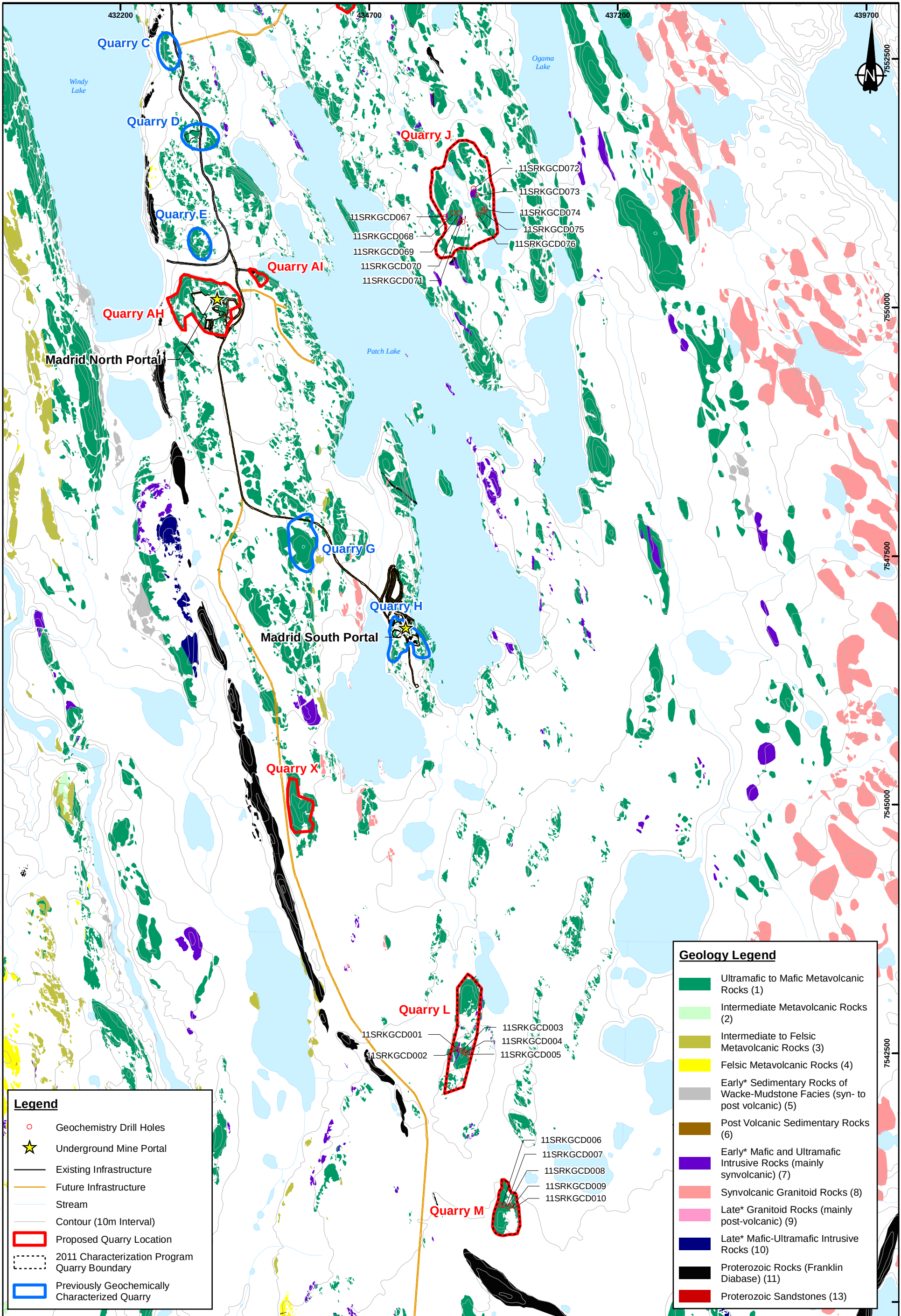


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Legend

- Geochemistry Drill Holes
- Underground Mine Portal
- Existing Infrastructure
- Future Infrastructure
- Stream
- Contour (10m Interval)
- Proposed Quarry Location
- 2011 Characterization Program Quarry Boundary
- Previously Geochemically Characterized Quarry

Geology Legend

- Ultramafic to Mafic Metavolcanic Rocks (1)
- Intermediate Metavolcanic Rocks (2)
- Intermediate to Felsic Metavolcanic Rocks (3)
- Felsic Metavolcanic Rocks (4)
- Early* Sedimentary Rocks of Wacke-Mudstone Facies (syn- to post volcanic) (5)
- Post Volcanic Sedimentary Rocks (6)
- Early* Mafic and Ultramafic Intrusive Rocks (mainly synvolcanic) (7)
- Synvolcanic Granitoid Rocks (8)
- Late* Granitoid Rocks (mainly post-volcanic) (9)
- Late* Mafic-Ultramafic Intrusive Rocks (10)
- Proterozoic Rocks (Franklin Diabase) (11)
- Proterozoic Sandstones (13)

0 250 500 750 1,000 1,250
Meters

- Notes:**
- *early and late used in a relative sense only.
 - Coordinate System: NAD 1983 UTM Zone 13N
 - Base Topo Data: CanVec, Natural Resources Canada

srk consulting

Project No: 1CT022.004.200.60
Filename: 1CT022.004.200.60_Figure_A-3_Quarries_rev5

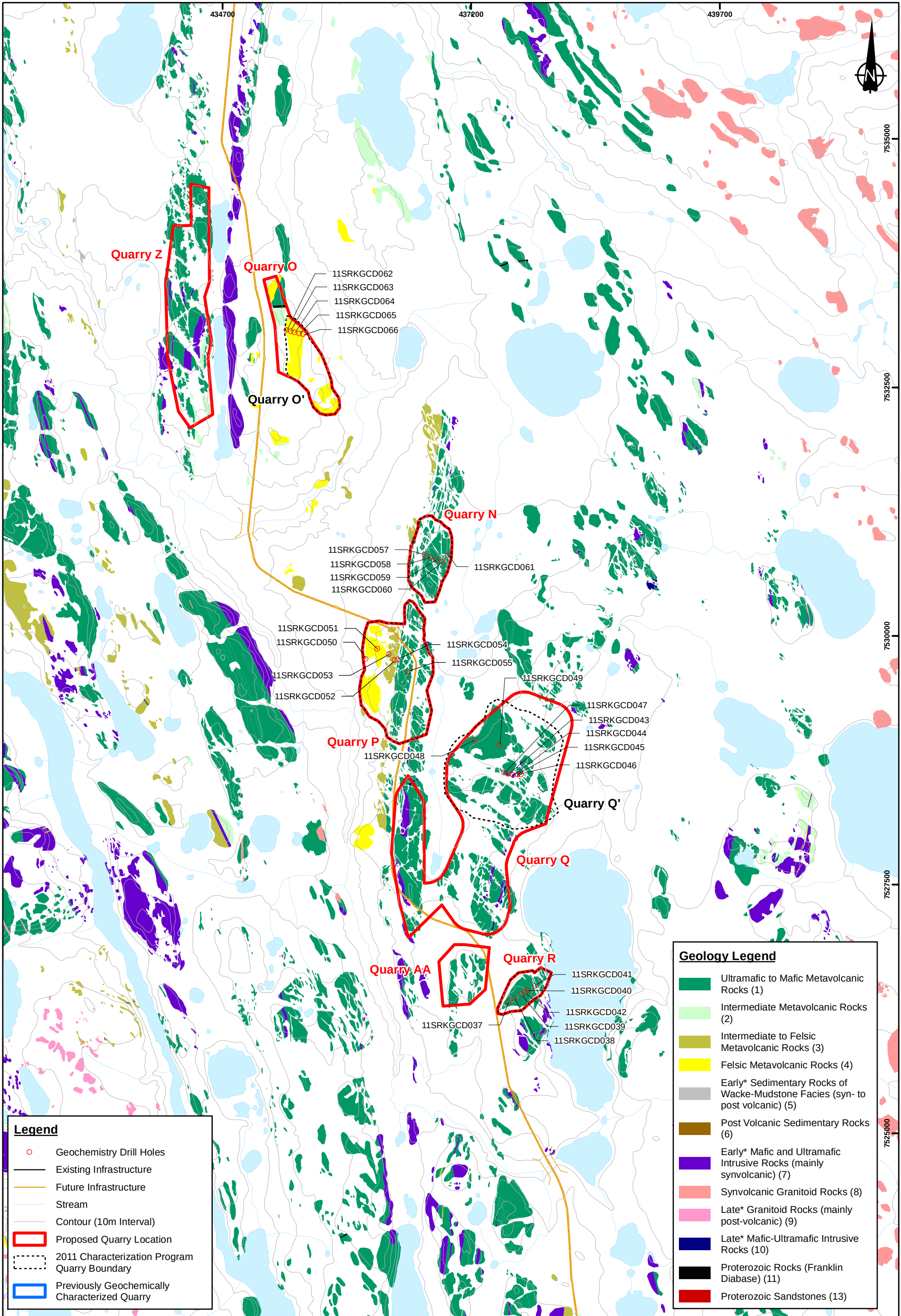
TMAC
RESOURCES

HOPE BAY PROJECT

Quarry Locations,
Hope Bay Project

Date: Nov. 2016
Approved: LB/EM
Drawing: **A-3**

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Legend

Geochemistry Drill Holes

Existing Infrastructure

Future Infrastructure

Stream

Contour (10m Interval)

Proposed Quarry Location

2011 Characterization Program Quarry Boundary

Previously Geochemically Characterized Quarry

02505007501,0001,250

Meters

Notes:

1. *early and late used in a relative sense only.

2. Coordinate System: NAD 1983 UTM Zone 13N

3. Base Topo Data: CanVec, Natural Resources Canada

srk consulting

Project No: 1CT022.004.200.60

Filename: 1CT022.004.200.60_Figure_A-4_Quarries_rev5

TMAC RESOURCES

HOPE BAY PROJECT

Geology Legend

Ultramafic to Mafic Metavolcanic Rocks (1)

Intermediate Metavolcanic Rocks (2)

Intermediate to Felsic Metavolcanic Rocks (3)

Felsic Metavolcanic Rocks (4)

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Synvolcanic Granitoid Rocks (8)

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Late* Mafic-Ultramafic Intrusive Rocks (10)

Proterozoic Rocks (Franklin Diabase) (11)

Proterozoic Sandstones (13)

