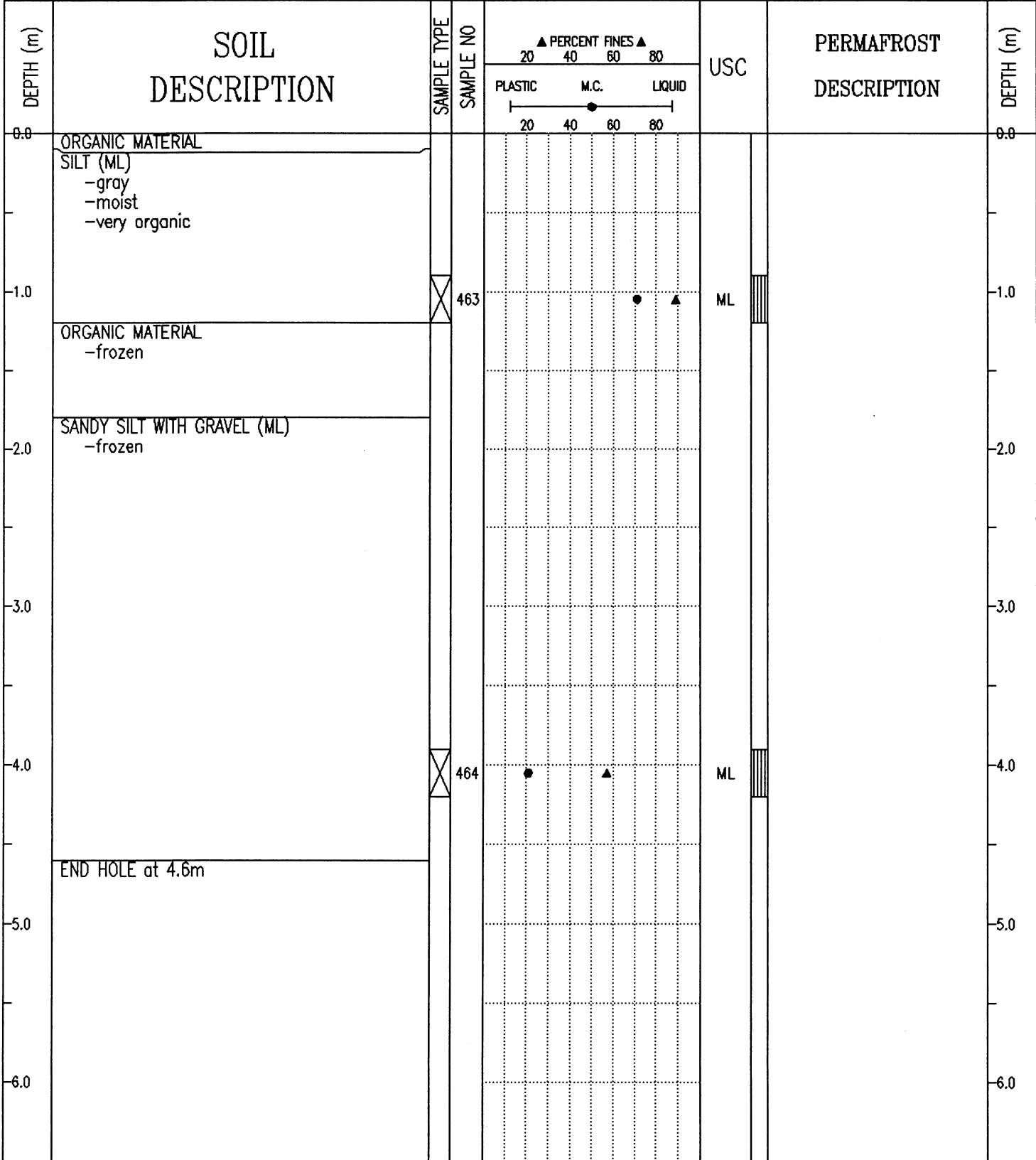
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-177
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1929+950 o/s 2m Rt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-176
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1930+050 o/s 2m Rt.	ELEVATION 0.000 (m)

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



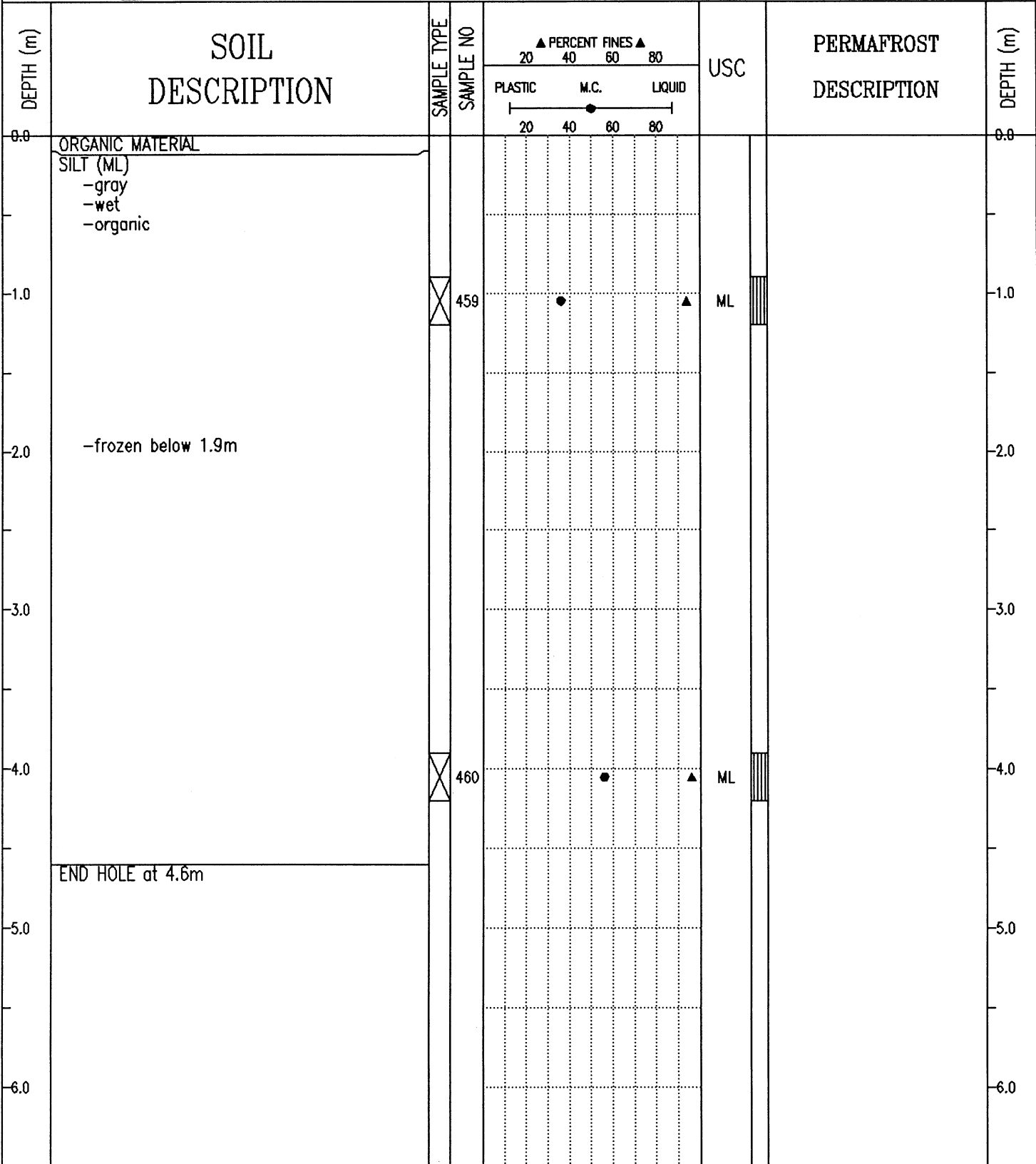
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-175
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1930+150	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL SILT -gray -moist								0.0
1.0	SILTY GRAVEL WITH SAND (GM) -gray -wet	<input checked="" type="checkbox"/>	461	●	▲		GM		1.0
2.0									2.0
3.0									3.0
4.0	SILTY SAND WITH GRAVEL (SM) -gray -wet	<input checked="" type="checkbox"/>	462	●	▲		SM		4.0
5.0	END HOLE at 4.6m -in ditch								5.0
6.0									6.0

