



# METRO TESTING & ENGINEERING AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION



## **METRO TESTING & ENGINEERING**

CCIL

#### SIEVE ANALYSIS REPORT SI Standard SERIES

#18 - 3275 McCallum Road ph: 1-888-855-9733 Abbotsford, B.C. V2S 7W8 fax: (604) 855-7378

PROJECT NO. VE 40608

CLIENT CANYON GOLD & GRAVEL INC

C.C.

TO

CANYON GOLD & GRAVEL INC SUITE 200 - 100 PARK ROYAL S WEST VANCOUVER, BC V7T 1A2

ATTN: BRIAN HAUFF

PROJECT PRE-QUAL FOR CONCRETE/ASPHALT AGG

TBD

PRE-QUAL

TBD

CONTRACTOR CANYON GOLD & GRAVEL INC

SIEVE TEST NO. 1 DATE RECEIVED 2022. Apr. 16 DATE TESTED 2022. Apr. 25 DATE SAMPLED 2022. Apr. 15

CANYON GOLD & GRAVEL INC.

SAMPLED BY CLIENT

SOURCE NOT PROVIDED

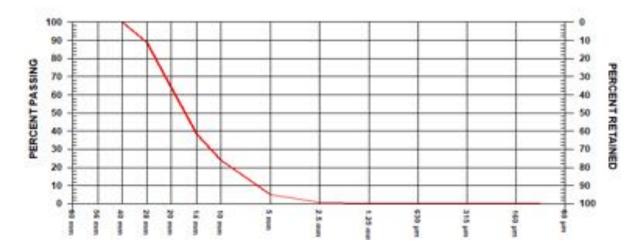
SUPPLIER

TESTED BY EX

SPECIFICATION

TEST METHOD ASTM C-117

MATERIAL TYPE 75 mm PITRUN



GRAVEL SIZES		PERCENT PASSING	GRADATION LIMITS
56 40 28 20	mm mm mm mm mm mm	100.0 88.7 64.1 38.4 24.3	

SAND SIZES AND FINES	PERCENT PASSING	GRADATION LIMITS
5 mm 2.5 mm 1.25 mm 630 μm 315 μm 160 μm 80 μm	5.0 0.8 0.5 0.4 0.3 0.3	

#### **COMMENTS**

Result is the average of 4 location sample

Page 1 of 1

2022.May.02

METRO TESTING & ENGINEERING



## **METRO TESTING & ENGINEERING**

#18 - 3275 McCallum Road ph: 1-888-855-9733 Abbotsford, B.C. V2S 7W8 fax: (604) 855-7378



#### SIEVE ANALYSIS REPORT SI Standard SERIES

TO

CANYON GOLD & GRAVEL INC SUITE 200 - 100 PARK ROYAL S WEST VANCOUVER, BC V7T 1A2

ATTN: BRIAN HAUFF

PROJECT NO. VE 40608 CLIENT CANYON GOLD & GRAVEL INC

PROJECT PRE-QUAL FOR CONCRETE/ASPHALT AGG TBD TBD

PRE-OUAL

CONTRACTOR CANYON GOLD & GRAVEL INC

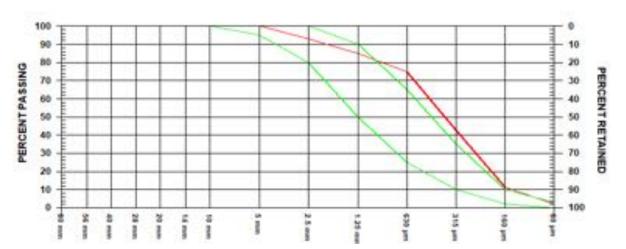
DATE RECEIVED 2022. Apr. 16 DATE TESTED 2022. Apr. 28 DATE SAMPLED 2022. Apr. 15 SIEVE TEST NO. 2

> CANYON GOLD & GRAVEL INC CLIENT SAMPLED BY

SUPPLIER NOT PROVIDED EΧ SOURCE **TESTED BY** 

TEST METHOD ASTM C-136 SPECIFICATION CSA FINE AGGREGATE FA1

MATERIAL TYPE SAND



GRAVEL SIZES		PERCENT PASSING	GRADATION LIMITS
80 56 40 28 20 14 10	mm mm mm mm mm mm		100.0-100.0

SAND SIZES AND FINES		PERCENT PASSING	GRADATION LIMITS
2.5 m 1.25 m 630 µ 315 µ 160 µ	mn mm am am am am	100.0 93.0 84.9 74.7 42.7 11.3 2.0	95.0-100.0 80.0-100.0 50.0-90.0 25.0-65.0 10.0-35.0 2.0-10.0 0.0-3.0

FINENESS MODULUS 1.93 SPEC LIMITS 0.00 -0.00

**COMMENTS** 

Result is the average of 4 location sample.

Page 1 of 1 2022.May.02 METRO TESTING & ENGINEERING PER.