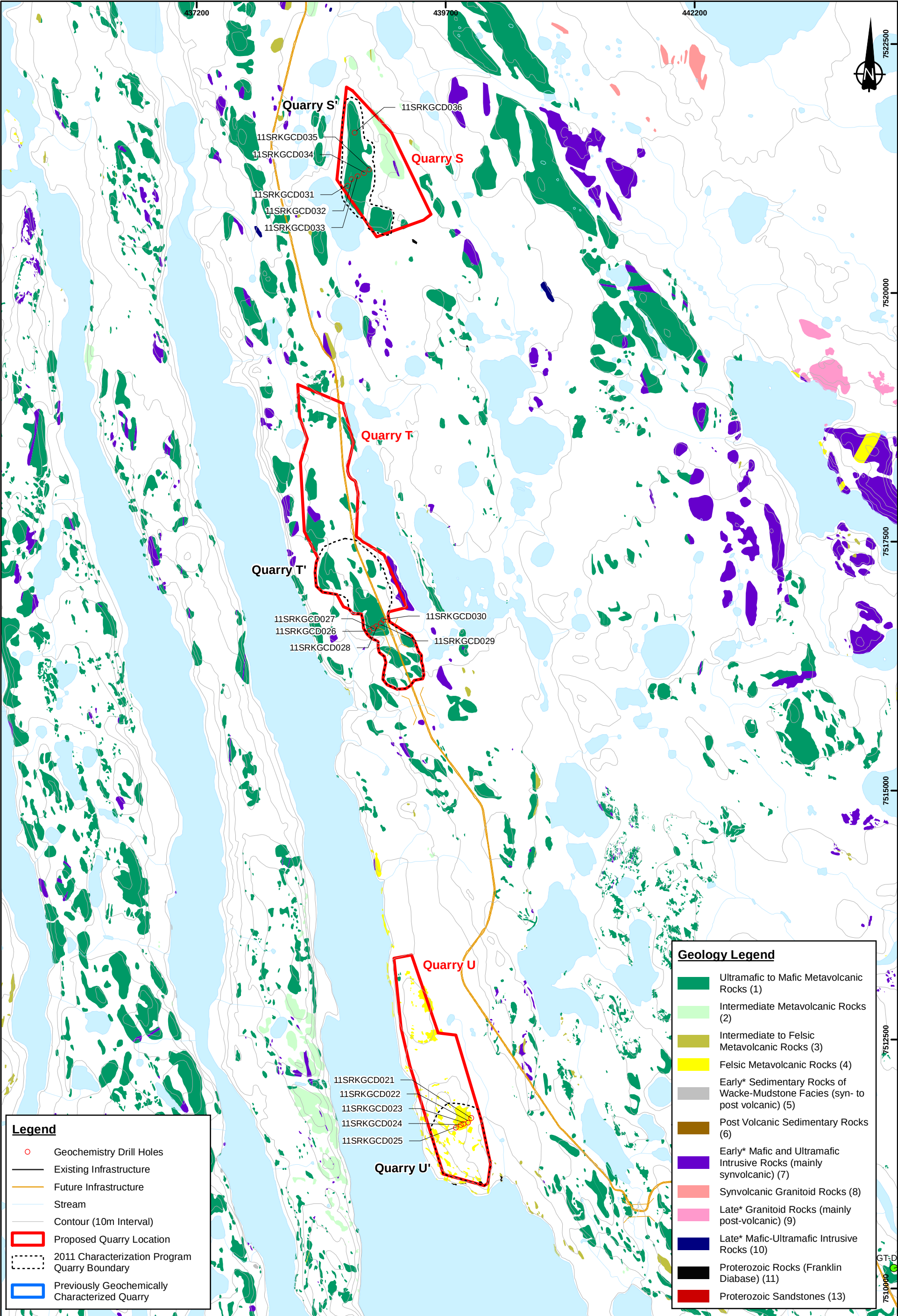
Quarry Locations, Hope Bay Project

Date: Nov. 2016

Approved: LB/EM

Drawing: A-4

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Legend

- Geochemistry Drill Holes
- Existing Infrastructure
- Future Infrastructure
- Stream
- Contour (10m Interval)
- Proposed Quarry Location
- 2011 Characterization Program Quarry Boundary
- Previously Geochemically Characterized Quarry

Geology Legend

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- Proterozoic Sandstones (13)

0 250 500 750 1,000 1,250
Meters

- Notes:**
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 - Base Topo Data: CanVec, Natural Resources Canada



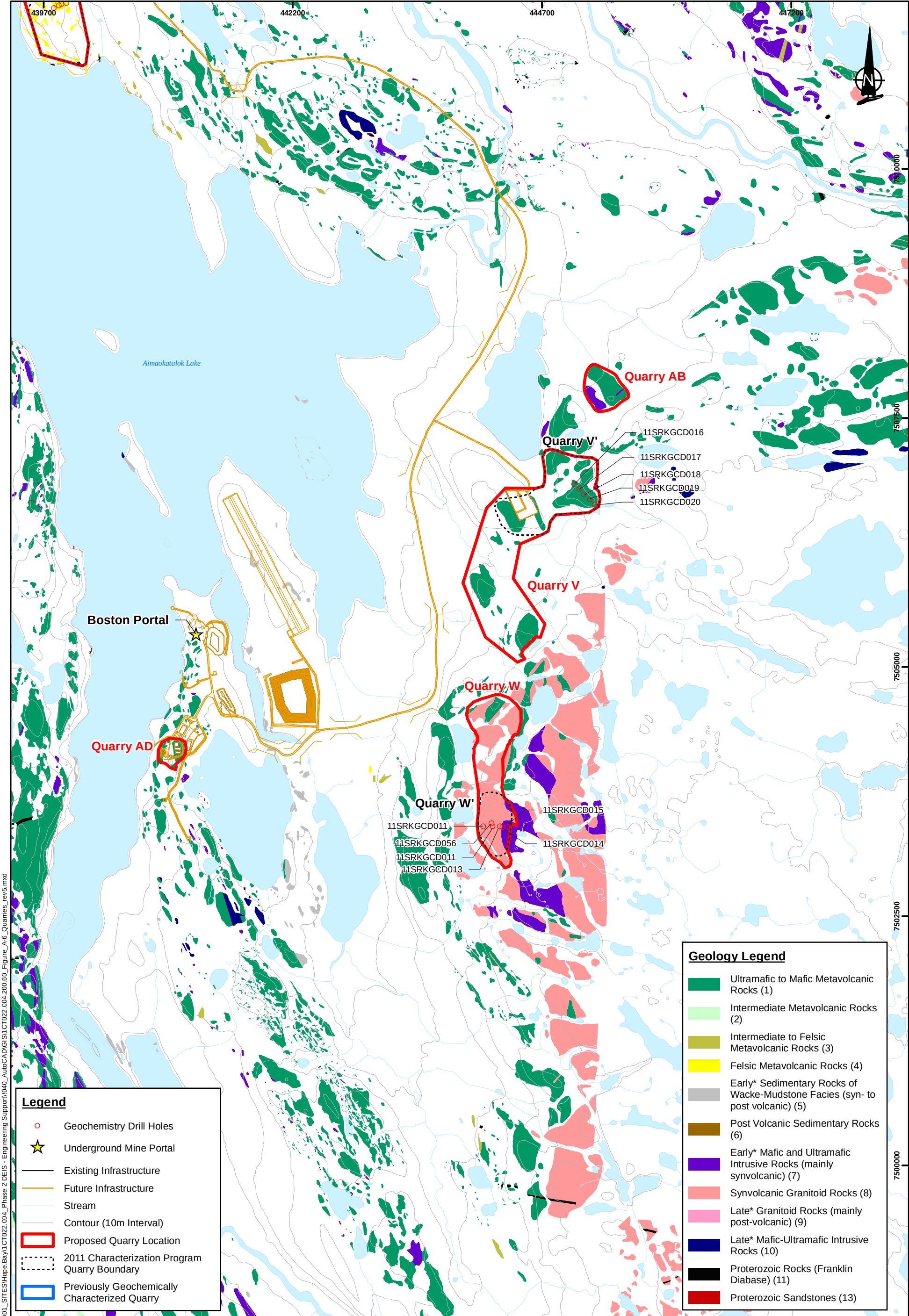
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HOPE BAY PROJECT

Quarry Locations,
Hope Bay Project

Date: Nov 2016	Approved: LB/EM	Drawing: A-5
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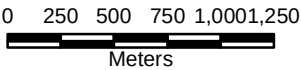


Legend

- Geochemistry Drill Holes
- ★ Underground Mine Portal
- Existing Infrastructure
- Future Infrastructure
- Stream
- Contour (10m Interval)
- Proposed Quarry Location
- 2011 Characterization Program Quarry Boundary
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- Notes:**
- *early and late used in a relative sense only.
 - Coordinate System: NAD 1983 UTM Zone 13N
 - Base Topo Data: CanVec, Natural Resources Canada



Project No: 1CT022.004.200.60
Filename: 1CT022.004.200.60_Figure_A-6_Quarries_rev5



HOPE BAY PROJECT

Rock Quarry Locations,
Hope Bay Project

Date: Nov. 2016	Approved: LB/EM	Drawing: A-6
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Appendix B – Hope Bay Lithology Codes

Hope Bay Mining Lithology Codes (2008 lithology coding standard)

CODE	CODEDESC	MOD1	MOD1DESC	MOD2	MOD2DESC
1	Ultramafic Volcanic	u	Ultramafic	x	Spinifex Texture
1	Mafic Volcanic	a	Flow	d	Breccia
1	Mafic Volcanic	i	Massive	f	Feldspar phyrlic (? Should be used for Boston "Gabbro")
1	Mafic Volcanic	o	Fragmental	h	Harrisitic (Type example should be displayed)
1	Mafic Volcanic	p	Pillow	j	<30cm and <50% intercalated / Interflow Chert/Argillite/Sandstone
1	Mafic Volcanic			r	Polysutured
1	Mafic Volcanic			v	Variolitic
1	Mafic Volcanic			y	Amigdaloidal / Vesicular
2	Intermediate Volcanic	a	Flow	d	Breccia
2	Intermediate Volcanic	i	Massive	f	Feldspar phyrlic (? Should be used for Boston "Gabbro")
2	Intermediate Volcanic	o	Fragmental	g	PGP - Madrid Deposit
2	Intermediate Volcanic	p	Pillow	h	Harrisitic (Type example should be displayed)
2	Intermediate Volcanic			j	<30cm and <50% intercalated / Interflow Chert/Argillite/Sandstone
2	Intermediate Volcanic			r	Polysutured
2	Intermediate Volcanic			v	Variolitic
2	Intermediate Volcanic			y	Amigdaloidal / Vesicular flow
3	Intermediate to Felsic Volcanic	a	Flow	c	Lapilli
3	Intermediate to Felsic Volcanic	b	Tuff	d	Breccia (Flow Top, Autoclastic)
3	Intermediate to Felsic Volcanic			f	Porphyritic
3	Intermediate to Felsic Volcanic			w	Flow banded
3	Intermediate to Felsic Volcanic			y	Amigdaloidal / Vesicular
3	Intermediate to Felsic Volcanic			o	Heterolithic
4	Felsic Metavolcanic rocks	a	Flow	c	Lapilli
4	Felsic Metavolcanic rocks	b	Tuff	d	Breccia (Flow Top, Autoclastic)
4	Felsic Metavolcanic rocks			f	Porphyritic
4	Felsic Metavolcanic rocks			w	Flow banded
4	Felsic Metavolcanic rocks			y	Amigdaloidal / Vesicular
4	Felsic Metavolcanic rocks			o	Heterolithic
5	Sedimentary Rocks	a	Argillite	f	Feldspathic
5	Sedimentary Rocks	b	Siltstone	i	Graphitic
5	Sedimentary Rocks	c	Wacke	j	<30cm and <50% Mafic Fragments
5	Sedimentary Rocks	d	Conglomerate	l	Lithic
5	Sedimentary Rocks	g	Iron Formation	m	Magnetite
5	Sedimentary Rocks	h	Chert	o	Polymict
5	Sedimentary Rocks	v	Sandstone	q	Quartz
5	Sedimentary Rocks			u	Argillitic Interbeds
5	Sedimentary Rocks			w	Wacke Interbeds
6	Post Volcanic Sedimentary Rocks	a	Argillite	f	Feldspathic
6	Post Volcanic Sedimentary Rocks	b	Siltstone	i	Graphitic
6	Post Volcanic Sedimentary Rocks	c	Wacke	j	<30cm and <50% Mafic Fragments
6	Post Volcanic Sedimentary Rocks	d	Conglomerate	l	Lithic
6	Post Volcanic Sedimentary Rocks	g	Iron Formation	m	Magnetite
6	Post Volcanic Sedimentary Rocks	h	Chert	o	Polymict
6	Post Volcanic Sedimentary Rocks	v	Sandstone	q	Quartz
6	Post Volcanic Sedimentary Rocks	r	Limestone/Marble	u	Argillitic Interbeds
6	Post Volcanic Sedimentary Rocks			w	Wacke Interbeds
7	Early Mafic / UM Intrusions	a	Gabbro	b	Leucogabbro
7	Early Mafic / UM Intrusions			c	Melanogabbro
8	Synvolcanic Granitoid Rocks	a	Tonalite	f	Feldspar Phyrlic
8	Synvolcanic Granitoid Rocks	b	Trondjemite	q	Quartz Phyrlic
8	Synvolcanic Granitoid Rocks	c	Granodiorite		
8	Synvolcanic Granitoid Rocks	d	Diorite/Quartz Diorite		
9	Late Felsic Intrusive	k	Felsic Dyke	f	Feldspar
9	Late Felsic Intrusive	n	Intermediate Dyke	q	Quartz
9	Late Felsic Intrusive	p	Porphyry		
10	Late Mafic Intrusion	a	Gabbro		
10	Late Mafic Intrusion	b	Mafic Dyke - Fine to Medium Grained		
11	Diabase	c	Diabase	m	Magnetic
11	Diabase			n	Non-Magnetic
12	Vein >30cm or Zone of >70% Single Vein B	c	Carbonate Dominated		
12	Vein >30cm or Zone of >70% Single Vein B	q	Quartz Dominated		
13	Significant Structure	a	Madrid Deformation Zone (DEFZ)	f	Felsic
13	Significant Structure			m	Mafic
13	Significant Structure			s	Sedimentary
14	Missing Core	a	Ground		
14	Missing Core	b	Void		
14	Missing Core	d	Wedge		
14	Missing Core	l	Lost		
15	Casing	a	Ice		
15	Casing	b	Lake		
15	Casing	c	Overburden		

