

# Cutts Pit No. 1062 Technical Summary

December 2023

**Pit Name:** Cutts Pit

**Provincial Pit Number:** 1062

**Location:** The pit is located approximately 10 km south of the Elko Junction of Highway 3 & 93 adjacent to Highway 93 on the east side of the highway. (Figure 1).

**Legal Land Description:** The site is currently a Section 16 Map Reserve (LF# 4401893) held by the British Columbia Ministry of Transportation and Infrastructure (BC MoTI). The legal description of the Map Reserve is “That part of District Lot 132, Kootenay District, more particular outlined in red in the Legal Description Schedule, and containing 17.3 hectares, more or less.” The layout of the Map Reserve boundary is shown in the pit plan (Figure 2).

**Subsurface Investigation:** Subsurface investigations at Cutts Pit were carried out in 1979 by MoTI.

In 1979 twenty-seven (27) test pits were excavated to depths ranging from 2.0 to 4.0 m. 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 nineteen (19) of these samples to assess the gradation and durability characteristics. The tests completed were wet sieve analysis, degradation, and sand equivalent.

Based on the results of the 1979 investigation, one granular area has been 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 Plan (Figure 2).

**Material Gradation:** Table 1 shows the gradation as a percentage by weight of the fines (silts and clays), sand and gravel components. Based on visual inspection of the pit there is approximately 12% material larger than 75 mm within the deposit.

**Table 1: Pit Run Gradation**

Classification:	Average (%)
Gravel (4.75-75mm)	49
Sand (0.075-4.75mm)	48
Fines (<0.075mm)	3

**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: Aggregate Quality**

TEST	AVERAGE	RANGE
Degradation %	88	71-95
Sand Equivalent %	64	57-68
Bulk Relative Density	2.609	

**Material Suitability:** Based on the 1979 investigation results, the material in the northern portion of the pit (Test Pits 21 through 27) is judged to be suitable for the following purposes:

**Table 3: Suitability**

	Pit Run	Crush
Development Area A	SGSB	25mm WGB Asphalt Mix Aggregates Graded Aggregate Seal

The samples tested meet the gradation, sand equivalent, and micro-deval specifications for base course, sealcoat, and asphalt mix aggregate. Sand rejection may be required to reduce sand/fines content and crushing rock over 75 mm may be required to achieve minimum fracture requirements.

The 1979 development plan with approximate test pit locations for Development Area A in the northern section of the pit is shown in Figure 4 with the original gradation curves and test pit log.

**Granular Volume Estimate:**

Estimated volume: 24,000 m<sup>3</sup>

The estimated volume has been determined by multiplying the surface area of Development Area A by an average depth of 3.0 metres.

## 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 and Mines (2017, 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. Processed aggregate may be stockpiled to the south of the mining face where space permits.
- Development in Area A should start from the existing pit face and continue northward in as shown in the Development Plan (Figure 3). Development may require minor clearing/grubbing/stripping in areas where regrowth/regeneration has occurred. Areas of the pit that have been previously undisturbed are not permitted for mining.
- 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.

Prepared by:

Steven Lee  
Sr. Aggregate Resource Specialist

Reviewed by:

Samantha Kinniburgh  
Senior Aggregate Resource Specialist

## **Enclosures**

### Figures:

Figure 1 - Location Plan

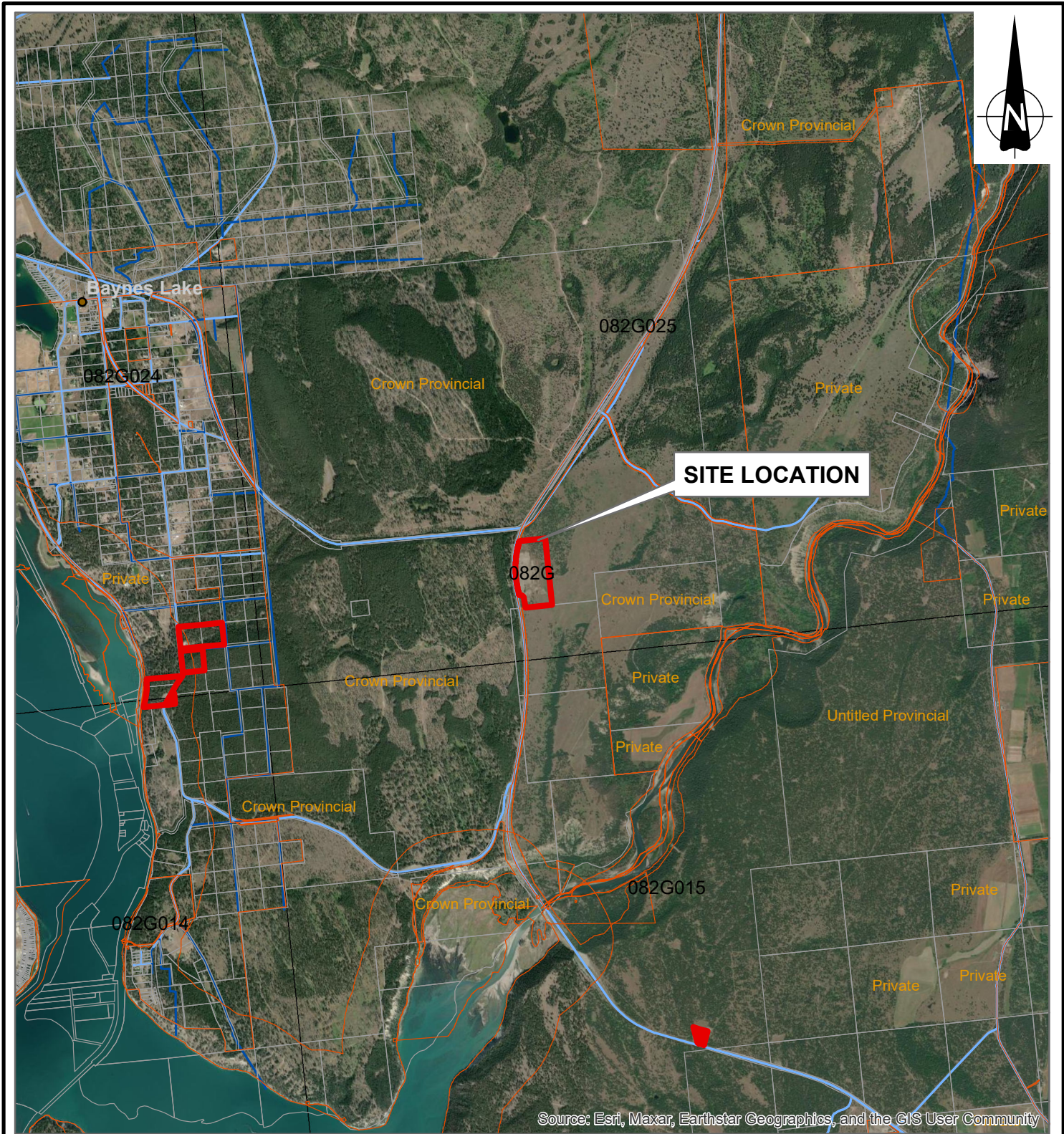
Figure 2 - Pit Plan

Figure 3 - Development Plan

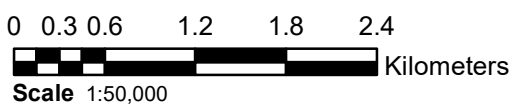
Figure 4 - 1979 Test Pit Summary and Development Plan

### Photos



## Figures



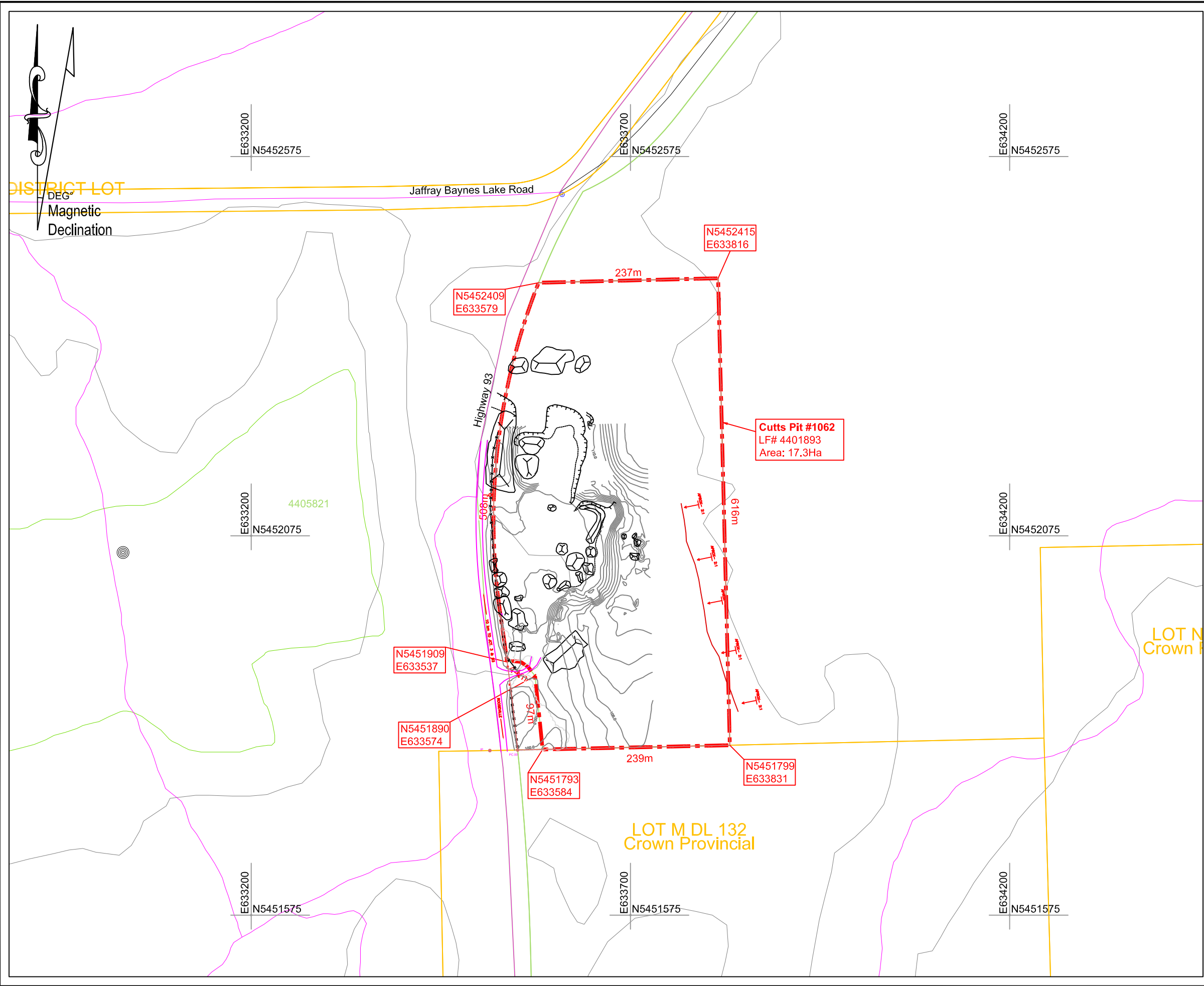
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



This drawing was originally produced in colour.