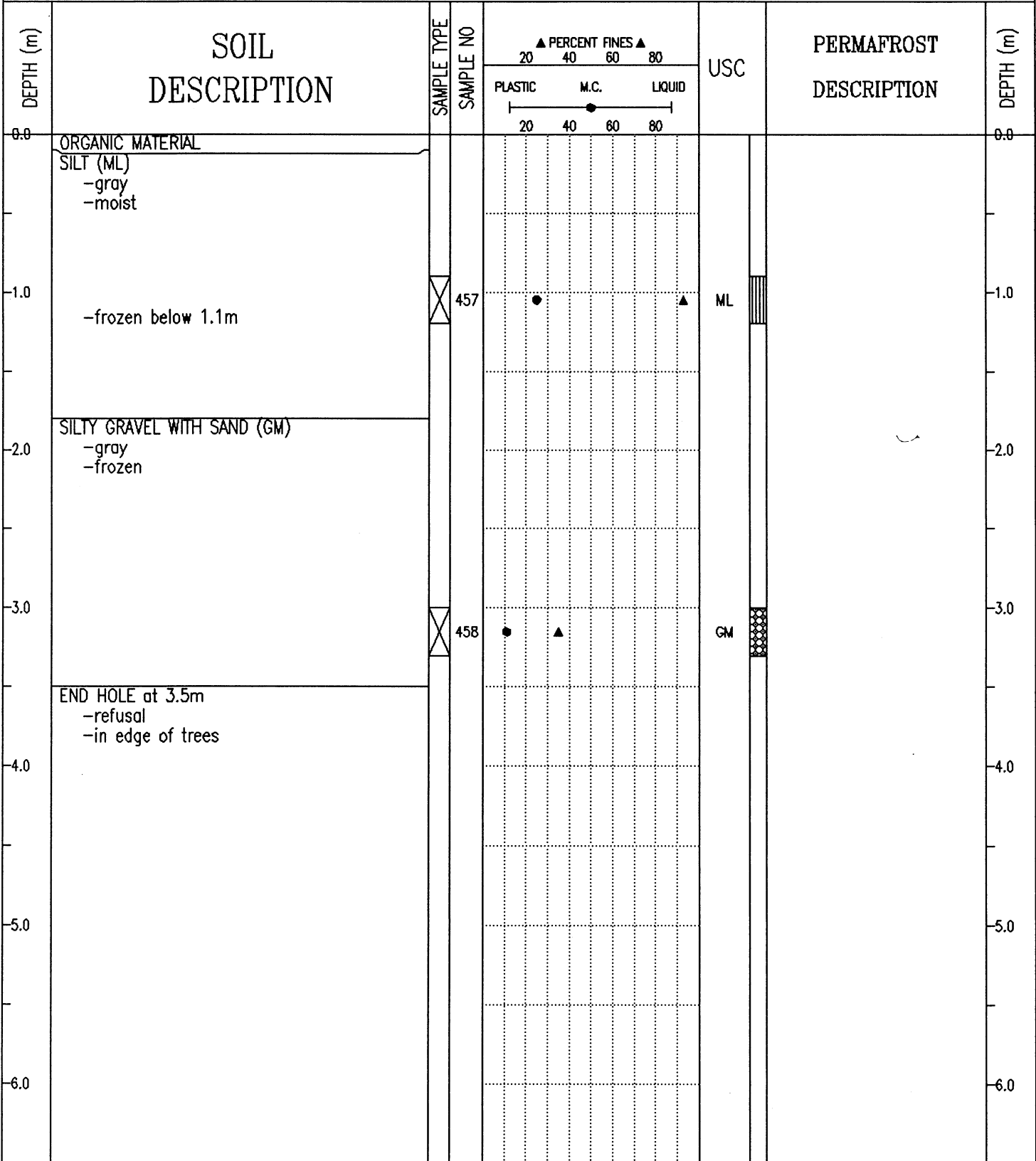
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-174
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1930+250 o/s 5m Rt.	ELEVATION 0.000 (m)

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



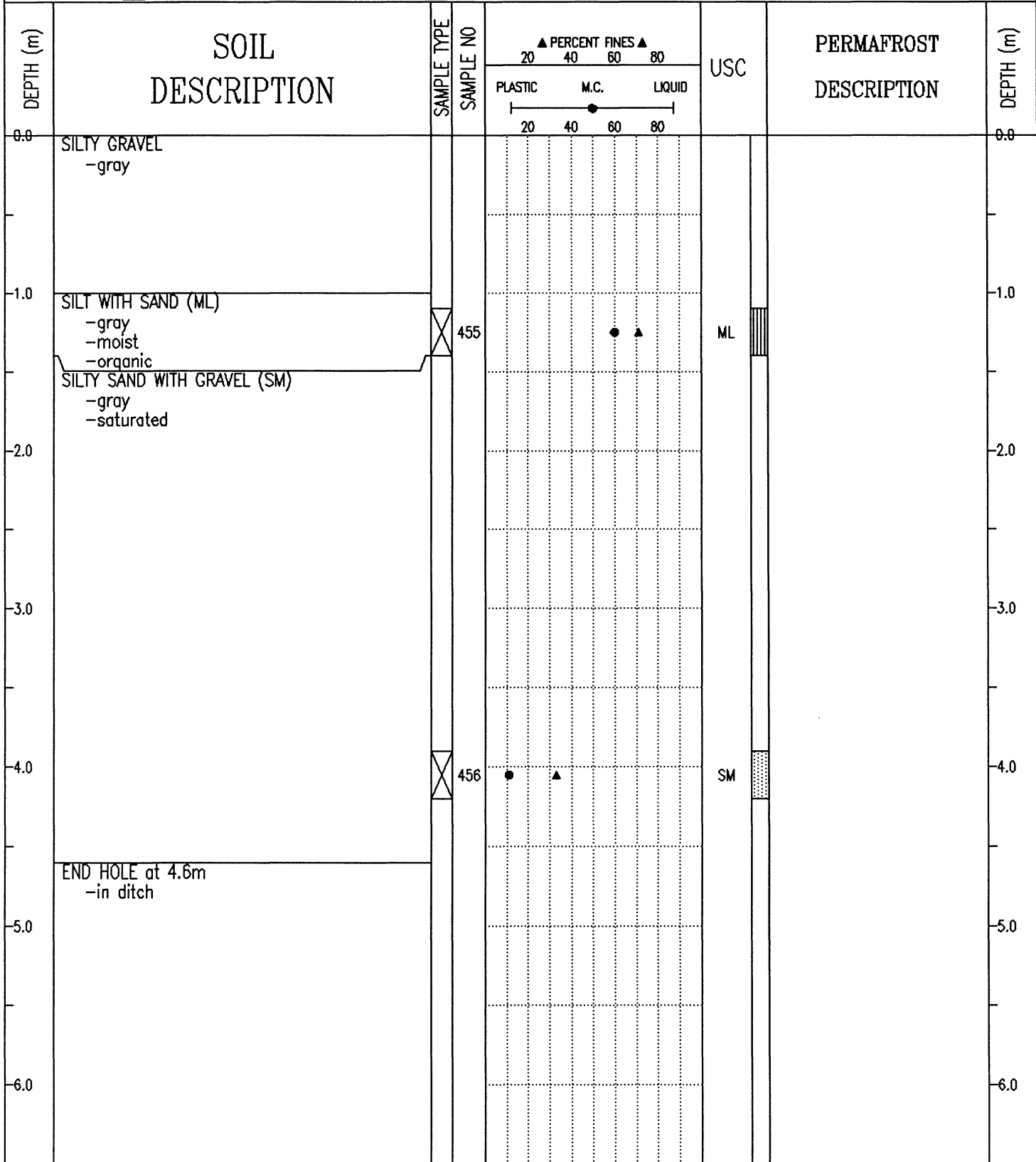
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-173
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1930+373	ELEVATION 0.000 (m)