Appendix C – 2011 Quarry Geological Field Observations

Quarry ID	HBML Geological Field Survey
J	The rock at quarry location J was primarily pillow basalts and flow breccias (0.5% Py). There was finely disseminated calcite and calcite veinlets throughout. At the contact of gabbros and basalt, there is generally a shear zone that is more mineralized than surrounding host rock (primarily dolomite alteration). Shear zones were noted in the west and eastern prominences of outcrop. The shear zone in the eastern outcrop (13W 0435750, 7551192) was approximately 3m wide and struck NE-SW. The shear zone in the western outcrop struck in the same direction and was located at 13W 0435557, 7550889.
L	The rock at location L was pillowed basalt and flow-top breccias with late-stage dolomite alteration. There was pervasive disseminated calcite and calcite veinlets. The basalt adjacent to the gabbro body has been frost wedged and has slightly higher pyrite content.
M	NA
N	Quarry N primarily comprises pillowed and brecciated flow basalts. The western edge is more felsic. The felsic material has less carbonate than mafics. The western borehole location is approximately located in this felsic material.
O	The rock at location O is sodic altered felsic metavolcanic. There are calcite veinlets and patches of disseminated calcite. There was trace concentrations of pyrite, but not much evidence of weathering. There was a small shear zone which hosted epidote. The area was to the south of DH-27 and DH-28. The epidote is a result of reaction of felsic host rock with mineralizing fluid – it is equivalent to dolomitizing fluid in mafic hosts (M. Bardeaux, pers. comm.). As with other felsic rocks that have been selected as potential quarries, Quarry O did not have much relief from tundra and had more overburden than typical mafic locations.
P	The rock at location P formed a ridge with basalts, gabbro and intermediate felsic volcanic rocks. The gabbro to the south of location P is better described as massive basalt (or “gabbroic”), with less calcite than pillowed or brecciated basalts. The material weathered to a reddish colour, likely due to the oxidation of pyrite (rather than weathering of ferroan dolomite). Where pillowed basalt contacts massive basalt, the pillowed basalts are sheared and the sheared zones tend to host calcite. The Western half of outcrop was intermediate felsic rock +/- feldspar phenocrysts. The most Western material (classified as felsic) was intermediate without feldspar phenocrysts and the central material was intermediate with feldspar phenocrysts. There is trace pyrite in felsic material and calcite is present disseminated and as veinlets. The intermediate rock does not have as much relief as the basalts. The basalt is pillowed and flow brecciated and is sheared and mineralized at the contact with intermediate material. The basalt is consistent with other basalt in the area, pyrite ~0.5% and calcite disseminated and as veinlets.
Q	The rock at location Q was pillowed basalt and flow-top breccias with late-stage dolomite alteration. There was pervasive disseminated calcite and calcite veinlets. The basalt near gabbro tubes tends to be sheared and more mineralized. Pyrite content is <0.5% throughout the outcrop. The most SW outcrop was weakly dolomite-altered with approximately 10-15 m relief from the surrounding tundra.
R	Proposed Quarry location R was predominantly flow-brecciated basalts similar to those in Northern end of Quarry T. • Flow brecciated basalt with late stage dolomitization • Higher concentration of pyrite than previous locations (0.5-1%) – weathered rind (oxidized) approximately 3 mm thick on surface of rocks • Extensive calcite – disseminated and as veinlets • The breccias tend to sequester a lot of calcite; the calcite preferentially weathers out giving the outcrop a pitted appearance • Eastern side of outcrop has some gabbro “pods” approximately 3m in diameter • There is a sheared zone (<1 m thick) with dolomite and sericite alteration. Shear zone material is platy (13W 0437731, 7526466)
S	Proposed Quarry location S had pillowed and flow-brecciated basalts similar to Quarry T. • Finely disseminated pyrite • Disseminated calcite and calcite veinlets • Epidote (indicative of calcite) • Outcrop generally more altered to the North

Quarry ID	HBML Geological Field Survey
T	The outcrop at the proposed location was at the top of crest was generally blocky, with 1-3m relief between adjacent blocks. General observations for proposed Quarry T: • Pillowed basalts – the interpillow selvage tends to accumulate pyrite (e.g. 13W 0438955, 7516798) • Outcrop weathered brown indicating ferroan-dolomite fluid alteration has occurred – may locally increase pyrite at pillow margins • Outcrop uniformly altered, fine-grained finely disseminated pyrite throughout (~0.5%), especially at pillow margins.
U	General observations for proposed Quarry U: • Felsic volcanics • Mildly altered, not much pyrite or other mineralization (e.g. dolomite), no veining • Finely disseminated calcite throughout • Fine-grained chert-like volcanoclastic observed in northwest zone (but not in location where potential boreholes located) • Fuchsite was observed in north central portion of outcrop – often observed associated with Boston deposit
V	• The location was basalt with traces of fine-grained disseminated pyrite and extensive dolomite alteration. • Extensive small-scale quartz veins • High potential for mineralization associated with dolomite alteration (e.g. 13W 0445086, 7506660).
W	NA

P:\01_SITES\Hope.Bay\1CT022.004_Phase 2 DEIS - Engineering Support\Task 260_Madrid to Boston Quarry Geochem\3. Report\Tables\[2011 HBML Quarry Geological Review.xlsx]

