

# **GEOTECHNICAL INVESTIGATIONS**

**Highway Construction  
km 1691.6 to 1700.4  
Alaska Highway #1  
Yukon, 2006-2007  
Volume 3 of 3**



**Highways and Public Works  
Transportation Engineering Branch**

**Geotechnical Services**

**BOX 2703, WHITEHORSE, YUKON  
PHONE 867-667-8820 FAX 867-393-6447**

**ORIGINAL - Do Not Remove From File**



HIGHWAY CONSTRUCTION

GEOTECHNICAL INVESTIGATION  
km 1691.6 to 1700.4  
YUKON, 2006-2007

ALASKA HIGHWAY #1

Highway Construction  
km 1691.6 to 1700.4  
Alaska Highway #1  
Yukon, 2006-2007  
**Volume 3 of 3**

This Data Package prepared for project viewing:

May, 2006

Transportation Engineering Branch  
Geotechnical Services  
461 Range Road  
Whitehorse, Yukon



## CONTENTS

### Volume 1 of 3

#### INTRODUCTION

Investigation notes, classification methods and legends.

#### CENTRELINE TESTING    km 1691.6 to 1700.4 Alaska Highway

Subsurface Exploration and Test Report Sheets are provided.

The reports for the Centreline testing holes are arranged according to project location, starting at km 1691+525 and increasing to km 1700+250.

2000	TEST HOLES 1602 to 1639	shown with prefix 558-
2004	TEST HOLES 30000 to 30046	shown with no prefix
2004	TEST HOLES 30177 to 30179	shown with no prefix

## **CONTENTS (continued)**

### **Volume 2 of 3**

#### **CENTRELINE TESTING km 1691.6 to 1700.4 Alaska Highway**

Laboratory Testing Result Sheets are provided.

The reports for the centreline holes are arranged according to test hole number, starting at 558-1602 and increasing to 30179.

2000	TEST HOLES 1602 to 1639	shown with prefix 558-
2004	TEST HOLES 30000 to 30046	shown with no prefix
2004	TEST HOLES 30177 to 30179	shown with no prefix

## **CONTENTS (continued)**

### **Volume 3 of 3**

#### **GRANULAR SOURCE km 1635.8 RHS ALASKA HIGHWAY Pit ID 115 G-07**

**NOTE:** There is a kilometre chainage correction at km 1636.6 back and km 1694.0 ahead. Pit 115 G-07 is located at km 1635.8 back and km 1691 ahead.

A production history, location plans, photographs, and subsurface exploration and testing report sheets are provided.

#### **Auger Testing**

2001	TEST HOLES 1510 to 1514	shown with prefix 581-
2001	TEST HOLES 1515, 1517, 1518	shown with prefix 582-

#### **Test Pit Testing**

1991	TEST PITS 06 to 08	shown with prefix 152-
1992	TEST PITS 19 to 23	shown with prefix EBA-
2001	TEST PITS 1524 to 1528, 1541, & 1542	shown with prefix 583-
2001	TEST PITS 1544 to 1549 & 1552	shown with prefix 584-



HIGHWAY CONSTRUCTION

GEOTECHNICAL INVESTIGATION  
km 1691.6 to 1700.4  
YUKON, 2006-2007

ALASKA HIGHWAY #1

**GRANULAR SOURCE TESTING**  
**km 1635.8 RHS Back**  
**km 1691 RHS Ahead**  
**(Silver City)**  
**ALASKA HIGHWAY**



## HISTORY OF AGGREGATE PRODUCTION

Alaska Highway Km 1635.8 RHS  
Pit ID. 115 G-07 (Silver City)

### Average Crusher Run Characteristics of Material Produced

File Number --- 2142-5-70 Contractor --- Nuway Crushing Ltd.  
Stockpile ID --- n/a Commenced --- 92-06-04 Completed --- 92-06-05  
Type of aggregate --- 20 mm B.S.T. Aggregate Type II  
Amount Produced --- ± 2,500 m<sup>3</sup> No. of tests --- 11

-----  
Sieve Size mm - 20.0 12.5 10.0 5.00 2.50 1.25 0.315 0.080  
Percent Passing - 100 83.4 -- 49.4 35.6 26.4 10.8 4.8  
Moisture Content - 2.1 % Standard Proctor  
Fracture - 70.9 % Kg/m<sup>3</sup> @ % moisture  
=====

File Number --- 2142-5-70 Contractor --- Nuway Crushing Ltd.  
Stockpile ID --- n/a Commenced --- 92-06-04 Completed --- 92-06-06  
Type of aggregate --- Granular A" Base Course  
Amount Produced --- ± 4,800 m<sup>3</sup> No. of tests --- 22

-----  
Sieve Size mm - 20.0 12.5 10.0 5.00 2.50 1.25 0.315 0.080  
Percent Passing - 99.9 83.0 -- 50.3 34.7 27.0 11.3 5.2  
Moisture Content - 2.7 % Standard Proctor  
Fracture - 64.3 % Kg/m<sup>3</sup> @ % moisture  
=====

File Number --- 2145-4 Contractor --- Nuway Crushing Ltd.  
Stockpile ID --- n/a Commenced --- 94-03-22 Completed --- 94-03-26  
Type of aggregate --- Granular "A" Base Course  
Amount Produced --- 10,252 m<sup>3</sup> No. of tests --- 36

-----  
Sieve Size mm - 20.0 12.5 10.0 5.00 2.50 1.25 0.315 0.080  
Percent Passing - 100 85.5 -- 59.0 -- 34.4 13.8 5.9  
Moisture Content - 2.4 % Standard Proctor  
Fracture - 65.2 % Kg/m<sup>3</sup> @ % moisture  
=====

File Number --- 2145-4 Contractor --- Nuway Crushing Ltd.  
Stockpile ID --- 1994-27 Commenced --- 94-03-26 Completed --- 94-03-31  
Type of aggregate --- 20 mm B.S.T. Aggregate  
Amount Produced --- 9,307 m<sup>3</sup> No. of tests --- 40

-----  
Sieve Size mm - 20.0 12.5 10.0 5.00 2.50 1.25 0.315 0.080  
Percent Passing - 100 72.6 -- 36.3 26.2 19.0 6.4 4.8  
Moisture Content - 1.6 % Standard Proctor  
Fracture - 69.5 % Kg/m<sup>3</sup> @ % moisture  
=====

**115 G-07 cont'd**

File Number --- 2550-22/01-24 Contractor --- North American Roads (Nuway)  
 Stockpile ID --- n/a Commenced --- 01-07-14 Completed --- 01-08-02  
 Type of aggregate --- Granular "A" Base Course  
 Amount Produced ---  $\pm 44,500 \text{ m}^3$  No. of tests --- 105

-----  
 Sieve Size mm - 20.0 12.5 10.0 5.00 2.50 1.25 0.315 0.080  
 Percent Passing - 100 87.2 -- 52.9 38.5 28.4 11.7 5.9  
 Moisture Content - 2.2 % Standard Proctor  
 Fracture - 63.4 % 2246 Kg/m<sup>3</sup> @ 7.4 % moisture  
 =====

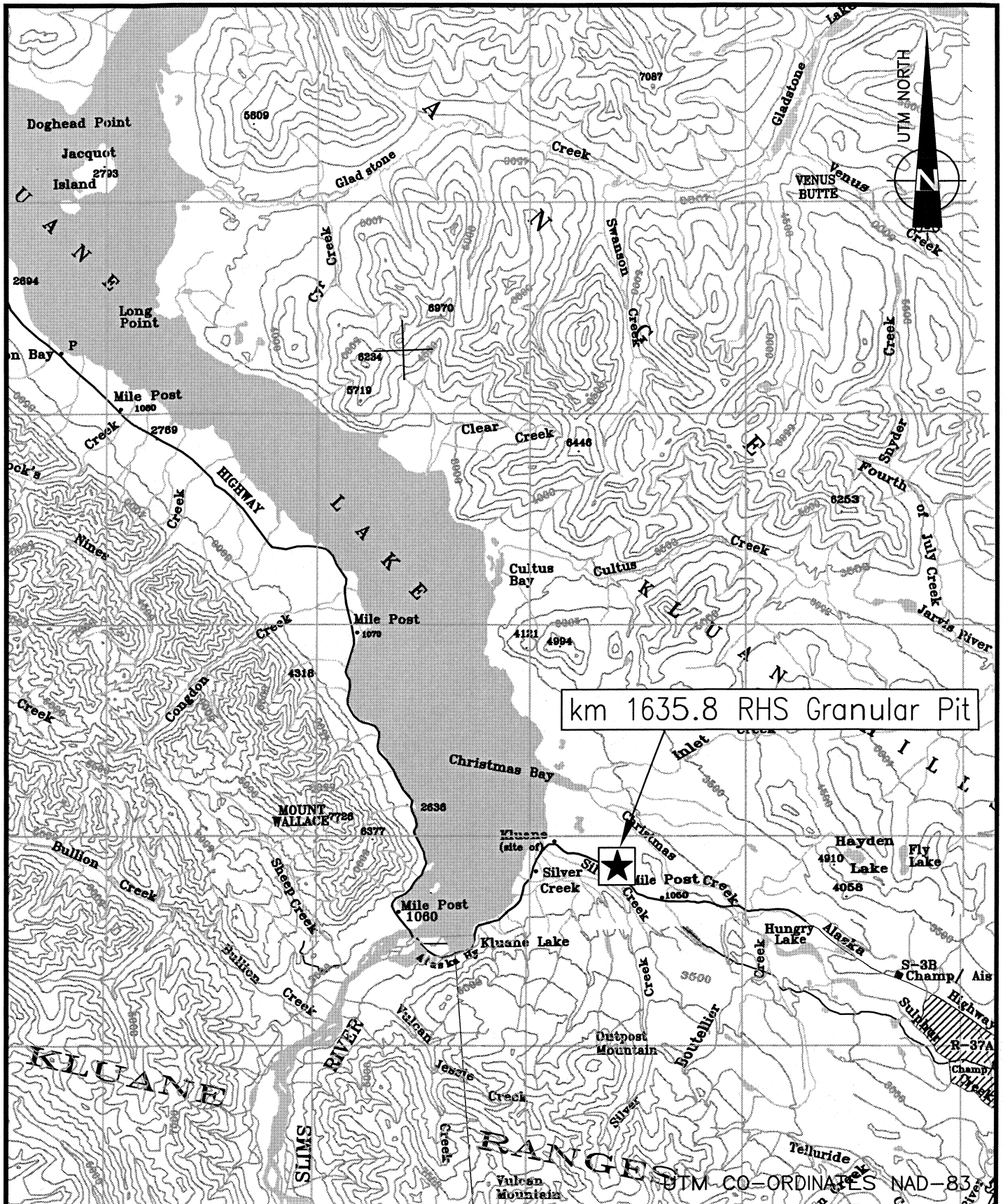
File Number --- 2550-22/01-24 Contractor --- North American Roads (Nuway)  
 Stockpile ID --- 2001-28 Commenced --- 01-07-26 Completed --- 01-08-01  
 Type of aggregate --- 20 mm B.S.T. Aggregate  
 Amount Produced ---  $\pm 10,900 \text{ m}^3$  No. of tests --- 38

-----  
 Sieve Size mm - 20.0 12.5 10.0 5.00 2.50 1.25 0.315 0.080  
 Percent Passing - 100 83.3 -- 41.4 28.3 20.4 9.0 4.4  
 Moisture Content - 1.5 % Standard Proctor  
 Fracture - 61.6 % Kg/m<sup>3</sup> @ % moisture  
 =====

File Number --- 2550-22/01-24 Contractor --- North American Roads (Nuway)  
 Stockpile ID --- 2001-29 Commenced --- 01-10-10 Completed --- 02-06-01  
 Type of aggregate --- Granular "A" Base Course  
 Amount Produced ---  $\pm 37,200 \text{ m}^3$  No. of tests --- 144

-----  
 Sieve Size mm - 20.0 12.5 10.0 5.00 2.50 1.25 0.315 0.080  
 Percent Passing - 100 83.0 -- 48.0 -- 24.6 10.2 4.9  
 Moisture Content - 2.2 % Standard Proctor  
 Fracture - 66.1 % Kg/m<sup>3</sup> @ % moisture

\*\* 18,200 m<sup>3</sup> produced in Fall 2001; 19,000 m<sup>3</sup> produced in spring 2002  
 =====



km 1635.8 RHS Granular Pit

**Yukon**

Highways and Public Works

Transportation Engineering Branch

KEY PLAN  
 GRANULAR PIT  
 km 1635.8 RHS  
 (Silver City)

ALASKA HWY. YUKON

pit file:	115 G-07
quad:	115G/01
drawn:	JJM
date:	2006-02-01
scale:	1: 250,000
drwg:	115g-07K

DTM COORDINATES NAD-83



GRAVEL RESERVE  
(170.66 ha)

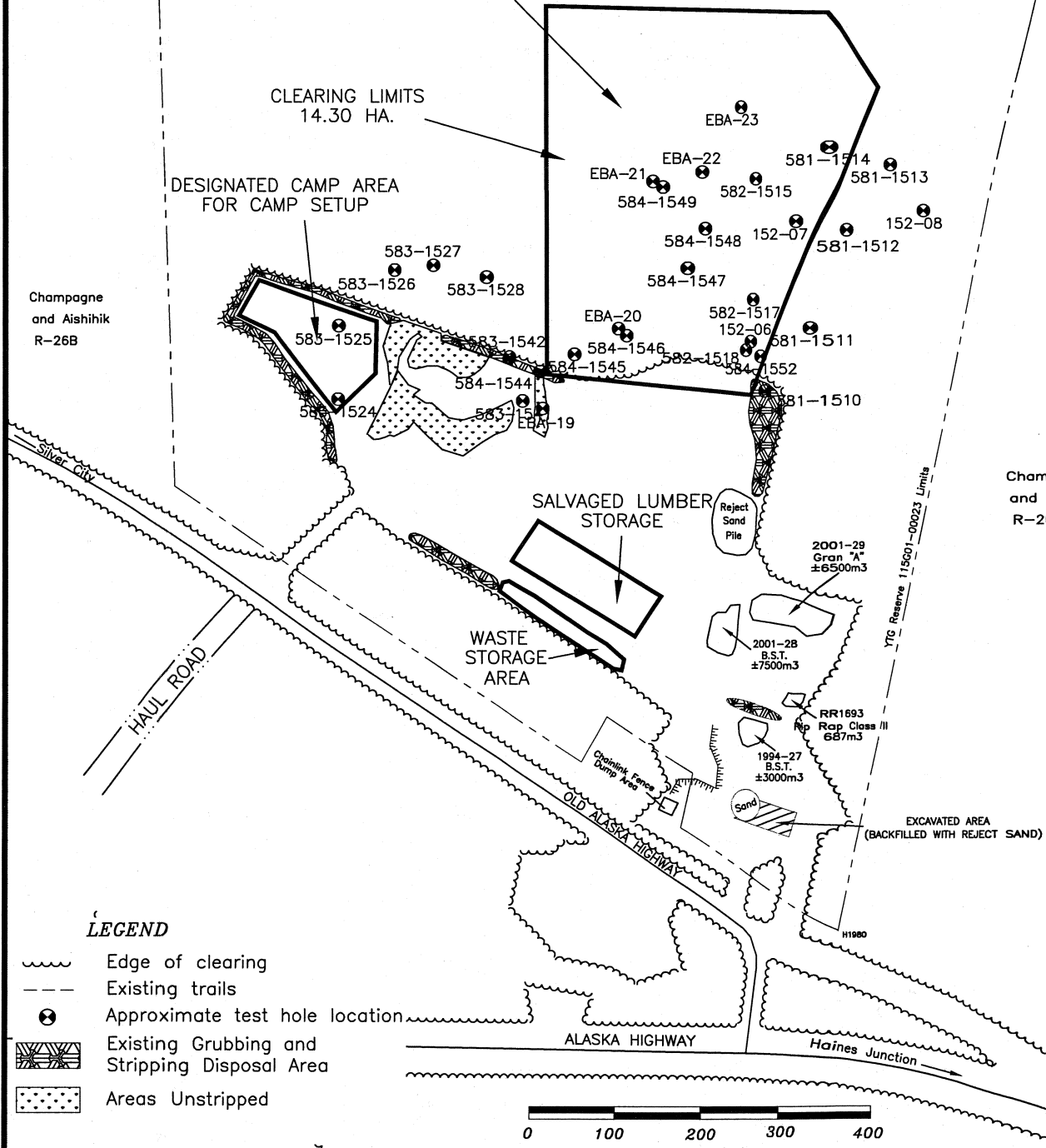
PROPOSED PIT DEVELOPMENT AREA  
2006-2007 (15 ha).  
PIT DEVELOPMENT TO FOLLOW ESKER RIDGES.

CLEARING LIMITS  
14.30 HA.

DESIGNATED CAMP AREA  
FOR CAMP SETUP

Champagne  
and Aishihik  
R-26B

Champagne  
and Aishihik  
R-26B



LEGEND

- Edge of clearing
- Existing trails
- Approximate test hole location
- Existing Grubbing and Stripping Disposal Area
- Areas Unstripped

**Yukon**  
Highways and Public Works

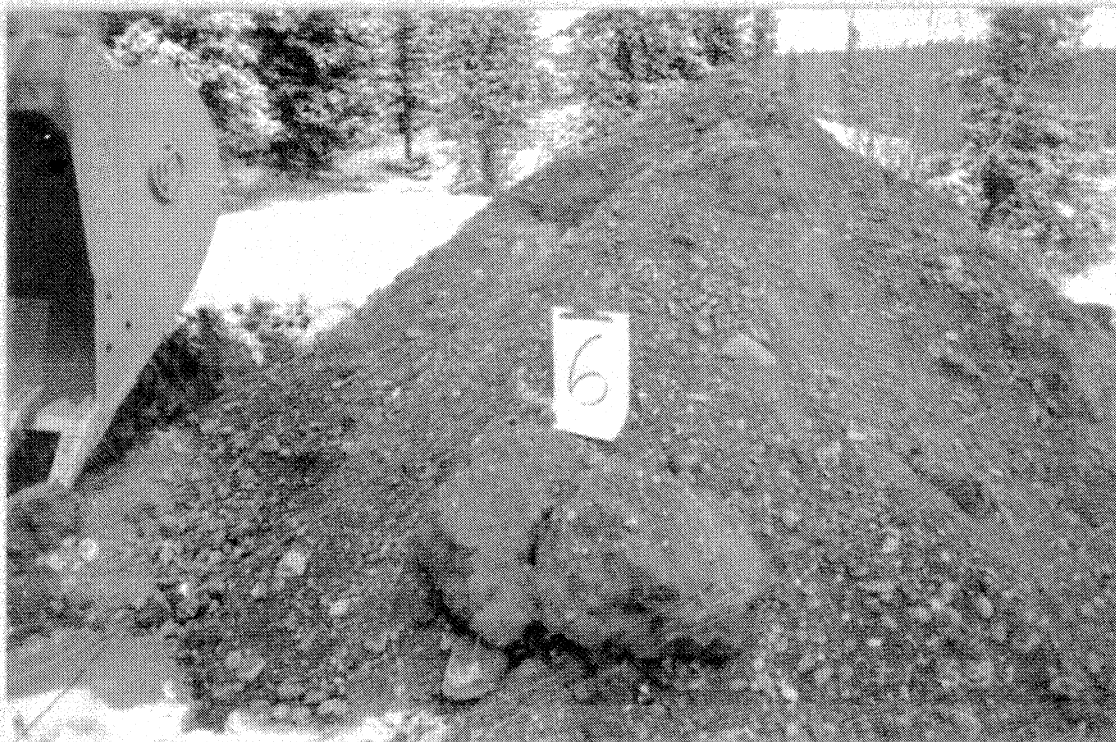
Transportation Engineering Branch

SITE PLAN  
GRANULAR PIT  
Km 1635.8 RHS  
(Silver City)  
ALASKA HWY. YUKON

pit file:	115 G-07
revision:	2006-Proposed
drawn:	JJM
date:	2006-04-27
scale:	1:7500
drwg:	115g-07S



HOLE 05



HOLE 06

1156-07

KM 1693 PARAS

9-11-07



ADOLE 07



ADOLE 08

km 1693 R.H.S.



TP 92-019E

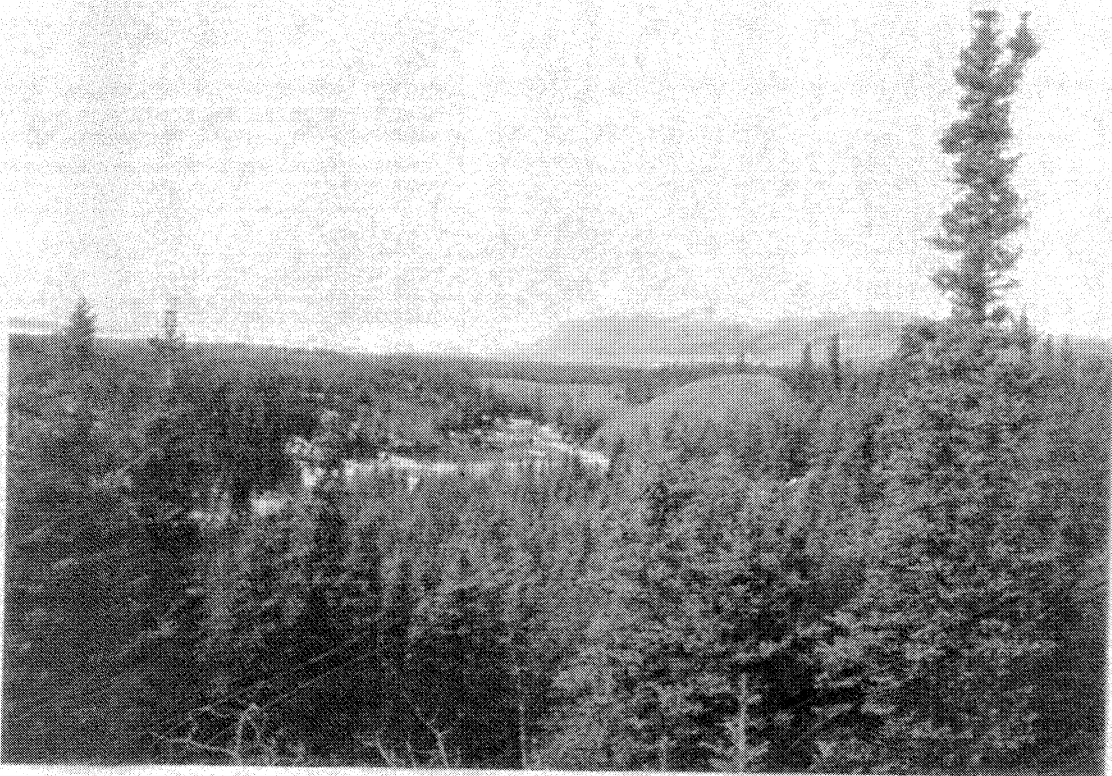


TP 92-020E

km 1693 R.H.S.



TP 92-023E



ESKER COMPLEX CONTINUING NORTH TOWARDS KLUANE LAKE

**GRANULAR INVESTIGATION**

**Km 1693.0 RHS Alaska Highway #1**

**Pit Ident. 115 G-07**

**March 2001**

**TEST PIT # 583-1523**



**TEST PIT # 583-1524**



**GRANULAR INVESTIGATION**

**Km 1693.0 RHS Alaska Highway #1**

**Pit Ident. 115 G-07**

**March 2001**

**TEST PIT # 583-1525**



**TEST PIT # 583-1526**



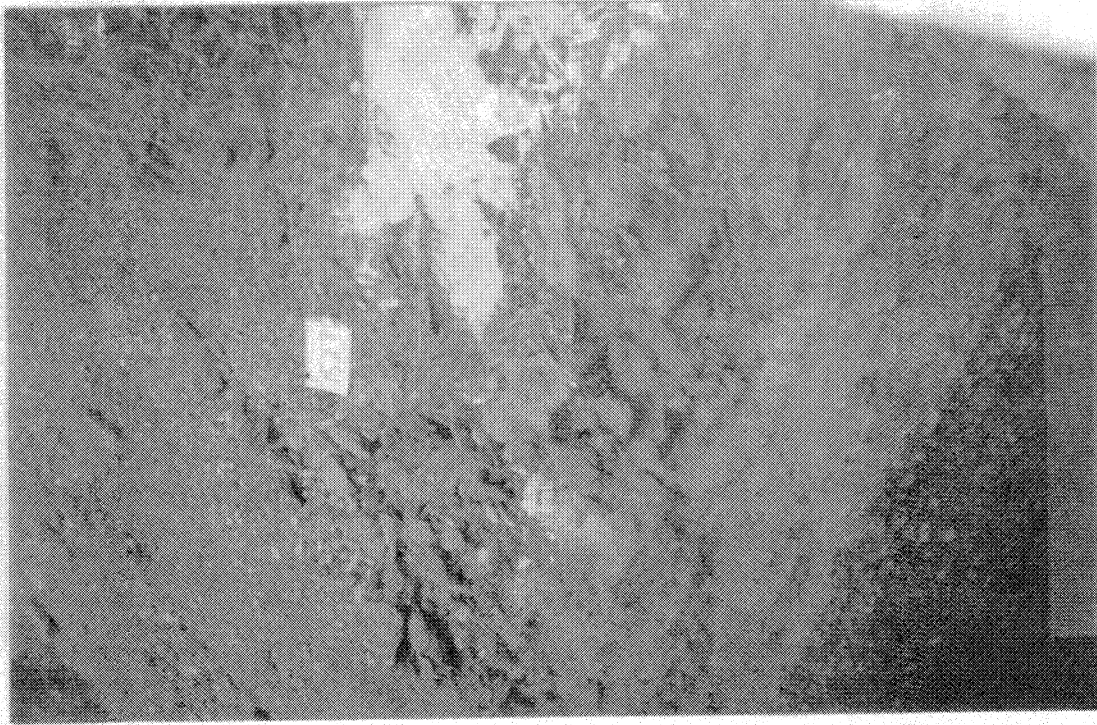
# GRANULAR INVESTIGATION

Km 1693.0 RHS Alaska Highway #1

Pit Ident. 115 G-07

March 2001

TEST PIT # 583-1527



TEST PIT # 583-1530



# GRANULAR INVESTIGATION

Km 1693.0 RHS Alaska Highway #1

Pit Ident. 115 G-07

March 2001

TEST PIT # 583-1541



TEST PIT # 583-1542



**GRANULAR INVESTIGATION**

Km 1693.0 RHS Alaska Highway #1

Pit Ident. 115 G-07

March 2001

TEST PIT # 584-1546



TEST PIT # 584-1547



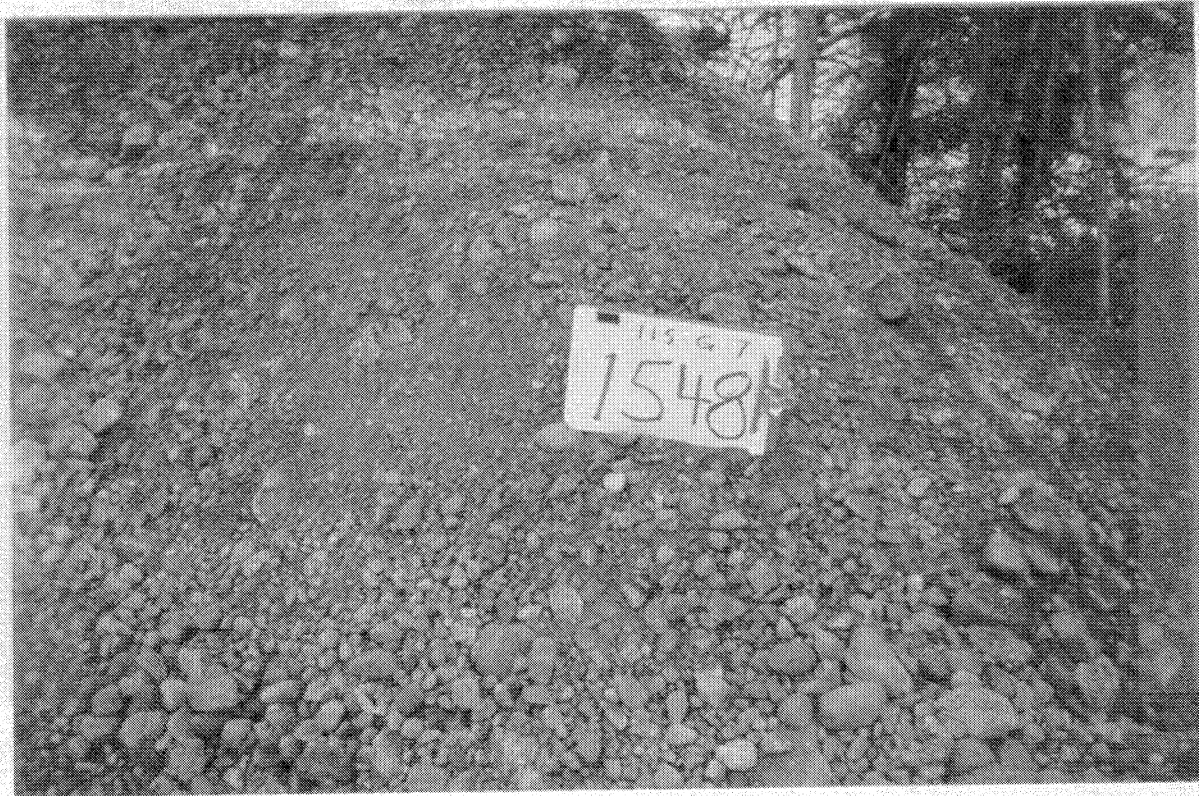
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Km 1693.0 RHS Alaska Highway #1

Pit Ident. 115 G-07

March 2001

TEST PIT # 584-1548



TEST PIT # 584-1549



# GRANULAR INVESTIGATION

Km 1693.0 RHS Alaska Highway #1

Pit Ident. 115 G-07

March 2001

TEST PIT # 584-1552



TEST PIT # 584-1552



Pit Ident. 115 G-07  
Km 1635.8 RHS Alaska Highway #1  
(Silver City)

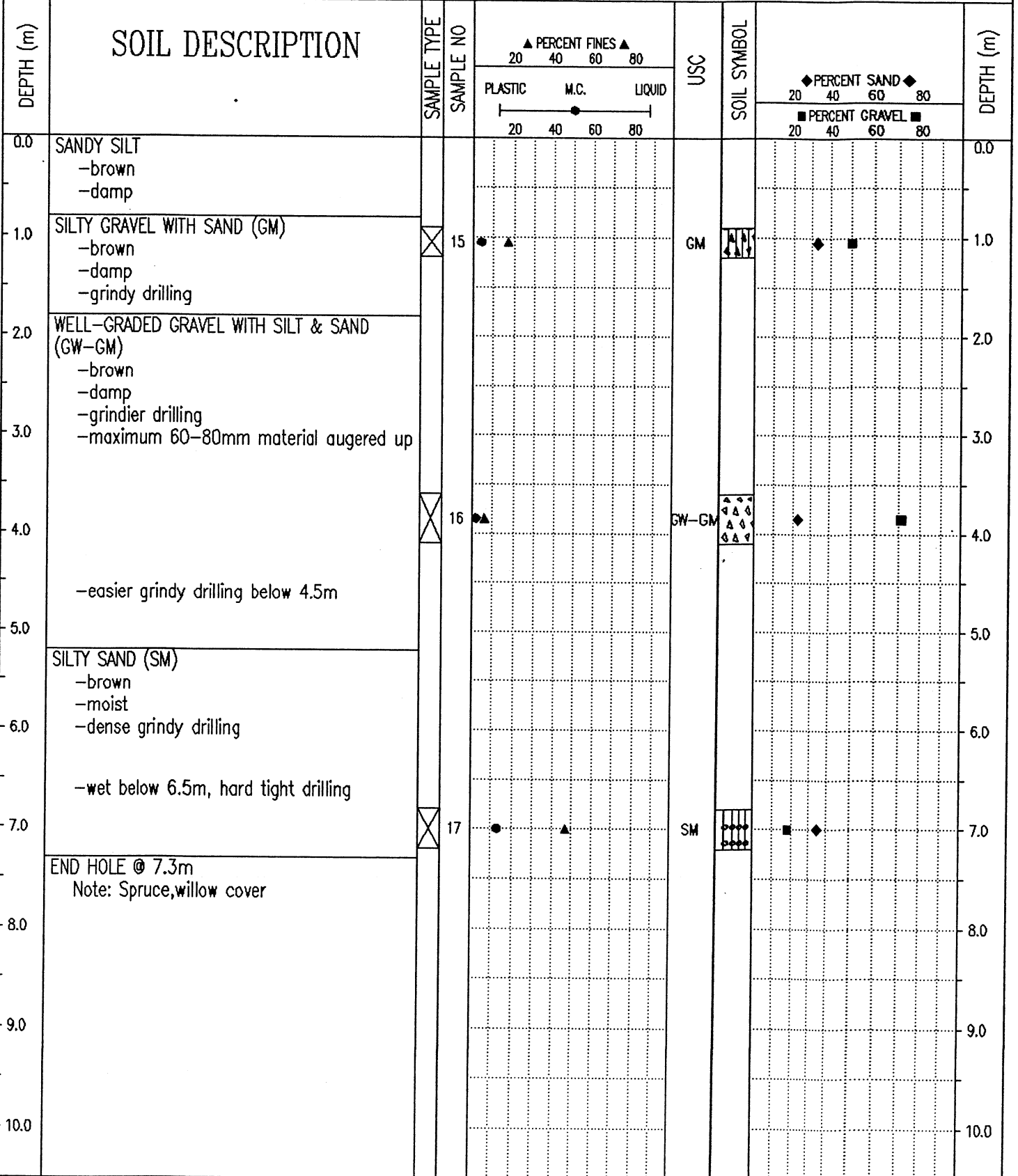
February 2001  
Book # 581 & 582

Yukon Territorial Government

Auger Hole Logs

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST HOLE NO: 581-1510
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
D-4 CAT B40 L	LOCATION : SEE PLAN / GPS	ELEVATION: 0.00 (m)