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



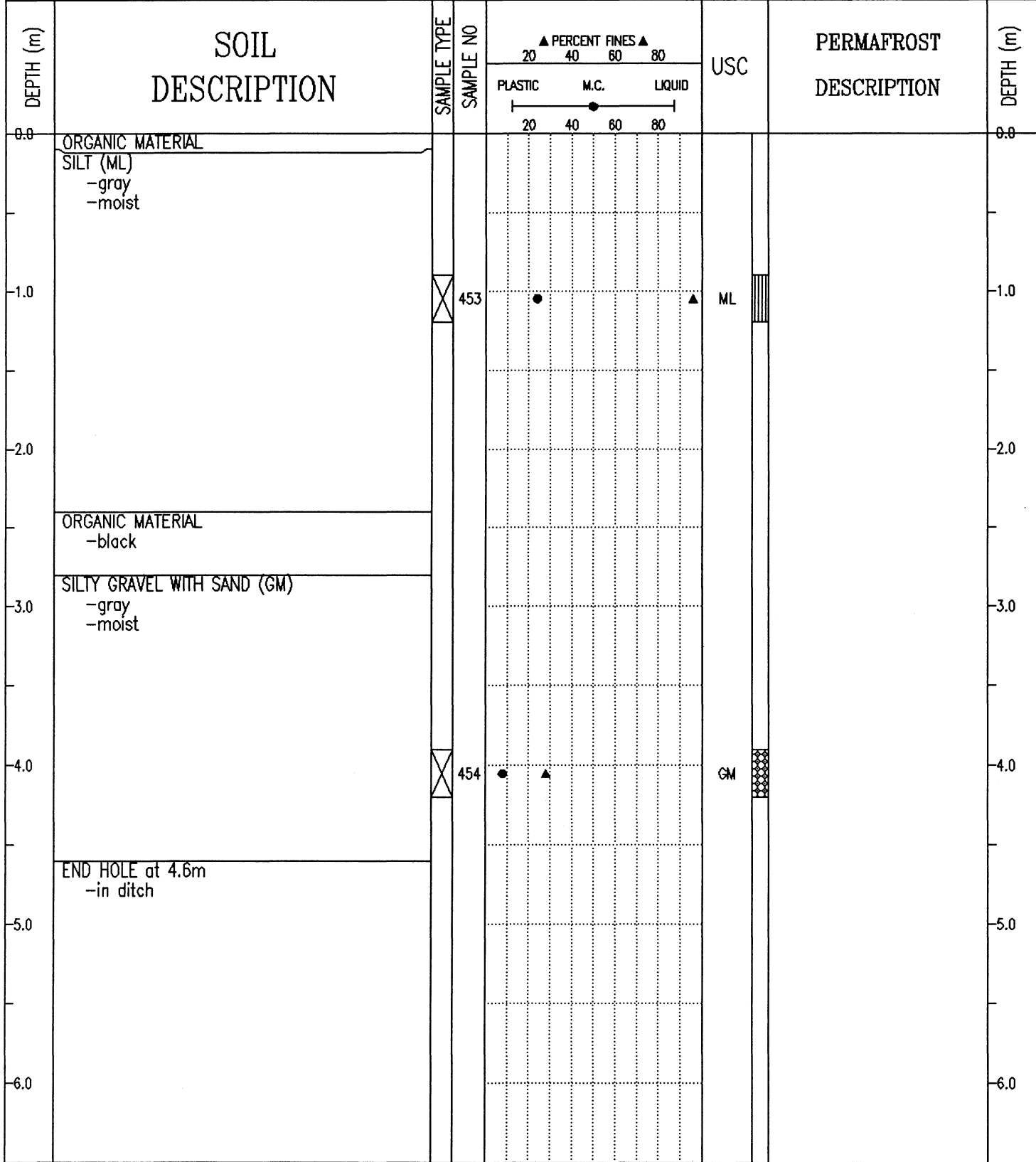
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-172
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1930+475 o/s 17m Lt.	ELEVATION 0.000 (m)

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



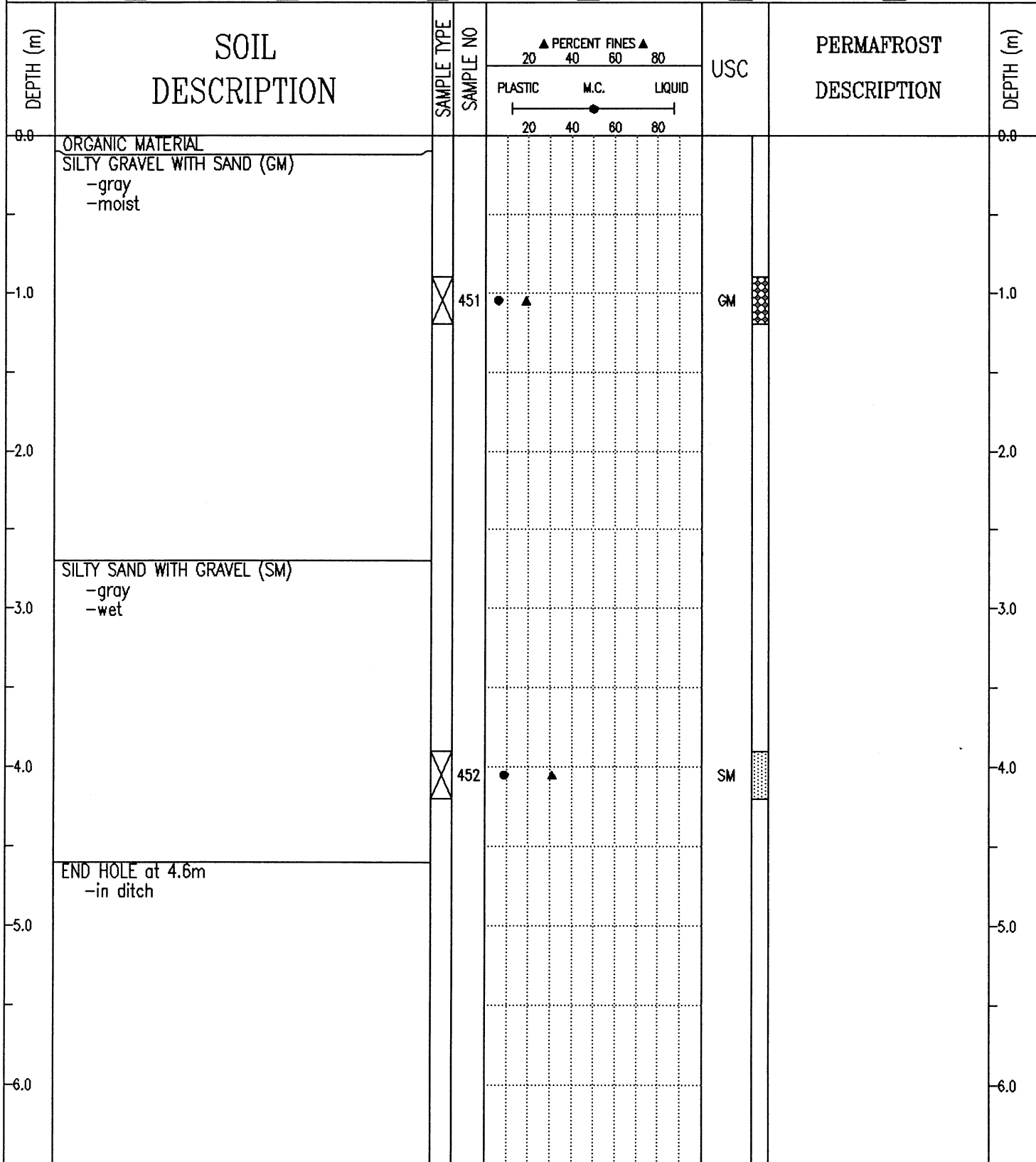
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-171
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1930+575 o/s 18m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-170
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-132	LOCATION: 1930+675 o/s 13m Lt.	ELEVATION 0.000 (m)

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



Public Works Canada
Whitehorse, Yukon Territory.