Appendix D - 2011 Quarry Sample Descriptions and Geochemical Results

Sample ID	Drill Hole ID	Quarry	Easting	Northing	From (m)	To (m)	Length (m)	Lith Code	Lithological Description	Geological Description
12830	11SRKGC067	Quarry J	435465.88	7550906.18	0.58	1.08	0.5	1p	Mafic Volcanic Pillow	Dark Green Weakly strained pillow basalt. Broken up so unable to determine angle of thin quartz calcite veins. ACODE 0 and no sulphides observed. No Reaction to HCl.
12831	11SRKGC068	Quarry J	435542.74	7550947.56	0	1.2	1.2	1p	Mafic Volcanic Pillow	Green weakly strained fine grain Pillow Basalt. ACODE 0, no reaction with HCl, no sulphides.
12832	11SRKGC069	Quarry J	435605.74	7550945.61	0	1.11	1.11	1p	Mafic Volcanic Pillow	Green Fine Grain Pillow basalt. Weak Strain. 8% quartz-calcite veining. No Sulphides, No reaction to HCl.
12833	11SRKGC070	Quarry J	435610.50	7550861.10	0.22	1.12	0.9	7a	Early Mafic / UM Intrusions Gabbro	Dark Green Moderate Grain Gabbro. Weak Strain, 3% Quartz-Calcite veining. ACODE 0. No Reaction to HCl, No sulphides.
12834	11SRKGC071	Quarry J	435640.21	7550862.22	0	1.1	1.1	11cm	Diabase Diabase Magnetic	Dark Grey, Coarse Grain Magnetic Diabase. No Veining, No Alteration, no sulphides, no reaction to HCl.
12835	11SRKGC072	Quarry J	435752.40	7551193.83	0	1.28	1.28	1p	Mafic Volcanic Pillow	Light Green fine grain Pillow Basalt. Weak Strain. 4% calcite veining. ACODE 0. no pyrite, no reaction to HCl.
12836	11SRKGC073	Quarry J	435780.18	7551131.79	0	1.14	1.14	1p	Mafic Volcanic Pillow	Green Weakly Strained fine grain pillow Basalt. 4% calcite veins. ACODE 0. No Pyrite, no reaction to HCl.
12837	11SRKGC074	Quarry J	435867.57	7550985.36	0	1.1	1.1	1p	Mafic Volcanic Pillow	Green Weakly strained fine grain pillow basalt. 4% calcite veining. no pyrite, no reaction with HCl, ACODE 0.
12838	11SRKGC075	Quarry J	435853.49	7550964.34	0	1.1	1.1	1p	Mafic Volcanic Pillow	Light Green Unstrained Pillow Basalt. 2% calcite veining. ACODE 0, 0.5% fine grain pyrite. no reaction to HCl.
12839	11SRKGC076	Quarry J	435799.18	7550935.02	0	1.28	1.28	1p	Mafic Volcanic Pillow	Green Weakly strained pillow basalt. Black Chlorite altered clasts, possibly Primary Glass that has been altered to Chlorite. 0.5% Calcite veining. ACODE 0, no sulphides, no reaction with HCl.
12820	11SRKGC001	Quarry L	435559.82	7542546.73	0	0.95	0.95	1pv	Mafic Volcanic Pillow Variolitic (varioles < 2 cm)	Green Variolitic Pillow basalt. 3% quartz-calcite veins. 0.5% fine grain subeuhedral pyrite. very weak reaction to HCl.
12821	11SRKGC002	Quarry L	435596.30	7542536.16	0	1.23	1.23	1p	Mafic Volcanic Pillow	Green pillow basalt. 3% quartz-calcite veining. 0.5% fine grain disseminated pyrite. slight reaction to HCl.
12822	11SRKGC003	Quarry L	435637.46	7542525.65	0	1.28	1.28	1pv	Mafic Volcanic Pillow Variolitic (varioles < 2 cm)	Green variolitic pillow basalt. 8% quartz-calcite veining. Acode 0, 0.5% fine grain disseminated subeuhedral pyrite. slight reaction to HCl.
12823	11SRKGC004	Quarry L	435664.30	7542505.84	0	1.23	1.23	1p	Mafic Volcanic Pillow	Green Pillow Basalt. no veining. Acode 0. 0.5% fine grain disseminated subeuhedral pyrite. slight reaction to HCl.
12824	11SRKGC005	Quarry L	435691.96	7542490.65	0	1.25	1.25	1pv	Mafic Volcanic Pillow Variolitic (varioles < 2 cm)	Green variolitic pillow basalt. 5% quartz-calcite veining. 0.5% fine grain disseminated pyrite. vigorous reaction to HCl.
12825	11SRKGC006	Quarry M	436025.10	7540970.40	0	1.16	1.16	1p	Mafic Volcanic Pillow	Green Pillow basalt. 5% quartz-calcite veining. 0.5% fine grain disseminated pyrite. slight reaction to HCl.
12826	11SRKGC007	Quarry M	436052.57	7540975.30	0	1.17	1.17	1p	Mafic Volcanic Pillow	Green Pillow basalt. 5% quartz-calcite veining. 0.5% fine grain disseminated pyrite. vigorous reaction to HCl.
12827	11SRKGC008	Quarry M	436102.07	7540956.60	0	1.13	1.13	1p	Mafic Volcanic Pillow	Green Pillow basalt. 5% quartz-calcite veining. 0.5% fine grain disseminated subeuhedral pyrite. moderate reaction to HCl.
12828	11SRKGC009	Quarry M	436131.26	7540966.29	0	1.19	1.19	1p	Mafic Volcanic Pillow	Green Pillow basalt. 2% quartz-calcite veining. Acode 0, 0.5% fine grain disseminated subeuhedral pyrite. slight reaction to HCl.
12829	11SRKGC010	Quarry M	436176.80	7540956.98	0.24	1.04	0.8	1p	Mafic Volcanic Pillow	Green Pillow basalt with black altered fractures. 2% quartz-calcite veining. 0.5% fine grain disseminated subeuhedral pyrite. slight reaction to HCl.
12786	11SRKGC059	Quarry N	436850.87	7530766.79	0	1.26	1.26	2p	Intermediate Volcanic Pillow	Green unstrained pillow basalt. 3% very fine quartz-calcite veining. Chlorite alteration. no visible sulphides. weak reaction to HCl.
12787	11SRKGC058	Quarry N	436789.58	7530786.86	0.06	1.19	1.13	2p	Intermediate Volcanic Pillow	Unstrained intermediate pillow basalt. 3% quartz-calcite veining. Chlorite alteration. No visible sulphides. Weak reaction to HCl.
12795	11SRKGC057	Quarry N	436734.90	7530813.66	0	1.24	1.24	2p	Intermediate Volcanic Pillow	Green weakly strained pillow basalt. 1% fine grain disseminated subeuhedral pyrite. no reaction to HCl.
12796	11SRKGC060	Quarry N	436914.41	7530747.03	0	1.19	1.19	2p	Intermediate Volcanic Pillow	Green intermediate pillow basalt, weakly strained. 0.5% fine grain disseminated subeuhedral pyrite. 8% quartz calcite veining. weak reaction to HCl.
12797	11SRKGC061	Quarry N	436971.84	7530809.95	0	1	1	2p	Intermediate Volcanic Pillow	Green unstrained pillow basalt. 3% quartz-calcite veining. 0.5% fine grain disseminated subeuhedral pyrite. weak reaction to HCl.
12798	11SRKGC063	Quarry O	435388.75	7533063.83	0	1	1	4a	Felsic Volcanic Flow	Red Unstrained fine grain Felsic Volcanic. no veining. no reaction to HCl. unsure alteration, probably Acode 0. no visible sulphides.
12799	11SRKGC062	Quarry O	435344.61	7533075.71	0	0.95	0.95	4b	Felsic Volcanic Tuff	Weakly strained light brown rhyolite tuff. sericite alteration. no veining. No visible sulphides. No reaction to HCl.
12800	11SRKGC064	Quarry O	435424.83	7533051.22	0	1.24	1.24	4b	Felsic Volcanic Tuff	Weakly strained light brown Rhyolite tuff. tan lith fragments and >3% quartz grains. no veining. no visible sulphides. unknown alteration, probably Acode 0. No reaction to HCl.
12801	11SRKGC065	Quarry O	435474.06	7533038.47	0	0.92	0.92	4b	Felsic Volcanic Tuff	Weakly strained light brown Rhyolite tuff. no veining. Unknown alteration, Probably Acode 0 or 1. Leucoxene grains. no mineralization.
12802	11SRKGC066	Quarry O	435512.04	7533034.55	0	1.03	1.03	4a	Felsic Volcanic Flow	Light brown, weakly strained Felsic Fragmental Flow. >3% quartz grains. and 2% feldspar phenocrysts. no veining. Unknown alteration, probably Acode 0 or 1. Leucoxene grains. No visible sulphides.
12785	11SRKGC050	Quarry P	436140.18	7529767.00	0	1.06	1.06	9p	Late Felsic Intrusive Porphyry	Dark Grey Porphyry with white plagioclase phenocrysts. "flower" agglomerations rare but present. Weak Strain. no veining. Unknown alteration. possibly Acode 0 or unaltered. no visible mineralization.
12790	11SRKGC052	Quarry P	436431.97	7529754.85	0	1.11	1.11	2p	Intermediate Volcanic Pillow	Strongly strained pillow or flow basalt. no visible sulphides. 1% quartz-calcite veining. vigorous reaction with HCl.
12791	11SRKGC051	Quarry P	436257.25	7529868.05	0	1.07	1.07	9p	Late Felsic Intrusive Porphyry	Sparse Feldspar phenos up to 2mmx4mm in size. Brown fine grain groundmass. Significant quartz veining. No visible sulphides. No reaction to HCl.
12792	11SRKGC053	Quarry P	436373.94	7529814.45	0	1	1	2p	Intermediate Volcanic Pillow	Strained intermediate pillow basalt. 1% disseminated fine grain subeuhedral pyrite. 3% quartz-calcite vein. no reaction to HCl.
12793	11SRKGC054	Quarry P	436463.89	7529762.24	0	1.13	1.13	2p	Intermediate Volcanic Pillow	Brecciated green pillow basalt healed by fine grain black groundmass. 1% quartz calcite vein. no visible sulphides. No reaction to HCl.
12794	11SRKGC055	Quarry P	436566.00	7529644.88	0	1.19	1.19	2p	Intermediate Volcanic Pillow	Intermediate Pillow basalt. 1% fine fracture fill quartz-calcite veins. 1% fine grain disseminated subeuhedral pyrite. No reaction to HCl.
12788	11SRKGC048	Quarry Q	437235.31	7528948.86	0	1.03	1.03	2p	Intermediate Volcanic Pillow	Green Pillow basalt. 3% fracture fill veining. Slight reaction to HCl. No visible sulphides.
12789	11SRKGC049	Quarry Q	437486.59	7528902.11	0	0.98	0.98	2p	Intermediate Volcanic Pillow	weakly strained pillow basalt. 5% quartz-calcite veining. weak reaction to HCl. 1% disseminated fine grain subeuhedral pyrite.
12815	11SRKGC044	Quarry Q	437622.75	7528599.94	0	1.24	1.24	7a	Early Mafic / UM Intrusions Gabbro	Dark Grey Medium grain gabbro. 3% quartz-calcite veining. 0.5% disseminated subeuhedral pyrite. weak reaction to HCl.
12816	11SRKGC045	Quarry Q	437666.14	7528605.59	0	1.3	1.3	1p	Mafic Volcanic Pillow	Green unstrained pillow basalt. 2% quartz-calcite veining. 0.5% fine grain disseminated subeuhedral pyrite. moderate reaction to HCl.
12817	11SRKGC046	Quarry Q	437704.43	7528606.35	0	1.17	1.17	1ay	Mafic Volcanic Flow Amigdaloidal / Vesicular	Green unstrained basalt flow with vesicles. 2% quartz-calcite veining. 0.5% fine grain disseminated pyrite. no reaction to HCl.
12818	11SRKGC043	Quarry O	437574.73	7528611.50	0	1.1	1.1	1a	Mafic Volcanic Flow	Green Unstrained Basalt Flow. 3% quartz-calcite veining. 0.5% fine grain pyrite. vigorous reaction to HCl.
12819	11SRKGC047	Quarry O	437535.88	7528625.63	0	1.08	1.08	1p	Mafic Volcanic Pillow	Green Unstrained Pillow Basalt. 3% quartz-calcite veining. 0.5% fine grain pyrite. strong reaction to HCl.
12809	11SRKGC039	Quarry R	437710.30	7526397.06	0	1.21	1.21	1p	Mafic Volcanic Pillow	Unstrained Pillow Basalt. 5% calcite-quartz veining. 0.5% fine grain disseminated subeuhedral pyrite. Vigorous reaction to HCl.
12810	11SRKGC042	Quarry R	437744.20	7526418.18	0	0.92	0.92	1p	Mafic Volcanic Pillow	Unstrained Pillow Basalt. 2% quartz-calcite veins. 0.5% fine grain disseminated subeuhedral pillow basalt. weak reaction to HCl.
12811	11SRKGC040	Quarry R	437769.94	7526438.38	0	0.81	0.81	1p	Mafic Volcanic Pillow	Green Unstrained pillow basalt. 5% quartz-calcite veining. 0.5% fine grain disseminated subeuhedral pyrite. no reaction to HCl.
12812	11SRKGC041	Quarry R	437841.84	7526478.67	0	1.22	1.22	1pd	Mafic Volcanic Pillow Breccia	Green Unstrained Pillow Breccia. 2% quartz-calcite veining, 0.5% disseminated subeuhedral pyrite. weak reaction to HCl.
12813	11SRKGC037	Quarry R	437574.44	7526317.04	0	1.21	1.21	1p	Mafic Volcanic Pillow	Green Unstrained pillow basalt. 5% quartz-calcite veining. 0.5% fine grain disseminated subeuhedral pyrite. vigorous reaction to HCl.
12814	11SRKGC038	Quarry R	437635.78	7526352.93	0	0.92	0.92	1a	Mafic Volcanic Flow	Grey fine grain massive basalt flow. very thin calcite veining. 0.5% fine grain disseminated pyrite. no reaction to HCl.
12803	11SRKGC032	Quarry S	438758.24	7521138.52	0	0.89	0.89	1p	Mafic Volcanic Pillow	Unstrained pillow basalt. 1% quartz-calcite veining. 0.5% fine grain disseminated subeuhedral pyrite. moderate reaction to HCl.
12804	11SRKGC031	Quarry S	438715.73	7521073.54	0	1.06	1.06	1p	Mafic Volcanic Pillow	Unstrained green pillow basalt. 1% quartz-calcite veining. 0.5% fine grain disseminated subeuhedral pyrite. moderate reaction to HCl.
12805	11SRKGC035	Quarry S	438935.74	7521237.15	0	1.06	1.06	1p	Mafic Volcanic Pillow	Unstrained Green Pillow Basalt. 2% quartz-calcite veins. 0.5% disseminated subeuhedral pyrite. weak reaction to HCl.
12806	11SRKGC034	Quarry S	438881.87	7521200.12	0	1.4	1.4	1p	Mafic Volcanic Pillow	Unstrained pillow basalt. 2% quartz-calcite veins. 0.5% fine grain disseminated subeuhedral pyrite. no reaction to HCl.
12807	11SRKGC033	Quarry S	438816.52	7521168.57	0	1.11	1.11	1p	Mafic Volcanic Pillow	Green unstrained pillow basalt. 1% Quartz-calcite veins. 0.5% fine grain disseminated pyrite. weak reaction to HCl.
12808	11SRKGC036	Quarry S	438791.62	7521602.24	0	1.27	1.27	1p	Mafic Volcanic Pillow	Unstrained Green Pillow basalt. 1% quartz-calcite veining. 0.5% fine grain disseminated pyrite. moderate reaction to HCl.
12764	11SRKGC029	Quarry T	439053.33	7516678.29	0	1.1	1.1	#N/A	#N/A	#N/A
12765	11SRKGC030	Quarry T	439076.75	7516709.90	0	1.17	1.17	#N/A	#N/A	#N/A
12778	11SRKGC028	Quarry T	439008.26	7516647.93	0	0.94	0.94	2p	Intermediate Volcanic Pillow	UNstrained intermediate volcanic pillow basalt. fine grain disseminated sulphides. slight reaction to HCl. 1% thin quartz-calcite veining.
12779	11SRKGC027	Quarry T	438975.39	7516627.70	0	0.93	0.93	2p	Intermediate Volcanic Pillow	Unstrained intermediate pillow basalt. Weakly Chlorite altered. fine grain disseminated sulphides. 1% thin quartz-calcite veins. weak reaction to HCl.
12780	11SRKGC026	Quarry T	438938.36	7516603.84	0.1	0.96	0.86	2p	Intermediate Volcanic Pillow	Unstrained intermediate pillow Basalt. weakly chlorite altered. 1% quartz-Calcite veins. weak reaction to HCl.
12774	11SRKGC022	Quarry U	439928.84	7511662.41	0	1.02	1.02	3aq	Intermediate to Felsic Volcanic Flow Quartz phric	Felsic with quartz eyes. Chlorite-Sericite-Dolomite alteration. Slight fizzing with HCl. Quartz eyes up to 2mm in size. fine pyrite in veinlets