Reporting of these test results constitutes a testing service only. Engineering interpretation or evaluation of test results is provided only on written request. RANGESTEED WATER EAST WILL BE STORED TO THE WEEK LOUNG BOOK OF





#18 3275 McCallum Rd., Abbotsford, B.C. V2S 7W5 Phone: 1-888-855-9733 Fax: (604) 855-7378

TO: **CANYON GOLD & GRAVEL INC.** 

REPORT DATE: 11-May-22 Suite 200 100 Park Royal St PROJECT NO: VE40608

West Vancouver, BC., V7T 1A2

ATTN: **BRIAN HAUFF** 

PROJECT: AGGREGATE PRE-QUALIFICATION TESTING 2022

SCOPE: AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION

## CSA A23.2-12A RELATIVE DENSITY AND ABSORPTION OF COARSE AGGREGATE

SAMPLE DATA			
SUPPLIER	CANYON GOLD & GRAVEL INC.	DATE SAMPLED:	16-Apr-22
SOURCE:	HOPE PIT	DATE RECIEVED:	16-Apr-22
SAMPLE TYPE:	COARSE AGGREGATE	DATE TESTED:	11-May-22
	(28-5 mm SIZE)		

Trial No.	Mass (g)	Relative Density Dry (Gsb)	Relative Density SSD (Gssd)	Apparent Relative Density (Gsa)	Absorption (%)
1	2643.9	2.668	2.697	2.749	1.10
2	2430.6	2.669	2.698	2.748	1.08
AVERAGE:		2.668	2.697	2.748	1.09

Per:

Jaime Rivero

Laboratory Supervisor

Reviewed by:

Jim Hernandez, AScT Laboratory Manager

12-May-22

VE40608





TO: **CANYON GOLD & GRAVEL INC.** REPORT DATE: PROJECT NO:

Suite 200 100 Park Royal St West Vancouver, BC., V7T 1A2

**BRIAN HAUFF** Attn:

**PROJECT:** AGGREGATE PRE-QUALIFICATION TESTING 2022

AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION SCOPE:

### CSA A23.2 - 6A RELATIVE DENSITY AND ABSORPTION OF FINE AGGREGATE

SAMPLE DATA			
SUPPLIER	Canyon Gold & Gravel Inc.	DATE SAMPLED:	16-Apr-22
SOURCE:		DATE RECIEVED:	16-Apr-22
SAMPLE TYPE:	CONCRETE SAND	DATE TESTED:	11-May-22

Trial No.	Mass (g)	Relative Density Dry (Gsb)	Relative Density SSD (Gssd)	Apparent Relative Density (Gsa)	Absorption (%)
1	500	2.628	2.668	2.739	1.54
2	500	2.624	2.665	2.737	1.58
AVERAGE:		2.626	2.667	2.738	1.56

The test data reported pertains to the sample provided, and may not be applicable to materials from other production zones.

Per:

Laboratory Supervisor

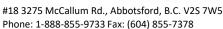
Reviewed by:

Jim Hernandez, AScT Laboratory Manager









REPORT DATE: 2-May-22

PROJECT NO: VE40608



TO: CANYON GOLD & GRAVEL INC.

Suite 200 100 Park Royal St West Vancouver, BC., V7T 1A2

ATTN: BRIAN HAUFF

PROJECT: AGGREGATE PRE-QUALIFICATION TESTING 2022

SCOPE: AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION

#### CSA A23.2-29A

RESISTANCE OF COARSE AGGREGATES TO DEGRADATION BY ABRASION IN THE MICRO DEVAL APPARATUS

	Sample Data	Test D	ata
Sample Supplier	Canyon Gold & Gravel Inc.	Number of Revolutions:	100±5 rpm
Sample Location:	N/A	Diameter of Spheres:	9.5 mm
Sample Type:	Coarse Agg (28mm -5mm)	Mass of Spheres:	5000±5 grams
Date Sampled:	16-Apr-22	Mass of Sample Tested:	1500.2
Date Received:	16-Apr-22	Grading Category	Clause 6.2
Date Tested:	19-Apr-22	Tested By:	JR

#### Results:

ABRASION LOSS	3.6%
---------------	------

Note: Calibration Aggregate (Drain Brothers), % Loss : 13.9%

Calibration Date: Dec 6, 2021

	APPLICABLE REQUIREMENTS					
Standard	Section	Reference	Туре	Max Loss (%)		
CSA A23.1		Table 12	Coarse	17/21		
			Fine	20		

The test data reported pertains to the sample provided and may not be applicable to materials from other production zones

Per:

Jaime Rivero

**Laboratory Coordinator** 

Reviewed By:

Jim Hernandez, AScT







#18 3275 McCallum Rd., Abbotsford, B.C. V2S 7W5 Phone: 1-888-855-9733 Fax: (604) 855-7378

REPORT DATE: 2-May-22

PROJECT NO: VE40608



TO: CANYON GOLD & GRAVEL INC.