COMPLETION DEPTH 4.6 m

COMPLETE 91/09/24

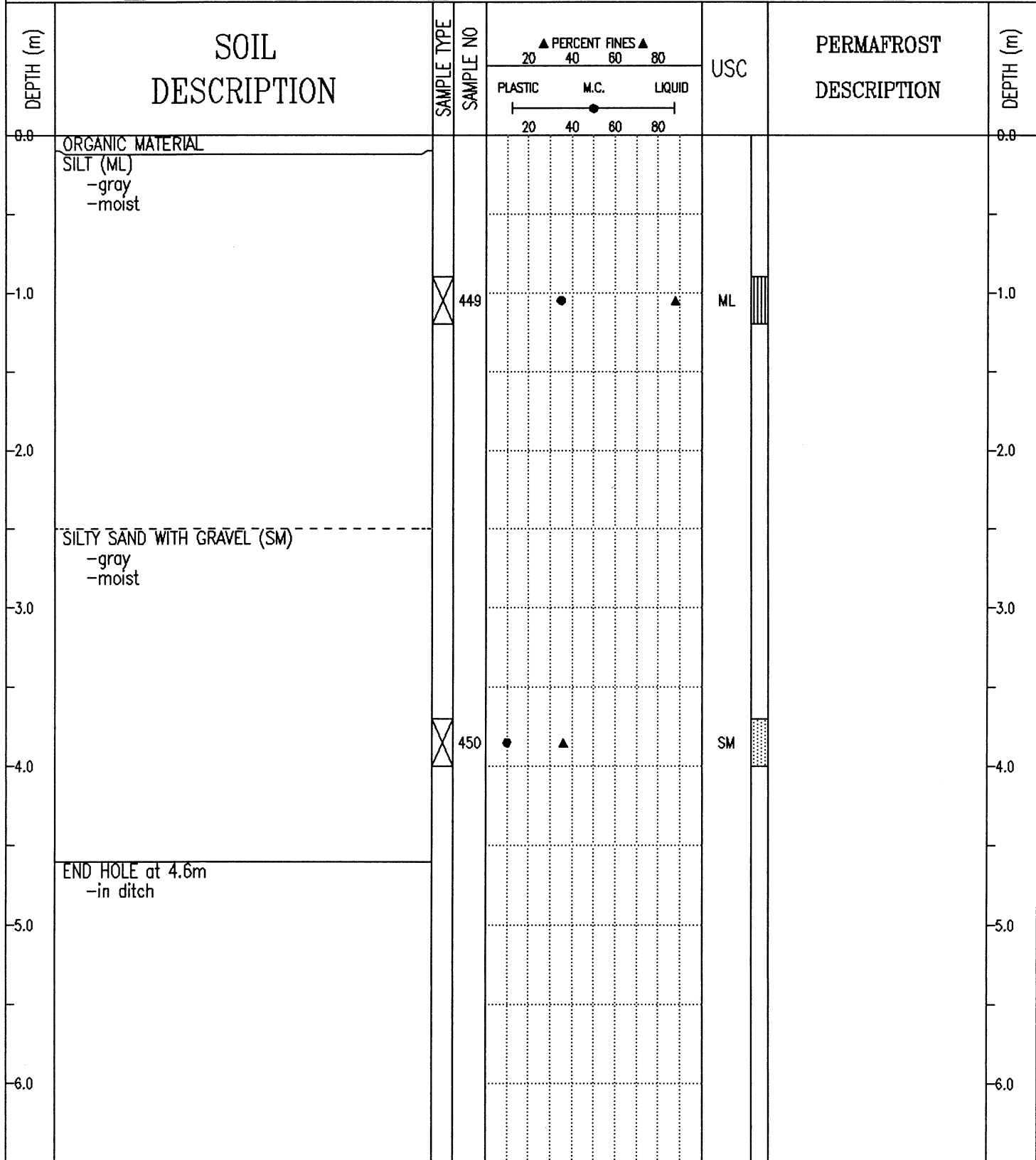
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DWG NO.

Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-169
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1930+775 o/s 11m Lt.	ELEVATION 0.000 (m)

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



Public Works Canada
Whitehorse, Yukon Territory.

COMPLETION DEPTH 4.6 m	COMPLETE 91/09/24
LOGGED BY	DWG NO.
	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-168
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1930+876 o/s 1m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL							0.0	
	SILTY GRAVEL WITH SAND (GM) -moist								
-1.0		<input checked="" type="checkbox"/>	448	●	▲		GM	-1.0	
	-frozen below 1.4m								
-2.0	ICE -no soil							-2.0	
-3.0								-3.0	
-4.0								-4.0	
-5.0	END HOLE at 4.6m -in ditch							-5.0	
-6.0								-6.0	

Public Works Canada
Whitehorse, Yukon Territory.

COMPLETION DEPTH 4.6 m

COMPLETE 91/09/24

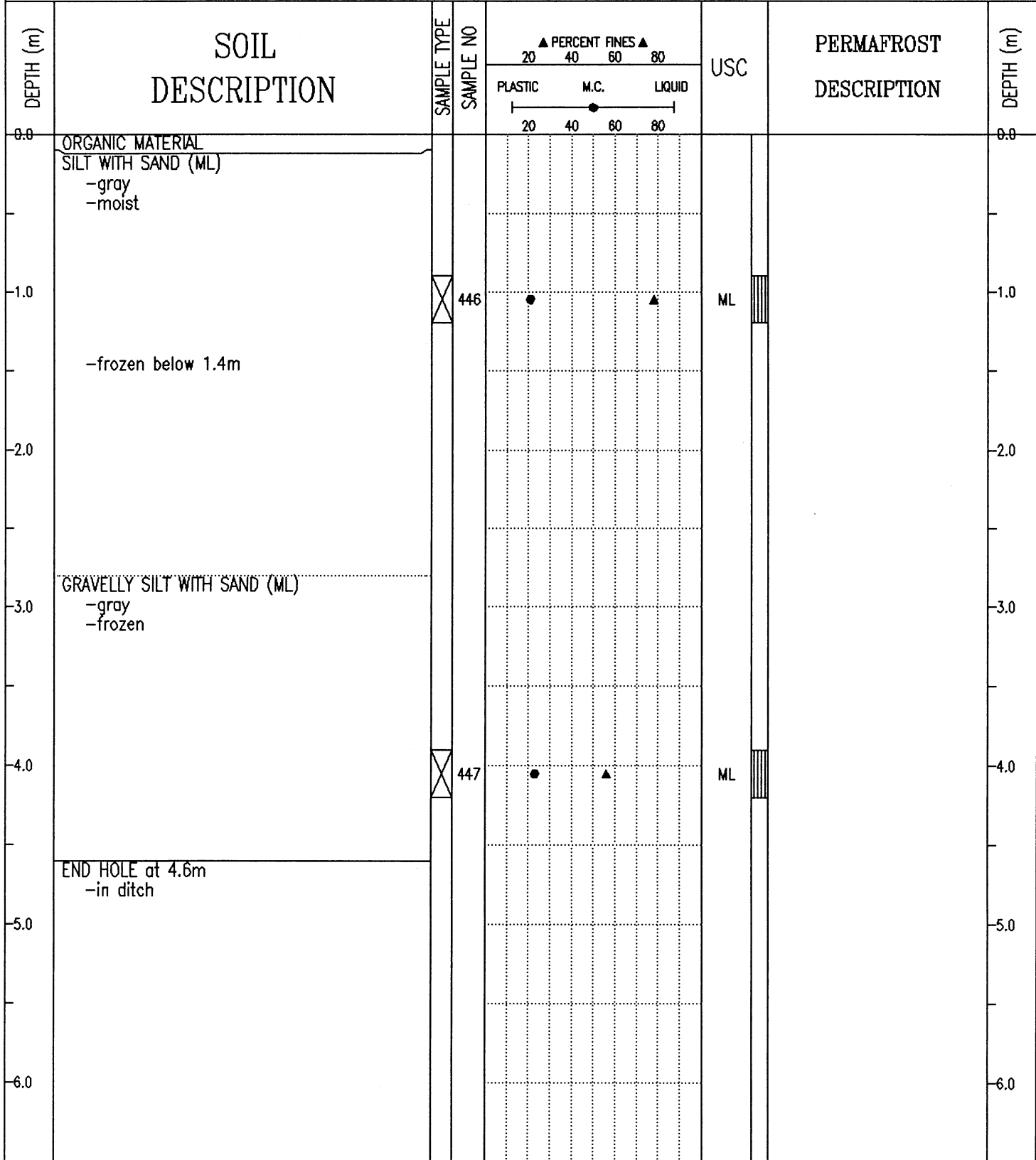
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Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-167
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1930+950	ELEVATION 0.000 (m)