Sample ID	Drill Hole ID	Quarry	Easting	Northing	From (m)	To (m)	Length (m)	Lith Code	Lithological Description	Geological Description
12775	11SRKGCD021	Quarry U	439958.25	7511708.45	0	0.93	0.93	3aq	Intermediate to Felsic Volcanic Flow Quartz phyric	Chlorite altered felsic with quartz eyes. Quartz eyes up to 2mm in size. Sericite-Dolomite-Chlorite alteration. fine pyrite veinlets. slight fizzing with HCl.
12776	11SRKGCD024	Quarry U	439854.70	7511638.27	0	0.75	0.75	3aq	Intermediate to Felsic Volcanic Flow Quartz phyric	Felsic with Quartz eyes. Chlorite-Sericite-Dolomite alteration. Slight reaction to HCl. Quartz eyes to 2mm. no visible sulphides.
12777	11SRKGCD025	Quarry U	439805.19	7511611.53	0.25	0.78	0.53	3aq	Intermediate to Felsic Volcanic Flow Quartz phyric	Felsic with quartz eyes. quartz eyes up to 2mm in size. Chlorite-Sericite-Dolomite alteration. slight fizzing with HCl. no pyrite observed.
12784	11SRKGCD023	Quarry U	439881.74	7511651.22	0.31	0.48	0.17	2p	Intermediate Volcanic Pillow	Very Fragile Core, ground the rest of the interval. Chlorite-Carbonate-Sericite alteration. 1% fine grained disseminated subeuhedral pyrite.
12766	11SRKGCD018	Quarry V	445115.21	7506719.63	0	1.1	1.1	1a	Mafic Volcanic Flow	Dark Green weakly strained flow basalt. 3% fine quartz veining. sulphides along fractures and associated with fine veining.. Weak reaction with HCl.
12767	11SRKGCD017	Quarry V	445074.38	7506784.80	0	1.14	1.14	1a	Mafic Volcanic Flow	Black weakly strained flow basalt. Chlorite alteration. Vigorous reaction with HCl. 5% quartz-Carbonate fracture fill veining. 1%coarse grain pyrite Along veining
12768	11SRKGCD016	Quarry V	445025.34	7506835.82	0.67	1.02	0.35	1a	Mafic Volcanic Flow	Amphibolite grade basalt flow. No visible sulphides. No veining. no reaction to HCl.
12769	11SRKGCD019	Quarry V	445182.95	7506680.30	0.5	0.93	0.43	1a	Mafic Volcanic Flow	Dark Green flow basalt. 3% quartz-calcite veining. vigorous reaction to HCl. 1% fine grain anhedral disseminated pyrite. Chlorite alteration.
12770	11SRKGCD020	Quarry V	445231.72	7506628.16	0.16	1.02	0.86	1a	Mafic Volcanic Flow	Moderately strained basalt flow. 2 quartz veins. no visible sulphides. vigorous reaction to HCl.
12771	11SRKGCD011	Quarry W	444110.44	7503400.19	0	1.13	1.13	7a	Early Mafic / UM Intrusions Gabbro	trace very fine grain disseminated pyrite. Aphiolite grade alteration.
12772	11SRKGCD056	Quarry W	444195.09	7503430.54	0	1.02	1.02	7a	Early Mafic / UM Intrusions Gabbro	Amphibolite facies. 1-2mm pyroxenes. trace fine grain pyrite. No reactivity to HCl. 3% quartz veining. 3mm Garnets in quartz vein at 0.10m.
12773	11SRKGCD012	Quarry W	444208.40	7503400.71	0.14	0.95	0.81	8b	Synvolcanic Granitoid Rocks Granodiorite	Granitoid. Fabric of Micas. no sulphides observed. No reactivity to HCl.
12781	11SRKGCD015	Quarry W	444355.27	7503394.99	0	1.27	1.27	10a	Late Mafic Intrusion Gabbro	Unstrained Coarse Grain Black Gabbro with white plagioclase. 0.5% fine grain subeuhedral pyrite. no reaction to HCl. fine thread Calcite veins.
12782	11SRKGCD014	Quarry W	444306.82	7503392.68	0	1.1	1.1	10a	Late Mafic Intrusion Gabbro	Black Unstrained medium grain Gabbro. No visible sulphides. Biotite book 1cm in size at 0.23. No veining. no reaction to HCl.
12783	11SRKGCD013	Quarry W	444280.77	7503399.17	0	1.2	1.2	10a	Late Mafic Intrusion Gabbro	Black Gabbro with biotite on fracture surface. No reaction to HCl. No veining. unknown alteration. Unstrained.
Detection Limits										
Maxxam SOP No:										

Average Crustal Abundances of Basaltic Rocks

Average Crustal Abundances x10

Notes:

Total sulphur and carbonate carbon (CO2; HCl direct method) done by Leco at Acme Labs.

CO2 Analysis: A 0.2g of pulp sample is digested with 6 ml of 1.8N HCl in a hot water bath of 70 °C for 30 minutes. The CO2 that evolves is trapped in a gas chamber that is controlled with a stopcock, once the stopcock is opened the CO2 gas is swept into the Leco analyser with an oxygen carrier gas. Leco then determines the CO2 as total-carbon which is calculated to total CO2.

Calculations:

*CaCO3 equivalents is based on carbonate carbon.

**Sulphide sulphur is based on difference between total sulphur and sulphate sulphur.

***MPA (Maximum Potential Acidity) is based on sulphide sulphur .

****NNP (Net Neutralization Potential) is based on difference between neutralization potential (NP) and MPA.

*****NPR (Neutralization Potential Ratio) is NP divided by MPA.

References:

Reference for Mod ABA NP method (SOP No. 7150): MEND Acid Rock Drainage Prediction Manual, MEND Project 1.16.1b (pages 6.2-11 to 17), March 1991.