Suite 200 100 Park Royal St West Vancouver, BC., V7T 1A2

ATTN: BRIAN HAUFF

PROJECT: AGGREGATE PRE-QUALIFICATION TESTING 2022

SCOPE: AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION

#### **CSA A23.2-23A**

RESISTANCE OF FINE AGGREGATES TO DEGRADATION BY ABRASION IN THE MICRO DEVAL APPARATUS

Sample Supplier	Canyon Gold & Gravel Inc.	Number of Revolutions:	100±5 rpm
Sample Location:	N/A	Diameter of Spheres:	9.5 mm
Sample Type:	CONCRETE SAND	Mass of Spheres:	5000±5 grams
Date Sampled:	16-Apr-22	Mass of Sample Tested:	500.0
Date Received:	16-Apr-22	Grading Category	
Date Tested:	19-Apr-22	Tested By:	JR

#### Results:

ABRASION LOSS	10.8%

Note: Calibration Aggregate (Sutherland), % Loss: 17.9%

Test completed on Dec 3, 2021

APPLICABLE REQUIREMENTS				
Standard Section Reference Type Max Lo				
CSA A23.1		Table 12	Fine	20

Per:

Jaime Rivero
Laboratory Supervisor

Reviewed By:

Jim Hernandez, AScT Laboratory Manager





401-6741 Cariboo Rd., Burnaby, BC V3N 4A3 t: 604.436.9111 tf: 1.844.732.2638 e: info@metrotesting.ca

To: Canyon Gold & Gravel Inc.

Suite 200-100 Park Royal S West Navcouver, BC V3T 1A2

Project: Pre- Qualification for Concrete/ Asphalt Agg.

Date: 16-May-22 Project No.: VE40608

# Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine CSA A23.2-16A

The Los Angeles test is a measure of degradation of mineral aggregates of standard gradings resulting from a combination of actions, including abrasion or attrition, impact, and grinding in a rotating steel drum. The test is an indicator of the relative quality or competence of various sources of aggregate.

Product	Date Sampled	Sample Source	Grading Used	Percent Loss of Tested Sample (0.1%)
40mm Coarse Aggregate	15-Apr-22	n/a	А	17.3
	n/a			
CSA Specified Limit:				max 50

Comment:

Los Angeles abrasion loss is 17.3% which meets CSA requirements of max 50% loss for concrete exposed to to freezing, or other exposure conditions.

Conducted by:

Peregrina Israel
Senior Laboratory Technician

Reviewed by:

Andy Bernardino, AScT

Quality Supervisor/Technical Lead for Asphalt and Aggregate Laboratory

**CCIL** Certified

Experience applied







#18 3275 McCallum Rd., Abbotsford, B.C. V2S 7W5 Phone: 1-888-855-9733 Fax: (604) 855-7378

TO: CANYON GOLD & GRAVEL INC.

REPORT DATE:

11-May-22

Suite 200 100 Park Royal St

West Vancouver, BC., V7T 1A2

PROJECT NO:

VE40608

ATTN: BRIAN HAUFF

PROJECT: AGGREGATE PRE-QUALIFICATION TESTING 2022

SCOPE: AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION

# CSA A23.2-3A STANDARD TEST METHOD FOR CLAY LUMPS AND FRIABLE PARTICLES IN AGGREGATE

	Sample Data	Test Data		
Supplier		Date Sampled:	16-Apr-22	
Sample Location:		Date Received:	16-Apr-22	
Sample Type:	Coarse Aggregates (28mm-5mm Gradation)	Date Tested:	19-Apr-22	
	Fine Aggregates (Concrete Sand)	Tested By	JR	

#### Results:

Clay Lumps - Sand	0.20%
Clay Lumps - Coarse	0.05%

#### Comments:

Test results meet the requirement as per CSA specifications as shown on table below:

Standard	Reference	Туре	Max Limit (%)
CSA 23.1-09	Table 12	Fine	1.0
CSA 23.1-09	Table 12	Coarse	0.3/0.5

Per:

Jaime Rivero
Laboratory Supervisor

Reviewed By:

Jim Hernandez AScT Laboratory Manager



REPORT DATE: 11-May-22

PROJECT NO: VE40608

#18 3275 McCallum Rd., Abbotsford, B.C. V2S 7W5 Phone: 1-888-855-9733 Fax: (604) 855-7378

TO: CANYON GOLD & GRAVEL INC.

Suite 200 100 Park Royal St West Vancouver, BC., V7T 1A2

ATTN: BRIAN HAUFF

PROJECT: AGGREGATE PRE-QUALIFICATION TESTING 2022

SCOPE: AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION

# CSA A23.2-4A LOW-DENSITY GRANULAR MATERIAL IN AGGREGATE

SAMPLE DATA				
SUPPLIER		DATE SAMPLED:		
SOURCE:		DATE RECIEVED:		
SAMPLE TYPE:	Coarse Aggregates (28-5mm Aggregates)	DATE TESTED:		
	Fine Aggregates (Concrete Sand)	TESTED BY: JR		

Results:

**COARSE AGGREGATES** 

Content of Low-Density Particles (% by mass)	0.0

#### **FINE AGGREGATE**

Content of Low-Density Particles (% by mass)	0.01

#### **Comments:**

Test results meet the requirements as per CSA specifications as shown on table below.