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



Public Works Canada
Whitehorse, Yukon Territory.

COMPLETION DEPTH 4.6 m

COMPLETE 91/09/24

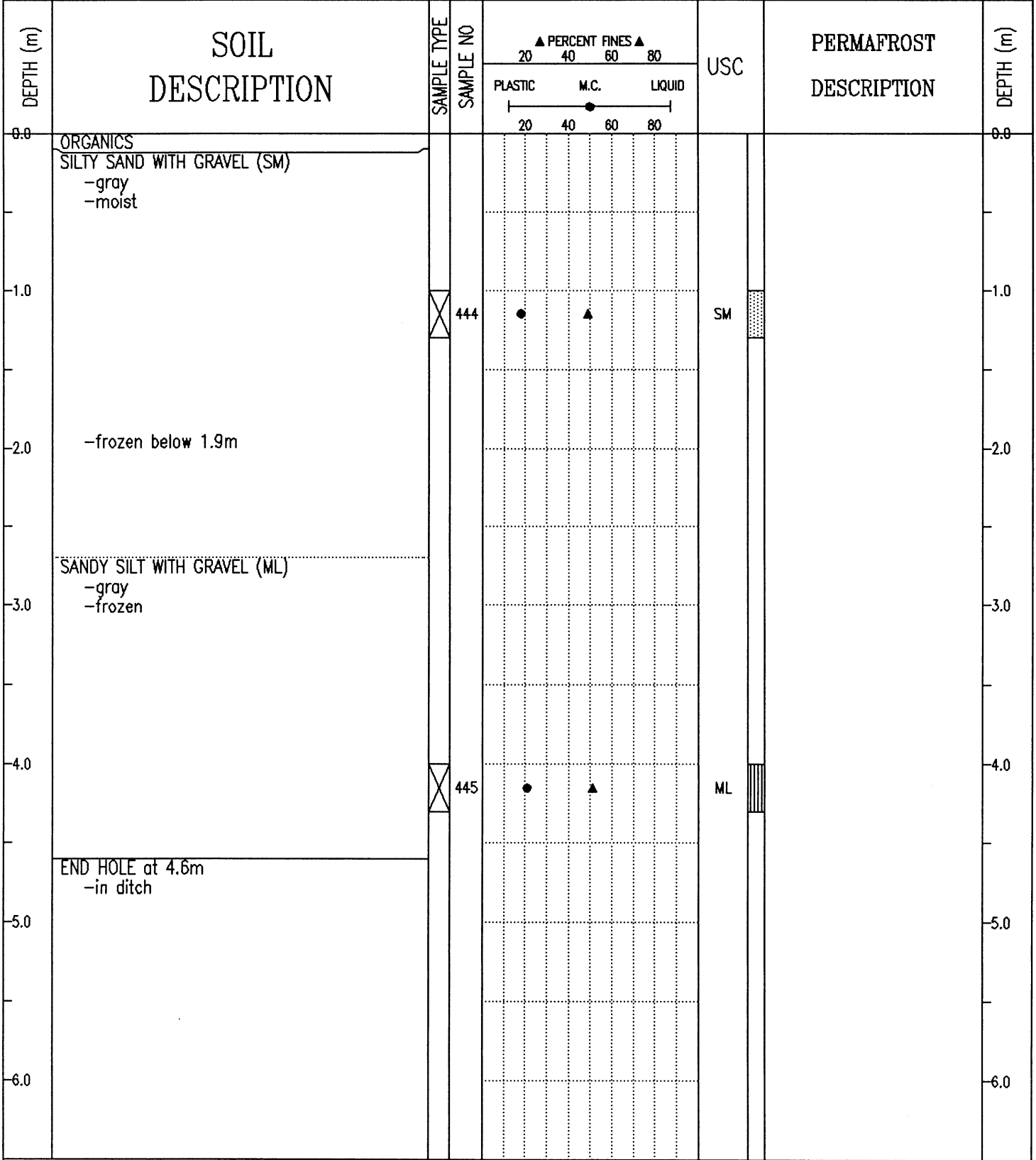
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Page 1 of 1

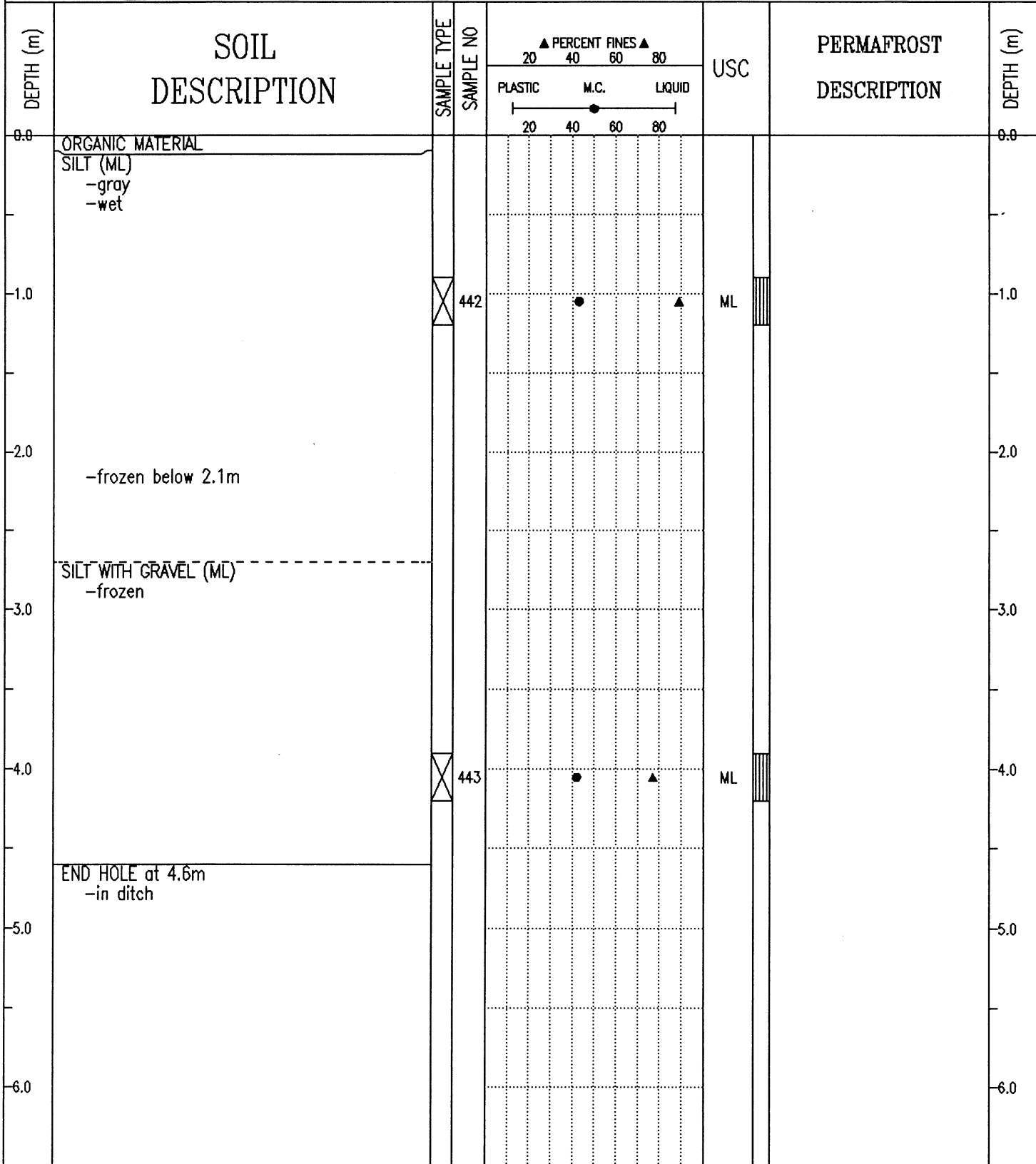
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-166
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1931+050 o/s 19m Lt.	ELEVATION 0.000 (m)