Replaced by DL

Hope Bay YKN11000512

Hope Bay YKN11000516

Acid Base Accounting																
				Acme	Calc.		Acme				Mod. ABA NP					Acme
Sample ID	Drill Hole ID	Quarry	Paste pH	CO2 (Wt.%)	CO2 %C	CaCO3 Equiv.* (kg CaCO3/Tonne)	Total Sulphur (Wt.%)	Sulphate Sulphur (Wt.%)	Sulphide Sulphur** (Wt.%)	Acid Potential AP (kg CaCO3/Tonne)	Neutralization Potential (kg CaCO3/Tonne)	Net Neutralization Potential**** (kg CaCO3/Tonne)	NP/AP	TIC/AP	Fizz Rating	Total C %C
12830	11SRKGCD067	Quarry J	8.7	3.09	0.84	70.2	0.09	0.01	0.08	2.5	70.0	67.5	28.0	28.1	Moderate	0.88
12831	11SRKGCD068	Quarry J	8.6	7.74	2.11	175.9	0.10	0.01	0.09	2.8	166.8	164.0	59.3	62.5	Strong	2.22
12832	11SRKGCD069	Quarry J	8.6	4.25	1.16	96.6	0.10	0.02	0.08	2.5	104.7	102.2	41.9	38.6	Strong	1.24
12833	11SRKGCD070	Quarry J	8.8	0.96	0.26	21.8	0.04	0.01	0.04	1.3	36.4	35.2	29.2	17.5	Strong	0.34
12834	11SRKGCD071	Quarry J	9.2	0.15	0.04	3.4	0.02	0.01	0.02	0.6	15.4	15.4	25.6	5.7	None	0.05
12835	11SRKGCD072	Quarry J	8.6	5.68	1.55	129.1	0.09	0.01	0.08	2.5	133.5	131.0	53.4	51.6	Strong	1.7
12836	11SRKGCD073	Quarry J	8.7	6.20	1.69	140.9	0.09	0.01	0.08	2.5	145.4	142.9	58.2	56.4	Strong	1.83
12837	11SRKGCD074	Quarry J	8.7	4.62	1.26	105.0	0.10	0.01	0.09	2.8	125.2	122.4	44.5	37.3	Strong	1.54
12838	11SRKGCD075	Quarry J	8.6	4.77	1.30	108.4	0.08	0.02	0.06	1.9	142.5	140.7	76.0	57.8	Strong	1.75
12839	11SRKGCD076	Quarry J	8.9	0.58	0.16	13.2	0.05	0.01	0.05	1.6	31.0	29.4	19.8	8.4	Strong	0.23
12820	11SRKGCD001	Quarry L	8.9	4.80	1.31	109.1	0.06	0.01	0.05	1.6	111.2	109.6	71.2	69.8	Strong	1.34
12821	11SRKGCD002	Quarry L	8.7	0.33	0.09	7.5	0.04	0.01	0.04	1.3	16.9	15.7	13.5	6.0	None	0.09
12822	11SRKGCD003	Quarry L	8.8	6.42	1.75	145.9	0.07	0.01	0.07	2.2	144.4	142.2	66.0	66.7	Strong	1.88
12823	11SRKGCD004	Quarry L	8.6	3.33	0.91	75.7	0.02	0.03	0.02	0.6	79.5	79.5	132.6	126.1	Strong	0.94
12824	11SRKGCD005	Quarry L	8.8	6.34	1.73	144.1	0.12	0.01	0.11	3.4	142.4	139.0	41.4	41.9	Strong	1.82
12825	11SRKGCD006	Quarry M	8.8	3.22	0.88	73.2	0.08	0.01	0.08	2.5	75.7	73.2	30.3	29.3	Strong	0.93
12826	11SRKGCD007	Quarry M	8.7	3.22	0.88	73.2	0.06	0.01	0.06	1.9	82.4	80.5	43.9	39.0	Strong	0.98
12827	11SRKGCD008	Quarry M	8.5	11.07	3.02	251.6	0.17	0.01	0.16	5.0	249.4	244.4	49.9	50.3	Strong	3.25
12828	11SRKGCD009	Quarry M	8.9	1.35	0.37	30.7	0.04	0.01	0.04	1.3	39.4	38.2	31.5	24.5	Strong	0.39
12829	11SRKGCD010	Quarry M	8.9	1.24	0.34	28.2	0.07	0.01	0.07	2.2	36.4	34.3	16.7	12.9	Strong	0.35
12786	11SRKGCD059	Quarry N	8.9	3.73	1.02	84.8	0.09	0.02	0.07	2.2	89.6	87.4	40.9	38.8	Strong	1
12787	11SRKGCD058	Quarry N	9.0	2.64	0.72	60.0	0.11	0.01	0.11	3.4	72.0	68.6	20.9	17.5	Strong	0.79
12795	11SRKGCD057	Quarry N	8.9	2.31	0.63	52.5	0.16	0.01	0.15	4.7	58.6	53.9	12.5	11.2	Strong	0.6
12796	11SRKGCD060	Quarry N	8.7	10.61	2.89	241.1	0.06	0.01	0.06	1.9	242.3	240.5	129.2	128.6	Strong	2.9
12797	11SRKGCD061	Quarry N	9.0	2.92	0.80	66.4	0.13	0.01	0.12	3.8	71.0	67.3	18.9	17.7	Strong	0.77
12798	11SRKGCD063	Quarry O	9.9	1.03	0.28	23.4	0.02	0.01	0.02	0.6	20.3	20.3	33.8	39.0	Slight	0.28
12799	11SRKGCD062	Quarry O	9.8	1.76	0.48	40.0	0.02	0.01	0.02	0.6	28.6	28.6	47.7	66.7	Slight	0.47
12800	11SRKGCD064	Quarry O	10.0	1.97	0.54	44.8	0.02	0.01	0.02	0.6	35.8	35.8	59.7	74.6	Slight	0.51
12801	11SRKGCD065	Quarry O	9.9	2.11	0.58	48.0	0.02	0.01	0.02	0.6	38.1	38.1	63.4	79.9	Slight	0.57
12802	11SRKGCD066	Quarry O	10.0	2.76	0.75	62.7	0.02	0.01	0.02	0.6	52.5	52.5	87.5	104.5	Slight	0.75
12785	11SRKGCD050	Quarry P	9.5	0.87	0.24	19.8	0.03	0.01	0.03	0.9	26.4	25.4	28.1	21.1	Moderate	0.24
12790	11SRKGCD052	Quarry P	9.8	5.07	1.38	115.2	0.02	0.01	0.02	0.6	109.3	109.3	182.2	192.0	Strong	1.38
12791	11SRKGCD051	Quarry P	9.5	3.25	0.89	73.9	0.02	0.01	0.02	0.6	71.5	70.9	114.4	118.2	Strong	0.86
12792	11SRKGCD053	Quarry P	9.9	4.33	1.18	98.4	0.02	0.01	0.02	0.6	98.3	98.3	163.8	164.0	Strong	1.14
12793	11SRKGCD054	Quarry P	9.3	3.56	0.97	80.9	0.02	0.01	0.02	0.6	73.8	73.8	122.9	134.8	Slight	0.92
12794	11SRKGCD055	Quarry P	8.8	7.06	1.93	160.5	0.05	0.01	0.05	1.6	161.6	160.0	103.4	102.7	Strong	1.93
12788	11SRKGCD048	Quarry Q	8.8	4.79	1.31	108.9	0.10	0.01	0.09	2.8	107.7	104.9	38.3	38.7	Strong	1.25
12789	11SRKGCD049	Quarry Q	8.5	7.81	2.13	177.5	0.08	0.02	0.06	1.9	160.3	158.4	85.5	94.7	Strong	1.99
12815	11SRKGCD044	Quarry Q	8.8	3.63	0.99	82.5	0.09	0.01	0.08	2.5	87.6	85.1	35.0	33.0	Strong	1.03
12816	11SRKGCD045	Quarry Q	8.7	1.61	0.44	36.6	0.12	0.01	0.12	3.8	40.4	36.7	10.8	9.8	Strong	0.42
12817	11SRKGCD046	Quarry Q	8.9	2.37	0.65	53.9	0.22	0.01	0.21	6.6	62.3	55.8	9.5	8.2	Strong	0.72
12818	11SRKGCD043	Quarry O	8.6	6.56	1.79	149.1	0.06	0.01	0.05	1.6	137.9	136.4	88.3	95.4	Strong	1.74
12819	11SRKGCD047	Quarry O	8.6	6.71	1.83	152.5	0.08	0.01	0.07	2.2	147.4	145.2	67.4	69.7	Strong	1.88
12809	11SRKGCD039	Quarry R	8.5	5.79	1.58	131.6	0.10	0.03	0.07	2.2	134.2	132.0	61.4	60.2	Strong	1.51
12810	11SRKGCD042	Quarry R	9.1	7.88	2.15	179.1	0.08	0.04	0.04	1.3	170.0	168.8	136.0	143.3	Strong	2.21
12811	11SRKGCD040	Quarry R	8.8	4.51	1.23	102.5	1.00	0.01	0.99	30.9	97.8	66.8	3.2	3.3	Strong	1.21
12812	11SRKGCD041	Quarry R	8.3	2.42	0.66	55.0	0.50	0.03	0.47	14.7	58.1	43.4	4.0	3.7	Strong	0.63
12813	11SRKGCD037	Quarry R	8.6	7.70	2.10	175.0	0.07	0.02	0.05	1.6	164.8	163.3	105.5	112.0	Strong	2.08
12814	11SRKGCD038	Quarry R	8.7	0.62	0.17	14.1	0.06	0.01	0.05	1.6	20.4	18.8	13.1	9.0	Moderate	0.19
12803	11SRKGCD032	Quarry S	8.9	3.91	1.07	88.9	0.11	0.01	0.11	3.4	97.9	94.4	28.5	25.9	Slight	1.08
12804	11SRKGCD031	Quarry S	8.8	5.74	1.57	130.5	0.11	0.01	0.10	3.1	136.4	133.3	43.7	41.7	Strong	1.57
12805	11SRKGCD035	Quarry S	8.9	4.26	1.16	96.8	0.12	0.01	0.11	3.4	102.8	99.4	29.9	28.2	Strong	1.15
12806	11SRKGCD034	Quarry S	8.9	1.74	0.47	39.5	0.11	0.01	0.11	3.4	51.6	48.2	15.0	11.5	Strong	0.49
12807	11SRKGCD033	Quarry S	8.9	3.16	0.86	71.8	0.13	0.01	0.12	3.8	81.3	77.5	21.7	19.2	Strong	0.88
12808	11SRKGCD036	Quarry S	8.9	5.42	1.48	123.2	0.08	0.01	0.08	2.5	131.5	129.0	52.6	49.3	Strong	1.46
12764	11SRKGCD029	Quarry T	8.7	1.74	0.47	39.5	0.06	0.01	0.05	1.6	45.4	43.8	29.1	25.3	Strong	0.44
12765	11SRKGCD030	Quarry T	8.8	5.95	1.62	135.2	0.27	0.04	0.23	7.2	126.2	119.1	17.6	18.8	Strong	1.5
12778	11SRKGCD028	Quarry T	10.0	5.87	1.60	133.4	0.11	0.02	0.09	2.8	134.0	131.1	47.6	47.4	Slight	1.6
12779	11SRKGCD027	Quarry T	9.1	4.60	1.25	104.5	0.18	0.01	0.18	5.6	99.6	93.9	17.7	18.6	Strong	1.2
12780	11SRKGCD026	Quarry T	9.2	7.57	2.06	172.0	0.09	0.01	0.08	2.5	163.3	160.8	65.3	68.8	Strong	1.93
12774	11SRKGCD022	Quarry U	9.9	2.43	0.66	55.2	0.02	0.01	0.02	0.6	50.9	50.9	84.8	92.0	Strong	0.63

Acid Base Accounting																
Sample ID	Drill Hole ID	Quarry	Paste pH	Acme	Calc.	CaCO3 Equiv.* (kg CaCO3/Tonne)	Acme	Sulphate Sulphur (Wt.%)	Sulphide Sulphur** (Wt.%)	Acid Potential AP (kg CaCO3/Tonne)	Mod. ABA NP		NP/AP	TIC/AP	Fizz Rating	Acme
				CO2 (Wt.%)	CO2 %C		Total Sulphur (Wt.%)				Neutralization Potential (kg CaCO3/Tonne)	Net Neutralization Potential**** (kg CaCO3/Tonne)				Total C %C
12775	11SRKGCD021	Quarry U	10.0	2.72	0.74	61.8	0.02	0.01	0.02	0.6	50.9	50.9	84.8	103.0	Strong	0.68
12776	11SRKGCD024	Quarry U	9.9	2.25	0.61	51.1	0.02	0.01	0.02	0.6	49.1	49.1	81.9	85.2	Strong	0.59
12777	11SRKGCD025	Quarry U	9.9	1.84	0.50	41.8	0.02	0.01	0.02	0.6	23.8	23.8	39.6	69.7	Slight	0.46
12784	11SRKGCD023	Quarry U	9.8	3.96	1.08	90.0	0.02	0.01	0.02	0.6	76.5	75.9	122.4	144.0	Moderate	1.07
12766	11SRKGCD018	Quarry V	8.9	2.06	0.56	46.8	0.10	0.01	0.10	3.1	48.6	45.5	15.6	15.0	Strong	0.51
12767	11SRKGCD017	Quarry V	8.6	6.78	1.85	154.1	0.39	0.19	0.20	6.3	143.4	137.2	22.9	24.7	Strong	1.71
12768	11SRKGCD016	Quarry V	9.2	0.34	0.09	7.7	0.11	0.01	0.11	3.4	13.8	10.4	4.0	2.2	Slight	0.09
12769	11SRKGCD019	Quarry V	8.9	5.49	1.50	124.8	0.13	0.01	0.12	3.8	120.8	117.0	32.2	33.3	Strong	1.36
12770	11SRKGCD020	Quarry V	8.8	3.09	0.84	70.2	0.14	0.01	0.13	4.1	70.8	66.7	17.4	17.3	Strong	0.82
12771	11SRKGCD011	Quarry W	9.7	0.11	0.03	2.5	0.06	0.01	0.06	1.9	7.7	5.8	4.1	1.3	None	0.03
12772	11SRKGCD056	Quarry W	9.4	0.74	0.20	16.8	0.16	0.01	0.16	5.0	23.9	18.9	4.8	3.4	Moderate	0.19
12773	11SRKGCD012	Quarry W	9.9	0.19	0.05	4.3	0.04	0.01	0.03	0.9	9.7	8.8	10.3	4.6	None	0.06
12781	11SRKGCD015	Quarry W	9.5	0.22	0.06	5.0	0.09	0.01	0.09	2.8	10.4	7.6	3.7	1.8	None	0.07
12782	11SRKGCD014	Quarry W	9.6	1.01	0.28	23.0	0.05	0.01	0.05	1.6	33.6	32.0	21.5	14.7	Moderate	0.29
12783	11SRKGCD013	Quarry W	9.3	0.30	0.08	6.8	0.15	0.01	0.15	4.7	16.8	12.1	3.6	1.5	Slight	0.1
Detection Limits			0.01	0.02		0.5	0.02	0.01	0.02	0.6						
Maxxam SOP No:			7160	LECO		Calculation	LECO	7410	Calculation	Calculation	7150	Calculation	Calculation		7150	
Average Crustal Abundances of Basaltic Rock																
Average Crustal Abundances x10																