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



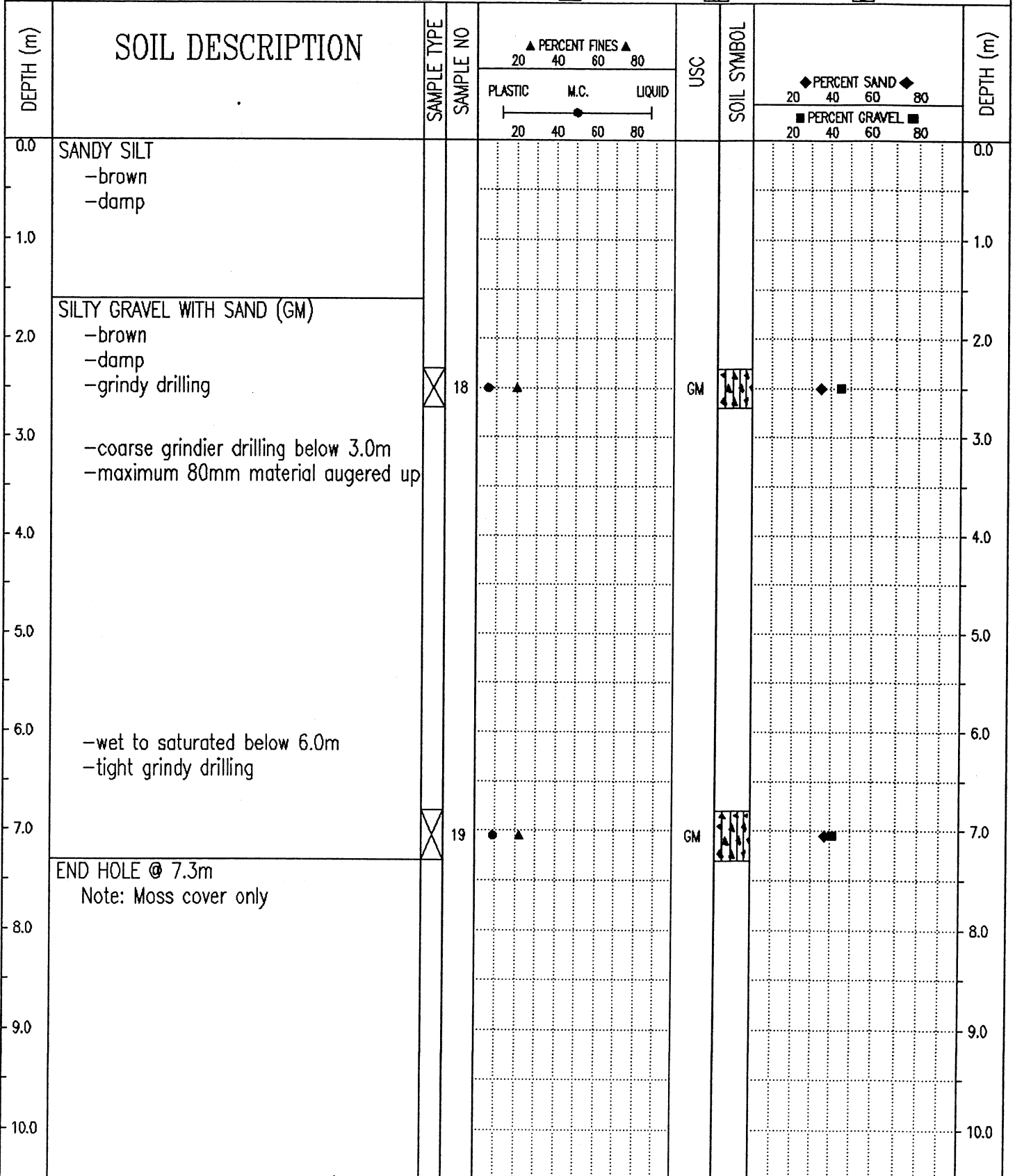
Government of Yukon  
Transportation Engineering

LOGGED BY: JM  
REVIEWED BY:  
Fig. No: 115-G-07

COMPLETION DEPTH: 7.3 m  
COMPLETE: 01/02/21

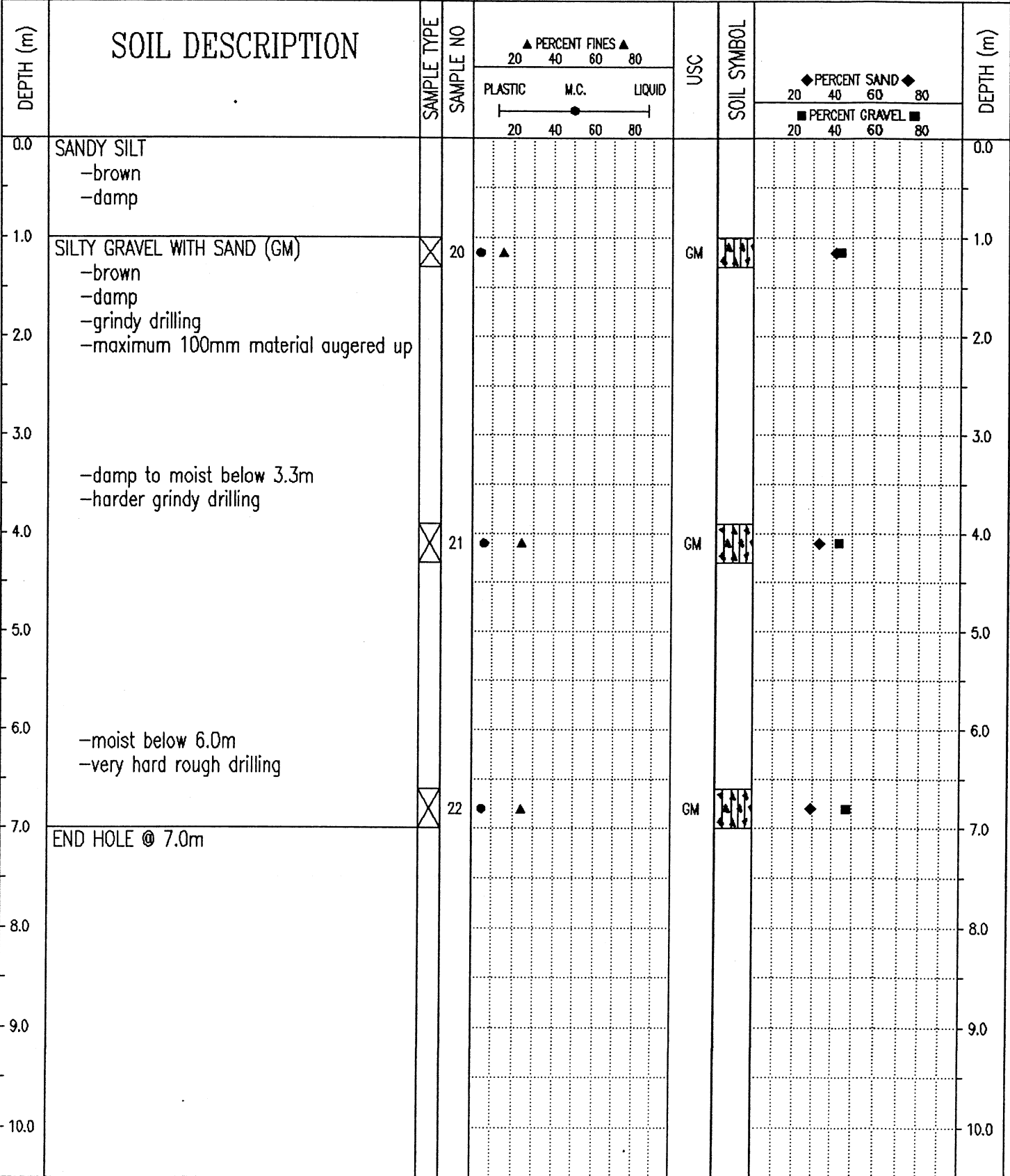
Page 1 of 1

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST HOLE NO: 581-1511
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
D-4 CAT B40 L	LOCATION : SEE PLAN / GPS	ELEVATION: 0.00 (m)
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	<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE
		<input type="checkbox"/> CORE

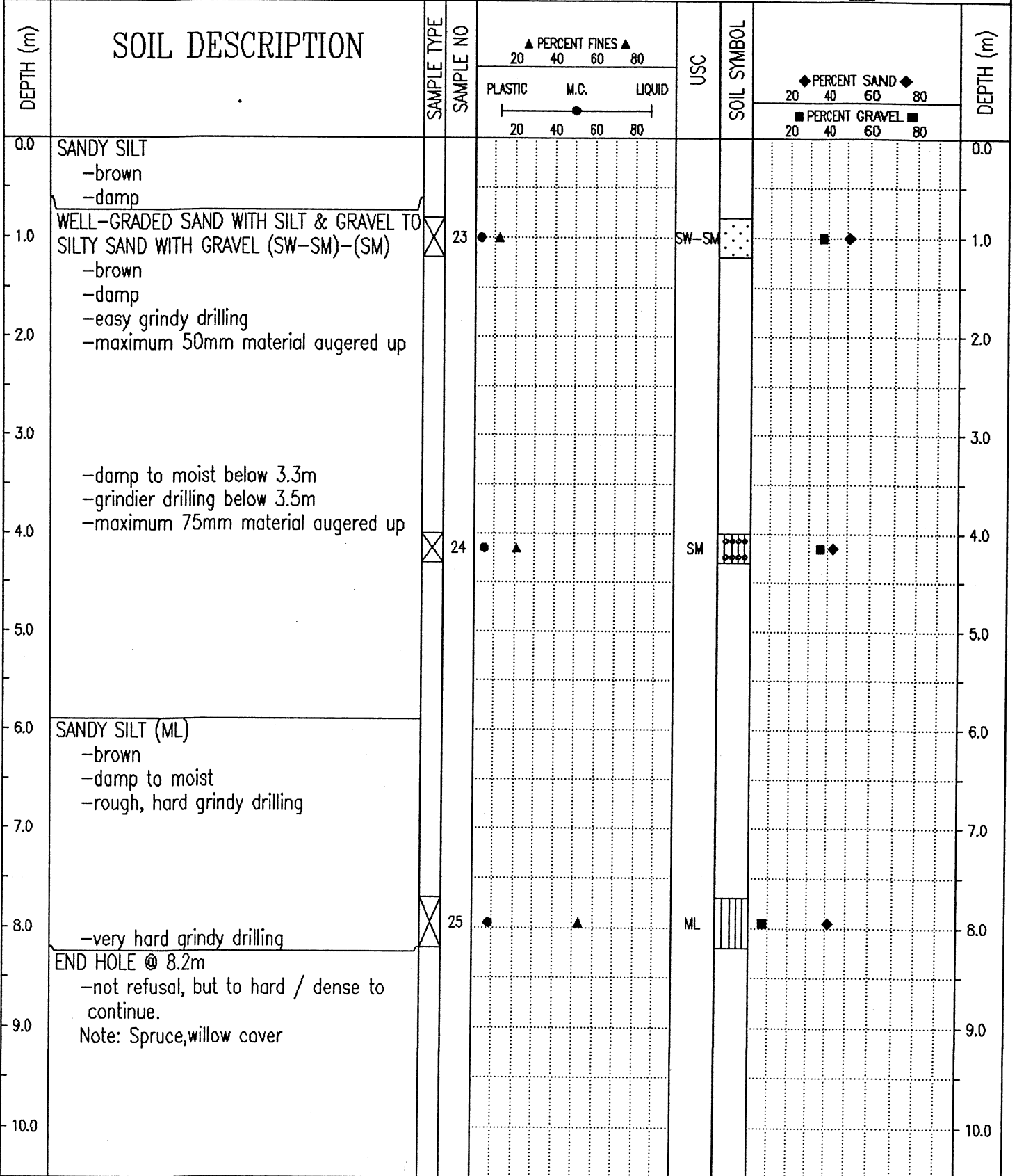


Government of Yukon Transportation Engineering	LOGGED BY: JM	COMPLETION DEPTH: 7.3 m
	REVIEWED BY:	COMPLETE: 01/02/21
	Fig. No: 115-G-07	Page 1 of 1

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



SUBSURFACE EXPLORATION & TESTING REPORT		SHAKWAK SEG 9 KM 1694 A/H	TEST HOLE NO: 581-1513
ENGINEERING CAPITAL		SILVER CREEK RESERVE	Project No: 092-202101-0363
D-4 CAT B40 L		LOCATION : SEE PLAN / GPS	ELEVATION: 0.00 (m)
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		<input type="checkbox"/> BULK	<input type="checkbox"/> TUBE
			<input type="checkbox"/> CORE



Government of Yukon  
Transportation Engineering

LOGGED BY: JM

REVIEWED BY:

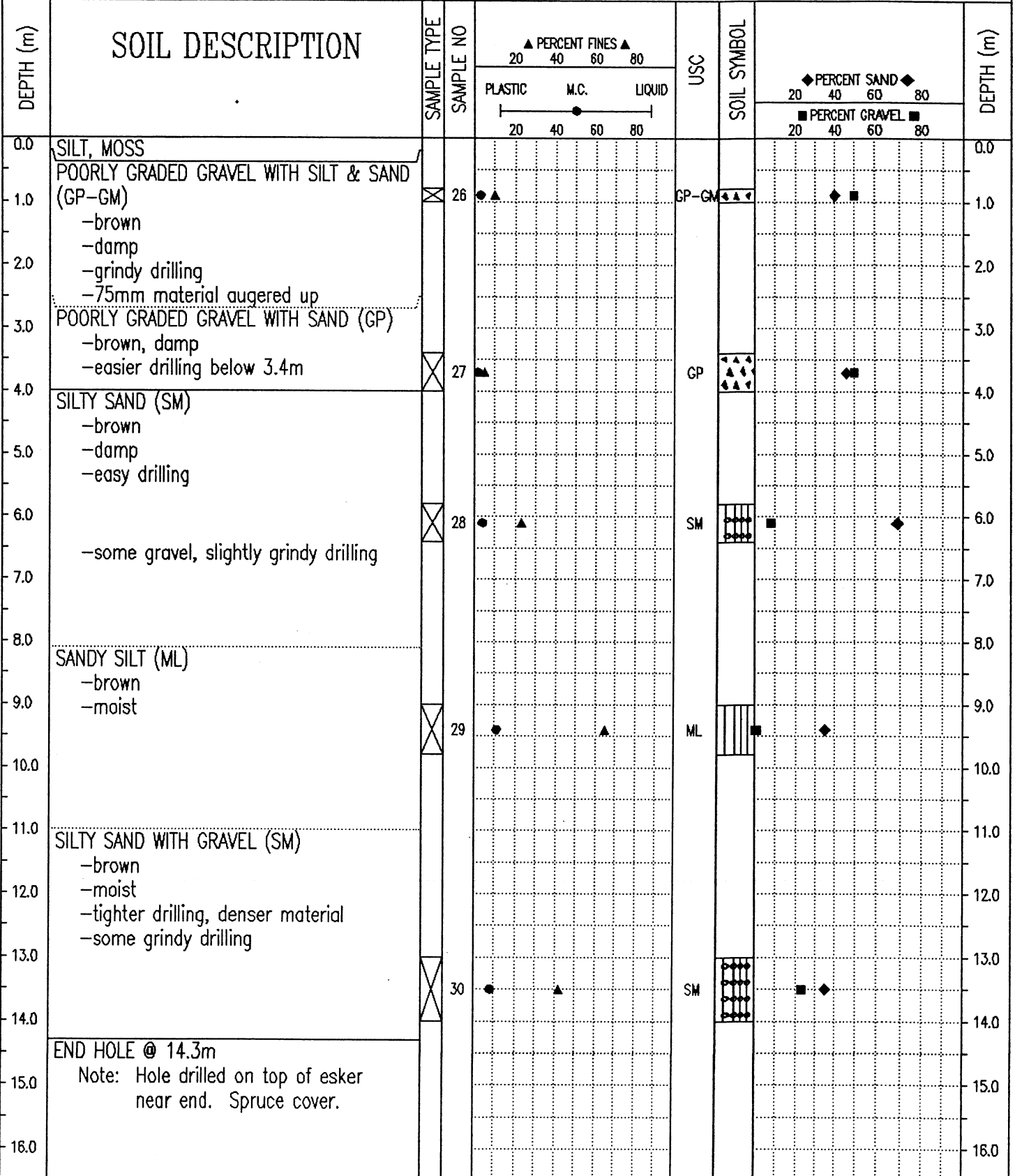
Fig. No: 115-G-07

COMPLETION DEPTH: 8.2 m

COMPLETE: 01/02/21

Page 1 of 1

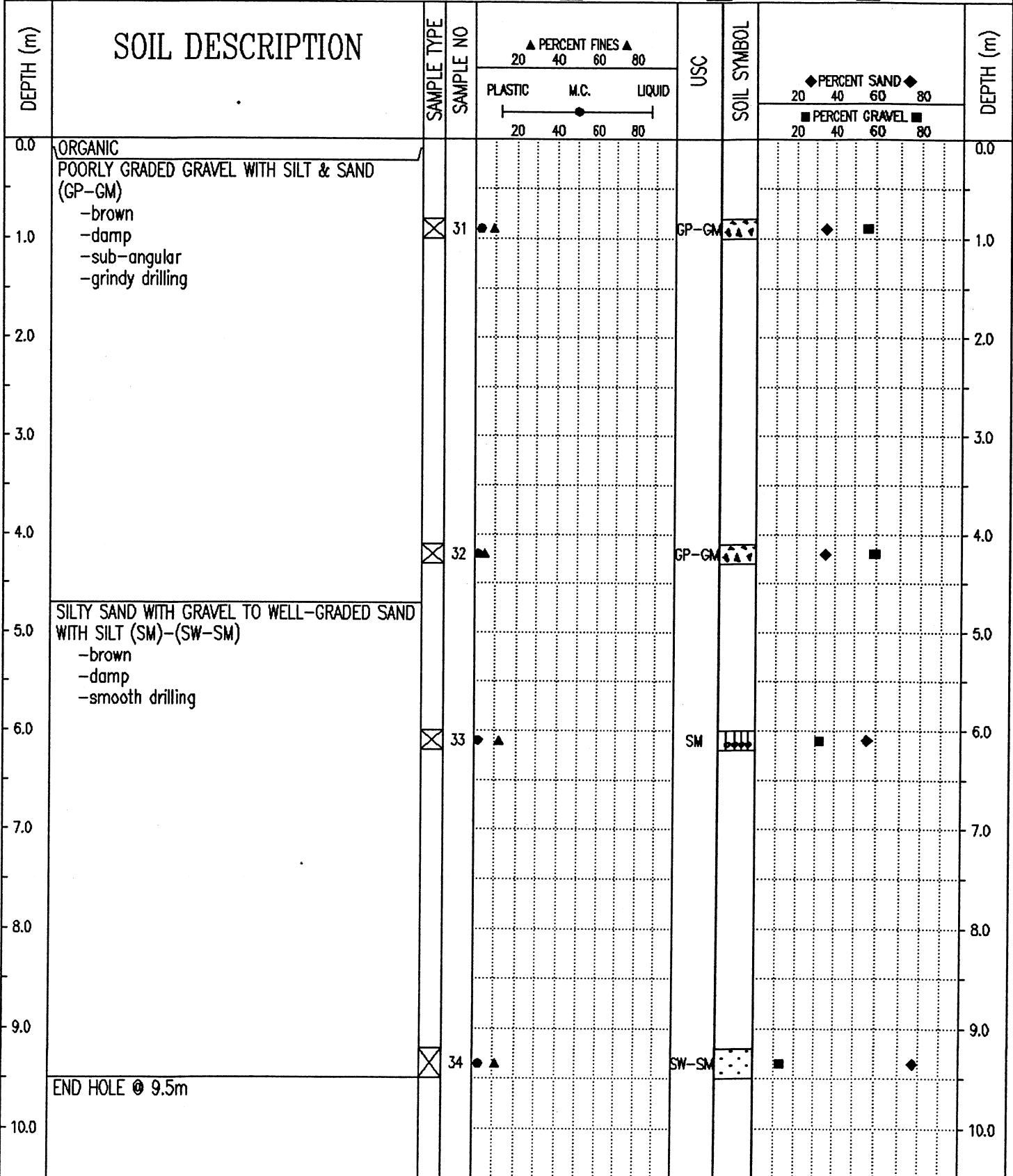
SAMPLE TYPE  RETURN     S.P.T.     AUGER     BULK     TUBE     CORE



Government of Yukon  
Transportation Engineering

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REVIEWED BY:	COMPLETE: 01/02/21
Fig. No: 115-G-07	Page 1 of 1

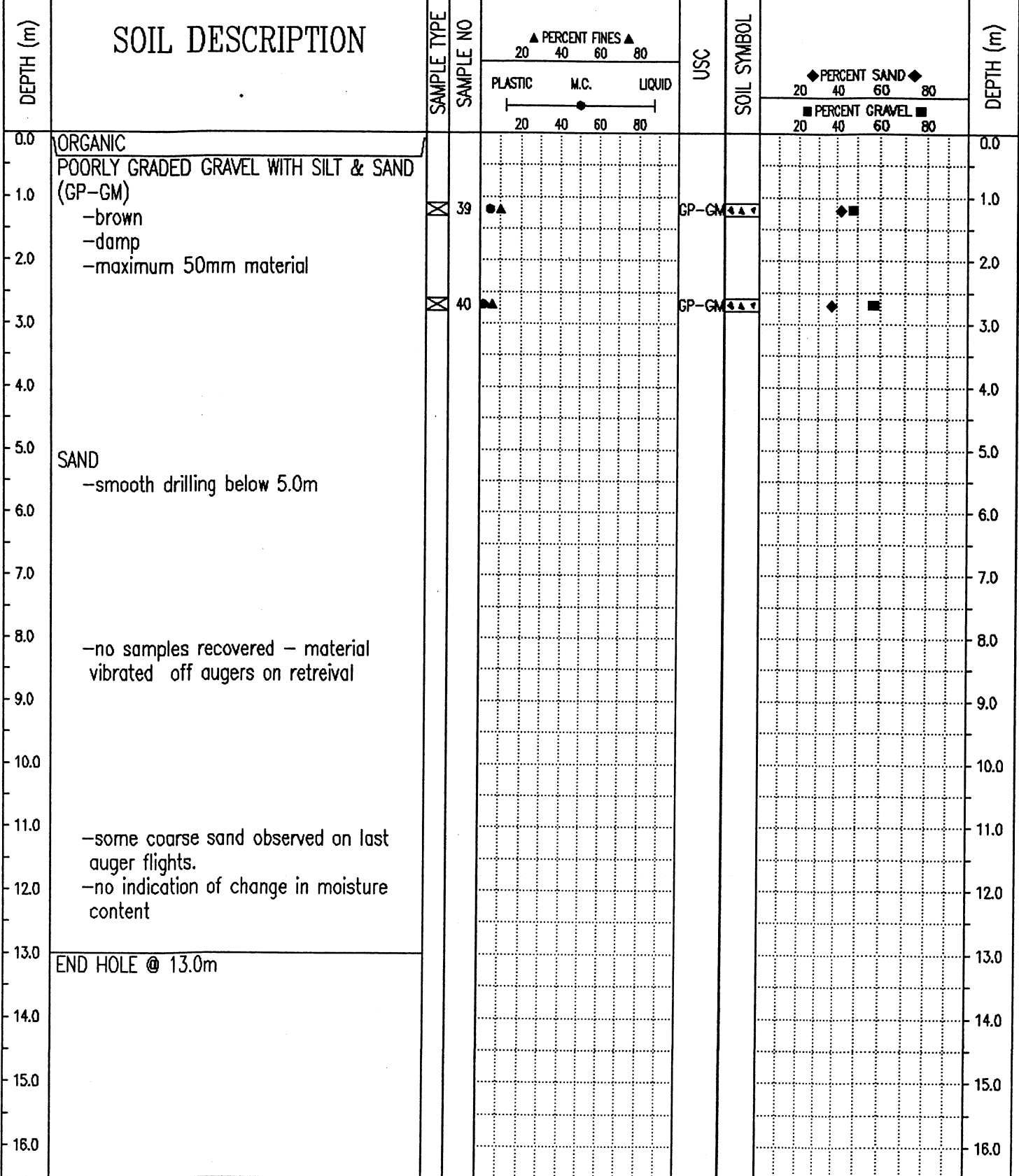
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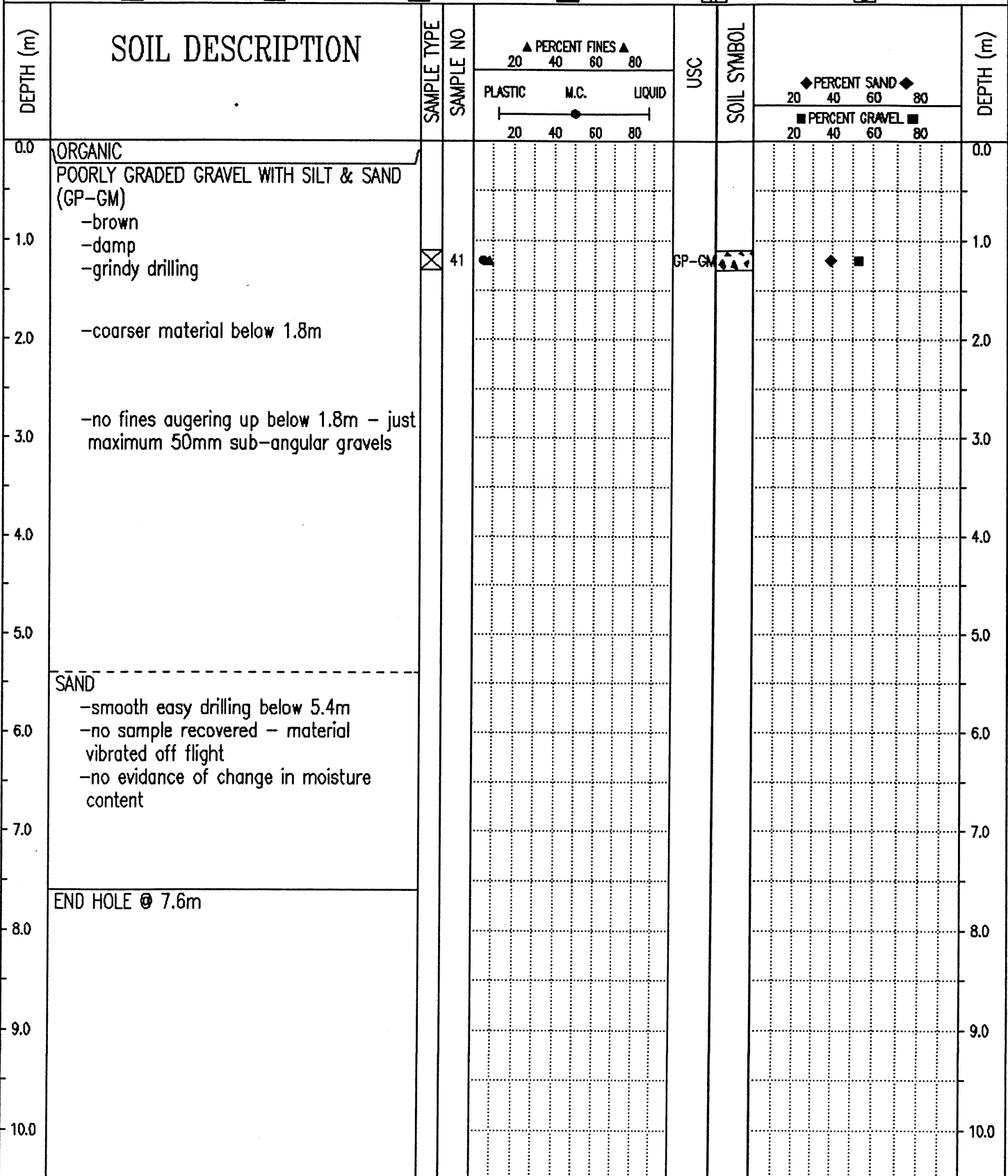
Government of Yukon  
Transportation Engineering

LOGGED BY: D.T.	COMPLETION DEPTH: 9.5 m
REVIEWED BY:	COMPLETE: 01/02/28
Fig. No: 115-G-07	Page 1 of 1

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



SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST HOLE NO: 582-1518
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
D-4 CAT B40 L	LOCATION : SEE PLAN / GPS	ELEVATION: 0.00 (m)
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		<input type="checkbox"/> BULK
		<input type="checkbox"/> TUBE
		<input type="checkbox"/> CORE



Government of Yukon  
Transportation Engineering

LOGGED BY: D.T.	COMPLETION DEPTH: 7.6 m
REVIEWED BY:	COMPLETE: 01/02/28
Fig. No: 115-G-07	Page 1 of 1

Pit Ident. 115 G-07  
Km 1635.8 RHS Alaska Highway #1  
(Silver City)

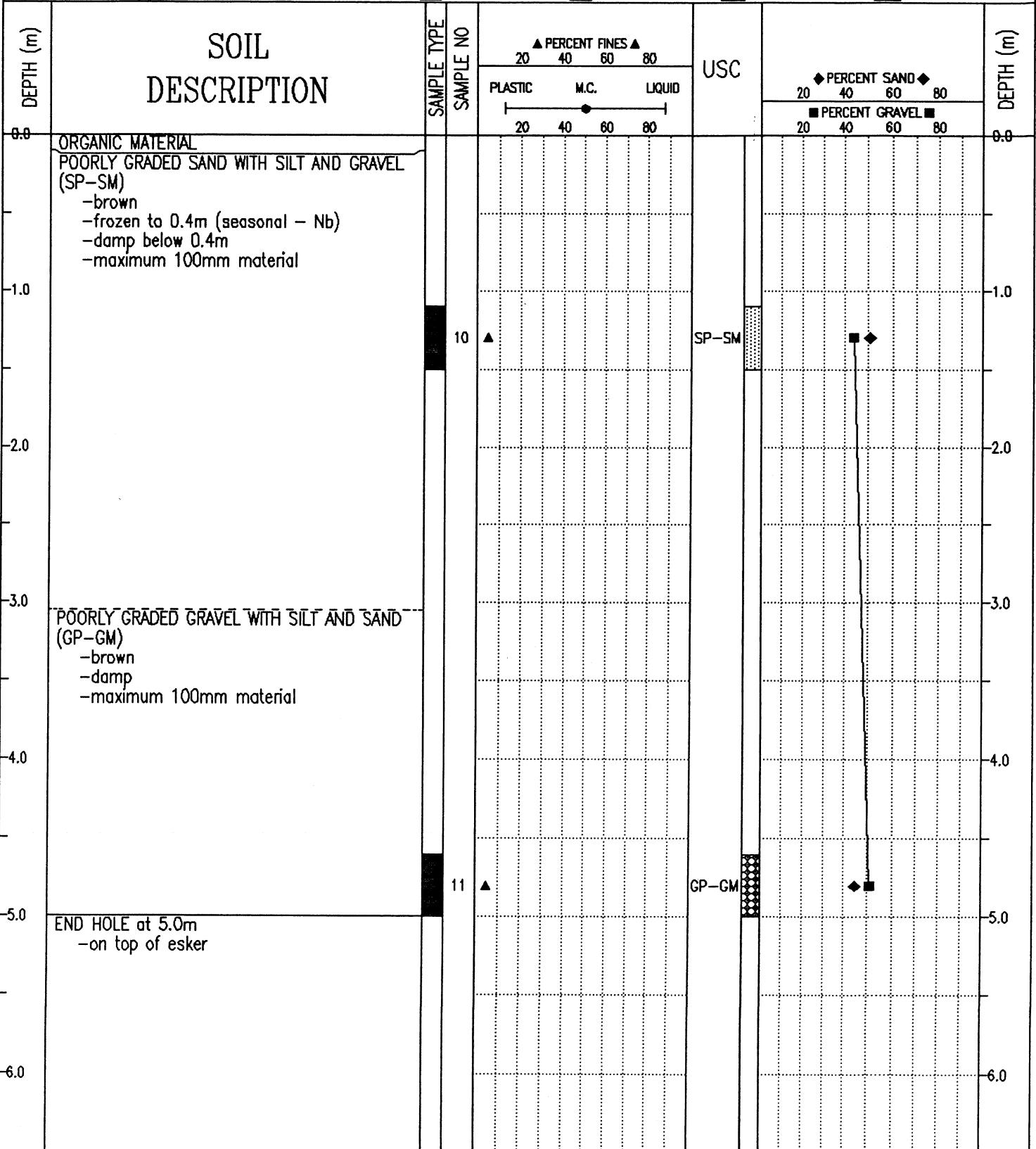
November 1991  
Book # 152

Yukon Territorial Government

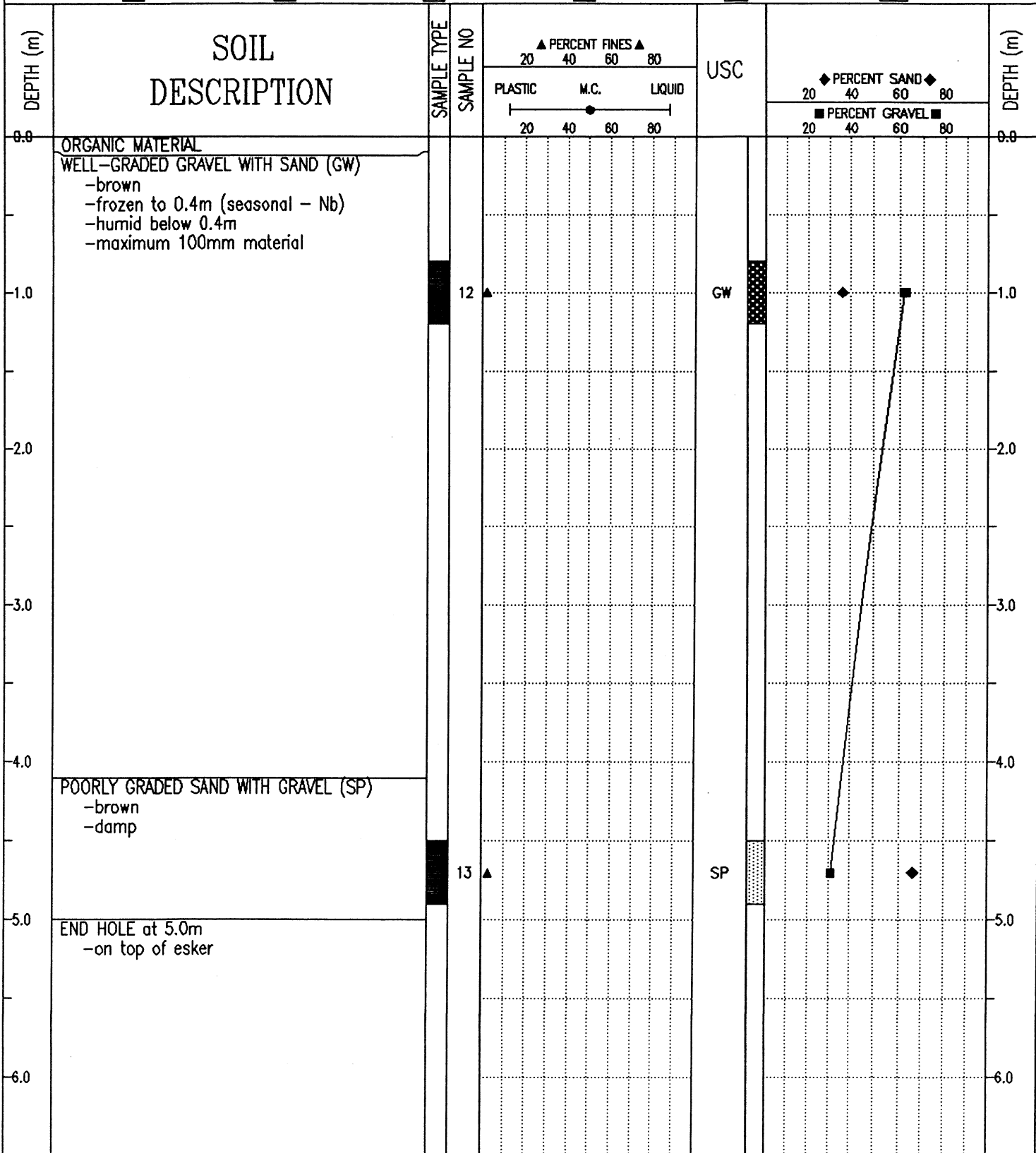
Test Pit Logs

SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY GRANULAR INVESTIGATION	BOREHOLE No. 152-06
PWC/O&M YUKON	A/H KM 1692 RHS	Project No: 859167
BACKHOE: CASE 688	LOCATION: See Plan	ELEVATION 0.000 (m)

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



SUBSURFACE EXPLORATION AND TEST REPORT	ALASKA HIGHWAY GRANULAR INVESTIGATION	BOREHOLE No. 152-07
PWC/O&M YUKON	A/H KM 1692 RHS	Project No: 859167
BACKHOE: CASE 688	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		

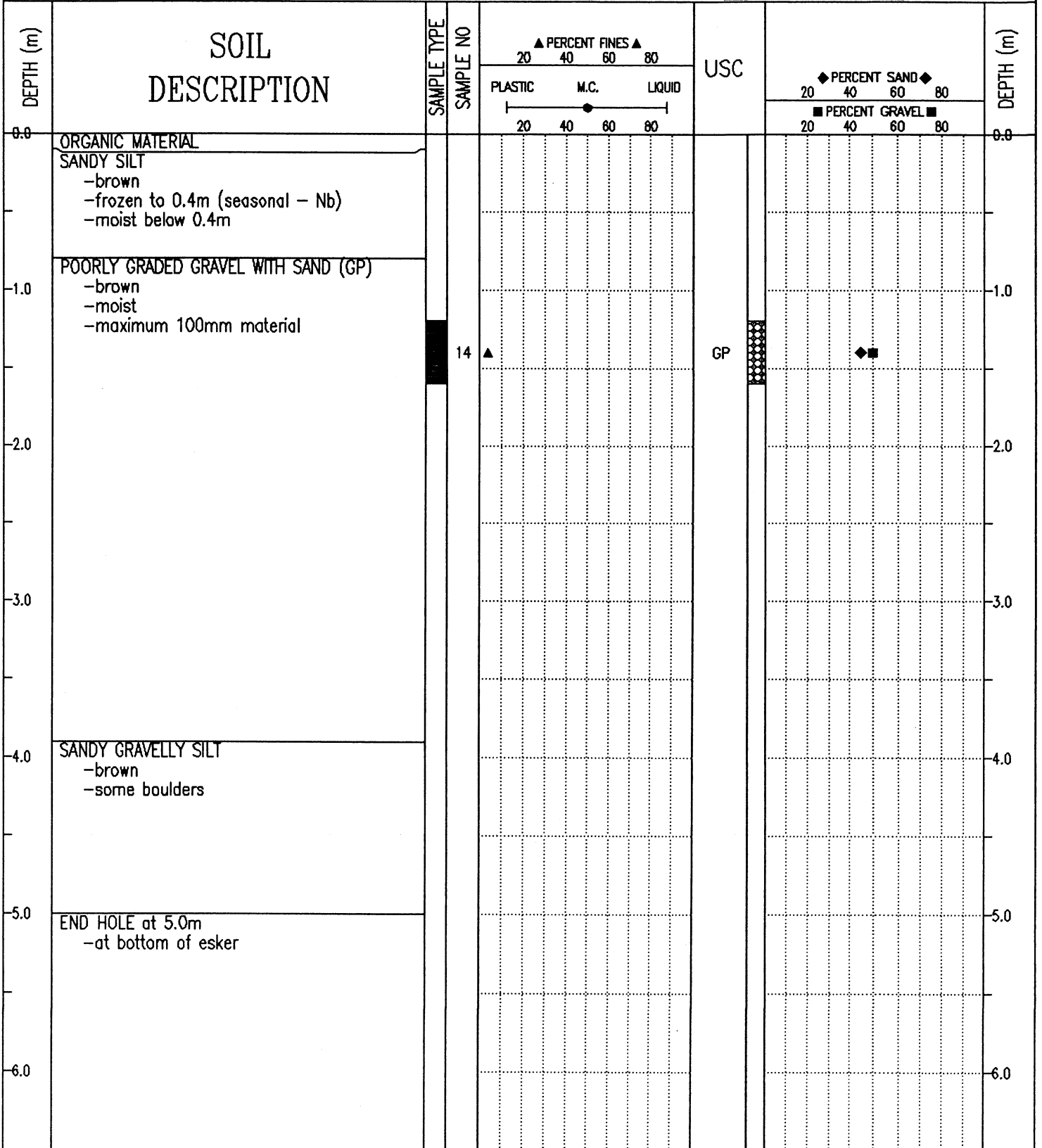


SUBSURFACE EXPLORATION AND TEST REPORT ALASKA HIGHWAY GRANULAR INVESTIGATION BOREHOLE No. 152-08

PWC/O&M YUKON A/H KM 1692 RHS Project No: 859167

BACKHOE: CASE 688 LOCATION: See Plan ELEVATION 0.000 (m)

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



Public Works Canada  
Whitehorse, Yukon Territory.