 Ministry of Transportation and Infrastructure Geotechnical and Materials Branch		
<b>LOCATION PLAN (2023)</b> <b>CUTTS PIT NO. 1062</b> <b>SA 11 - EAST KOOTENAY DISTRICT</b>		
DRAWN BY: <b>STEELE</b>	PROJECTION: NAD 1983 UTM Zone 11N	SCALE: <b>As Shown</b>
CHECKED BY: <b>A.Mitchell</b>	DATUM: NAD 1983 UTM Zone 11N	DATE: <b>2023-12-07</b>
FileName: GISTemplate_Gravel_Provinal_2023-03-16	Geotech Project No: 	Reg: <b>1</b>
		Drawing No: <b>FIGURE 1</b>

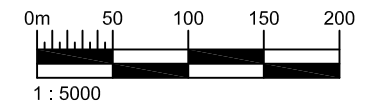
Document Path: Q:\GEO\TECHNICAL\5\RU\Z\DESIGN\Reference\Gravel\GIS\template\_Gravel\_Provinal\_2023-03-16.mxd



### PIT DEVELOPMENT LEGEND

	NATURAL EMBANKMENT		TREELINE
	PIT FACE		CONTOURS
	TEST PIT		BUILDING (symbolic)
	TEST HOLE		IRON PIN
	TEST PIT (DEPLETED)		SWAMP
	ROAD		STOCKPILE
	CREEK		NO DISTURBANCE
	TRAIL		
	CADASTRE		
	TANTALIS		
	GRAVEL RESERVE BOUNDARY		
	PROPOSED GRAVEL RESERVE BOUNDARY		
	GRAVEL RESERVE TO BE DELETED		
	OCCUPATIONAL LICENSE TO CUT AREA		

- ### DRAWING NOTES:
1. Base data provided from Trim Map 82G025, (20m Contours)
  2. Cadastre and Tantalis Lines were provided from online sources.
  3. Some testpits and/or testholes may not be representative of current conditions due to development and excavation done after testing.
  4. Some extraction may have occurred since the last GPS survey of the pit was undertaken, therefore pit faces and stockpiles may not be representative of current conditions.



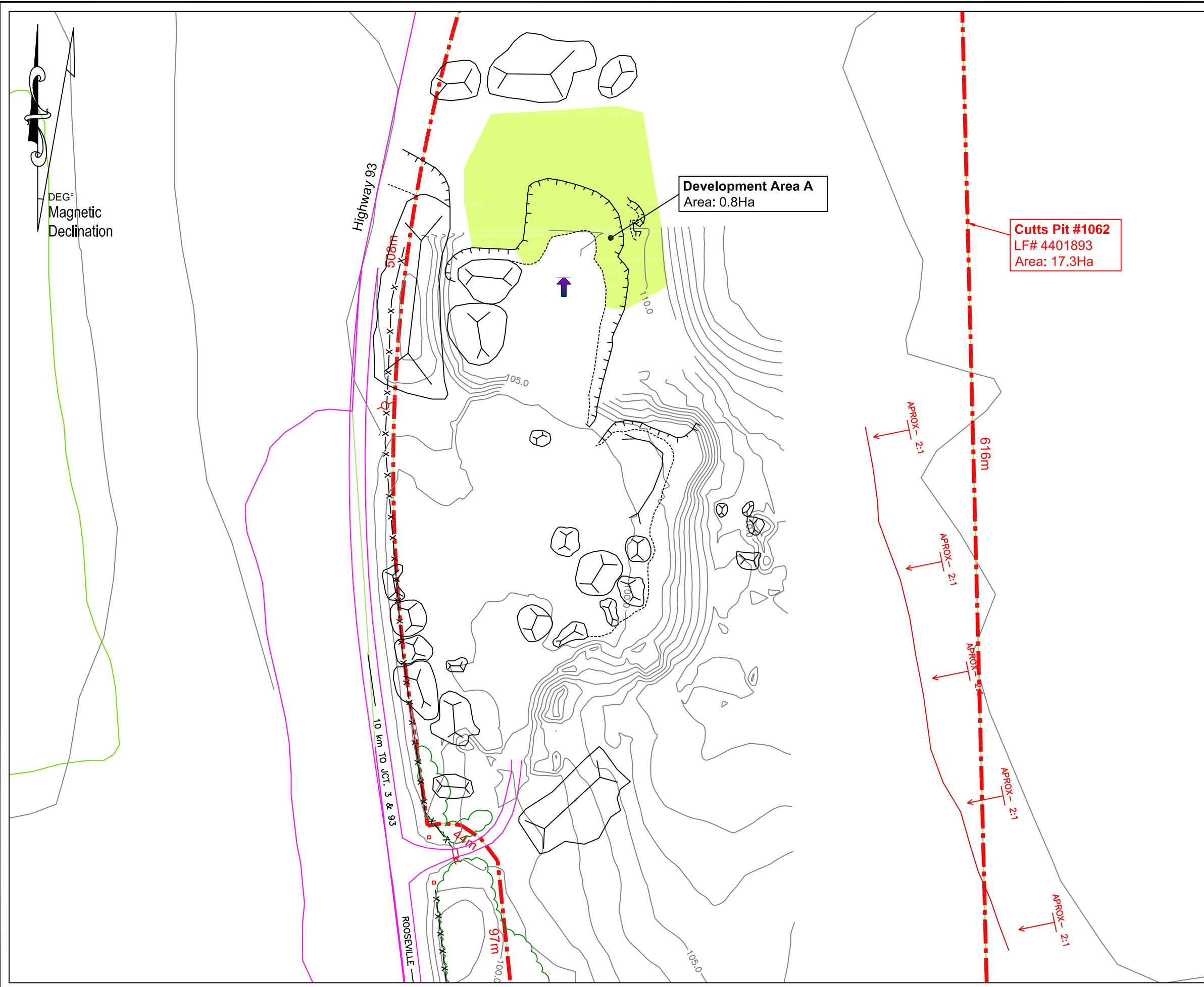
Ministry of Transportation and Infrastructure  
Southern Interior Region  
Geotechnical and Materials Branch

