Technical Summary

February 2024

Pit Name: Trapping Pit

Provincial Pit Number: 0951

Location: Trapping Pit is approximately 18km north of Beaverdell on Highway 33 (Figure 1). Access to the pit can be made from Highway 33.

Legal Land Description: The site is currently a Section 16 Map Reserve (LF# 4402266) held by the British Columbia Ministry of Transportation and Infrastructure (BC MoTI). The legal description of the Map Reserve is “all that unsurveyed Crown land situated in the vicinity of District Lot 1495S, Similkameen Division of Yale District, containing 14.5 hectares, more or less”. The layout of the Map Reserve boundary is shown in the legal plan (Figure 2).

Subsurface Investigation: Subsurface investigations at Trapping Pit were carried out in 2023 and 2010 by Ministry of Transportation & Infrastructure.

In 2023 thirteen (13) test pits were excavated to depths ranging from 3.1 to 5.0m and in 2010, seventeen (17) test pits were excavated to depths ranging from 1.6 to 5.2m. During the test pitting, subsurface soil and groundwater conditions were logged and representative samples of the granular materials were collected for laboratory testing and future reference. Laboratory testing was carried out on fifteen (15) of these samples to assess the gradation and durability characteristics. The tests completed were wet sieve analysis, micro deval, sand equivalent, relative density, and absorption.

Based on the results of the 2023 and 2010 investigations, one (1) granular area was defined (Figure 3). The detailed results of the subsurface testing are provided in the Test Pit Summaries and test pit locations are shown on the Pit Development Plan (Figure 3).

Material Gradation: Table 1 shows the gradation as a percentage by weight of the fines (silts and clays), sand and gravel components as well as the Unified Soil Classification (USC [included after test pit summary]) for the samples tested.

Table 1: Pit Run Gradation

Test Pit	Depth (m)	Fines (%)* <0.075mm	Sand (%)* 0.075-4.75mm	Gravel (%)* 4.75-75mm	USC
23-01	2.1-4.4	3.3	47.7	49.0	GP
23-02	0.6-3.6	3.9	70.0	26.0	GP
23-03	2.4-4.2	1.9	49.1	49.0	GP
23-04	2.5-3.1	4.4	59.6	36.0	GP
23-05	2.5-3.6	4.1	51.9	44.0	GW
23-06	0.1-4.0	4.6	39.4	56.0	GP
23-07	1.2-4.1	6.1	44.9	49.0	GW
23-08	0.0-5.0	3.7	42.3	54.0	GP
23-09	0.0-4.1	4.1	42.9	53.0	GP
23-10	0.5-3.9	2.3	33.7	64.0	GP
23-11	0.3-2.5	3.0	33.0	64.0	GP
23-12	1.9-3.8	10.3	42.7	47.0	GW-GM
23-13	2.9-3.8	3.7	28.3	68.0	SP
2023 Averages		**4.3**	**45.0**	**50.7**	-

Test Pit	Depth (m)	Fines (%)* <0.075mm	Sand (%)* 0.075-4.75mm	Gravel (%)* 4.75-75mm	USC
TP10-01	1.2-2.8	3.2	30.4	66.4	GP
TP10-02	0.2-1.6	1.3	44.3	54.6	GP
TP10-03	1.3-4.5	2.6	32.0	65.3	GP
TP10-04	0.1-2.1	2.6	37.1	60.3	GP
TP10-05	0.1-5.0	2.0	31.9	66.1	GW
TP10-06	1.3-4.0	2.5	33.1	64.6	GP
TP10-08	1.1-5.0	4.6	26.4	68.9	GW
TP10-09	1.0-4.6	1.9	34.3	63.8	GP
TP10-10	1.0-2.8	2.8	31.9	65.2	GP
TP10-11	0.2-2.2	1.3	27.7	70.9	GP
TP10-12	3.0-5.0	1.0	38.2	60.9	GP
TP10-13	3.0-5.0	7.8	34.6	57.6	GW-GM
TP10-14	2.0-5.0	1.3	49.7	48.8	SP
TP10-16	0.0-5.0	1.2	28.9	69.8	GP
TP10-17	2.0-4.5	4.2	30.5	65.1	GP
2010 Averages		**2.7**	**34.1**	**63.2**	-

Material Durability: Table 2 shows the results of the durability tests as well as the specifications as required in the Standard Specifications for Highway Construction.

Table 2: Durability Test Results

Test Pit	Sand Equivalent (%)	Micro Deval (%)		Absorption		Relative Density	
		Coarse	Fine	Coarse	Fine	Coarse	Fine
2023							
TP23-06	75	-	-	1.9	3.1	2.53	2.46
TP23-07	-	9.0	14.3	-	-	-	-
2010							
TP10-04	50	8.9	11.8	-	-	-	-
TP10-10	-	-	-	1.52	2.04	2.54	2.51
TP10-12	66	7.5	11.6	1.99	2.18	2.51	2.52
BC MoTI Specifications							
Sand Equivalent	≥40 for base coarse and fine asphalt mix aggregate ≥20 for surfacing, sub-base and bridge end fill aggregates						
Micro Deval	≤30% for sub-base and bridge end fill aggregates ≤25% for surfacing & base course aggregates ≤18% for Class 1 Pavement asphalt mix aggregates ≤20% for Class 2 Pavement asphalt mix aggregates						
Absorption	<2.0% for coarse paving aggregates ≤1.0% for coarse and ≤1.5% for fine graded aggregate seals						
Relative Density	~2.65 for all aggregate products						

Material Suitability: Based on the 2023 and 2010 investigation results, the material is judged to be suitable for the following purposes:

Table 3: Suitability

	Pit Run	Crush
Trapping Pit Suitability Area	SGSB BEF	25mm WGB Asphalt Mix Aggregates

The samples tested meet the gradation, sand equivalent, and micro-deval specifications for base course, subbase course, bridge end fill and asphalt mix aggregate. Based on the absorption results the samples meet the specification for paving aggregates.

Sulphate and Chloride Testing

Table 4 shows the sulphate and chloride test results for select samples from the suitability area. These results are provided for information and have not been considered for material suitability.

Table 4: Sulphate and Chloride Test Results

Test Pit	Water-Soluble Sulphate	Water-Soluble Chloride
TP23-05	0.03	0.001

Volume Estimates: Table 5 shows the volume estimates that can be expected for gravel from the proposed suitability area. This is based on the measured depths encountered during the subsurface investigation. The potential volumes of granular material were calculated by averaging the total thickness of granular material encountered in test pits and multiplying by the estimated surface area.

Table 5: Volume Estimates

Suitability Area ~2.0ha.	Granular Material
Average Layer Thickness (m)	4.0
Volume (m^3)	80,000

Pit Development Notes

- All development must be carried out in accordance with the Health, Safety, and reclamation Code for Mines in British Columbia, BC Ministry of Energy, Mines and Low Carbon Innovation (2022, or later edition), the Standard Specifications for Highway Construction, BC Ministry of Transportation and Infrastructure (2020, or later edition) and the Aggregate Operators Best Management Practices Handbook for BC.

- All trees, vegetation, and overburden are to be removed within 2m of the top of the pit faces. Topsoil, overburden, and aggregate cannot be removed within five meters of the reserve boundary.

- The processing area is recommended to be located on the pit floor as identified on the Pit Development Plan (near TP10-07), with mining proceeding from the eastern lower pit face back towards the west (and northwest and south) as indicated.

- Processed aggregate may be stockpiled to the south of the production site (near TP10-07) or near the northern pit face, where space permits as indicated on the Pit Development Plan. Note that existing stockpiles may need to be relocated to make more room.

- Due to a high percentage of oversize rock contained within the deposit the use of a primary crusher is required during aggregate production.

- No dumping of debris or petroleum products will be permitted, and the site must be left in a clean and safe condition.

- At the completion of the pit development operations, but prior to the depletion of the pit, the sides of the pit faces, waste piles, and overburden stockpiles must be trimmed to a 1.5H:1V slope. Active pit faces must be reshaped with native granular materials.

- Upon depletion of the pit, all disturbed areas are to be reclaimed. The minimum reclamation procedure should include re-sloping of the pit faces and waste piles to a 2H:1V slope, contouring the area for appropriate drainage, spreading of overburden followed by topsoil, and seeding.