Standard	Section	Reference	Туре	Max Limit (%)
CSA	A23.1-09	Table 12	Fine	0.5
			Coarse	0.5

The test data reported pertains to the sample provided and may not be applicable to materials from other production zones

Per:

Jaime Rivero

Laboratory Supervisor

Reviewed By:

Jim Hernandez, AScT

PROJECT NO:

REPORT DATE: 30-Apr-22

VE40608



TO: CANYON GOLD & GRAVEL INC.

Suite 200 100 Park Royal St West Vancouver, BC., V7T 1A2

ATTN: BRIAN HAUFF

PROJECT: AGGREGATE PRE-QUALIFICATION TESTING 2022

SCOPE: AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION

#### **CSA A23.2-13A**

#### FLAT AND ELONGATED PARTICLES IN COARSE AGGREGATE

Sample Data		Test Data		
Supplier	Upland Contracting Ltd.	Date Sampled:	16-Apr-22	
Sample Location:	Upland Pit #1	Date Received:	16-Apr-22	
Sample Type:	Coarse Aggregates	Date Tested:	25-Apr-22	
	(40-5mm Aggregates)	Tested By	JR	

#### Results:

FLAT AND ELONGGATED PARTICLES	1.70%

Note:

Procedure A (Length to Thickness Ratio 4:1)

#### Comments:

Standard	Section	Reference	Туре	Max Limit (%)
CSA	A23.1:19	Table 12	Coarse	20.0

The test data reported pertains to the sample provided and may not be applicable to materials from other production zones.

Jaime Rivero

Laboratory Supervisor

Reviewed By:

Jim Hernandez, AScT

Laboratory Manager

Per:



TO: **CANYON GOLD & GRAVEL INC.** 

REPORT DATE: 9-May-22 Suite 200 100 Park Royal St PROJECT NO: VE40608

West Vancouver, BC., V7T 1A2

ATTN: **BRIAN HAUFF** 

PROJECT: AGGREGATE PRE-QUALIFICATION TESTING 2022

AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION SCOPE:

#### **CSA A23.2 - 7A**

#### TEST FOR ORGANIC IMPURITIES IN FINE AGGREGATES FOR CONCRETE

	SAMPLE DATA	Test Data
Supplier :	CANYON GOLD & GRAVEL INC.	Date Sampled: 16-Apr-22
Sample Location:	HOPE PIT, HOPE BC	Date Received: 16-Apr-22
Sample Type:	Concrete Sand	Date Tested: 5-May-22
		Tested By: JR

Test Scope		Ref. Organic Plate No.	
This test method covers the procedure for an			1 (Light Yellow)
approximate determination of the presence of			2 (Yellow)
possibly injurious organic compounds in natural			3 (Standard, Orange)
sands that to be used in cement mortar or concrete.			4 (Brown)
			5 (Black)

Note:

When the color is darker than the standard color (Orange), or organic plate #3, the fine aggregate under this test shall be considered to possibly contain injurious organic impurities.

As per CSA A 23.2-7A fine aggregate failing the test may be used, if the amounts not exceeding 0.5% as determined in accordance with CSA Test Method A23.2-4A.

Per:

Laboratory Supervisor

Reviewed by:

Jim Hernandez, AScT Laboratory Manager

16-May-22

VE40608



#18 3275 McCallum Rd., Abbotsford, B.C. V2S 7W5 Phone: 1-888-855-9733 Fax: (604) 855-7378

REPORT DATE:

PROJECT NO:

TO: CANYON GOLD & GRAVEL INC.

Suite 200 100 Park Royal St West Vancouver, BC., V7T 1A2

ATTN: BRIAN HAUFF

PROJECT: AGGREGATE PRE-QUALIFICATION TESTING 2022

SCOPE: AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION

#### CSA A23.2-24A

RESITANCE OF UNCONFINED COARSE AGGREGATE TO FREEZING AND THAWING

	Sample Data	Test Data
Sample Supplier	CANYON GOLD & GRAVEL INC.	Date Sampled: 16-Apr-22
Sample Location:	HOPE PIT, HOPE BC	Date Received: 16-Apr-22
Sample Type:	COARSE AGGREGATE	Date Tested: 1-May-22
	28 mm -5 mm	Tested By: JR

Material	Size Ret	ained (mm)	Suggested Weights of Test Samples	Weight of Test Fractions Before Test	Weight of Test Fractions After Test	%Loss of Test Fraction	Grading of Tested Sample (%)	Weighted Percent Loss (%)
28 mm	-	20 mm	2500.0	2503.1	2497.7	0.22	47.62	0.10
20 mm	-	14 mm	1250.0	1250.2	1242.4	0.62	23.81	0.15
14 mm	-	10 mm	1000.0	999.5	983.2	1.63	19.05	0.31
10 mm	-	5 mm	500.0	499.9	484.9	3.00	9.52	0.29
	TOTAL	L	5250.0	5252.7	5208.2		100.0	0.8

#### Results:

Loss after 5 cycles	0.8%

Note: Calibration Aggregate (Drain Brothers), % Loss (Freeze & Thaw): 11.1%

Test completed on Dec 15, 2021

#### **Comments:**

Standard	Section	Reference	Type	Max Limit (%)
CSA	A23.1-09	Table 12	Coarse	6.0

The test data reported pertains to the sample provided and may not be applicable to materials from other production zones.

