



**Ministry of Transportation and
Infrastructure**

Geotechnical and Materials Engineering

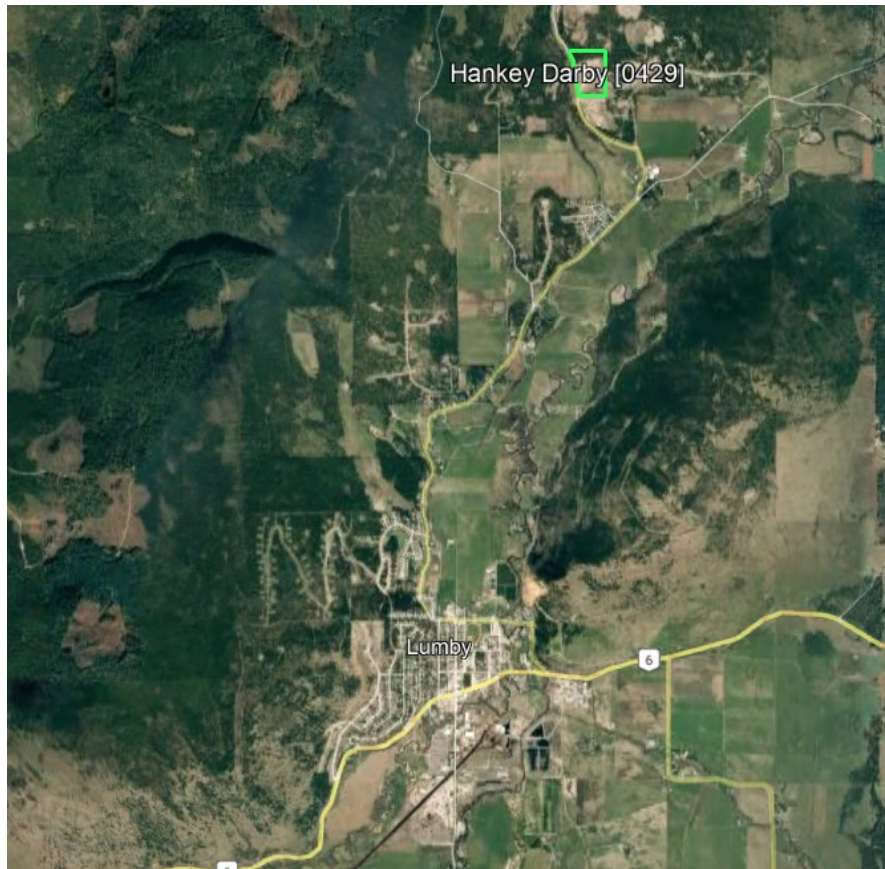
Southern Interior Region

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Hankey Darby Pit No. 0429

2022 Technical Information Report

Location: The pit is located approximately 5km north of Lumby, on the east side of Trinity Valley Road.



Legal Description: Hankey Darby Pit No. 0429 is a Ministry-owned Fee Simple property, PID 010057226, legally described as Section 12, TP 2 ODYD with 8.09 hectares. UTM zone 11, 360828 Easting, 5572776 Northing.

Gradation: The average and range of laboratory samples as well as oversize rock field estimates for material from the 2021 testing program at Hankey Darby Pit are as follows:

Laboratory Samples

Classification	Average (%)	Range (%)
Gravel (4.75-75mm)	40.75	23.1-73
Sand (0.075-4.75mm)	52.61	23.5-75.1
Fines (<0.075mm)	6.64	1.8-15.4