COMPLETION DEPTH 5.0 m

COMPLETE 91/11/07

LOGGED BY DT

DWG NO.

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Pit Ident. 115 G-07  
Km 1635.8 RHS Alaska Highway #1  
(Silver City)

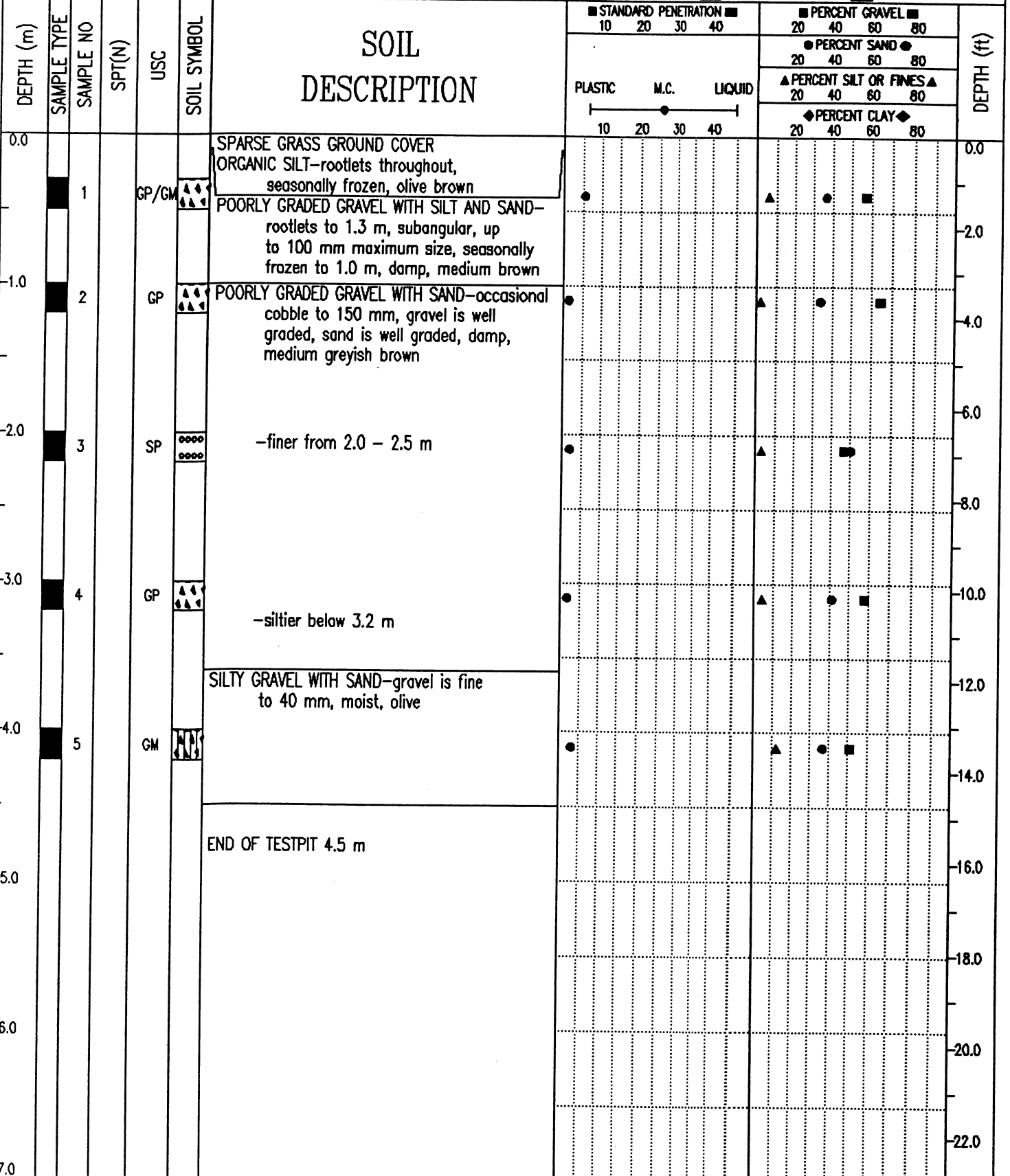
April 1992  
Report # GR-01-013

EBA Engineering Consultants Ltd.

Test Pit Logs

GRANULAR SOURCE EVALUATION km 1693	CLIENT: YTG - TRANSPORTATION ENG.	BOREHOLE No: 92-019E
SILVER CITY AREA	HOE: CAT 225 TRACKED BACKHOE	Project No: 0201-10922
NORTH ALASKA HIGHWAY	UTM ZONE: 7 N6768572.00 E644108.00	ELEVATION: 0.00 (m)

SAMPLE TYPE  GRAB SAMPLE  NO RECOVERY  STANDARD PEN.  75 mm SPOON  CRREL BARREL

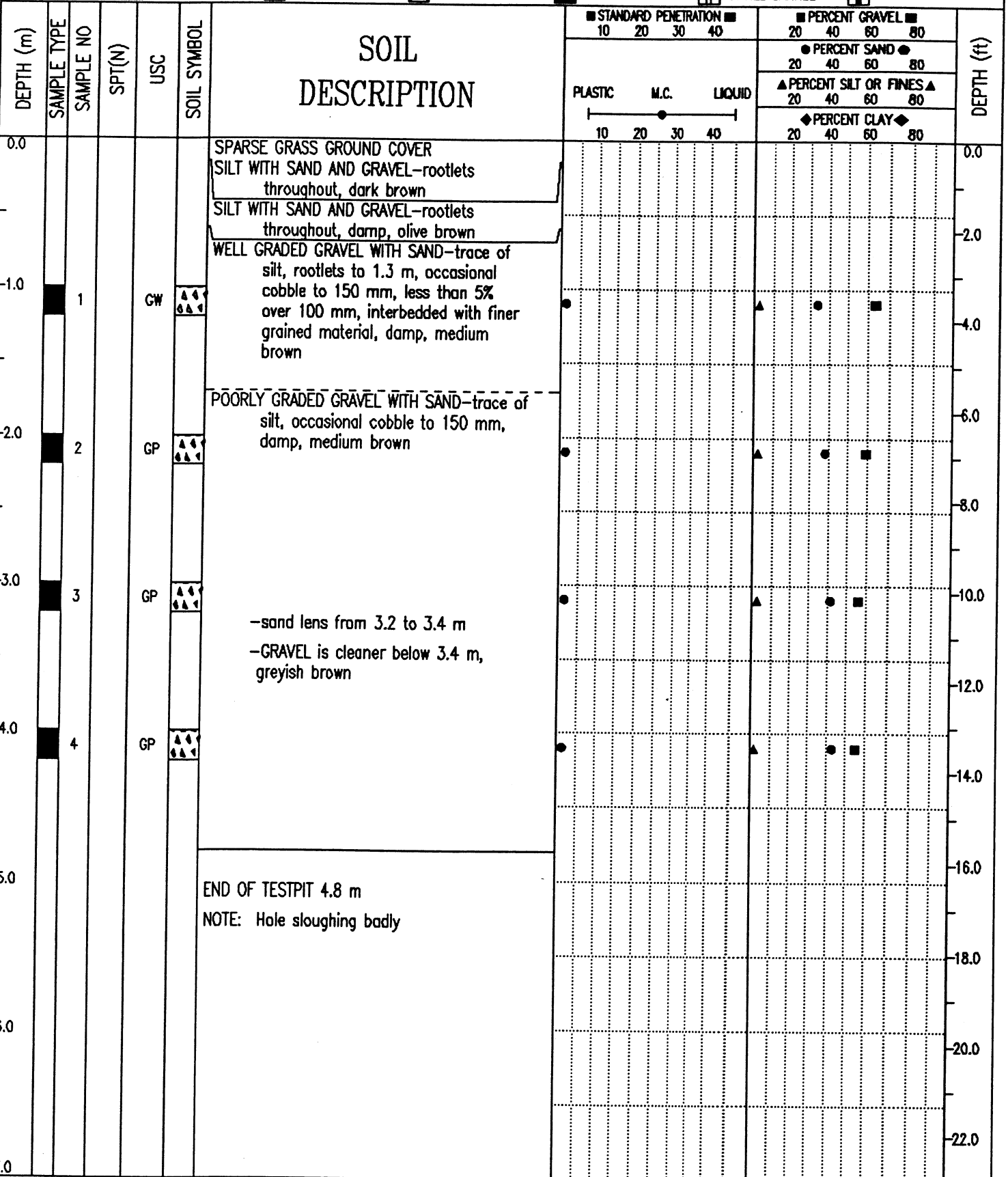


EBA Engineering Consultants Ltd.  
Whitehorse, Yukon

LOGGED BY: MCP  
REVIEWED BY:  
Fig. No:

COMPLETION DEPTH: 4.5 m  
COMPLETE: 92/04/22

GRANULAR SOURCE EVALUATION km 1693	CLIENT: YTG - TRANSPORTATION ENG.	BOREHOLE No: 92-023E
SILVER CITY AREA	HOE: CAT 225 TRACKED BACKHOE	Project No: 0201-10922
NORTH ALASKA HIGHWAY	UTM ZONE: 7 N6769148.00 E644316.00	ELEVATION: 0.00 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB SAMPLE <input checked="" type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN.	<input checked="" type="checkbox"/> 75 mm SPOON <input type="checkbox"/> CRREL BARREL



EBA Engineering Consultants Ltd.  
Whitehorse, Yukon

LOGGED BY: MCP  
REVIEWED BY:  
Fig. No:

COMPLETION DEPTH: 4.8 m  
COMPLETE: 92/04/22

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Pit Ident. 115 G-07  
Km 1635.8 RHS Alaska Highway #1  
(Silver City)

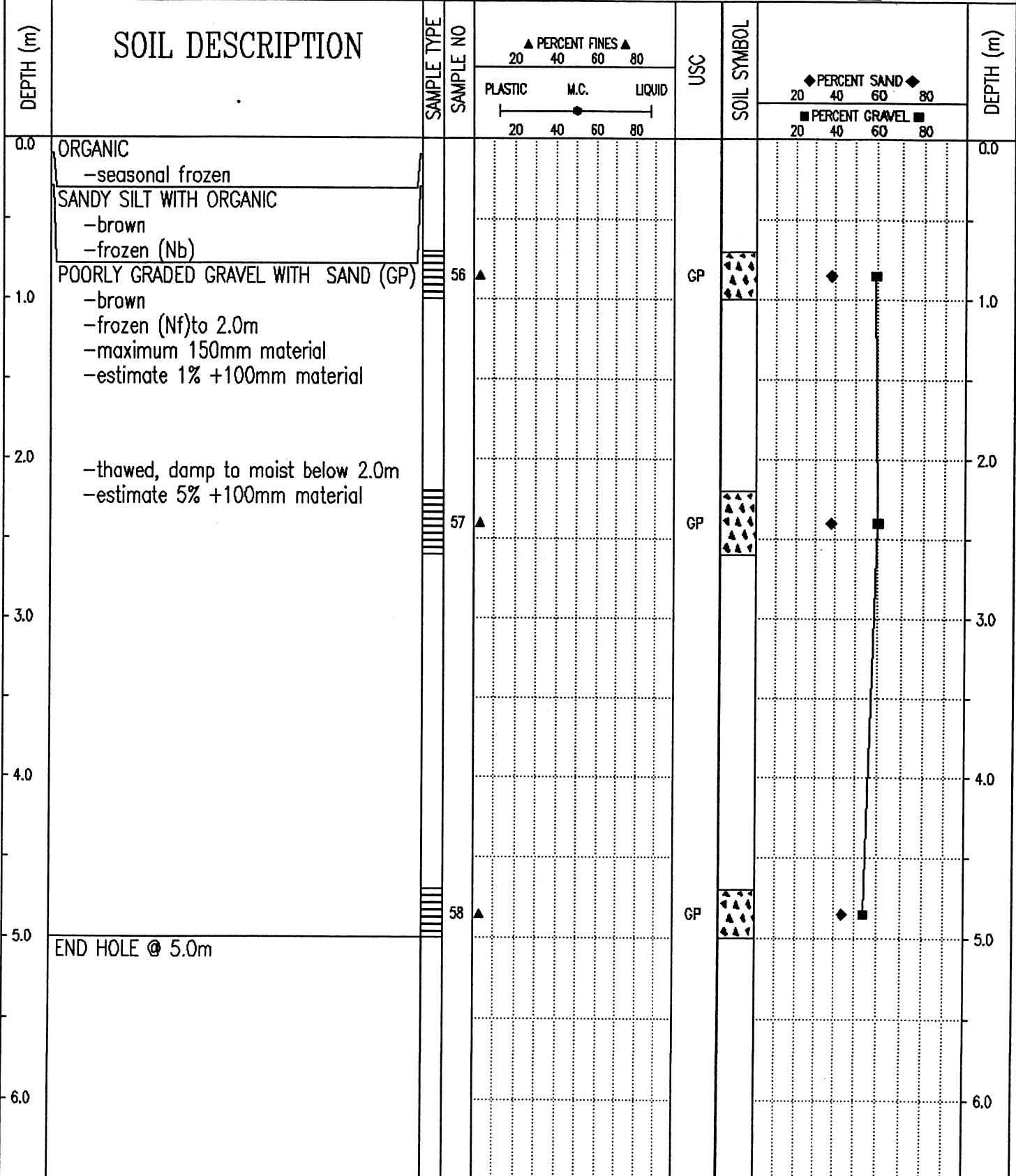
March 2001  
Book # 583 & 584

Yukon Territorial Government

Test Pit Logs

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 583-1524
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	ELEVATION: 0.00 (m)

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



Government of Yukon  
Transportation Engineering

LOGGED BY: D.T.

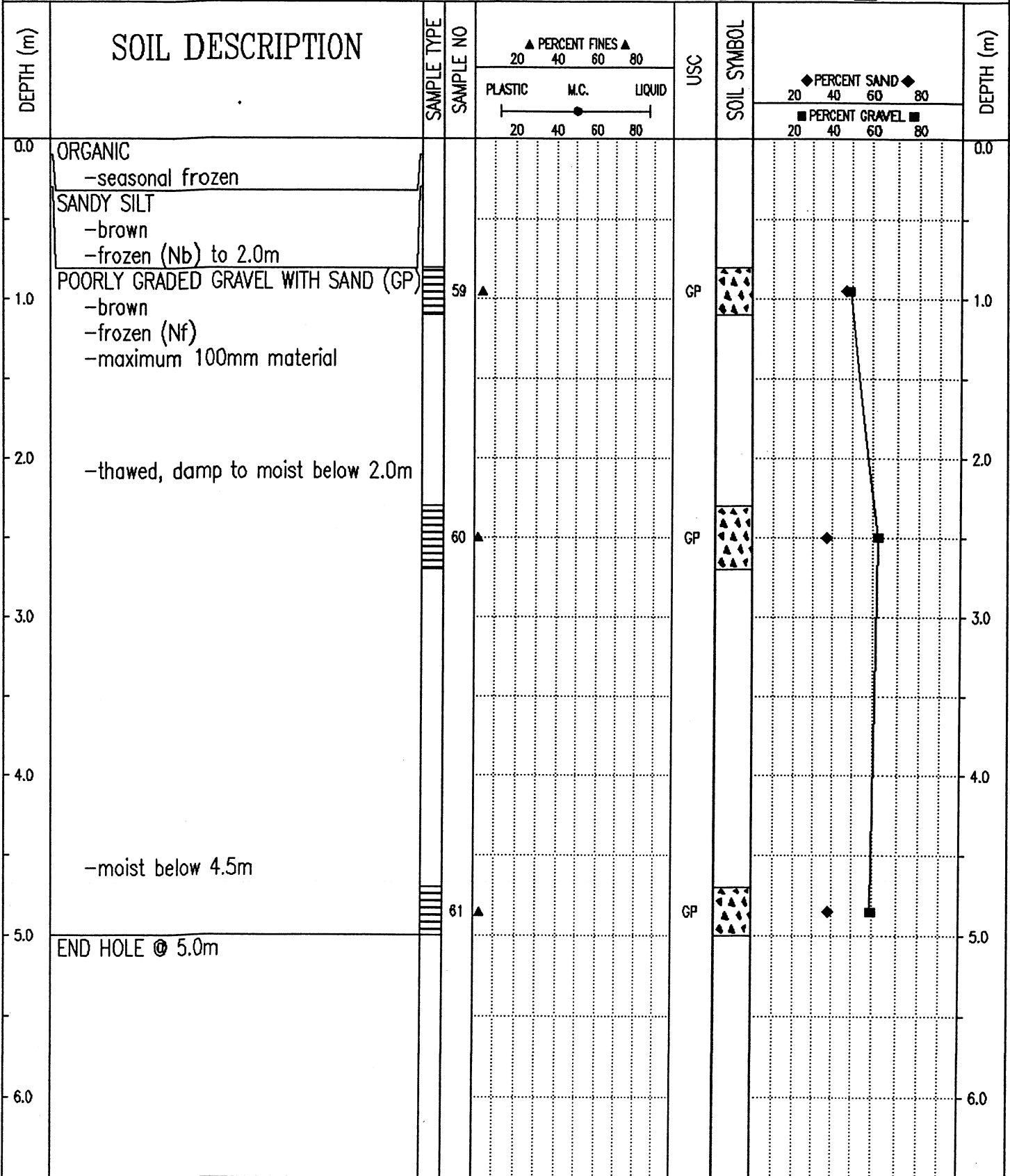
REVIEWED BY:

Fig. No: 115-G-07

COMPLETION DEPTH: 5.0 m

COMPLETE: 01/03/12

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 583-1525
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	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		



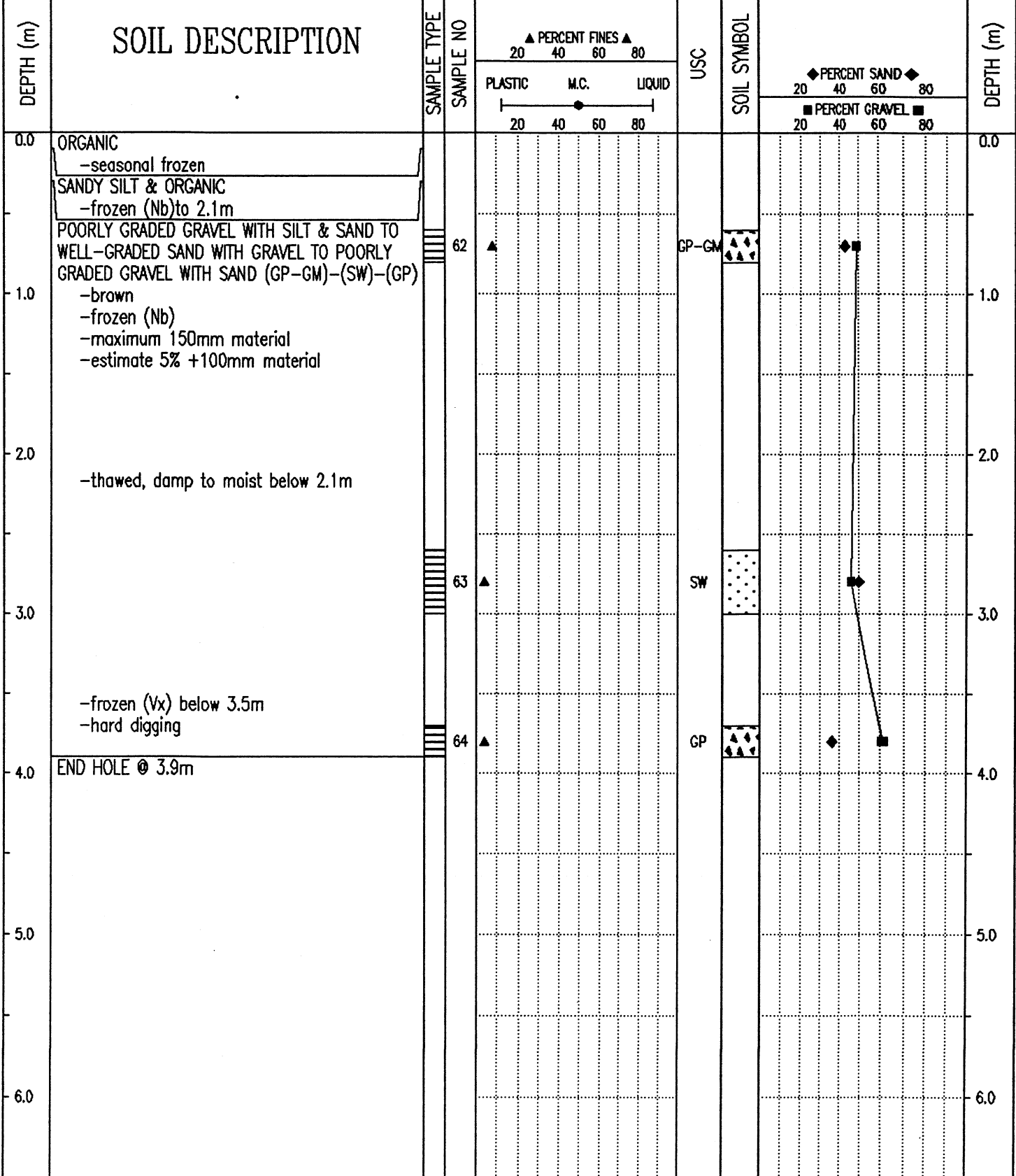
Government of Yukon  
Transportation Engineering

LOGGED BY: D.T.  
REVIEWED BY:  
Fig. No: 115-G-07

COMPLETION DEPTH: 5.0 m  
COMPLETE: 01/03/12

01/03/12 04:47PM

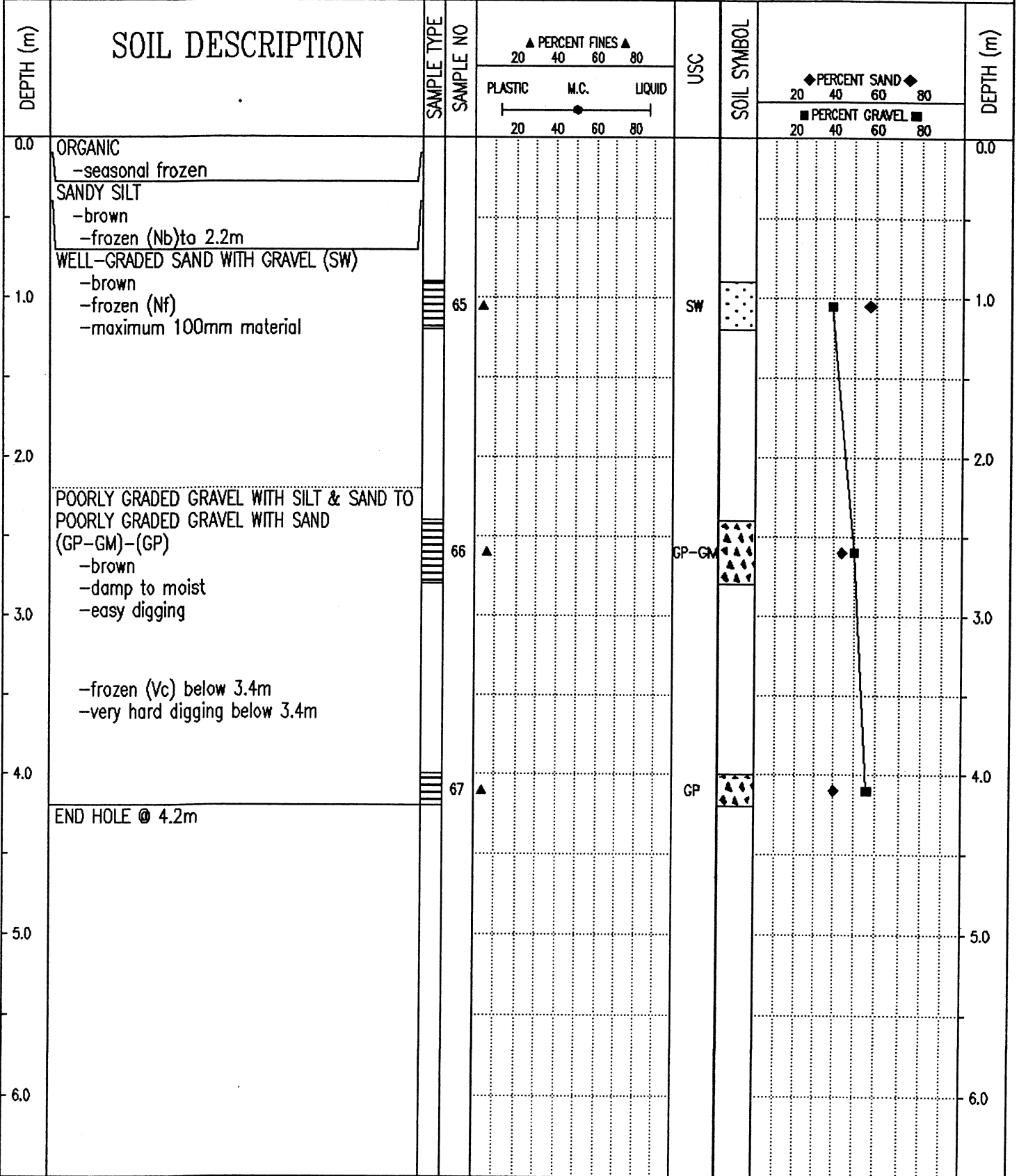
SAMPLE TYPE  RETURN  S.P.T.  AUGER  BULK  TUBE  CORE



01/03/12 04:47PM

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 583-1527
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	ELEVATION: 0.00 (m)

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



Government of Yukon  
Transportation Engineering

LOGGED BY: D.T.