## PIT PLAN

### CUTTS PIT #1062

SA11 - ROCKY MOUNTAIN DISTRICT

DRAWN BY: S.Rutz	PROJECTION: UTM Zone 11	SCALE: AS SHOWN
CHECKED BY: A.Mitchell	DATUM: NAD83	DATE: 5 December 2023
FILE NAME: cutts_1062_pitplan_2023-11-29.dwg	REG: 2	DRAWING NUMBER: FIGURE 2

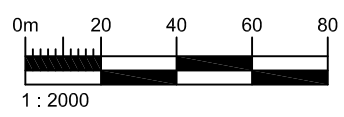


### PIT DEVELOPMENT LEGEND

	NATURAL EMBANKMENT		TREELINE
	PIT FACE		CONTOURS
	TEST PIT		BUILDING (symbolic)
	TEST HOLE		IRON PIN
	TEST PIT (DEPLETED)		SWAMP
	ROAD		STOCKPILE
	CREEK		NO DISTURBANCE
	TRAIL		DEVELOPMENT DIRECTION
	CADASTRE		POTENTIAL DEVELOPMENT
	TANTALIS		OVERBURDEN STOCKPILE
	GRAVEL RESERVE BOUNDARY		CRUSHER LOCATION
	PROPOSED GRAVEL RESERVE BOUNDARY		
	GRAVEL RESERVE TO BE DELETED		
	OCCUPATIONAL LICENSE TO CUT AREA		
	DEVELOPMENT AREA A		
	DEVELOPMENT AREA B		
	DEVELOPMENT AREA C		

- ### DRAWING NOTES:
1. Base data provided from Trim Map 82G025, (20m Contours)
  2. Cadastre and Tantalis Lines were provided from online sources.
  3. Some testpits and/or testholes may not be representative of current conditions due to development and excavation done after testing.
  4. Some extraction may have occurred since the last GPS survey of the pit was undertaken, therefore pit faces and stockpiles may not be representative of current conditions.

- ### PIT DEVELOPMENT NOTES:
1. Pit development must be carried out in accordance with the Health, Safety, and Reclamation Code for Mines in BC, the current Standard Specifications for Highway Construction, and the Aggregate Operations Best Management Practices Handbook for BC.
  2. Development Area A may require logging, clearing, grubbing and stripping in areas where regrowth/regeneration has occurred. Development of previously undisturbed areas of the pit is not permitted.
  3. Development of Area A should commence from the existing pit face and directed towards the North.
  4. The contractor must ensure that all materials passing through 375mm x 450mm slotted openings shall be used in the production of the crushed aggregates.
  5. Pit excavations must not take place to within a minimum distance of 2m from the edge of clearing & stripped areas.
  6. When the contractor discontinues operations in the pit, all working pit faces and stockpiles must be trimmed to 1.5H to 1V slope. Working pit faces must be reshaped with native granular materials. All other permanent slopes must be re-sloped to no steeper than 2H:1V.
  7. No dumping of debris or petroleum products is permitted. The pit must be left in a clean and safe condition.