- Should any of the above conditions conflict with the Health, Safety, and Reclamation Code for Mines in British Columbia, then the Code will prevail.

Closure

The findings of this report and the soil conditions noted above are inferred from the extrapolation of limited surface and subsurface data collected during the site investigation. It should be noted that different and possibly poorer soil conditions may exist between the test pit locations and volume estimates may vary from those reported in this report.

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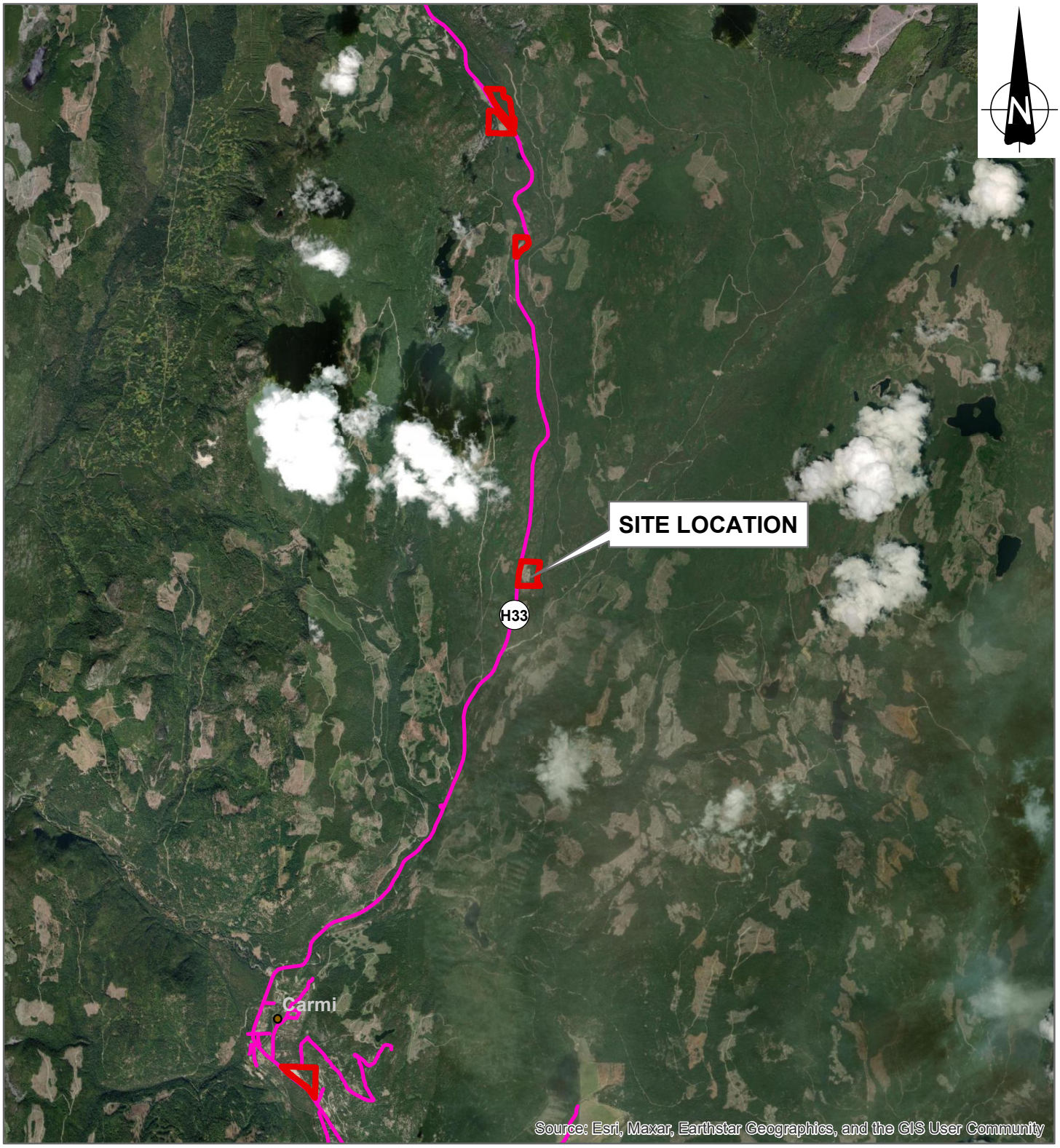
Enclosures

Figures:
- Figure 1 - Location Plan
- Figure 2 - Legal Plan
- Figure 3 – Pit Development Plan

Test Pit Summaries
- Test Pit Logs (2023 & 2010)
- Wet Sieve Analysis Charts
- Aggregate Gradation Charts

USC Legend
Photos

Figures



0 1 2 4 6 8 Kilometers

Scale 1:100,000

Ministry of Transportation and Infrastructure
Geotechnical and Materials Branch

LOCATION PLAN (2023)

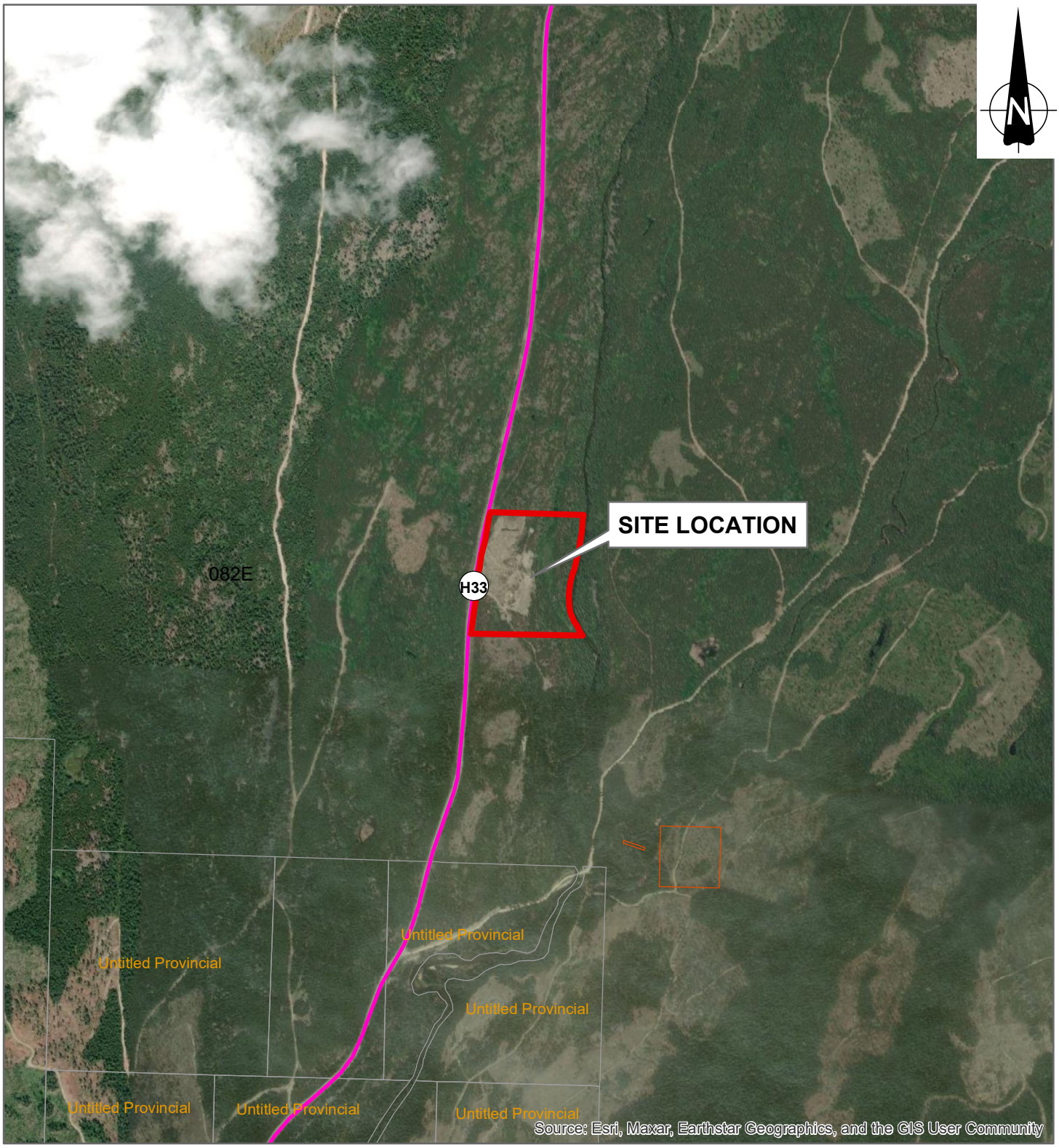
Trapping Pit No. 0951

SA 09 - WEST KOOTENAY DISTRICT

DRAWN BY: LACOURTE	PROJECTION: NAD 1983 UTM Zone 11N		SCALE: As Shown
CHECKED BY: A.Mitchell	DATUM: NAD 1983 UTM Zone 11N		DATE: 2023-08-28
FileName: GISTemplate_Gravel_R2_AVENZA_2021-11-18	Geotech Project No:	Reg: 2	Drawing No: **FIGURE 1**

Document Path: C:\Users\LACOURTE\Desktop\GISTemplate_Gravel_R2_AVENZA_2021-11-18.mxd

This drawing was originally produced in colour.