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



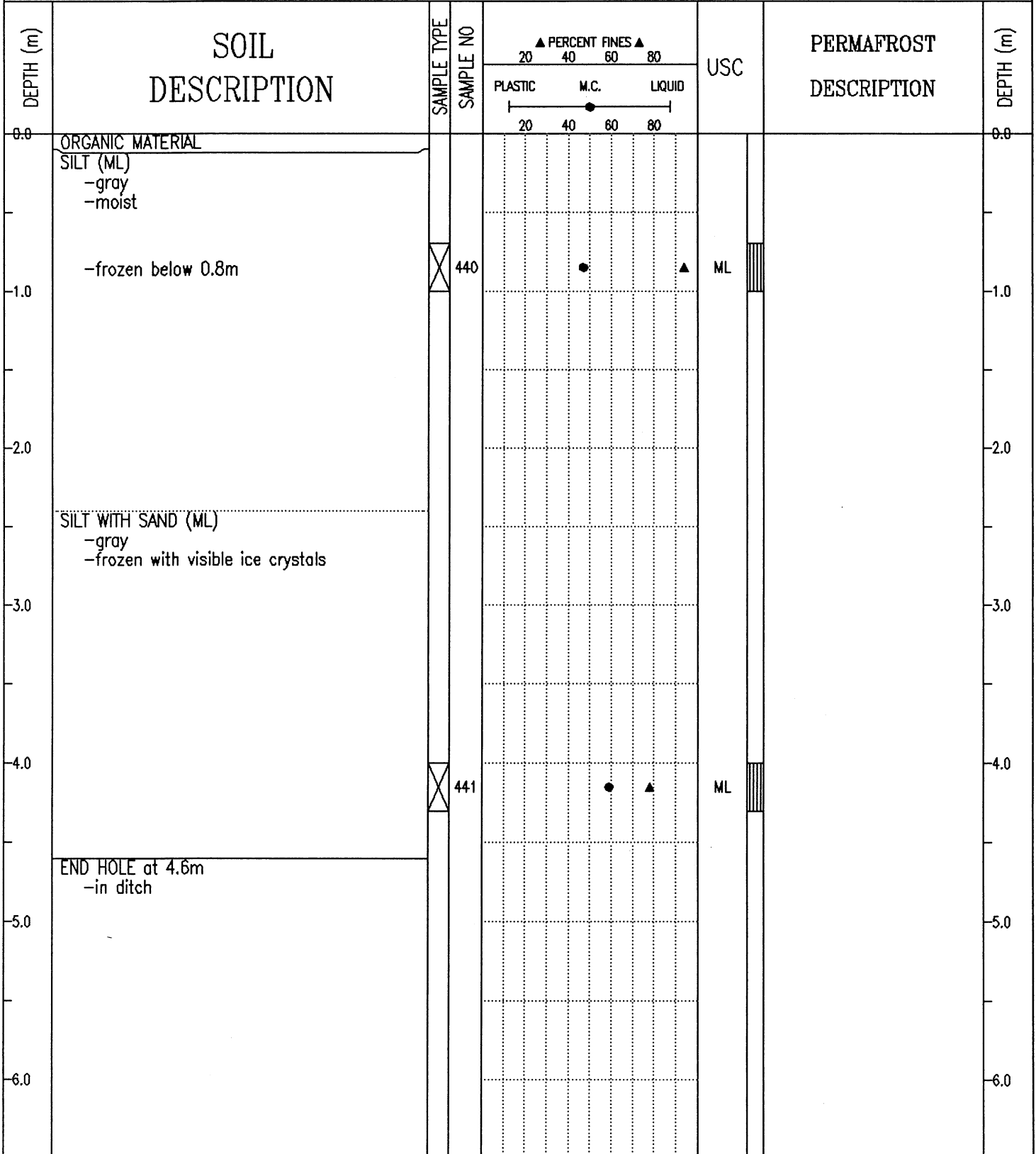
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-165
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1931+150 o/s 18m Lt.	ELEVATION 0.000 (m)

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



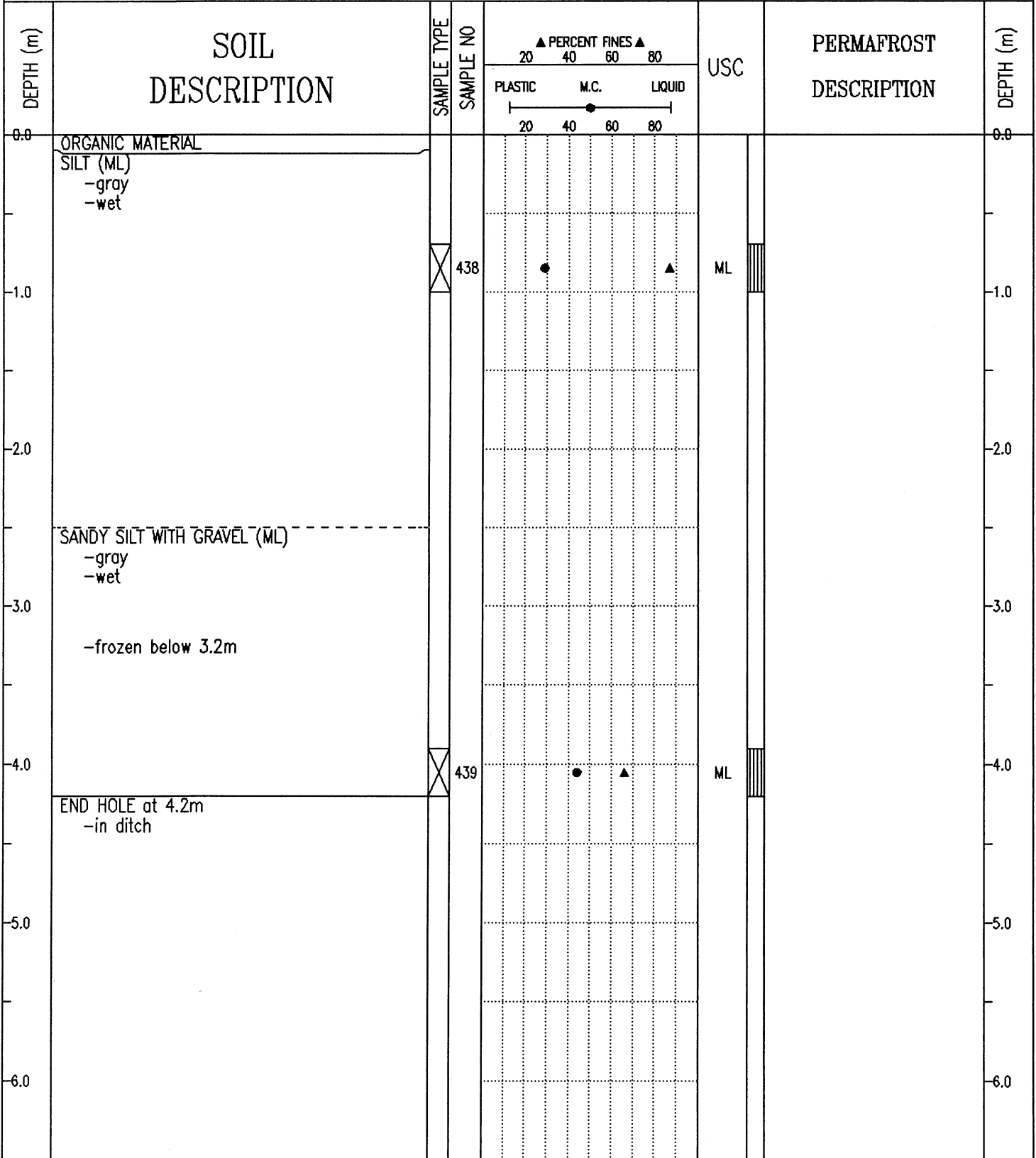
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-164
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1931+250 o/s 1m Lt.	ELEVATION 0.000 (m)