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## PIT DEVELOPMENT PLAN

### CUTTS PIT #1062

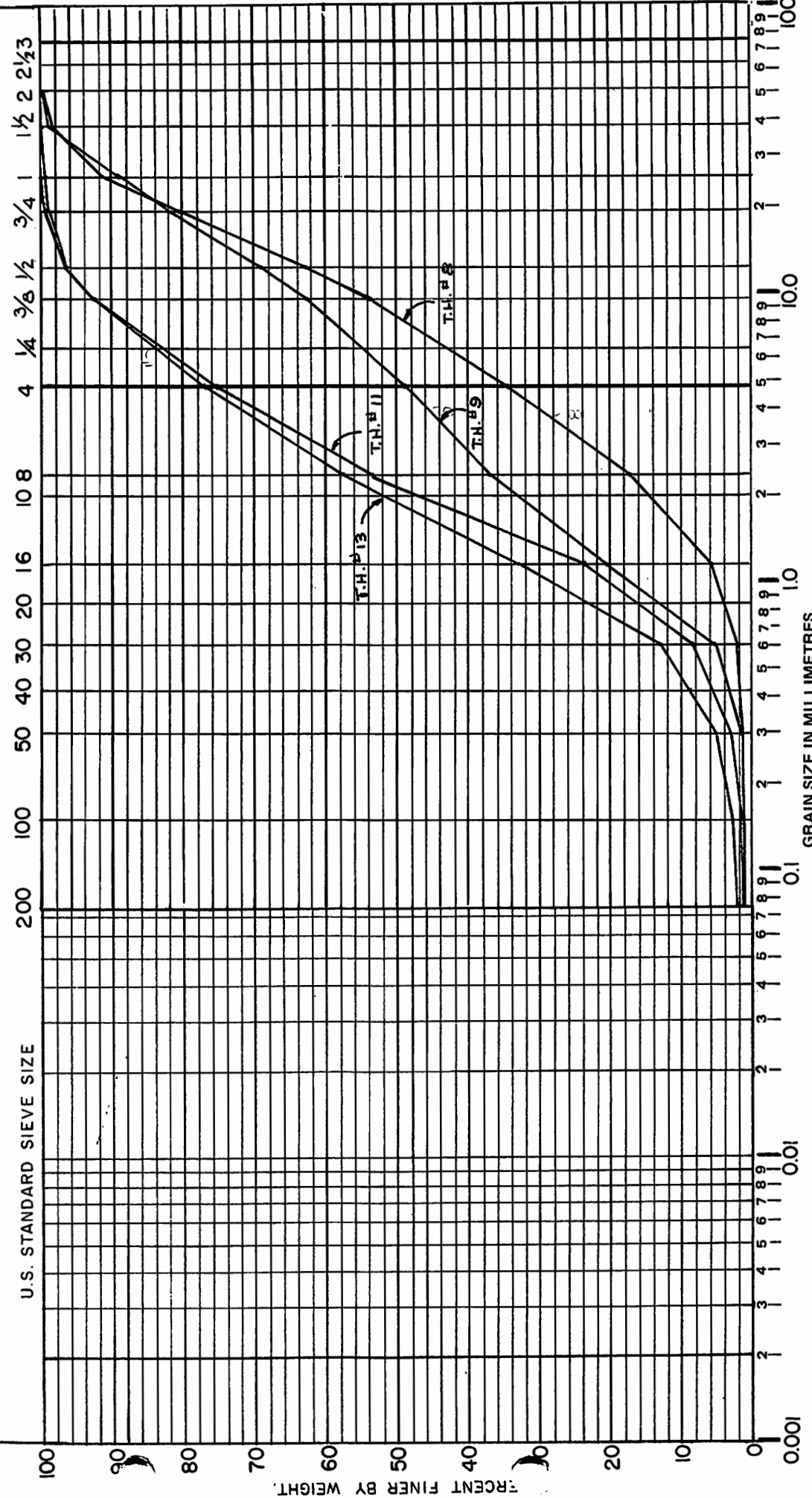
SA11 - ROCKY MOUNTAIN DISTRICT

DRAWN BY: S.Rutz	PROJECTION: UTM Zone 11	SCALE: AS SHOWN
CHECKED BY: A.Mitchell	DATUM: NAD83	DATE: 5 December 2023
FILE NAME: cutts_1062_devplan_2023-11-30.dwg	REG: 2	DRAWING NUMBER: FIGURE 2



## **Test Pit Summaries**

<b>BRITISH COLUMBIA MINISTRY OF HIGHWAYS AND PUBLIC WORKS (HIGHWAYS)</b> <b>GEOTECHNICAL AND MATERIALS BRANCH</b> <b>GRADING CURVES</b>		<b>TEST BY:</b> NELSON LAB T.H. # 8 D 6231 T.H. # 9 D 6242 T.H. # 11 D 6241 T.H. # 13 D 6240	<b>DATE:</b> August 31 1979  <b>Pit Run</b> 2 of 3
<b>PROJECT</b> CUTTS PITT Fernie			