0 0.2 0.4 0.8 1.2 1.6 Kilometers

Scale 1:20,000

Ministry of Transportation and Infrastructure
Geotechnical and Materials Branch

LEGAL PLAN (2023)

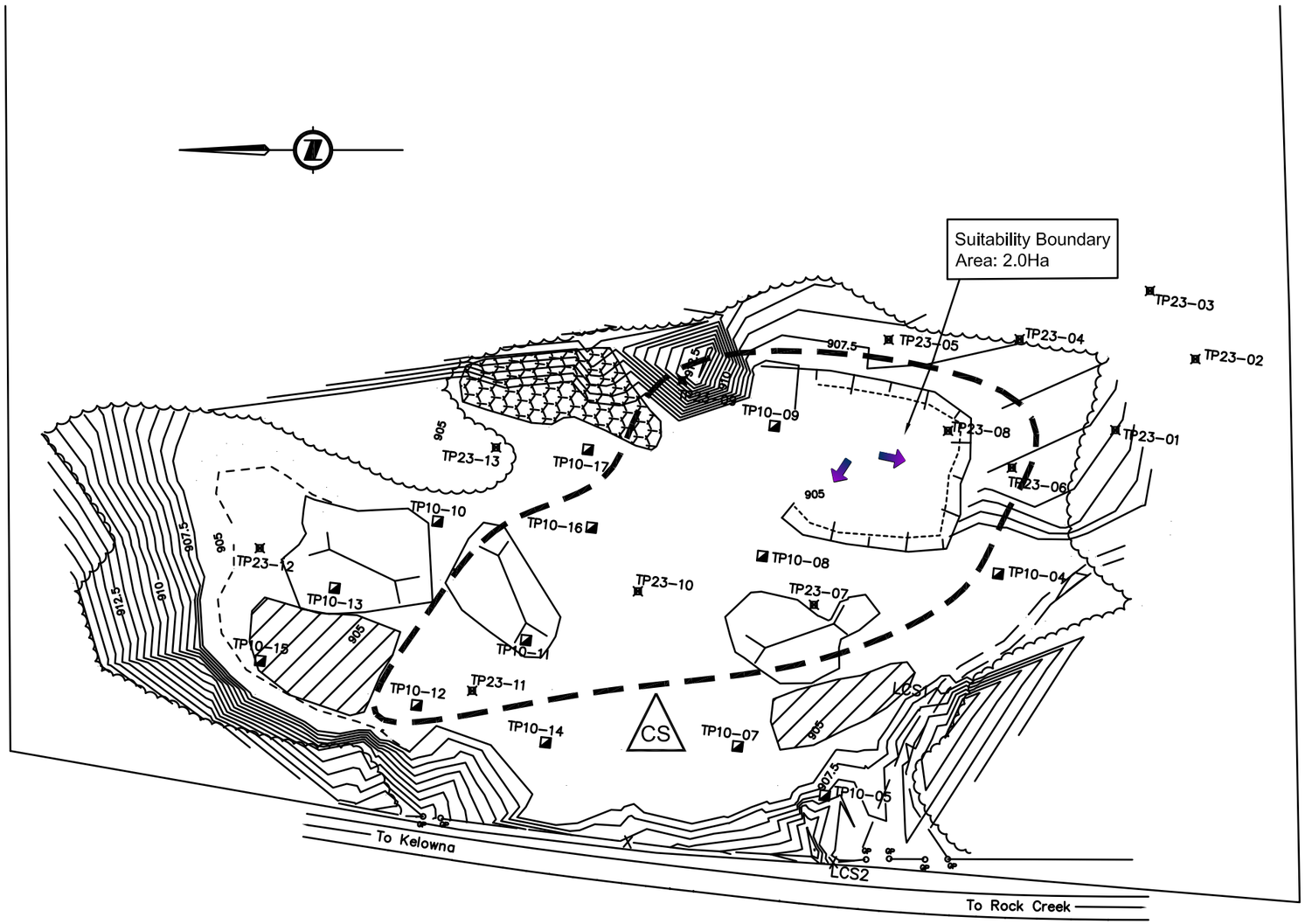
Trapping Pit No. 0951

SA 09 - WEST KOOTENAY DISTRICT

DRAWN BY: LACOURTE	PROJECTION: NAD 1983 UTM Zone 11N	SCALE: As Shown
CHECKED BY: A.Mitchell	DATUM: NAD 1983 UTM Zone 11N	DATE: 2023-08-28
FileName: GISTemplate_Gravel_R2_AVENZA_2021-11-18	Geotech Project No:	Reg: 2 / Drawing No: **FIGURE 2**

Document Path: C:\Users\LACOURTE\Desktop\GISTemplate_Gravel_R2_AVENZA_2021-11-18.mxd

This drawing was originally produced in colour.



LEGEND

- CS — PROCESSING PLANT LOCATION
- DEVELOPMENT DIRECTION
- SUITABILITY BOUNDARY
- 10–02 — TEST PIT 10–02, EXCAVATED IN 2010.
- GRAVEL RESERVE BOUNDARY
- ACCESS ROAD
- EXISTING AGGREGATE STOCKPILE
- PROPOSED AGGREGATE STOCKPILE AREA
- OVERSIZE STOCKPILE SITE
- POWER POLE
- FENCE
- TREED AREA

MINING NOTES

- All vegetation, topsoil and overburden is to be stripped a minimum of 2 metres back from active pit faces.
- Topsoil and overburden is to be stockpiled and seeded with grass. Removal of this material is not permitted.
- At the completion of mining activities, all pit faces are to be sloped to a minimum of 1 1/2 to 1 with native granular material.
- For projects mining in excess of 1,000 cubic metres, the Ministry of Energy, Mines and Low Carbon Innovation must be notified (approximately 14 days prior to the commencement of mining).
- All reject material, resulting from aggregate production, is to be placed in neat, easily accessible stockpiles free of deleterious material (i.e. wood waste).
- Reject material from aggregate production is not to be used to slope / in fill pit faces without prior approval from the MOTI Gravel Resourcr Manager
- No dumping of Demolition, Land Clearing and Construction debris is permitted without prior written approval of the Ministry of Transportation and Highways.

RECLAMATION NOTES

- Remove debris.
- Slope to a minimum of 2 to 1.
- Replace topsoil.
- Seed reclaimed areas with an appropriate grass mixture.

"INFORMATION PROVIDED HEREIN IS INTENDED TO BE USED BY THE MINISTRY OF TRANSPORTATION AND HIGHWAYS IN CONJUNCTION WITH ALL OTHER DATA RELEVANT TO THE SITE. THE SOIL AND GROUND WATER CONDITIONS SHOWN ARE REPRESENTATIVE AT THE TESTHOLE LOCATIONS ON THE DATES INDICATED. CONDITIONS ARE SUBJECT TO CHANGE WITH TIME. THE MINISTRY OF TRANSPORTATION AND HIGHWAYS SHALL NOT BE HELD LIABLE FOR ANY CLAIMS OR ACTIONS ARISING FROM THE USE OR INTERPRETATION OF THE DATA HEREIN PROVIDED."