Per:

Jaime Rivero

Laboratory Supervisor

Reviewed By:

Jim Hernandez, AScT



REPORT DATE: 25-May-22

PROJECT NO: VE40608

#18 3275 McCallum Rd., Abbotsford, B.C. V2S 7W5 Phone: 1-888-855-9733 Fax: (604) 855-7378

TO: CANYON GOLD & GRAVEL INC.

Suite 200 100 Park Royal St West Vancouver, BC., V7T 1A2

ATTN: BRIAN HAUFF

PROJECT: AGGREGATE PRE-QUALIFICATION TESTING 2022

SCOPE: AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION

# CSA A23.2-5A

AMOUNT OF MATERIAL FINER THAN 80 μm IN AGGREGATE

	SAMPLE DATA		Test Data
Sample I.D.		Date Sampled:	16-Apr-22
Sample Location:	HOPE PIT, HOPE BC	Date Received:	16-Apr-22
Sample Type:	COARSE & FINE AGGREGATES	Date Tested:	23-May-22
		Tested By:	JR

Material Type	Material passing 80 µm screen (% by mass)
Fine Aggregates (SAND)	2.0%
Coarse AggregateS	0.2%

#### Comments

APPLICABLE REQUIREMENTS					
Standard	Section	Reference	Гуре	Max Limit (%)	
CSA	A23.1-09	Table 12	Fine	3.0	
MoTI	211	Table 211E	Fine	3.0	

The test data reported pertains to the sample provided, and may not be applicable to materials from other production zones

Per:

Jaime Rivero

Laboratory Supervisor

Reviewed By:

Jim Hernandez, AScT

REPORT DATE:

PROJECT NO:





2-May-22

VE40608

TO: CANYON GOLD & GRAVEL INC.

Suite 200 100 Park Royal St West Vancouver, BC., V7T 1A2

ATTN: BRIAN HAUFF

PROJECT: AGGREGATE PRE-QUALIFICATION TESTING 2022

SCOPE: AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION

#### CSA A23.2-9A

SOUNDNESS OF COARSE AGGREGATE BY USE OF MAGNESIUM SULPHATE

	Sample Data	Test Data	
Sample I.D.	Canyon Gold & Gravel Inc.	Solution Used: MgSO <sub>4</sub> -7H <sub>2</sub> O	
Sample Location:	N/A	Solution Specific Gravity: 1.300	
Sample Type:	Coarse Agg	Solution Temperature: 21 ± 1 °C	
Date Sampled:	16-Apr-22	Mass of Sample Tested: 1300.0	
Date Received:	16-Apr-22	Test No: 1	
Date Tested:	19-Apr-22	Tested By: JR	

#### Results:

	Weighted Loss after 5 cycles	3.2%
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**Comments:** Test result meets the requirement as per CSA specs as shown on table below.

Standard	Section	Reference	Туре	Max Limit (%)		
CSA	A23.1-19	Table 12	Fine	12.0		
USA	7120.1 10	Table 12	Table 12	Table 12	Coarse	16.0

Per:

Jaime Rivero

Laboratory Supervisor

Reviewed By:

Jim Hernandez, AScT

2-May-22

VE40608

REPORT DATE:

PROJECT NO:





TO: CANYON GOLD & GRAVEL INC.

Suite 200 100 Park Royal St

West Vancouver, BC., V7T 1A2

ATTN: BRIAN HAUFF

PROJECT: AGGREGATE PRE-QUALIFICATION TESTING 2022

SCOPE: AGGREGATE TESTING FOR USE IN CONCRETE PRODUCTION

#### CSA A23.2-9A

SOUNDNESS OF FINE AGGREGATE BY USE OF MAGNESIUM SULPHATE

Sample	e Data	Test Data	
Sample Supplier	Canyon Gold & Gravel Inc.	Solution Used:	MgSO₄-7H₂O
Sample Location:	N/A	Solution Specific Gravity:	1.300
Sample Type:	CONCRETE SAND	Solution Temperature:	21 ± 1 ºC
Date Sampled:	16-Apr-22	Mass of Sample Tested:	400.0
Date Received:	16-Apr-22	Test No:	
Date Tested:	April 19-29, 2022	Tested By:	JR

Material Size Retained (mm)		Weight of Test Fractions Before Test (g)	Weight of Test Fractions After Test (g)	%Loss	% OF ORIGINAL FRACTION	% OF TESTTED FRACTION	Weighted Percent Loss (%)
5.0 -	2.5	100.0	94.0	6.00	7.0	12.2	0.73
2.5 -	1.25	100.0	93.7	6.30	8.1	14.1	0.89
1.25 -	0.63	100.0	94.3	5.70	10.2	17.8	1.01
0.630	0.315	100.0	92.4	7.60	32.0	55.8	4.24
	-(0.315)				42.7		
ТО	TAL	400.0	374.4		100.0	100.0	6.9

#### Results:

Loss after 5 cylcles	6.9%

Comments: Test res

Test result meets the requirement as per CSA specs as shown on table below.