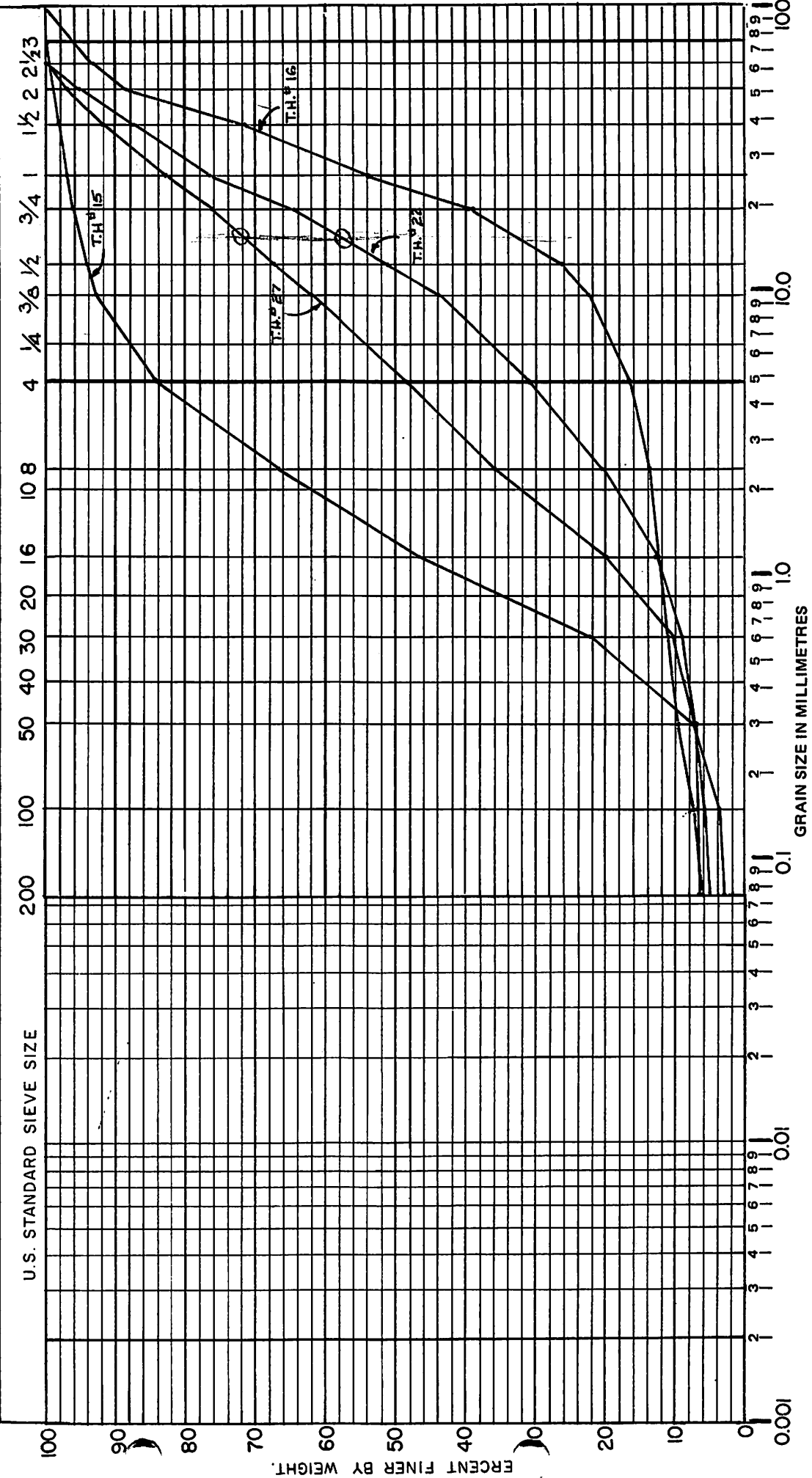
CLAY	SILT		SAND			GRAVEL	
	Fine	Medium	Fine	Coarse	Fine	Coarse	







<b>BRITISH COLUMBIA MINISTRY OF HIGHWAYS AND PUBLIC WORKS (HIGHWAYS)</b> GEOTECHNICAL AND MATERIALS BRANCH <b>GRADING CURVES</b>		<b>TEST BY: NELSON LAB</b> T.H. # 15 - D - 6239 T.H. # 16 - D - 6238 T.H. # 22 - D - 6232 T.H. # 27 - D - 6250	<b>DATE: August 31 1979</b>  <b>PIT RUN - 3 of 3</b>
<b>PROJECT CUTTS PIT Fernie</b>			



CLAY	SILT		SAND			GRAVEL	
	Fine	Medium	Fine	Coarse	Fine	Coarse	

LOG OF TEST HOLESCutts Pit  
Fernie District

<u>T. H. #1</u>	(No Sample)	
	0 - 0.1m	Overburden
	0.1 - 2.0m	Clean, poorly graded gravel lacking in sand. Less than 1% greater than 8 cm.
	2.0m	End of hole, sloughing.
<u>T. H. #2</u>	(D-6211)	
	0 - 0.1m	Overburden
	0.1 - 3.5m	Clean, poorly graded gravel lacking in fine sand sizes, 8 - 18 cm less than 1%.
	3.5m	End of hole.
<u>T. H. #3</u>	(D-6207)	
	0 - 0.1m	Overburden
	0.1 - 1.5m	Clean, gravelly sand.
	1.5 - 3.5m	Clean, fairly well graded gravel to 8 cm. 8 - 18 cm 2%, 18 - 38 cm nil, greater than 38 cm nil.
	3.5m	End of hole, sloughing.
<u>T. H. #4</u>	(D-6206)	
	0 - 0.2m	Overburden
	0.2 - 4.0m	Clean, well graded coarse sand.
	4.0m	End of hole.
<u>T. H. #5</u>	(No Sample)	
	0 - 0.3m	Overburden
	0.3 - 4.0m	Clean, medium - fine sand.
	4.0m	End of hole, sloughing.
<u>T. H. #6</u>	(No Sample)	
	0 - 0.1m	Overburden
	0.1 - 1.0m	Silty, dense, poorly graded gravel. 8 - 18 cm 1%, 18 - 38 cm nil, greater than 38 cm nil.
	1.0 - 1.5m	Clean, well graded gravel to 8 cm. Greater than 8 cm 1%.
	1.5 - 2.0m	Dense clay.
	2.0m	End of hole.