Oversize Field Estimates

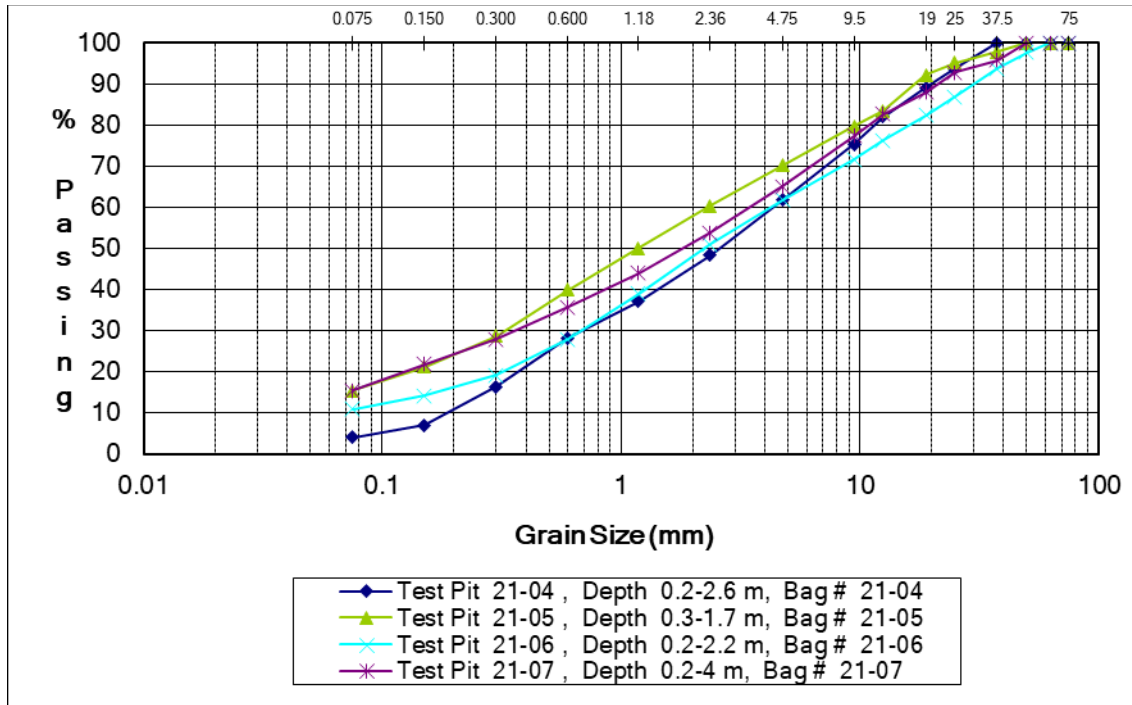
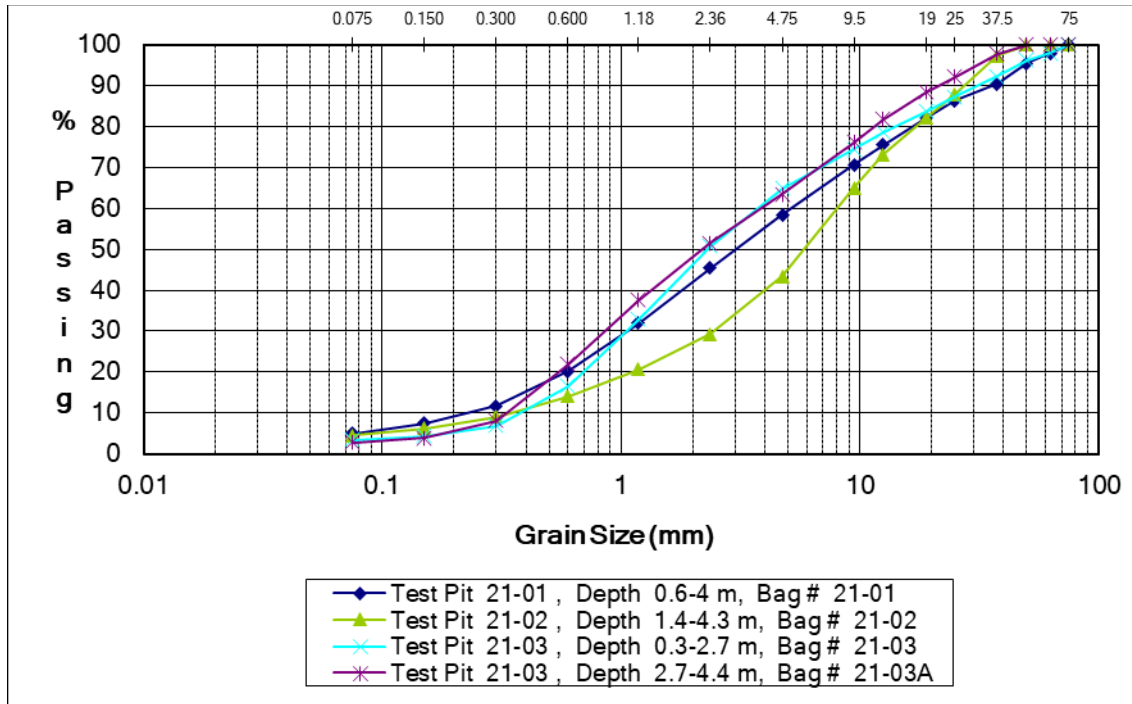
Classification	Average (%)	Range (%)
Boulders (>375mm)	0	0
Cobbles (150-375mm)	1.5	0-5
Cobbles (75-150mm)	5.1	2-12