Standard	<b>Reference</b> Type		Max Limit (%)
CSA	Table 12	Fine	12.0
337	14010 12	Coarse	16.0

The test data reported pertains to the sample provided, and may not be applicable to materials from other production zones.

Per:

**James Rivero** 

Laboratory Supervisor

Reviewed By:

Jim Hernandez, AScT



Project No.:

Test Date:

Sample #:

Client Ref.:

**TECHNICAL REPORT** 

VE40608

25-May-2022

01-Coarse

1



To: CANYON GOLD & GRAVEL INC.

Suite 200 100 Park Royal St West Vancouver, BC., V7T 1A2

Attention: BRIAN HAUFF

**PROJECT: Aggregate Prequalification Testing** 

SUBJECT:

ASTM C295 Standard Guide for Petrographic Examination of Aggregates for Concrete

Source: Canyon Gold Pit at Hope

**CSA A23.2 15A Petrographic Examination of Aggregates** 

Sieve fraction: 40 -5 mm

Date sampled: Not provided

Date received: 16-Apr-2022

Tested by: HX Pit Run -Coarse Fraction

ESTIMATE PERCENT CRUSHED (≤)	15%
ESTIMATE PERCENT FLAT AND ELONGATE	<1%

	Number of	Weight of	Percent of sample	Petrog	ranhic		
Rock Type	particles	particles (g)	(%)	Multiplier	Factor	Classification	Notes
	-	842.0	18.4	1	18.4	GOOD	Subangular to subround, coarse
Granite (-Diorite)	-	120.0	2.6	3	7.8	FAIR	
	-	17.0	0.4	6	2.2	POOR	grained, w/ porphritic K-felspar,
, ,				10	0.0	DELETERIOUS	massive, fresh, hard. Varied colors (pink/greenish and gray speckles).
	-	736.0	16.0	1	16.0	GOOD	Subangular to subround massive
0	-	107.0	2.3	3	7.0	FAIR	Subangular to subround, massive,
Quarzite*				6	0.0	POOR	fresh to surface wethered, some
				10	0.0	DELETERIOUS	particles fractured, very hard, pale.
	-	799.0	17.4	1	17.4	GOOD	Cubongular fine grained partially
	-	68.0	1.5	3	4.4	FAIR	Subangular, fine grained, partially
Volcanic Basalt	-	60.0	1.3	6	7.8	POOR	with vesicular texture, hard, signs
	-	26.0	0.6	10	5.7	DELETERIOUS	of rust staining, strong to medium strong, dark gray.
	-	1298.0	28.3	1	28.3	GOOD	Subangular, medium grained,
	-			3	0.0	FAIR	fresh to surface weathered, some
Volcanic-Andesite*	-	55.0	1.2	6	7.2	POOR	porporitic, hard and strong,
				10	0.0	DELETERIOUS	geenish gray.
	-	209.0	4.6	1	4.6	GOOD	
Rhyolite-(volcanic				3	0.0	FAIR	Subangular, porphritic, fresh, hard
tuff)				6	0.0	POOR	to moderate hard, pale to white.
,				10	0.0	DELETERIOUS	, para sa
	-	237.0	5.2	1	5.2	GOOD	Subangular, foliated, fine grained,
Gneiss*				3	0.0	FAIR	_
Gneiss*	-	3.0	0.1	6	0.4	POOR	minor surface weathered, very hard,
				10	0.0	DELETERIOUS	light gray and white banded.
	-	10.0	0.2	1	0.2	GOOD	
Schist				3	0.0	FAIR	Angular, platy, fine grained, fresh
Schist				6	0.0	POOR	modrate strong, light gray.
				10	0.0	DELETERIOUS	
Total	n/a	4587.0			_		

Comments: (1) The PN is not related to the potential of alkali-aggregate reactivity (AAR) of this aggregate when used in Portland cement concrete. AAR potential must be separately assessed.

Minimum

Particle count

(2) Rock types indicated by \* may have potential for alkali-aggregate reaction (AAR). See CSA A23.1 and CSA A23.2 for information on the assessment of AAR in new concrete construction.

Minimum mass

4000g

(3) Particles above 40 mm (</=10% of total wt.) were not included for analysis.