CONTROL POINTS			
LCS1	N 5,492,992.800	E 351,186.100	Elev. 907.955m
LCS2	N 5,493,011.000	E 351,130.000	Elev. 908.000

0m 30 60 90 120

1 : 3000

Province of British Columbia
Ministry of Transportation and Infrastructure
GEOTECHNICAL and MATERIALS ENGINEERING

Date	REVISIONS Description	Initial
	Produce PDP with survey data	

REVIEWED BY: A.T.A. Date
APPROVED BY: d.R.M. Date

SCALE: 1:1000
DRAWN: LCS
DATE: JAN2019
AutoCAD: F3P0951

TRAPPING PIT #0951
PIT DEVELOPMENT PLAN
FILE NO. 50–09–0951

FIGURE 3

Test Pit Summaries

AGGREGATE LOG

PROJECT: Trapping Pit
PIT #: 951
DISTRICT: SA09 - Kootenay Boundary
SAMPLED BY: Steven Lee
METHOD: Excavator
DATE: 11-Oct-23

TEST PIT NO.	DEPTH		SAMPLE BAG NO.	SOILS CLASS	ESTIMATED GRADATION			ESTIMATED ROCK 75mm				SAND TYPE	REMARKS
	FROM	TO			G	S	F	MAX SIZE	75mm - 150mm	150mm - 375mm	>375mm	F M C	Lab Sieve
TP23-01	0	0.6											Sluffing
	0.6	2.1		SM1	15	70	15					F-M	
	2.1	4.4	TP23-01	GP	60	38	2	900	10	10	10	M-C	
				GP	**49**	**48**	**3.3**						
TP23-02	0	0.6		OB									Sluffing
	0.6	3.6	TP23-02	SP	30	67	3	700	2	4	4	F-M	
				SP	**26**	**70**	**3.9**						
TP23-03	0	0.6		OB									TP located at the edge of downhill slope to the east. Sluffing
	0.6	2.4		SM1	15	70	15						
	2.4	4.2	TP23-03	GP	60	38	2	1000	10	10	10		
				SP	**49**	**49**	**1.9**						
TP23-04	0	0.6		OB									Sluffing
	0.6	2.5		SP	30	62	8					F-M	
	2.5	3.1	TP23-04	GP	50	46	4	800	8	9	10	M-C	
				SW	**36**	**60**	**4.4**						
TP23-05	0	0.7		OB									Sluffing
	0.7	2.5		SP	30	62	8					F-M	
	2.5	3.6	TP23-05	SP	44	54	2	900	6	8	10	M-C	
				SP	**44**	**52**	**4.1**						
TP23-06	0	0.1		GP/Floor									Sluffing
	0.1	4	TP23-06	GP	55	42	3	1200	6	6	8	M	
				GP	**56**	**39**	**4.6**						
TP23-07	0	0.4		GP/old crush/floor									
	0.4	1.2		SM2	30	40	30						
	1.2	4.1	TP23-07	GP	55	47	2	1700	4	7	7	F	
				GW-GM	**49**	**45**	**6.1**						
TP23-08	0	5	TP23-08	SP	44	52	4	800	1	1	1	M-C	Clay present @ bottom, see photo.TP located at bottom of floor of main SE face.
				GP	**54**	**42**	**3.7**						

AGGREGATE LOG

PROJECT: Trapping Pit
PIT #: 951
DISTRICT: SA09 - Kootenay Boundary
SAMPLED BY: Steven Lee
METHOD: Excavator
DATE: 12-Oct-23

TEST PIT NO.	DEPTH		SAMPLE BAG NO.	SOILS CLASS	ESTIMATED GRADATION			ESTIMATED ROCK 75mm				SAND TYPE	REMARKS
	FROM	TO			G	S	F	MAX SIZE	75mm - 150mm	150mm - 375mm	>375mm	F M C	Lab Sieve
TP23-09	0	4.1	TP23-09	GP	58	40	2	1200	5	7	9	M-C	Sluffing
				GP	**53**	**43**	**4.1**						
TP23-10	0	0.5	GP/floor/crush										Sluffing
	0.5	3.9	TP23-10	GP	57	40	3	900	6	8	10	M-C	
				GP	**64**	**34**	**2.3**						
TP23-11	0	0.3	RAP/floor/crush										
	0.3	2.5	TP23-11	GP	55	43	2	700	4	4	3	M	
				GP	**64**	**33**	**3**						
	2.5	4.8		GP	55	40	5					M	
TP23-12	0	0.2		OB									
	0.2	0.8		GP	55	42	3					M-C	
	0.8	1.3		CL									
	1.3	1.5		SP	30	66	3					M	
	1.5	1.9		CL									
	1.9	3.8	TP23-12	GP	56	40	4	500	3	5	5	M-C	
				GW-GM	**47**	**43**	**10**						
TP23-13	0	1.3	Crush/woody debris/floor										
	1.3	2.9		SM	35	57	8						
	2.9	3.8		GP	56	41	3	1100	5	6	7	M	
				GP	**68**	**28**	**3.7**						

AGGREGATE LOG

PROJECT: Highway 33 Beaverdell north
PIT #: Trapping Pit
DISTRICT: **West Kootenay**
SAMPLED BY: Bill Richards
METHOD: Excavator
DATE: DEC 22 2010

TH / TP	DEPTH		SAMPLE	SOILS CLASS	ESTIMATED GRADATION			ESTIMATED ROCK 75mm				SAND TYPE	REMARKS
	FROM	TO	BAG No.		G	S	F	MAX SIZE	75mm - 150mm	150mm - 375mm	375mm	F M C	Generally this pit has very lrg boulders in the first 2 meters and lrg cobbles to at least 5 meters
TP 10-01	0.0	1.2		TS					2	11	20		Very Lrg Boulders
	1.2	2.8	633	GPGM	61	32	7	1000	9	7	6		
	2.8	3.8		SPSM	21	73	6						
	3.8	5.2		SP	47	49	4						
			lab test		66	30	4						
TP 10-02	0.0	0.2		TS									
	0.2	1.6	634	GPGM	52	40	8	1200	9	12	10		Very Lrg Boulders
				GPGM	55	37	8						
			lab test		54	44	2						
TP 10-03	0.0	0.1	CRUSH MATERIAL										
	0.1	1.3		GPGM	65	25	10	900	10	15	15		Very Lrg Boulders
	1.3	4.5	635	GP	67	31	2						
			lab test		65	32	3						
TP 10-04	0.0	0.1	CRUSH MATERIAL										
	0.1	2.1	636	GPGM	66	22	12	1200	10	15	12		Very Lrg Boulders
	2.1	5.0		GP	64	29	2						
			lab test		60	31	3						
TP 10-05	0.0	0.1		TS									
	0.1	5.0	637	GPGM	65	30	5	950	10	16	14		Very Lrg Boulders
			lab test		66	32	2						
TP 10-06	0.0	0.2		TS									
	0.2	1.3		GM1	68	20	12	1200	6	12	16		Very Lrg Boulders
	1.3	4.0	638	GPGM	57	28	5						
			lab test		64	33	3						
TP 10-07	0.0	4.0		OB									This area of the pit was used to
													dispose of asphalt material and
													plastic and other rubbish

AGGREGATE LOG

PROJECT: Highway 33 Beaverdell north
PIT #: Trapping Pit
DISTRICT: **West Kootenay**

SAMPLED BY: Bill Richards
METHOD: Excavator
DATE:

TH / TP	DEPTH		SAMPLE	SOILS CLASS	ESTIMATED GRADATION			ESTIMATED ROCK 75mm				SAND TYPE	REMARKS
	FROM	TO	BAG No.		G	S	F	MAX SIZE	75mm - 150mm	150mm - 375mm	375mm	F M C	Generally this pit has very lrg boulders in the first 2 meters and lrg cobbles to at least 5 meters
TP 10-08	0.0	1.1	OB AND CRUSH MATERIAL										
	1.1	5.0	639	GM1	58	30	12	700	12	6	2		
			lab test		69	26	5						
TP 10-09	0.0	1.0	OB AND CRUSH MATERIAL										
	1.0	4.6	640	GP	69	30	2	1100	8	10	10		Very Lrg Boulders
			lab test		64	34	2						
TP 10-10	0.0	1.0	OB AND CRUSH MATERIAL										
	1.0	2.8	705	GM1	65	23	12	750	9	12	6		
	2.8	5.0		GPGM	60	34	6						
			lab test		65	32	3						
TP 10-11	0.0	0.2		OB									
	0.2	2.2	706	GPGM	60	32	8	800	9	14	5		
	2.2	5.0		GP	64	32	4						
			lab test		71	28	2						
TP 10-12	0.0	3.0		GP	58	38	4						
	3.0	5.0	707	GP	50	47	3	900	5	6	3		Very Lrg Boulders
			lab test		61	38	1						
TP 10-13	0.0	3.0		GPGM	62	30	8						
	3.0	5.0	708	GPGM	56	37	7	400	6	4	3		
			lab test		58	35	8						
TP 10-14	0.0	2.0	OB AND ASPHALT										Very Lrg Boulders
	2.0	5.0	709	GP	58	38	4	1100	9	7	6		
			lab test		48	50	2						
TP 10-15	0.0	2.5		GC1	50	38	12						
	2.5	4.0		CL									DEEP CLAY SEAM
TP 10-16	0.0	5.0		GPGM	68	24	8	1200	12	13	12		
			lab test		70	29	1						
TP 10-17	0.0	2.0		GPGM	62	28	10						Very Lrg Boulders
	2.0	4.5	704	GPGM	60	32	8	1200	7	11	12		Very Lrg Boulders
			lab test		65	31	4						

PROJECT REPORT OF
SIEVE ANALYSIS SUMMARIES

PERCENT PASSING

Project: Trapping Test Pitting
Sample Source: Trapping Pit #0951
Material: PIT RUN

Project No.: 0
Client: 0
Date: 2023-10-11

Sample Information			Percent Passing Pit Run Sieve Sizes (mm)													
Test Pit	Depth (m)	Bag #	75	63	50	37.5	25	19	12.5	9.5	4.75	2.36	1.18	0.6	0.3	0.15	0.075
23-01	2.1-4.4	0	100.0	100.0	87.0	84.0	75.0	70.0	65.0	61.0	51.0	33.0	16.0	9.0	6.0	4.0	3.3
23-02	0.6-3.6	0	100.0	100.0	100.0	96.0	91.0	88.0	85.0	83.0	74.0	56.0	32.0	14.0	7.0	5.0	3.9
23-03	2.4-4.2	0	100.0	100.0	88.0	82.0	73.0	69.0	63.0	61.0	51.0	34.0	15.0	6.0	4.0	3.0	1.9
23-04	2.5-3.1	0	100.0	100.0	81.0	77.0	75.0	73.0	71.0	70.0	64.0	48.0	26.0	13.0	8.0	6.0	4.4
23-05	2.5-3.6	0	100.0	100.0	91.0	86.0	79.0	75.0	68.0	65.0	56.0	44.0	28.0	15.0	8.0	5.0	4.1
23-06	0.1-4.0	0	100.0	100.0	90.0	80.0	72.0	66.0	58.0	64.0	44.0	31.0	17.0	10.0	7.0	6.0	4.6
23-07	1.2-4.1	0	100.0	100.0	100.0	92.0	84.0	79.0	67.0	62.0	51.0	38.0	24.0	15.0	10.0	8.0	6.1
23-08	0.0-5.0	0	100.0	100.0	95.0	90.0	82.0	75.0	65.0	58.0	46.0	35.0	26.0	17.0	9.0	5.0	3.7
23-09	0.0-4.1	0	100.0	100.0	97.0	91.0	81.0	74.0	64.0	60.0	47.0	32.0	17.0	10.0	7.0	5.0	4.1
23-10	0.5-3.9	0	100.0	100.0	85.0	77.0	65.0	60.0	49.0	45.0	36.0	27.0	17.0	9.0	5.0	3.0	2.3
23-11	0.3-2.5	0	92.0	92.0	78.0	70.0	63.0	58.0	49.0	44.0	36.0	27.0	18.0	11.0	6.0	4.0	3.0
23-12	1.9-3.8	0	100.0	100.0	94.0	88.0	77.0	73.0	65.0	62.0	53.0	42.0	31.0	23.0	18.0	14.0	10.3
23-13	2.9-3.8	0	100.0	100.0	95.0	84.0	76.0	70.0	57.0	49.0	32.0	24.0	20.0	15.0	9.0	5.0	3.7
MAX			100	100.0	100.0	96.0	91.0	88.0	85.0	83.0	74.0	56.0	32.0	23.0	18.0	14.0	10.3
MIN			92	92.0	78.0	70.0	63.0	58.0	49.0	44.0	32.0	24.0	15.0	6.0	4.0	3.0	1.9
SD			2.218801	2.22	6.89	7.22	7.50	7.74	9.36	10.35	11.51	9.17	6.01	4.39	3.44	2.84	2.10
MEAN			99	99.4	90.8	84.4	76.4	71.5	63.5	60.3	49.3	36.2	22.1	12.8	8.0	5.6	4.3
MEAN-2SD			95	94.9	77.1	69.9	61.4	56.1	44.8	39.6	26.3	17.9	10.1	4.1	1.1	0.0	0.1
MEAN+2SD			100	100.0	100.0	98.8	91.4	87.0	82.3	81.0	72.3	54.6	34.1	21.6	14.9	11.3	8.5

