

HIGHWAY CONSTRUCTION
km 1868.1 to km 1871.9
ALASKA HIGHWAY, Y.T.
CENTRELINE AND
GRANULAR TESTING

This Data Package prepared for project viewing:
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Geotechnical Services
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Whitehorse, Yukon

GEOTECHNICAL INVESTIGATION
HIGHWAY CONSTRUCTION
km 1868.1 to km 1871.9, ALASKA HIGHWAY, Y.T.
CENTRELINE AND GRANULAR TESTING

CONTENTS

INTRODUCTION

Investigation notes, classification methods and legends.

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 1868+150 and increasing to km 1871+175.

Auger Testing

1993	TEST HOLES 250 to 254	shown with prefix 261-
	TEST HOLES 491 to 507	shown with prefix 270-
	TEST HOLES 508 to 516	shown with prefix 271-
1995	TEST HOLES 294 and	shown with prefix 370-
	297 to 300	
	TEST HOLES 556 to 561	shown with prefix 383-

GRANULAR TESTING - KM 1878 RHS

Subsurface exploration and testing report sheets, location plans, photographs and a production history are provided.

Backhoe Testing

1989	TEST HOLES 33, 34, 38, 42, 45, 46 and 50	shown with prefix 057-
	TEST HOLES 52 to 54, and 61	shown with prefix 058-

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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.

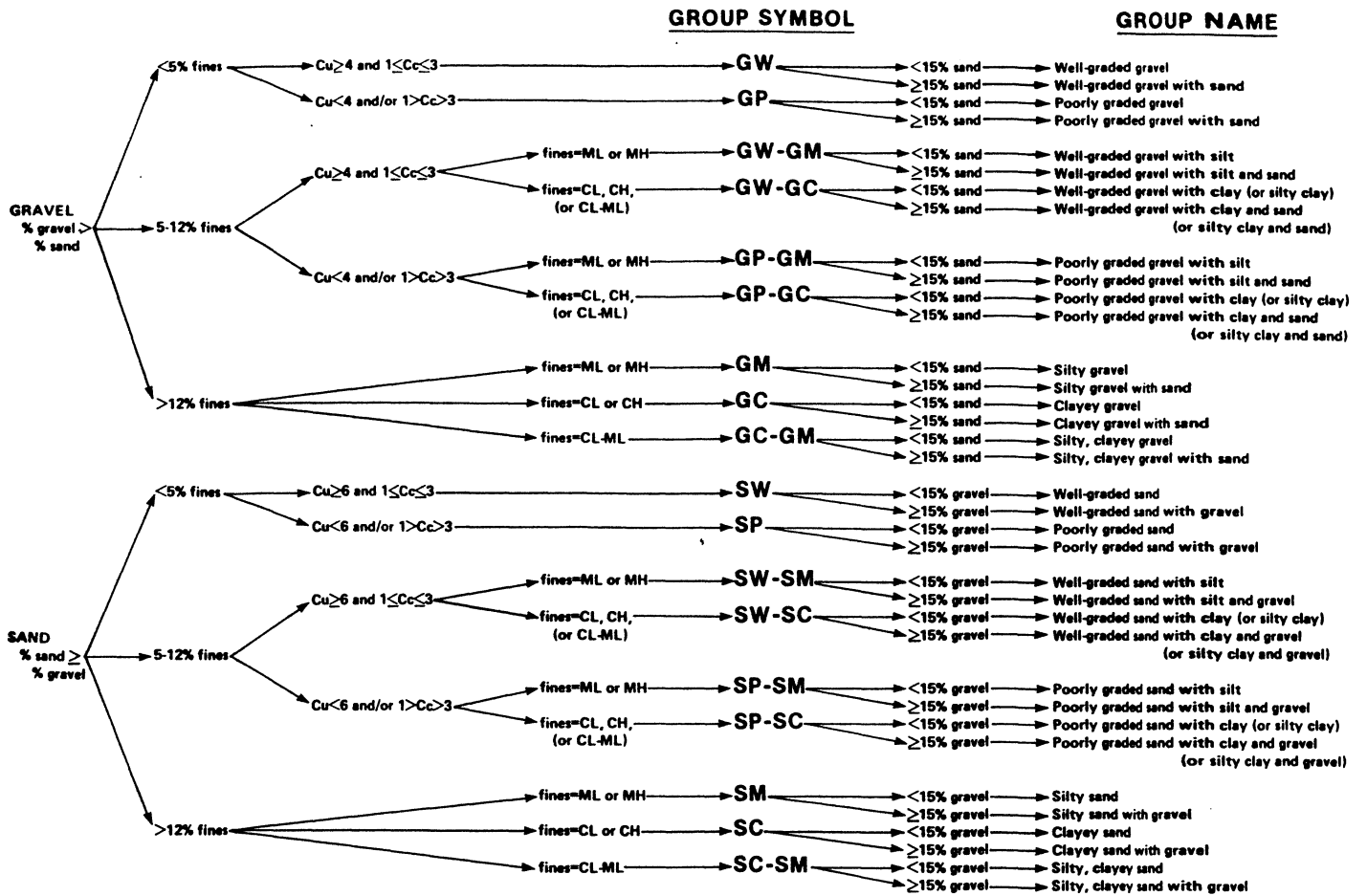
The sample identification and laboratory testing data is provided to give detailed physical properties of selected retrieved samples within the subsurface profile. ***These tests may be conducted on disturbed samples and may exhibit properties different from the native materials.*** The sample classification 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.

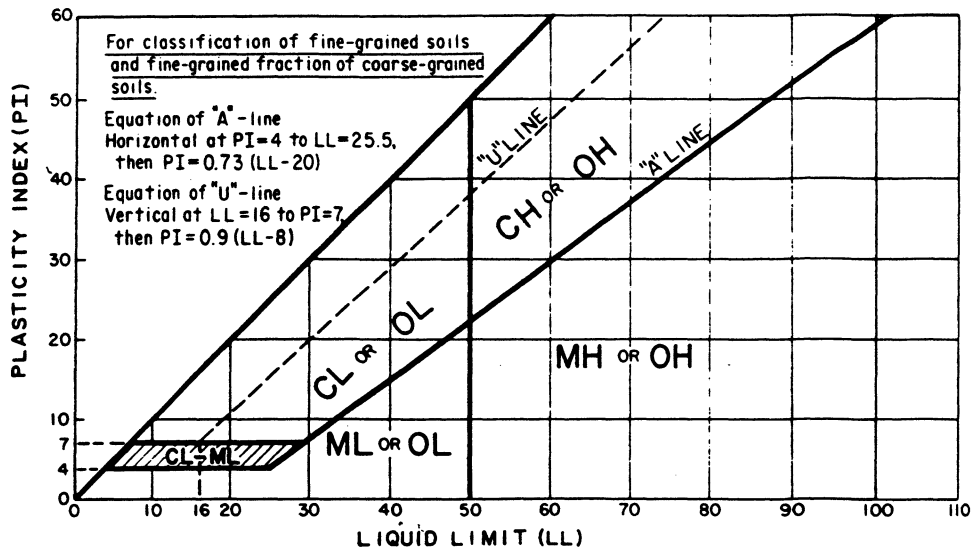
It is recommended that a site inspection, combined with consideration of the regional geology and climatic conditions be conducted. An evaluation of the investigation methods and development work done since the time of investigation should be done prior to interpreting the subsurface conditions for construction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

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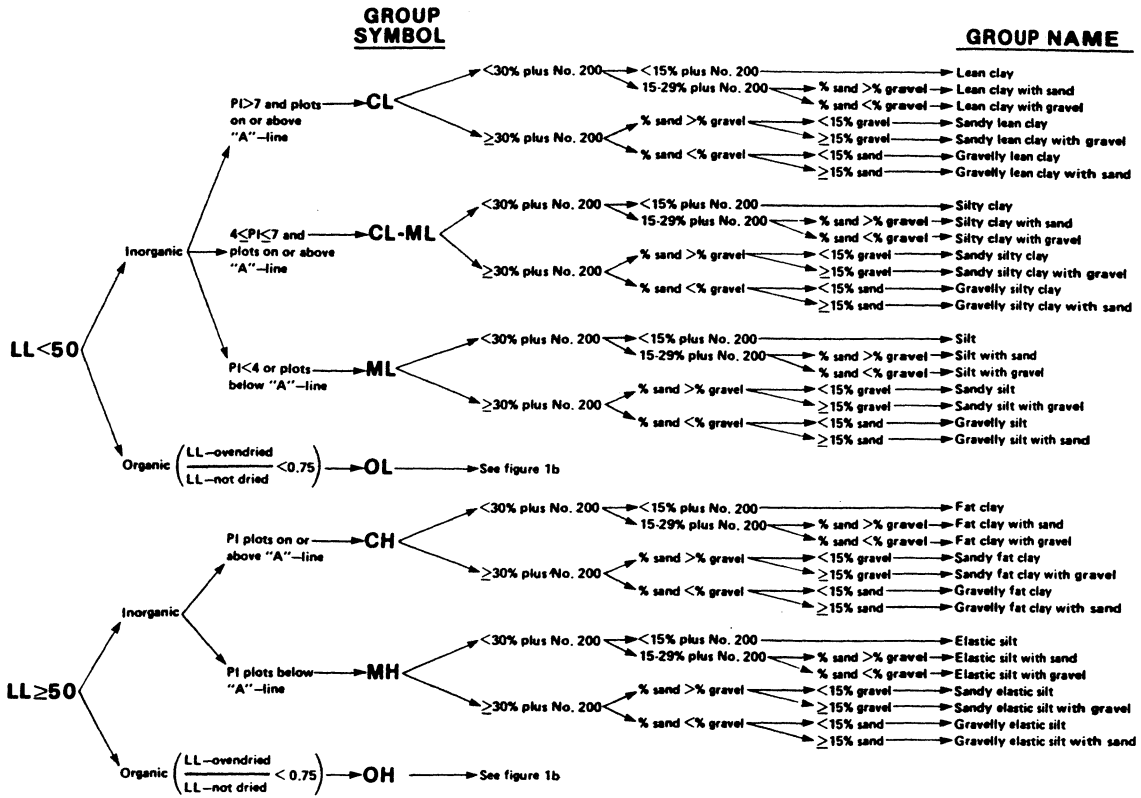
INTRODUCTION



Flow chart for classifying coarse-grained soil.



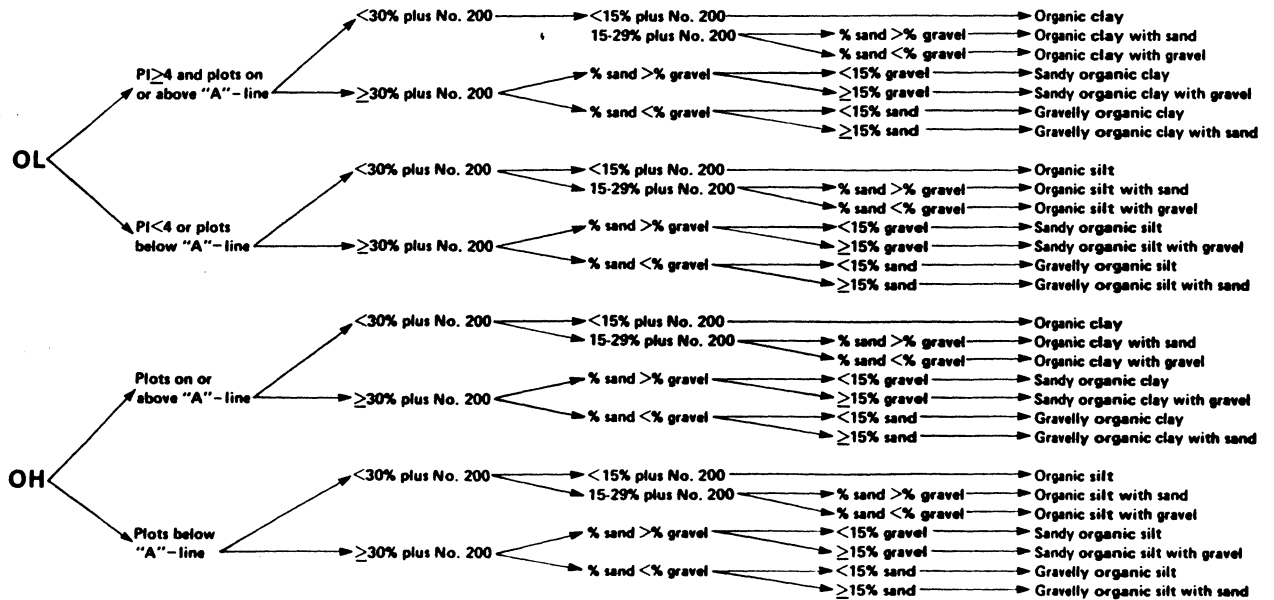
Plasticity chart.



Flow chart for classifying fine-grained soil.

GROUP SYMBOL

GROUP NAME



Flow chart for classifying organic soil.

CRITERIA FOR ASSIGNING GROUP SYMBOLS AND GROUP NAMES USING LABORATORY TESTS ^a				SOIL CLASSIFICATION		
				GROUP SYMBOL	GROUP NAME ^b	
COARSE-GRAINED SOILS more than 50% retained on No. 200 sieve	GRAVELS More than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS Less than 5% fines ^c	$C_u \geq 4$ and $1 \leq C_c \leq 3$ ^e	GW	Well-graded gravel ^f	
			$C_u < 4$ and/or $1 > C_c > 3$ ^e	GP	Poorly graded gravel ^f	
		GRAVELS WITH FINES More than 12% fines ^c	Fines classify as ML or MH	GM	Silty gravel ^{f,g,h}	
	Fines classify as CL or CH		GC	Clayey gravel ^{f,g,h}		
	SANDS 50% or more of coarse fraction passes No. 4 sieve	CLEAN SANDS Less than 5% fines ^d	$C_u \geq 6$ and $1 \leq C_c \leq 3$ ^e	SW	Well-graded sand ⁱ	
			$C_u < 6$ and/or $1 > C_c > 3$ ^e	SP	Poorly graded sand ⁱ	
SANDS WITH FINES More than 12% fines ^d		Fines classify as ML or MH	SM	Silty sand ^{g,h,i}		
	Fines classify as CL or CH	SC	Clayey sand ^{g,h,i}			
FINE-GRAINED SOILS 50% or more passed the No. 200 sieve	SILTS AND CLAYS Liquid limit less than 50%	inorganic	PI > 7 and plots on or above "A" line ^j	CL	Lean clay ^{k,l,m}	
			PI < 4 or plots below "A" line ^j	ML	Silt ^{k,l,m}	
	SILTS AND CLAYS Liquid limit 50% or more	inorganic	organic	Liquid limit - oven dried < 0.75 Liquid limit - not dried	OL	Organic clay ^{k, l, m, n} Organic silt ^{k, l, m, o}
				PI plots on or above "A" line	CH	Fat clay ^{k,l,m}
		organic	PI plots below "A" line	MH	Elastic silt ^{k,l,m}	
			Liquid limit - oven dried < 0.75 Liquid limit - not dried	OH	Organic clay ^{k, l, m, p} Organic silt ^{k, l, m, q}	
Highly organic soils	Primarily organic matter, dark in color, and organic odor		PT	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 $\geq 30\%$ 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	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	$C_u = D_{60}/D_{10}$ Greater than 4 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 Not meeting both criteria for GW					
		GP	Poorly-graded gravels and gravel-sand mixtures, little or no fines						
		GRAVELS WITH FINES	GM			Silty gravels, gravel-sand-silt mixtures			
			GC			Clayey gravels, gravel-sand clay mixtures			
		SANDS More than 50% of coarse fraction passes No. 4 sieve	SW			Well-graded sands and gravelly sands, little or no fines	$C_u = D_{60}/D_{10}$ Greater than 6 $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 Not meeting both criteria for SW		
			SP			Poorly-graded sands and gravelly sands, little or no fines			
	SANDS WITH FINES		SM	Silty sands, sand-silt mixtures					
			SC	Clayey sands, sand-clay mixtures					
	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	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: $PI = 0.73(LL - 20)$			
				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						
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							
HIGHLY ORGANIC SOILS		PT	Peat, muck and other highly organic soils	*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	

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)	

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

LEGEND

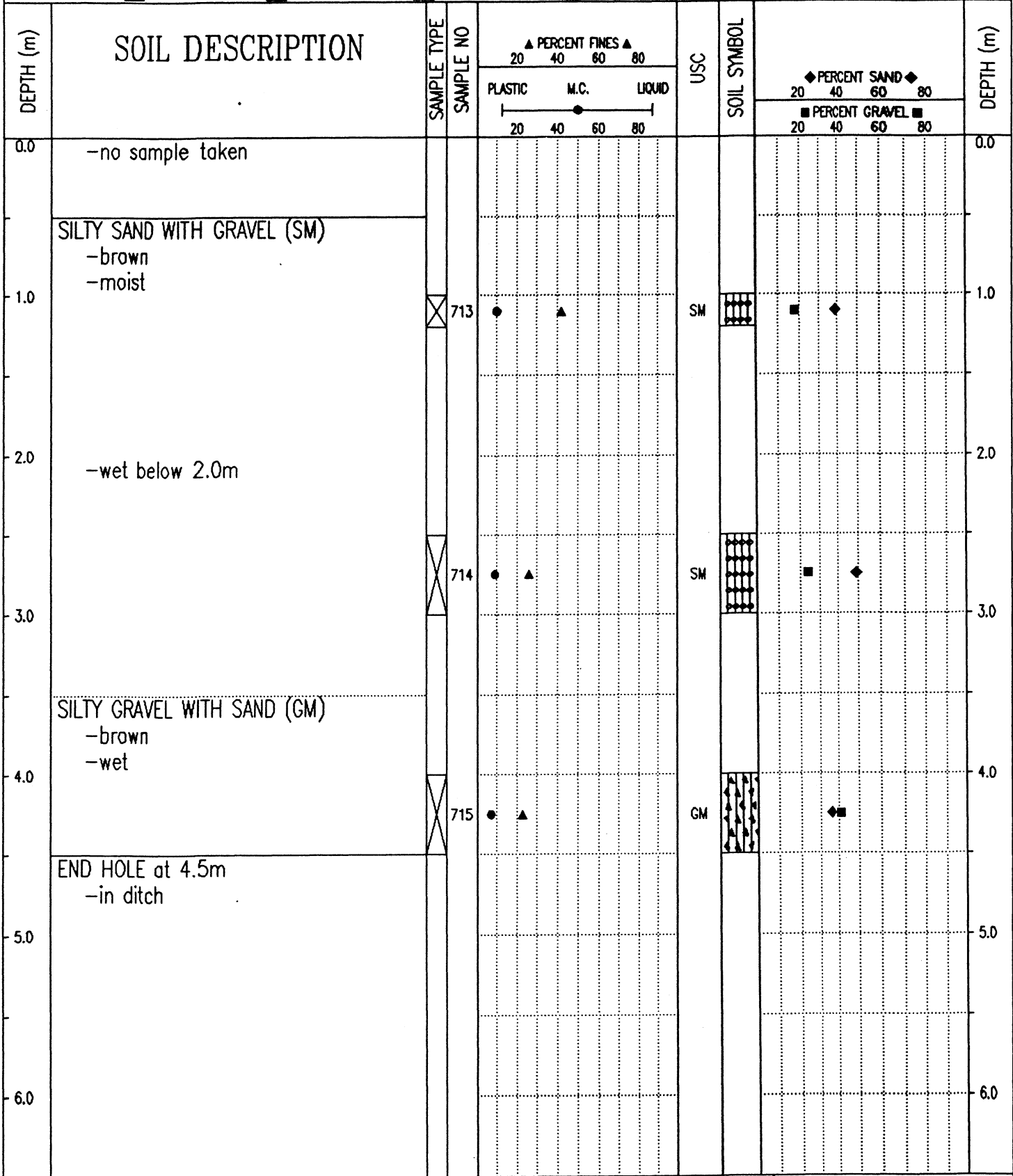
Soil Ice

		BOUNDARY LINES ON DRILL LOGS		TEST HOLE NO: 3				
ENGINEERING—CAPITAL				Project No:				
				ELEVATION: 0.00 (m)				
SAMPLE TYPE		<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE	<input type="checkbox"/> CORE	
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲	USC	SOIL SYMBOL	◆ PERCENT SAND ◆	DEPTH (m)
				20 40 60 80			20 40 60 80	
				PLASTIC M.C. LIQUID			■ PERCENT GRAVEL ■	
				20 40 60 80			20 40 60 80	
0.0	BOUNDARY LINES							0.0
	A solid line is used when a definite soil change is logged and a depth is known.							
1.0	A dashed line is used when a definite soil change is noted either by the field log or the sample test results and the depth of change is unknown.							1.0
2.0	A dotted line is used when a gradual or gradational change is noted by field notes and sample test results.							2.0
3.0								3.0
4.0								4.0
5.0								5.0
6.0								6.0
Government of Yukon Transportation Engineering				LOGGED BY:	COMPLETION DEPTH: 6.0 m			
				REVIEWED BY:	COMPLETE: / /			
				Fig. No:	Page 1 of 1			

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CENTRELINE TESTING

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-491
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1868+150	ELEVATION: 0.00 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



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REVIEWED BY:	COMPLETE: 93/10/16
Fig. No:	Page 1 of 1

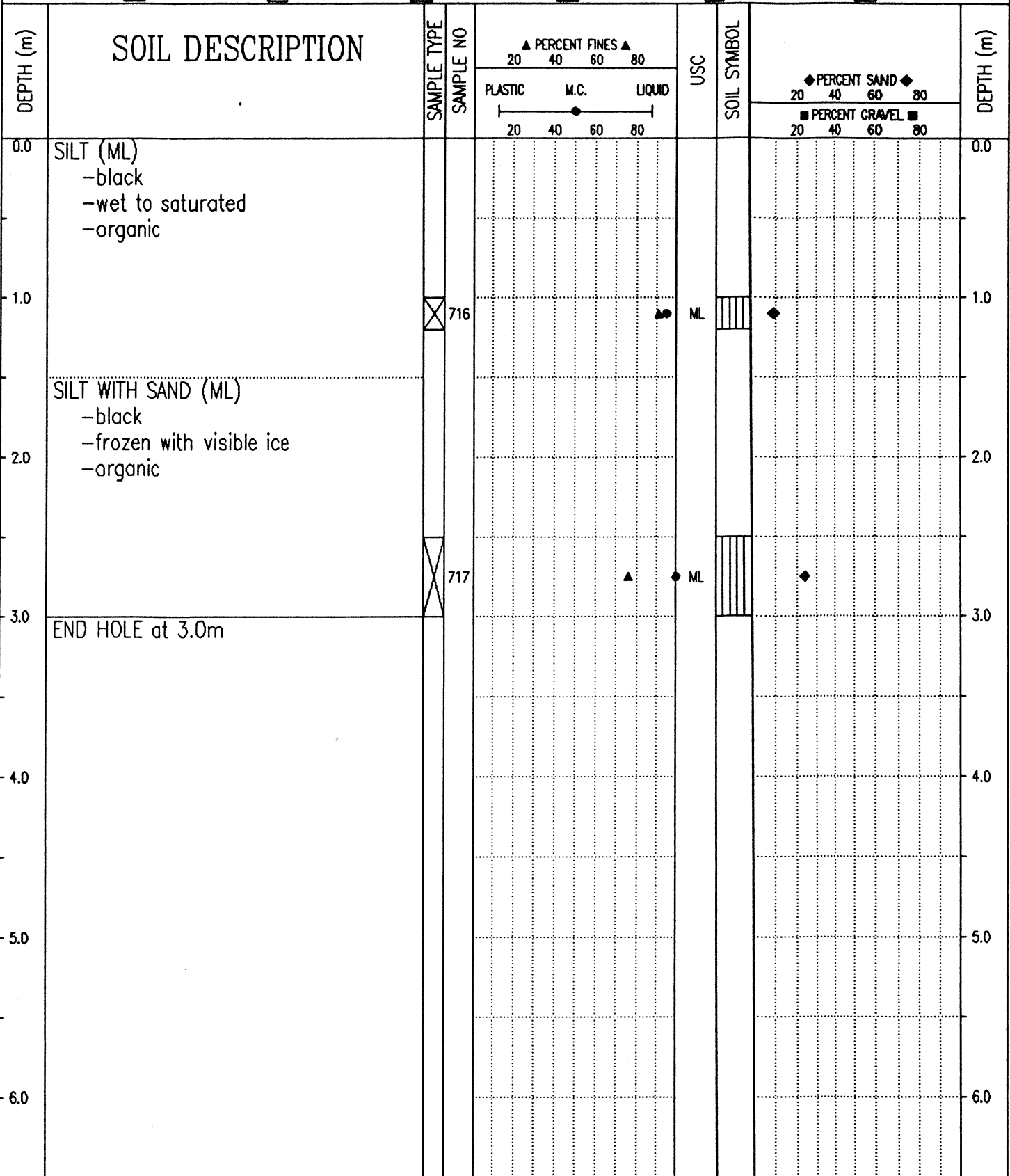
SUBSURFACE EXPLORATION AND TEST REPORT		SHAKWAK PROJECT		TEST HOLE NO: 383-556								
ENGINEERING-CAPITAL		SEGMENT 15		Project No: 092-202101-0311								
BACKHOE: HITACHI UH-172		LOCATION: Sta. 1868+150 o/s 16m Rt.		ELEVATION: 0.00 (m)								
SAMPLE TYPE		RETURN		S.P.T.								
		AUGER		BULK								
		TUBE		CORE								
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	SOIL SYMBOL	PERCENT SAND ◆			DEPTH (m)
				PLASTIC	M.C.	LIQUID			20	40	60	
0.0	ORGANIC MATERIAL -black -wet -trace of boulders											0.0
1.0	POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) -brown -saturated -maximum 400mm material -sub-rounded -frozen (Vc) with visible ice below 1.0m		135				GP-GM					1.0
2.0	POORLY GRADED GRAVEL WITH SILT (GP-GM) -brown -frozen (Vc) with visible ice -maximum 400mm material -sub-rounded		136				GP-GM					2.0
3.0												3.0
4.0	END HOLE at 3.4m											4.0
5.0												5.0
6.0												6.0