REVIEWED BY:

Fig. No: 115-G-07

COMPLETION DEPTH: 4.2 m

COMPLETE: 01/03/13

Page 1 of 1

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 583-1528
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	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		

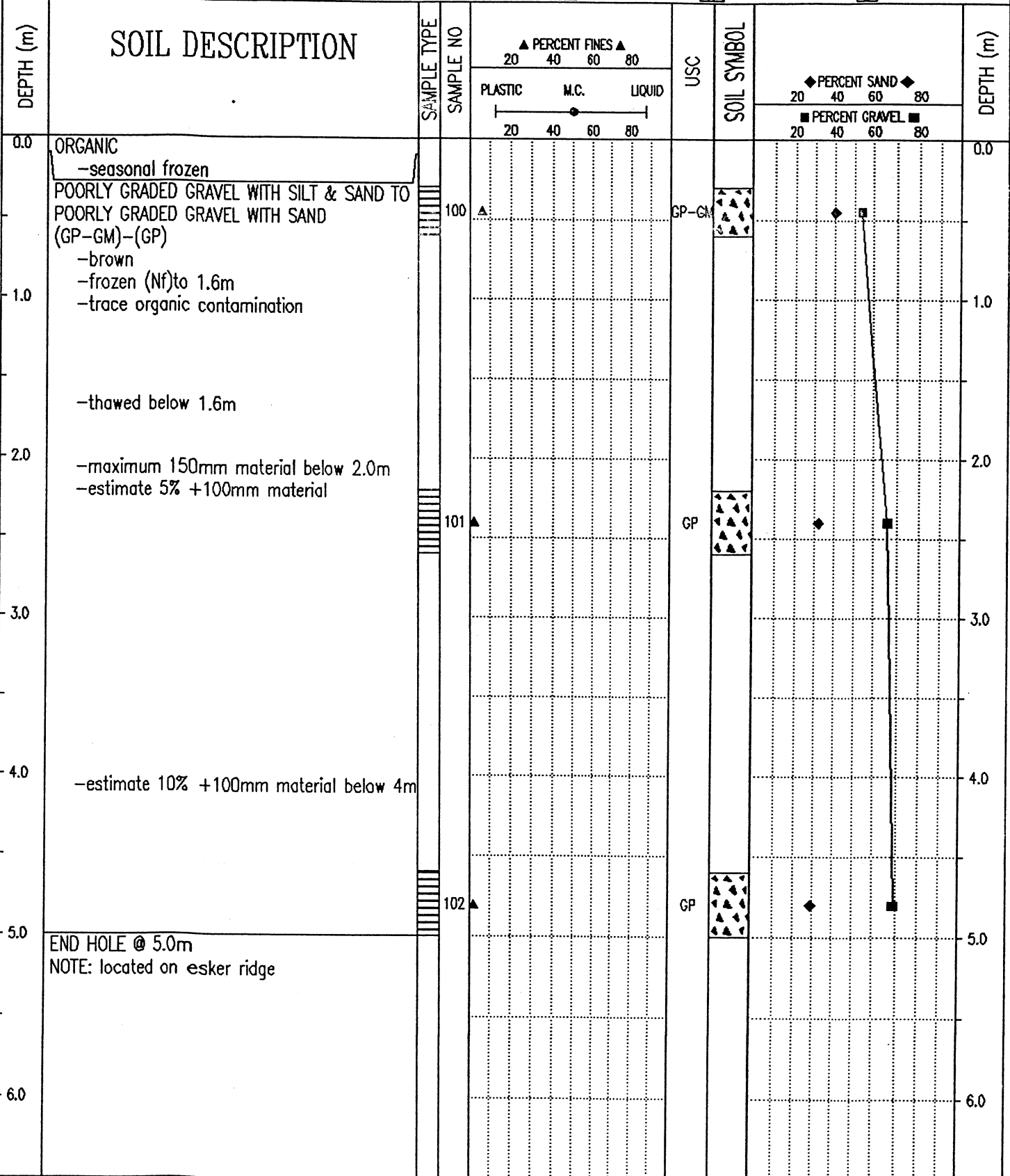
DEPTH (m)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	PERCENT FINES ▲			USC	SOIL SYMBOL	PERCENT SAND ◆			DEPTH (m)
				PLASTIC	M.C.	LIQUID			20	40	60	
0.0	ORGANIC -black -seasonal frozen (Vx)											0.0
1.0	SILT -trace sand -brown -moist to wet -smooth easy digging											1.0
2.0												2.0
3.0	SILTY GRAVEL WITH SAND (GM) -brown -frozen (Vc) below 2.4m -maximum 100mm material -very hard digging		68				GM	▲	◆	■		3.0
4.0	END HOLE @ 3.2m											4.0
5.0												5.0
6.0												6.0

Government of Yukon  
Transportation Engineering

LOGGED BY: D.T.	COMPLETION DEPTH: 3.2 m
REVIEWED BY:	COMPLETE: 01/03/13
Fig. No: 115-G-07	Page 1 of 1

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 583-1541
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	ELEVATION: 0.00 (m)

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



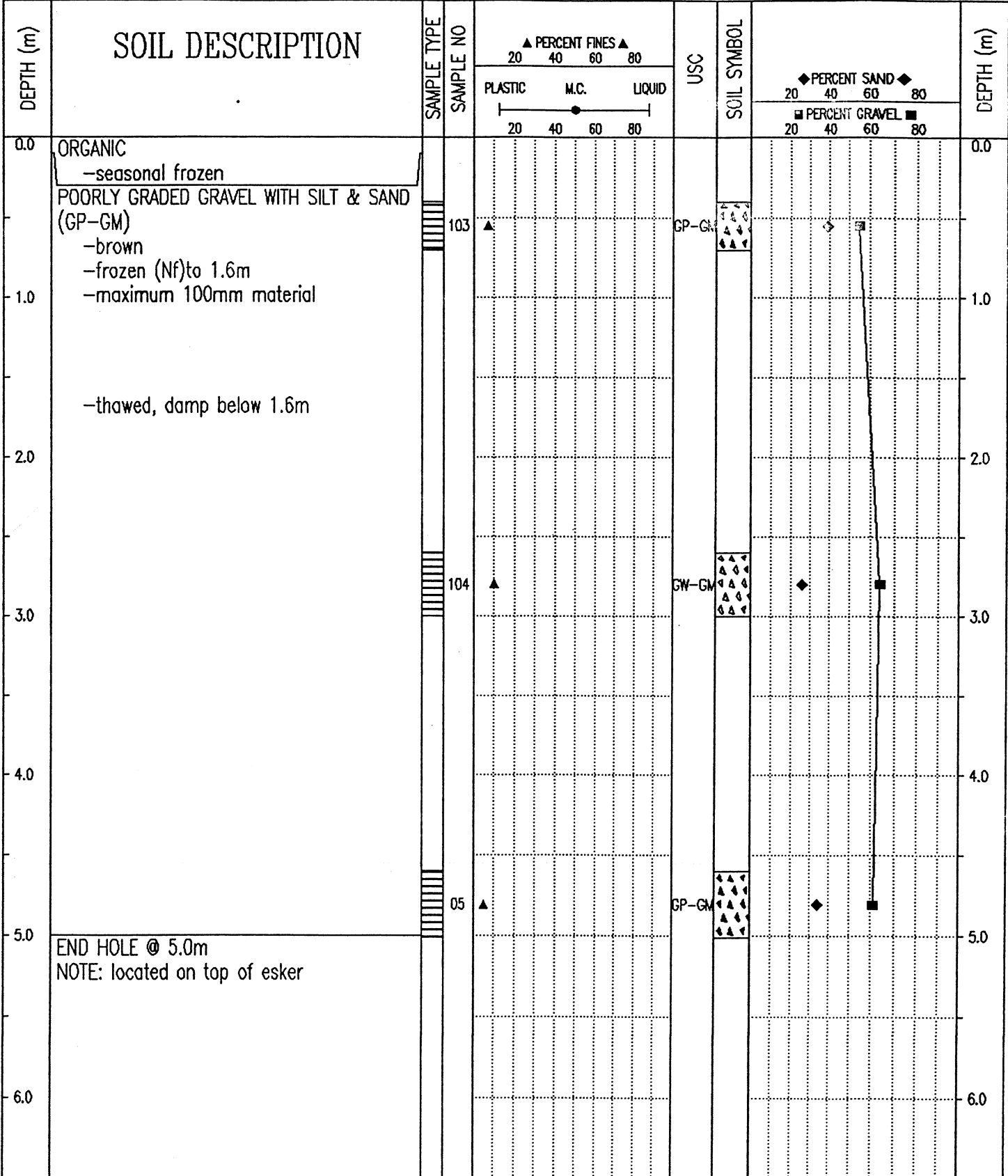
Government of Yukon  
Transportation Engineering

LOGGED BY: D.T.  
REVIEWED BY:  
Fig. No: 115-G-07

COMPLETION DEPTH: 5.0 m  
COMPLETE: 01/03/13  
Page 1 of 1

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 583-1542
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	ELEVATION: 0.00 (m)

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



Government of Yukon  
Transportation Engineering

LOGGED BY: D.T.

REVIEWED BY:

Fig. No: 115-G-07

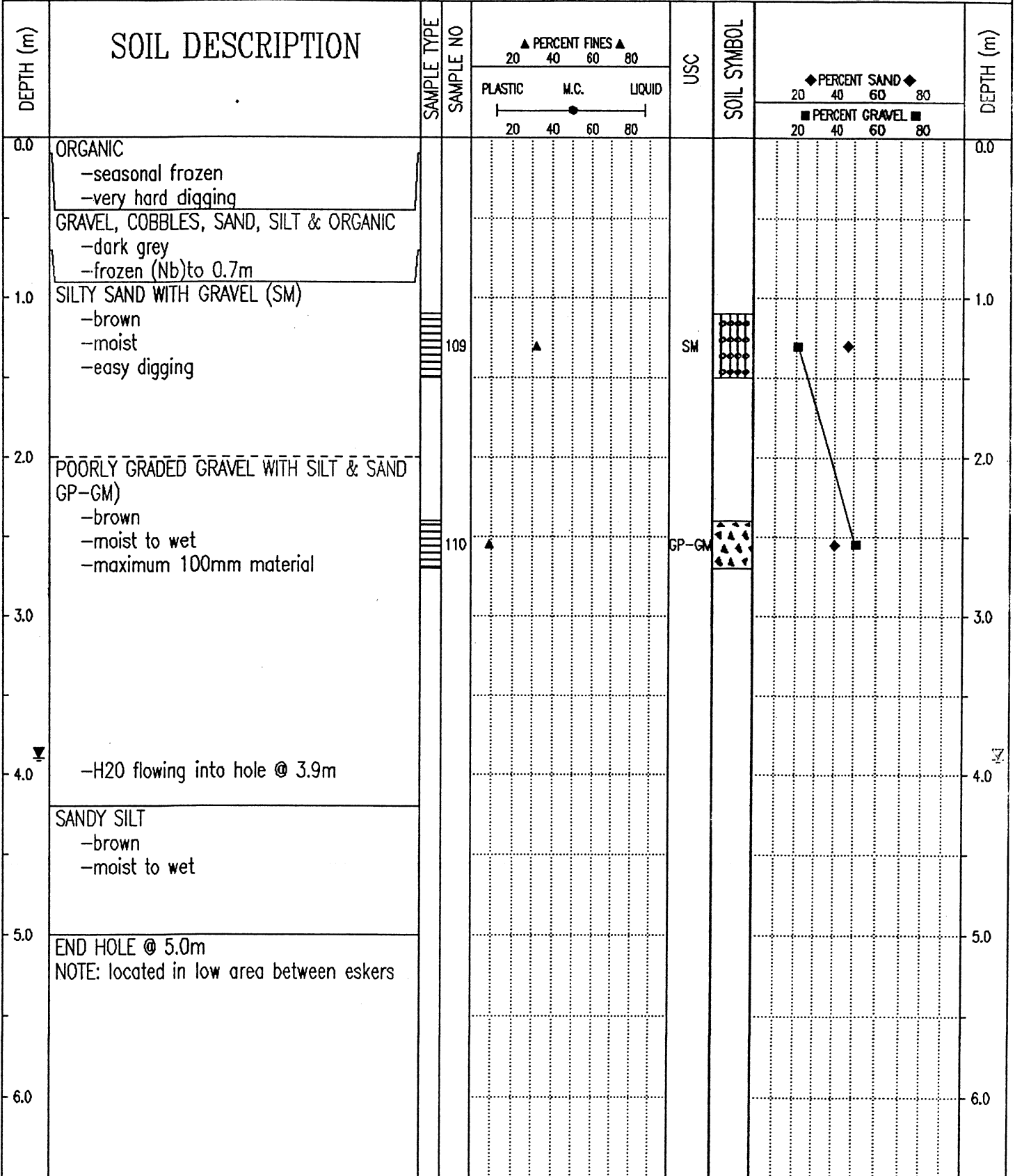
COMPLETION DEPTH: 5.0 m

COMPLETE: 01/03/13

Page 1 of 1

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 584-1544
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	ELEVATION: 0.00 (m)

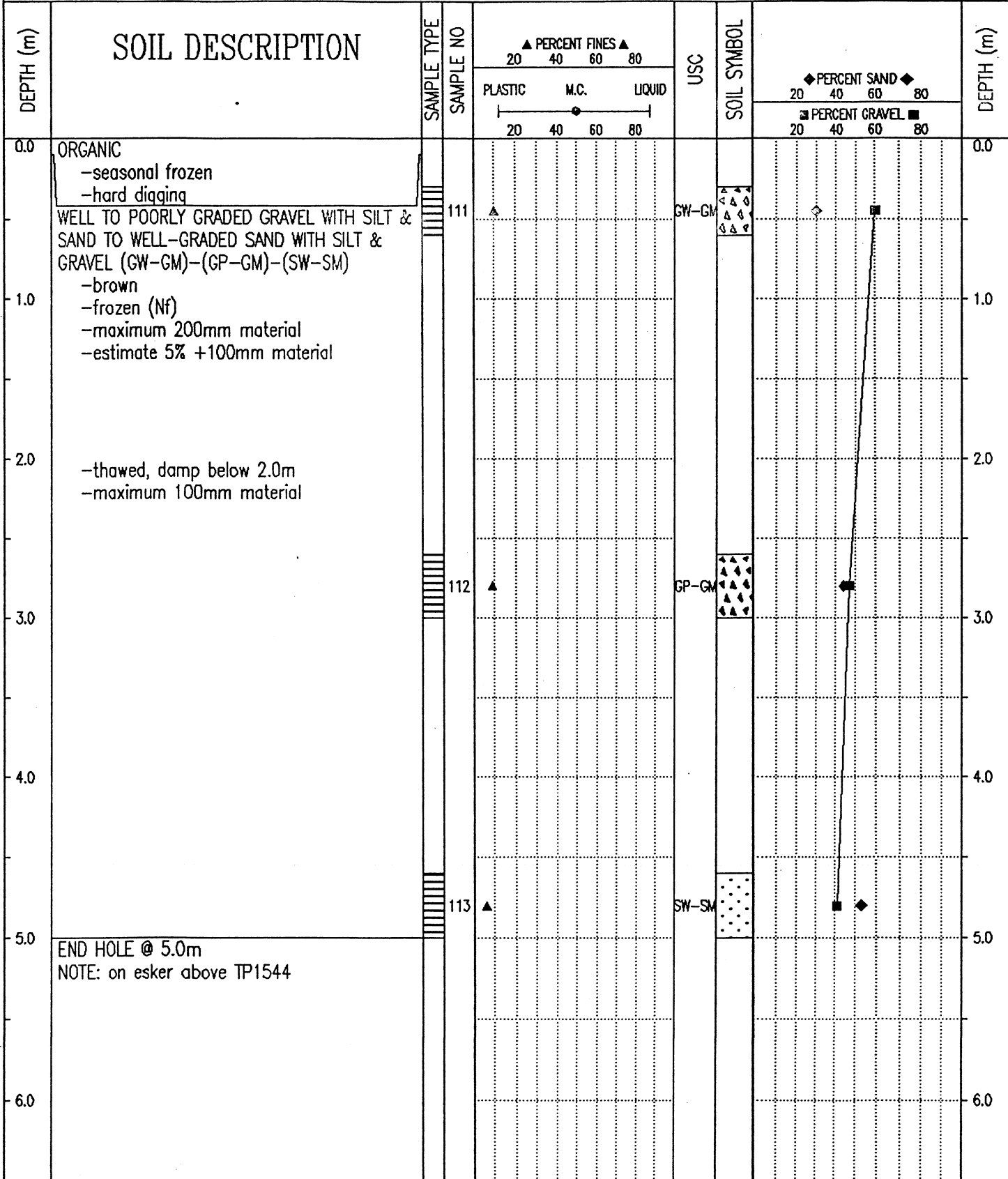
SAMPLE TYPE  RETURN  S.P.T.  AUGER  BULK  TUBE  CORE



Government of Yukon Transportation Engineering	LOGGED BY: D.T.	COMPLETION DEPTH: 5.0 m
	REVIEWED BY:	COMPLETE: 01/03/15
	Fig. No: 115-G-07	Page 1 of 1

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 584-1545
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	ELEVATION: 0.00 (m)

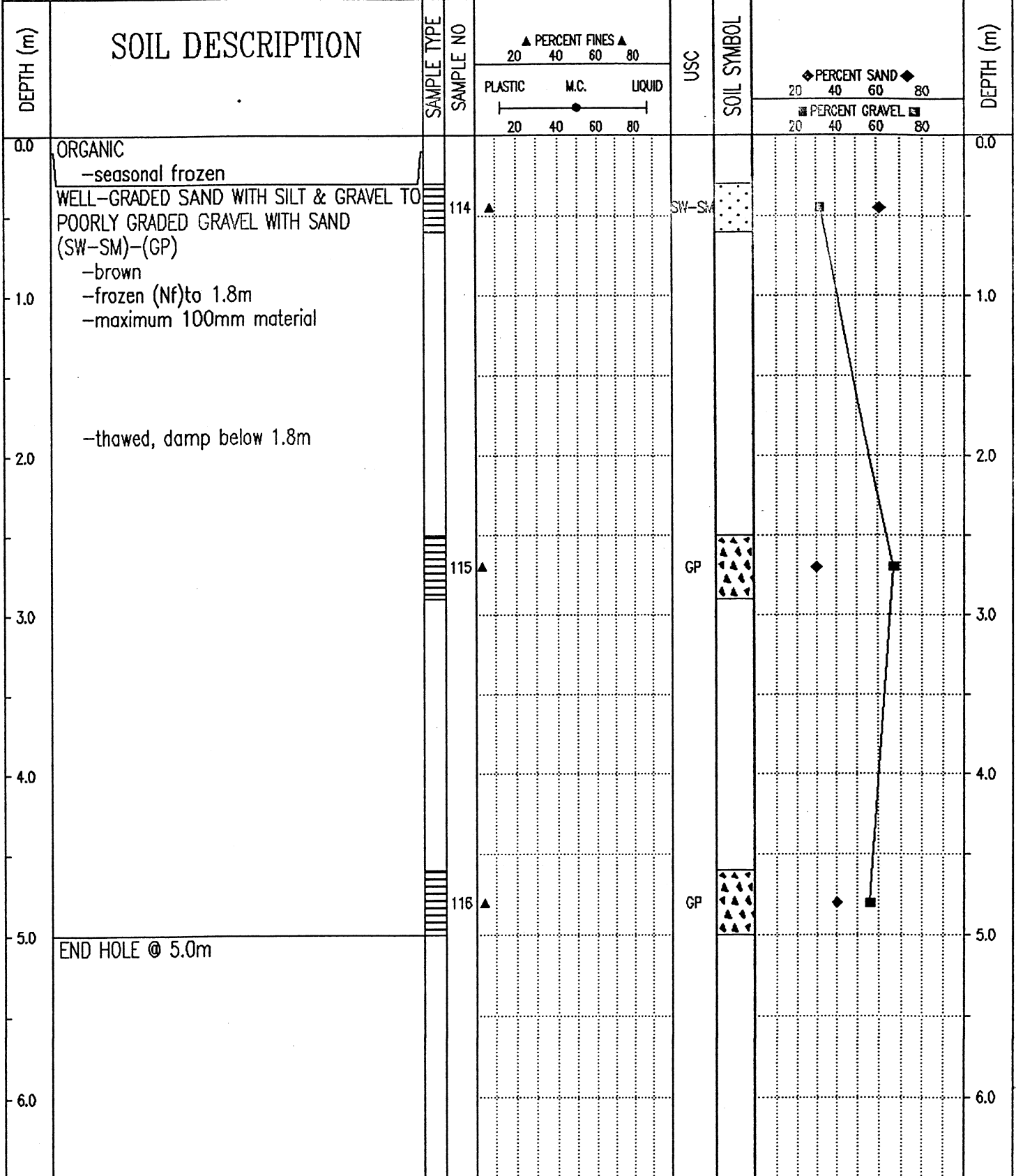
SAMPLE TYPE  RETURN  S.P.T.  AUGER  BULK  TUBE  CORE



Government of Yukon Transportation Engineering	LOGGED BY: D.T.	COMPLETION DEPTH: 5.0 m
	REVIEWED BY:	COMPLETE: 01/03/15
	Fig. No: 115-G-07	Page 1 of 1

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 584-1546
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	ELEVATION: 0.00 (m)

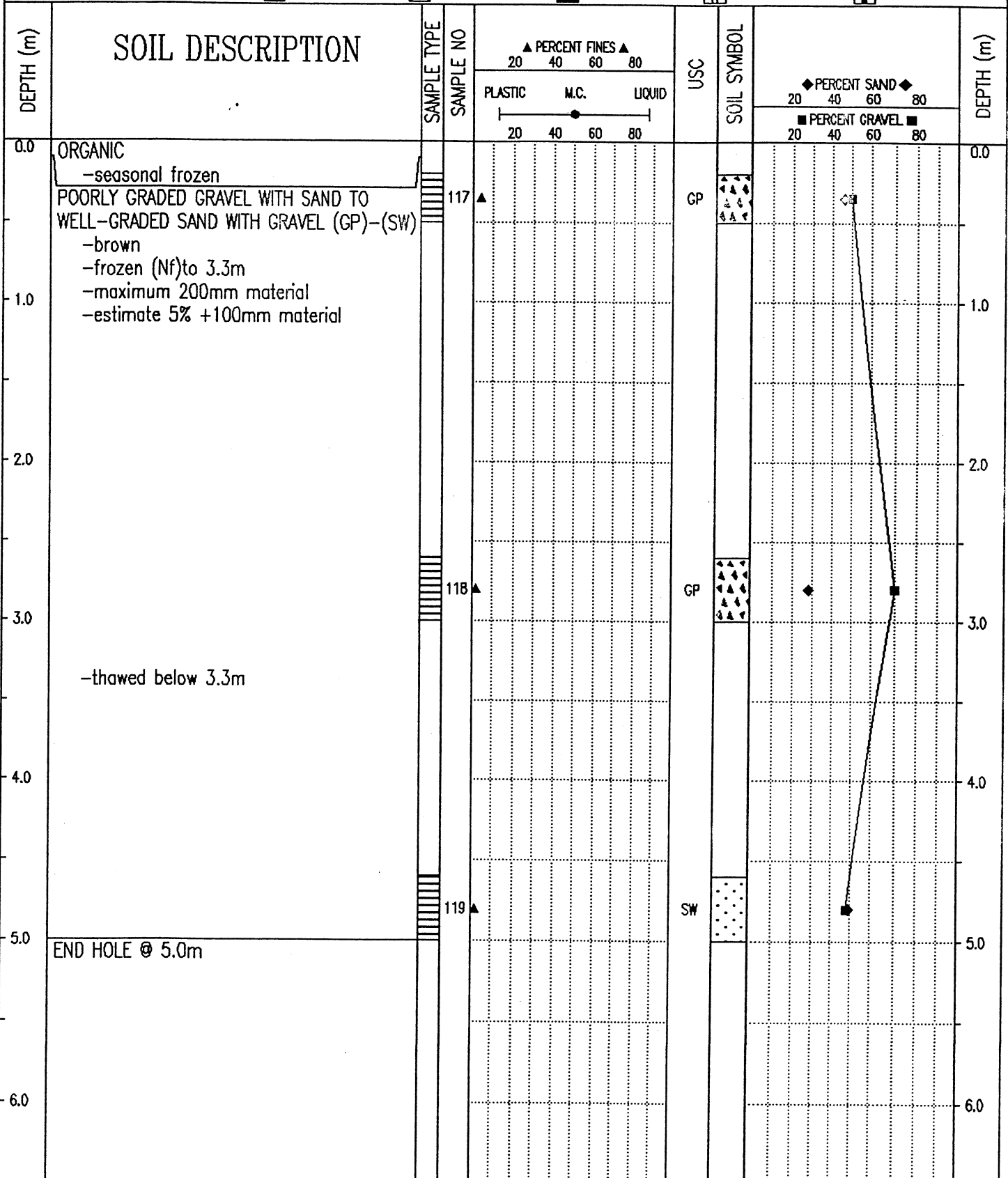
SAMPLE TYPE  RETURN  S.P.T.  AUGER  BULK  TUBE  CORE



Government of Yukon  
Transportation Engineering

LOGGED BY: D.T.	COMPLETION DEPTH: 5.0 m
REVIEWED BY:	COMPLETE: 01/03/15
Fig. No: 115-G-07	Page 1 of 1

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 584-1547
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	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		



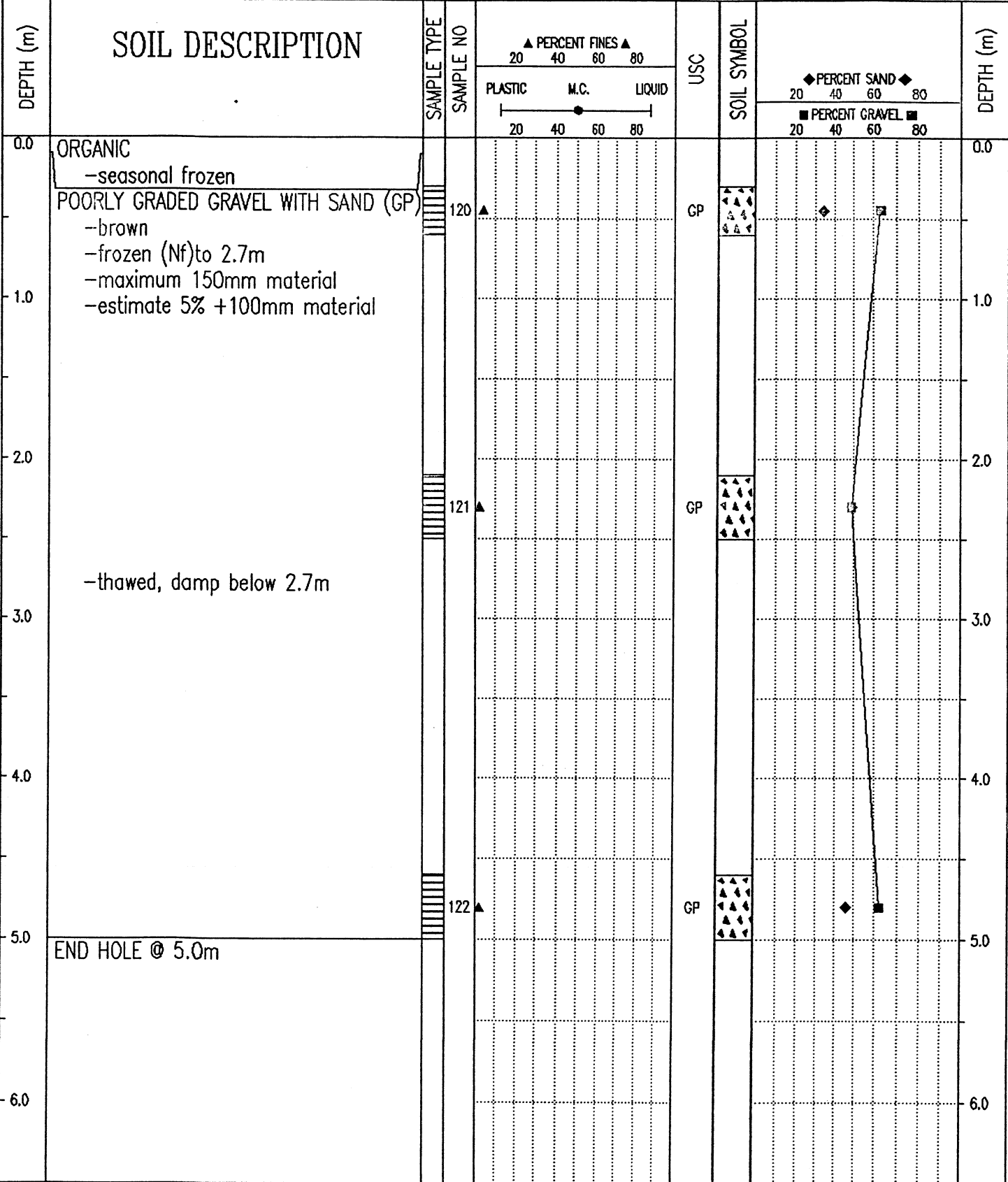
Government of Yukon  
Transportation Engineering

LOGGED BY: D.T.  
REVIEWED BY:  
Fig. No: 115-G-07

COMPLETION DEPTH: 5.0 m  
COMPLETE: 01/03/15

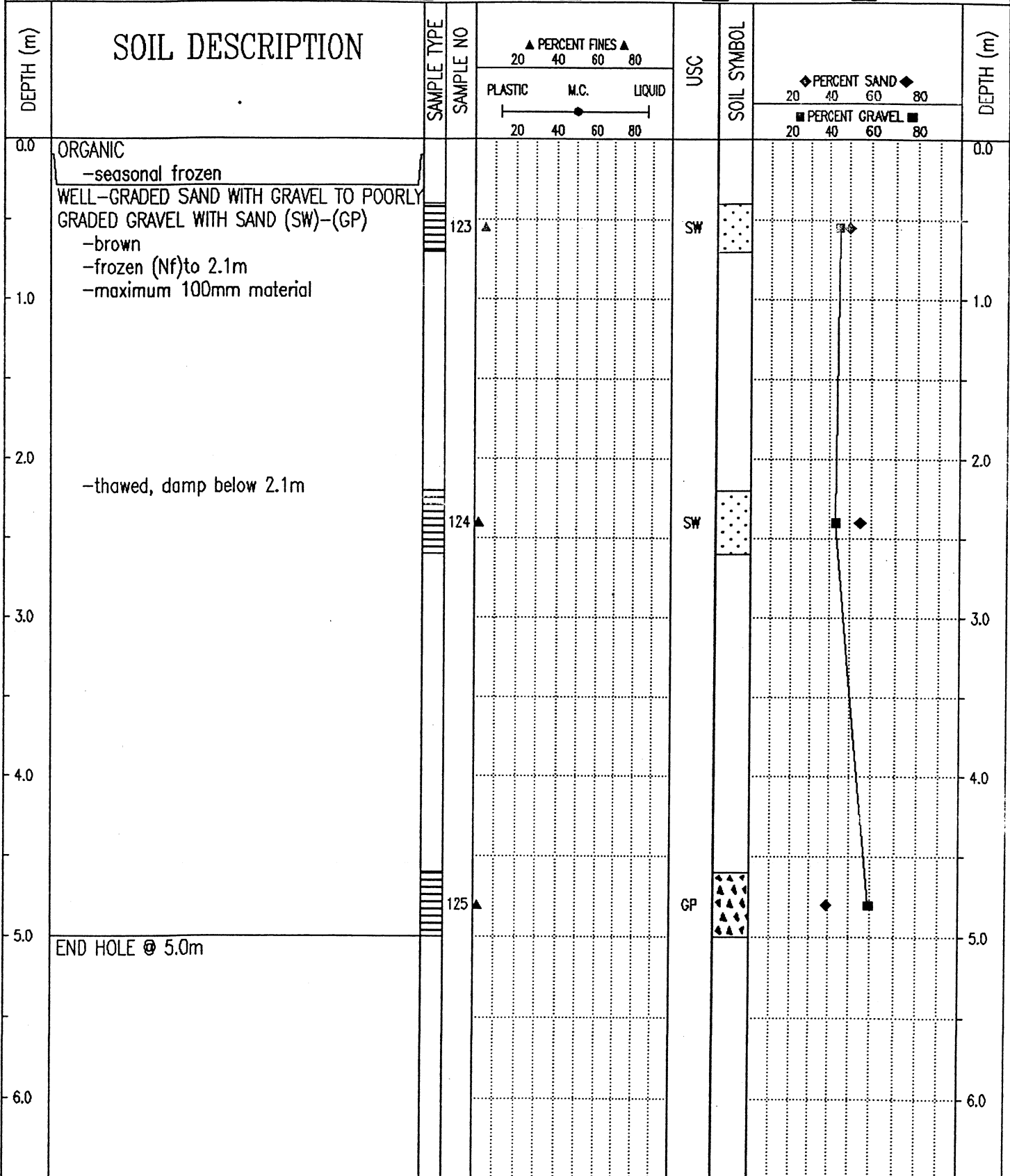
SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 584-1548
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	ELEVATION: 0.00 (m)

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



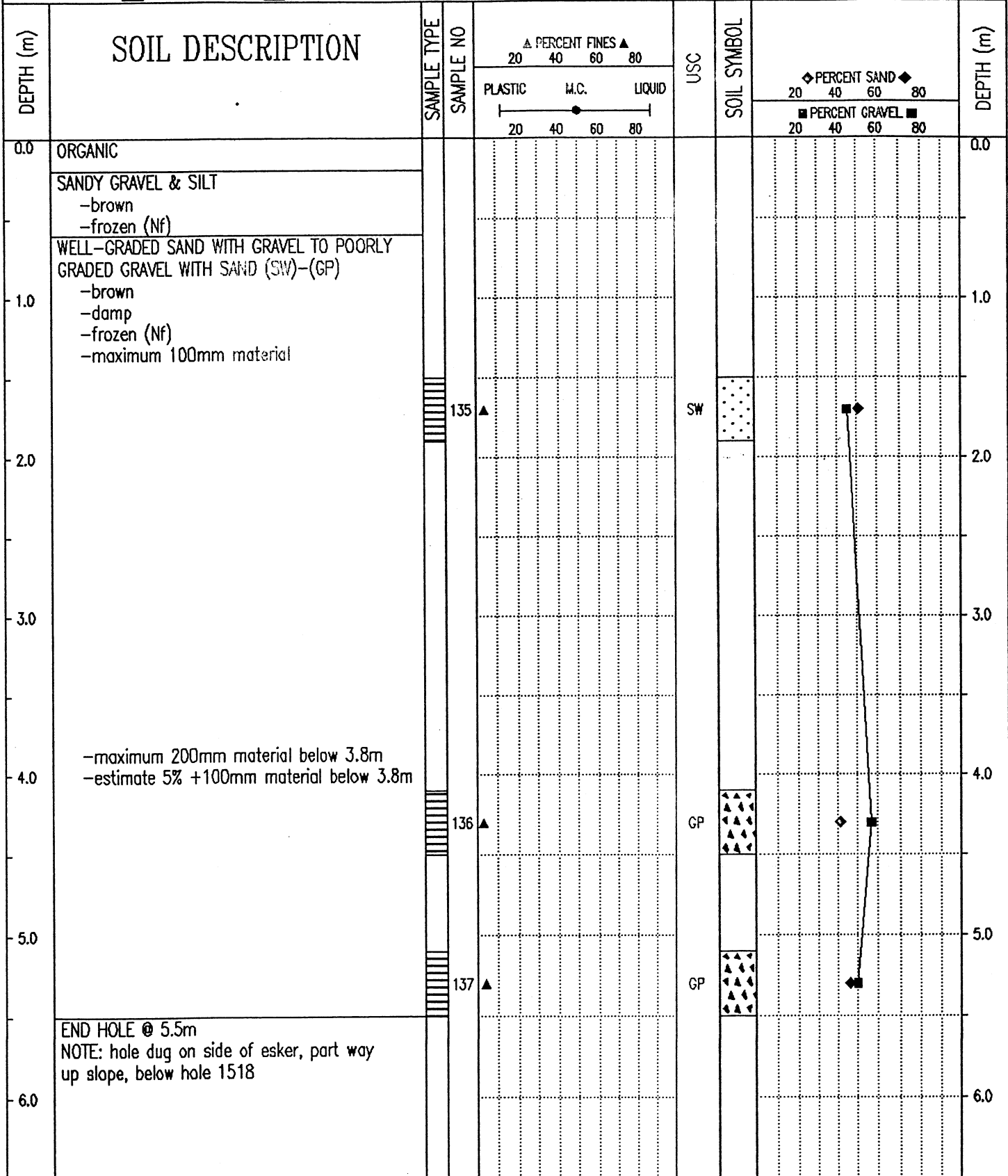
Government of Yukon Transportation Engineering	LOGGED BY: D.T.	COMPLETION DEPTH: 5.0 m
	REVIEWED BY:	COMPLETE: 01/03/15
	Fig. No: 115-G-07	Page 1 of 1

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 584-1549
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	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		



Government of Yukon Transportation Engineering	LOGGED BY: D.T.	COMPLETION DEPTH: 5.0 m
	REVIEWED BY:	COMPLETE: 01/03/15
	Fig. No: 115-G-07	Page 1 of 1

SUBSURFACE EXPLORATION & TESTING REPORT	SHAKWAK SEG 9 KM 1694 A/H	TEST PIT NO: 584-1552
ENGINEERING CAPITAL	SILVER CREEK RESERVE	Project No: 092-202101-0363
CAT 320 EXCAVATOR	LOCATION : SEE PLAN / GPS	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: D.T.	COMPLETION DEPTH: 5.5 m
	REVIEWED BY:	COMPLETE: 01/03/15
	Fig. No: 115-G-07	Page 1 of 1

Pit Ident. 115 G-07  
Km 1635.8 RHS Alaska Highway #1  
(Silver City)

February 2001  
Book # 581 & 582

Yukon Territorial Government

Auger Sample Results

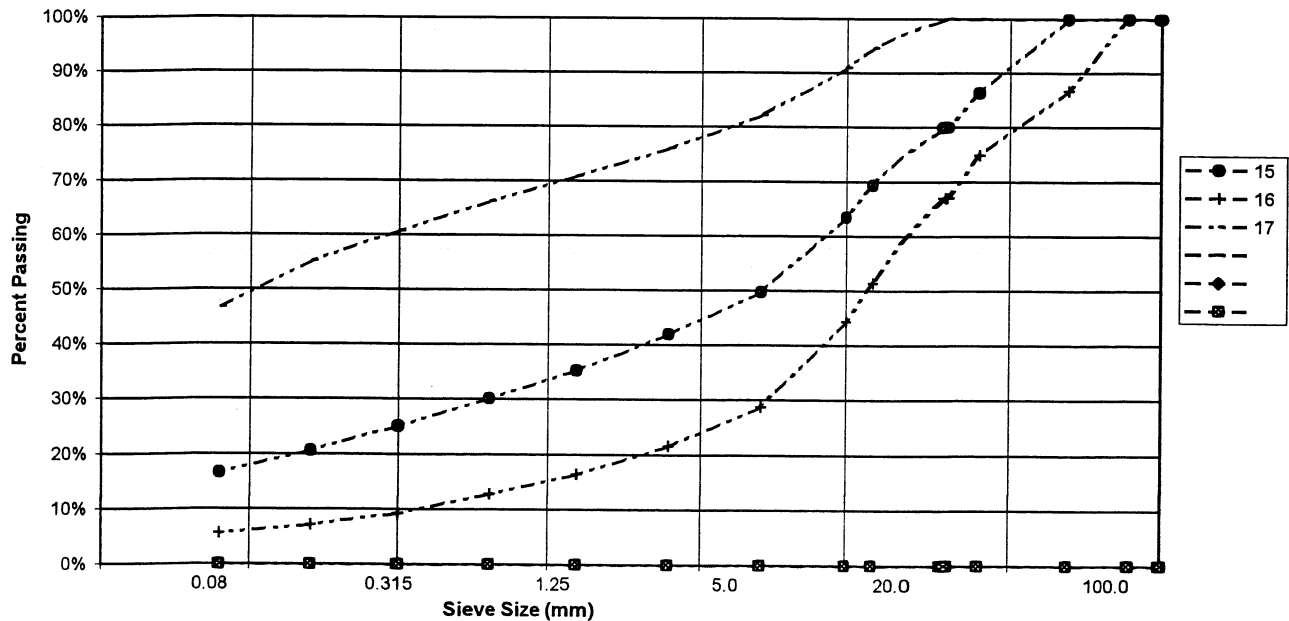
PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Silver Creek Reserve Km 1694 A/H  
 DRILL UNIT: MOBILE B40 L - D-4 CAT  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: J.M.