TABLE A2.1 - Suggested PN limits for					
aggregate quality cla	ssifications				
Product Type PN limits					
Concrete class C1, C2, F1	125 max				
Other concrete classes	140 max				
Shotcrete	125 max				
Railroad ballast	125 max				
Granular base	150 max				
Select granular sub base	160 max				

**Petrographic Number (PN)** 

Per:

Henry H. Xu, P.Eng. Sr. Materials Engineer

Reporting of these test results constitutes a testing service only. Engineering interpretation or evaluation of test results is provided only on written request.

133

Project No.:

Test Date:

**TECHNICAL REPORT** 

VE40608

01-Fine

25-May-2022



To: CANYON GOLD & GRAVEL INC.

Suite 200 100 Park Royal St West Vancouver, BC., V7T 1A2

Attention: BRIAN HAUFF Sample #:

**PROJECT: Aggregate Prequalification Testing** 

SUBJECT:

ASTM C295 Standard Guide for Petrographic Examination of Aggregates for Concrete

CSA A23.2 15A Petrographic Examination of Aggregates

Sieve fraction: < 5 mm (Fine) Source: Canyon Gold Pit at Hope

**Date sampled**: not provided **Date received**: 16-Apr-2022

Tested by: HX Pit Run -Fine Fraction

			Total per Siev	ve Fraction (%)			
	5.0- 2.5 mm	2.5- 1.25 mm	1.25- 0.630 mm	0.630- 0.315 mm	0.315- 0.160 mm	0.160- 0.08 mm	
Percentage of Sample (%)	7.1%	8.3%	10.4%	32.7%	32.0%	9.5%	**
Rock/ Mineral Type							Weighted Content
Volcanic-andesite	33	35	20	6			9.3
Volcanic-basalt & Amphoblite	22	11	7	5			4.8
Volcanic-felsic	8	5	7	3			2.7
Granite (-Diorite)	21	26	6	3			5.3
Garbro	3	2					0.4
Quartzite*	7	6	2	1			1.5
Gneiss*	1	1					0.2
Schist	4	3	1				0.6
Quartz (plus quartz vein particle	es)*	10	27	42	48	55	38.0
Plagioclase Feldspar			12	18	16	12	13.4
Alkali Feldspar			6	8	7	8	6.2
Hornblende			3	3	7	8	4.3
Mica-biotite				1	1	1	0.7
Mica-muscovite				2	2	1	1.4
Pyroxene			6	6	13	11	7.8
Garnet			1	1	3		1.4
Chlorite				<u> </u>	2	3	0.9
Pyrite			1	1			0.4
Magnetite/iron oxides					1	1	0.4
Polyminerials				<u> </u>			
Brittle particles							
Weathered Particles	1	1	1				0.3
Totals	100.0	100.0	100.0	100.0	100.0	100.0	100.0
**percentage recalculated/nor	rmalized, if ce	rtain sieve(s)	less than 5% ε	and not included	l in analysis.		
							<u> </u>

# **Comments:**

(1) Rock types predominately consists of volcanics with lesser amount of other species. Mineral grains comprised of about 75.2% of the evaluated sample and primarily consisted of quartz, feldspars, hornblende, prroxene, lesser amount of mica, garnet, pyrite. Rock particles mostly persisted when the size is finer than 315 um. The mineral grains are generally hard to medium hard. Weathered and/ brittle particles are abou 0.3% in the sample.

Petrographic Number (PN)/Grade

- (2) The PN grade is not related to the potential of alkali-aggregate reactivity (AAR) of this aggregate when used in Portland cement concrete. AAR potential must be separately assessed.
- (3) Rock types indicated by \* may have potential for alkali-aggregate reaction (AAR). See CSA A23.1/2-2019 for information on the assessment of AAR in new concrete construction.

Per:

Henry H. Xu, P.Eng. Sr. Materials Engineer

Reporting of these test results constitutes a testing service only. Engineering interpretation or evaluation of test results is provided only on written request.

Good



# SEPRO LABORATORIES GOLD ASSAY LAB TESTING



#### FIRE ASSAY REPORT

Method: Au, Fire Assay, 30g fusion, AAS finish. Detection 0.01-100 g/t Au.

Project: MS2060

Sample Name	Sample	Assay (ppm)
Sample Name	Number	Au
GL1 Sample #1	125881	5.64
GL1 Sample #2	125882	17.82
GL2 DH2	125883	25.21
GL2 DH3	125884	25.53
GL2 DH4	125885	12.31
GL3 DH2	125886	17.46
GL3 DH3	125887	8.77
GL3 DH4	125888	16.85
GL4 DH1	125889	17.78
GL4 DH2	125890	54.57
GL4 DH3	125891	10.92
GL4 DH4	125892	9.10
GL4 DH5	125893	18.47
GL5 DH1	125894	11.07
GL5 DH2	125895	6.55
GL5 DH3	125896	24.82
Head (Average)	-	17.68



# **SAMPLE RECEIVING LOG SHEET**

Company:	Canyon Gold & Gravel Inc	Courier:	
Project No:		Date:	Apr-27-22
Receiver:	Daniel	Page:	1