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Fig. No:

COMPLETION DEPTH: 3.4 m
COMPLETE: 95/09/26

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-492
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1868+250	ELEVATION: 0.00 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		

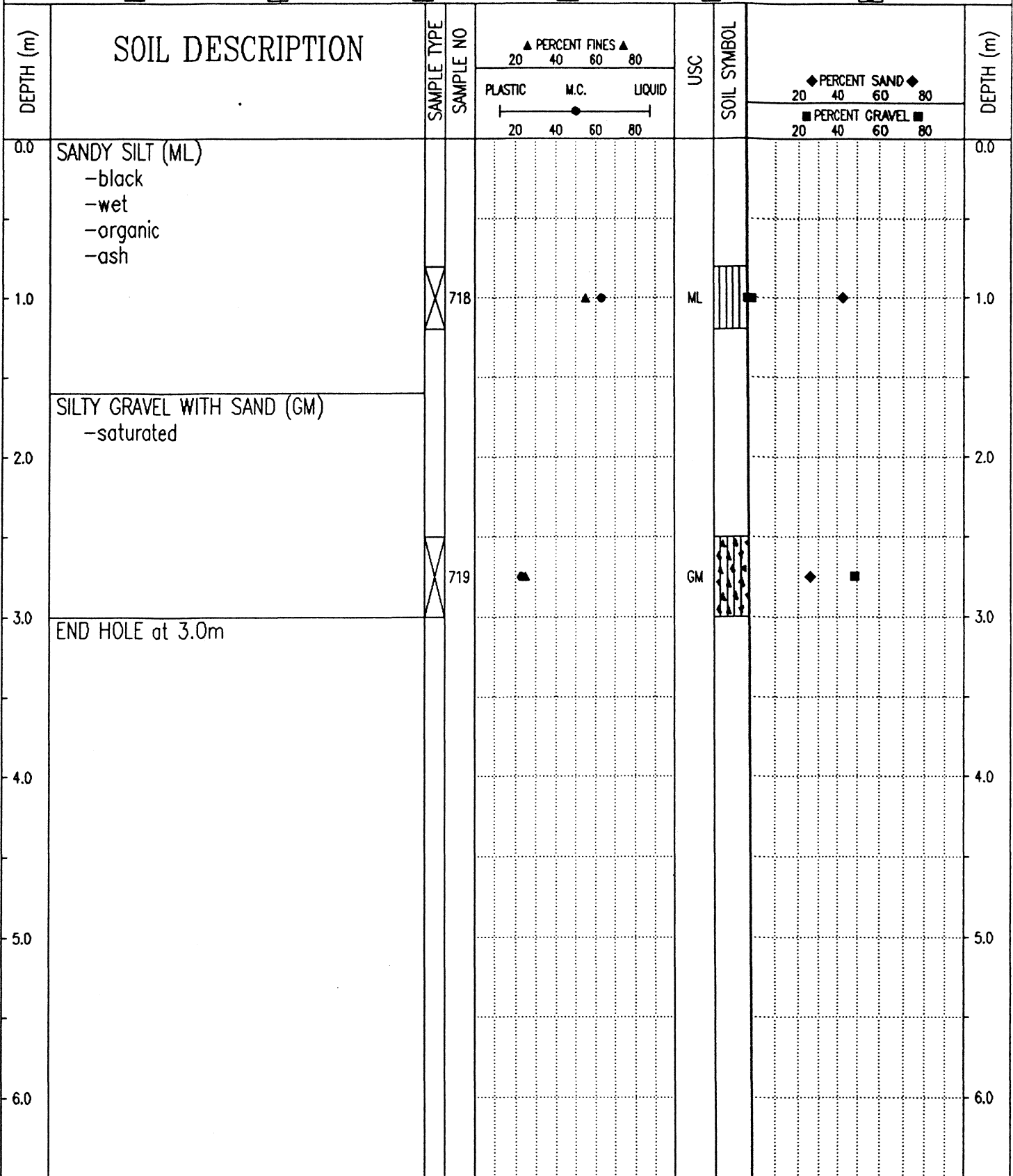


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REVIEWED BY:
Fig. No:

COMPLETION DEPTH: 3.0 m
COMPLETE: 93/10/16

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-493
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1868+350 o/s 3m Rt.	ELEVATION: 0.00 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		

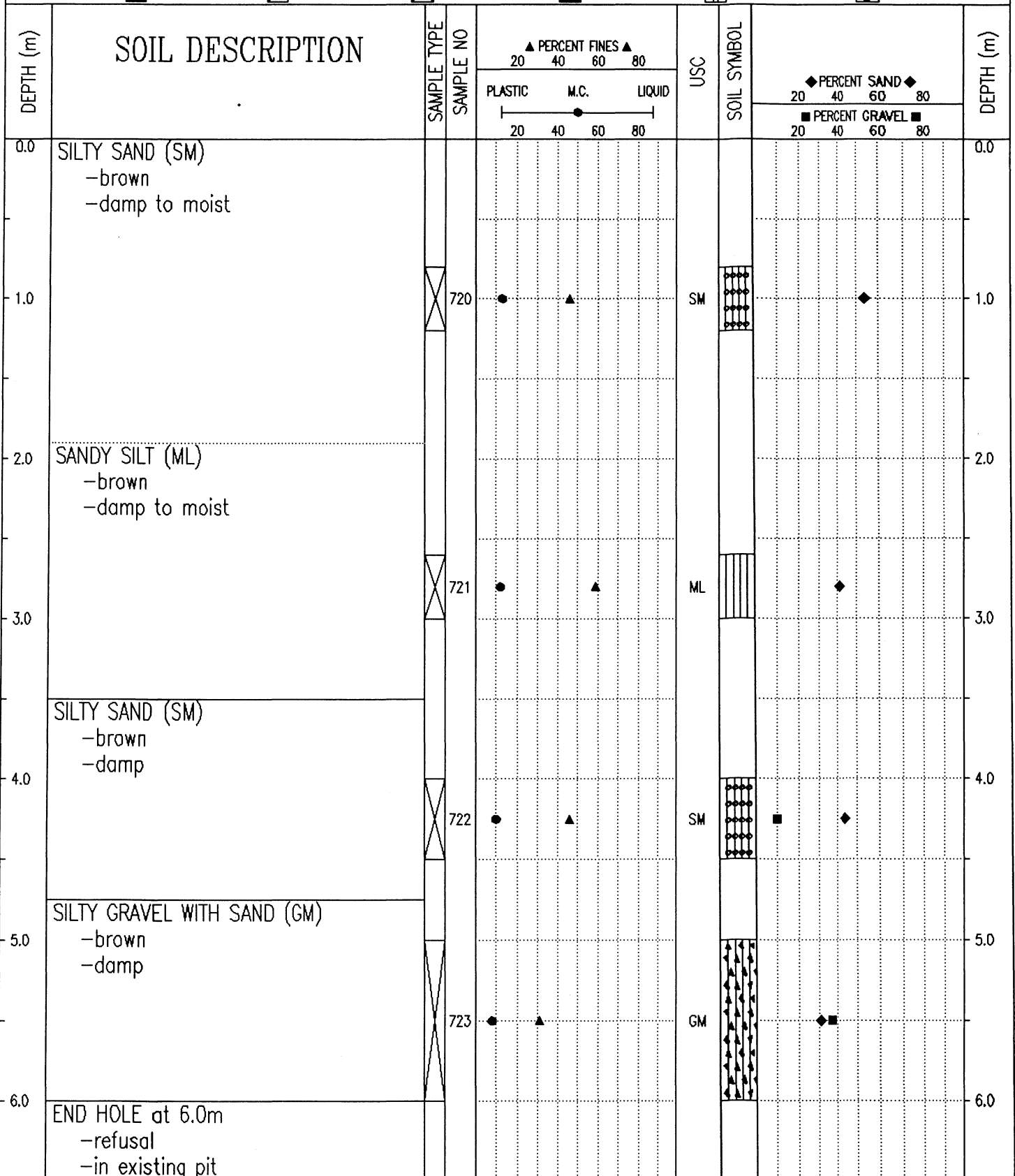


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COMPLETION DEPTH: 3.0 m
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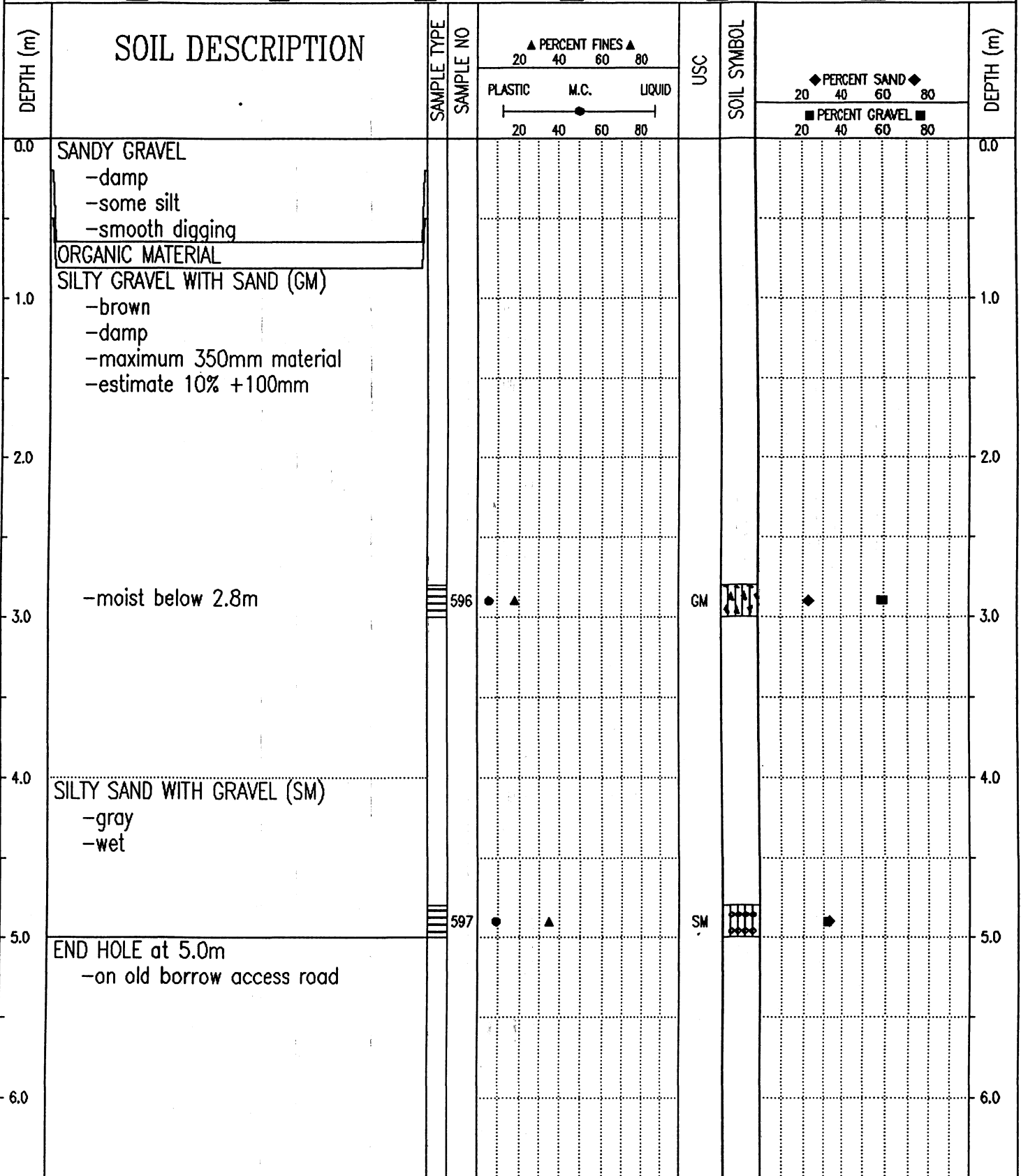
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-494
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1868+450 o/s 60m Rt.	ELEVATION: 0.00 (m)
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REVIEWED BY:	COMPLETE: 93/10/16
Fig. No:	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT		SHAKWAK PROJECT	TEST HOLE NO: 370-294
ENGINEERING-CAPITAL		SEGMENT 15	Project No: 092-202101-0311
BACKHOE: HITACHI EX 200 LC		LOCATION: Sta. 1868+455 o/s 5m Rt.	ELEVATION: 0.00 (m)
SAMPLE TYPE	<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER
		<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE
			<input type="checkbox"/> CORE

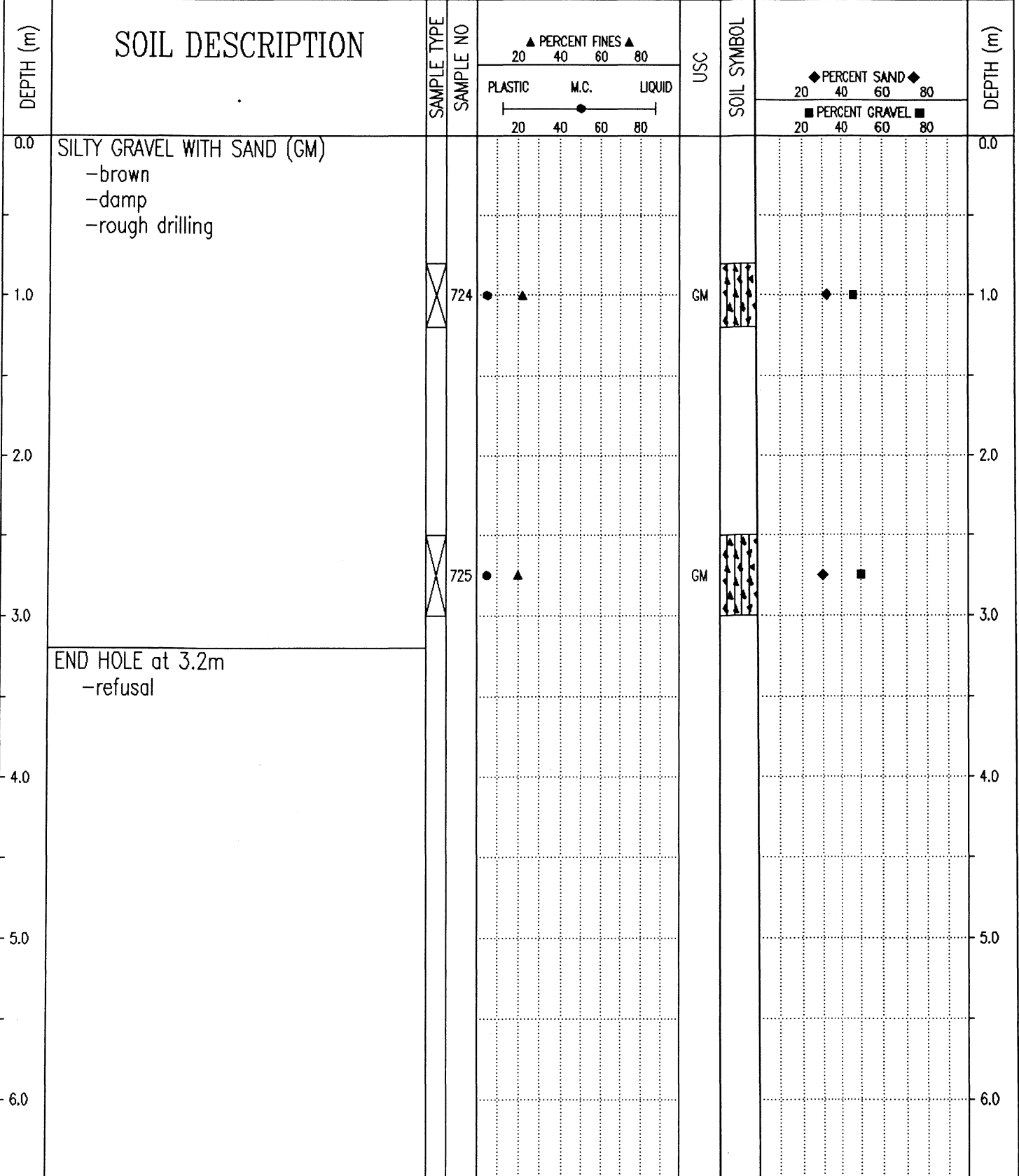


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Fig. No:	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-495
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1868+550	ELEVATION: 0.00 (m)

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

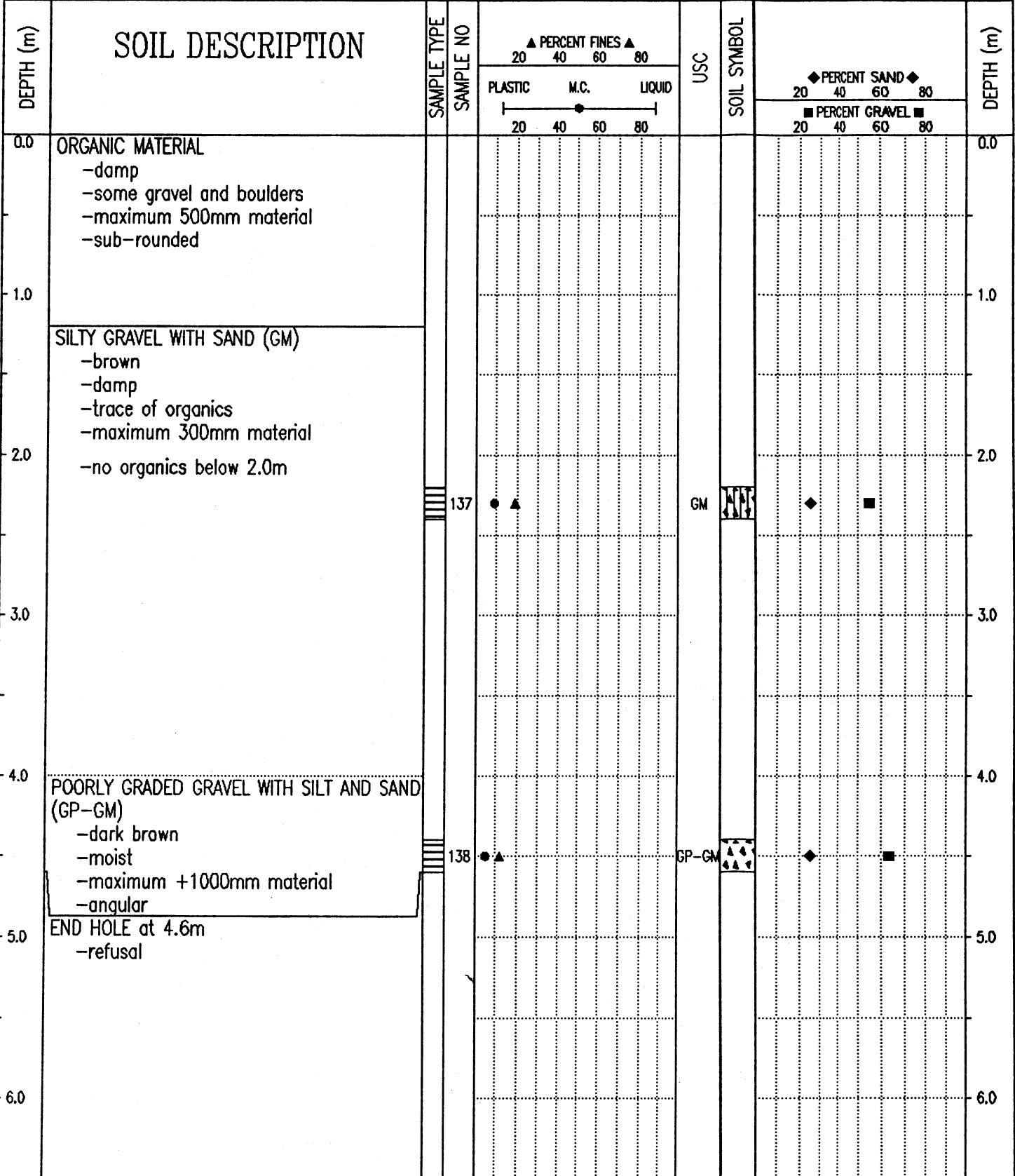


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Fig. No:

COMPLETION DEPTH: 3.2 m
COMPLETE: 93/10/16

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



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REVIEWED BY:
Fig. No:

COMPLETION DEPTH: 4.6 m
COMPLETE: 95/09/26

SUBSURFACE EXPLORATION AND TEST REPORT		SHAKWAK PROJECT		TEST HOLE NO: 370-297								
ENGINEERING-CAPITAL		SEGMENT 15		Project No: 092-202101-0311								
BACKHOE: HITACHI EX 200 LC		LOCATION: Sta. 1868+560 o/s 15m Rt.		ELEVATION: 0.00 (m)								
SAMPLE TYPE		RETURN		S.P.T.								
		AUGER		BULK								
				TUBE								
				CORE								
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	SOIL SYMBOL	PERCENT SAND ◆		PERCENT GRAVEL ■	DEPTH (m)
				20	40	60			80	20		
				PLASTIC M.C. LIQUID								
				20 40 60 80					20 40 60 80			
				20 40 60 80					20 40 60 80			
0.0	ORGANIC MATERIAL -smooth digging										0.0	
1.0	SILTY GRAVEL WITH SAND (GM) -brown -moist -maximum 200mm material -estimate 10% +100mm -noisy digging -hard noisy digging below 1.4m		603	●	▲		GM	◆		■	1.0	
2.0	-maximum 250mm material below 2.0m -sub-angular to sub-rounded										2.0	
3.0	-noisy digging below 3.4m		604	●	▲		GM	◆		■	3.0	
4.0											4.0	
5.0	END HOLE at 5.0m		605	●	▲		GM	◆		■	5.0	
6.0											6.0	

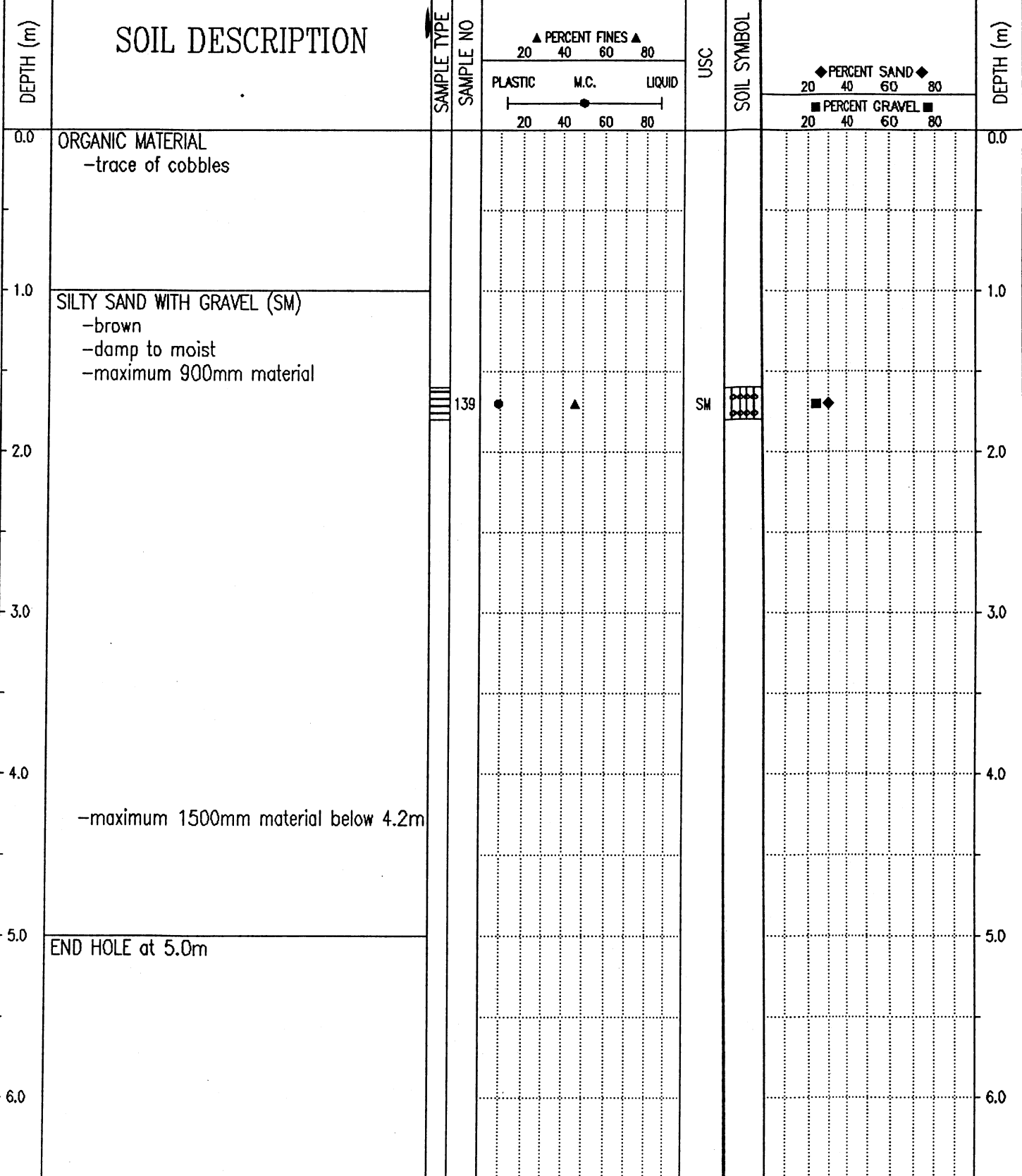
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Fig. No:

COMPLETION DEPTH: 5.0 m
COMPLETE: 95/07/19

SUBSURFACE EXPLORATION AND TEST REPORT	SHAKWAK PROJECT	TEST HOLE NO: 383-558
ENGINEERING-CAPITAL	SEGMENT 15	Project No: 092-202101-0311
BACKHOE: HITACHI UH-172	LOCATION: Sta. 1868+625 o/s 12m Lt.	ELEVATION: 0.00 (m)

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



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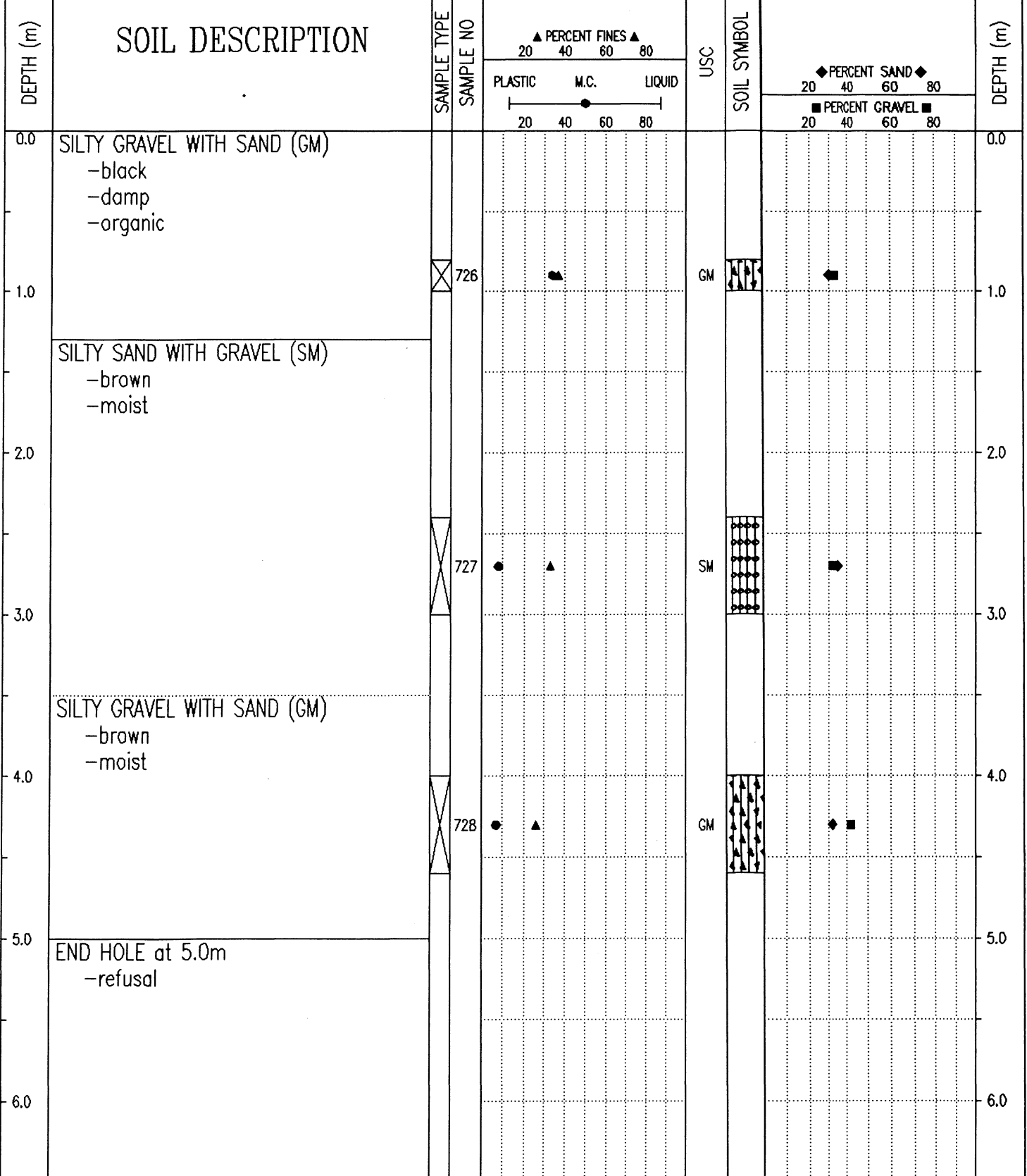
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COMPLETION DEPTH: 5.0 m
COMPLETE: 95/09/26

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SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-496
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1868+650 o/s 2m Rt.	ELEVATION: 0.00 (m)

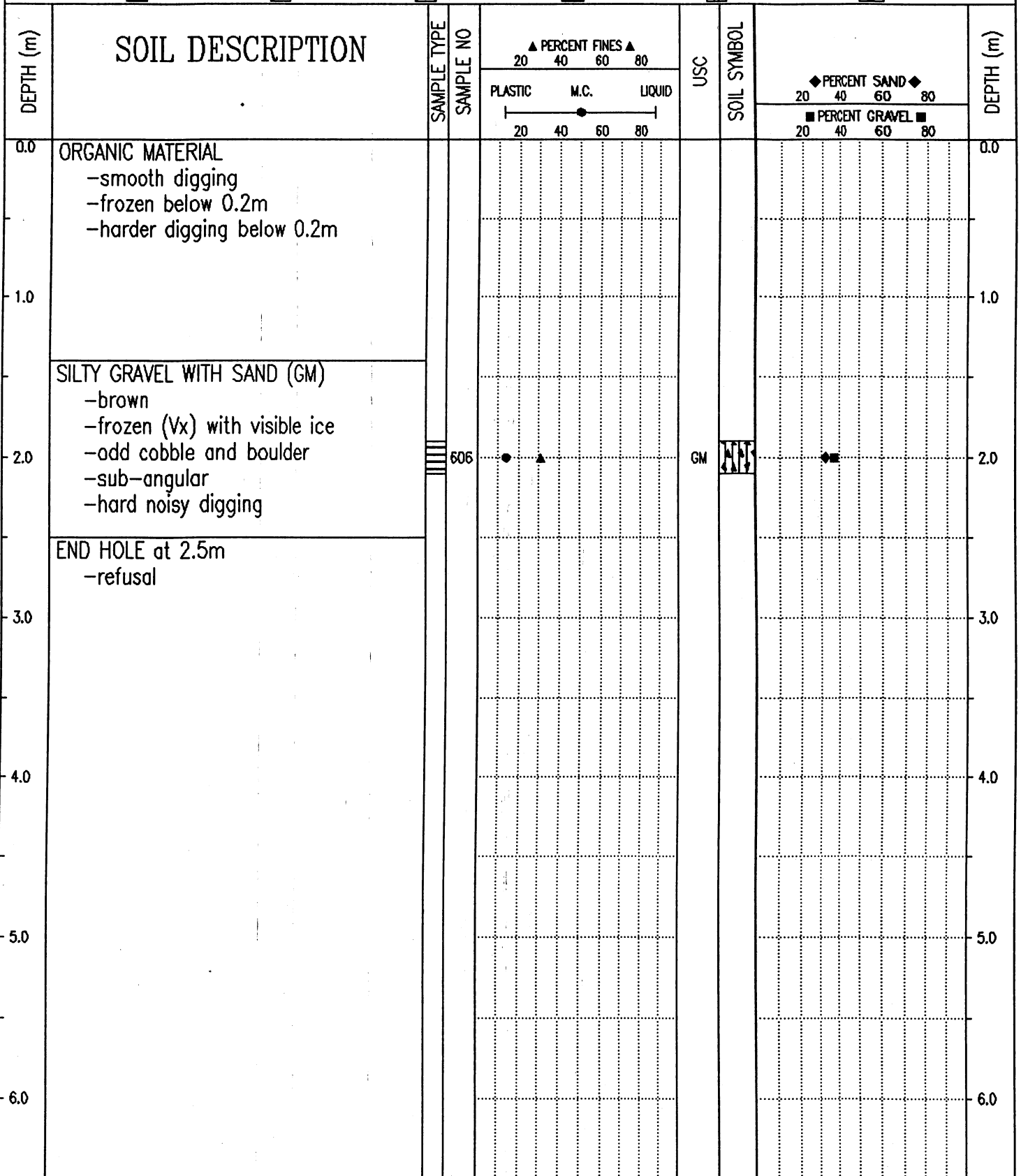
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



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Fig. No:
COMPLETION DEPTH: 5.0 m
COMPLETE: 93/10/16
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SUBSURFACE EXPLORATION AND TEST REPORT		SHAKWAK PROJECT	TEST HOLE NO: 370-298
ENGINEERING-CAPITAL		SEGMENT 15	Project No: 092-202101-0311
BACKHOE: HITACHI EX 200 LC		LOCATION: Sta. 1868+660 o/s 12m Rt.	ELEVATION: 0.00 (m)
SAMPLE TYPE	<input type="checkbox"/> RETURN	<input checked="" type="checkbox"/> S.P.T.	<input checked="" type="checkbox"/> AUGER
		<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE
			<input type="checkbox"/> CORE

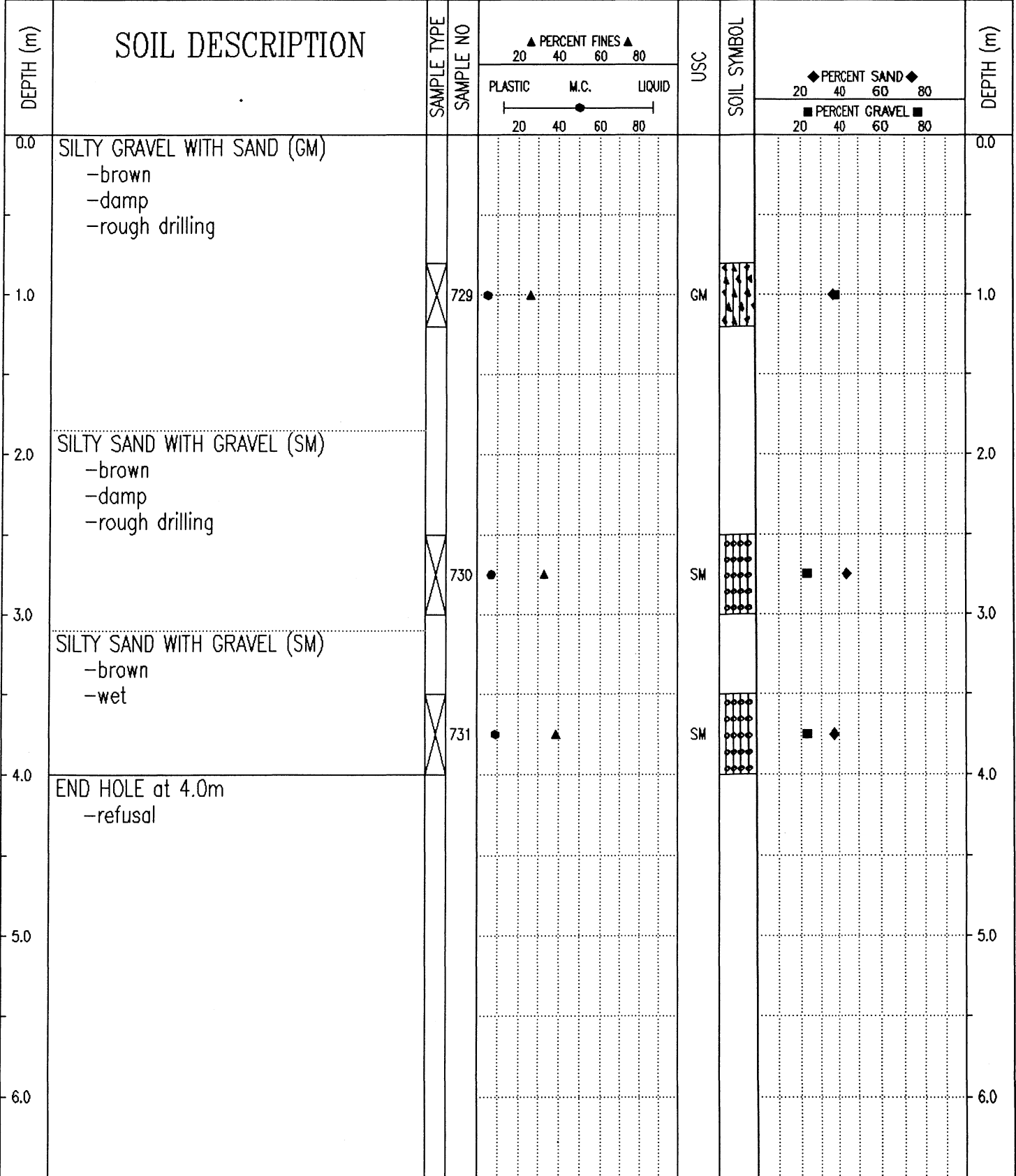


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COMPLETION DEPTH: 2.5 m
COMPLETE: 95/07/19

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

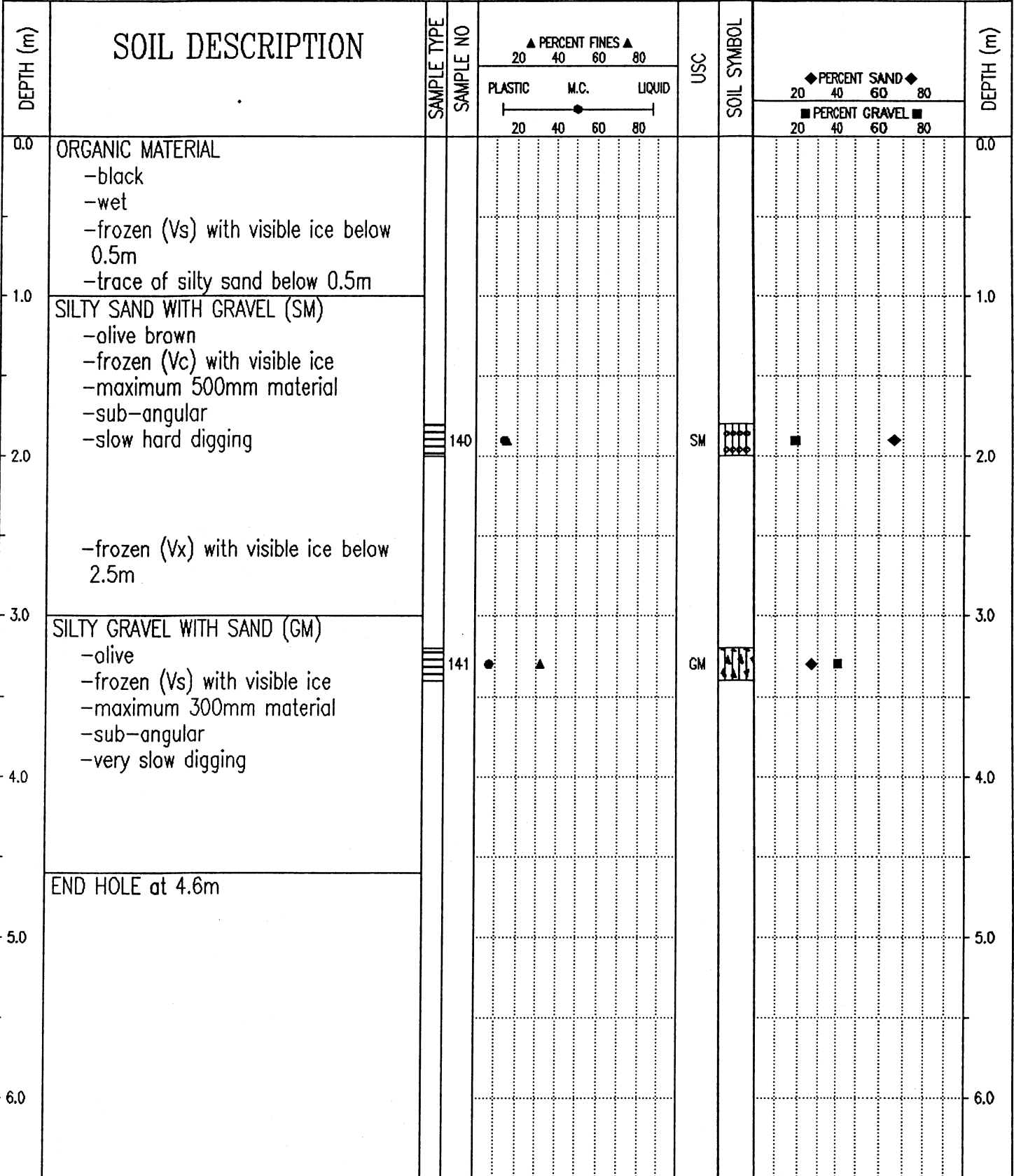


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LOGGED BY: GC	COMPLETION DEPTH: 4.0 m
REVIEWED BY:	COMPLETE: 93/10/16
Fig. No:	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	SHAKWAK PROJECT	TEST HOLE NO: 383-559
ENGINEERING-CAPITAL	SEGMENT 15	Project No: 092-202101-0311
BACKHOE: HITACHI UH-172	LOCATION: Sta. 1868+790 o/s 15m Rt.	ELEVATION: 0.00 (m)

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



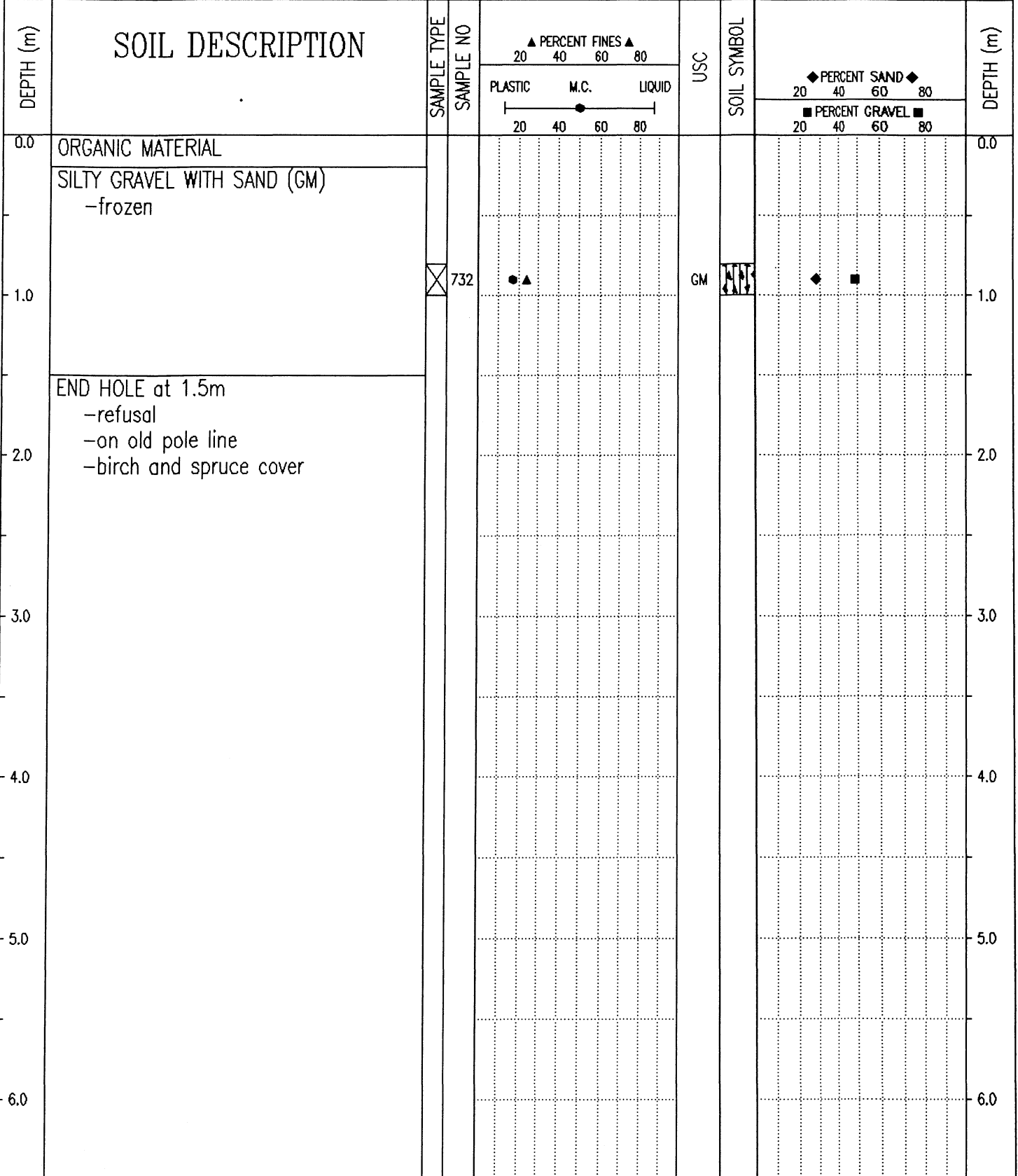
Government of Yukon
Transportation Engineering

LOGGED BY: KJ
REVIEWED BY:
Fig. No:

COMPLETION DEPTH: 4.6 m
COMPLETE: 95/09/27

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-498
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1868+850	ELEVATION: 0.00 (m)

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



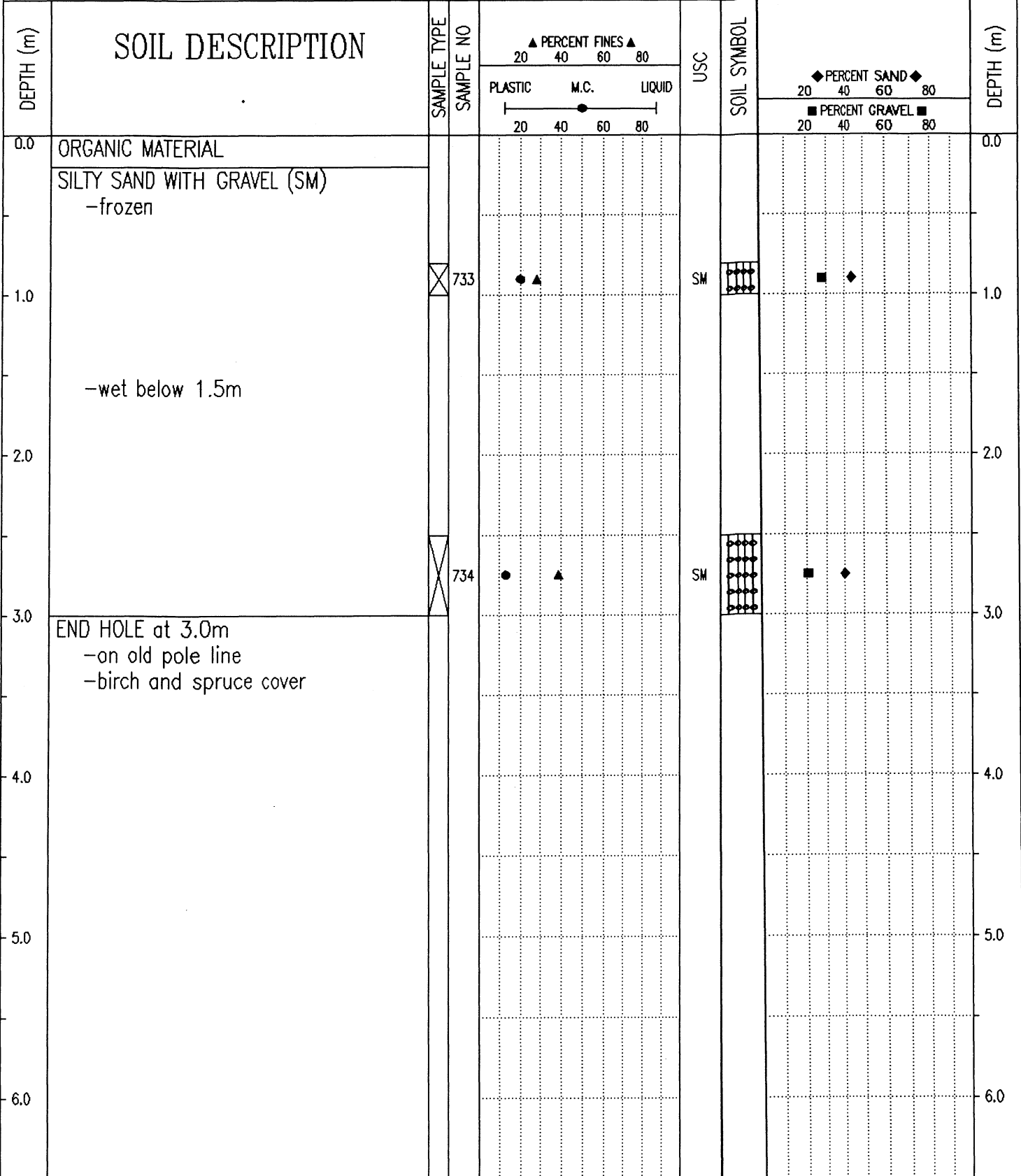
Government of Yukon
Transportation Engineering

LOGGED BY: GC
REVIEWED BY:
Fig. No:

COMPLETION DEPTH: 1.5 m
COMPLETE: 93/10/17

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-499
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1868+950	ELEVATION: 0.00 (m)

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

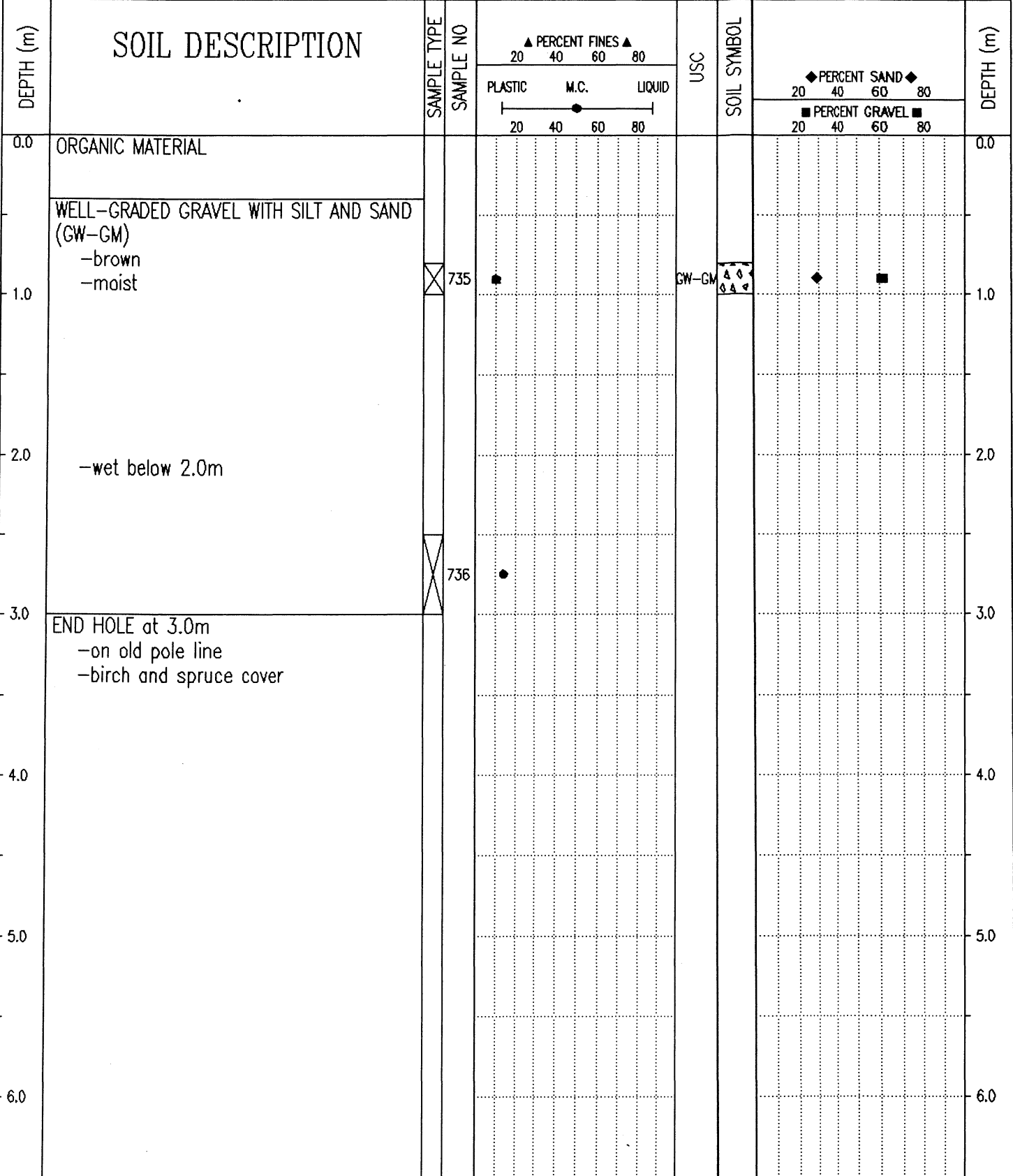


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LOGGED BY: GC	COMPLETION DEPTH: 3.0 m
REVIEWED BY:	COMPLETE: 93/10/17
Fig. No:	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-500
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1869+050 o/s 15m Rt.	ELEVATION: 0.00 (m)

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



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LOGGED BY: GC
REVIEWED BY:
Fig. No:

COMPLETION DEPTH: 3.0 m
COMPLETE: 93/10/17

SUBSURFACE EXPLORATION AND TEST REPORT	SHAKWAK PROJECT	TEST HOLE NO: 383-560
ENGINEERING-CAPITAL	SEGMENT 15	Project No: 092-202101-0311
BACKHOE: HITACHI UH-172	LOCATION: Sta. 1869+075 o/s 15m Rt.	ELEVATION: 0.00 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	SOIL SYMBOL	◆ PERCENT SAND ◆		DEPTH (m)
				PLASTIC	M.C.	LIQUID			PERCENT GRAVEL ■		
0.0	ORGANIC COBBLES AND BOULDERS -dark brown -some gravel -maximum 1100mm material -angular									0.0	
1.0										1.0	
2.0	ORGANIC MATERIAL -black -frozen (Vs) with visible ice									2.0	
3.0	POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) -olive brown -frozen (Vc) with visible ice -trace of organics -maximum 300mm material -sub-angular -no organics below 3.0m -maximum 500mm material below 3.0m		142	▲			GP-GM	▲	■	3.0	
4.0	-50mm ice layer at 3.95m									4.0	
5.0	END HOLE at 5.0m -boulders on surface									5.0	
6.0										6.0	

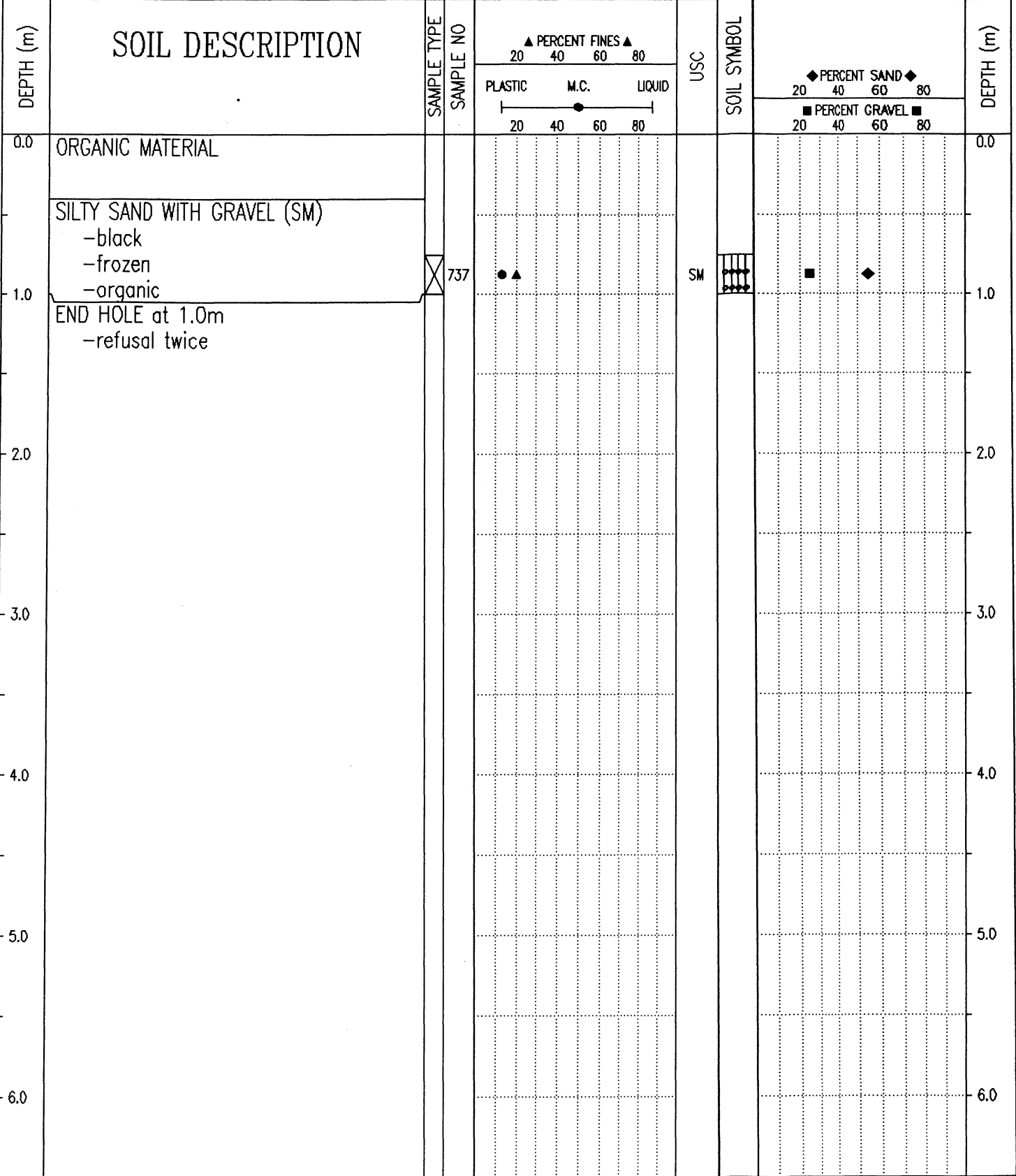
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LOGGED BY: KJ
REVIEWED BY:
Fig. No:

COMPLETION DEPTH: 5.0 m
COMPLETE: 95/09/28

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-501
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1869+150	ELEVATION: 0.00 (m)

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

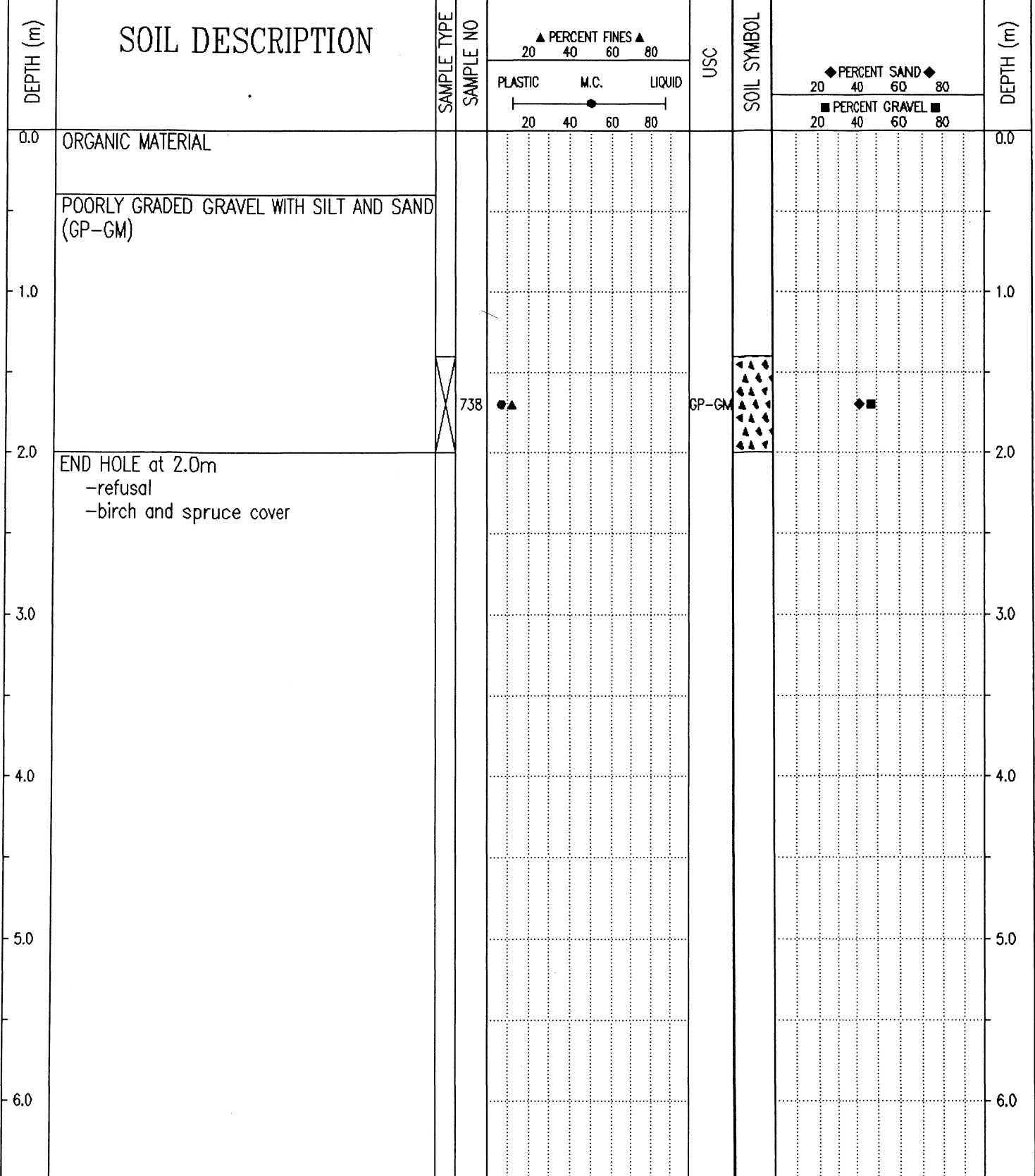


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LOGGED BY: GC	COMPLETION DEPTH: 1.0 m
REVIEWED BY:	COMPLETE: 93/10/17
Fig. No:	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-502
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1869+242 o/s 5m Rt.	ELEVATION: 0.00 (m)

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



Government of Yukon Transportation Engineering	LOGGED BY: GC	COMPLETION DEPTH: 2.0 m
	REVIEWED BY:	COMPLETE: 93/10/17
	Fig. No:	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	SHAKWAK PROJECT	TEST HOLE NO: 383-561
ENGINEERING-CAPITAL	SEGMENT 15	Project No: 092-202101-0311
BACKHOE: HITACHI UH-172	LOCATION: Sta. 1869+250 o/s 15m Rt.	ELEVATION: 0.00 (m)

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

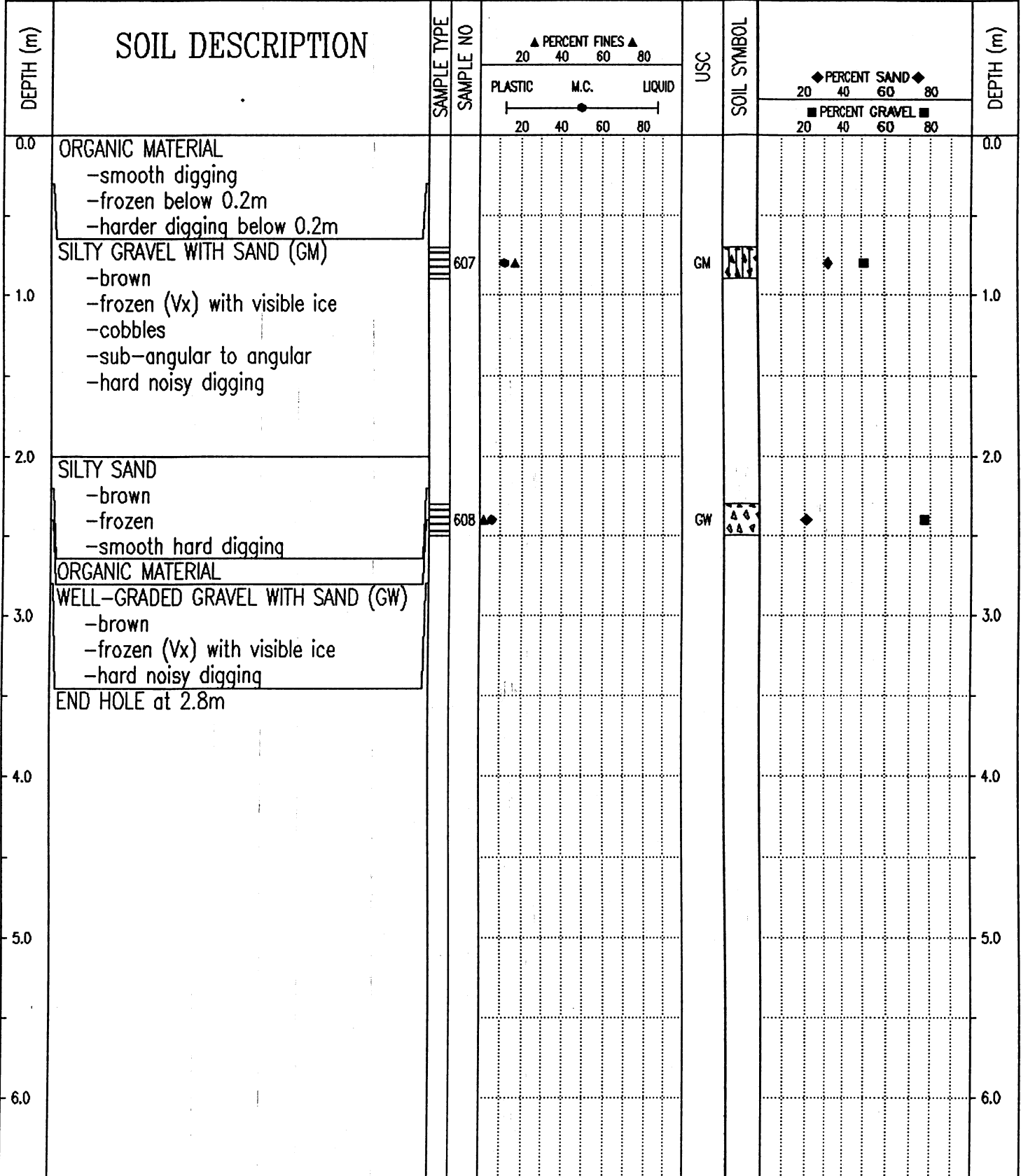
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	SOIL SYMBOL	◆ PERCENT SAND ◆		DEPTH (m)
				PLASTIC	M.C.	LIQUID			20	40	
0.0	ORGANIC COBBLES AND BOULDERS -black -moist -maximum 900mm material -angular										0.0
1.0	POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) -brown -wet -trace of organics -maximum 500mm material -sub-angular -frozen (Vc) with visible ice below 1.0m										1.0
2.0	-maximum 700mm material below 2.0m -sub-angular to angular below 2.0m -very hard digging below 2.0m		143				GP-GM				2.0
3.0											3.0
4.0											4.0
5.0											5.0
6.0											6.0

END HOLE at 4.5m

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LOGGED BY: KJ	COMPLETION DEPTH: 4.5 m
REVIEWED BY:	COMPLETE: 95/09/28
Fig. No:	Page 1 of 1

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

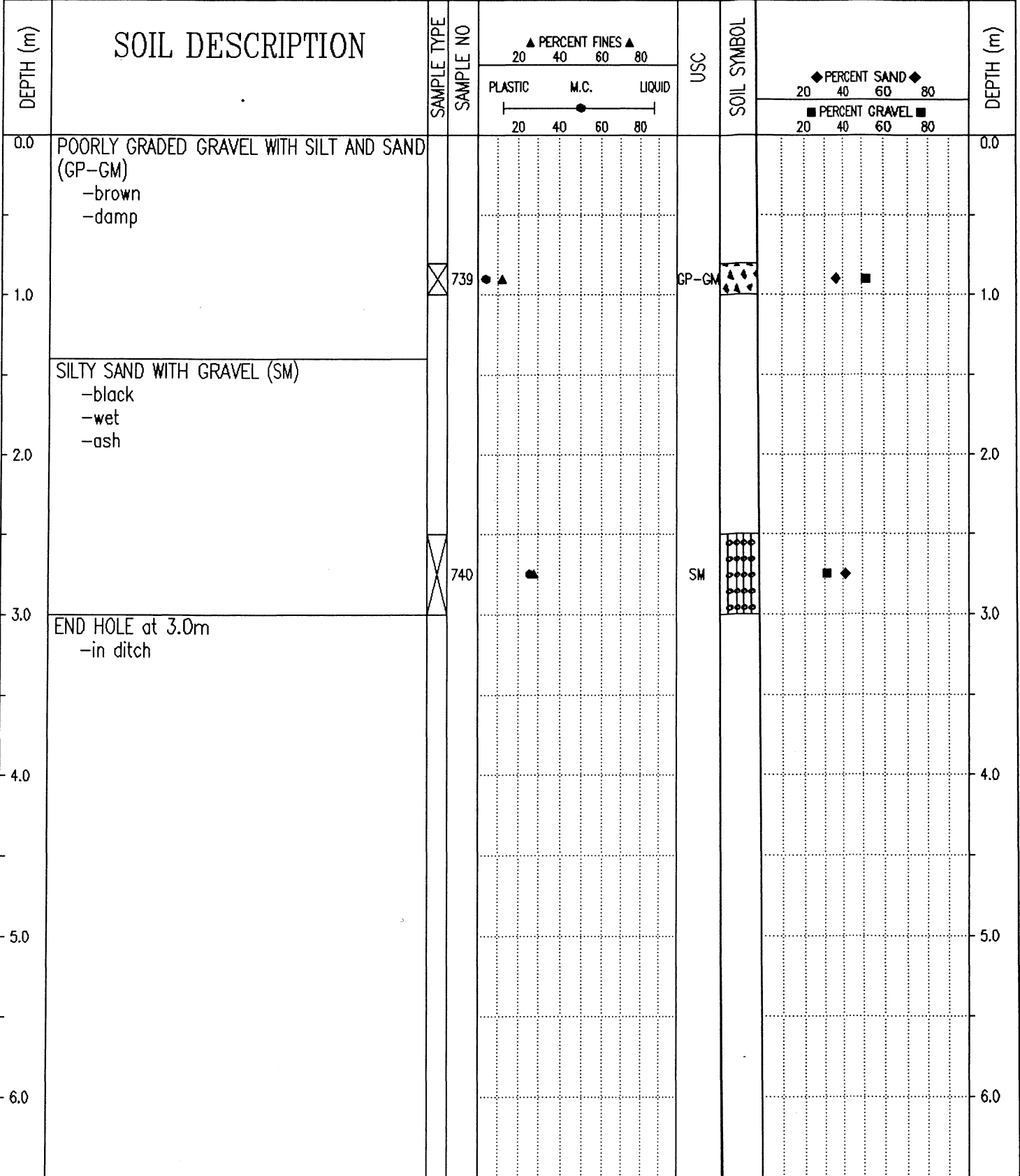


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LOGGED BY: CC	COMPLETION DEPTH: 2.8 m
REVIEWED BY:	COMPLETE: 95/07/19
Fig. No:	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-503
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1869+450 o/s 30m Lt.	ELEVATION: 0.00 (m)

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



Government of Yukon Transportation Engineering	LOGGED BY: GC	COMPLETION DEPTH: 3.0 m
	REVIEWED BY:	COMPLETE: 93/10/17
	Fig. No:	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	SHAKWAK PROJECT	TEST HOLE NO: 370-300
ENGINEERING-CAPITAL	SEGMENT 15	Project No: 092-202101-0311
BACKHOE: HITACHI EX 200 LC	LOCATION: Sta. 1869+600 o/s 10m Rt.	ELEVATION: 0.00 (m)

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

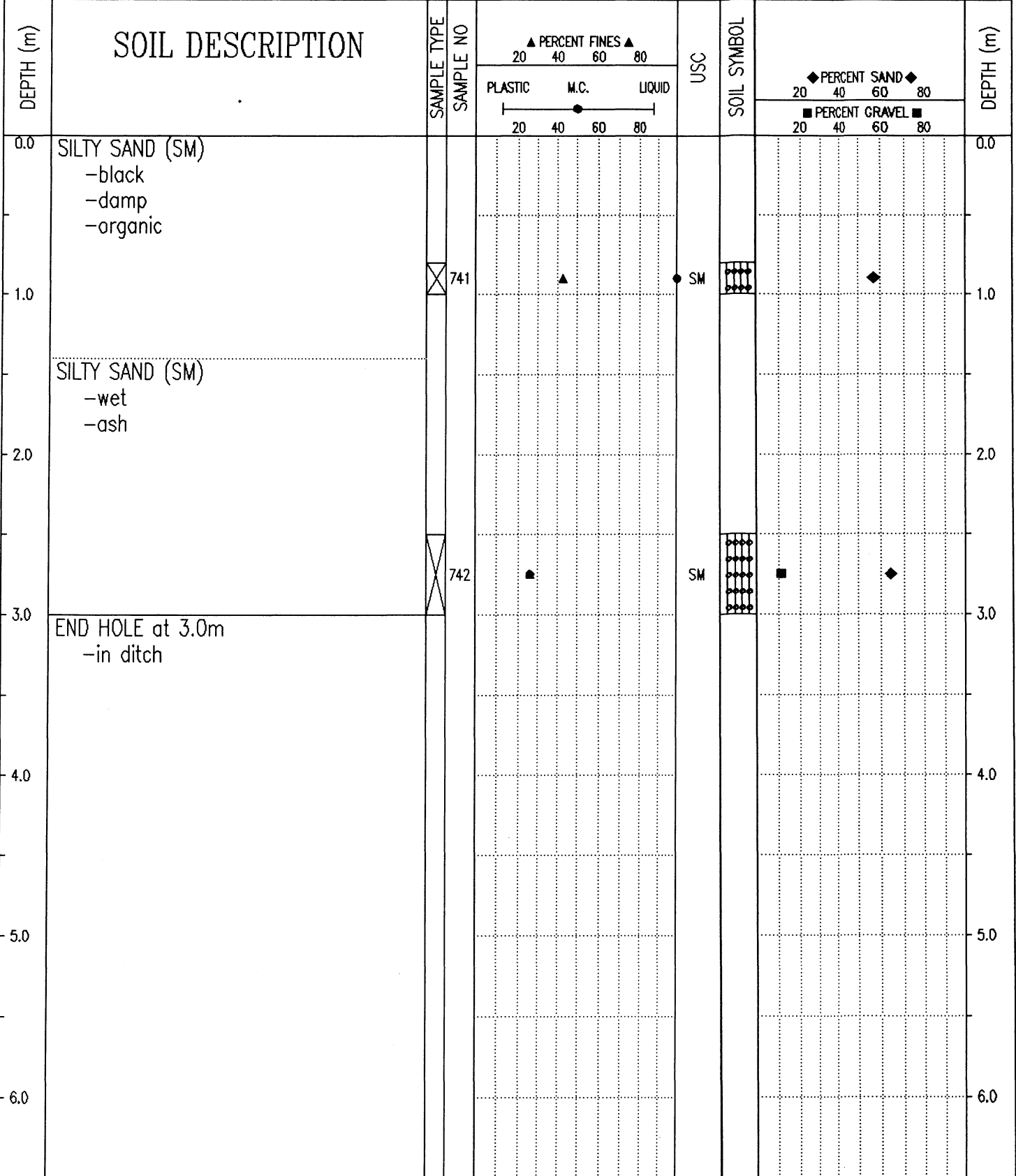
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	SOIL SYMBOL	◆ PERCENT SAND ◆		DEPTH (m)
				PLASTIC	M.C.	LIQUID			20	40	
0.0	ORGANIC MATERIAL -smooth digging -frozen below 0.3m -harder digging below 0.3m									0.0	
1.0	SANDY SILTY GRAVEL -brown -frozen									1.0	
	ORGANIC MATERIAL										
2.0	SILTY SANDY GRAVEL -brown -frozen -hard noisy digging									2.0	
	END HOLE at 2.2m										
3.0										3.0	
4.0										4.0	
5.0										5.0	
6.0										6.0	