HOLE No.: 581-1510

DATE COMP: 2000/02/20

FIELD NO:	15	16	17		
LAB NO:	15	16	17		
DEPTH:	0.9-1.2	3.6-4.1	6.8-7.2		
TYPE:	AUGER	AUGER	AUGER	AUGER	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	87%	100%		
25.0	86%	75%	100%		
20.0	80%	67%	100%		
12.5	69%	51%	95%		
10.0	64%	44%	91%		
5.0	50%	29%	82%		
2.5	42%	22%	76%		
1.25	35%	16%	71%		
0.630	30%	13%	66%		
0.315	25%	9%	61%		
0.160	21%	7%	55%		
0.080	17%	6%	47%		
M.C.(%):	4%	2%	13%		
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0		
% GRAVEL:	50	71	18		
% SAND:	33	23	35		
% FINES:	17	6	47		
CLASSIFICATION	SILTY GRAVEL WITH SAND (GM)	WELL-GRADED GRAVEL WITH SILT & SAND (GW-GM)	SILTY SAND WITH GRAVEL (SM)		

YTG Trans. Eng. Grain Size Analysis (Percent Passing vs Grain Size)

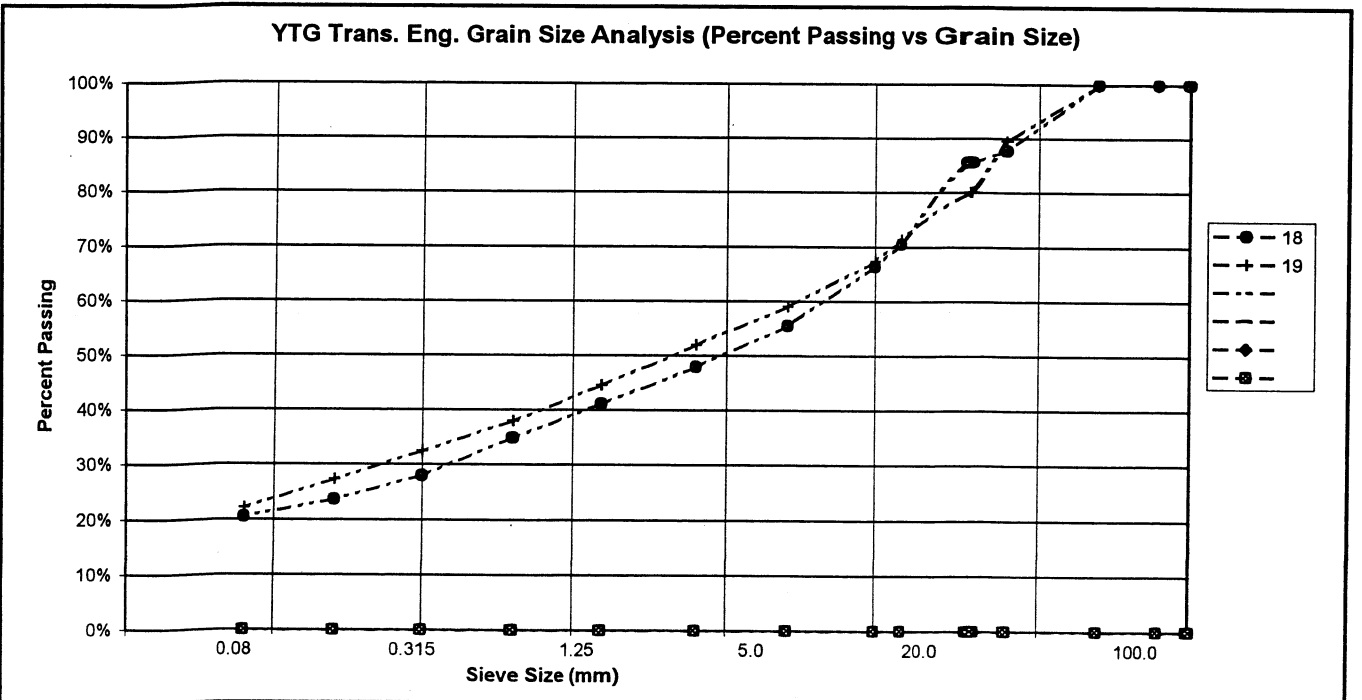


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Silver Creek Reserve Km 1694 A/H  
 DRILL UNIT: MOBILE B40 L - D-4 CAT  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: J.M.

HOLE No.: 581-1511

DATE COMP: 2000/02/20

FIELD NO:	18	19			
LAB NO:	18	19			
DEPTH:	2.3-2.7	6.8-7.3			
TYPE:	AUGER	AUGER	AUGER	AUGER	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING			
100.0	100%	100%			
80.0	100%	100%			
50.0	100%	100%			
25.0	88%	90%			
20.0	86%	80%			
12.5	71%	71%			
10.0	66%	67%			
5.0	55%	59%			
2.5	48%	52%			
1.25	41%	45%			
0.630	35%	38%			
0.315	28%	32%			
0.160	24%	27%			
0.080	20%	22%			
M.C.(%):	6%	9%			
LIQUID LIMIT:	0.0	0.0			
PLASTIC LIMIT:	0.0	0.0			
PLASTIC INDEX.:	0.0	0.0			
% GRAVEL:	45	41			
% SAND:	35	37			
% FINES:	20	22			
CLASSIFICATION	SILTY GRAVEL WITH SAND (GM)	SILTY GRAVEL WITH SAND (GM)			



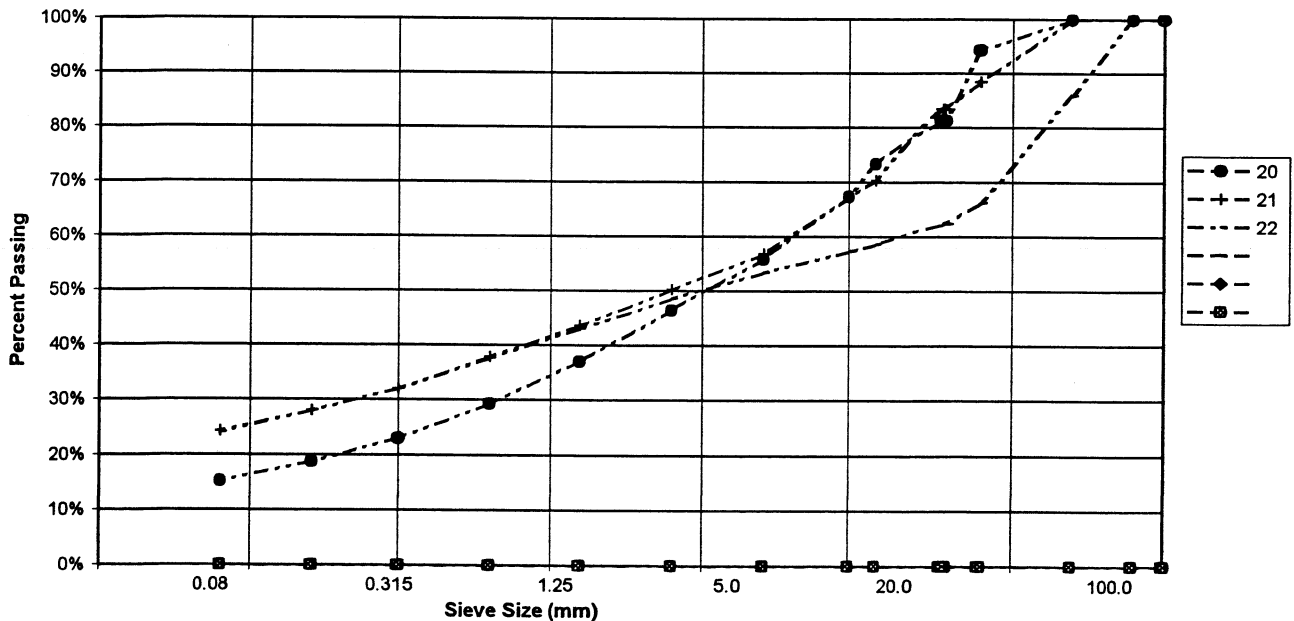
PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Silver Creek Reserve Km 1694 A/H  
 DRILL UNIT: MOBILE B40 L - D-4 CAT  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: J.M.

HOLE No.: 581-1512

DATE COMP: 2000/02/20

FIELD NO:	20	21	22		
LAB NO:	20	21	22		
DEPTH:	1.0-1.3	3.9-4.3	6.6-7.0		
TYPE:	AUGER	AUGER	AUGER	AUGER	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	100%	86%		
25.0	94%	89%	66%		
20.0	81%	83%	62%		
12.5	73%	70%	59%		
10.0	67%	67%	57%		
5.0	56%	57%	53%		
2.5	46%	50%	49%		
1.25	37%	44%	43%		
0.630	29%	38%	38%		
0.315	23%	32%	32%		
0.160	19%	28%	28%		
0.080	15%	24%	24%		
M.C.(%):	4%	6%	5%		
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX:	0.0	0.0	0.0		
% GRAVEL:	44	43	47		
% SAND:	41	33	29		
% FINES:	15	24	24		
CLASSIFICATION	SILTY GRAVEL WITH SAND (GM)	SILTY GRAVEL WITH SAND (GM)	SILTY GRAVEL WITH SAND (GM)		

YTG Trans. Eng. Grain Size Analysis (Percent Passing vs Grain Size)

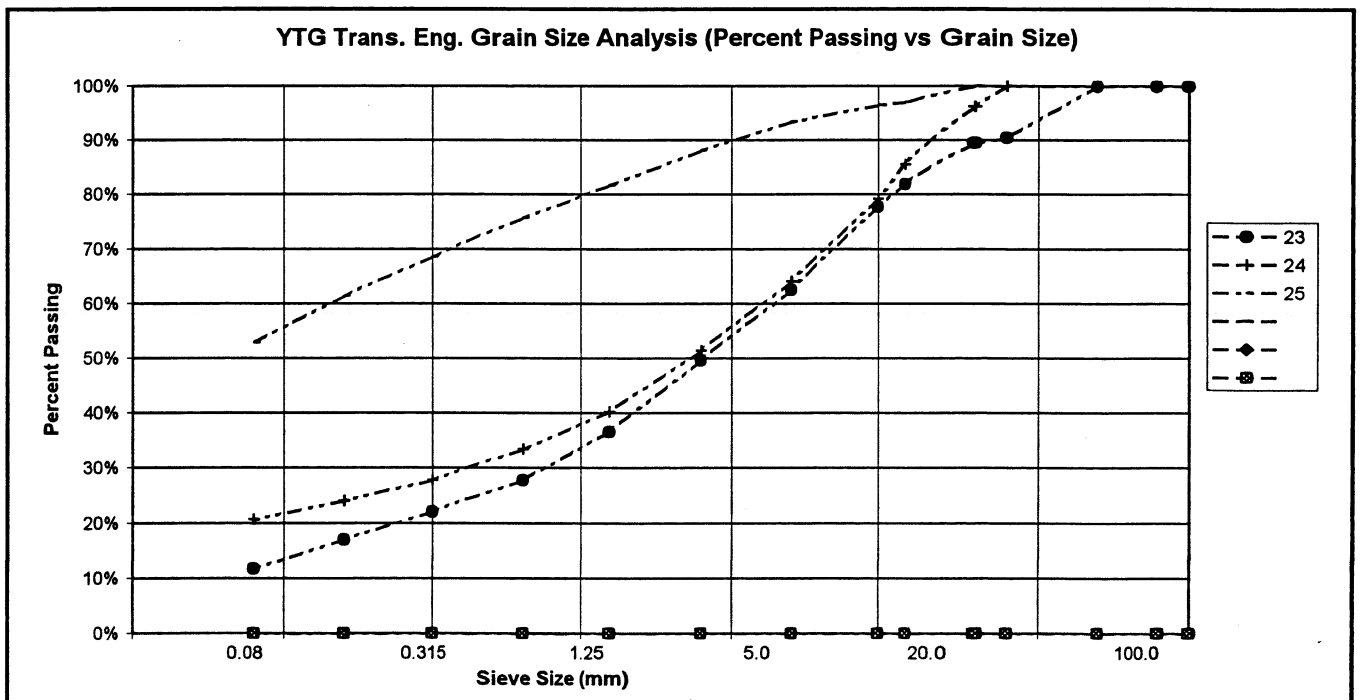


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Silver Creek Reserve Km 1694 A/H  
 DRILL UNIT: MOBILE B40 L - D-4 CAT  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: J.M.

HOLE No.: 581-1513

DATE COMP: 2000/02/20

FIELD NO:	23	24	25		
LAB NO:	23	24	25		
DEPTH:	0.8-1.2	4.0-4.3	7.7-8.2		
TYPE:	AUGER	AUGER	AUGER	AUGER	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	100%	100%		
25.0	90%	100%	100%		
20.0	90%	96%	100%		
12.5	82%	86%	97%		
10.0	78%	79%	96%		
5.0	63%	64%	93%		
2.5	50%	51%	88%		
1.25	37%	40%	82%		
0.630	28%	33%	76%		
0.315	22%	28%	69%		
0.160	17%	24%	61%		
0.080	12%	21%	53%		
M.C.(%):	3%	5%	8%		
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX:	0.0	0.0	0.0		
% GRAVEL:	37	36	7		
% SAND:	51	43	41		
% FINES:	12	21	53		
CLASSIFICATION	WELL-GRADED SAND WITH SILT & GRAVEL (SW-SM)	SILTY SAND WITH GRAVEL (SM)	SANDY SILT (ML)		

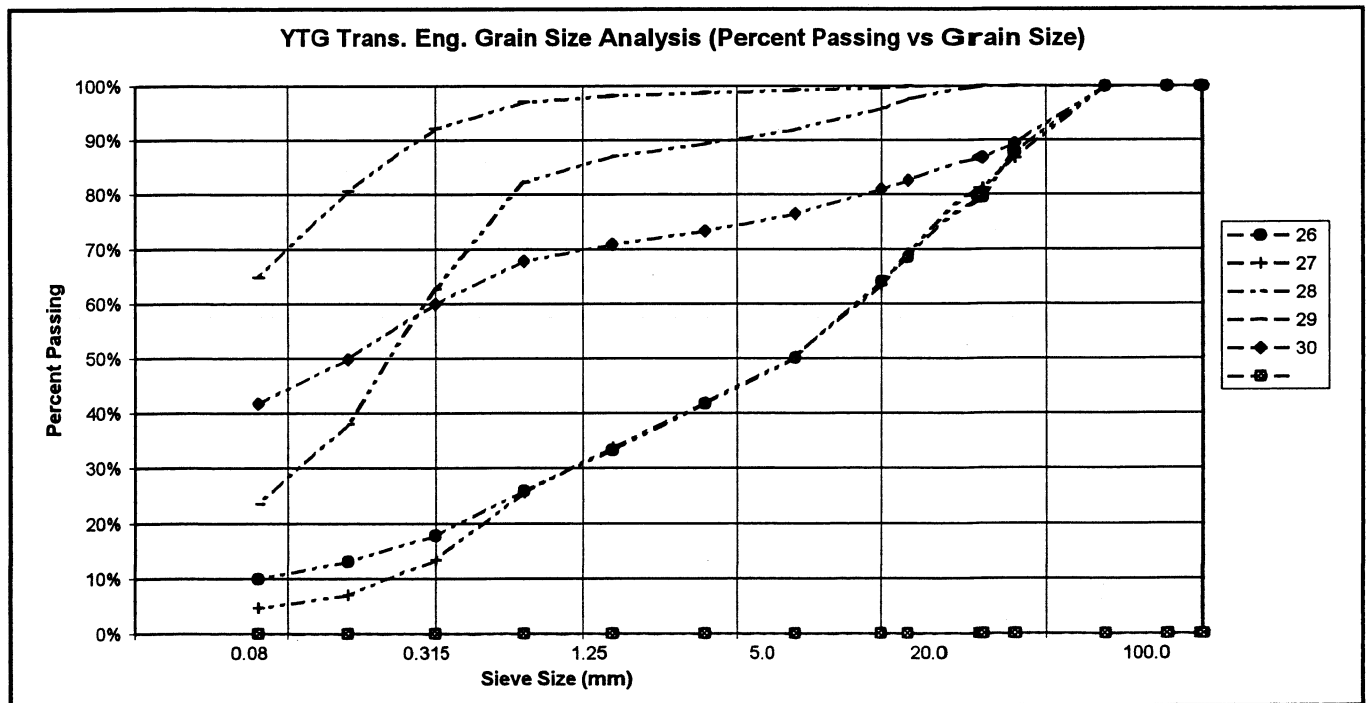


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Silver Creek Reserve Km 1694 A/H  
 DRILL UNIT: MOBILE B40 L - D-4 CAT  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: J.M.

HOLE No.: 581-1514

DATE COMP: 2000/02/20

FIELD NO:	26	27	28	29	30	
LAB NO:	26	27	28	29	30	
DEPTH:	0.8-1.0	3.4-4.0	5.8-6.4	9.0-9.8	13.0-14.0	
TYPE:	AUGER	AUGER	AUGER	AUGER	AUGER	AUGER
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	
100.0	100%	100%	100%	100%	100%	
80.0	100%	100%	100%	100%	100%	
50.0	100%	100%	100%	100%	100%	
25.0	88%	87%	100%	100%	89%	
20.0	80%	81%	100%	100%	87%	
12.5	69%	69%	98%	100%	83%	
10.0	64%	63%	96%	100%	81%	
5.0	50%	50%	92%	99%	77%	
2.5	42%	42%	89%	99%	73%	
1.25	33%	34%	87%	98%	71%	
0.630	26%	26%	82%	97%	68%	
0.315	18%	13%	63%	92%	60%	
0.160	13%	7%	38%	81%	50%	
0.080	10%	5%	23%	65%	42%	
M.C.(%):	3%	2%	4%	11%	8%	
LIQUID LIMIT:	0.0	0.0	0.0	0.0	0.0	
PLASTIC LIMIT:	0.0	0.0	0.0	0.0	0.0	
PLASTIC INDEX.:	0.0	0.0	0.0	0.0	0.0	
% GRAVEL:	50	50	8	1	23	
% SAND:	40	46	69	35	35	
% FINES:	10	5	23	65	42	
CLASSIFICATION	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	POORLY GRADED GRAVEL WITH SAND (GP)	SILTY SAND (SM)	SANDY SILT (ML)	SILTY SAND WITH GRAVEL (SM)	

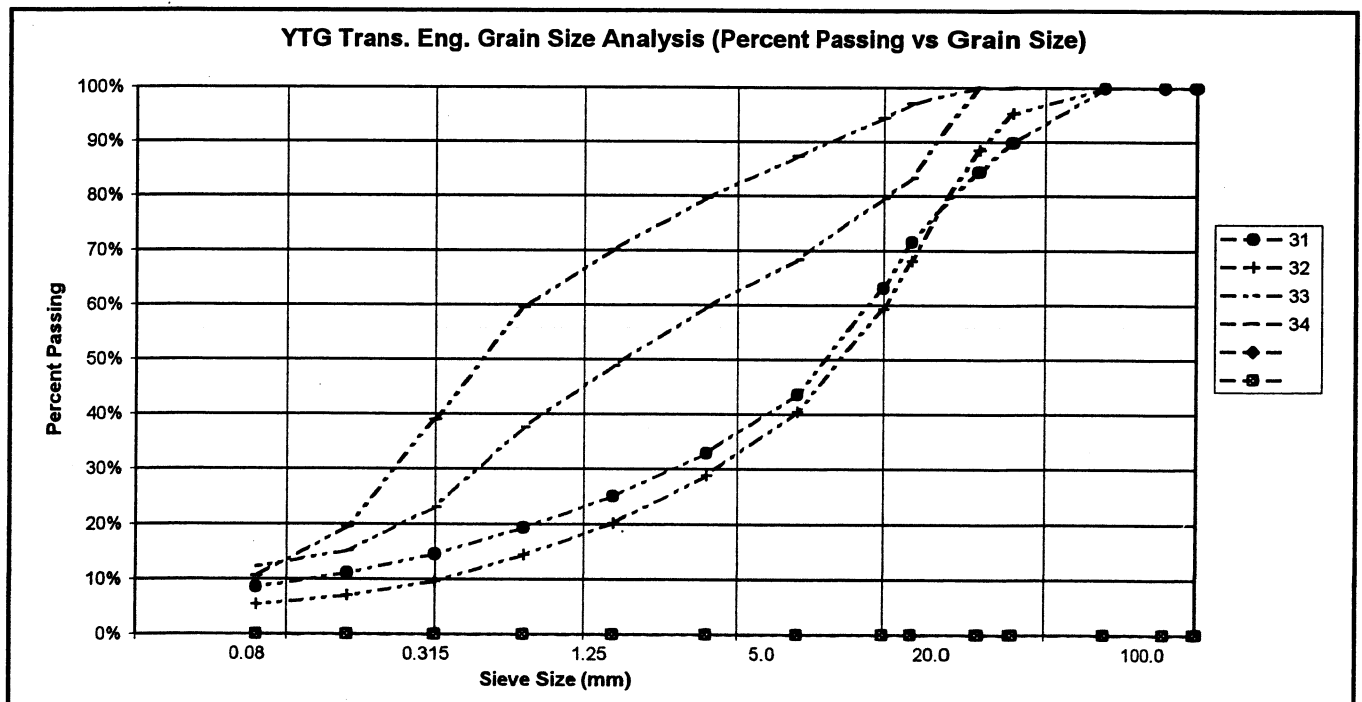


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Silver Cr Reserve Km 1694 A/H  
 DRILL UNIT: D-4 CAT  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 582-1515

DATE COMP: 2001/02/28

FIELD NO:	31	32	33	34		
LAB NO:	31	32	33	34		
DEPTH:	0.8-1.0	4.1-4.3	6.0-6.2	9.2-9.5		
TYPE:	AUGER	AUGER	AUGER	AUGER		
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%	100%		
80.0	100%	100%	100%	100%		
50.0	100%	100%	100%	100%		
25.0	90%	95%	100%	100%		
20.0	85%	89%	100%	100%		
12.5	72%	68%	83%	97%		
10.0	63%	59%	80%	94%		
5.0	44%	41%	68%	87%		
2.5	33%	29%	60%	80%		
1.25	25%	20%	49%	70%		
0.630	19%	14%	38%	60%		
0.315	15%	10%	23%	39%		
0.160	11%	7%	15%	19%		
0.080	9%	5%	12%	11%		
M.C.(%):	3%	2%	2%	3%		
LIQUID LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0	0.0		
% GRAVEL:	56	59	32	13		
% SAND:	35	35	56	77		
% FINES:	9	5	12	11		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	SILTY SAND WITH GRAVEL (SM)	WELL-GRADED SAND WITH SILT (SW-SM)		

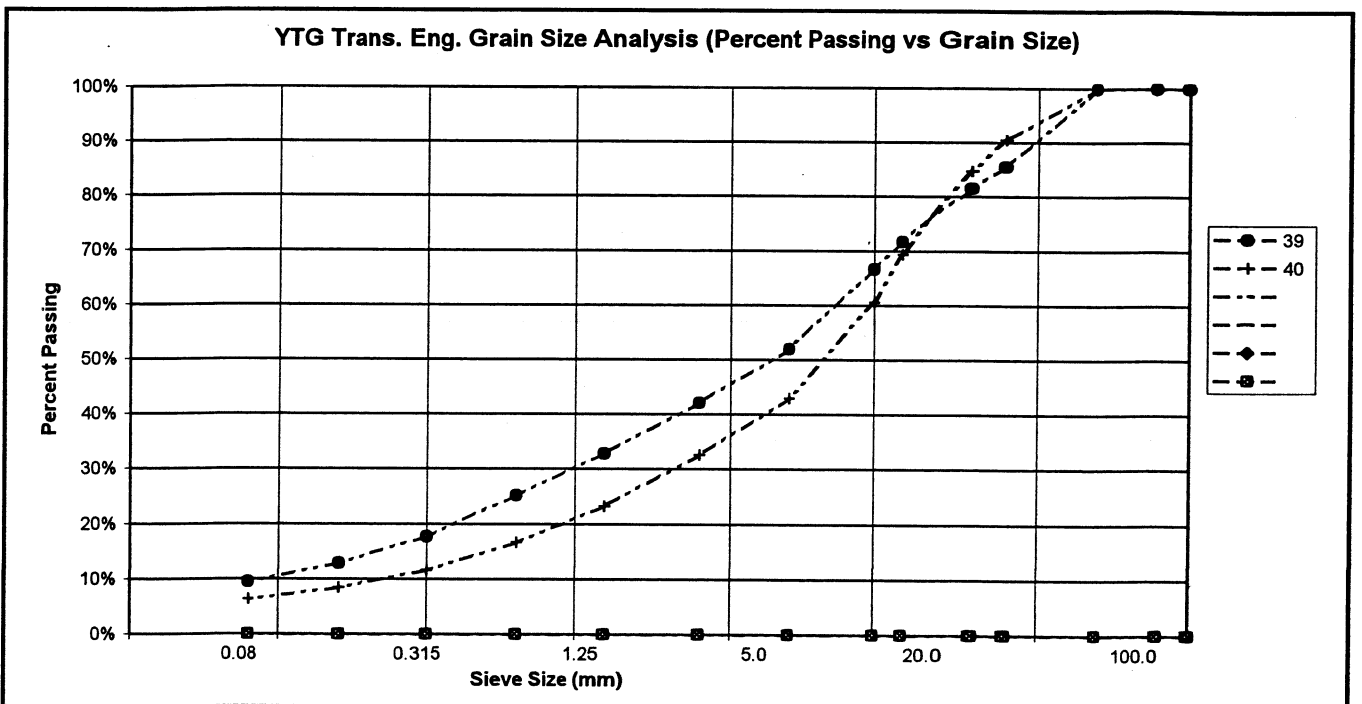


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Silver Cr Reserve Km 1694 A/H  
 DRILL UNIT: D-4 CAT  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 582-1517

DATE COMP: 2001/02/28

FIELD NO:	39	40			
LAB NO:	39	40			
DEPTH:	1.1-1.3	2.6-2.8			
TYPE:	AUGER	AUGER	AUGER	AUGER	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING			
100.0	100%	100%			
80.0	100%	100%			
50.0	100%	100%			
25.0	86%	91%			
20.0	82%	85%			
12.5	72%	69%			
10.0	67%	61%			
5.0	52%	43%			
2.5	42%	33%			
1.25	33%	23%			
0.630	25%	17%			
0.315	18%	12%			
0.160	13%	8%			
0.080	10%	6%			
M.C.(%)	5%	2%			
LIQUID LIMIT:	0.0	0.0			
PLASTIC LIMIT:	0.0	0.0			
PLASTIC INDEX.:	0.0	0.0			
% GRAVEL:	48	57			
% SAND:	42	37			
% FINES:	10	6			
CLASSIFICATION	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)			

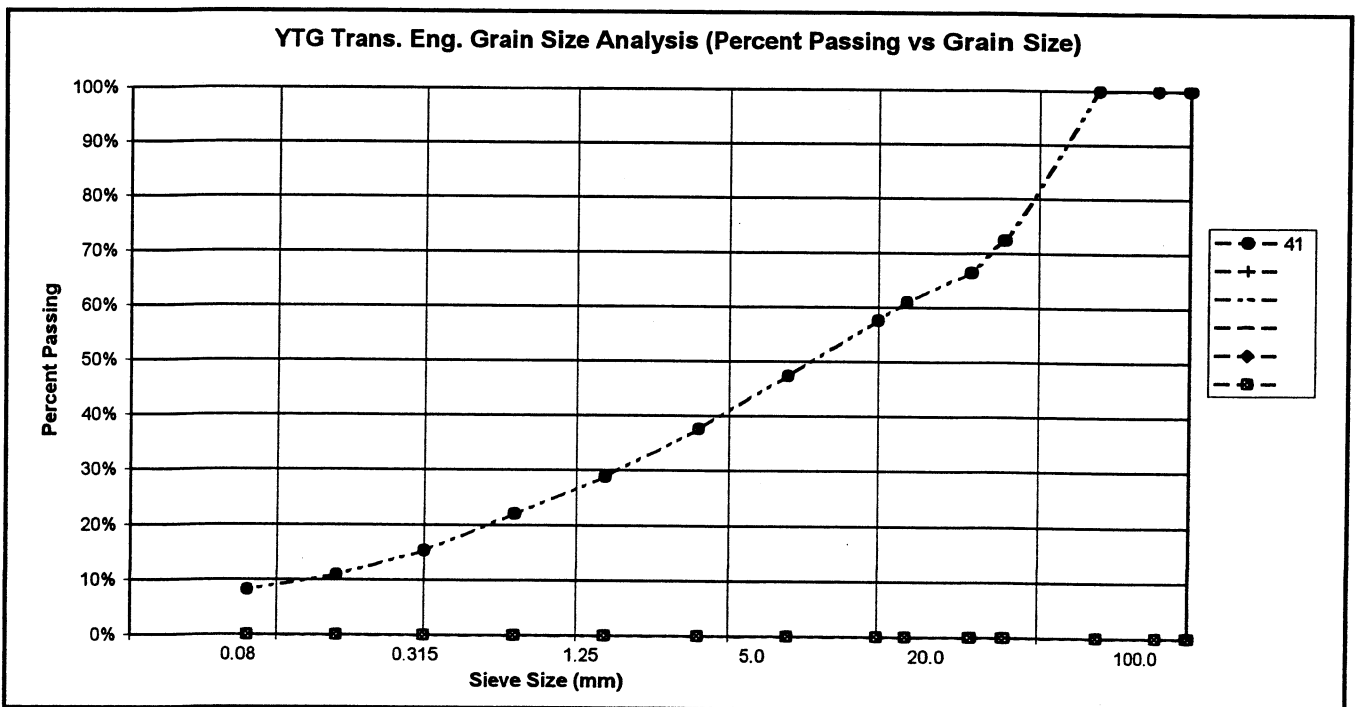


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Silver Cr Reserve Km 1694 A/H  
 DRILL UNIT: D-4 CAT  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 582-1518

DATE COMP: 2001/02/28

FIELD NO:	41				
LAB NO:	41				
DEPTH:	1.1-1.3				
TYPE:	AUGER	AUGER	AUGER	AUGER	
SIEVE SIZE	PERCENT PASSING				
100.0	100%				
80.0	100%				
50.0	100%				
25.0	72%				
20.0	66%				
12.5	61%				
10.0	58%				
5.0	47%				
2.5	38%				
1.25	29%				
0.630	22%				
0.315	15%				
0.160	11%				
0.080	8%				
M.C.(%):	5%				
LIQUID LIMIT:	0.0				
PLASTIC LIMIT:	0.0				
PLASTIC INDEX.:	0.0				
% GRAVEL:	53				
% SAND:	39				
% FINES:	8				
CLASSIFICATION	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)				



Pit Ident. 115 G-07  
Km 1635.8 RHS Alaska Highway #1  
(Silver City)

November 1991  
Book # 152

Yukon Territorial Government

Pit Run Sample Results

PROJECT NUMBER: 859167 HOLE NUMBER: 152-06  
 CLIENT: PWC/O&M YUKON  
 PROJECT NAME: ALASKA HIGHWAY GRANULAR INVESTIGATION  
 PROJECT LOCATION: 115-G-07  
 DRILL UNIT: BACKHOE: CASE 688  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: DT DATE COMPLETED: 91.11.05

FIELD NO: 10  
 LAB NO: 5408  
 DEPTH: 1.1-1.5  
 TYPE: BULK

FIELD NO: 11  
 LAB NO: 5409  
 DEPTH: 4.6-5.0  
 TYPE: BULK

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

101.6	--
76.2	--
50.8	100
38.1	97
25.4	90
19.0	82
12.7	76
9.5	69
4.76	56
2.38	--
2.00	40
1.19	--
0.841	27
0.595	--
0.42	16
0.297	--
0.177	--
0.149	6
0.074	5

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

101.6	--
76.2	100
50.8	92
38.1	85
25.4	77
19.0	74
12.7	67
9.5	61
4.76	49
2.38	--
2.00	36
1.19	--
0.841	26
0.595	--
0.42	19
0.297	--
0.177	--
0.149	8
0.074	5

M.C. (%): --

M.C. (%): --

LIMITS

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

LIMITS

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

% GRAVEL: 44  
 % SAND: 51  
 % FINES: 5

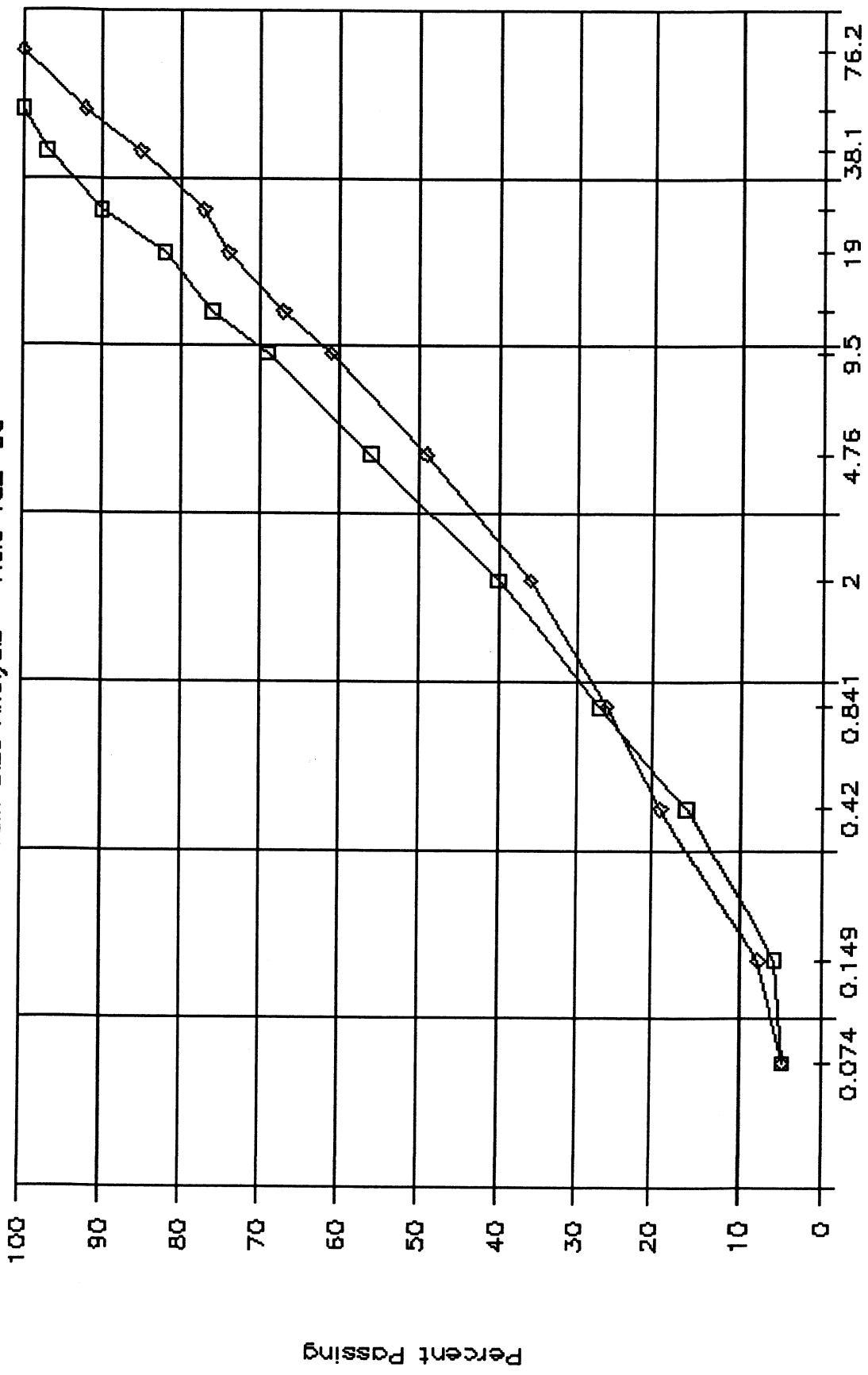
% GRAVEL: 51  
 % SAND: 45  
 % FINES: 5

CLASSIFICATION:  
 POORLY GRADED  
 SAND WITH SILT &  
 GRAVEL (SP-SM)

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

# PUBLIC WORKS CANADA - WHITEHORSE, Y.T.

Grain Size Analysis - Hole 152-06



SAMP. 10     
  SAMP. 11     
 Sieve Size (mm)     
  SAMP.     
  SAMP.