PROJECT REPORT OF
SIEVE ANALYSIS SUMMARIES

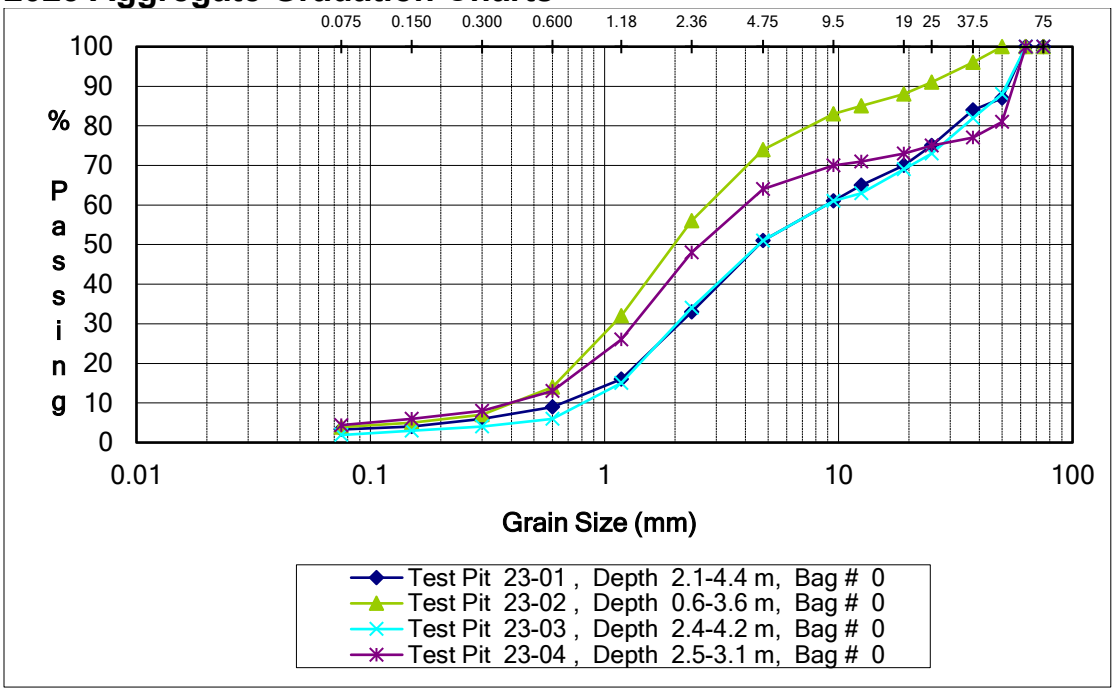
PERCENT PASSING

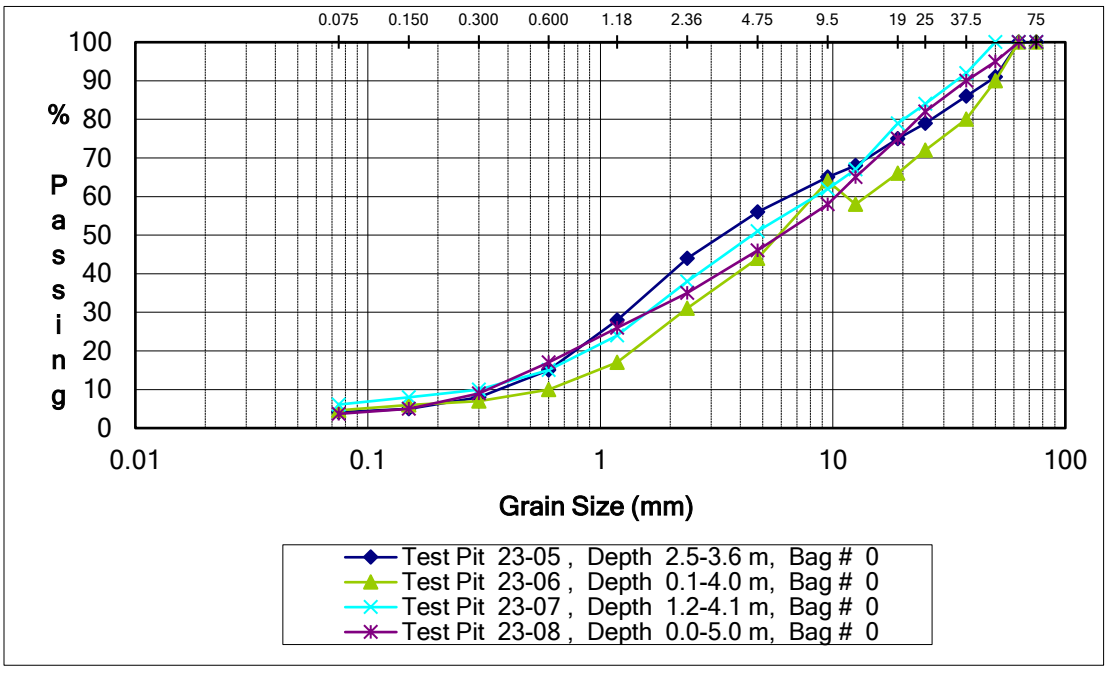
Project: Trapping Pit Exploration
Sample Source: Trapping Pit
Material: PIT RUN

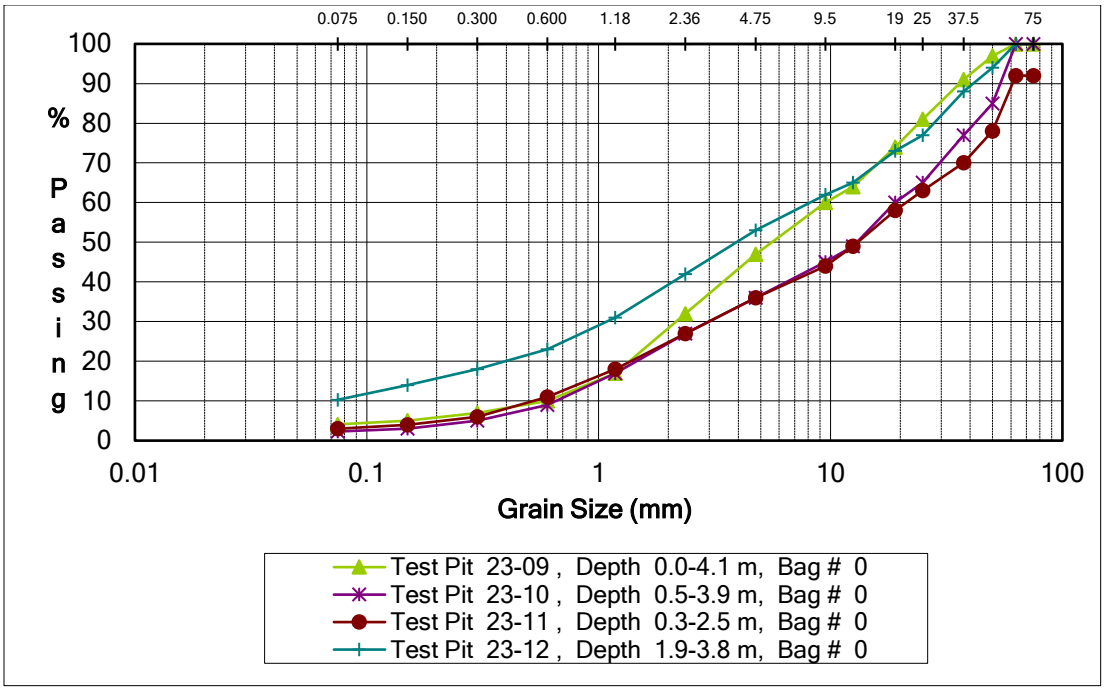
Project No.: 0
Client: 0
Date: 2010-12-20

Sample Information			Percent Passing Pit Run Sieve Sizes (mm)													
Test Pit	Depth (m)	Bag #	75	63	50	37.5	25	19	12.5	9.5	4.75	2.36	1.18	0.6	0.3	0.15	0.075
TP10-01	1.2-2.8	633	84.9	84.9	71.7	65.8	56.7	52.0	45.7	41.7	33.6	25.7	16.8	8.6	5.0	3.9	3.2
TP10-02	0.2-1.6	634	90.9	90.9	85.1	78.9	73.0	68.7	63.9	60.3	45.4	25.6	10.1	4.2	2.3	1.6	1.1
TP10-03	1.3-4.5	635	94.2	94.2	81.6	72.2	61.3	57.1	50.4	45.6	34.7	23.0	12.2	7.1	4.9	3.7	2.7
TP10-04	0.1-2.1	636	95.1	95.1	80.8	77.0	67.1	62.5	55.6	50.4	39.7	29.5	19.8	11.5	5.9	3.6	2.6
TP10-05	0.1-5.0	637	100.0	100.0	86.5	80.1	74.2	66.9	55.7	49.4	33.9	22.0	12.3	6.3	3.6	2.6	2.0
TP10-06	1.3-4.0	638	93.9	93.9	84.7	69.0	63.7	57.7	50.1	46.0	35.4	24.2	13.1	6.8	4.2	3.1	2.3
TP10-08	1.1-5.0	639	100.0	100.0	81.0	71.4	58.6	49.5	43.7	39.4	31.1	24.8	18.9	12.1	7.7	5.9	4.7
TP10-09	1.0-4.6	640	100.0	100.0	86.3	74.3	65.9	61.2	54.9	49.8	36.2	22.0	10.4	5.2	3.4	2.5	1.9
TP10-10	1.0-2.8	705	100.0	100.0	84.9	71.7	61.6	55.1	50.5	45.6	34.8	24.4	15.4	8.5	4.9	3.6	2.9
TP10-11	0.2-2.2	706	86.8	86.8	70.9	60.0	54.5	49.8	43.5	38.9	29.1	19.7	11.1	5.1	2.6	1.8	1.4
TP10-12	3.0-5.0	707	100.0	100.0	86.4	79.3	69.1	63.0	53.3	50.1	39.1	29.0	17.9	7.6	2.4	1.3	0.9
TP10-13	3.0-5.0	708	100.0	100.0	90.9	83.5	74.9	68.9	60.5	54.7	42.4	32.9	24.8	18.6	14.1	10.5	7.8
TP10-14	2.0-5.0	709	100.0	100.0	91.1	81.6	74.8	69.9	63.3	60.1	51.2	41.2	26.3	10.1	3.5	2.0	1.5
TP10-16	0.0-5.0	710	100.0	100.0	71.8	64.1	51.8	45.9	40.5	37.6	30.2	23.4	14.6	6.5	2.8	1.8	1.3
TP10-17	2.0-4.5	704	91.8	91.8	83.6	70.5	62.9	57.1	50.0	44.6	34.9	26.2	16.6	9.6	6.6	5.3	4.4
MAX			100	100.0	91.1	83.5	74.9	69.9	63.9	60.3	51.2	41.2	26.3	18.6	14.1	10.5	7.8
MIN			84.9	84.9	70.9	60.0	51.8	45.9	40.5	37.6	29.1	19.7	10.1	4.2	2.3	1.3	0.9
SD			5.261559	5.26	6.44	6.83	7.51	7.68	7.09	7.01	5.94	5.31	4.93	3.62	2.99	2.34	1.80
MEAN			96	95.8	82.5	73.3	64.7	59.0	52.1	47.6	36.8	26.2	16.0	8.5	4.9	3.5	2.7
MEAN-2SD			85	85.3	69.6	59.6	49.7	43.7	37.9	33.6	24.9	15.6	6.2	1.3	0.0	0.0	0.0
MEAN+2SD			100	100.0	95.4	86.9	79.7	74.4	66.3	61.6	48.7	36.9	25.9	15.8	10.9	8.2	6.3

