



**Ministry of Transportation and
Infrastructure**
Geotechnical and Materials Engineering

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Dry Gulch Pit No. 1082

1989 Technical Information Report Updated in April 2023

Location: The pit is located approximately 6 km south of the Radium roundabout where Highways 93 & 95 intersect. Access the pit can be made off the west side of Hwy 93/95.

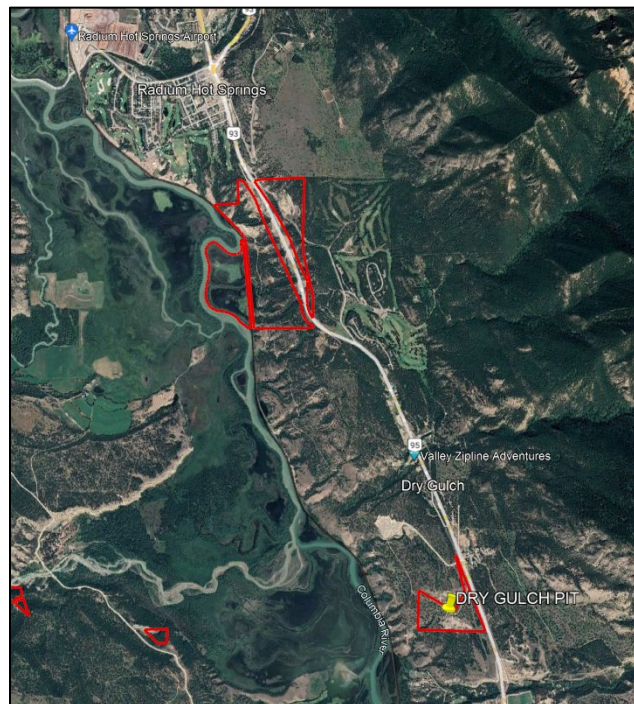


Figure 1 Dry Gulch Pit on H93/95, south of Radium Hot Springs (Google Earth).

Legal Description: That part of District Lot 9199, Kootenay District, containing 22.9 hectares more or less.

Gradation: The average and range of laboratory samples as well as oversize rock field estimates for material from Suitability Area A (TP88-6 to -10 and -12) from the 1988 testing program are as follows:

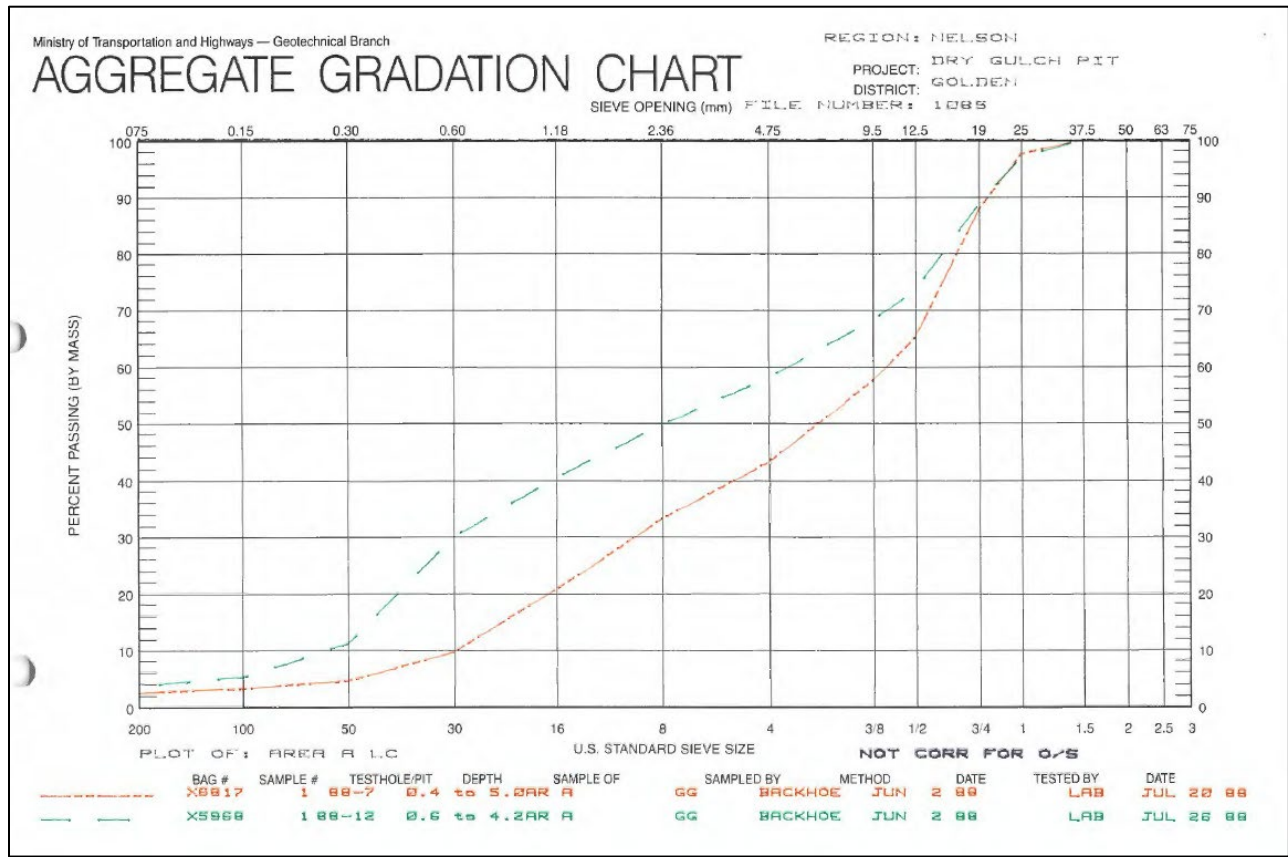
Laboratory Samples

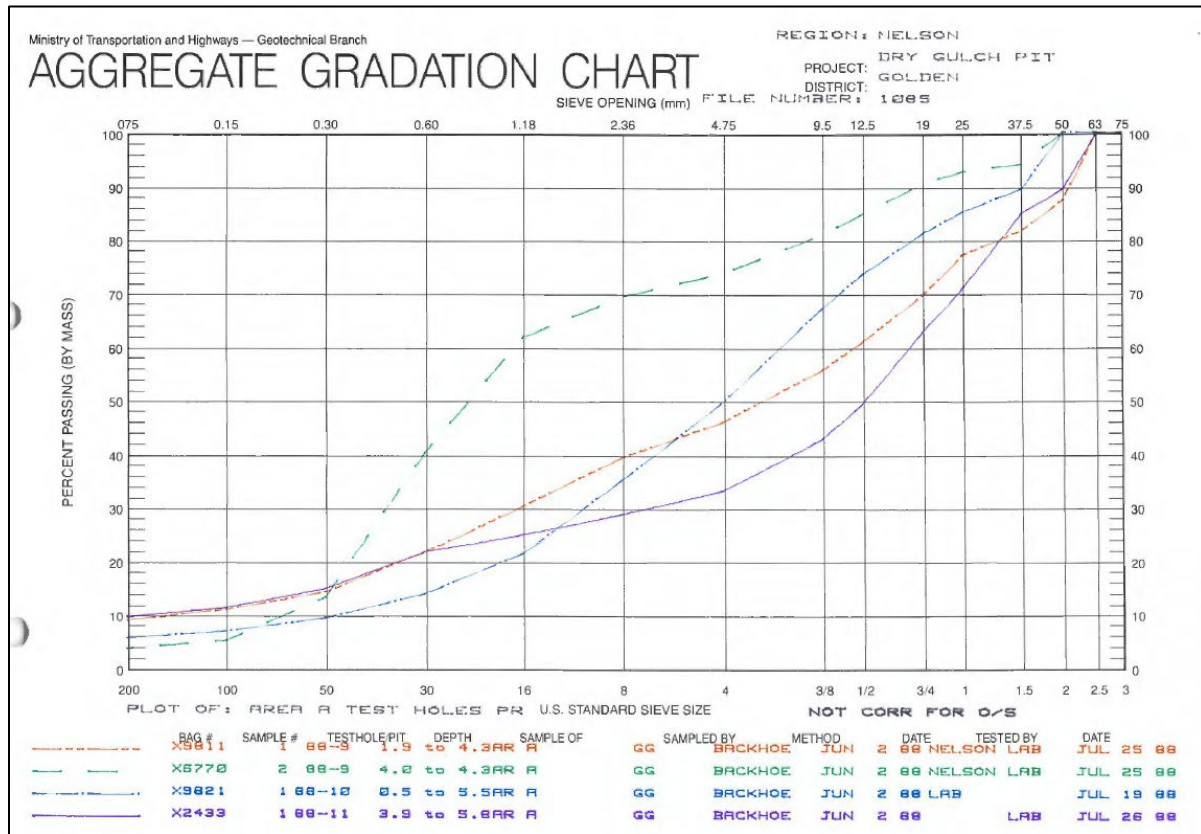
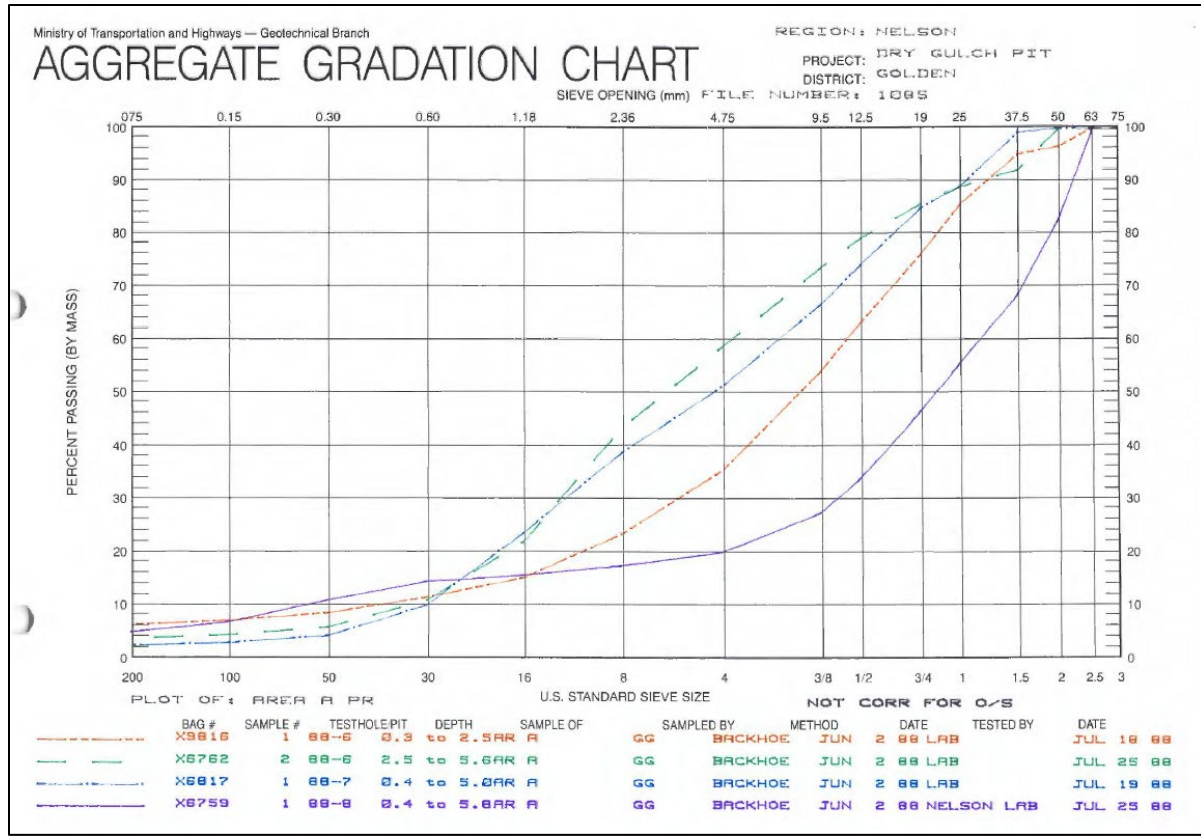
Classification	Average (%)
Gravel (4.75-75mm)	49
Sand (0.075-4.75mm)	48
Fines (<0.075mm)	3

Oversize Field Estimates

Classification	Average (%)
Boulders (>375mm)	0
Cobbles (150-375mm)	5
Cobbles (75-150mm)	7