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LOGGED BY: CC
REVIEWED BY:
Fig. No:
COMPLETION DEPTH: 2.2 m
COMPLETE: 95/07/19
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SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-504
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1869+600 o/s 30m Lt.	ELEVATION: 0.00 (m)

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

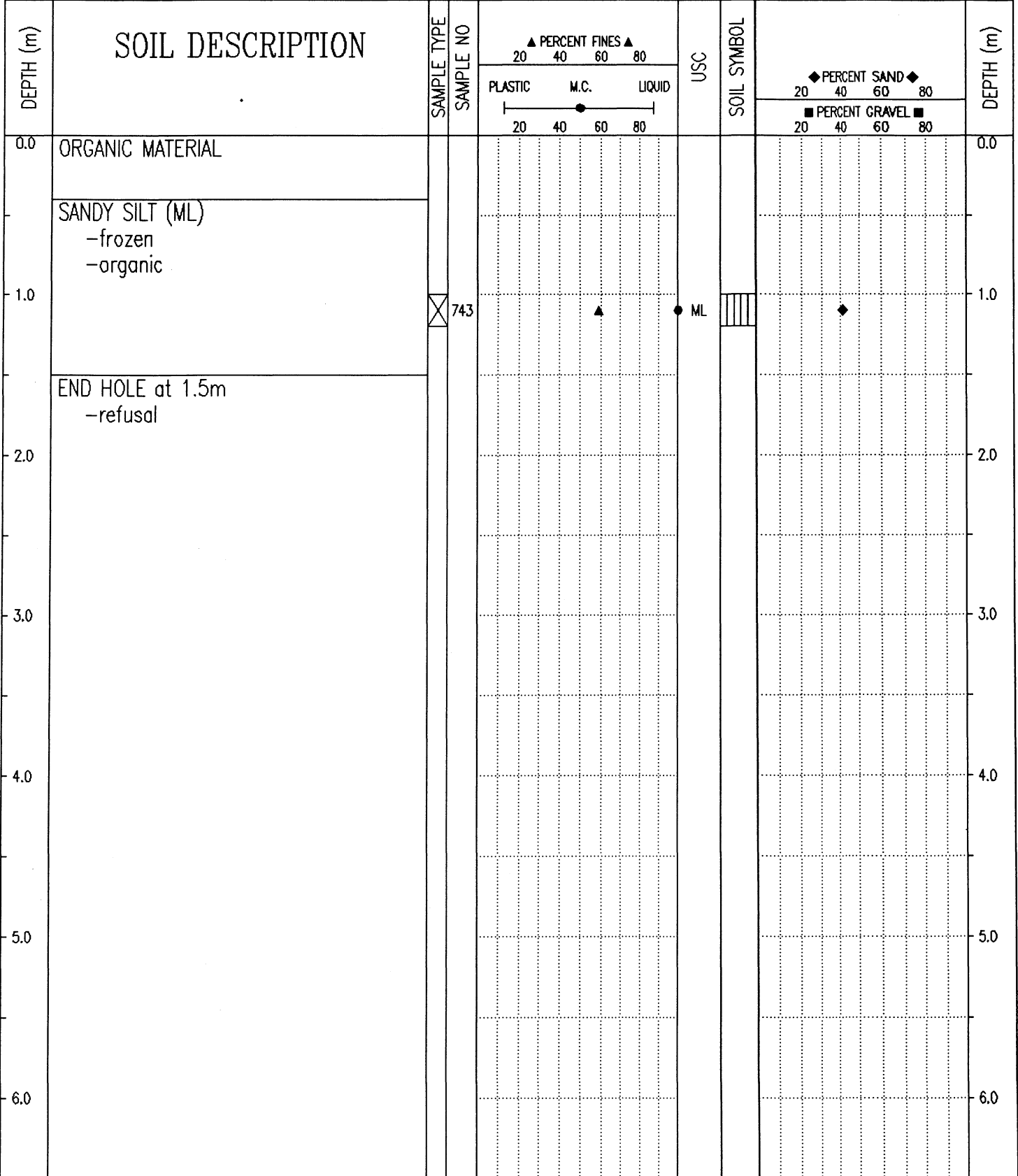


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LOGGED BY: GC
REVIEWED BY:
Fig. No:
COMPLETION DEPTH: 3.0 m
COMPLETE: 93/10/17
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SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-505
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1869+750	ELEVATION: 0.00 (m)

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



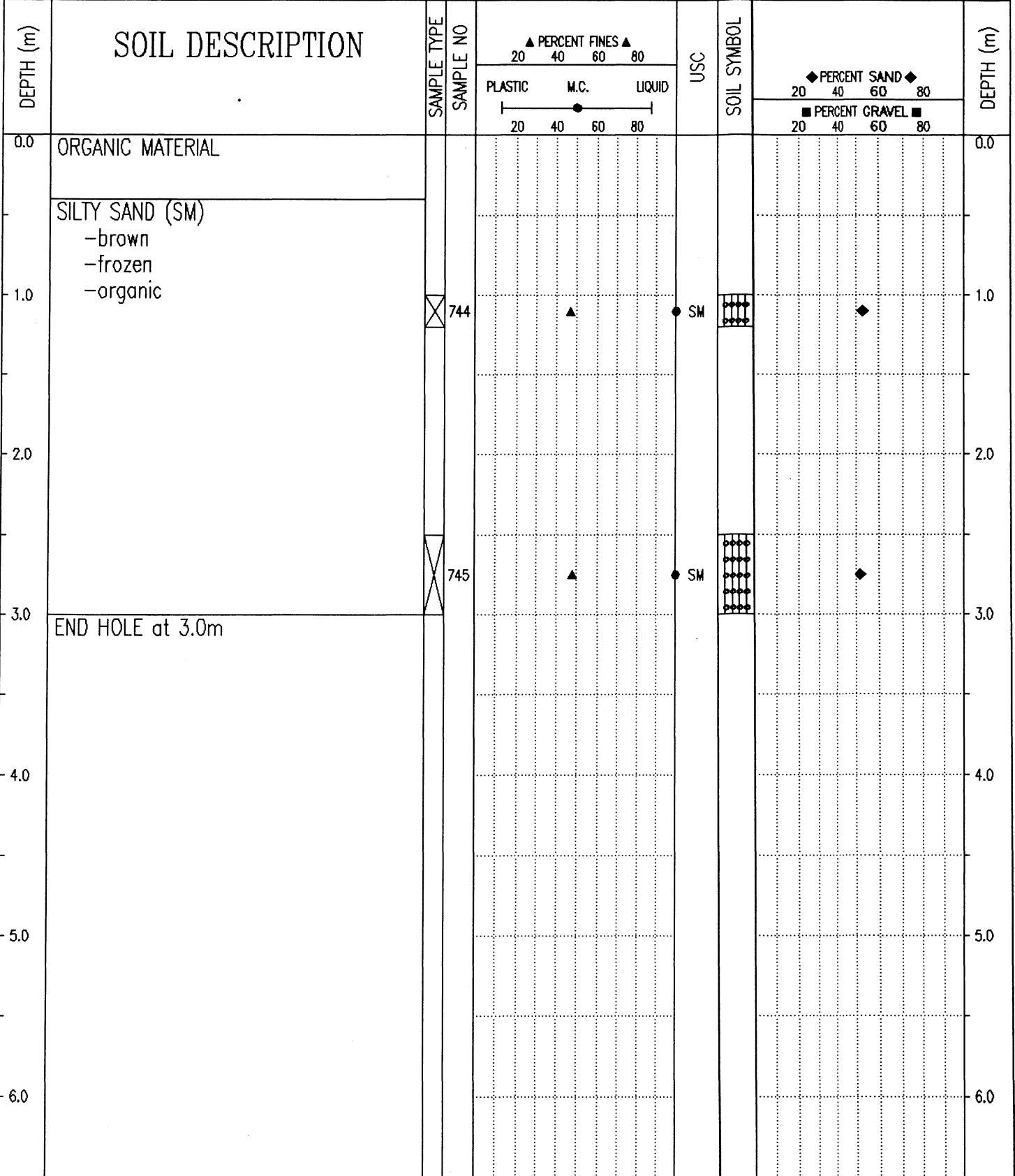
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LOGGED BY: GC
REVIEWED BY:
Fig. No:

COMPLETION DEPTH: 1.5 m
COMPLETE: 93/10/17

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-506
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1869+825	ELEVATION: 0.00 (m)

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

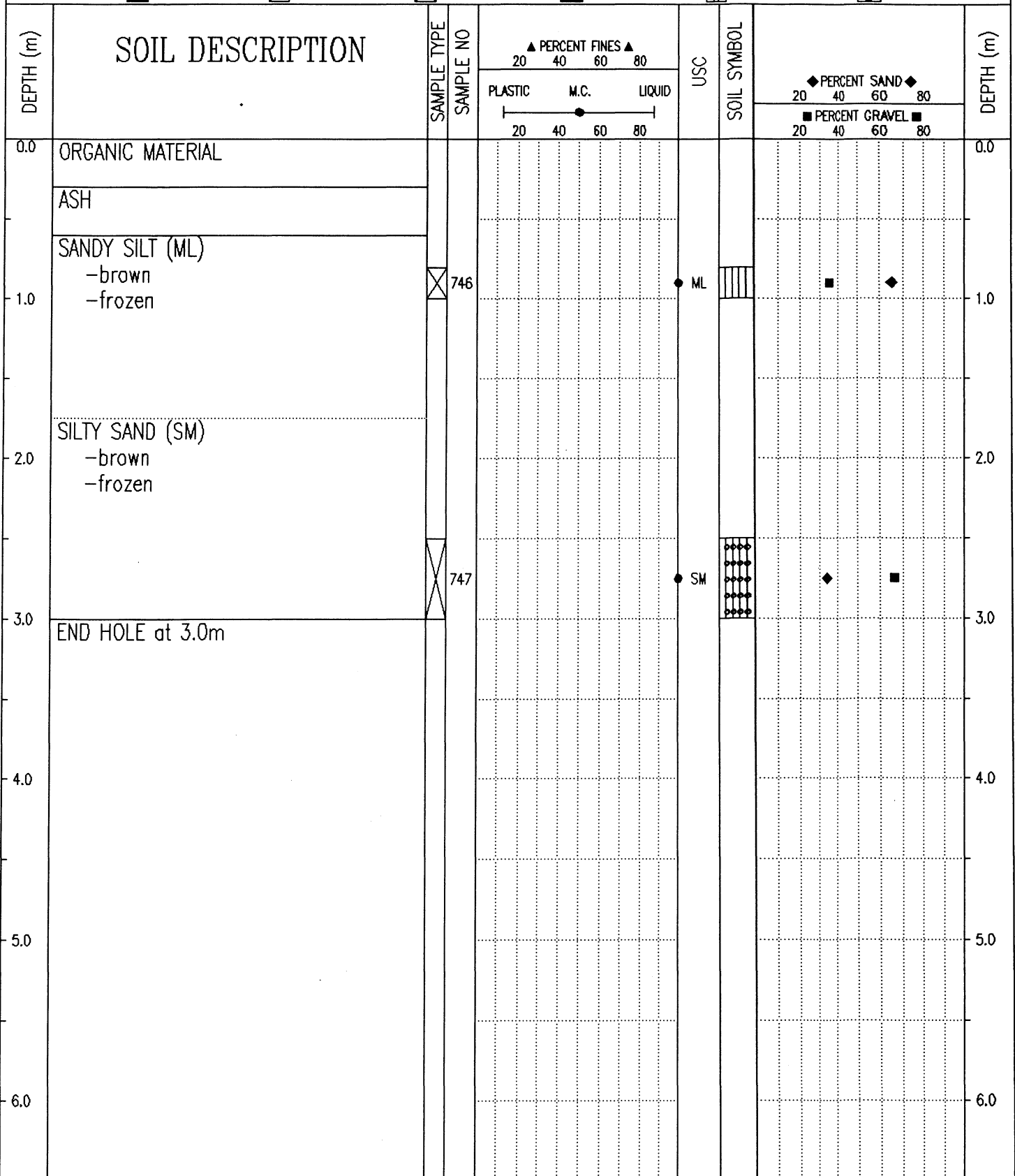


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LOGGED BY: GC
REVIEWED BY:
Fig. No:

COMPLETION DEPTH: 3.0 m
COMPLETE: 93/10/17

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 270-507
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1869+950 o/s 3m Rt.	ELEVATION: 0.00 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



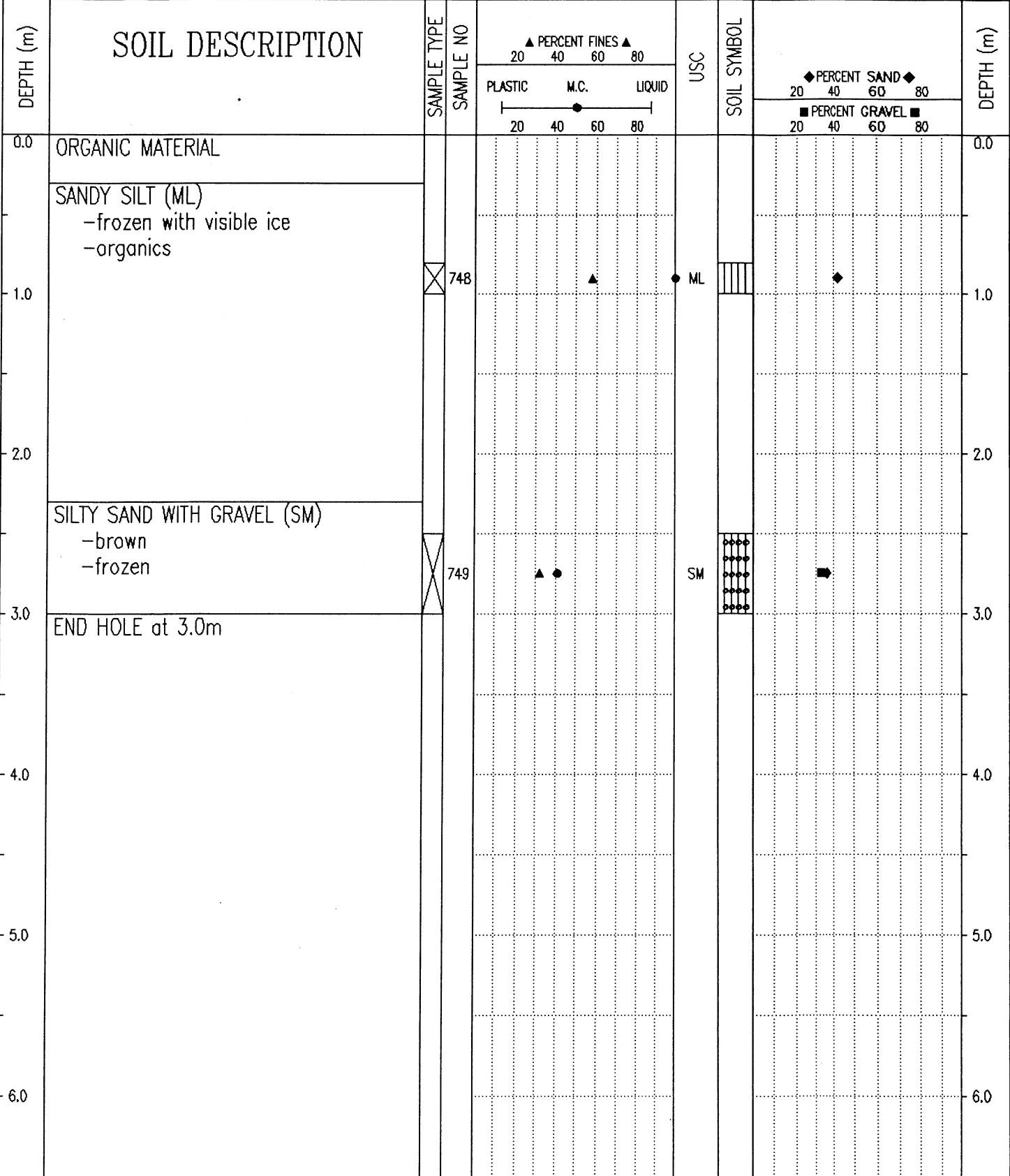
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LOGGED BY: GC
REVIEWED BY:
Fig. No:

COMPLETION DEPTH: 3.0 m
COMPLETE: 93/10/17

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 271-508
SHAKWAK PROJECT	SEGMENT 15	Project No: 092-202101-0312
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1870+050 o/s 5m Rt.	ELEVATION: 0.00 (m)

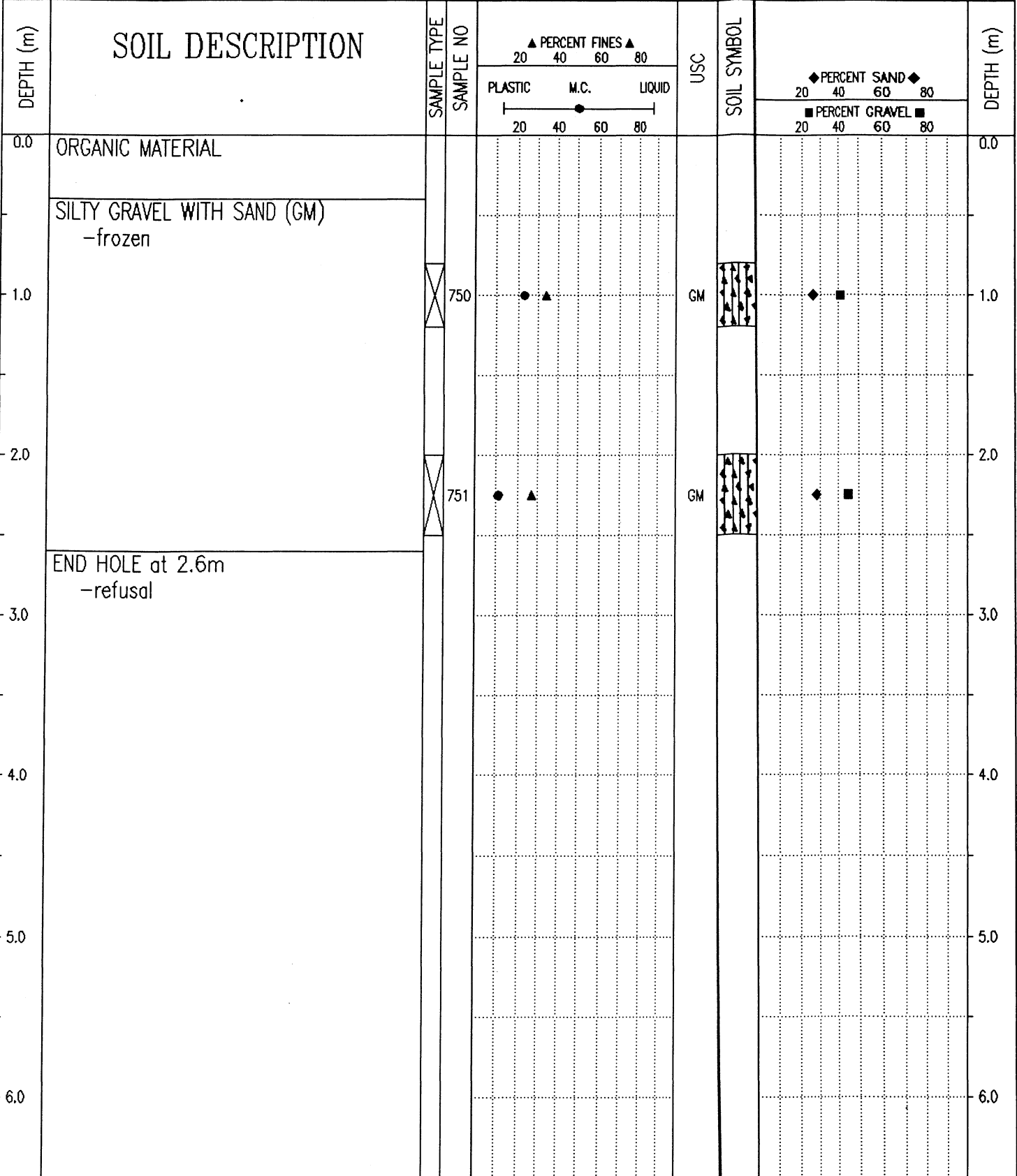
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



Government of Yukon Transportation Engineering	LOGGED BY: GC	COMPLETION DEPTH: 3.0 m
	REVIEWED BY:	COMPLETE: 93/10/17
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SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 271-509
SHAKWAK PROJECT	SEGMENT 15	Project No: 092-202101-0312
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1870+150 o/s 5m Rt.	ELEVATION: 0.00 (m)

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

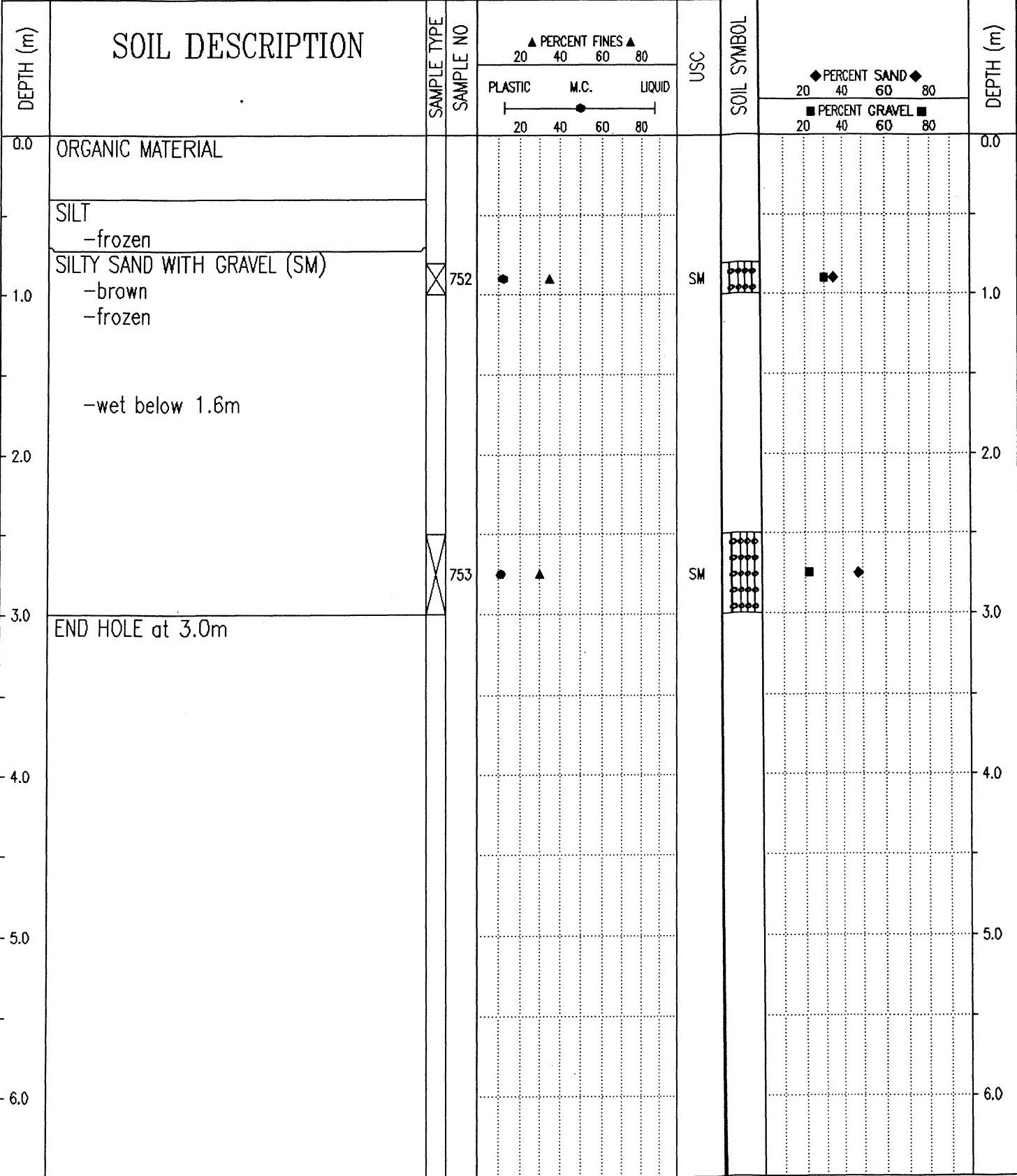


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LOGGED BY: GC	COMPLETION DEPTH: 2.6 m
REVIEWED BY:	COMPLETE: 93/10/17
Fig. No:	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 271-510
SHAKWAK PROJECT	SEGMENT 15	Project No: 092-202101-0312
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1870+250 o/s 7m Rt.	ELEVATION: 0.00 (m)