2023 Aggregate Gradation Charts



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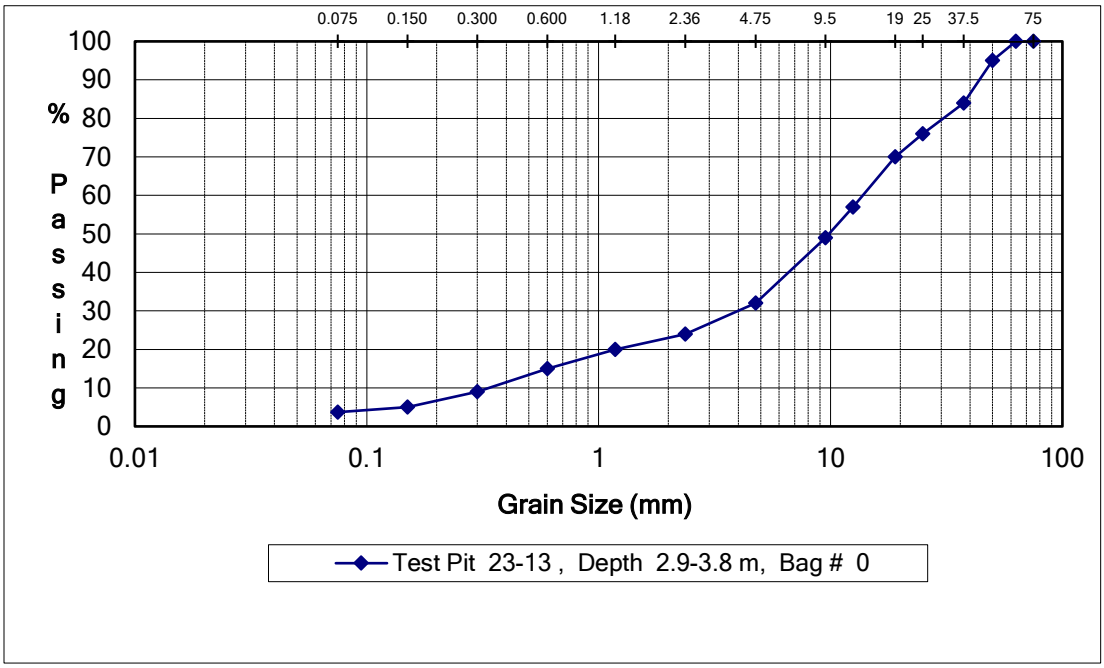
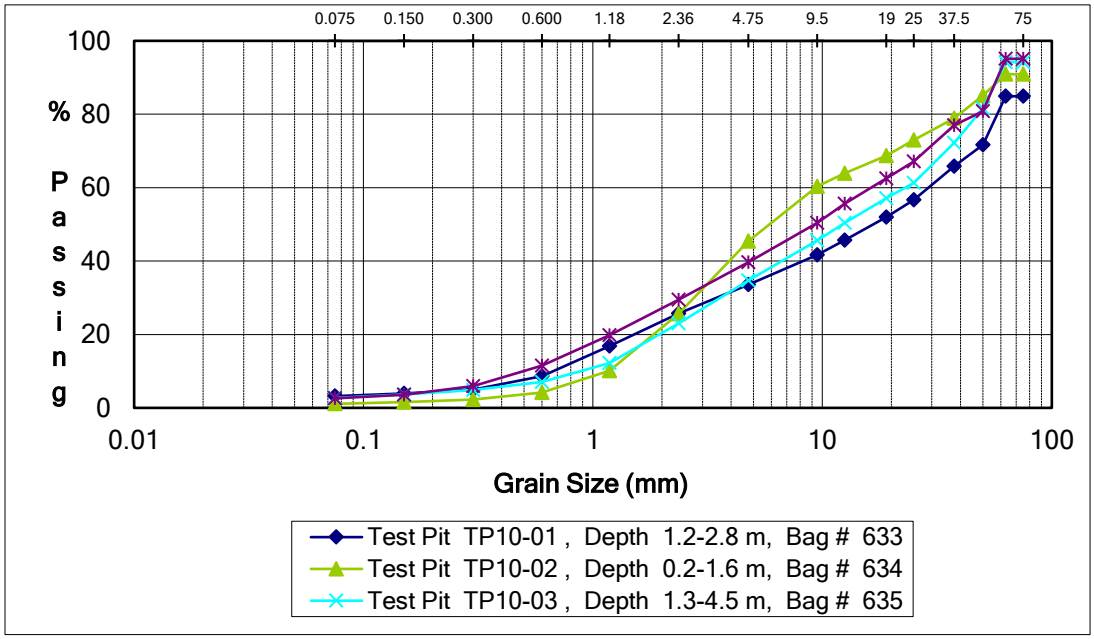
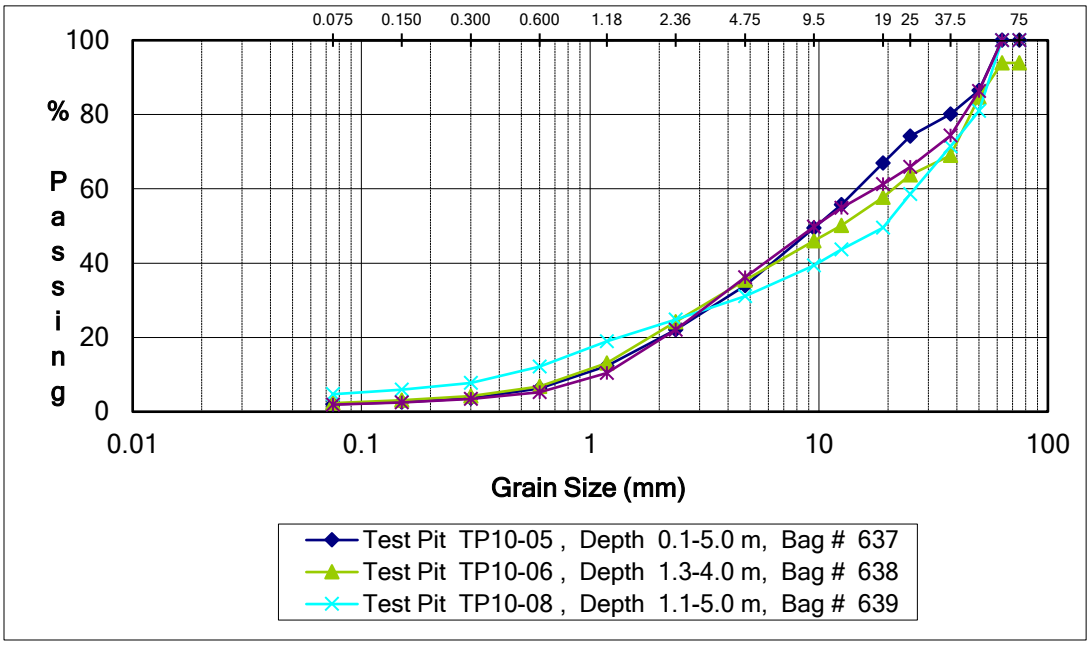
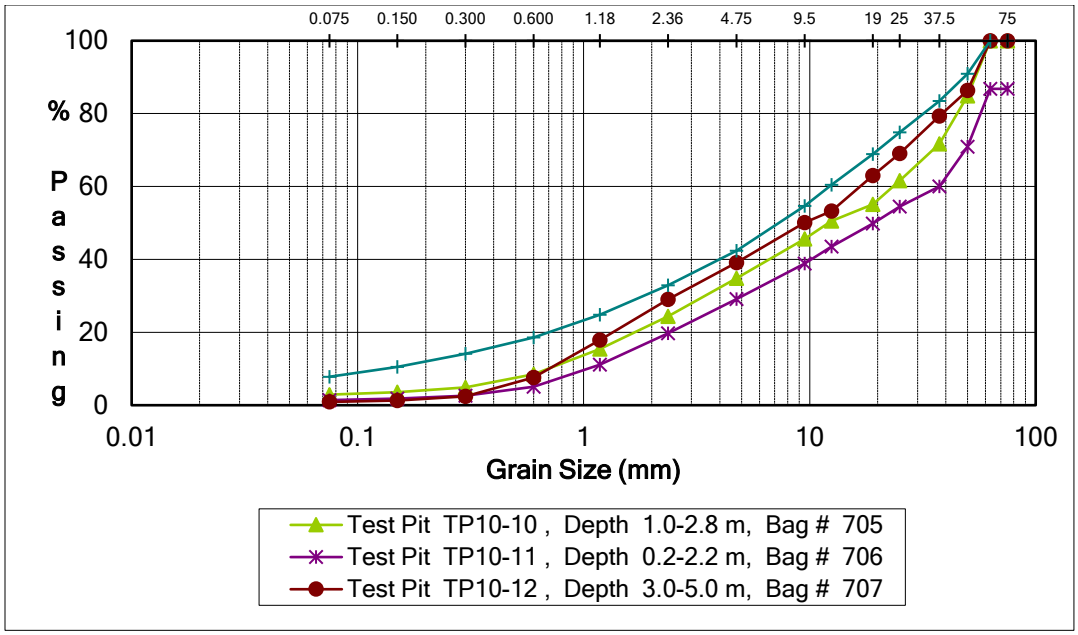
100 90 80 70 60 50 40 30 20 10 0
% Passing
0.01 0.1 1 10 100
Grain Size (mm)
Test Pit 23-09 , Depth 0.0-4.1 m, Bag # 0
Test Pit 23-10 , Depth 0.5-3.9 m, Bag # 0
Test Pit 23-11 , Depth 0.3-2.5 m, Bag # 0
Test Pit 23-12 , Depth 1.9-3.8 m, Bag # 0