PROJECT NUMBER: 859167 HOLE NUMBER: 152-07  
 CLIENT: PWC/O&M YUKON  
 PROJECT NAME: ALASKA HIGHWAY GRANULAR INVESTIGATION  
 PROJECT LOCATION: 115-G-07  
 DRILL UNIT: BACKHOE: CASE 688  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: DT DATE COMPLETED: 91.11.07

FIELD NO: 12  
 LAB NO: 5410  
 DEPTH: 0.8-1.2  
 TYPE: BULK

FIELD NO: 13  
 LAB NO: 5411  
 DEPTH: 4.5-4.9  
 TYPE: BULK

SIEVE SIZE	PERCENT PASSING
101.6	--
76.2	100
50.8	94
38.1	90
25.4	79
19.0	74
12.7	60
9.5	52
4.76	38
2.38	--
2.00	25
1.19	--
0.841	13
0.595	--
0.42	7
0.297	--
0.177	--
0.149	3
0.074	2

SIEVE SIZE	PERCENT PASSING
101.6	--
76.2	--
50.8	--
38.1	100
25.4	95
19.0	93
12.7	85
9.5	81
4.76	69
2.38	--
2.00	54
1.19	--
0.841	37
0.595	--
0.42	21
0.297	--
0.177	--
0.149	4
0.074	3

M.C. (%): --

M.C. (%): --

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

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

% GRAVEL: 62  
 % SAND: 36  
 % FINES: 2

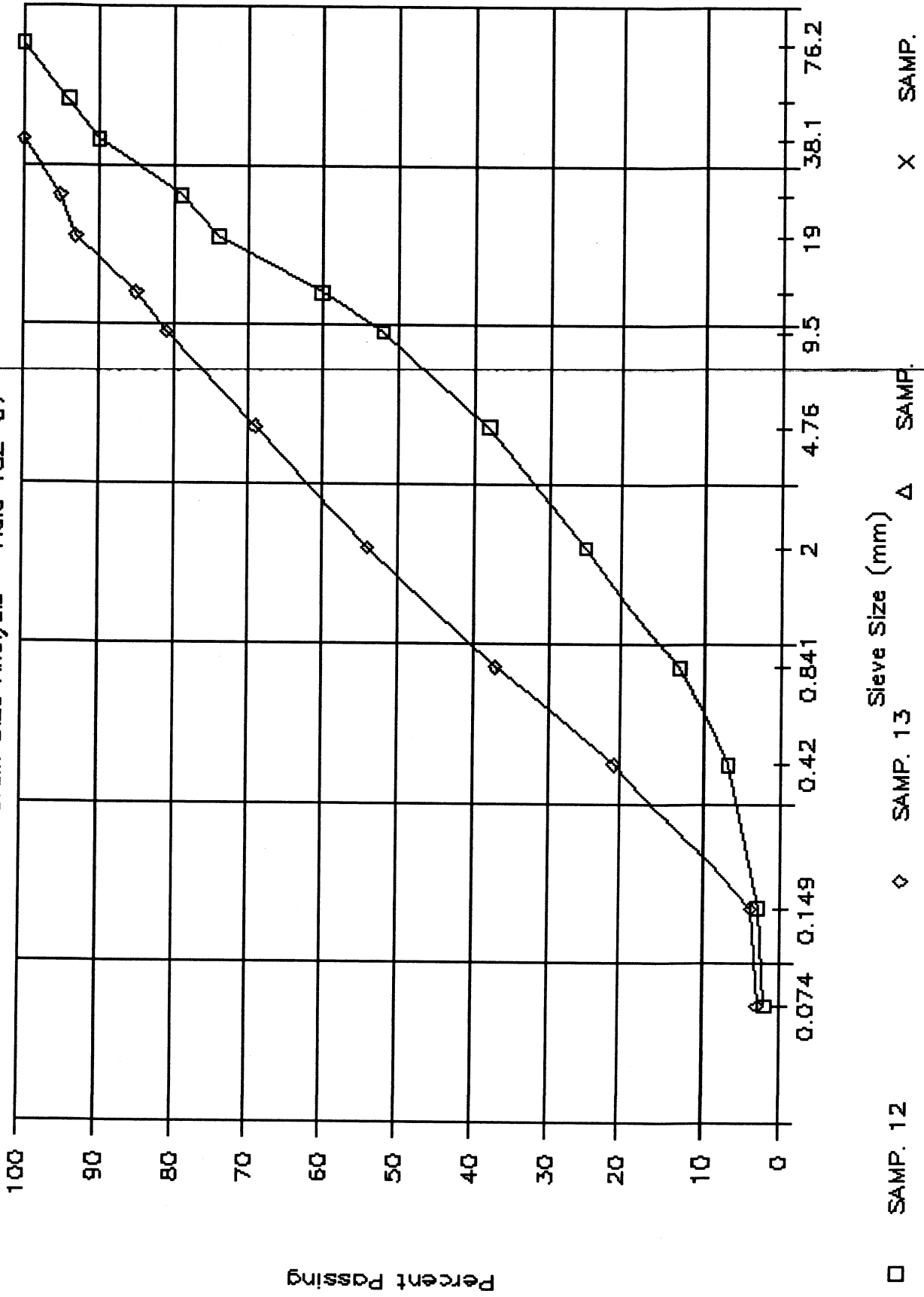
% GRAVEL: 31  
 % SAND: 66  
 % FINES: 3

CLASSIFICATION:  
 WELL-GRADED  
 GRAVEL WITH SAND  
 (GW)

CLASSIFICATION:  
 POORLY GRADED  
 SAND WITH GRAVEL  
 (SP)

# PUBLIC WORKS CANADA — WHITEHORSE, Y.T.

Grain Size Analysis — Hole 152-07



PROJECT NUMBER: 859167 HOLE NUMBER: 152-08  
 CLIENT: PWC/O&M YUKON  
 PROJECT NAME: ALASKA HIGHWAY GRANULAR INVESTIGATION  
 PROJECT LOCATION: 115-G-07  
 DRILL UNIT: BACKHOE: CASE 688  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: DT DATE COMPLETED: 91.11.07

FIELD NO: 14  
 LAB NO: 5412  
 DEPTH: 1.2-1.6  
 TYPE: BULK

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

101.6	--
76.2	100
50.8	89
38.1	89
25.4	82
19.0	75
12.7	69
9.5	63
4.76	50
2.38	--
2.00	36
1.19	--
0.841	24
0.595	--
0.42	15
0.297	--
0.177	--
0.149	7
0.074	4

M.C. (%): --

LIMITS

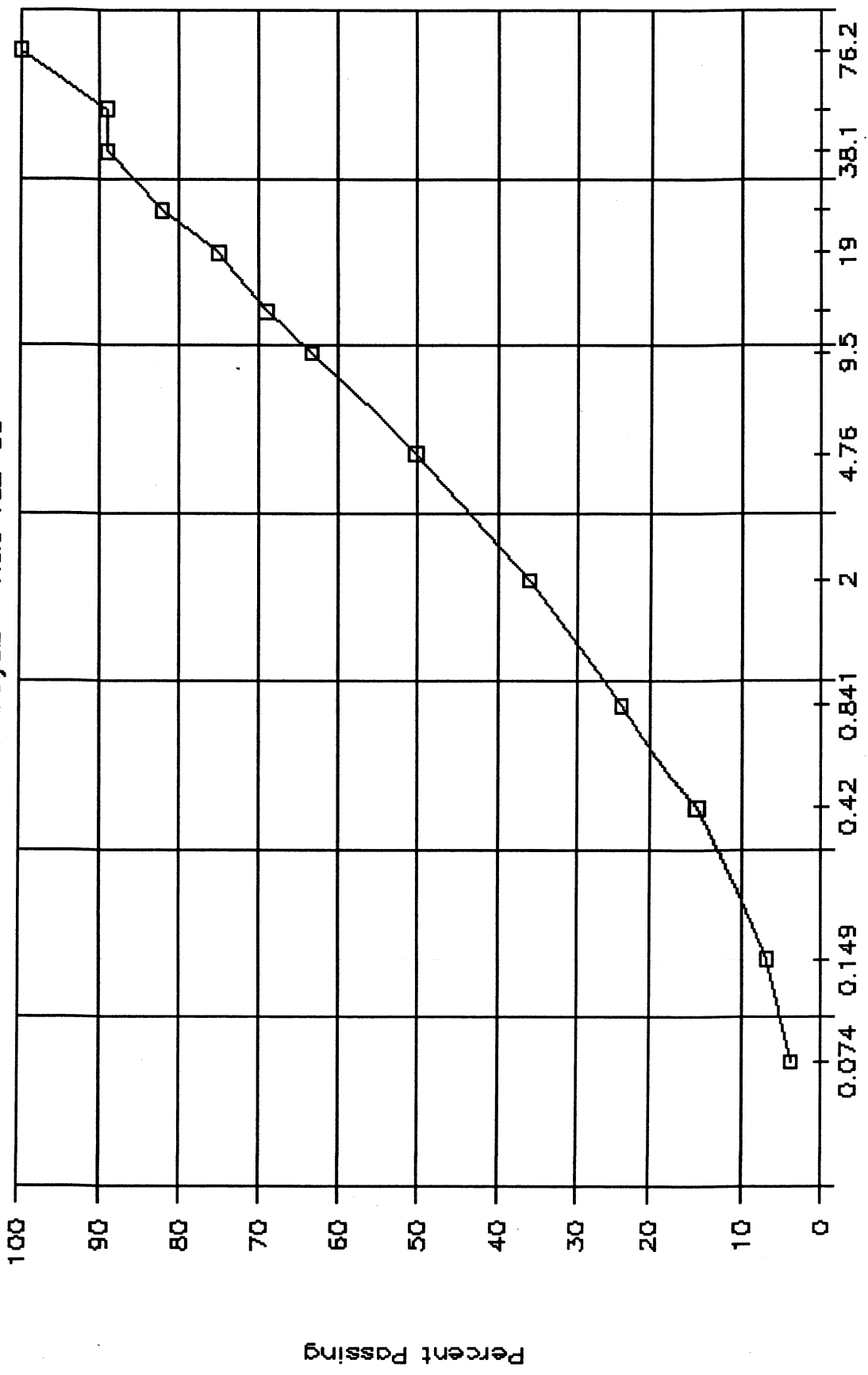
LIQUID: --  
 PLASTIC: --  
 P.I.: N.P.

% GRAVEL: 50  
 % SAND: 45  
 % FINES: 4

CLASSIFICATION:  
 POORLY GRADED  
 GRAVEL WITH SAND  
 (GP)

# PUBLIC WORKS CANADA - WHITEHORSE, Y.T.

Grain Size Analysis - Hole 152-08



□ SAMP. 14      ◇ SAMP.      △ Sieve Size (mm)      X SAMP.

Pit Ident. 115 G-07  
Km 1635.8 RHS Alaska Highway #1  
(Silver City)

April 1992  
Report # GR-01-013

EBA Engineering Consultants Ltd.

Pit Run Sample Results

# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Evaluation  
km 1693 North Alaska Highway, Yukon

Project Number: 0201-10922

Date Tested: 92-04-29

Borehole Number: 92-019E

Depth: 0.5 m

Soil Description: POORLY GRADED GRAVEL WITH SILT & SAND (GP/GM)

Cu: 115

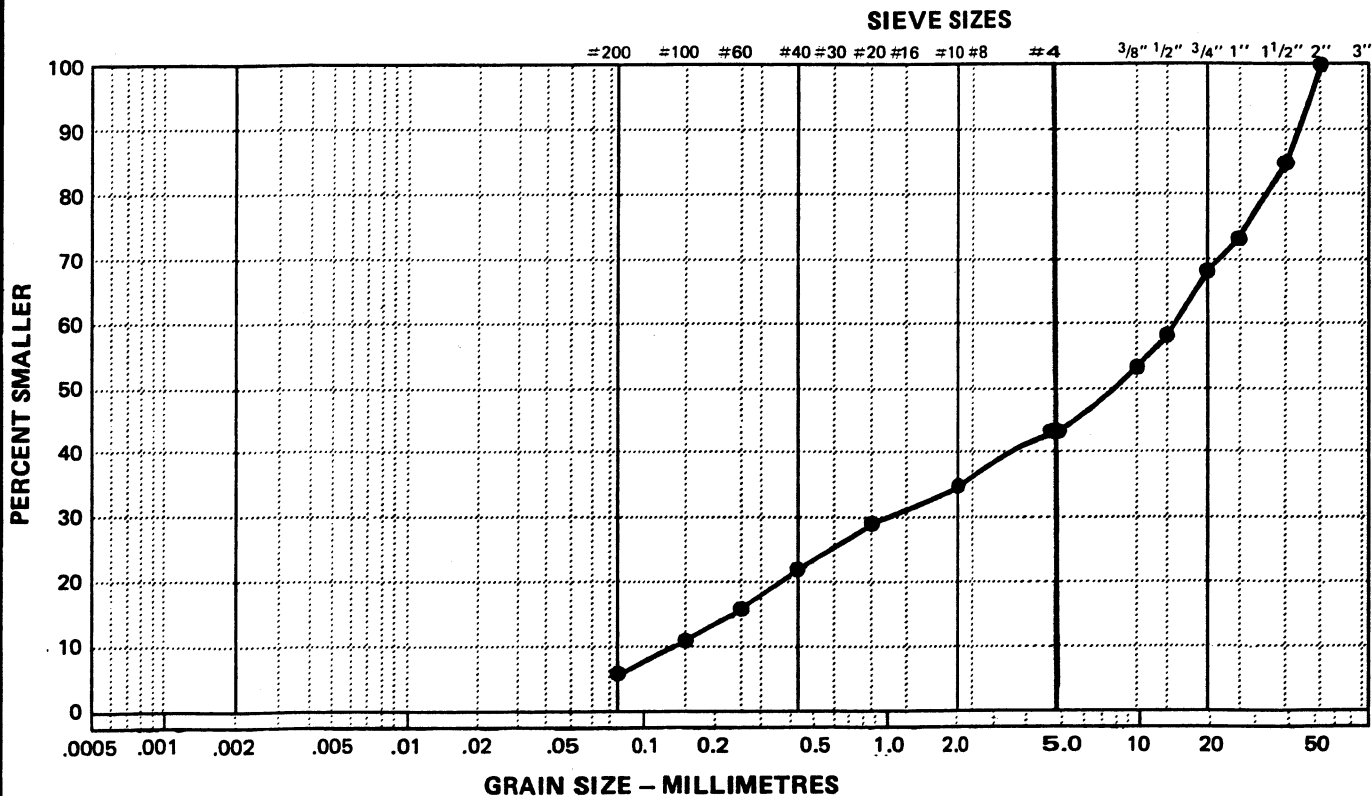
Cc: 0.5

Natural Moisture Content: 5.5 %

Remarks: Gravel 57.1%  
Sand 36.6%  
Silt 6.3%

SIEVE	PERCENTAGE PASSING
3"	
2"	100.0
1 1/2"	85.0
1"	73.2
3/4"	68.1
3/8"	53.4
No. 4	42.9
No. 10	35.3
No. 20	29.1
No. 40	22.2
No. 60	15.6
No. 100	10.5
No. 200	6.3

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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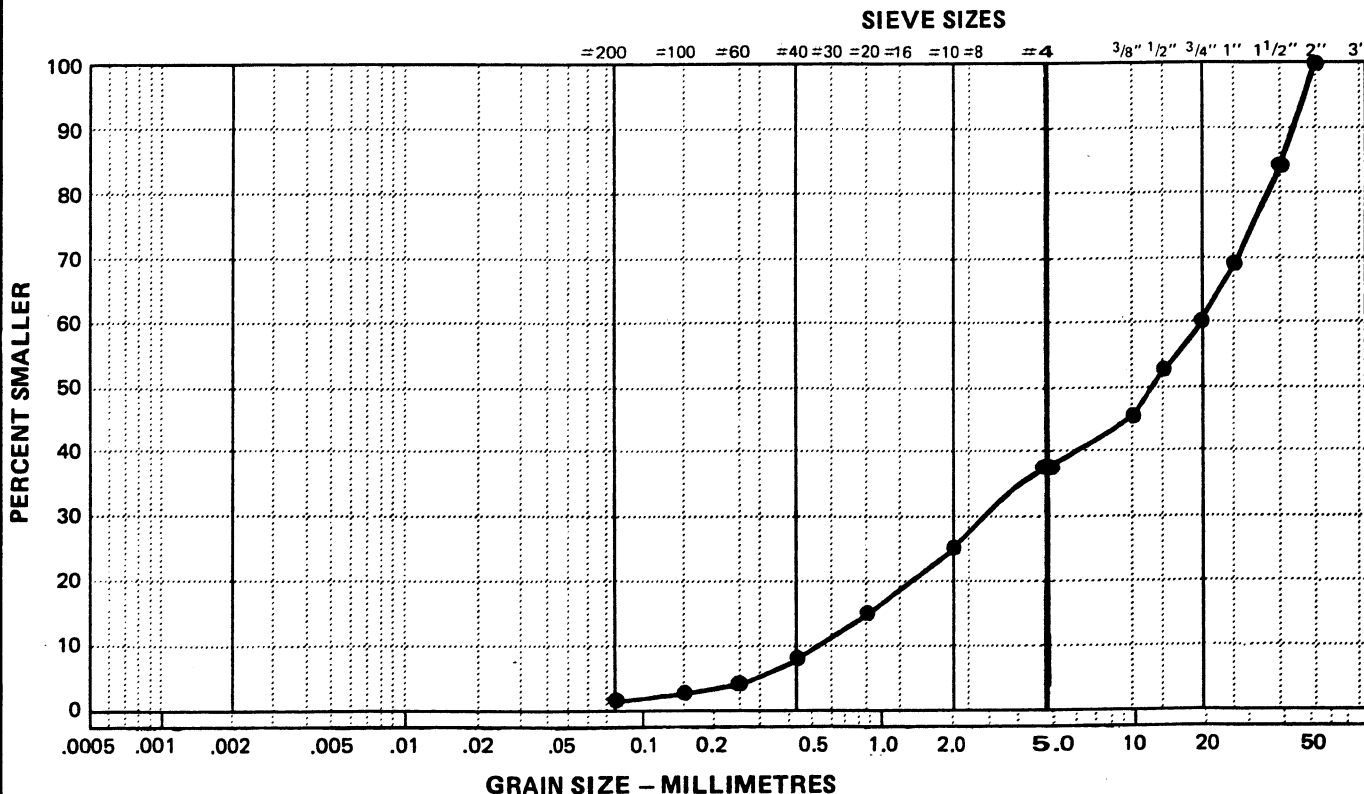


## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Evaluation  
km 1693 North Alaska Highway  
 Project Number: 0201-10922  
 Date Tested: 92-04-29  
 Borehole Number: 92-019E  
 Depth: 1.0 m  
 Soil Description: POORLY GRADED GRAVEL WITH SAND (GP)  
 Cu: 40  
 Cc: 0.9  
 Natural Moisture Content: 1.5 %  
 Remarks: Gravel 64.4%  
Sand 33.6%  
Silt 2.0%

SIEVE	PERCENTAGE PASSING
3"	
2"	100.0
1 1/2"	83.9
1"	69.4
3/4"	60.4
3/8"	45.8
No. 4	35.6
No. 10	24.9
No. 20	15.4
No. 40	7.9
No. 60	4.4
No. 100	2.7
No. 200	2.0

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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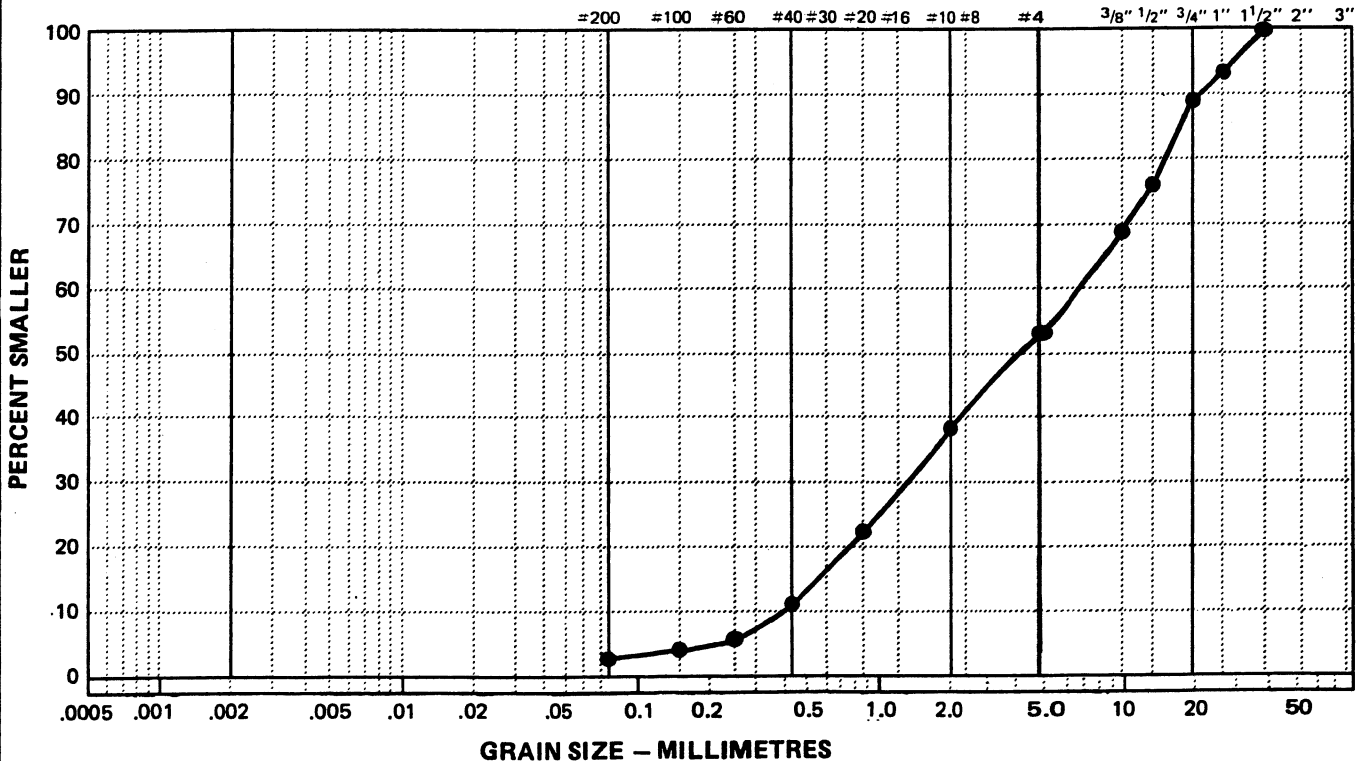
## PARTICLE - SIZE ANALYSIS OF SOILS

**Project:** Granular Source Evaluation  
 km 1693 North Alaska Highway, Yukon  
**Project Number:** 0201-10922  
**Date Tested:** 92-04-29  
**Borehole Number:** 92-019E  
**Depth:** 2.0 m  
**Soil Description:** POORLY GRADED SAND WITH GRAVEL (SP)  
**Cu:** 16.3  
**Cc:** 0.9  
**Natural Moisture Content:** 2.0 %  
**Remarks:** Gravel 46.6%  
 Sand 50.2%  
 Silt 3.2%

SIEVE	PERCENTAGE PASSING
3"	
2"	
1 1/2"	100.0
1"	92.7
3/4"	88.6
3/8"	68.5
No. 4	53.4
No. 10	36.8
No. 20	22.2
No. 40	11.4
No. 60	6.4
No. 100	4.2
No. 200	3.2

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE

### SIEVE SIZES



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# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Evaluation  
km 1693 North Alaska Highway, Yukon

Project Number: 0201-10922

Date Tested: 92-04-29

Borehole Number: 92-019E

Depth: 3.0 m

Soil Description: POORLY GRADED GRAVEL WITH SAND (GP)

Cu: 22.2

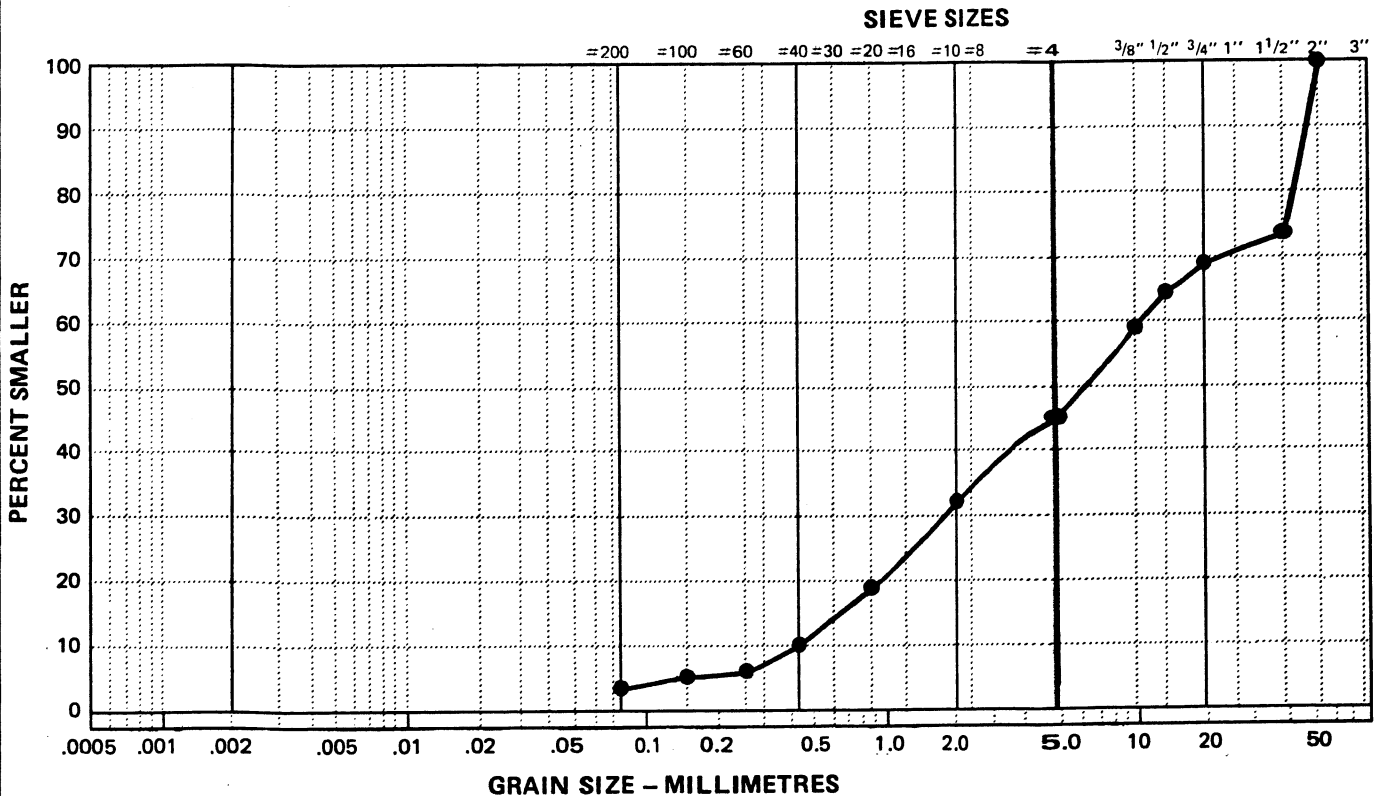
Cc: 0.7

Natural Moisture Content: 1.8 %

Remarks: Gravel 58.1%  
Sand 41.1%  
Silt 4.3%

SIEVE	PERCENTAGE PASSING
3"	
2"	100.0
1 1/2"	72.7
1"	
3/4"	69.1
3/8"	58.9
No. 4	45.4
No. 10	31.7
No. 20	19.1
No. 40	9.9
No. 60	6.3
No. 100	4.8
No. 200	4.3

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Evaluation  
km 1693 North Alaska Highway, Yukon

Project Number: 0201-10922

Date Tested: 92-04-29

Borehole Number: 92-019E

Depth: 4.0 m

Soil Description: SILTY GRAVEL WITH SAND (GM)

Cu: \_\_\_\_\_

Cc: \_\_\_\_\_

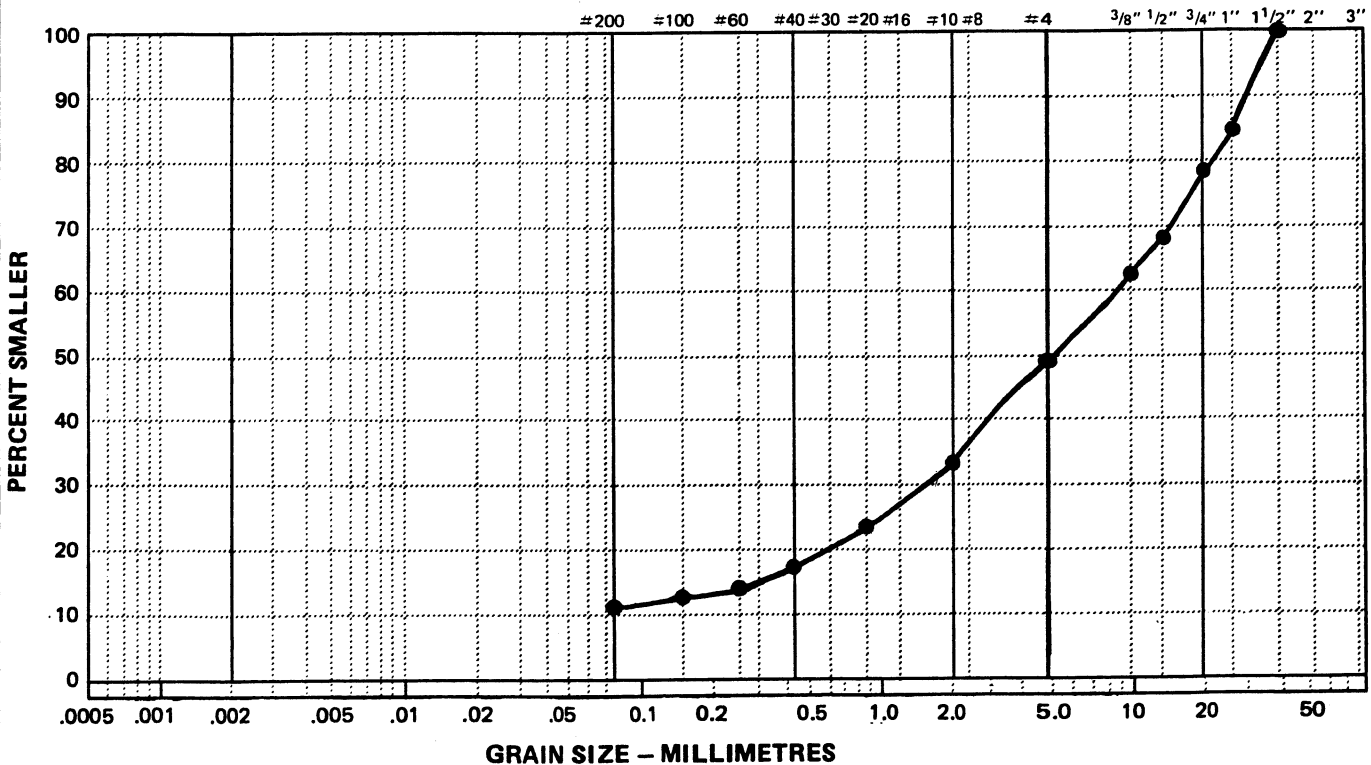
Natural Moisture Content: 3.2 %

Remarks: Gravel 51.2%  
Sand 36.7%  
Silt 12.1%

SIEVE	PERCENTAGE PASSING
3"	
2"	
1 1/2"	100.0
1"	84.0
3/4"	78.3
3/8"	62.2
No. 4	48.8
No. 10	33.3
No. 20	23.1
No. 40	16.5
No. 60	13.8
No. 100	12.7
No. 200	12.1

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE

SIEVE SIZES



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## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Evaluation  
km 1693 North Alaska Highway, Yukon

Project Number: 0201-10922

Date Tested: 92-04-30

Borehole Number: 92-023E

Depth: 1.0 m

Soil Description: WELL GRADED GRAVEL WITH SAND (GW)