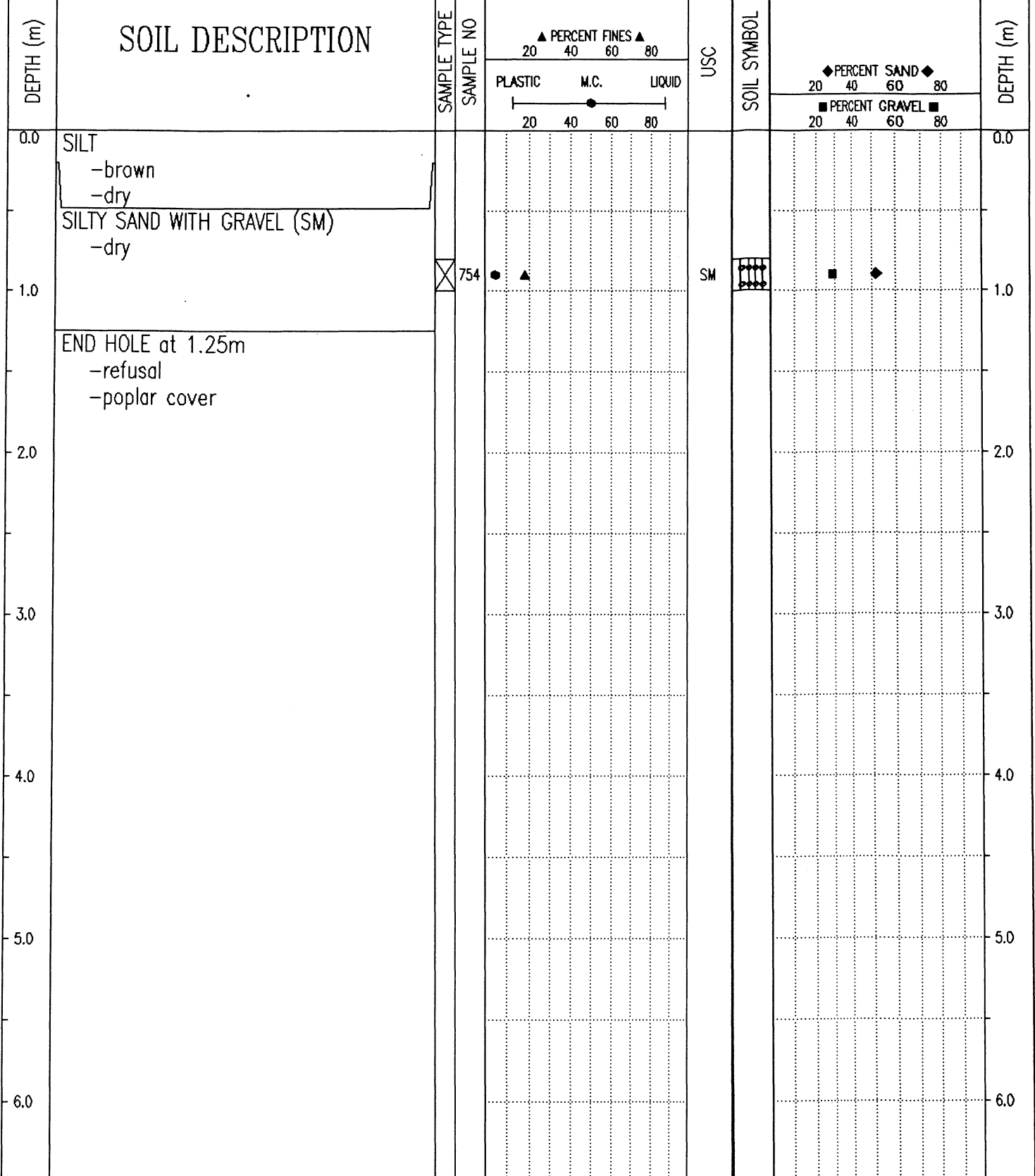
SAMPLE TYPE RETURN S.P.T. AUGER BULK TUBE CORE



Government of Yukon Transportation Engineering	LOGGED BY: GC	COMPLETION DEPTH: 3.0 m
	REVIEWED BY:	COMPLETE: 93/10/17
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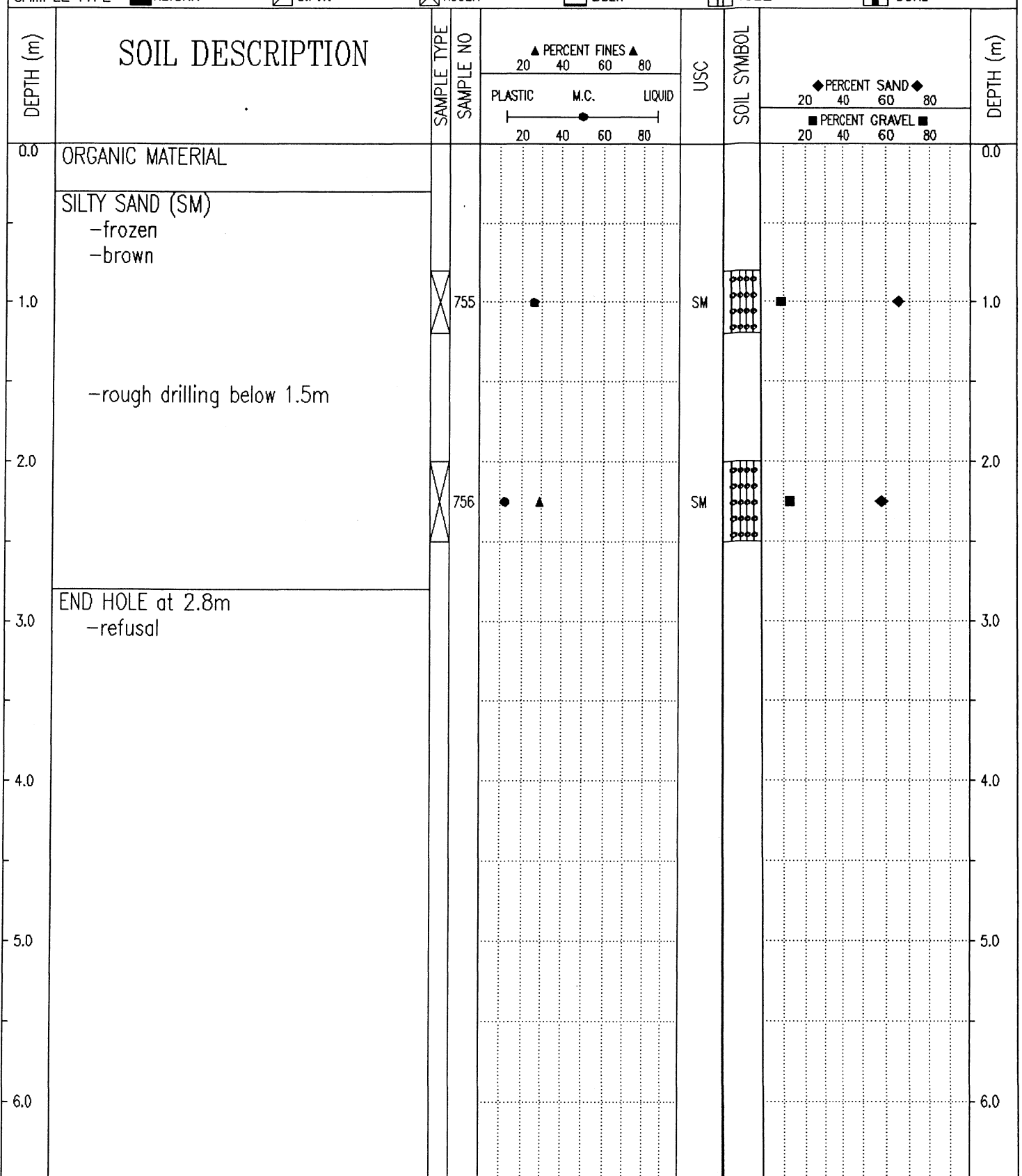
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 271-511
SHAKWAK PROJECT	SEGMENT 15	Project No: 092-202101-0312
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1870+400 o/s 5m Rt.	ELEVATION: 0.00 (m)

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



Government of Yukon Transportation Engineering	LOGGED BY: GC	COMPLETION DEPTH: 1.3 m
	REVIEWED BY:	COMPLETE: 93/10/17
	Fig. No:	Page 1 of 1

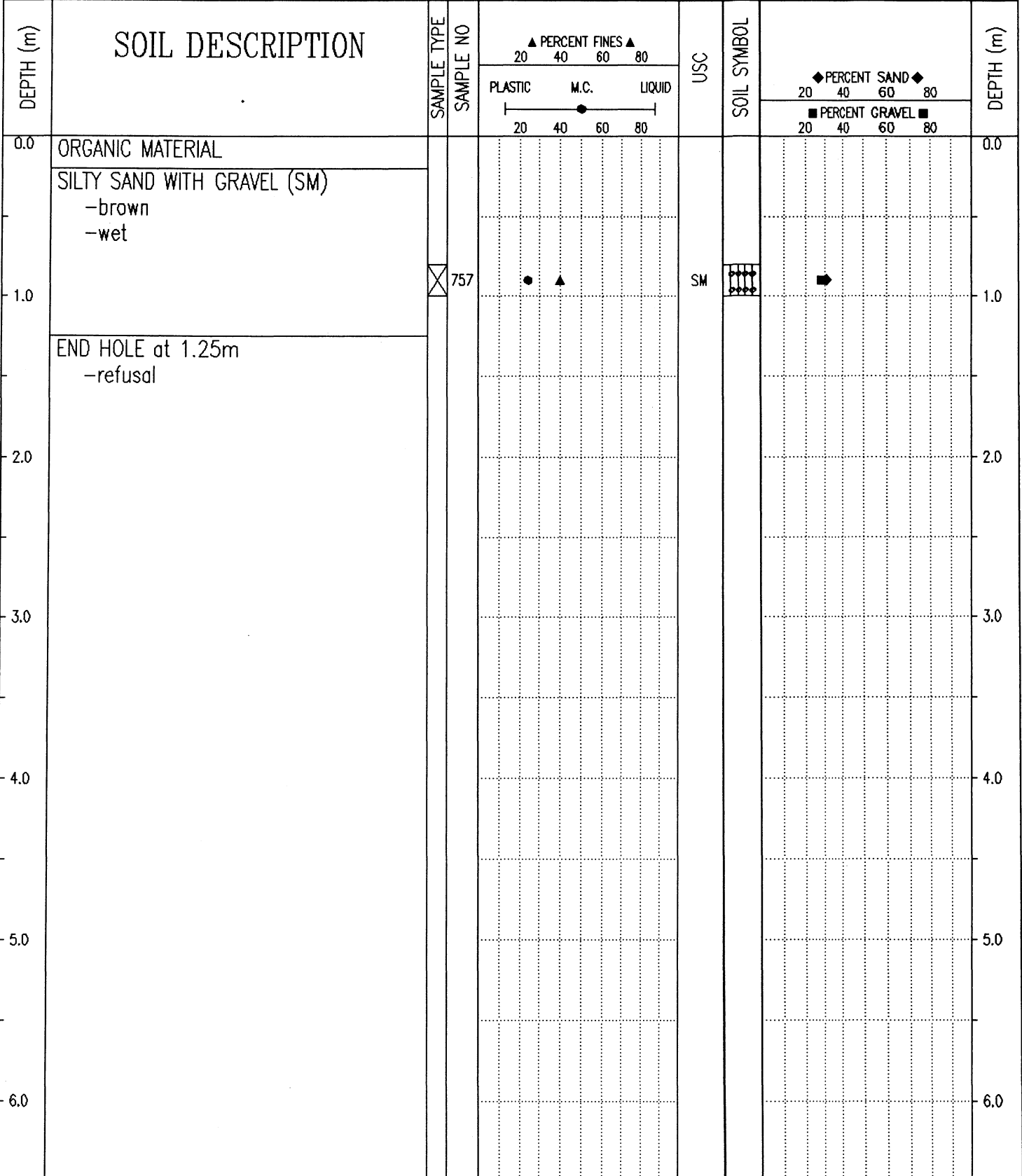
SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 271-512
SHAKWAK PROJECT	SEGMENT 15	Project No: 092-202101-0312
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1870+500 o/s 7m Rt.	ELEVATION: 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		



Government of Yukon Transportation Engineering	LOGGED BY: GC	COMPLETION DEPTH: 2.8 m
	REVIEWED BY:	COMPLETE: 93/10/17
	Fig. No:	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 271-513
SHAKWAK PROJECT	SEGMENT 15	Project No: 092-202101-0312
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1870+600	ELEVATION: 0.00 (m)

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



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LOGGED BY: GC	COMPLETION DEPTH: 1.3 m
REVIEWED BY:	COMPLETE: 93/10/17
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SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 271-514
SHAKWAK PROJECT	SEGMENT 15	Project No: 092-202101-0312
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1870+700	ELEVATION: 0.00 (m)

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

DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES			USC	SOIL SYMBOL	PERCENT SAND		PERCENT GRAVEL		DEPTH (m)
				PLASTIC	M.C.	LIQUID			20	40	60	80	
0.0	ORGANIC MATERIAL											0.0	
0.0 - 1.0	SILTY GRAVEL WITH SAND (GM) -moist												
1.0		<input checked="" type="checkbox"/>	758	●	▲		GM	◊	■			1.0	
1.0 - 1.6	END HOLE at 1.6m -refusal												
1.6 - 2.0													
2.0 - 3.0													
3.0 - 4.0													
4.0 - 5.0													
5.0 - 6.0													

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LOGGED BY: GC	COMPLETION DEPTH: 1.6 m
REVIEWED BY:	COMPLETE: 93/10/17
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SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY PRE-ENGINEERING		TEST HOLE NO: 271-515						
SHAKWAK PROJECT		SEGMENT 15		Project No: 092-202101-0312						
DRILL: CME 750 150mm Dia SOLID STEM AUGER		LOCATION: Sta. 1870+800		ELEVATION: 0.00 (m)						
SAMPLE TYPE		RETURN		S.P.T.						
AUGER		BULK		TUBE						
CORE										
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲		USC	SOIL SYMBOL	◆ PERCENT SAND ◆		DEPTH (m)
				PLASTIC	M.C.			LIQUID	PERCENT GRAVEL ■	
0.0	ORGANIC GRAVEL									0.0
1.0	SILTY SAND WITH GRAVEL (SM) -brown -damp	⊗	759	●	▲		SM	◆		1.0
2.0	SILTY GRAVEL WITH SAND (GM) -brown -damp	⊗	760	●	▲		GM	◆	■	2.0
3.0	END HOLE at 2.75m -refusal -on old trail									3.0
4.0										4.0
5.0										5.0
6.0										6.0

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LOGGED BY: GC

COMPLETION DEPTH: 2.8 m

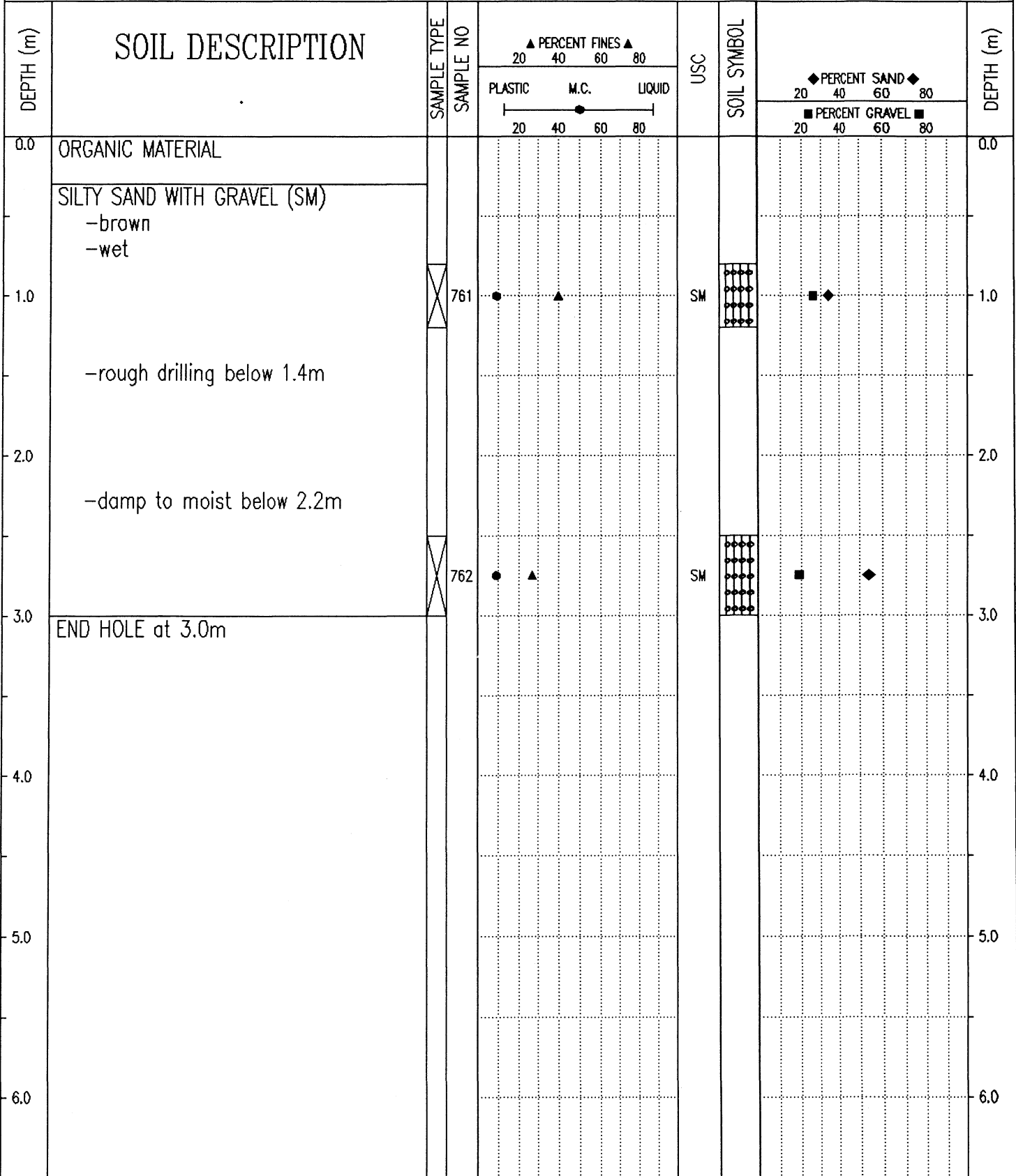
REVIEWED BY:

COMPLETE: 93/10/18

Fig. No:

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SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 271-516
SHAKWAK PROJECT	SEGMENT 15	Project No: 092-202101-0312
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: Sta. 1870+900 o/s 15m Rt.	ELEVATION: 0.00 (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		



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LOGGED BY: GC
REVIEWED BY:
Fig. No:

COMPLETION DEPTH: 3.0 m
COMPLETE: 93/10/18

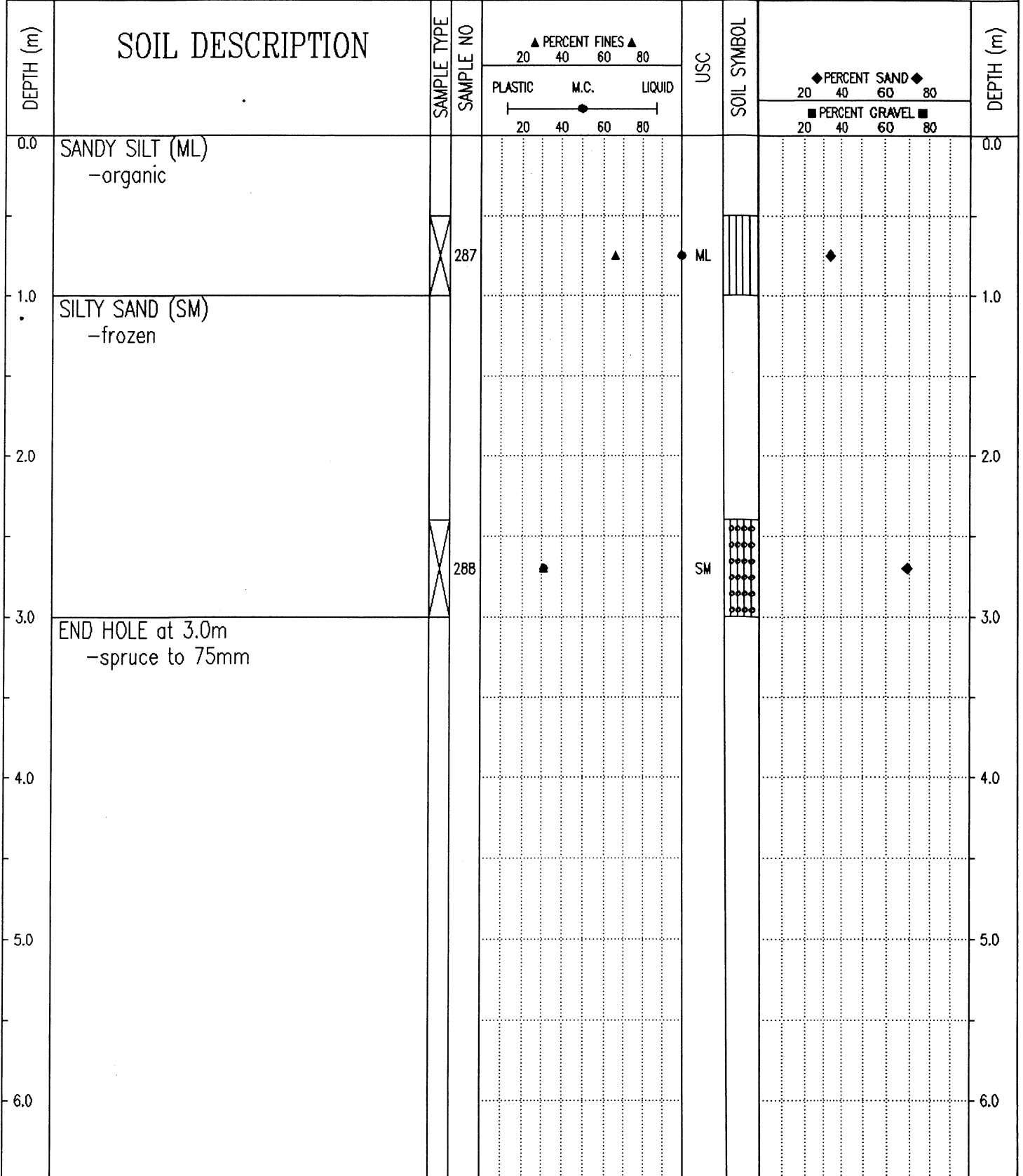
SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY PRE-ENGINEERING		TEST HOLE NO: 261-254							
SHAKWAK PROJECT		SEGMENT 15		Project No: 202101-0311-193							
DRILL: CME 750 150mm Dia SOLID STEM AUGER		LOCATION: STA 1871+325		ELEVATION: 0.00 (m)							
SAMPLE TYPE <input checked="" type="checkbox"/> 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							
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲			USC	SOIL SYMBOL	◆ PERCENT SAND ◆		DEPTH (m)
				PLASTIC	M.C.	LIQUID			20	40	
0.0	ORGANIC MATERIAL										0.0
1.0	SILT (ML) -organic -frozen		289				▲ ML	◆			1.0
2.0	ICE										2.0
3.0	GRAVELLY SILT WITH SAND (ML) -gray -frozen		290	●	▲		ML	◆	■		3.0
4.0	END HOLE at 3.0m -75mm spruce cover -water on surface										4.0
5.0											5.0
6.0											6.0

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LOGGED BY: GC	COMPLETION DEPTH: 3.0 m
REVIEWED BY:	COMPLETE: 93/09/28
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SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 261-253
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: STA 1871+430	ELEVATION: 0.00 (m)

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



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Transportation Engineering

LOGGED BY: GC
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Fig. No:

COMPLETION DEPTH: 3.0 m
COMPLETE: 93/09/28

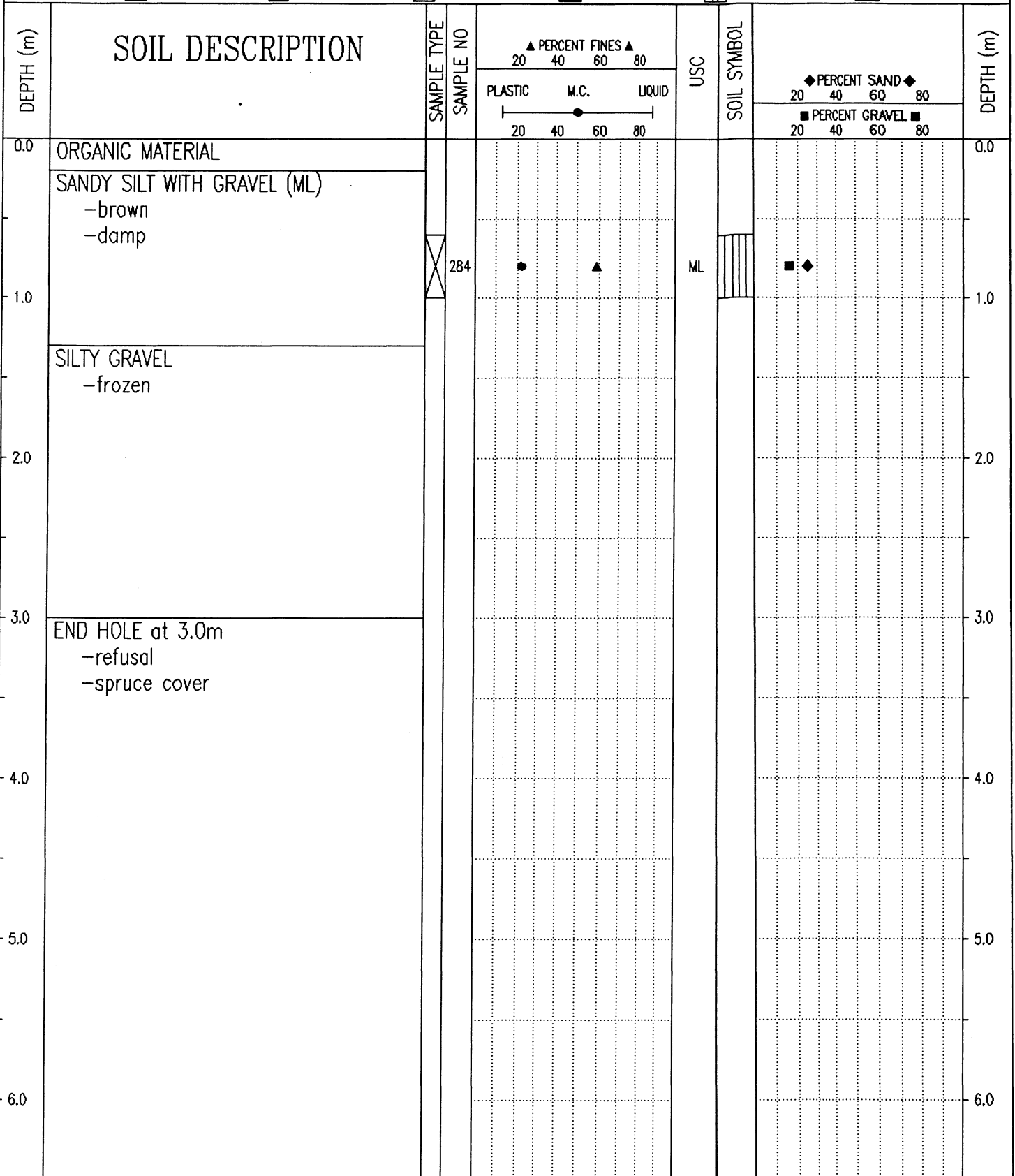
SUBSURFACE EXPLORATION AND TEST REPORT		ALASKA HIGHWAY PRE-ENGINEERING		TEST HOLE NO: 261-252							
SHAKWAK PROJECT		SEGMENT 15		Project No: 202101-0311-193							
DRILL: CME 750 150mm Dia SOLID STEM AUGER		LOCATION: STA 1871+525		ELEVATION: 0.00 (m)							
SAMPLE TYPE		<input checked="" type="checkbox"/> 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				
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	▲ PERCENT FINES ▲		USC	SOIL SYMBOL	◆ PERCENT SAND ◆		DEPTH (m)	
				PLASTIC	M.C.			LIQUID	PERCENT GRAVEL ■		
				20	40	60	80	20	40	60	80
0.0	SILT (ML) -black to brown -frozen										0.0
0.8		X	285				▲ ● ML	◆			0.8
1.5	SANDY SILT (ML) -brown -frozen -tough drilling										1.5
2.5		X	286				▲ ● ML	◆			2.5
3.8	END HOLE at 3.8m -spruce cover										3.8
4.0											4.0
5.0											5.0
6.0											6.0

Government of Yukon
Transportation Engineering

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REVIEWED BY:
Fig. No:

COMPLETION DEPTH: 3.8 m
COMPLETE: 93/09/28

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 261-251
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: STA 1871+625 o/s 10m Lt.	ELEVATION: 0.00 (m)
SAMPLE TYPE <input type="checkbox"/> RETURN <input checked="" type="checkbox"/> S.P.T. <input checked="" type="checkbox"/> AUGER <input type="checkbox"/> BULK <input type="checkbox"/> TUBE <input type="checkbox"/> CORE		

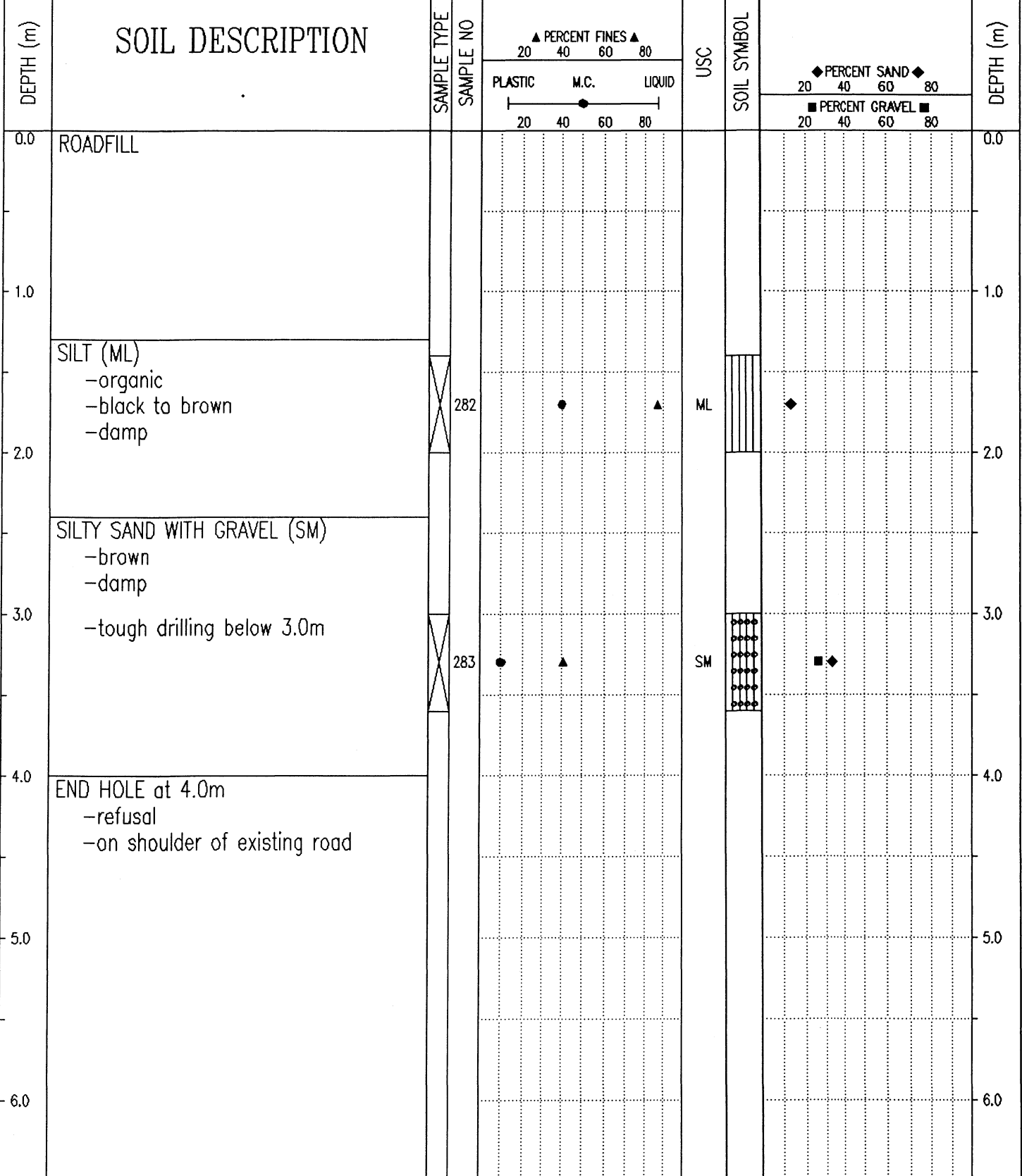


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Transportation Engineering

LOGGED BY: GC	COMPLETION DEPTH: 3.0 m
REVIEWED BY:	COMPLETE: 93/09/28
Fig. No:	Page 1 of 1

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY PRE-ENGINEERING	TEST HOLE NO: 261-250
SHAKWAK PROJECT	SEGMENT 15	Project No: 202101-0311-193
DRILL: CME 750 150mm Dia SOLID STEM AUGER	LOCATION: STA 1871+725	ELEVATION: 0.00 (m)

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



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REVIEWED BY:
Fig. No:

COMPLETION DEPTH: 4.0 m
COMPLETE: 93/09/28

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PROJECT NUMBER: 092-202101-0311-193 HOLE NUMBER: 261-250
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1871+725
 LOGGED BY: GC DATE COMPLETED: 93.09.28

FIELD NO: 282
 LAB NO: 1560
 DEPTH: 1.4-2.0
 TYPE: AUGER

ORGANICS

FIELD NO: 283
 LAB NO: 1561
 DEPTH: 3.0-3.6
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	98
2.0	--
1.25	97
0.840	--
0.630	95
0.420	--
0.315	92
0.160	89
0.150	--
0.080	87

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	97
12.5	92
10.0	88
5.0	74
2.5	64
2.0	--
1.25	59
0.840	--
0.630	54
0.420	--
0.315	48
0.160	44
0.150	--
0.080	41

M.C. (%): 40

M.C. (%): 10

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 0
 % SAND: 13
 % FINES: 87

% GRAVEL: 26
 % SAND: 33
 % FINES: 41

CLASSIFICATION:
 SILT (ML)

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

PROJECT NUMBER: 092-202101-0311-193 HOLE NUMBER: 261-251
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1871+625 O/S 10M LT
 LOGGED BY: GC DATE COMPLETED: 93.09.28

FIELD NO: 284
 LAB NO: 1562
 DEPTH: 0.6-1.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	100
12.5	95
10.0	91
5.0	84
2.5	80
2.0	--
1.25	77
0.840	--
0.630	73
0.420	--
0.315	69
0.160	64
0.150	--
0.080	59

M.C. (%) : 22

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 16
 % SAND: 25
 % FINES: 59

CLASSIFICATION:
 SANDY SILT WITH
 GRAVEL (ML)

PROJECT NUMBER: 092-202101-0311-193 HOLE NUMBER: 261-252
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1871+525
 LOGGED BY: GC DATE COMPLETED: 93.09.28

FIELD NO: 285
 LAB NO: 1563
 DEPTH: 0.4-1.0
 TYPE: AUGER

FIELD NO: 286
 LAB NO: 1564
 DEPTH: 2.2-2.8
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	98
2.0	--
1.25	97
0.840	--
0.630	95
0.420	--
0.315	93
0.160	92
0.150	--
0.080	90

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	98
2.0	--
1.25	95
0.840	--
0.630	92
0.420	--
0.315	88
0.160	80
0.150	--
0.080	68

M.C. (%): 274

M.C. (%): 75

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 0
 % SAND: 10
 % FINES: 90

% GRAVEL: 0
 % SAND: 32
 % FINES: 68

CLASSIFICATION:
 SILT (ML)

CLASSIFICATION:
 SANDY SILT (ML)

PROJECT NUMBER: 092-202101-0311-193 HOLE NUMBER: 261-253
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1871+430
 LOGGED BY: GC DATE COMPLETED: 93.09.28

FIELD NO: 287
 LAB NO: 1565
 DEPTH: 0.5-1.0
 TYPE: AUGER

ORGANIC

FIELD NO: 288
 LAB NO: 1566
 DEPTH: 2.4-3.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	93
2.0	--
1.25	88
0.840	--
0.630	83
0.420	--
0.315	77
0.160	70
0.150	--
0.080	66

M.C. (%): 184

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 0
 % SAND: 34
 % FINES: 66

CLASSIFICATION: SANDY SILT (ML)

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	91
2.0	--
1.25	83
0.840	--
0.630	72
0.420	--
0.315	54
0.160	38
0.150	--
0.080	31

M.C. (%): 31

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 0
 % SAND: 69
 % FINES: 31

CLASSIFICATION: SILTY SAND (SM)

PROJECT NUMBER: 092-202101-0311-193 HOLE NUMBER: 261-254
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1871+325
 LOGGED BY: GC DATE COMPLETED: 93.09.28

FIELD NO: 289
 LAB NO: 1567
 DEPTH: 0.6-1.2
 TYPE: AUGER
 ORGANIC

FIELD NO: 290
 LAB NO: 1568
 DEPTH: 2.4-3.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	--
2.5	--
2.0	--
1.25	--
0.840	95
0.630	100
0.420	--
0.315	98
0.160	97
0.150	--
0.080	95

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	73
20.0	73
12.5	73
10.0	73
5.0	72
2.5	72
2.0	--
1.25	69
0.840	--
0.630	66
0.420	--
0.315	62
0.160	59
0.150	--
0.080	56

M.C. (%): 169

M.C. (%): 41

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 0
 % SAND: 5
 % FINES: 95

% GRAVEL: 28
 % SAND: 16
 % FINES: 56

CLASSIFICATION:
 SILT (ML)

CLASSIFICATION:
 GRAVELLY SILT
 WITH SAND (ML)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-491
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1868+150
 LOGGED BY: GC DATE COMPLETED: 93.10.16

FIELD NO: 713
 LAB NO: 2121
 DEPTH: 1.0-1.2
 TYPE: AUGER

FIELD NO: 714
 LAB NO: 2122
 DEPTH: 2.5-3.0
 TYPE: AUGER

FIELD NO: 715
 LAB NO: 2123
 DEPTH: 4.0-4.5
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	89
20.0	87
12.5	86
10.0	86
5.0	82
2.5	77
2.0	--
1.25	71
0.840	--
0.630	67
0.420	--
0.315	61
0.160	54
0.150	--
0.080	42

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	98
20.0	92
12.5	87
10.0	85
5.0	76
2.5	68
2.0	--
1.25	58
0.840	--
0.630	50
0.420	--
0.315	42
0.160	34
0.150	--
0.080	26

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	93
20.0	82
12.5	72
10.0	68
5.0	59
2.5	52
2.0	--
1.25	46
0.840	--
0.630	41
0.420	--
0.315	35
0.160	29
0.150	--
0.080	23

M.C. (%): 10

M.C. (%): 9

M.C. (%): 7

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 18
 % SAND: 39
 % FINES: 42

% GRAVEL: 24
 % SAND: 49
 % FINES: 26

% GRAVEL: 41
 % SAND: 36
 % FINES: 23

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-492
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1868+250
 LOGGED BY: GC DATE COMPLETED: 93.10.16

FIELD NO: 716
 LAB NO: 2124
 DEPTH: 1.0-1.2
 TYPE: AUGER
 ORGANIC

FIELD NO: 717
 LAB NO: 2125
 DEPTH: 2.5-3.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	100
2.0	--
1.25	99
0.840	--
0.630	98
0.420	--
0.315	97
0.160	93
0.150	--
0.080	91

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	99
2.0	--
1.25	96
0.840	--
0.630	93
0.420	--
0.315	91
0.160	86
0.150	--
0.080	76

M.C. (%): 95

M.C. (%): 342

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 0
 % SAND: 9
 % FINES: 91

% GRAVEL: 0
 % SAND: 24
 % FINES: 76

CLASSIFICATION:
 SILT (ML)

CLASSIFICATION:
 SILT WITH SAND
 (ML)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-493
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1868+350 O/S 3M RT
 LOGGED BY: GC DATE COMPLETED: 93.10.16

FIELD NO: 718
 LAB NO: 2126
 DEPTH: 0.8-1.2
 TYPE: AUGER
 ORGANIC

FIELD NO: 719
 LAB NO: 2127
 DEPTH: 2.5-3.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	100
5.0	99
2.5	92
2.0	--
1.25	84
0.840	--
0.630	74
0.420	--
0.315	66
0.160	60
0.150	--
0.080	55

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	83
20.0	76
12.5	64
10.0	59
5.0	51
2.5	46
2.0	--
1.25	42
0.840	--
0.630	38
0.420	--
0.315	34
0.160	29
0.150	--
0.080	25

M.C. (%): 63

M.C. (%): 23

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 1
 % SAND: 43
 % FINES: 55

% GRAVEL: 49
 % SAND: 26
 % FINES: 25

CLASSIFICATION:
 SANDY SILT (ML)

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-494
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1868+450 O/S 60M RT
 LOGGED BY: GC DATE COMPLETED: 93.10.16

FIELD NO: 720
 LAB NO: 2128
 DEPTH: 0.8-1.2
 TYPE: AUGER

FIELD NO: 721
 LAB NO: 2129
 DEPTH: 2.6-3.0
 TYPE: AUGER

FIELD NO: 722
 LAB NO: 2130
 DEPTH: 4.0-4.5
 TYPE: AUGER

FIELD NO: 723
 LAB NO: 2131
 DEPTH: 5.0-6.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	100
2.0	--
1.25	98
0.840	--
0.630	95
0.420	--
0.315	86
0.160	66
0.150	--
0.080	46

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	100
2.0	--
1.25	99
0.840	--
0.630	97
0.420	--
0.315	93
0.160	82
0.150	--
0.080	59

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	100
12.5	94
10.0	92
5.0	90
2.5	79
2.0	--
1.25	74
0.840	--
0.630	70
0.420	--
0.315	65
0.160	56
0.150	--
0.080	46

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	71
20.0	71
12.5	68
10.0	66
5.0	63
2.5	60
2.0	--
1.25	56
0.840	--
0.630	53
0.420	--
0.315	49
0.160	41
0.150	--
0.080	31

M.C. (%) : 13

M.C. (%) : 12

M.C. (%) : 10

M.C. (%) : 8

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 0
 % SAND: 54
 % FINES: 46

% GRAVEL: 0
 % SAND: 41
 % FINES: 59

% GRAVEL: 10
 % SAND: 44
 % FINES: 46

% GRAVEL: 37
 % SAND: 31
 % FINES: 31

CLASSIFICATION:
 SILTY SAND (SM)

CLASSIFICATION:
 SANDY SILT (ML)

CLASSIFICATION:
 SILTY SAND (SM)

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-495
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1868+550
 LOGGED BY: GC DATE COMPLETED: 93.10.16

FIELD NO: 724
 LAB NO: 2132
 DEPTH: 0.8-1.2
 TYPE: AUGER

FIELD NO: 725
 LAB NO: 2133
 DEPTH: 2.5-3.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	100
50.0	76
31.5	--
25.0	72
20.0	67
12.5	63
10.0	60
5.0	54
2.5	48
2.0	--
1.25	42
0.840	--
0.630	37
0.420	--
0.315	32
0.160	26
0.150	--
0.080	22

M.C. (%): 5

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 46
 % SAND: 32
 % FINES: 22

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	100
31.5	--
25.0	76
20.0	70
12.5	65
10.0	59
5.0	50
2.5	45
2.0	--
1.25	39
0.840	--
0.630	35
0.420	--
0.315	29
0.160	25
0.150	--
0.080	20

M.C. (%): 5

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 50
 % SAND: 30
 % FINES: 20

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-496
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1868+650 O/S 2M RT
 LOGGED BY: GC DATE COMPLETED: 93.10.16

FIELD NO: 726
 LAB NO: 2134
 DEPTH: 0.8-1.0
 TYPE: AUGER

FIELD NO: 727
 LAB NO: 2135
 DEPTH: 2.4-3.0
 TYPE: AUGER

FIELD NO: 728
 LAB NO: 2136
 DEPTH: 4.0-4.6
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	100
31.5	--
25.0	90
20.0	85
12.5	78
10.0	74
5.0	67
2.5	61
2.0	--
1.25	56
0.840	--
0.630	51
0.420	--
0.315	47
0.160	42
0.150	--
0.080	37

M.C. (%): 34

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 33
 % SAND: 30
 % FINES: 37

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	100
31.5	--
25.0	95
20.0	90
12.5	81
10.0	77
5.0	68
2.5	62
2.0	--
1.25	56
0.840	--
0.630	51
0.420	--
0.315	45
0.160	40
0.150	--
0.080	33

M.C. (%): 8

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 32
 % SAND: 35
 % FINES: 33

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	100
31.5	--
25.0	79
20.0	78
12.5	70
10.0	67
5.0	58
2.5	50
2.0	--
1.25	45
0.840	--
0.630	40
0.420	--
0.315	36
0.160	31
0.150	--
0.080	26

M.C. (%): 7

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 42
 % SAND: 32
 % FINES: 26

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-497
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1868+750
 LOGGED BY: GC DATE COMPLETED: 93.10.16

FIELD NO: 729
 LAB NO: 2137
 DEPTH: 0.8-1.2
 TYPE: AUGER

FIELD NO: 730
 LAB NO: 2138
 DEPTH: 2.5-3.0
 TYPE: AUGER

FIELD NO: 731
 LAB NO: 2139
 DEPTH: 3.5-4.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	83
20.0	82
12.5	75
10.0	71
5.0	62
2.5	55
2.0	--
1.25	49
0.840	--
0.630	44
0.420	--
0.315	38
0.160	32
0.150	--
0.080	26

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	98
12.5	92
10.0	87
5.0	77
2.5	69
2.0	--
1.25	62
0.840	--
0.630	55
0.420	--
0.315	48
0.160	40
0.150	--
0.080	33

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	98
20.0	93
12.5	89
10.0	85
5.0	77
2.5	70
2.0	--
1.25	65
0.840	--
0.630	59
0.420	--
0.315	53
0.160	46
0.150	--
0.080	39

M.C. (%): 5

M.C. (%): 7

M.C. (%): 9

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 38
 % SAND: 36
 % FINES: 26

% GRAVEL: 23
 % SAND: 44
 % FINES: 33

% GRAVEL: 23
 % SAND: 37
 % FINES: 39

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-498
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1868+850
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 732
 LAB NO: 2140
 DEPTH: 0.8-1.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	74
20.0	71
12.5	60
10.0	58
5.0	51
2.5	46
2.0	--
1.25	41
0.840	--
0.630	37
0.420	--
0.315	32
0.160	27
0.150	--
0.080	24

M.C. (%): 17

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 49
 % SAND: 28
 % FINES: 24

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-499
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1868+950
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 733
 LAB NO: 2141
 DEPTH: 0.8-1.0
 TYPE: AUGER

FIELD NO: 734
 LAB NO: 2142
 DEPTH: 2.5-3.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	95
20.0	94
12.5	90
10.0	85
5.0	72
2.5	61
2.0	--
1.25	52
0.840	--
0.630	45
0.420	--
0.315	39
0.160	33
0.150	--
0.080	28

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	98
12.5	95
10.0	90
5.0	79
2.5	72
2.0	--
1.25	66
0.840	--
0.630	60
0.420	--
0.315	54
0.160	47
0.150	--
0.080	39

M.C. (%): 20

M.C. (%): 13

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 28
 % SAND: 44
 % FINES: 28

% GRAVEL: 21
 % SAND: 40
 % FINES: 39

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-500
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1869+050 O/S 15M RT
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 735
 LAB NO: 2143
 DEPTH: 0.8-1.0
 TYPE: AUGER

FIELD NO: 736
 LAB NO: 2144
 DEPTH: 2.5-3.0
 TYPE: AUGER
 SPILLED

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	69
20.0	64
12.5	54
10.0	49
5.0	39
2.5	32
2.0	--
1.25	26
0.840	--
0.630	21
0.420	--
0.315	17
0.160	13
0.150	--
0.080	10

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	--
2.5	--
2.0	--
1.25	--
0.840	--
0.630	--
0.420	--
0.315	--
0.160	--
0.150	--
0.080	--

M.C. (%): 10

M.C. (%): 14

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 61
 % SAND: 29
 % FINES: 10

% GRAVEL: --
 % SAND: --
 % FINES: --

CLASSIFICATION:
 WELL-GRADED
 GRAVEL WITH SILT
 & SAND (GW-GM)

CLASSIFICATION:

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-501
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1869+150
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 737
 LAB NO: 2145
 DEPTH: 0.75-1.0
 TYPE: AUGER
 ORGANIC

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	90
12.5	90
10.0	88
5.0	75
2.5	64
2.0	--
1.25	52
0.840	--
0.630	44
0.420	--
0.315	35
0.160	25
0.150	--
0.080	20

M.C. (%): 113

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 25
 % SAND: 55
 % FINES: 20

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-502
CLIENT: ENGINEERING-CAPITAL
PROJECT NAME: SHAKWAK PROJECT
PROJECT LOCATION: SEGMENT 15
DRILL UNIT: CME 750
HOLE LOCATION: 1869+242 O/S 5M RT
LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 738
LAB NO: 2146
DEPTH: 1.4-2.0
TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	100
50.0	83
31.5	--
25.0	80
20.0	75
12.5	70
10.0	65
5.0	53
2.5	42
2.0	--
1.25	32
0.840	--
0.630	26
0.420	--
0.315	21
0.160	16
0.150	--
0.080	12

M.C. (%): 7

LIMITS

LIQUID: --
PLASTIC: --
P.I.: N.P.