<u>T. H. #7</u>	(D-6230)	
	0 - 0.1m	Overburden
	0.1 - 1.2m	Fairly clean, poorly graded gravel lacking in sand sizes.
	1.2 - 2.5m	Clean, poorly graded gravel lacking in some sand sizes, becoming finer with depth.
	2.5m	End of hole, sloughing.
<u>T. H. #8</u>	(D-6231)	
	0 - 0.1m	Overburden
	0.1 - 2.5m	Clean, fairly well graded gravel lacking in fine sand sizes. Greater than 8 cm 1%.
	2.5m	End of hole, sloughing.
<u>T. H. #9</u>	(D-6242)	
	0 - 0.2m	Overburden
	0.2 - 2.0m	Clean, medium - coarse sand.
	2.0 - 3.7m	Clean, well graded gravel to 40 mm. Greater than 8 cm 1%, becoming better graded with depth.
	3.7m	End of hole, sloughing.
<u>T. H. #10</u>	(No Sample)	
	0 - 0.3m	Overburden
	0.3 - 2.0m	Clean, poorly graded gravelly sand, greater than 40 mm less than 1%.
	2.0 - 4.0m	Clean, medium sand.
	4.0m	End of hole.
<u>T. H. #11</u>	(D-6241)	
	0 - 0.1m	Overburden
	0.1 - 4.0m	Clean, well graded coarse sand. Greater than 2.54 less than 1%.
	4.0m	End of hole.
<u>T. H. #12</u>	(No Sample)	
	0 - 0.3m	Overburden
	0.3 - 4.0m	Clean, medium - fine sand.
	4.0m	End of hole.



T. H. #13

(D-6240)

0 - 0.1m  
0.1 - 1.6m  
1.6 - 3.5m  
3.5m

Overburden  
Clean, well graded coarse sand.  
Clean, well graded gravelly sand. Greater than 15 mm less than one percent.  
End of hole.

T. H. #14

(No Sample)

0 - 0.7m  
0.7 - 4.0m  
4.0m

Overburden  
Clean, medium - fine sand.  
End of Hole.

T. H. #15

(D-6239)

0 - 0.2m  
0.2 - 4.0m  
4.0m

Overburden  
Clean, coarse gravelly sand. Greater than 15 mm less than 1%.  
End of hole.

T. H. #16

(D-6238)

0 - 0.3m  
0.3 - 3.5m  
3.5m

Overburden  
Silty, poorly graded gravel, lacking in sand sizes. 8 - 18 cm 15%, 18 - 38 cm nil, greater than 38 cm nil.  
End of hole.

T. H. #17

(D-6237)

0 - 0.3m  
0.3 - 3.0m  
3.0m

Overburden  
Fairly clean, fairly well graded gravel to 8 cm. 8 - 18 cm 15%, 18 - 38 cm 5%, greater than 38 cm nil.  
End of hole, sloughing.

T. H. #18

(D-6236)

0 - 0.1m  
0.1 - 2.0m  
2.0 - 3.0m  
3.0m

Overburden  
Silty, poorly graded gravel lacking in sand sizes. 8 - 18 cm 10%, 18 - 38 cm 2%, greater than 38 cm nil.  
Slightly silty, fairly well graded gravel to 8 cm, becoming sandier with depth. 8 - 18 cm 10%, 18 - 38 cm 1%, greater than 38 cm nil.  
End of hole, sloughing.

T. H. #19 (No Sample)

0 - 0.2m	Overburden
0.2 - 1.5m	Silty, poorly graded gravel. 8 - 18 cm 3%, 18 - 38 cm 1%, greater than 38 cm nil.
1.5 - 2.0m	Hardpan
2.0m	End of hole.

T. H. #20 (No Sample)

0 - 0.2m	Overburden
0.2 - 2.0m	Hardpan
2.0m	End of hole.

T. H. #21 (D-6245)

0 - 0.1m	Overburden
0.1 - 1.0m	Silty, fairly well graded gravel to 8 cm, greater than 8 cm less than 1%.
1.0 - 3.5m	Clean, fairly well graded gravel to 2.54 cm.
3.5m	End of hole.

T. H. #22 (D-6232)

0 - 0.1m	Overburden
0.1 - 3.0m	Fairly clean, fairly well graded gravel to 8 cm. 8 - 18 cm 20%, 18 - 38 cm 1%, greater than 38 cm less than 1%.
3.0m	End of hole, sloughing.

T. H. #23 (D-6246)

0 - 0.1m	Overburden
0.1 - 2.0m	Clean, fairly well graded coarse gravel lacking in fine sand.
2.0 - 2.3m	Gravelly silt seam.
2.3 - 3.5m	Clean, fairly well graded coarse gravel to 8 cm, lacking in fine sand. 8 - 18 cm 25%, 18 - 38 cm 5%, greater than 38 cm less than 1%.
3.5m	End of hole.

T. H. #24 (D-6247)

0 - 0.1m	Overburden
0.1 - 1.0m	Fairly clean, poorly graded gravel lacking in fine sands. 8 - 18 cm 15%, 18 - 38 cm 5%, greater than 38 cm nil.
1.0 - 3.0m	Clean, well graded gravel to 8 cm. Greater than 8 cm less than 1%.
3.0m	End of hole, sloughing

T. H. #25

(D-6248)

0 - 0.1m  
0.1 - 2.0m  
2.0 - 2.2m  
2.2 - 3.5m  
3.5m

Overburden

Clean, fairly well graded gravel to 8 cm.

8 - 18 cm 10%, 18 - 38 cm 2%, greater than 38 cm nil.

Clean, medium fine sand.

Clean, fairly well graded sandy gravel.

8 - 18 cm 10%, 18 - 38 cm 1%, greater than 38 cm nil.

End of hole.

T. H. #26

(D-6249)

0 - 0.1m  
0.1 - 1.0m  
1.0 - 3.0m  
3.0m

Overburden

Slightly silty, poorly graded gravel lacking  
in sand sizes.

Fairly clean, fairly well graded gravel.

8 - 18 cm 20%, 18 - 38 cm 10%, greater than 38 cm  
less than 1%.