Wet Sieve Analysis Chart:





Aggregate Gradation Chart:

GRADATION SUMMARY																								
GROUP AR A PR <i>Pit Run</i>																								
PIT: DRY GULCH PIT																								
NOT CORRECTED FOR OVERSIZE																								
TH	SA	CLASS	FACT	+225	+150	+75	GRAV	SAND	FINE	75.0	63.0	50.0	37.5	25.0	19.0	12.5	9.50	4.75	2.36	1.18	.600	.300	.150	.075
88-6	1	GP GM	1.000	2	15	20	65	29	6	100	100	96	95	85	76	63	54	35	23	15	11	8	7	6.0
88-6	2	SP	1.000	2	5	8	42	55	3	100	100	100	92	89	86	79	74	59	43	22	11	6	4	3.4
88-7	1	SP	1.000	0	8	12	49	49	2	100	100	100	99	89	85	74	67	51	39	24	10	4	3	2.1
88-8	1	GP	1.000	2	6	8	80	15	5	100	100	83	69	56	47	34	27	20	17	16	14	11	7	4.6
88-9	1	GP GM	1.000	5	30	10	55	37	8	100	100	87	82	77	70	61	55	46	39	30	21	14	10	8.3
8	2	SP	1.000	0	0	2	27	70	3	100	100	100	94	92	90	85	81	70	69	61	40	13	5	3.1
88-10	1	GP GM	1.000	2	13	7	51	44	5	100	100	100	89	85	81	73	67	49	35	21	13	9	6	5.1
88-11	1	GP GM	1.000	5	10	15	67	24	9	100	100	89	85	71	63	49	43	33	28	25	21	14	11	9.0
88-12	1	SP	1.000	0	0	2	45	52	3	100	100	96	95	85	80	70	65	55	48	39	28	10	4	3.0
AVERAGE		GP		2	10	9	53	42	5	100	100	95	89	81	75	65	59	47	38	28	19	10	6	5.0

Summary of Test Pit Logs (with results bolded in the chart):

Ministry of Transportation and Highways AGGREGATE LOG PROJECT <u>DRY GULCH PIT</u> DISTRICT <u>GOLDEN</u> SAMPLED BY: <u>2104</u> DATE <u>28/06/02</u> Geotechnical and Materials Branch 350-9365 Bill METHOD <u>B.H.</u>											
TEST HOLE NUMBER	SAMPLE NUMBER	DEPTH		Classification	ESTIMATED GRADATION			ESTIMATED OVERSIZE			REMARKS
		FROM	TO		Fines	Sand	Gravel	75-150 mm	150-300 mm	300 mm	
88-6	X	0.0	0.3	ML OB							
SA1	X9816	0.3	2.5	GP-GM	9	21	70	20	15	2	POCKLY GRADED SILTY GRAVEL FINE SAND
SA2	X9816	2.5	4.0	GP	3	42	55	2	-	-	GOOD ASPHALT MIX CLEAN 3" - MED. FINE SAND SIZES WELL GRADED CLEAN GRAVEL - MED. FINE SAND
		4.0	5.6	GP	3	32	65	15	10	2.5	END HOLE @ 5.6 SIDES SLOUGHING
88-7	X	0.0	0.4	ML OB							
		0.4	1.7	GP-GM	9	12	80	15	10	-	SILTY GRAVEL MAX 12.5"
	X9817	1.7	2.9	GP	3	31	65	10	10	-	WELL GRADED CLEAN GRAVEL FOUND COBBLES
		2.9	3.6	SP	2	55	43	2	-	-	BIG TO MED SAND
		3.6	5.0	GP	2	39	60	10	5	-	CLEAN WELL GRADED
				END HOLE @ 5.6							
88-8	X	0.0	0.4	ML OB							
		0.4	1.2	GM ₂	20	10	70	10	15	5	VERY SILTY GRAVEL
	X9819	1.2	3.7	GM ₁	12	28	60	10	5	-	POCKLY GRADED SILTY GRAVEL
		3.7	5.8	GP	4	36	60	5	2	-	CLEAN POCKLY GRADED (MED TO FINE SAND SIZES)
				END HOLE @ 5.8							
		0.0	0.4	ML OB							
SA1	X9811	0.4	1.9	GM ₂	20	5	75	10	40	5	NOTE ON ONE SIDE OF HOLE SAND FINE CLEAN GRAVEL TO 3.5"
	X9811	1.9	4.3	GM ₁	14	6	80	10	30	5	CHANGING TO CLEAN FINE TO MED SAND 4.3 TO 5.6 ON OTHER SIDE
SA2	X9811	4.3	5.6	SP	2	90	8	-	-	-	LAYERS VARY BETWEEN GM ₂ , GM ₁ , GP-GM & GP
		3.5	5.6	GP	2	38	60	5	-	-	END HOLE @ 5.6
88-10	X	0.0	0.5	ML OB							
		0.5	1.5	GM ₂	20	5	75	10	30	2	WELL SORTED DUST FINE SILTY SAND LIKE FLOUR
SA1	X9821	1.5	3.8	GP-GM	8	92	60	5	10	-	MANY DIFFERENT LAYERS INCLUDING SILT
		3.8	5.5	GP	5	70	55	5	-	-	
88-12	X	0.0	0.6	ML OB							
	X9818	0.6	4.2	SP(GP)	3	50	47	5	-	-	LAYERS OF MED FINE SAND INITIAL LAYERS OF GP
				END HOLE @ 4.2							NOT CONSISTENT EITHER SIDE OF HOLE EXCELLENT FINER SAND SOURCE VERY CLEAN