0.075 0.150 0.300 0.600 1.18 2.36 4.75 9.5 19 25 37.5 75
100 90 80 70 60 50 40 30 20 10 0
% Passing
0.01 0.1 1 10 100
Grain Size (mm)
Test Pit 23-13 , Depth 2.9-3.8 m, Bag # 0

2010 Aggregate Gradation Charts



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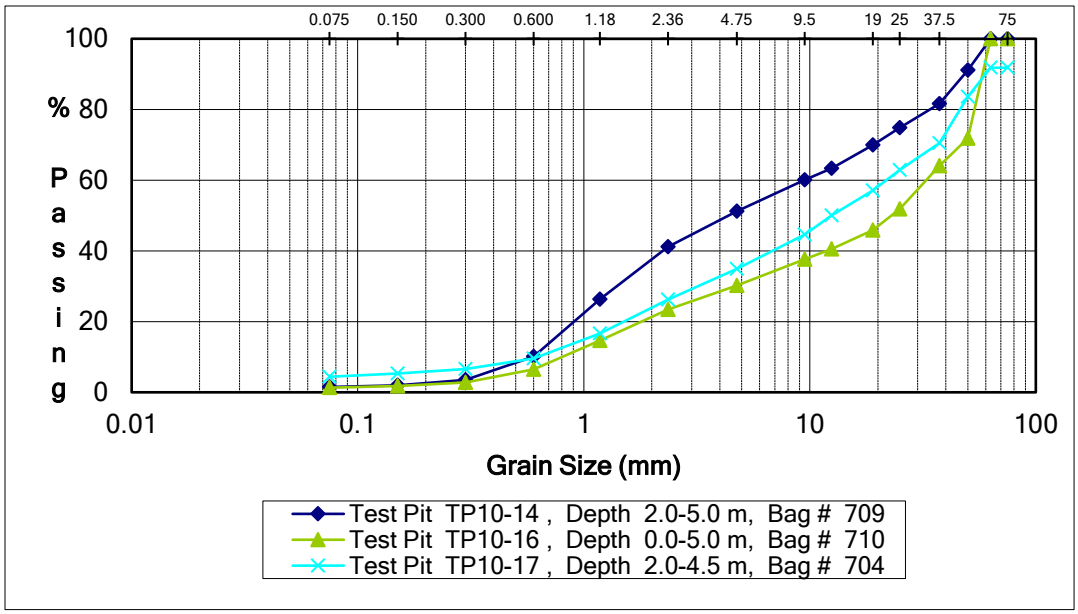
100
% 80
P 60
a
s 40
s
i 20
n
g 0
0.01 0.1 1 10 100
Grain Size (mm)
Test Pit TP10-10 , Depth 1.0-2.8 m, Bag # 705
Test Pit TP10-11 , Depth 0.2-2.2 m, Bag # 706
Test Pit TP10-12 , Depth 3.0-5.0 m, Bag # 707


0.075 0.150 0.300 0.600 1.18 2.36 4.75 9.5 19 25 37.5 75
100
% 80
P 60
a
s 40
s
i 20
n
g 0
0.01 0.1 1 10 100
Grain Size (mm)
Test Pit TP10-14 , Depth 2.0-5.0 m, Bag # 709
Test Pit TP10-16 , Depth 0.0-5.0 m, Bag # 710
Test Pit TP10-17 , Depth 2.0-4.5 m, Bag # 704

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USC Legend

MATERIALS CLASSIFICATION LEGEND

MAJOR DIVISIONS		SYMBOL	SOIL TYPE
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	WELL GRADED GRAVELS OR GRAVEL–SAND MIXTURES, < 5% FINES
		GP	POORLY–GRADED GRAVELS OR GRAVEL–SAND MIXTURES, < 5% FINES
		GM*	SILTY GRAVELS, GRAVEL–SAND–SILT MIXTURES
		GC*	CLAYEY GRAVELS, GRAVEL–SAND–CLAY MIXTURES
	SAND AND SANDY SOILS	SW	WELL–GRADED SANDS OR GRAVELLY SANDS, < 5% FINES
		SP	POORLY–GRADED SANDS OR GRAVELLY SANDS, < 5% FINES
		SM*	SILTY SANDS SAND–SILT MIXTURES
		SC*	CLAYEY SANDS SAND–CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS w_L <50	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS AND ORGANIC SILT–CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS w_L >50	MH	INORGANIC SILTS, MICACEOUS OR DIATOM–ACEOUS FINE SANDY OR SILTY SOILS, PLASTIC SILTS
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
ORGANIC SOILS		Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS
TOPSOIL		TS	TOPSOIL WITH ROOTS, ETC.
COBBLES		SB	ROCK FRAGMENTS AND COBBLES, PARTICLE SIZE 75mm TO 300mm
LARGE BOULDERS		LB	BOULDERS, PARTICLE SIZE OVER 300mm
BEDROCK		BR	BEDROCK

FOR SOILS HAVING 5 – 12% PASSING .075 SIEVE, USE DUAL SYMBOL

*GM1; GC1; SM1; SC1; 12 – 20%
GM2; GC2; SM2; SC2; 20 – 30%
GM3; GC3; SM3; SC3; 30 – 40%
GM4; GC4; SM4; SC4; 40 – 50%

} PASSING .075mm SIEVE

REV. 90–04–26

PROVINCE of BRITISH COLUMBIA
MINISTRY OF TRANSPORTATION & HIGHWAYS
Geotechnical & Materials Engineering

UNIFIED SOIL CLASSIFICATION LEGEND

Drawn: LU	Date: JULY'97	Scale:
File No.:		ACAD File: ACADSTDS C:\ACADSTDS\SOIL-APP

Photos

Photo 1 Crusher set-up area and stockpile space to the right closer to highway; mining area on the left (October 2023).

Photo 2 Proposed stockpile area in the northern part of the pit, looking north. Note stockpile of crushed aggregate and another near the face. (October 2023).

Photo 3 The eastern mining area, looking south (October 2023).

Photo 4 TP23-07 spoil pile (October 2023).

Photo 5 TP23-08 spoil pile, test pit is on the floor in front of the face in the eastern lower mining area (October 2023).

Photo 6 TP23-09 south of the oversize stockpile (October 2023).

Photo 7 TP23-10 in the centre of the pit (October 2023).

Photo 8 TP23-11 in the northern portion of the pit. Note the asphalt layer at the surface (October 2023).

Photo 9 Crusher set-up, stockpiling, and mining area. Excavator located at TP23-10, view looking southeast (October 2023).