			Elemental Analysis																															
			Method	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B		
Sample ID	Drill Hole ID	Quarry	Analyte	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	
			Unit	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
			MDL	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1	0.5	0.1	0.1	0.1	0.5	0.1	0.2	0.1	8	0.5
			MUL	0	0	0	0	0	0	0	0	0	0	0	0	0	10000	10000	50000	0	50000	10000	10000	10000	10000	50000	10000	10000	50000	50000	10000	10000	10000	10000
12830	11SRKGC067	Quarry J	Drill Core	46.56	14.93	12.39	7.92	6.46	2.6	0.69	0.99	0.07	0.17	0.033	131	39	7	99.8	22	<1	49	0.1	16	1.6	2.4	3.7	<1	71.1	0.2	0.3	<0.1	289	<0.5	
12831	11SRKGC068	Quarry J	Drill Core	42.17	12.99	11.22	4.43	16.45	1.35	0.14	0.81	0.07	0.22	0.032	115	35	10	99.86	35	<1	45.2	<0.1	13.6	1.4	2	2.6	<1	121.3	0.1	0.2	<0.1	248	<0.5	
12832	11SRKGC069	Quarry J	Drill Core	44.9	14	12.91	7.62	9.52	0.8	0.04	0.88	0.06	0.19	0.036	122	38	8.8	99.8	4	<1	48.8	<0.1	15.1	1.5	2.2	0.5	<1	103.5	0.1	0.2	<0.1	272	<0.5	
12833	11SRKGC070	Quarry J	Drill Core	45.8	14.43	12.99	9.16	8.91	2.14	0.3	0.8	0.06	0.18	0.039	148	35	4.9	99.77	48	<1	54.1	0.3	14.2	1.3	1.9	7.6	<1	100.1	0.1	<0.2	<0.1	248	<0.5	
12834	11SRKGC071	Quarry J	Drill Core	48.27	14.71	14.42	5.07	10.05	2.33	0.74	2.21	0.19	0.18	0.01	71	28	1.6	99.74	97	<1	45.4	0.2	21.7	3.6	9.1	9.9	1	441	0.6	0.9	0.3	449	<0.5	
12835	11SRKGC072	Quarry J	Drill Core	45.71	14.01	10.82	3.83	14.13	1.22	0.07	0.9	0.06	0.21	0.038	105	39	8.9	99.86	14	<1	44.1	<0.1	15.5	1.4	1.9	1.3	<1	126.2	0.1	0.2	<0.1	282	<0.5	
12836	11SRKGC073	Quarry J	Drill Core	44	13.67	11.52	5.1	12.82	2.08	0.14	0.86	0.06	0.22	0.032	99	37	9.3	99.85	44	<1	44.9	0.4	14.8	1.4	1.9	4.2	<1	130.8	0.2	<0.2	<0.1	270	<0.5	
12837	11SRKGC074	Quarry J	Drill Core	44.85	14.1	11.4	5.25	13.06	1.34	0.11	0.86	0.06	0.2	0.037	107	38	8.6	99.84	34	<1	45	0.1	14.7	1.3	2	2.3	<1	95.9	0.1	0.2	<0.1	269	<0.5	
12838	11SRKGC075	Quarry J	Drill Core	45	13.9	11.33	4.66	13.18	1.26	0.04	0.87	0.06	0.2	0.033	95	38	9.3	99.85	11	<1	46.2	<0.1	14.7	1.7	2.2	0.4	<1	133.2	0.1	0.2	<0.1	274	<0.5	
12839	11SRKGC076	Quarry J	Drill Core	46.91	14.55	12.63	8.59	8.48	2.83	0.7	0.89	0.07	0.18	0.036	114	37	3.9	99.76	147	<1	48.3	0.4	15.9	1.4	2.1	11.4	<1	143.2	0.1	0.2	0.1	285	<0.5	
12820	11SRKGC001	Quarry L	Drill Core	48.91	13.53	10.88	5.62	9.9	2.25	0.06	0.87	0.06	0.22	0.024	69	37	7.5	99.83	30	<1	43.4	<0.1	14.7	1.7	2.6	0.6	<1	122.9	0.1	0.2	<0.1	268	<0.5	
12821	11SRKGC002	Quarry L	Drill Core	43.34	9.34	13.66	19.07	7.02	0.08	0.02	0.52	0.04	0.21	0.283	668	30	6	99.66	5	<1	86.7	0.1	9.7	0.8	1.3	0.4	<1	4.3	<0.1	<0.2	<0.1	184	<0.5	
12822	11SRKGC003	Quarry L	Drill Core	44.3	11.27	10.97	7.45	14.12	2.18	0.14	0.64	0.05	0.24	0.135	279	35	8.3	99.82	70	<1	56.9	<0.1	11.3	1	1.7	2.5	<1	74.7	<0.1	<0.2	<0.1	220	<0.5	
12823	11SRKGC004	Quarry L	Drill Core	48.3	13.06	12.68	6.67	10.76	0.09	0.24	0.74	0.06	0.27	0.129	256	40	6.8	99.81	53	<1	61.4	0.1	14	1.5	1.8	7.3	<1	243.5	0.1	0.2	<0.1	258	<0.5	
12824	11SRKGC005	Quarry L	Drill Core	47.6	12.91	10.5	4.86	11.87	2.4	0.1	0.74	0.06	0.22	0.064	126	40	8.5	99.86	47	<1	49.2	<0.1	14	1.2	2	1.5	<1	82.7	<0.1	0.3	<0.1	251	<0.5	
12825	11SRKGC006	Quarry M	Drill Core	47.93	13.13	11.79	7.11	10.1	2.02	0.19	0.82	0.06	0.19	0.046	80	39	6.4	99.81	56	<1	44.7	<0.1	14.4	1.7	2.4	3.3	<1	125.9	0.2	0.2	<0.1	264	<0.5	
12826	11SRKGC007	Quarry M	Drill Core	47.44	12.75	12.94	7.46	9.67	1.16	0.13	0.81	0.06	0.21	0.052	97	39	7.1	99.8	69	<1	45.8	<0.1	15	1.3	2.4	2.3	<1	117.3	0.2	0.3	<0.1	248	<0.5	
12827	11SRKGC008	Quarry M	Drill Core	39.35	9.57	13.21	6.62	14.63	0.02	0.41	0.54	0.04	0.24	0.113	224	30	15.1	99.84	102	<1	58	0.2	10.4	1.1	1.4	12.5	<1	37.2	0.1	<0.2	<0.1	194	<0.5	
12828	11SRKGC009	Quarry M	Drill Core	46.45	11.38	12.06	11.67	10.85	1.34	0.12	0.64	0.06	0.2	0.135	300	36	4.8	99.75	21	<1	59.8	<0.1	12.9	1	1.7	1.9	<1	71.5	<0.1	0.2	<0.1	229	<0.5	
12829	11SRKGC010	Quarry M	Drill Core	47.73	11.56	11.49	11.15	10.19	1.95	0.1	0.65	0.05	0.2	0.127	283	36	4.5	99.75	30	<1	60.9	0.1	11.8	1.4	1.7	1.8	<1	80.3	<0.1	<0.2	<0.1	238	<0.5	
12786	11SRKGC059	Quarry N	Drill Core	46.23	15.34	11.54	4.69	11.73	2.21	0.16	0.87	0.11	0.22	0.034	130	35	6.7	99.81	39	<1	53	<0.1	16	1.3	2.8	3.8	<1	247.2	0.1	0.7	0.1	262	<0.5	
12787	11SRKGC058	Quarry N	Drill Core	46.54	15.54	11.48	4.93	11.06	2.64	0.19	0.9	0.17	0.21	0.034	119	38	6.1	99.8	51	<1	49.9	<0.1	15.3	1.2	2.7	2.4	<1	198.8	<0.1	0.6	0.2	247	<0.5	
12795	11SRKGC057	Quarry N</																																

Sample ID			Drill Hole ID			Quarry			Elemental Analysis																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
									Method	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B