Aggregate Quality: A summary of aggregate quality tests performed on pit run samples from the 1988 tested area are as follows:

TP or Year	Degradation (%)	Sand Equivalent (%)
88-7	72.6	92.8
Average of 9 tests from 1988	54 (Range: 35-73)	77 (Range: 46-92)

Granular Volume:

Estimated Volume: 13,500 m³

- The estimated volume has been determined by multiplying the surface area (~2,700m²) of the proposed mining area within suitability area A by an average depth of 5.0 metres.

Pit Development and Recommendations:

- The mining area has been previously developed by the Ministry of Transportation and Infrastructure (MoTI); some minor stripping may be required prior to mining and aggregate stockpiling. Any additional development will be the responsibility of the contractor and shall be completed as per the pit development plan or as directed by the Ministry Representative. All development must be carried out in accordance with the Health, Safety, and Reclamation Code for Mines in British Columbia, the current Standard Specifications for Highway Construction, and the Aggregate Operators Best Management Practices Handbook for BC. Movement of any surplus overburden in the Suitability Area will be the responsibility of the contractor.
- The crusher is recommended to be located as identified on the Pit Development Plan (west of TP88-03), with mining proceeding in a western direction.
- Mining is restricted to the proposed mining area as identified on the Pit Development Plan. No clearing, grubbing, or stripping is to occur outside of this area.
- Processed aggregate may be stockpiled to the northeast of the proposed mining area (as indicated on the PDP), on the pit floor, or where space permits as directed by the Ministry Representative. Site preparation may be required to create a clear and level stockpile area.
- At the completion of mining, active pit faces shall be sloped to a minimum of 1 ½:1 with pit run granular material. 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 5m of the reserve boundary.

- No dumping of debris or petroleum products is permitted. The pit must be left in a clean and safe condition.
- **All reject materials resulting from aggregate production are to be placed in separate stockpiles free from deleterious material and in an easily accessible location. No stockpiling against the pit face is permitted without the permission from the Aggregate Resource Manager.**

Site Photographs:



Figure 2 Existing pit floor to be used for crusher set-up and stockpile location (March 2023).



Figure 3 A pit face will need to be established to mine the proposed mining area within Suitability Area A to the left of the access road in this picture (April 2022).



Figure 4 Minor regrowth on the mining face (May 2017).



Figure 5 Stockpile 1. Available to use, it is recommended that the material be tested to determine the gradation and if it meets specifications (March 2023).



Figure 6 Close-up of material in Stockpile 1 (March 2023).



Figure 7 Stockpile 2. Available to use, it is recommended that the material be tested to determine the gradation and if it meets specifications (March 2023).



Figure 8 Close-up of material in Stockpile 2 (March 2023).



Figure 9 Crusher set-up and stockpile space (April 2022).



Figure 10 Crusher set-up area with mining direction to the right of the photo (April 2022).

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