End of hole, sloughing.

T. H. #27

(D-6250)

0 - 0.1m  
0.1 - 1.0m  
1.0 - 3.5m  
3.5m

Overburden

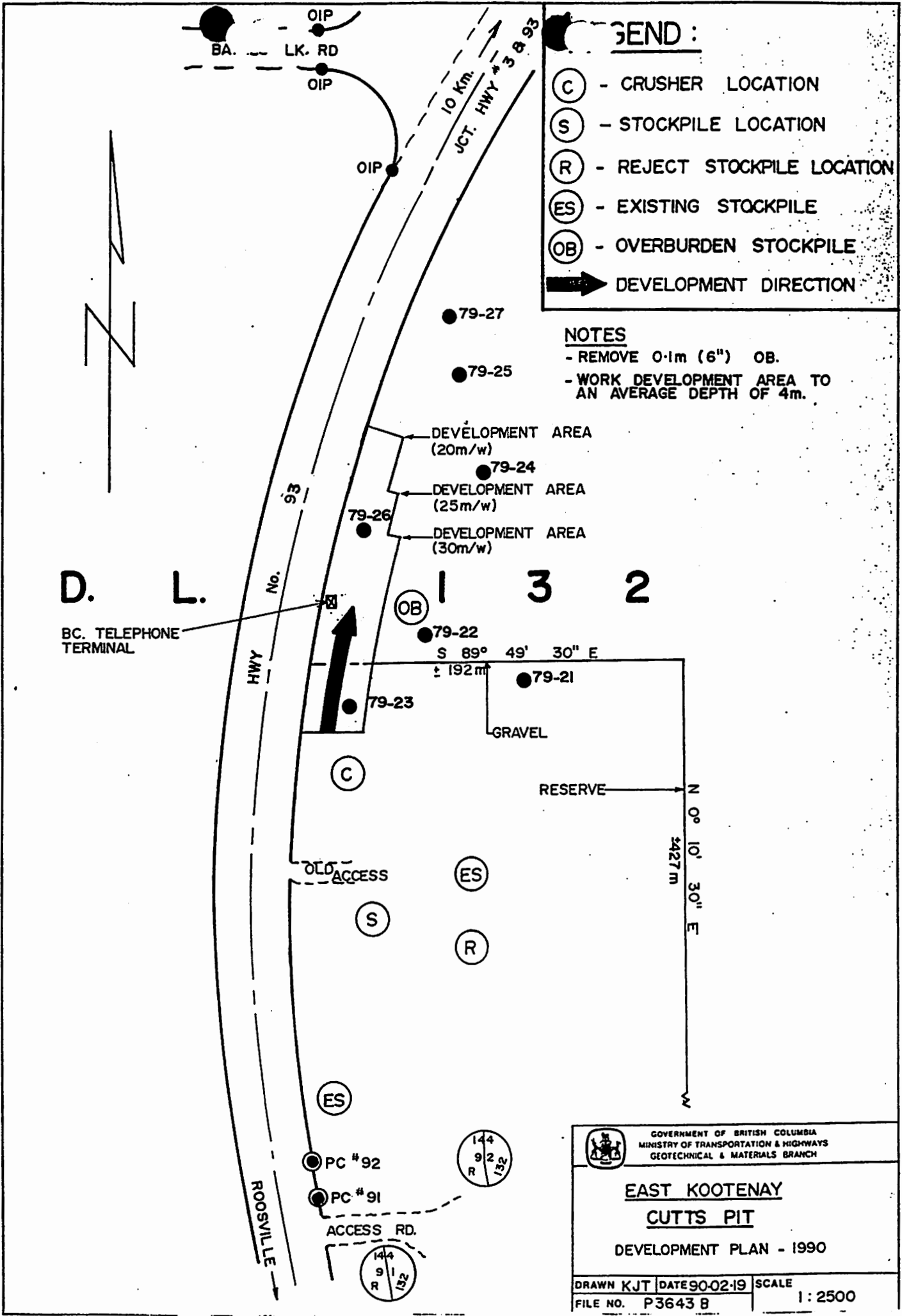
Fairly clean, fairly well graded gravel to 8 cm.

8 - 18 cm 10%, 18 - 38 cm 3%, greater than 38 cm nil.

Clean, fairly well graded gravel becoming sandier  
with depth.

8 - 18 cm 5%, 18 - 38 cm 1%, greater than 38 cm nil.

End of hole.




**LEGEND :**

- (C) - CRUSHER LOCATION
- (S) - STOCKPILE LOCATION
- (R) - REJECT STOCKPILE LOCATION
- (ES) - EXISTING STOCKPILE
- (OB) - OVERBURDEN STOCKPILE
- ➔ DEVELOPMENT DIRECTION

**NOTES**

- REMOVE 0.1m (6") OB.
- WORK DEVELOPMENT AREA TO AN AVERAGE DEPTH OF 4m.

VANCL - 4323

 GOVERNMENT OF BRITISH COLUMBIA MINISTRY OF TRANSPORTATION & HIGHWAYS GEOTECHNICAL & MATERIALS BRANCH		
<b>EAST KOOTENAY</b> <b>CUTTS PIT</b> DEVELOPMENT PLAN - 1990		
DRAWN KJT FILE NO. P3643 B	DATE 90-02-19	SCALE 1 : 2500



## Photos



View of main pit area, facing north. Access road on left side of photo. November 2023.



Main pit face, facing north. November 2023.