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



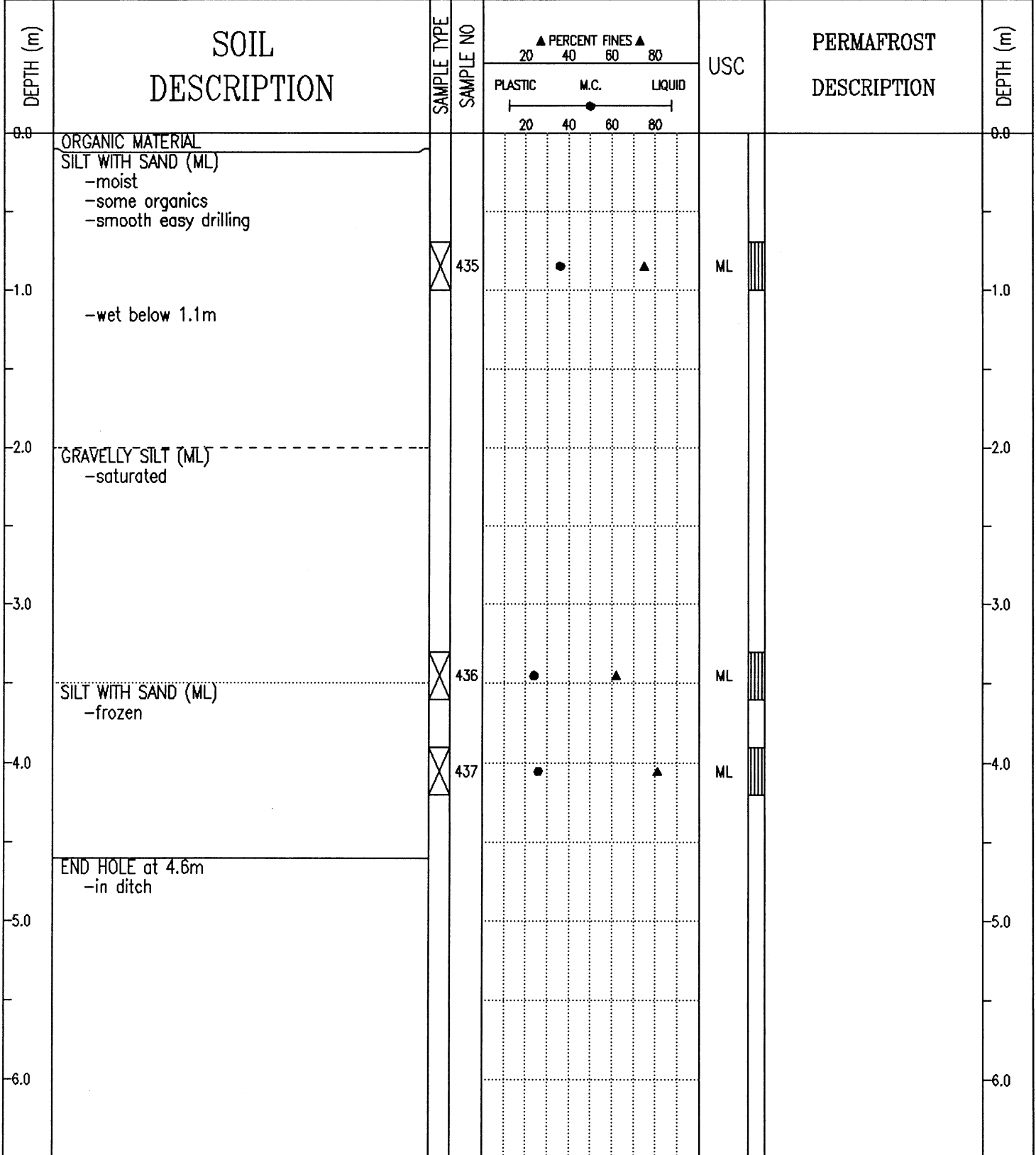
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-163
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1931+350 o/s 5m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-162
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1931+452 o/s 13m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-161
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1931+550 o/s 11m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL SILT -damp							0.0	
1.0	POORLY TO WELL-GRADED GRAVEL WITH SILT AND SAND (GP-GM TO GW-GM) -gray -moist -maximum 50mm material augered up -slow grindy drilling	X	433				GP-GM	1.0	
3.0		X	434				GW-GM	3.0	
4.0	END HOLE at 3.5m -refusal -in ditch							4.0	
5.0								5.0	
6.0								6.0	