% GRAVEL: 47
% SAND: 41
% FINES: 12

CLASSIFICATION:
POORLY GRADED
GRAVEL WITH SILT
& SAND (GP-GM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-503
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1869+450 O/S 30M LT
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 739
 LAB NO: 2147
 DEPTH: 0.8-1.0
 TYPE: AUGER

FIELD NO: 740
 LAB NO: 2148
 DEPTH: 2.5-3.0
 TYPE: AUGER
 ORGANIC

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	92
12.5	70
10.0	63
5.0	48
2.5	38
2.0	--
1.25	31
0.840	--
0.630	25
0.420	--
0.315	20
0.160	16
0.150	--
0.080	12

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	96
20.0	92
12.5	83
10.0	79
5.0	69
2.5	60
2.0	--
1.25	53
0.840	--
0.630	46
0.420	--
0.315	40
0.160	34
0.150	--
0.080	28

M.C. (%): 4

M.C. (%): 26

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 52
 % SAND: 36
 % FINES: 12

% GRAVEL: 31
 % SAND: 41
 % FINES: 28

CLASSIFICATION:
 POORLY GRADED
 GRAVEL WITH SILT
 & SAND (GP-GM)

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-504
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1869+600 O/S 30M LT
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 741
 LAB NO: 2149
 DEPTH: 0.8-1.0
 TYPE: AUGER
 ORGANIC

FIELD NO: 742
 LAB NO: 2150
 DEPTH: 2.5-3.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	91
2.0	--
1.25	83
0.840	--
0.630	75
0.420	--
0.315	66
0.160	49
0.150	--
0.080	43

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	100
12.5	99
10.0	97
5.0	89
2.5	80
2.0	--
1.25	70
0.840	--
0.630	60
0.420	--
0.315	47
0.160	35
0.150	--
0.080	26

M.C. (%): 122

M.C. (%): 26

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 0
 % SAND: 57
 % FINES: 43

% GRAVEL: 11
 % SAND: 64
 % FINES: 26

CLASSIFICATION:
 SILTY SAND (SM)

CLASSIFICATION:
 SILTY SAND (SM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-505
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1869+750
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 743
 LAB NO: 2151
 DEPTH: 1.0-1.2
 TYPE: AUGER
 ORGANIC

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	93
2.0	--
1.25	85
0.840	--
0.630	78
0.420	--
0.315	71
0.160	64
0.150	--
0.080	59

M.C. (%): 132

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 0
 % SAND: 41
 % FINES: 59

CLASSIFICATION:
 SANDY SILT (ML)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-506
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1869+825
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 744
 LAB NO: 2152
 DEPTH: 1.0-1.2
 TYPE: AUGER
 ORGANIC

FIELD NO: 745
 LAB NO: 2153
 DEPTH: 2.5-3.0
 TYPE: AUGER
 ORGANIC

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	87
2.0	--
1.25	78
0.840	--
0.630	72
0.420	--
0.315	67
0.160	59
0.150	--
0.080	47

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	93
2.0	--
1.25	87
0.840	--
0.630	80
0.420	--
0.315	69
0.160	54
0.150	--
0.080	48

M.C. (%): 209

M.C. (%): 216

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 0
 % SAND: 53
 % FINES: 47

% GRAVEL: 0
 % SAND: 52
 % FINES: 48

CLASSIFICATION:
 SILTY SAND (SM)

CLASSIFICATION:
 SILTY SAND (SM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 270-507
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1869+950 O/S 3M RT
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 746
 LAB NO: 2154
 DEPTH: 0.8-1.0
 TYPE: AUGER
 ORGANIC

FIELD NO: 747
 LAB NO: 2155
 DEPTH: 2.5-3.0
 TYPE: AUGER
 ORGANIC

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	94
2.0	--
1.25	88
0.840	--
0.630	83
0.420	--
0.315	78
0.160	72
0.150	--
0.080	65

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	78
2.0	--
1.25	58
0.840	--
0.630	48
0.420	--
0.315	42
0.160	36
0.150	--
0.080	34

M.C. (%): 304

M.C. (%): 315

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 0
 % SAND: 35
 % FINES: 65

% GRAVEL: 0
 % SAND: 66
 % FINES: 34

CLASSIFICATION:
 SANDY SILT (ML)

CLASSIFICATION:
 SILTY SAND (SM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 271-508
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1870+050 O/S 5M RT
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 748
 LAB NO: 2156
 DEPTH: 0.8-1.0
 TYPE: AUGER
 ORGANIC

FIELD NO: 749
 LAB NO: 2157
 DEPTH: 2.5-3.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	--
12.5	--
10.0	--
5.0	100
2.5	86
2.0	--
1.25	76
0.840	--
0.630	70
0.420	--
0.315	66
0.160	62
0.150	--
0.080	58

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	97
12.5	82
10.0	76
5.0	67
2.5	60
2.0	--
1.25	53
0.840	--
0.630	47
0.420	--
0.315	41
0.160	36
0.150	--
0.080	32

M.C. (%): 443

M.C. (%): 41

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 0
 % SAND: 42
 % FINES: 58

% GRAVEL: 33
 % SAND: 36
 % FINES: 32

CLASSIFICATION:
 SANDY SILT (ML)

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 271-509
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1870+150 O/S 5M RT
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 750
 LAB NO: 2158
 DEPTH: 0.8-1.2
 TYPE: AUGER

FIELD NO: 751
 LAB NO: 2159
 DEPTH: 2.0-2.5
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	100
31.5	--
25.0	74
20.0	74
12.5	69
10.0	66
5.0	59
2.5	55
2.0	--
1.25	50
0.840	--
0.630	47
0.420	--
0.315	44
0.160	39
0.150	--
0.080	34

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	100
31.5	--
25.0	96
20.0	93
12.5	76
10.0	68
5.0	55
2.5	49
2.0	--
1.25	44
0.840	--
0.630	40
0.420	--
0.315	36
0.160	32
0.150	--
0.080	27

M.C. (%): 23

M.C. (%): 11

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 41
 % SAND: 26
 % FINES: 34

% GRAVEL: 45
 % SAND: 28
 % FINES: 27

CLASSIFICATION:

SILTY GRAVEL
 WITH SAND (GM)

CLASSIFICATION:

SILTY GRAVEL
 WITH SAND (GM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 271-510
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1870+250 O/S 7M RT
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 752
 LAB NO: 2160
 DEPTH: 0.8-1.0
 TYPE: AUGER

FIELD NO: 753
 LAB NO: 2161
 DEPTH: 2.5-3.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
------------	-----------------

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	97
12.5	86
10.0	80
5.0	70
2.5	62
2.0	--
1.25	56
0.840	--
0.630	51
0.420	--
0.315	46
0.160	41
0.150	--
0.080	35

100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	99
12.5	94
10.0	92
5.0	78
2.5	68
2.0	--
1.25	58
0.840	--
0.630	51
0.420	--
0.315	44
0.160	37
0.150	--
0.080	30

M.C. (%): 12

M.C. (%): 11

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 30
 % SAND: 35
 % FINES: 35

% GRAVEL: 22
 % SAND: 48
 % FINES: 30

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 271-511
CLIENT: ENGINEERING-CAPITAL
PROJECT NAME: SHAKWAK PROJECT
PROJECT LOCATION: SEGMENT 15
DRILL UNIT: CME 750
HOLE LOCATION: 1870+400 O/S 5M RT
LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 754
LAB NO: 2162
DEPTH: 0.8-1.0
TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	93
12.5	86
10.0	81
5.0	71
2.5	62
2.0	--
1.25	51
0.840	--
0.630	42
0.420	--
0.315	31
0.160	23
0.150	--
0.080	18

M.C. (%): 5

LIMITS

LIQUID: --
PLASTIC: --
P.I.: N.P.

% GRAVEL: 29
% SAND: 52
% FINES: 18

CLASSIFICATION:
SILTY SAND WITH
GRAVEL (SM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 271-512
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1870+500 O/S 7M RT
 LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 755
 LAB NO: 2163
 DEPTH: 0.8-1.2
 TYPE: AUGER

FIELD NO: 756
 LAB NO: 2164
 DEPTH: 2.0-2.5
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	100
12.5	97
10.0	96
5.0	91
2.5	86
2.0	--
1.25	79
0.840	--
0.630	70
0.420	--
0.315	50
0.160	33
0.150	--
0.080	26

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	100
12.5	98
10.0	97
5.0	87
2.5	76
2.0	--
1.25	65
0.840	--
0.630	56
0.420	--
0.315	48
0.160	38
0.150	--
0.080	29

M.C. (%): 26

M.C. (%): 12

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 9
 % SAND: 65
 % FINES: 26

% GRAVEL: 13
 % SAND: 58
 % FINES: 29

CLASSIFICATION:
 SILTY SAND (SM)

CLASSIFICATION:
 SILTY SAND (SM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 271-513
CLIENT: ENGINEERING-CAPITAL
PROJECT NAME: SHAKWAK PROJECT
PROJECT LOCATION: SEGMENT 15
DRILL UNIT: CME 750
HOLE LOCATION: 1870+600
LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 757
LAB NO: 2165
DEPTH: 0.8-1.0
TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
---------------	--------------------

100.0	--
80.0	--
50.0	100
31.5	--
25.0	93
20.0	91
12.5	83
10.0	79
5.0	72
2.5	66
2.0	--
1.25	61
0.840	--
0.630	57
0.420	--
0.315	52
0.160	46
0.150	--
0.080	40

M.C. (%): 24

LIMITS

LIQUID: --
PLASTIC: --
P.I.: N.P.

% GRAVEL: 28
% SAND: 31
% FINES: 40

CLASSIFICATION:
SILTY SAND WITH
GRAVEL (SM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 271-514
CLIENT: ENGINEERING-CAPITAL
PROJECT NAME: SHAKWAK PROJECT
PROJECT LOCATION: SEGMENT 15
DRILL UNIT: CME 750
HOLE LOCATION: 1870+700
LOGGED BY: GC DATE COMPLETED: 93.10.17

FIELD NO: 758
LAB NO: 2166
DEPTH: 0.8-1.0
TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
---------------	--------------------

100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	84
12.5	72
10.0	69
5.0	62
2.5	56
2.0	--
1.25	51
0.840	--
0.630	46
0.420	--
0.315	42
0.160	36
0.150	--
0.080	31

M.C. (%): 9

LIMITS

LIQUID: --
PLASTIC: --
P.I.: N.P.

% GRAVEL: 38
% SAND: 31
% FINES: 31

CLASSIFICATION:
SILTY GRAVEL
WITH SAND (GM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 271-515
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1870+800
 LOGGED BY: GC DATE COMPLETED: 93.10.18

FIELD NO: 759
 LAB NO: 2167
 DEPTH: 0.8-1.0
 TYPE: AUGER

FIELD NO: 760
 LAB NO: 2168
 DEPTH: 2.0-2.5
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	100
31.5	--
25.0	93
20.0	87
12.5	80
10.0	77
5.0	70
2.5	65
2.0	--
1.25	60
0.840	--
0.630	56
0.420	--
0.315	51
0.160	46
0.150	--
0.080	40

M.C. (%): 10

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 30
 % SAND: 30
 % FINES: 40

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	87
12.5	75
10.0	68
5.0	53
2.5	43
2.0	--
1.25	36
0.840	--
0.630	32
0.420	--
0.315	28
0.160	24
0.150	--
0.080	20

M.C. (%): 5

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 47
 % SAND: 33
 % FINES: 20

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

PROJECT NUMBER: 202101-0311-193 HOLE NUMBER: 271-516
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: CME 750
 HOLE LOCATION: 1870+900 O/S 15M RT
 LOGGED BY: GC DATE COMPLETED: 93.10.18

FIELD NO: 761
 LAB NO: 2169
 DEPTH: 0.8-1.2
 TYPE: AUGER

FIELD NO: 762
 LAB NO: 2170
 DEPTH: 2.5-3.0
 TYPE: AUGER

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	90
12.5	87
10.0	82
5.0	74
2.5	68
2.0	--
1.25	63
0.840	--
0.630	63
0.420	--
0.315	53
0.160	46
0.150	--
0.080	40

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	--
31.5	--
25.0	--
20.0	100
12.5	96
10.0	93
5.0	81
2.5	70
2.0	--
1.25	58
0.840	--
0.630	50
0.420	--
0.315	43
0.160	35
0.150	--
0.080	27

M.C. (%): 9

M.C. (%): 9

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 26
 % SAND: 34
 % FINES: 40

% GRAVEL: 19
 % SAND: 54
 % FINES: 27

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

PROJECT NUMBER: 092-202101-0311 **HOLE NUMBER:** 370-294
CLIENT: ENGINEERING-CAPITAL
PROJECT NAME: SHAKWAK PROJECT
PROJECT LOCATION: SEGMENT 15
DRILL UNIT: BACKHOE: HITACHI EX200
HOLE LOCATION: 1868+455 O/S 5M RT
LOGGED BY: CC **DATE COMPLETED:** 95.07.18

FIELD NO: 596
LAB NO: 784
DEPTH: 2.8-3.0
TYPE: BULK

FIELD NO: 597
LAB NO: 785
DEPTH: 4.8-5.0
TYPE: BULK

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	100
50.0	76
31.5	--
25.0	65
20.0	59
12.5	53
10.0	49
5.0	41
2.5	36
2.0	--
1.25	32
0.840	--
0.630	29
0.420	--
0.315	25
0.160	21
0.150	--
0.080	18

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	92
20.0	88
12.5	79
10.0	76
5.0	68
2.5	63
2.0	--
1.25	58
0.840	--
0.630	53
0.420	--
0.315	48
0.160	42
0.150	--
0.080	35

M.C. (%): 6

M.C. (%): 9

LIMITS
LIQUID: --
PLASTIC: --
P.I.: N.P.

LIMITS
LIQUID: --
PLASTIC: --
P.I.: N.P.

% GRAVEL: 59
% SAND: 23
% FINES: 18

% GRAVEL: 32
% SAND: 33
% FINES: 35

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

PROJECT NUMBER: 092-202101-0311 **HOLE NUMBER:** 370-297
CLIENT: ENGINEERING-CAPITAL
PROJECT NAME: SHAKWAK PROJECT
PROJECT LOCATION: SEGMENT 15
DRILL UNIT: BACKHOE: HITACHI EX200
HOLE LOCATION: 1868+560 O/S 15M RT
LOGGED BY: CC **DATE COMPLETED:** 95.07.19

FIELD NO: 603
LAB NO: 791
DEPTH: 0.8-1.0
TYPE: BULK

FIELD NO: 604
LAB NO: 792
DEPTH: 2.8-3.0
TYPE: BULK

FIELD NO: 605
LAB NO: 793
DEPTH: 4.8-5.0
TYPE: BULK

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	100
50.0	64
31.5	--
25.0	54
20.0	51
12.5	45
10.0	43
5.0	38
2.5	33
2.0	--
1.25	29
0.840	--
0.630	26
0.420	--
0.315	22
0.160	18
0.150	--
0.080	14

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	100
50.0	68
31.5	--
25.0	68
20.0	66
12.5	62
10.0	58
5.0	50
2.5	44
2.0	--
1.25	38
0.840	--
0.630	33
0.420	--
0.315	28
0.160	22
0.150	--
0.080	16

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	100
50.0	74
31.5	--
25.0	56
20.0	54
12.5	51
10.0	49
5.0	46
2.5	43
2.0	--
1.25	41
0.840	--
0.630	38
0.420	--
0.315	35
0.160	33
0.150	--
0.080	30

M.C. (%): 4

M.C. (%): 6

M.C. (%): 7

LIMITS
LIQUID: --
PLASTIC: --
P.I.: N.P.

LIMITS
LIQUID: --
PLASTIC: --
P.I.: N.P.

LIMITS
LIQUID: --
PLASTIC: --
P.I.: N.P.

% GRAVEL: 62
% SAND: 24
% FINES: 14

% GRAVEL: 50
% SAND: 34
% FINES: 16

% GRAVEL: 54
% SAND: 16
% FINES: 30

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

PROJECT NUMBER: 092-202101-0311 HOLE NUMBER: 370-298
CLIENT: ENGINEERING-CAPITAL
PROJECT NAME: SHAKWAK PROJECT
PROJECT LOCATION: SEGMENT 15
DRILL UNIT: BACKHOE: HITACHI EX200
HOLE LOCATION: 1868+660 O/S 12M RT
LOGGED BY: CC DATE COMPLETED: 95.07.19

FIELD NO: 606
LAB NO: 794
DEPTH: 1.9-2.1
TYPE: BULK

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	81
20.0	75
12.5	71
10.0	69
5.0	63
2.5	58
2.0	--
1.25	53
0.840	--
0.630	48
0.420	--
0.315	43
0.160	37
0.150	--
0.080	31

M.C. (%): 14

LIMITS

LIQUID: --
PLASTIC: --
P.I.: N.P.

% GRAVEL: 37
% SAND: 32
% FINES: 31

CLASSIFICATION:
SILTY GRAVEL
WITH SAND (GM)

PROJECT NUMBER: 092-202101-0311 HOLE NUMBER: 370-299
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: BACKHOE: HITACHI EX200
 HOLE LOCATION: 1869+425 O/S 10M RT
 LOGGED BY: CC DATE COMPLETED: 95.07.19

FIELD NO: 607
 LAB NO: 795
 DEPTH: 0.7-0.9
 TYPE: BULK

FIELD NO: 608
 LAB NO: 796
 DEPTH: 2.3-2.5
 TYPE: BULK

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	100
50.0	67
31.5	--
25.0	65
20.0	65
12.5	57
10.0	55
5.0	49
2.5	44
2.0	--
1.25	39
0.840	--
0.630	33
0.420	--
0.315	28
0.160	22
0.150	--
0.080	17

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	100
50.0	50
31.5	--
25.0	41
20.0	40
12.5	35
10.0	32
5.0	23
2.5	18
2.0	--
1.25	14
0.840	--
0.630	10
0.420	--
0.315	7
0.160	4
0.150	--
0.080	2

M.C. (%): 12

M.C. (%): 6

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 51
 % SAND: 32
 % FINES: 17

% GRAVEL: 77
 % SAND: 21
 % FINES: 2

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

CLASSIFICATION:
 WELL-GRADED
 GRAVEL WITH SAND
 (GW)

PROJECT NUMBER: 092-202101-0311-1 HOLE NUMBER: 383-556
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: BACKHOE: HITACHI UH-172
 HOLE LOCATION: 1868+150 O/S 16M RT
 LOGGED BY: KJ DATE COMPLETED: 95.09.26

FIELD NO: 135
 LAB NO: 1590
 DEPTH: 1.2-1.4
 TYPE: BULK

FIELD NO: 136
 LAB NO: 1591
 DEPTH: 2.2-2.4
 TYPE: BULK

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	100
50.0	66
31.5	--
25.0	51
20.0	46
12.5	39
10.0	36
5.0	29
2.5	24
2.0	--
1.25	21
0.840	--
0.630	18
0.420	--
0.315	14
0.160	11
0.150	--
0.080	8

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	100
50.0	70
31.5	--
25.0	35
20.0	30
12.5	27
10.0	25
5.0	19
2.5	15
2.0	--
1.25	13
0.840	--
0.630	10
0.420	--
0.315	8
0.160	7
0.150	--
0.080	5

M.C. (%): 4

M.C. (%): 3

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS
 LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 71
 % SAND: 21
 % FINES: 8

% GRAVEL: 81
 % SAND: 14
 % FINES: 5

CLASSIFICATION:
 POORLY GRADED
 GRAVEL WITH SILT
 & SAND (GP-GM)

CLASSIFICATION:
 POORLY GRADED
 GRAVEL WITH SILT
 (GP-GM)

PROJECT NUMBER: 092-202101-0311-1 HOLE NUMBER: 383-557
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: BACKHOE: HITACHI UH-172
 HOLE LOCATION: 1868+550 O/S 12M LT
 LOGGED BY: KJ DATE COMPLETED: 95.09.26

FIELD NO: 137
 LAB NO: 1592
 DEPTH: 2.2-2.4
 TYPE: BULK

FIELD NO: 138
 LAB NO: 1593
 DEPTH: 4.4-4.6
 TYPE: BULK

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	100
50.0	74
31.5	--
25.0	68
20.0	61
12.5	53
10.0	51
5.0	45
2.5	40
2.0	--
1.25	35
0.840	--
0.630	31
0.420	--
0.315	27
0.160	23
0.150	--
0.080	19

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	100
50.0	80
31.5	--
25.0	65
20.0	57
12.5	50
10.0	46
5.0	37
2.5	31
2.0	--
1.25	26
0.840	--
0.630	23
0.420	--
0.315	19
0.160	16
0.150	--
0.080	12

M.C. (%): 9

M.C. (%): 5

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 55
 % SAND: 25
 % FINES: 19

% GRAVEL: 63
 % SAND: 25
 % FINES: 12

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

CLASSIFICATION:
 POORLY GRADED
 GRAVEL WITH SILT
 & SAND (GP-GM)

PROJECT NUMBER: 092-202101-0311-1 HOLE NUMBER: 383-558
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: BACKHOE: HITACHI UH-172
 HOLE LOCATION: 1868+625 O/S 12M LT
 LOGGED BY: KJ DATE COMPLETED: 95.09.26

FIELD NO: 139
 LAB NO: 1594
 DEPTH: 1.6-1.8
 TYPE: BULK

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	--
31.5	--
25.0	100
20.0	95
12.5	88
10.0	85
5.0	76
2.5	70
2.0	--
1.25	66
0.840	--
0.630	62
0.420	--
0.315	57
0.160	52
0.150	--
0.080	46

M.C. (%): 9

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 24
 % SAND: 30
 % FINES: 46

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

PROJECT NUMBER: 092-202101-0311-1 HOLE NUMBER: 383-559
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: BACKHOE: HITACHI UH-172
 HOLE LOCATION: 1868+790 O/S 15M RT
 LOGGED BY: KJ DATE COMPLETED: 95.09.27

FIELD NO: 140
 LAB NO: 1595
 DEPTH: 1.8-2.0
 TYPE: BULK

FIELD NO: 141
 LAB NO: 1596
 DEPTH: 3.2-3.4
 TYPE: BULK

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	--
50.0	100
31.5	--
25.0	97
20.0	91
12.5	88
10.0	85
5.0	81
2.5	75
2.0	--
1.25	65
0.840	--
0.630	53
0.420	--
0.315	38
0.160	25
0.150	--
0.080	15

M.C. (%): 14

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 19
 % SAND: 66
 % FINES: 15

CLASSIFICATION:
 SILTY SAND WITH
 GRAVEL (SM)

SIEVE SIZE	PERCENT PASSING
------------	-----------------

100.0	--
80.0	100
50.0	69
31.5	--
25.0	69
20.0	67
12.5	65
10.0	63
5.0	59
2.5	55
2.0	--
1.25	52
0.840	--
0.630	49
0.420	--
0.315	44
0.160	39
0.150	--
0.080	32

M.C. (%): 7

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 41
 % SAND: 27
 % FINES: 32

CLASSIFICATION:
 SILTY GRAVEL
 WITH SAND (GM)

PROJECT NUMBER: 092-202101-0311-1 HOLE NUMBER: 383-560
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: BACKHOE: HITACHI UH-172
 HOLE LOCATION: 1869+075 O/S 15M RT
 LOGGED BY: KJ DATE COMPLETED: 95.09.27

FIELD NO: 142
 LAB NO: 1597
 DEPTH: 3.0-3.2
 TYPE: BULK

SIEVE SIZE	PERCENT PASSING
100.0	--
80.0	--
50.0	100
31.5	--
25.0	84
20.0	69
12.5	62
10.0	59
5.0	52
2.5	45
2.0	--
1.25	39
0.840	--
0.630	32
0.420	--
0.315	24
0.160	16
0.150	--
0.080	10

M.C. (%): 8

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 48
 % SAND: 41
 % FINES: 10

CLASSIFICATION:
 POORLY GRADED
 GRAVEL WITH SILT
 & SAND (GP-GM)

PROJECT NUMBER: 092-202101-0311-1 HOLE NUMBER: 383-561
 CLIENT: ENGINEERING-CAPITAL
 PROJECT NAME: SHAKWAK PROJECT
 PROJECT LOCATION: SEGMENT 15
 DRILL UNIT: BACKHOE: HITACHI UH-172
 HOLE LOCATION: 1869+250 O/S 15M RT
 LOGGED BY: KJ DATE COMPLETED: 95.09.28

FIELD NO: 143
 LAB NO: 1598
 DEPTH: 1.4-1.8
 TYPE: BULK

SIEVE SIZE	PERCENT PASSING
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100.0	--
80.0	100
50.0	79
31.5	--
25.0	55
20.0	49
12.5	39
10.0	35
5.0	27
2.5	21
2.0	--
1.25	17
0.840	--
0.630	14
0.420	--
0.315	11
0.160	9
0.150	--
0.080	7

M.C. (%): 7

LIMITS

LIQUID: --
 PLASTIC: --
 P.I.: N.P.

% GRAVEL: 73
 % SAND: 20
 % FINES: 7

CLASSIFICATION:
 POORLY GRADED
 GRAVEL WITH SILT
 & SAND (GP-GM)