Cu: 40.0

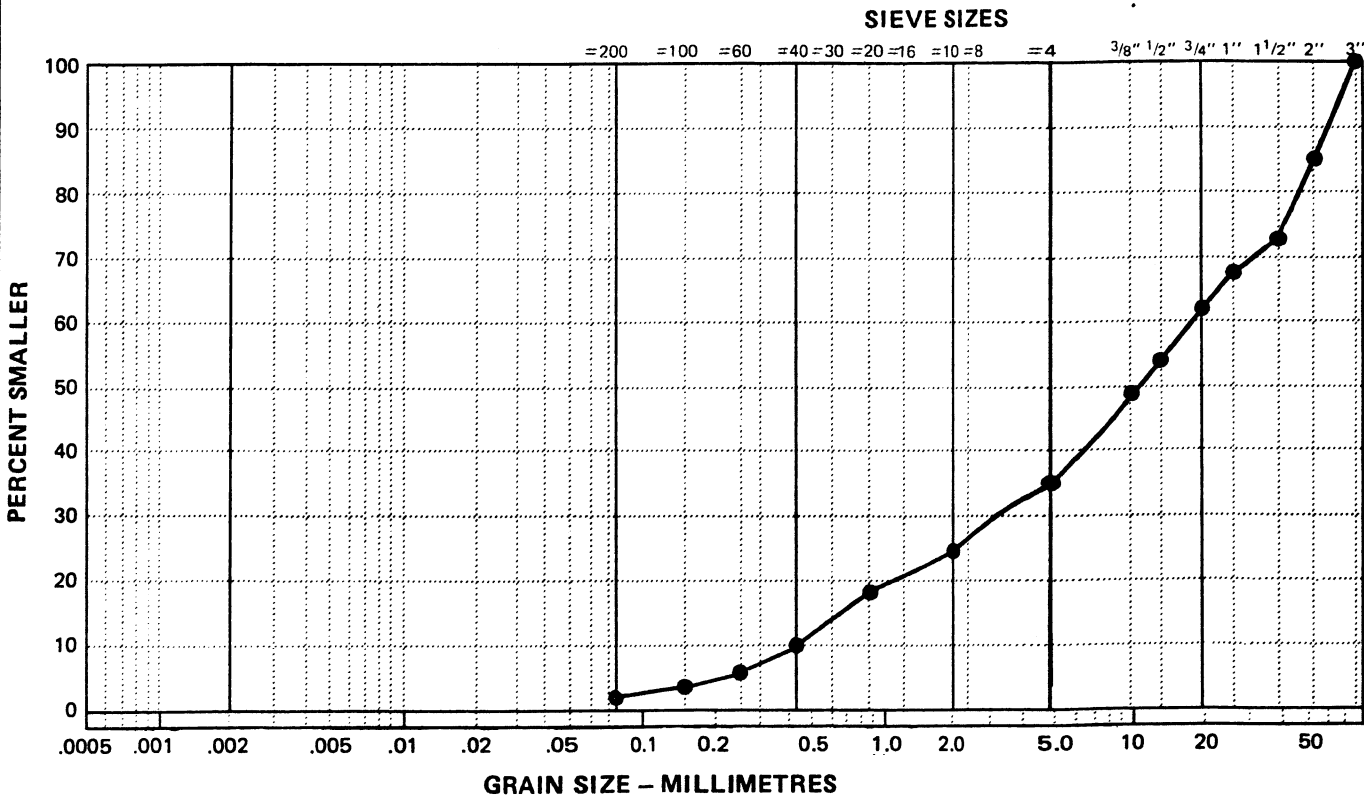
Cc: 1.1

Natural Moisture Content: 1.3 %

Remarks: Gravel 63.8%  
Sand 33.5%  
Silt 2.7%

SIEVE	PERCENTAGE PASSING
3"	100.0
2"	84.7
1 1/2"	72.3
1"	67.3
3/4"	62.0
3/8"	48.7
No. 4	36.2
No. 10	25.7
No. 20	17.9
No. 40	10.3
No. 60	6.1
No. 100	3.9
No. 200	2.7

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Evaluation  
km 1693 North Alaska Highway, Yukon

Project Number: 0201-10922

Date Tested: 92-04-30

Borehole Number: 92-023E

Depth: 2.0 m

Soil Description: POORLY GRADED GRAVEL WITH SAND (GP)

Cu: 33.3

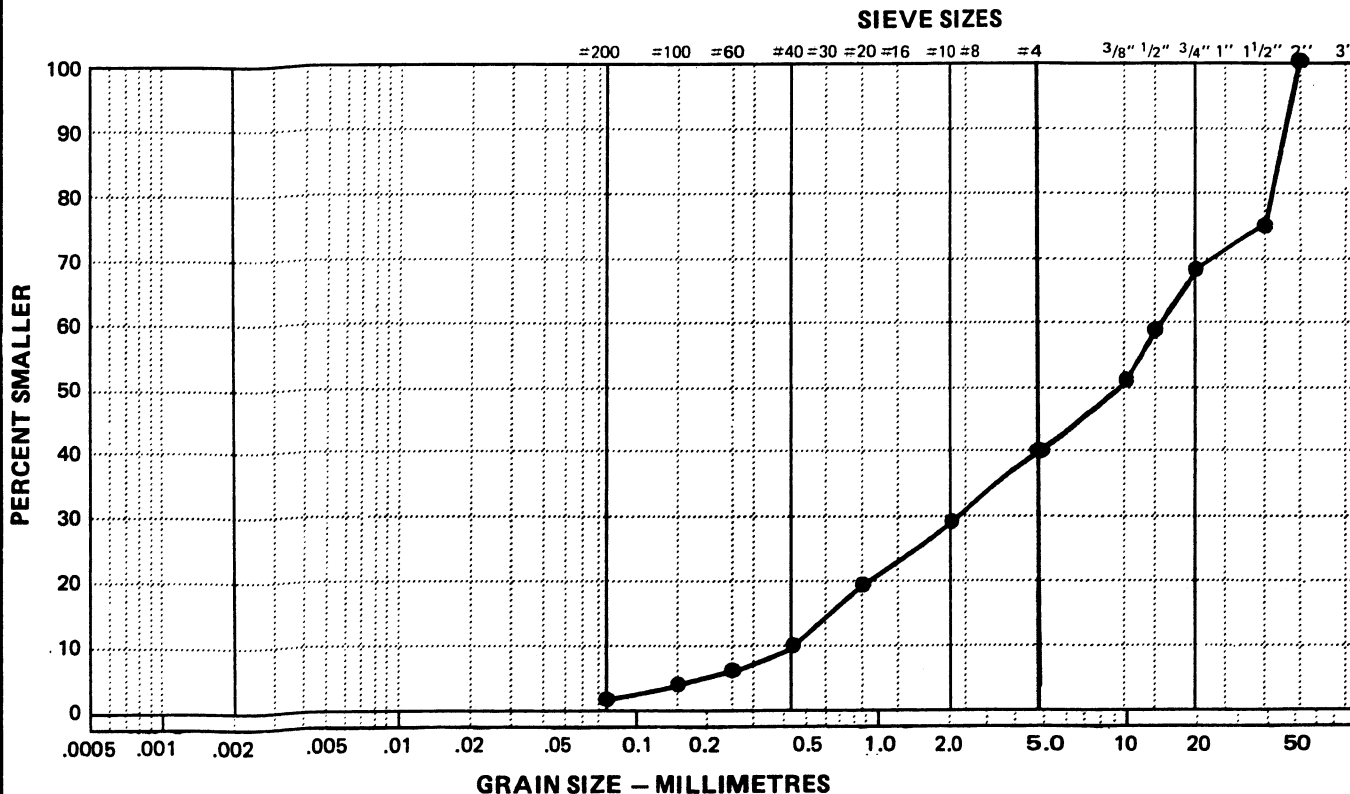
Cc: 0.9

Natural Moisture Content: 1.5 %

Remarks: Gravel 59.6%  
Sand 38.0%  
Silt 2.4%

SIEVE	PERCENTAGE PASSING
3"	
2"	100.0
1 1/2"	74.6
1"	
3/4"	68.4
3/8"	51.3
No. 4	40.4
No. 10	29.1
No. 20	19.0
No. 40	10.1
No. 60	5.7
No. 100	3.6
No. 200	2.4

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Evaluation  
km 1693 North Alaska Highway

Project Number: 0201-10922

Date Tested: 92-04-30

Borehole Number: 92-023E

Depth: 3.0 m

Soil Description: POORLY GRADED GRAVEL WITH SAND (GP)

Cu: 24.0

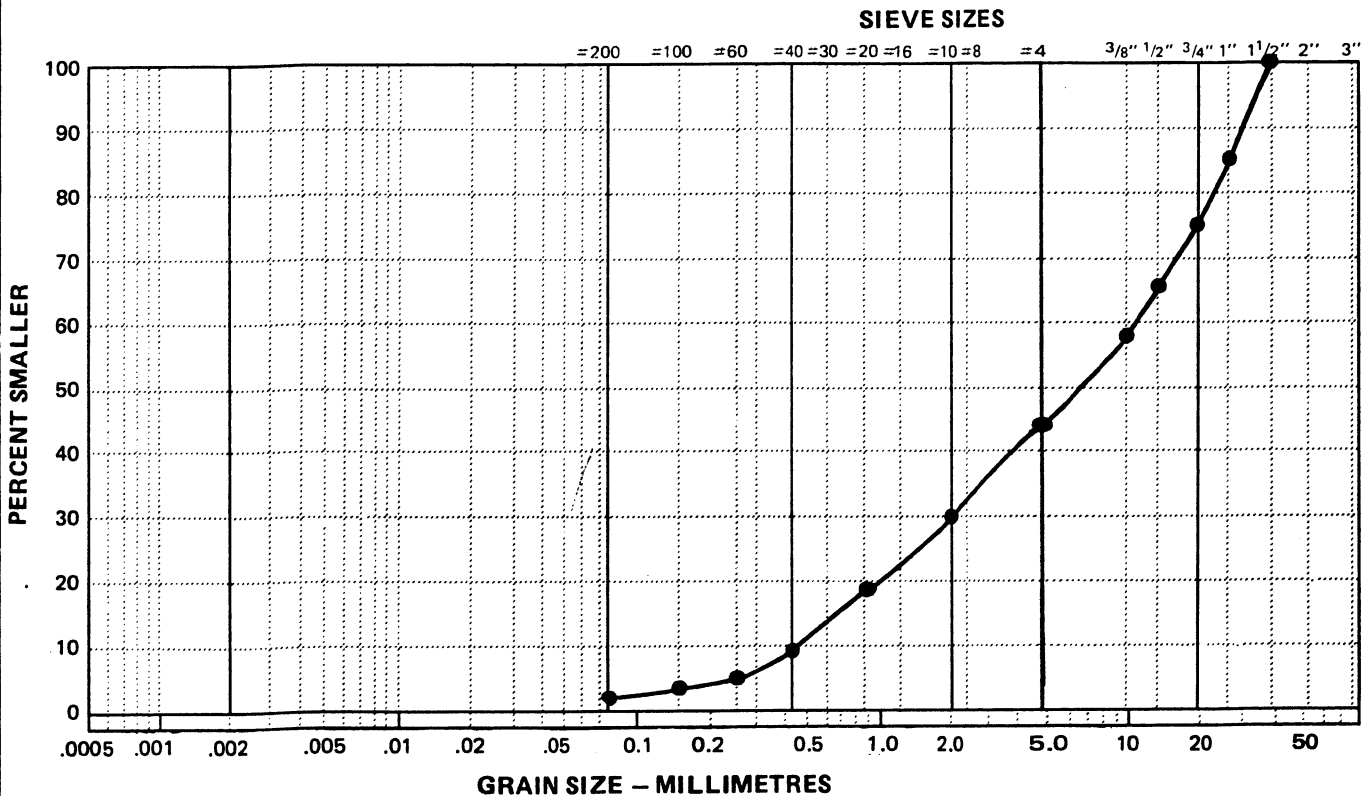
Cc: 0.7

Natural Moisture Content: 1.6 %

Remarks: Gravel 56.1%  
Sand 41.4%  
Silt 2.5%

SIEVE	PERCENTAGE PASSING
3"	
2"	
1 1/2"	100.0
1"	86.1
3/4"	74.7
3/8"	57.5
No. 4	43.9
No. 10	29.6
No. 20	17.9
No. 40	9.2
No. 60	5.2
No. 100	3.5
No. 200	2.5

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Evaluation  
km 1693 North Alaska Highway

Project Number: 0201-10922

Date Tested: 92-04-30

Borehole Number: 92-023E

Depth: 4.0 m

Soil Description: POORLY GRADED GRAVEL WITH SAND (GP)

Cu: 40.0

Cc: 0.3

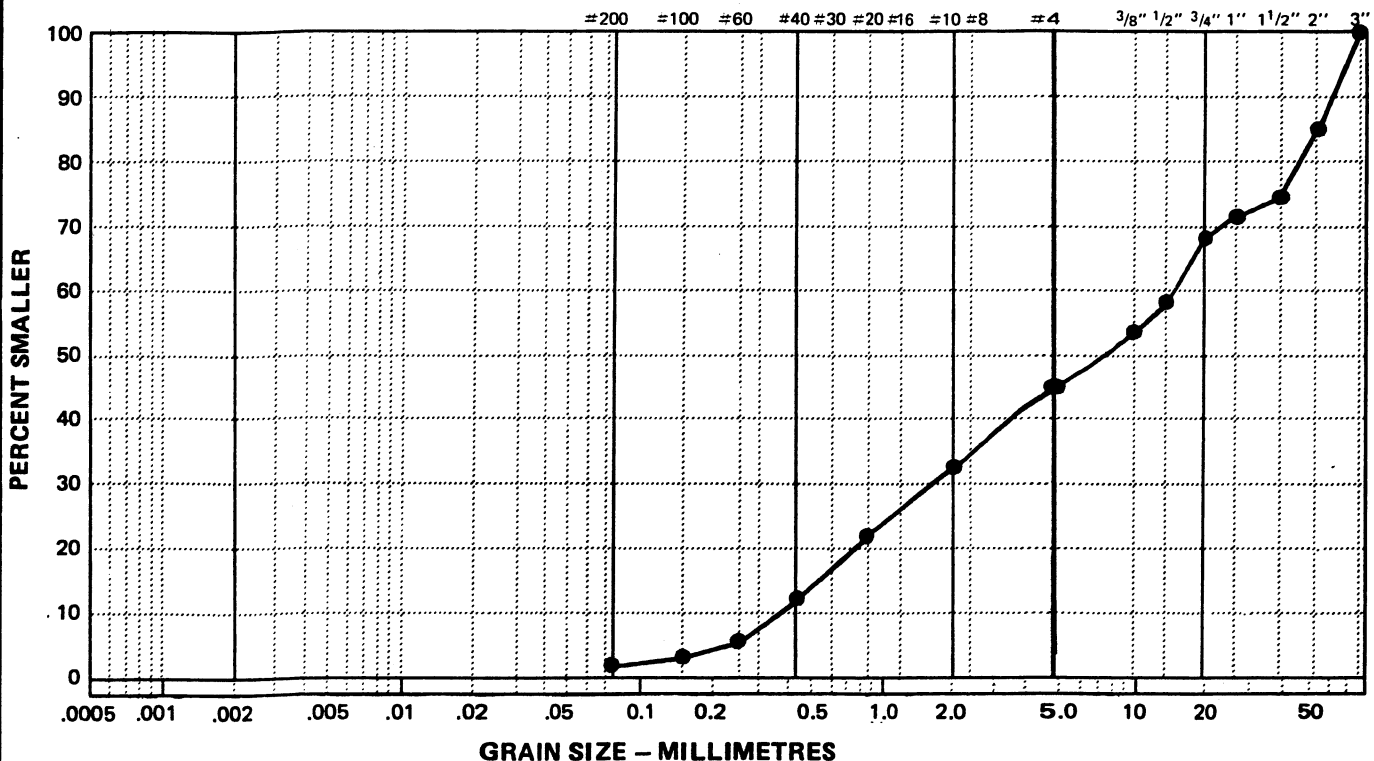
Natural Moisture Content: 1.4 %

Remarks: Gravel 55.3%  
Sand 42.9%  
Silt 1.8%

SIEVE	PERCENTAGE PASSING
3"	100.0
2"	84.7
1 1/2"	74.6
1"	71.5
3/4"	67.4
3/8"	54.4
No. 4	44.7
No. 10	33.1
No. 20	22.2
No. 40	11.8
No. 60	5.6
No. 100	2.9
No. 200	1.8

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE

### SIEVE SIZES



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Pit Ident. 115 G-07  
Km 1635.8 RHS Alaska Highway #1  
(Silver City)

March 2001  
Book # 583 & 584

Yukon Territorial Government

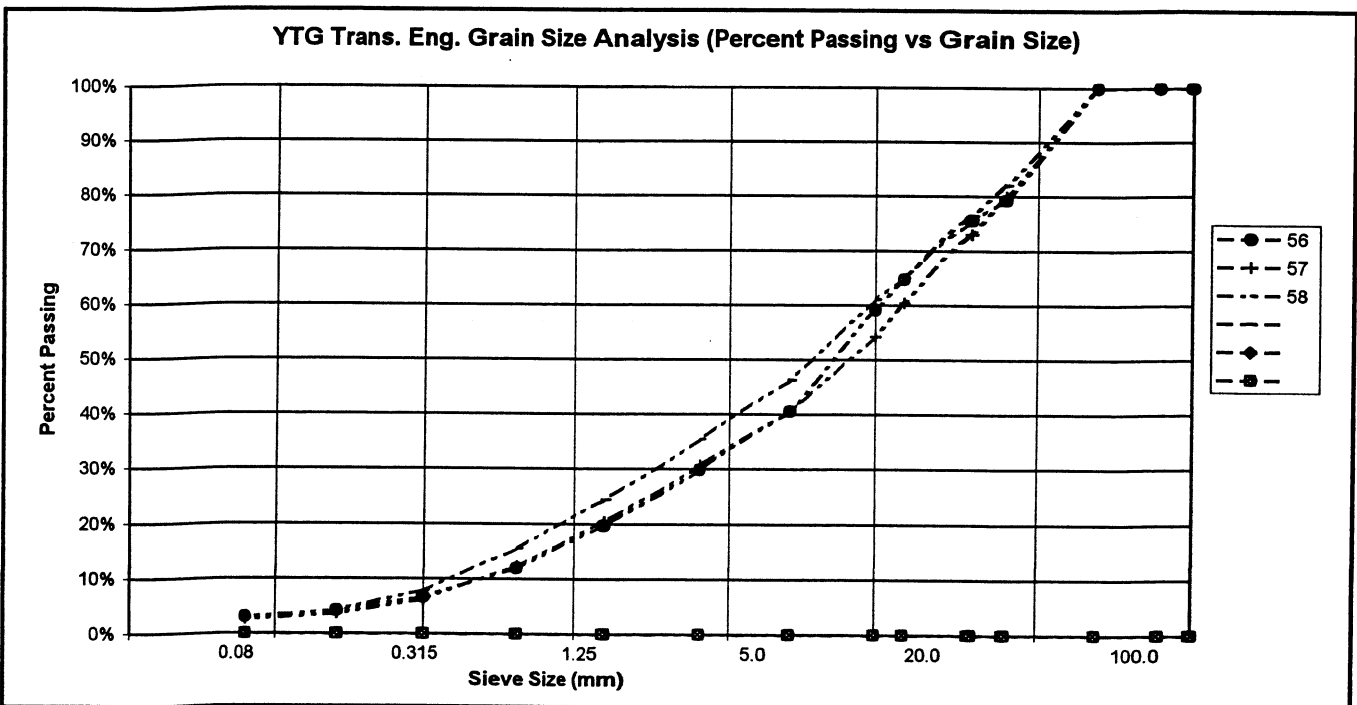
Pit Run Sample Results

PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H Silver Creek  
 DRILL UNIT: Cat 320 Excavator  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 583-1524

DATE COMP: 2001/03/12

FIELD NO:	56	57	58		
LAB NO:	56	57	58		
DEPTH:	0.7-1.0	2.2-2.6	4.7-5.0		
TYPE:	BULK	BULK	BULK	BULK	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	100%	100%		
25.0	79%	80%	82%		
20.0	76%	73%	76%		
12.5	65%	60%	65%		
10.0	59%	54%	61%		
5.0	41%	40%	46%		
2.5	30%	31%	35%		
1.25	20%	20%	24%		
0.630	12%	12%	16%		
0.315	7%	6%	8%		
0.160	4%	4%	4%		
0.080	3%	3%	3%		
M.C.(%):					
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0		
% GRAVEL:	59	60	54		
% SAND:	38	38	44		
% FINES:	3	3	3		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SAND (GP)	POORLY GRADED GRAVEL WITH SAND (GP)	POORLY GRADED GRAVEL WITH SAND (GP)		

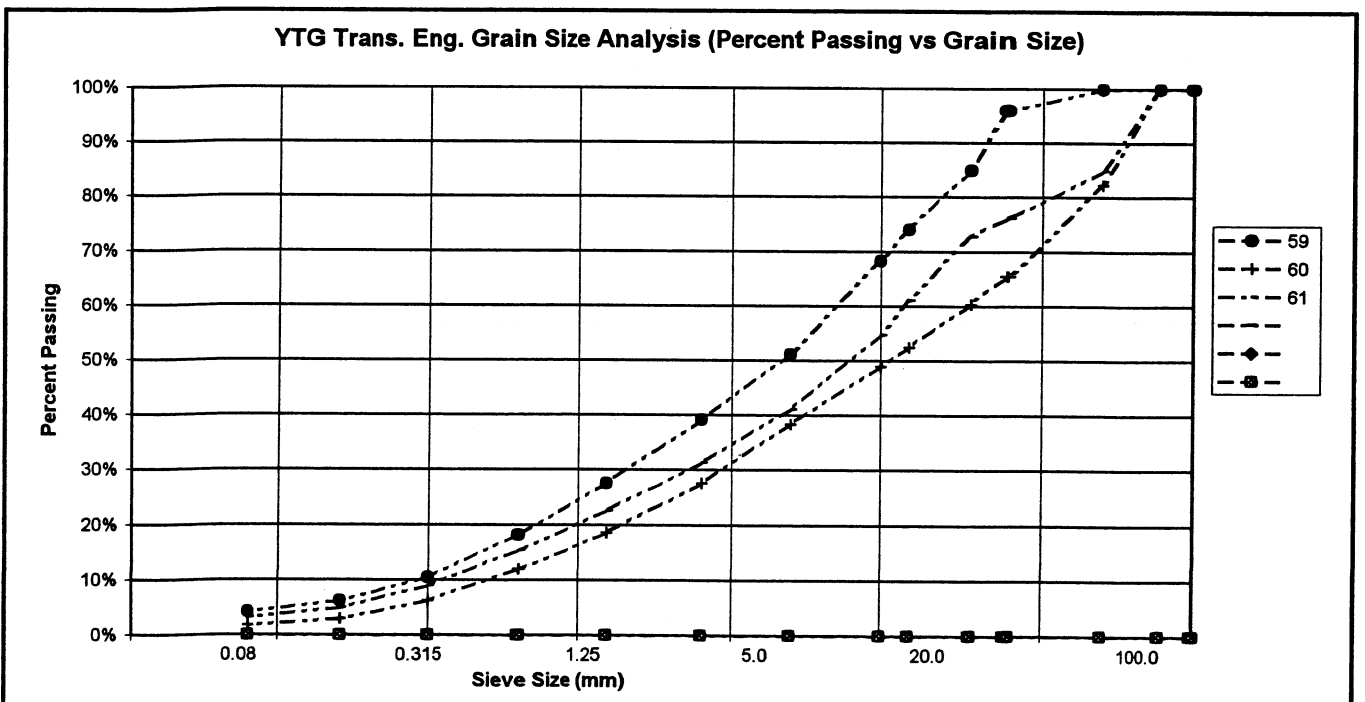


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H Silver Creek  
 DRILL UNIT: Cat 320 Excavator  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 583-1525

DATE COMP: 2001/03/12

FIELD NO:	59	60	61		
LAB NO:	59	60	61		
DEPTH:	0.8-1.1	2.3-2.7	4.7-5.0		
TYPE:	BULK	BULK	BULK	BULK	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	82%	85%		
25.0	96%	65%	76%		
20.0	85%	60%	73%		
12.5	74%	52%	61%		
10.0	68%	49%	55%		
5.0	51%	38%	41%		
2.5	39%	28%	31%		
1.25	28%	19%	23%		
0.630	18%	12%	15%		
0.315	10%	6%	9%		
0.160	6%	3%	5%		
0.080	4%	2%	3%		
M.C.(%):					
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0		
% GRAVEL:	49	62	59		
% SAND:	47	37	38		
% FINES:	4	2	3		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SAND (GP)	POORLY GRADED GRAVEL WITH SAND (GP)	POORLY GRADED GRAVEL WITH SAND (GP)		

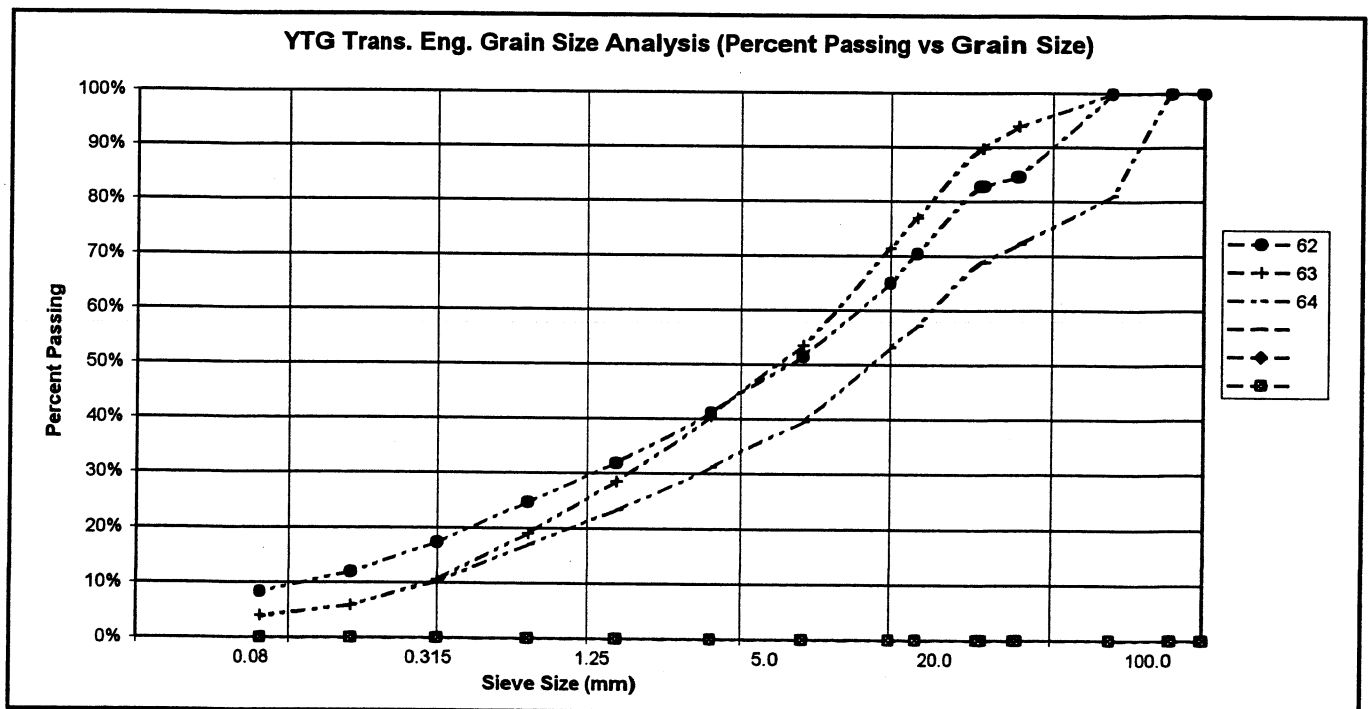


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H Silver Creek  
 DRILL UNIT: Cat 320 Excavator  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 583-1526

DATE COMP: 2001/03/12

FIELD NO:	62	63	64		
LAB NO:	62	63	64		
DEPTH:	0.6-0.8	2.6-3.0	3.7-3.9		
TYPE:	BULK	BULK	BULK	BULK	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	100%	81%		
25.0	85%	94%	72%		
20.0	83%	90%	69%		
12.5	70%	77%	57%		
10.0	65%	71%	53%		
5.0	52%	54%	39%		
2.5	41%	41%	31%		
1.25	32%	29%	23%		
0.630	25%	19%	17%		
0.315	17%	11%	10%		
0.160	12%	6%	6%		
0.080	8%	4%	4%		
M.C.(%):					
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0		
% GRAVEL:	49	46	61		
% SAND:	43	50	36		
% FINES:	8	4	4		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	WELL-GRADED SAND WITH GRAVEL (SW)	POORLY GRADED GRAVEL WITH SAND (GP)		

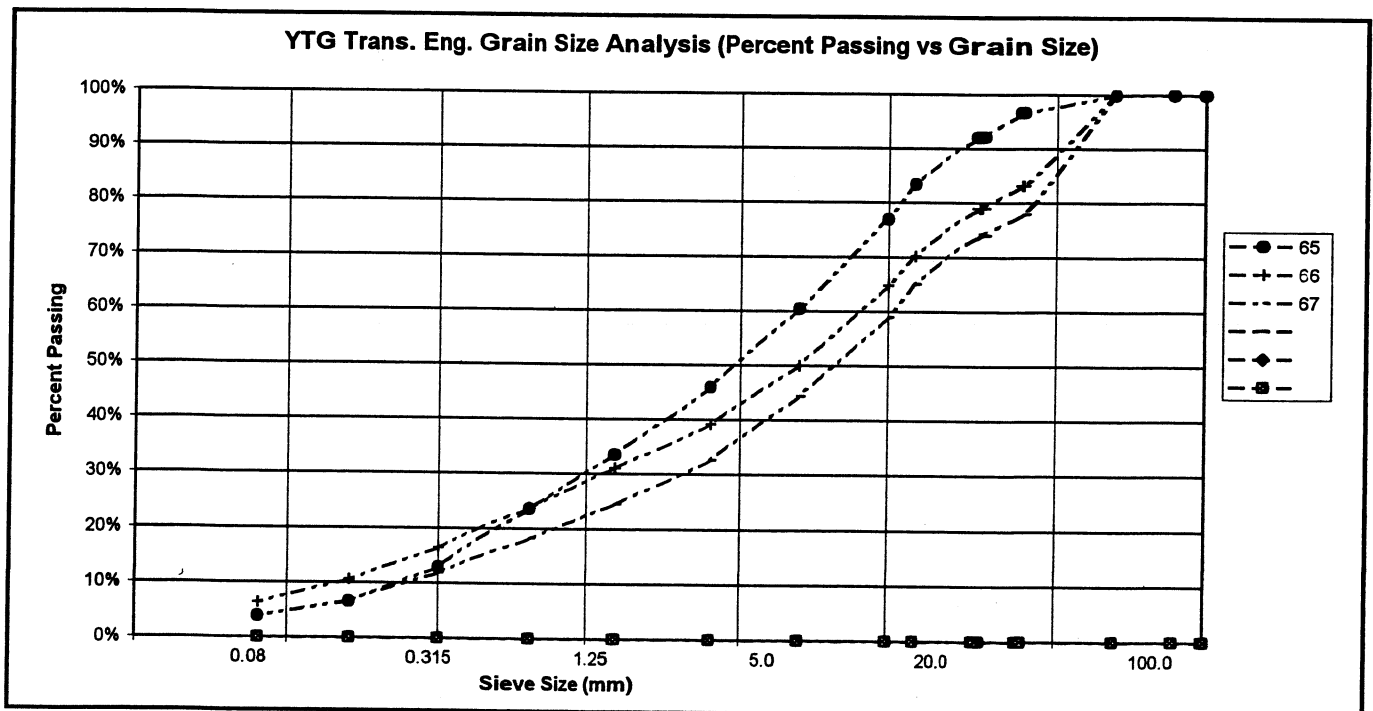


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H Silver Creek  
 DRILL UNIT: Cat 320 Excavator  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 583-1527

DATE COMP: 2001/03/13

FIELD NO:	65	66	67		
LAB NO:	65	66	67		
DEPTH:	0.9-1.2	2.4-2.8	4.0-4.2		
TYPE:	BULK	BULK	BULK	BULK	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	100%	100%		
25.0	97%	83%	78%		
20.0	92%	79%	74%		
12.5	83%	70%	65%		
10.0	77%	65%	59%		
5.0	61%	50%	44%		
2.5	46%	39%	33%		
1.25	34%	31%	25%		
0.630	24%	24%	18%		
0.315	13%	16%	12%		
0.160	7%	11%	7%		
0.080	4%	6%	4%		
M.C.(%):					
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX:	0.0	0.0	0.0		
% GRAVEL:	39	50	56		
% SAND:	57	44	40		
% FINES:	4	6	4		
CLASSIFICATION	WELL-GRADED SAND WITH GRAVEL (SW)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	POORLY GRADED GRAVEL WITH SAND (GP)		

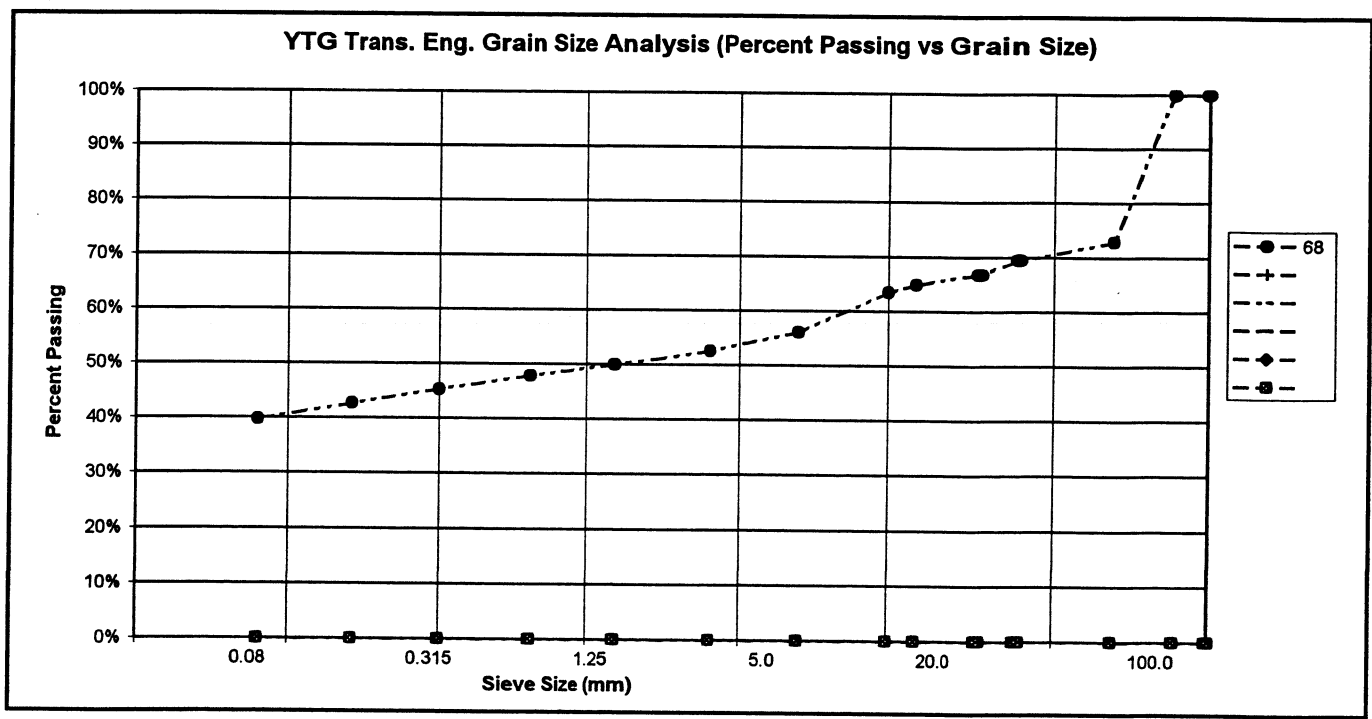


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H Silver Creek  
 DRILL UNIT: Cat 320 Excavator  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 583-1528