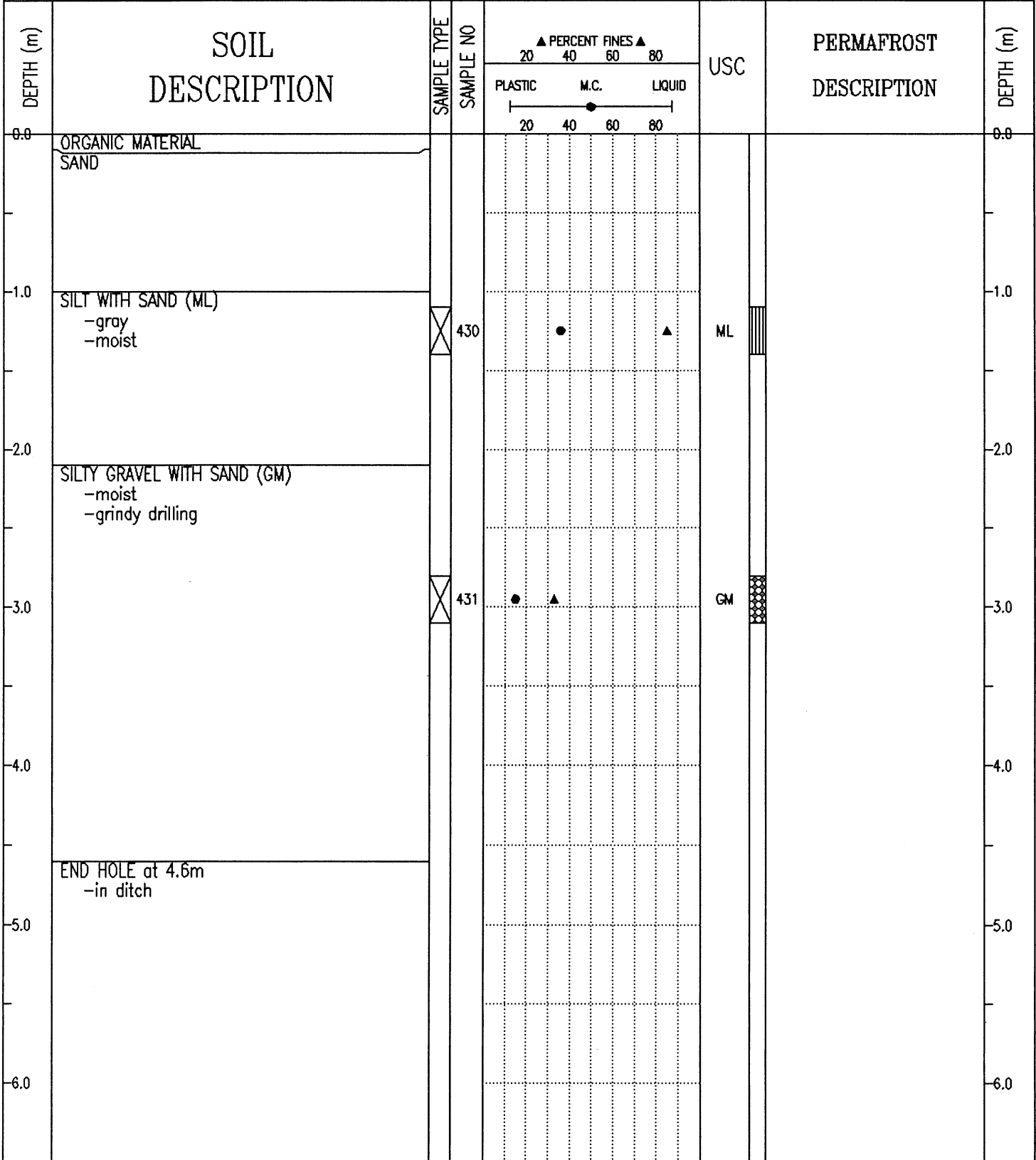
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-160
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1931+650 o/s 11m Lt.	ELEVATION 0.000 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	ORGANIC MATERIAL POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) -brown -damp -slow grindy drilling								0.0
1.0			432				GP-GM		1.0
2.0	END HOLE at 1.5m -refusal -in ditch								2.0
3.0									3.0
4.0									4.0
5.0									5.0
6.0									6.0

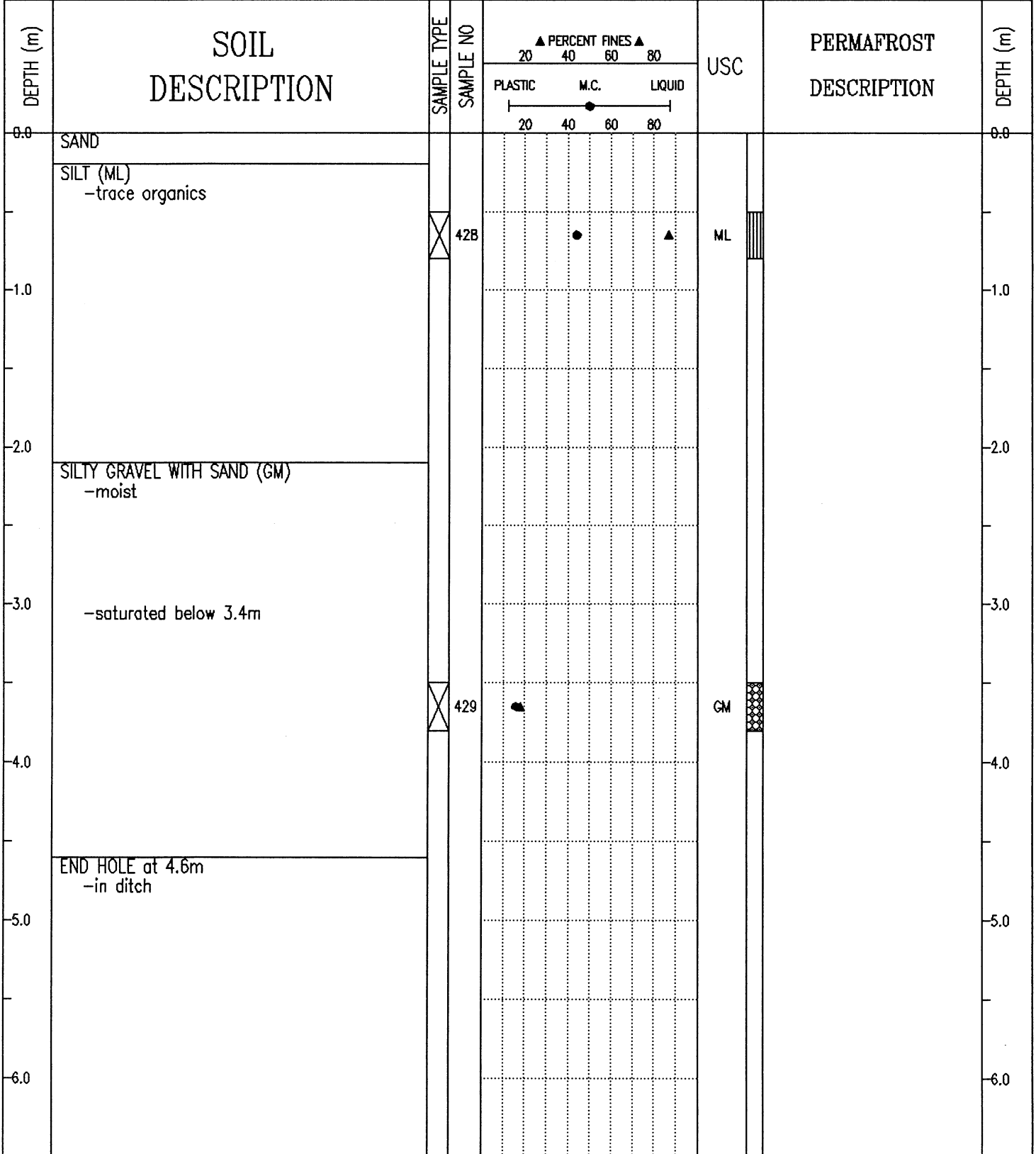
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-159
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1931+775 o/s 7m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 145-158
SHAKWAK PROJECT	A/H KM 1904-1932	Project No: 745927
17-225 & 17-174	LOCATION: 1931+878 o/s 9m Lt.	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	BOREHOLE No. 107-01
SHAKWAK PROJECT	A/H KM 1931.9-1965.5	Project No: SEGMENT 18
DRILL: B61 150mm Dia. SOLID STEM AUGER	LOCATION: STA 1932+000 o/s 12m Rt.	ELEVATION 0.000 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input checked="" type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	PERMAFROST DESCRIPTION	DEPTH (m)
				PLASTIC	M.C.	LIQUID			
0.0	SILTY SAND (SM) -brown -damp -smooth drilling	<input checked="" type="checkbox"/>	1	▲	●	▲	SM	0.0	
-1.0									
-2.0	POORLY GRADED SAND WITH GRAVEL (SP) -brown -moist	<input checked="" type="checkbox"/>	2	▲	●	▲	SP	-2.0	
-3.0	-more gravel sizes below 2.7m							-3.0	
-4.0	-fewer gravel sizes below 3.1m -smoother drilling below 3.1m							-4.0	
-5.0	-wet below 4.0m	<input checked="" type="checkbox"/>	3	●				-5.0	
-6.0	END HOLE at 4.2m -poplar and spruce cover							-6.0	