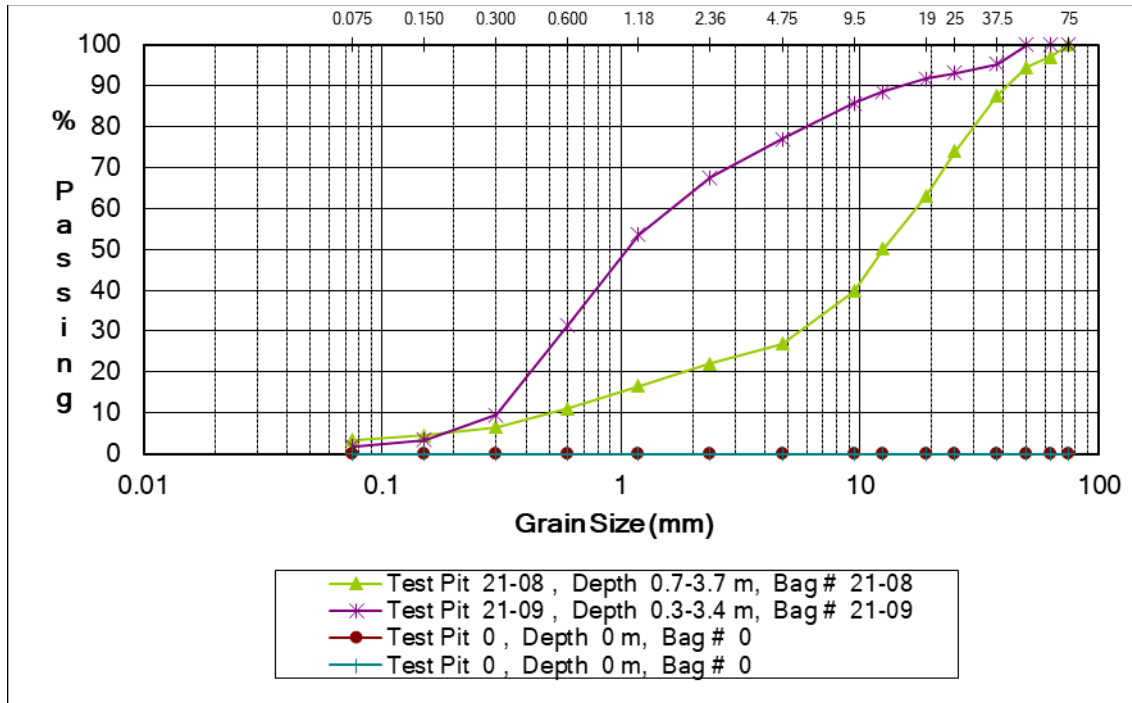
Maximum rock size observed was 270mm.