DATE COMP: 2001/03/13

FIELD NO:	68				
LAB NO:	68				
DEPTH:	3.0-3.2				
TYPE:	BULK	BULK	BULK	BULK	
SIEVE SIZE	PERCENT PASSING				
100.0	100%				
80.0	100%				
50.0	73%				
25.0	69%				
20.0	67%				
12.5	65%				
10.0	63%				
5.0	56%				
2.5	53%				
1.25	50%				
0.630	48%				
0.315	45%				
0.160	43%				
0.080	40%				
M.C.(%):					
LIQUID LIMIT:	0.0				
PLASTIC LIMIT:	0.0				
PLASTIC INDEX:	0.0				
% GRAVEL:	44				
% SAND:	16				
% FINES:	40				
CLASSIFICATION	SILTY GRAVEL WITH SAND (GM)				

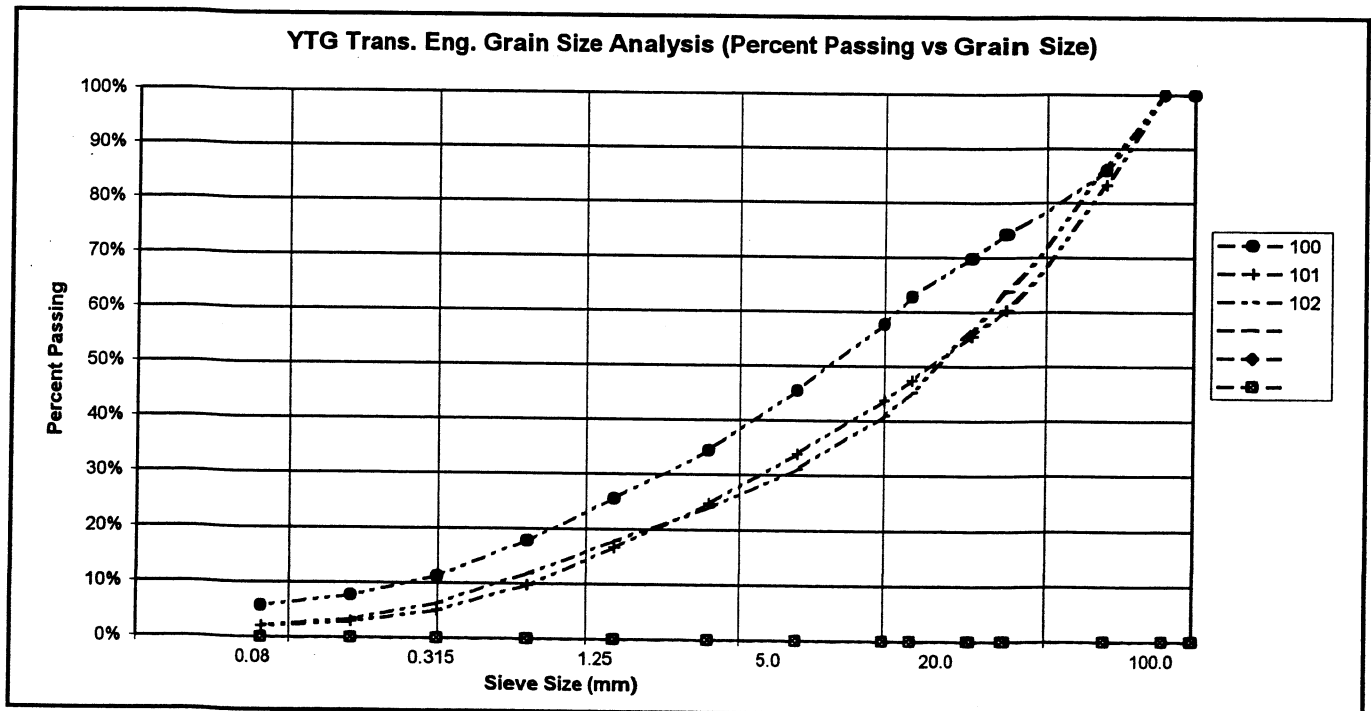


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H Silver Creek  
 DRILL UNIT: Cat 320 Excavator  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 583-1541

DATE COMP: 2001/03/14

FIELD NO:	100	101	102		
LAB NO:	100	101	102		
DEPTH:	0.3-0.6	2.2-2.6	4.6-5.0		
TYPE:	BULK	BULK	BULK	BULK	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	86%	83%	87%		
25.0	74%	60%	64%		
20.0	70%	56%	56%		
12.5	63%	47%	45%		
10.0	58%	44%	41%		
5.0	46%	34%	31%		
2.5	35%	25%	24%		
1.25	26%	17%	18%		
0.630	18%	10%	12%		
0.315	11%	5%	6%		
0.160	8%	3%	3%		
0.080	6%	2%	2%		
M.C.(%):			#VALUE!		
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0		
% GRAVEL:	54	66	69		
% SAND:	40	32	29		
% FINES:	6	2	2		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	POORLY GRADED GRAVEL WITH SAND (GP)	POORLY GRADED GRAVEL WITH SAND (GP)		



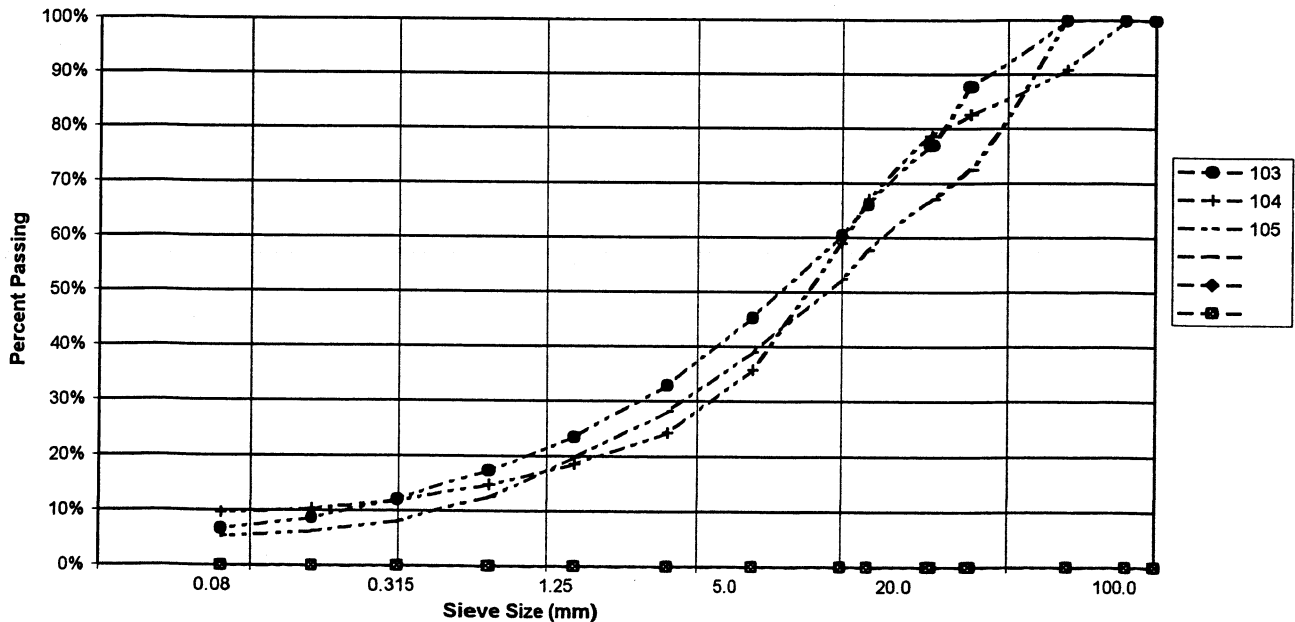
PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H Silver Creek  
 DRILL UNIT: Cat 320 Excavator  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 583-1542

DATE COMP: 2001/03/14

FIELD NO:	103	104	105		
LAB NO:	103	104	105		
DEPTH:	0.4-0.7	2.6-3.0	4.6-5.0		
TYPE:	BULK	BULK	BULK	BULK	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	91%	100%		
25.0	88%	83%	72%		
20.0	77%	79%	67%		
12.5	66%	67%	58%		
10.0	60%	59%	52%		
5.0	45%	36%	39%		
2.5	33%	24%	28%		
1.25	23%	19%	20%		
0.630	17%	15%	13%		
0.315	12%	12%	8%		
0.160	9%	10%	6%		
0.080	7%	10%	5%		
M.C.(%):					
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX:	0.0	0.0	0.0		
% GRAVEL:	55	64	61		
% SAND:	39	26	34		
% FINES:	7	10	5		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	WELL-GRADED GRAVEL WITH SILT & SAND (GW-GM)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)		

YTG Trans. Eng. Grain Size Analysis (Percent Passing vs Grain Size)



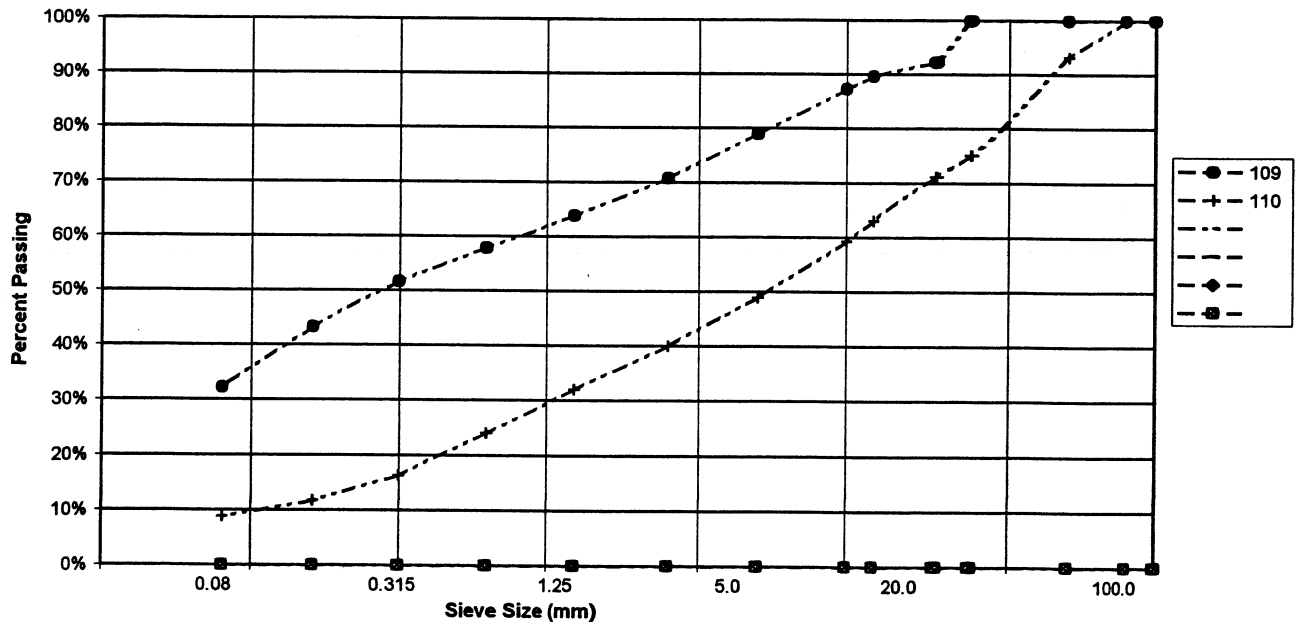
PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H  
 DRILL UNIT: CAT 320 L EXCAVATOR  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 584-1544

DATE COMP: 2001/03/15

FIELD NO:	109	110			
LAB NO:	109	110			
DEPTH:	1.1-1.5	2.4-2.7			
TYPE:	BULK	BULK	BULK	BULK	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING			
100.0	100%	100%			
80.0	100%	100%			
50.0	100%	93%			
25.0	100%	75%			
20.0	92%	71%			
12.5	90%	63%			
10.0	87%	59%			
5.0	79%	49%			
2.5	71%	40%			
1.25	64%	32%			
0.630	58%	24%			
0.315	52%	16%			
0.160	43%	12%			
0.080	32%	9%			
M.C.(%):					
LIQUID LIMIT:	0.0	0.0			
PLASTIC LIMIT:	0.0	0.0			
PLASTIC INDEX.:	0.0	0.0			
% GRAVEL:	21	51			
% SAND:	47	40			
% FINES:	32	9			
CLASSIFICATION	SILTY SAND WITH GRAVEL (SM)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)			

YTG Trans. Eng. Grain Size Analysis (Percent Passing vs Grain Size)



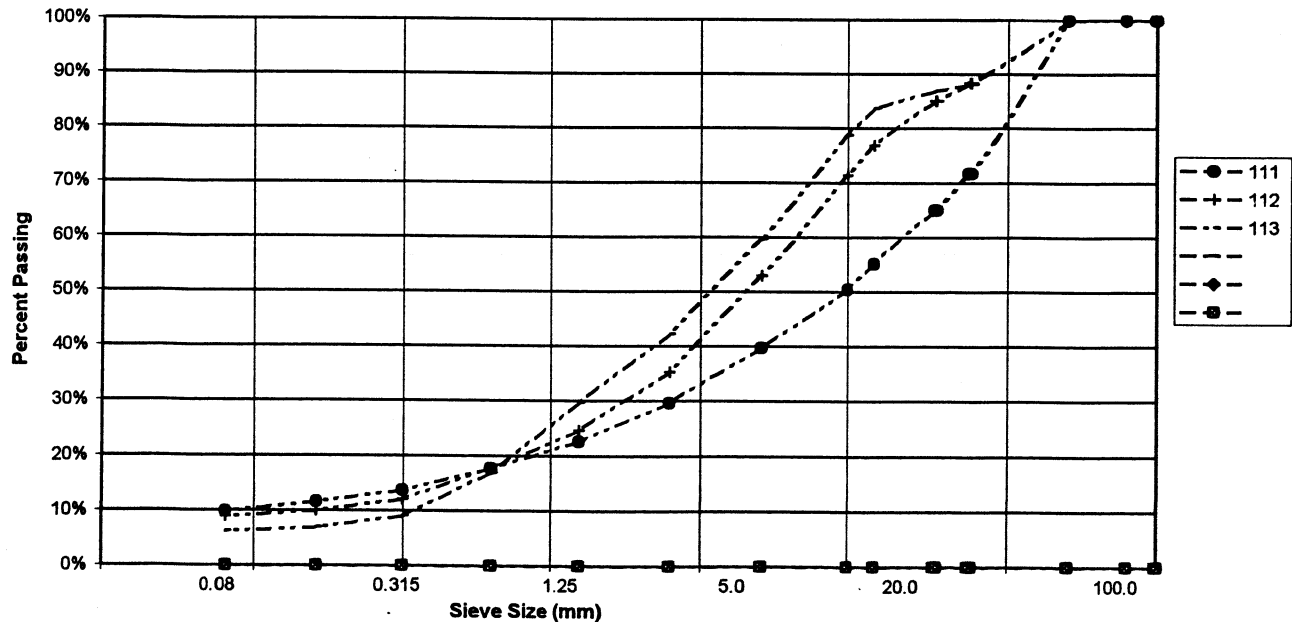
PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H  
 DRILL UNIT: CAT 320 L EXCAVATOR  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 584-1545

DATE COMP: 2001/03/15

FIELD NO:	111	112	113		
LAB NO:	111	112	113		
DEPTH:	0.3-0.6	2.6-3.0	4.6-5.0		
TYPE:	BULK	BULK	BULK	AUGER	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	100%	100%		
25.0	72%	88%	88%		
20.0	65%	85%	87%		
12.5	55%	77%	84%		
10.0	50%	71%	79%		
5.0	40%	53%	60%		
2.5	30%	35%	42%		
1.25	23%	25%	30%		
0.630	18%	18%	17%		
0.315	14%	12%	9%		
0.160	12%	10%	7%		
0.080	10%	9%	6%		
M.C.(%):					
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0		
% GRAVEL:	60	47	40		
% SAND:	30	44	53		
% FINES:	10	9	6		
CLASSIFICATION	WELL-GRADED GRAVEL WITH SILT & SAND (GW-GM)	POORLY GRADED GRAVEL WITH SILT & SAND (GP-GM)	WELL-GRADED SAND WITH SILT & GRAVEL (SW-SM)		

YTG Trans. Eng. Grain Size Analysis (Percent Passing vs Grain Size)



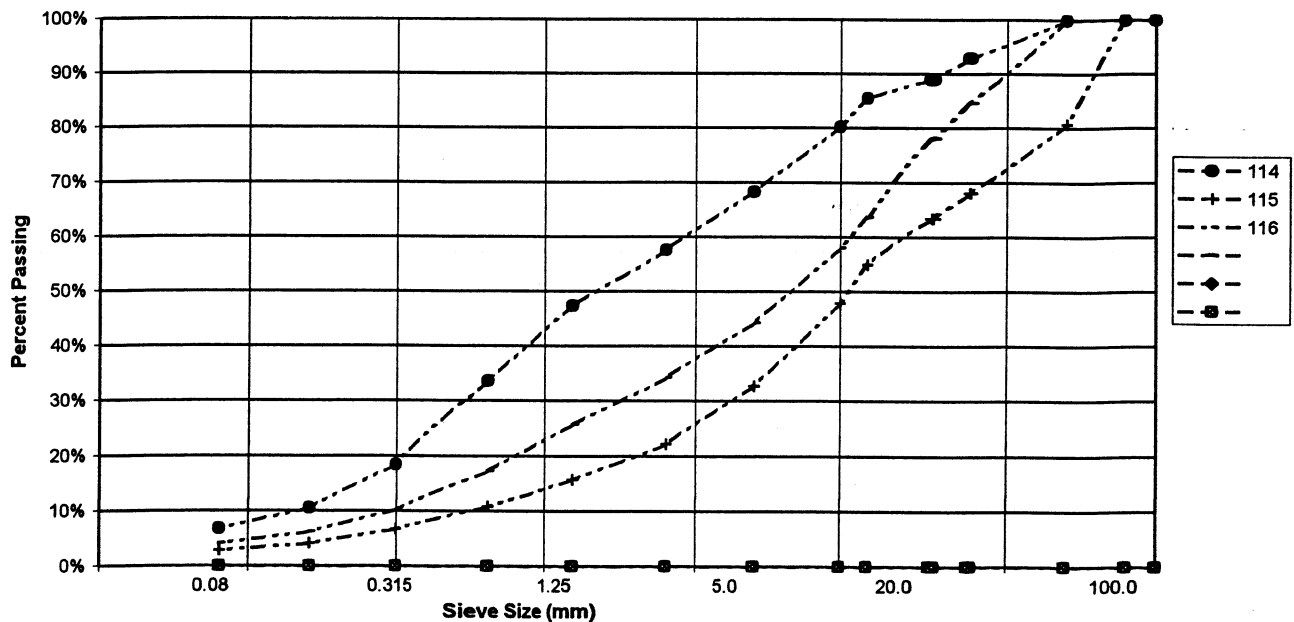
PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H  
 DRILL UNIT: CAT 320 L EXCAVATOR  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 584-1546

DATE COMP: 2001/03/15

FIELD NO:	114	115	116		
LAB NO:	114	115	116		
DEPTH:	0.3-0.6	2.5-2.9	4.6-5.0		
TYPE:	BULK	BULK	BULK	AUGER	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	81%	100%		
25.0	93%	68%	85%		
20.0	89%	63%	78%		
12.5	86%	55%	64%		
10.0	80%	48%	58%		
5.0	68%	33%	44%		
2.5	58%	22%	34%		
1.25	47%	16%	26%		
0.630	34%	11%	17%		
0.315	18%	7%	10%		
0.160	11%	4%	6%		
0.080	7%	3%	4%		
M.C.(%):					
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX:	0.0	0.0	0.0		
% GRAVEL:	32	67	56		
% SAND:	61	30	40		
% FINES:	7	3	4		
CLASSIFICATION	WELL-GRADED SAND WITH SILT & GRAVEL (SW-SM)	POORLY GRADED GRAVEL WITH SAND (GP)	POORLY GRADED GRAVEL WITH SAND (GP)		

YTG Trans. Eng. Grain Size Analysis (Percent Passing vs Grain Size)

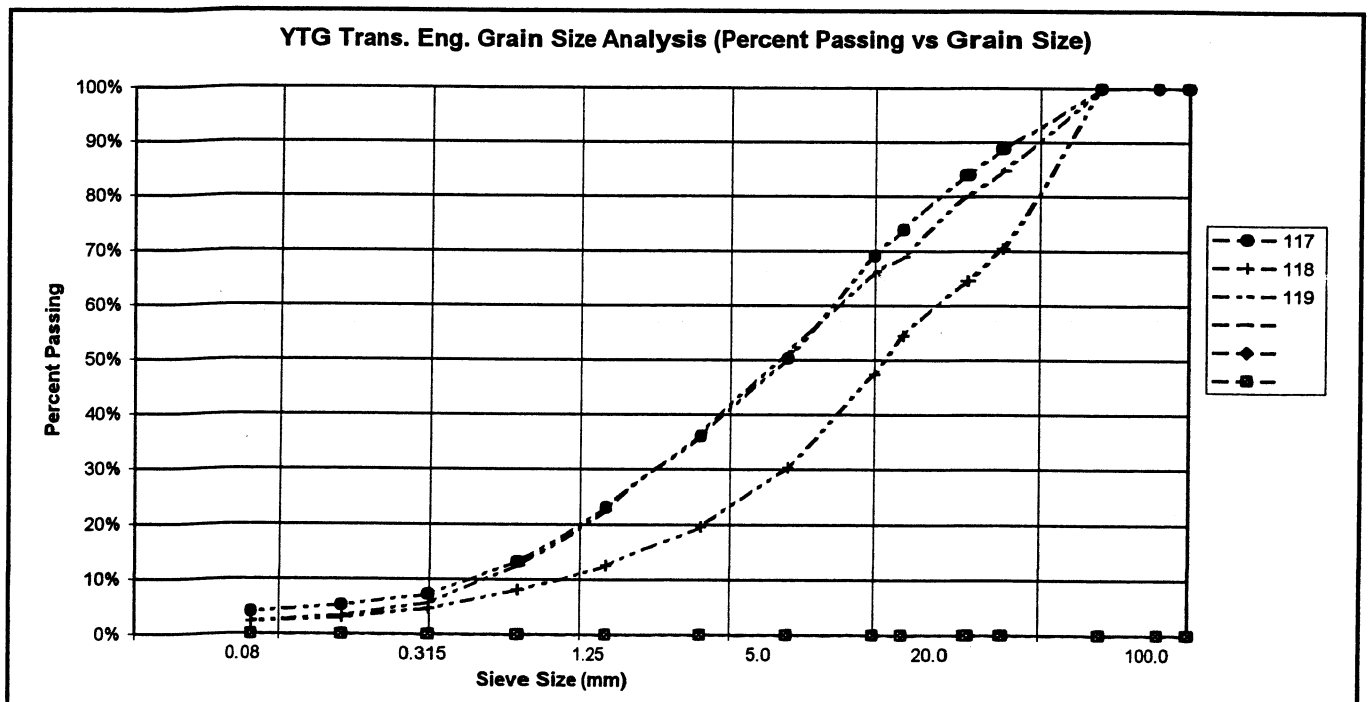


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H  
 DRILL UNIT: CAT 320 L EXCAVATOR  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 584-1547

DATE COMP: 2001/03/15

FIELD NO:	117	118	119		
LAB NO:	117	118	119		
DEPTH:	0.2-0.5	2.6-3.0	4.6-5.0		
TYPE:	BULK	BULK	BULK	BULK	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	100%	100%		
25.0	89%	70%	85%		
20.0	84%	65%	80%		
12.5	74%	54%	69%		
10.0	69%	47%	66%		
5.0	50%	30%	52%		
2.5	36%	20%	37%		
1.25	23%	13%	23%		
0.630	13%	8%	13%		
0.315	7%	5%	6%		
0.160	5%	3%	3%		
0.080	4%	2%	2%		
M.C.(%):					
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX:	0.0	0.0	0.0		
% GRAVEL:	50	70	48		
% SAND:	46	28	49		
% FINES:	4	2	2		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SAND (GP)	POORLY GRADED GRAVEL WITH SAND (GP)	WELL-GRADED SAND WITH GRAVEL (SW)		

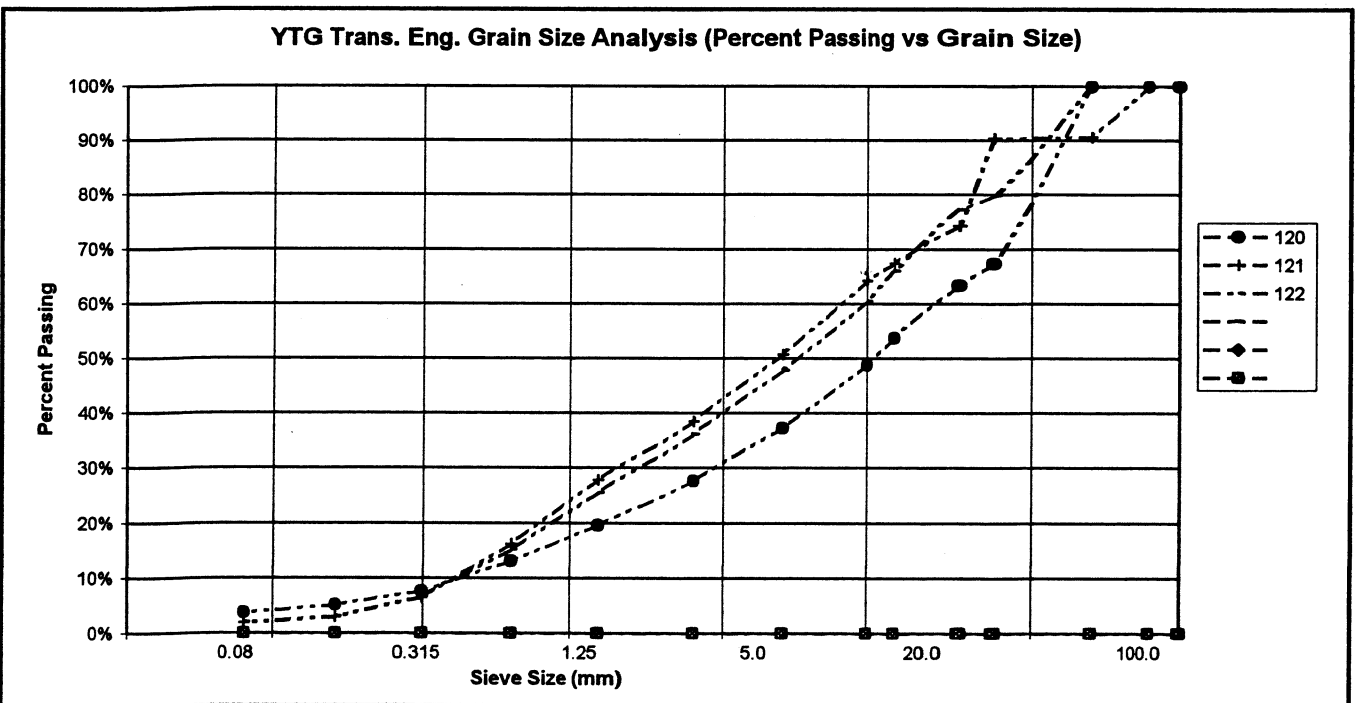


PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H  
 DRILL UNIT: CAT 320 L EXCAVATOR  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 584-1548

DATE COMP: 2001/03/15

FIELD NO:	120	121	122		
LAB NO:	120	121	122		
DEPTH:	0.3-0.6	2.1-2.5	4.6-5.0		
TYPE:	BULK	BULK	BULK	BULK	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	91%	100%		
25.0	67%	90%	80%		
20.0	63%	74%	77%		
12.5	54%	67%	66%		
10.0	49%	64%	60%		
5.0	37%	51%	48%		
2.5	28%	38%	36%		
1.25	20%	28%	25%		
0.630	13%	16%	15%		
0.315	8%	6%	7%		
0.160	5%	3%	3%		
0.080	4%	2%	2%		
M.C.(%):					
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0		
% GRAVEL:	63	49	52		
% SAND:	34	49	46		
% FINES:	4	2	2		
CLASSIFICATION	POORLY GRADED GRAVEL WITH SAND (GP)	POORLY GRADED GRAVEL WITH SAND (GP)	POORLY GRADED GRAVEL WITH SAND (GP)		



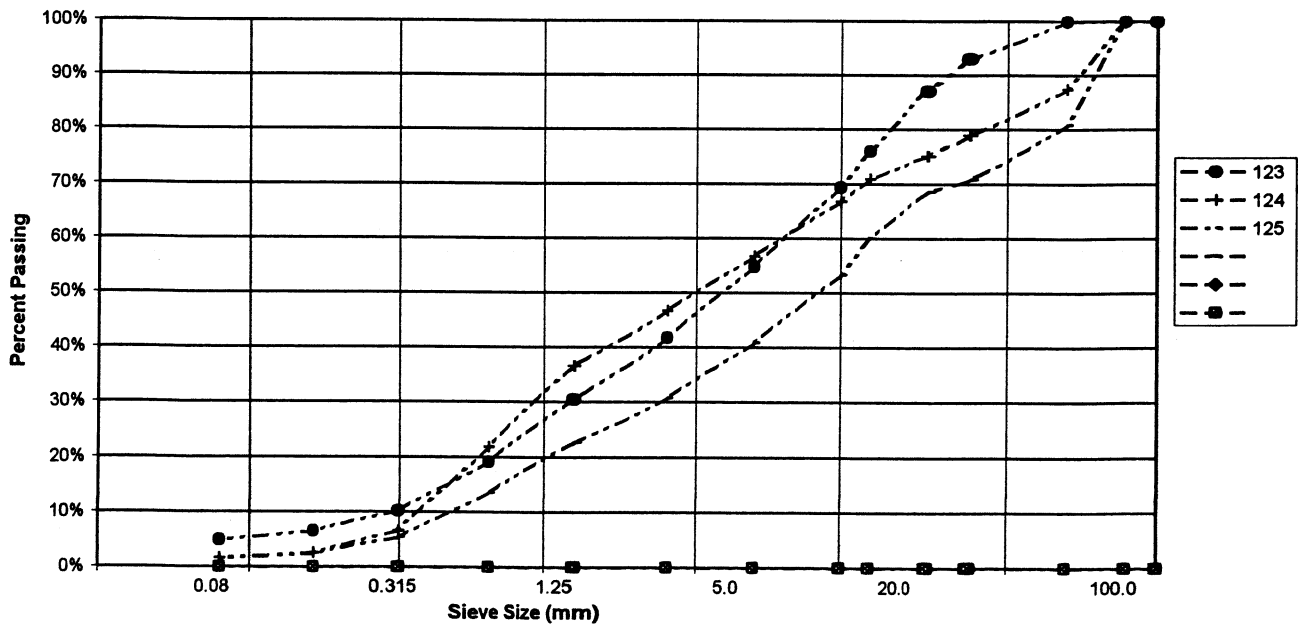
PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H  
 DRILL UNIT: CAT 320 L EXCAVATOR  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 584-1549

DATE COMP: 2001/03/15

FIELD NO:	123	124	125		
LAB NO:	123	124	125		
DEPTH:	0.4-0.7	2.2-2.6	4.6-5.0		
TYPE:	BULK	BULK	BULK	BULK	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	87%	81%		
25.0	93%	79%	71%		
20.0	87%	75%	69%		
12.5	76%	71%	60%		
10.0	69%	67%	53%		
5.0	55%	57%	41%		
2.5	42%	47%	31%		
1.25	31%	37%	23%		
0.630	19%	22%	14%		
0.315	10%	7%	5%		
0.160	7%	3%	2%		
0.080	5%	2%	2%		
M.C.(%):					
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX:	0.0	0.0	0.0		
% GRAVEL:	45	43	59		
% SAND:	50	55	39		
% FINES:	5	2	2		
CLASSIFICATION	WELL-GRADED SAND WITH GRAVEL (SW)	WELL-GRADED SAND WITH GRAVEL (SW)	POORLY GRADED GRAVEL WITH SAND (GP)		

YTG Trans. Eng. Grain Size Analysis (Percent Passing vs Grain Size)



PROJECT NUMBER: 092-202101-0363-1  
 CLIENT: ENGINEERING CAPITAL  
 PROJECT NAME: SHAKWAK SEG 09  
 PROJECT LOCATION: Km 1694 A/H  
 DRILL UNIT: CAT 320 L EXCAVATOR  
 HOLE LOCATION: SEE PLAN  
 LOGGED BY: D.T.

HOLE No.: 584-1552

DATE COMP: 2001/03/15

FIELD NO:	135	136	137		
LAB NO:	135	136	137		
DEPTH:	1.5-1.9	4.1-4.5	5.1-5.5		
TYPE:	BULK	BULK	BULK	BULK	
SIEVE SIZE	PERCENT PASSING	PERCENT PASSING	PERCENT PASSING		
100.0	100%	100%	100%		
80.0	100%	100%	100%		
50.0	100%	91%	100%		
25.0	89%	77%	89%		
20.0	85%	75%	83%		
12.5	74%	63%	71%		
10.0	70%	57%	64%		
5.0	55%	43%	50%		
2.5	43%	32%	38%		
1.25	31%	23%	28%		
0.630	21%	16%	19%		
0.315	11%	8%	10%		
0.160	6%	4%	6%		
0.080	4%	3%	4%		
M.C.(%):					
LIQUID LIMIT:	0.0	0.0	0.0		
PLASTIC LIMIT:	0.0	0.0	0.0		
PLASTIC INDEX.:	0.0	0.0	0.0		
% GRAVEL:	45	57	50		
% SAND:	51	41	46		
% FINES:	4	3	4		
CLASSIFICATION	WELL-GRADED SAND WITH GRAVEL (SW)	POORLY GRADED GRAVEL WITH SAND (GP)	POORLY GRADED GRAVEL WITH SAND (GP)		