Sample ID	Drill Hole ID	Quarry	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B
			Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
			ppm 0.1 50000	ppm 0.1 50000	ppm 0.1 50000	ppm 0.1 50000	ppm 0.02 10000	ppm 0.3 10000	ppm 0.05 10000	ppm 0.02 10000	ppm 0.05 10000	ppm 0.01 10000	ppm 0.05 10000	ppm 0.02 10000	ppm 0.03 10000	ppm 0.01 10000	ppm 0.05 10000	ppm 0.01 10000
12830	11SRKGC067	Quarry J	52	19.2	2.8	7.8	1.13	5.5	2.07	0.74	2.67	0.54	3.27	0.73	2.18	0.35	2.27	0.33
12831	11SRKGC068	Quarry J	43.6	17.7	2.4	6.4	1.05	5.3	1.71	0.65	2.39	0.48	2.93	0.65	2.01	0.3	2.01	0.31
12832	11SRKGC069	Quarry J	47.6	18.4	2.7	6.5	1.07	5.2	1.75	0.7	2.42	0.5	2.96	0.71	1.99	0.32	2.12	0.31
12833	11SRKGC070	Quarry J	42.4	16	2.4	6.3	0.98	4.4	1.74	0.6	2.18	0.44	2.73	0.62	1.82	0.29	1.81	0.28
12834	11SRKGC071	Quarry J	133.6	25.5	10.4	25.6	3.8	17.8	4.75	1.68	5.16	0.9	4.85	0.97	2.67	0.38	2.26	0.31
12835	11SRKGC072	Quarry J	47.2	17.4	2.4	6.8	1.06	4.7	1.82	0.72	2.53	0.5	2.92	0.64	2.06	0.31	2.05	0.3
12836	11SRKGC073	Quarry J	46.1	17	2.4	6.3	0.99	5.7	1.73	0.65	2.38	0.47	2.93	0.65	2.01	0.29	2.11	0.29
12837	11SRKGC074	Quarry J	47.2	17.2	2.4	6.4	1.02	4.9	1.79	0.7	2.47	0.48	2.93	0.66	1.9	0.32	1.89	0.29
12838	11SRKGC075	Quarry J	46.1	17	2.5	6.6	1.04	5.3	1.77	0.67	2.37	0.47	3.02	0.65	1.96	0.3	1.93	0.28
12839	11SRKGC076	Quarry J	49.5	18.1	2.7	7.1	1.1	5.4	1.9	0.71	2.5	0.53	3.52	0.68	2.06	0.32	2.1	0.34
12820	11SRKGC001	Quarry L	54	18.4	3.1	8.1	1.26	6.2	2.06	0.7	2.64	0.5	3.09	0.68	1.91	0.31	1.95	0.31
12821	11SRKGC002	Quarry L	30.7	11.4	1.3	3.7	0.6	3.1	1.11	0.32	1.52	0.3	1.87	0.42	1.17	0.2	1.3	0.19
12822	11SRKGC003	Quarry L	37.3	14.3	2.1	5.3	0.87	4.4	1.37	0.48	1.95	0.39	2.41	0.49	1.57	0.26	1.56	0.23
12823	11SRKGC004	Quarry L	45.7	17.2	2.5	6.6	1.04	5.3	1.8	0.62	2.25	0.47	2.88	0.64	1.82	0.31	1.92	0.3
12824	11SRKGC005	Quarry L	47.4	16.9	2.7	7.6	1.11	4.9	1.69	0.63	2.31	0.46	2.72	0.58	1.91	0.28	1.82	0.27
12825	11SRKGC006	Quarry M	51	18.7	2.9	7.3	1.16	6.1	1.89	0.65	2.65	0.49	2.98	0.67	2.02	0.32	2.01	0.31
12826	11SRKGC007	Quarry M	49.4	16.9	2.8	7.1	1.06	4.8	1.75	0.67	2.4	0.46	2.82	0.63	1.91	0.3	1.91	0.3
12827	11SRKGC008	Quarry M	33.7	13.5	1.9	4.6	0.74	3.4	1.29	0.41	1.71	0.35	2.26	0.52	1.57	0.23	1.44	0.23
12828	11SRKGC009	Quarry M	39.8	14.9	2.2	5.8	0.89	4.4	1.57	0.56	2.11	0.4	2.63	0.55	1.71	0.26	1.78	0.24
12829	11SRKGC010	Quarry M	40.1	14.9	2.1	5.8	0.89	5	1.56	0.54	2.07	0.4	2.46	0.54	1.73	0.26	1.81	0.26
12786	11SRKGC059	Quarry N	50.6	25	8.3	20.9	2.9	13.7	3.18	1.07	3.68	0.58	4.01	0.81	2.5	0.36	2.71	0.4
12787	11SRKGC058	Quarry N	50.3	23.2	11.2	27.1	3.68	15.3	3.19	1.18	3.77	0.58	3.85	0.82	2.4	0.37	2.47	0.36
12795	11SRKGC057	Quarry N	66.6	27.3	20.9	50.7	6.66	29.1	4.84	1.5	4.55	0.67	4.11	0.85	2.48	0.38	2.87	0.41
12796	11SRKGC060	Quarry N	49.2	19	11.4	28.2	3.65	15.1	3.15	0.99	3.24	0.56	3.36	0.77	2.31	0.35	2.23	0.36
12797	11SRKGC061	Quarry N	57.1	23.6	12.2	30.1	4.11	18.5	3.57	1.2	3.9	0.69	4.03	1	2.84	0.45	2.81	0.45
12798	11SRKGC063	Quarry O	64.2	8	37.6	74.3	7.44	23.9	3.17	0.74	2.03	0.3	1.47	0.3	0.78	0.14	0.99	0.15
12799	11SRKGC062	Quarry O	61.6	8.1	14.9	28.3	3.11	11.4	2.06	0.41	1.73	0.28	1.39	0.28	0.72	0.12	0.77	0.11
12800	11SRKGC064	Quarry O	66.6	7.9	17.8	34.2	3.53	11.7	2.06	0.44	1.61	0.27	1.42	0.27	0.75	0.11	0.69	0.1
12801	11SRKGC065	Quarry O	99.2	14.4	25.2	50.5	5.4	19.6	3.25	0.85	2.59	0.45	2.48	0.53	1.54	0.24	1.5	0.23
12802	11SRKGC066	Quarry O	69.8	8.5	20.7	38.3	3.91	13.2	2.03	0.48	1.69	0.27	1.37	0.31	0.73	0.12	0.8	0.11
12785	11SRKGC050	Quarry P	103.4	12.6	14.4	28.9	3.54	15.6	2.8	0.91	2.71	0.37	1.99	0.44	1.13	0.17	1	0.15
12790	11SRKGC052	Quarry P	119	19.4	19.1	40.1	4.9	18.9	3.6	1.05	3.56	0.51	3.07	0.61	1.64	0.25	1.69	0.26
12791	11SRKGC051	Quarry P	92.1	9.7	13.7	26.3	2.84	11.1	1.97	0.64	1.99	0.28	1.67	0.31	0.91	0.14	0.88	0.13
12792	11SRKGC053	Quarry P	109.4	12.3	17.1	34.2	3.97	14.8	2.72	0.83	2.55	0.35	2.07	0.36	1.07	0.17	1.05	0.16
12793	11SRKGC054	Quarry P	127.2	20.7	19.9	41.4	4.98	21.8	3.89	1.22	3.74	0.54	3.26	0.64	1.93	0.3	1.77	0.29
12794	11SRKGC055	Quarry P	48.6	23.9	8.3	20.8	2.83	13.8	2.73	1.03	3.43	0.52	3.79	0.79	2.31	0.36	2.57	0.37
12788	11SRKGC048	Quarry Q	44.1	19.5	2.5	7.7	1.19	6.7	2.16	0.74	2.79	0.48	3.48	0.65	2.06	0.31	2.03	0.28
12789	11SRKGC049	Quarry Q	41.8	18.1	2.7	7.2	1.12	6	1.92	0.71	2.8	0.46	2.93	0.64	1.8	0.28	1.81	0.26
12815	11SRKGC044	Quarry Q	45.1	18.1	2.5	6.5	1.05	5.7	1.85	0.66	2.45	0.46	2.85	0.67	1.97	0.31	1.92	0.31
12816	11SRKGC045	Quarry Q	48	19.4	2.7	7.1	1.14	5.1	1.89	0.7	2.71	0.52	3.15	0.7	2.08	0.33	2.12	0.32
12817	11SRKGC046	Quarry Q	48.4	19	2.8	7.2	1.14	6.1	1.93	0.73	2.59	0.52	3.37	0.73	2.03	0.32	1.93	0.31
12818	11SRKGC043	Quarry O	44.5	18.1	2.5	6.8	1.06	6.1	1.8	0.64	2.34	0.48	3.15	0.71	2	0.31	2.05	0.31
12819	11SRKGC047	Quarry O	43.2	17.7	2.5	6.8	1.06	5.4	1.72	0.64	2.44	0.47	2.89	0.65	1.98	0.31	1.95	0.32
12809	11SRKGC039	Quarry R	49.8	19.8	3.3	8.3	1.28	6.1	1.99	0.7	2.6	0.51	3.28	0.71	2.11	0.32	2.14	0.31
12810	11SRKGC042	Quarry R	49.5	17.3	2.9	7.2	1.1	5.2	1.72	0.66	2.44	0.47	2.91	0.66	1.96	0.3	1.81	0.27
12811	11SRKGC040	Quarry R	72	19	6.7	15.3	1.99	9.4	2.41	0.83	2.84	0.55	3.33	0.7	2.04	0.31	2.06	0.33
12812	11SRKGC041	Quarry R	50.5	18.8	3.5	9.1	1.34	7	1.94	0.69	2.65	0.52	3.17	0.73	2.01	0.34	2.04	0.31
12813	11SRKGC037	Quarry R	48.3	17.7	3.2	7.5	1.18	6.1	1.96	0.71	2.5	0.48	3.09	0.71	1.97	0.29	1.9	0.29
12814	11SRKGC038	Quarry R	51.7	18.6	2.9	8.1	1.24	6.5	1.97	0.68	2.69	0.51	3.3	0.7	2.09	0.33	1.99	0.31
12803	11SRKGC032	Quarry S	71.5	24.2	17	46	6.27	27.2	5.56	1.73	5.25	0.82	4.3	0.95	2.67	0.38	2.61	0.38
12804	11SRKGC031	Quarry S	67.7	26.6	17.8	46.4	6.38	27.9	5.77	1.72	5.29	0.88	4.55	1	2.93	0.43	2.66	0.44
12805	11SRKGC035	Quarry S	79.7	24.4	17.3	43.2	5.72	23.8	5.16	1.6	5.16	0.85	4.74	0.93	2.85	0.41	2.61	0.38
12806	11SRKGC034	Quarry S	77.9	23.7	18	43.4	5.86	24.4	5.17	1.6	4.9	0.82	4.38	0.9	2.57	0.4	2.41	0.38
12807	11SRKGC033	Quarry S	72.8	23.5	15.4	40.1	5.52	24.5	5.37	1.73	5.19	0.85	4.7	1.01	2.89	0.42	2.63	0.41
12808	11SRKGC036	Quarry S	73.9	23.9	15.6	40	5.58	25.3	5.57	1.72	5.36	0.88	4.42	0.99	2.86	0.41	2.68	0.4
12764	11SRKGC029	Quarry T	36.1	17.9	2.2	6.7	1.02	4.3	1.66	0.62	2.5	0.4	2.71	0.62	1.73	0.27	1.71	0.27
12765	11SRKGC030	Quarry T	36.3	18.8	2.7	6.8	1.09	6.8	1.79	0.73	2.55	0.42	3.11	0.6	1.88	0.3	1.89	0.29
12778	11SRKGC028	Quarry T	37.7	18.5	2.3	6.5	1.02	6.5	1.74	0.69	2.57	0.43	3.15	0.59	1.77	0.31	1.9	0.3
12779	11SRKGC027	Quarry T	39.7	20.1	2.6	7	1.06	6.1	1.8	0.65	2.82	0.45	3.1	0.63	1.94	0.31	2.06	0.32
12780	11SRKGC026	Quarry T	38.7	18.9	2.8	7.5	1.11	6.1	1.78	0.76	2.69	0.43	3.02	0.57	1.78	0.28	1.83	0.29
12774	11SRKGC022	Quarry U	129.4	8.3	17.8	34.3	4.1	15.1	2.72	0.77	2.28	0.28	1.8	0.24	0.8	0.13	0.66	0.12

Sample ID	Drill Hole ID	Quarry	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B	4A-4B
			Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
			ppm 0.1 50000	ppm 0.1 50000	ppm 0.1 50000	ppm 0.1 50000	ppm 0.02 10000	ppm 0.3 10000	ppm 0.05 10000	ppm 0.02 10000	ppm 0.05 10000	ppm 0.01 10000	ppm 0.05 10000	ppm 0.02 10000	ppm 0.03 10000	ppm 0.01 10000	ppm 0.05 10000	ppm 0.01 10000
12775	11SRKGC021	Quarry U	111	6.9	15.3	29.8	3.29	12.8	2.07	0.63	1.61	0.22	1.32	0.21	0.62	0.11	0.7	0.09
12776	11SRKGC024	Quarry U	90.8	6.9	15	28.8	3.15	11.1	1.9	0.63	1.79	0.21	1.19	0.23	0.6	0.11	0.59	0.1
12777	11SRKGC025	Quarry U	75.5	7	21.6	38.3	4.07	13.5	2.09	0.41	1.45	0.19	1.19	0.17	0.61	0.09	0.62	0.09
12784	11SRKGC023	Quarry U	142.1	20.7	22.8	44.9	5.57	20.6	4.05	1.32	3.95	0.56	3.44	0.63	1.75	0.29	1.99	0.27
12766	11SRKGC018	Quarry V	62.2	26.3	4.9	12.8	1.87	9.9	2.86	1.02	3.86	0.62	4.62	0.87	2.72	0.42	2.55	0.4
12767	11SRKGC017	Quarry V	76.8	32.5	4.7	13	2.03	9.4	3.08	1.17	4.7	0.77	5.22	1.09	3.23	0.49	3.27	0.5
12768	11SRKGC016	Quarry V	78	32.5	6.3	16.1	2.46	11.7	3.56	1.2	4.57	0.76	5.22	1.08	3.28	0.47	3.46	0.54
12769	11SRKGC019	Quarry V	67.5	28.8	4	11	1.78	9.8	2.94	1.17	4.21	0.69	4.89	0.92	2.91	0.42	2.87	0.44
12770	11SRKGC020	Quarry V	61.1	26.8	4.7	12.9	1.88	8.3	2.85	1.05	3.84	0.63	4.54	0.85	2.54	0.4	2.61	0.38
12771	11SRKGC011	Quarry W	122.4	5.7	23.8	42.7	4.42	15	2.16	0.64	1.55	0.18	0.79	0.2	0.57	0.09	0.55	0.08
12772	11SRKGC056	Quarry W	46.9	20.6	3.7	9.2	1.36	6.5	2.04	0.94	2.95	0.51	3.31	0.67	2.12	0.32	2.13	0.32
12773	11SRKGC012	Quarry W	177.7	4.6	18.3	32.3	3.29	12.2	1.88	0.63	1.4	0.17	0.92	0.16	0.43	0.07	0.34	0.05
12781	11SRKGC015	Quarry W	40.7	14.5	3.6	8.3	1.19	6.4	1.97	0.8	2.66	0.41	2.67	0.46	1.38	0.2	1.15	0.17
12782	11SRKGC014	Quarry W	77.9	18.2	6.5	16.1	2.54	13	3.65	1.33	4.21	0.59	3.59	0.64	1.62	0.25	1.43	0.2
12783	11SRKGC013	Quarry W	66.7	19.1	4.3	10.1	1.58	7.3	2.72	1.03	3.66	0.54	3.77	0.66	1.62	0.24	1.5	0.23
Detection Limits																		
Maxxam SOP No:																		
Average Crustal Abundances of Basaltic Rock				21	15	48	4.6	20	5.3	0.8	5.3	0.8	3.8	1.1	2.1	0.2	2.1	0.6
Average Crustal Abundances x10				210	150	480	46	200	53	8	53	8	38	11	21	2	21	6

P:\01_SITES\Hope.Bay\1CT022.004_Phase 2 DEIS - Engineering Support\Task 260_Madrid to Boston Quarry Geochem\3_Report\Appendices\Copy of Appendix C-Results

			1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX	1DX
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