Count	Sample Label	Container Type	Sample Type (C, R, P, SI, S)	Wet/ Dry	Top Size	Weight ( kg )
1	GL1 Sample #1	Bucket	sl	W		1.11
2	GL1 Sample #2	Bucket	sl	W		0.90
3	GL2 DH2	Bucket	sl	W		1.15
4	GL2 DH3	Bucket	sl	W		1.07
5	GL2 DH4	Bucket	sl	W		0.66
6	GL3 DH2	Bucket	sl	W		0.61
7	GL3 DH3	Bucket	sl	W		1.02
8	GL3 DH4	Bucket	sl	W		1.66
9	GL4 DH1	Bucket	sl	W		1.27
10	GL4 DH2	Bucket	sl	W		1.32
11	GL4 DH3	Bucket	sl	W		1.19
12	GL4 DH4	Bucket	sl	W		0.98
13	GL4 DH5	Bucket	sl	W		1.06
14	GL5 DH1	Bucket	sl	W		1.07
15	GL5 DH2	Bucket	sl	W		1.62
16	GL5 DH3	Bucket	sl	W		1.12
Note:					-	17.81

Water on all samples

Core, Reject, Pulp, Slurry, Solution

Picture:







## **FLOTATION TEST WORKSHEET**

Client: Canyon Gold & Gravel Inc..

Date: 12-May-22 Project: MS2060 Test: CQ102 Sample: Head Sample (Undersize -300  $\mu$ m) Operator: Ja.T

 $\textbf{Objective:} \ \ \text{Conduct scoping Au flotation on undersize (-300 \mu m) sample to investigate the Au recovery.}$ 

### **Conditions:**

Stage	Reagents added, g/t						Time, minutes			ORP		
- <del> </del>	Lime	CuSO <sub>4</sub>		AMG900			Grind	Cond.	Froth	рН	(mV)	Observations
Reagent Preparation	10%	10%	0.5%	Drop	Drop	Drop					()	
Grind							0			6.63	228.0	
Conditoning			35		20			2		6.83	8.5	
Rougher 1						20			3	6.74	29.9	Floated to barren
Conditoning			30	10				2				
Rougher 2						25			4	7.20	-34.9	Floated to barren
Conditoning		300	40	10	15			8		5.97	246.0	Not much floated
Rougher 3						25			5			
Total		300	105		35	70	0	12	12			

Stage	Rougher
Flotation Cell	3L
Speed: r.p.m.	1200



# **FLOTATION TEST REPORT**

Client: Canyon Gold & Gravel Inc.. Date: 12-May-22 Project: MS2060 Test: CQ102

Sample: Head Sample Operator: Ja.T

 $\textbf{Objective:} \quad \text{Conduct scoping Au flotation on undersize (-300 $\mu m$) sample to investigate the overall Au recovery.}$ 

**Metallurgical Balance** 

Product	Weight			Assays, g/t <sup>1</sup>	Distribution, %	
Froduct	g	%	Au <sup>1</sup>		Au	
Total Oversize (+1mm)	350.9	15.0	0.01		0.01	
Total Oversize (-1mm+300μm)	965.3	41.4	0.01		0.02	
Rougher Concentrate 1	12.3	0.5	3319.70		97.20	
Rougher Concentrate 2	16.0	0.7	62.12		2.37	
Rougher Concentrate 1-2	28.3	1.2	1477.96		99.57	
Rougher Concentrate 3	15.9	0.7	10.00		0.38	
Rougher Concentrate 1-3	44.2	1.9	949.89		99.95	
Rougher Tails	973.6	41.7	0.01		0.02	
Calculated Head	2,334.0	100.0	18.00		100.00	
Assayed Head			17.68			



#### **PARTICLE SIZE ANALYSIS**

Client: Canyon Gold & Gravel Inc..

Test: CQ202

Sample: Head Sample

Date: 9-May-22 Project: MS2060

Sieve	Size	Weig	ht	Cumulative (%)		
Tyler Mesh	Microns	(g)	(%)	Retained	Passing	
8	2,360	0.0				
9	2,000	0.0				
14	1,180	0.0				
20	850	2.5	1.62	1.62	98.38	
28	600	9.0	5.84	7.47	92.53	
35	425	21.4	13.90	21.36	78.64	
48	300	32.6	21.17	42.53	57.47	
65	212	31.7	20.58	63.12	36.88	
100	150	24.5	15.91	79.03	20.97	
150	106	17.6	11.43	90.45	9.55	
200	75	9.1	5.91	96.36	3.64	
270	53	0.6	0.39	96.75	3.25	
400	38	4.5	2.92	99.68	0.32	
Undersize	-38	0.5	0.32	100.00		
	TOTAL:	154.0	100.0			

Rosin-Rammier Model					
Size	Passing				
(um)	P (%)				
431	80				

50

273

Linear Interpolation				
Size Passing				
(um)	P (%)			
442	80			
268	50			