Wet Sieve Analysis Chart:

PROJECT REPORT OF SIEVE ANALYSIS SUMMARIES			PERCENT PASSING														
Project:	Hankey Darby Pit		Project No.:											86004			
Sample Source:	0		Client:											MoTI			
Material:	PIT RUN		Date:											Dec 9 2021			
Sample Information			Percent Passing														
Test Pit	Depth (m)	Bag #	Pit Run Sieve Sizes (mm)														
			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
21-01	0.6-4	21-01	100.0	98.0	95.4	90.4	86.4	82.1	75.5	70.7	58.5	45.4	32.0	20.2	11.7	7.4	5.0
21-02	1.4-4.3	21-02	100.0	100.0	100.0	97.3	87.9	82.1	73.2	65.0	43.3	29.3	20.7	14.0	9.0	6.2	4.4
21-03	0.3-2.7	21-03	100.0	98.0	96.2	92.3	87.3	83.7	78.6	74.4	64.8	50.7	32.9	16.5	6.8	4.3	3.4
21-03	2.7-4.4	21-03A	100.0	100.0	100.0	97.8	92.2	88.4	81.8	76.2	63.4	51.5	37.5	21.9	8.1	3.9	2.8
21-04	0.2-2.6	21-04	100.0	100.0	100.0	100.0	93.8	89.1	82.0	75.3	61.8	48.3	37.0	28.1	16.3	7.0	4.0
21-05	0.3-1.7	21-05	100.0	100.0	100.0	97.8	95.1	92.1	83.4	79.7	70.1	60.4	50.1	39.9	28.6	21.1	15.4
21-06	0.2-2.2	21-06	100.0	100.0	97.7	93.7	86.8	82.4	76.3	71.5	61.7	51.0	38.9	27.8	19.2	14.2	10.9
21-07	0.2-4	21-07	100.0	100.0	100.0	95.7	92.8	88.0	82.7	77.3	65.0	53.7	44.0	35.6	27.9	21.7	15.3
21-08	0.7-3.7	21-08	100.0	97.0	94.6	87.7	74.0	63.0	50.1	39.8	27.0	22.1	16.6	11.1	6.5	4.5	3.4
21-09	0.3-3.4	21-09	100.0	100.0	100.0	95.3	93.1	91.7	88.5	85.8	76.9	67.5	53.6	31.5	9.5	3.4	1.8

Aggregate Gradation Chart:





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

AGGREGATE LOG															
PROJECT:		Hankey Darby Pit				SAMPLED BY:		Samantha Kinniburgh							
PIT #:		429				METHOD:		Excavator							
DISTRICT:		Okanagan Shuswap				DATE:		December 9th 2021							
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	
21-01	0	0.6		SP-SM										*Packed down floor in the top 0.6m Good looking gravelly sand under packed floor, not much OS, sloughing at 2m.	
	0.6	4	21-01	SP	46	50	4	160	3	1	0	M			
				SPSM	41.5	53.5	5								
21-02	0	1.4		SP	37	60	3							Sand seam that dips N to S, more OS here than 21-01, wet-looking silts Top layer is sandy with the seam, not much OS	
	1.4	4.3	21-02	GPGM	57	36	7	160	8	2	0	M-C			
				GW	56.7	39	4.4								
21-03	0	0.3		Floor										Gravel layer, larger rock overlying finer sand layer Two samples taken on this TP	
	0.3	2.7	21-03	GPGM	58	36	6	190	6	2	0	M-C			
				SP	35.2	61.5	3.4								
	2.7	4.4	21-03A	SP	42	55	3								
				SP	36.6	60.6	2.8								
21-04	0	0.2		Floor/OB										On the east side of the TP, some sand layers (maybe from previous CAT push)	
	0.2	2.6	21-04	GP	52	45	3	100	3	0	0	M			
				SP	38.2	57.8	4								
	2.6	4.4		SP	35	62	3							GP on west side of TP, no real OS, mostly gravelly sand.	
	4.4			GP											
21-05	0	0.3		Floor										Not sure how much is CAT push material, TP area is flattened previous SP area, looks like dirty gravel over gravelly sand.	
	0.3	1.7	21-05	GPGM	52	41	7	170	3	1	0	M-C			
				SM1	29.9	54.6	15.4								
	1.7	4		SPSM	40	55	5								
21-06	0	0.2		Floor										More OS and gravel in top 2m, then finer sand below.	
	0.2	2.2	21-06	GP	60	36	4	270	7	2	0	M-C			
				SW-SM	38.3	50.8	10.9								
	2.2	3.9		SP	45	50	5								
21-07	0	0.2		Floor										Consistent all the way down, no sloughing, not much OS here.	
	0.2	4	21-07	SP	45	51	4	180	2	1	0	M-C			
				SM1	35	49.7	15.3								
21-08	0	0.7		Floor										Lots of bigger, rounded gravel, bonier at the bottom of the TP, sloughing at 1.5m, dirty material.	
	0.7	3.7	21-08	GM1	63	25	12	230	12	5	0	M-C			
				GP	73	23.5	3.4								

AGGREGATE LOG													
PROJECT: Hankey Darby Pit				SAMPLED BY: Samantha Kinniburgh									
PIT #: 0429				METHOD: Excavator									
DISTRICT: Okanagan Shuswap				DATE: Dec 9th 2021									
TEST PIT NO.	DEPTH		SAMPLE BAG NO.	SOILS CLASS	ESTIMATED GRADATION			ESTIMATED ROCK 75mm				SAND TYPE F M C	REMARKS
	FROM	TO			G	S	F	MAX SIZE	75mm - 150mm	150mm - 375mm	>375mm		
21-09	0	0.3		Floor									
	0.3	3.4	21-09	SP	32	65	3	80	2	0	0	M	Uniform sand, with some rock, no sloughing, beach sand type material.
				SP	23.1	75.1	1.8						

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

TP or Year	Micro-Deval (%) (C/F)	Sand Equivalent (%)	Bulk Relative Density (C/F)	Absorption (%) (C/F)
21-01	9.5/12.9	51		
21-03			2.594/2.589	1.26/1.44

Granular Volume:

Estimated Volume: 15,000 m³

- The estimated volume has been determined by multiplying the surface area of the suitability boundary by an average depth of 2.5 metres.

Pit Development and Recommendations:

- The mining area has been previously developed by the Ministry of Transportation and Infrastructure (MoTI). 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.
- Previous riprap and winter sand stockpiles will need to be relocated (they were on and in front of the pit face and suitability area as of December 2021) in order to mine the suitability area.
- The crusher is recommended to be located east of the salt shed structure, as identified on the Pit Development Plan, with mining proceeding in a northern direction as indicated.

- Processed aggregate may be stockpiled south of the crusher set up area where space permits and as indicated on the Pit Development Plan.
- At the completion of mining, active pit faces shall be sloped to a minimum of 1 ½:1 with pit run granular material.
- **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:



View with crusher set up area in foreground to the right, July 2021.



Crusher set up in background right of the salt shed, stockpile space at left. July 2021.



View looking east at riprap and ditching that needs to be moved to mine the suitable material underneath. December 2021.



View looking south onto suitability area in front of winter sand stockpile (to be moved prior to mining),
December 2021.



TP 21-01, December 2021.



TP 21-02, December 2021.



TP 21-04, December 2021.



TP 21-08, December 2021.



TP 21-09 Spoil, December 2021.

Samantha Kinniburgh
Senior Aggregate Resource Specialist

