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# PROSPECTING REPORT

on

# GEOLOGICAL MAPPING, and SAMPLING and HISTORICAL LOCATINGS

LITTLE PIC RIVER MONUMENT STONE PROPERTY

THUNDER BAY MINING DIVISION
DISTRICT OF THUNDER BAY, ONTARIO

NTS 42D/15SW

Thunder Bay, Ontario
April 9, 2021

William P. Skrepichuk P.Eng.,
Prospector

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## 1.0 Introduction

The Little Pic River Monument Stone (Little Pic River) property consists of 3 contiguous unpatented mining claims were all acquired in April 2019. All to protect an existing (1884) historic quarry and explore and expand on any possible additional monument or masonry quality stone. In August 2019 an Exploration Permit was issued to allow the extraction of up to 100 metric tonnes of stone. Much of this activity on the property to-date has been restricted due to the strategic crosscut of the East-West power line construction by Valard contractors as well as COVID-19 restrictions.

## 2.0 Property Location and Access

The Little Pic River property consists of 3 contiguous unpatented mining claims (549102, 549101, 548859) located approximately 30 km west of Marathon and bridges Hwy 17, Figure(s) 1 (black outline) and 3 (yellow outline). The property is located in Coldwell and Grain townships and comprised of a total of 63.9 hectares (157.8 acres). All the claims lie in a bowl area and are generally bounded on the west by the Little Pic River. The property is accessible by secondary roads north and south of Trans-Canada Hwy 17.

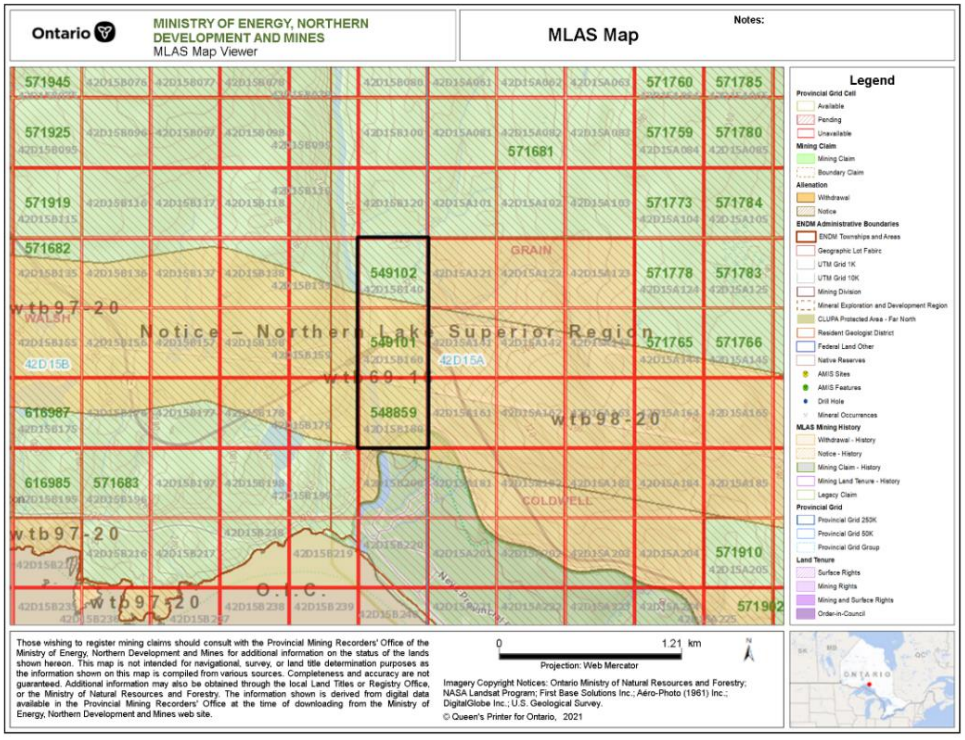


**Figure 1.** MLAS map showing location Little Pic Monument Stone contiguous properties (black outline) cell claims # 548859, # 549101, # 549102

## 2.1 History

This is the site of the 1884 historical quarry that was the source of good quality masonry stone for the construction Canadian Pacific Railway (CPR) bridge pier supports for steelworks crossing the Little Pic River, Figure(s) 2a, and 5d.

Since the construction of the C.P.R. bridge, no known work has been carried out at this quarry, as it was previously unknown. Historical information was obtained from the Thunder Bay Historical Museum Society, regarding the Little Pic River Quarry during the construction of the C.P.R., as shown in Figure 2b.

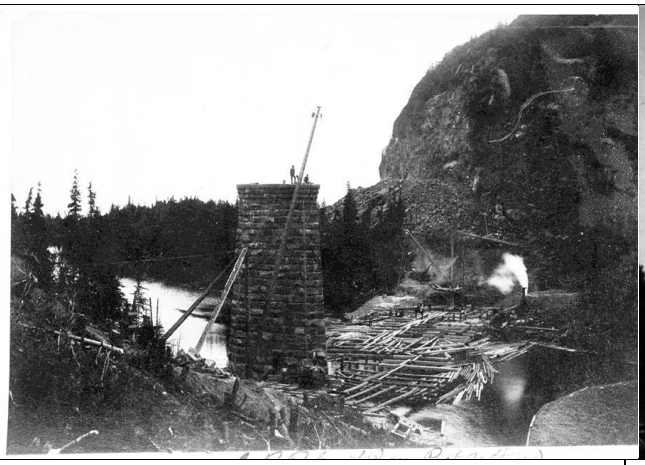

**Figure 2a.** CPR construction across the Little Pic River (circa 1884). Photo compliments of the Thunder Bay Historical Museum Society (*from* Hinz 2019).

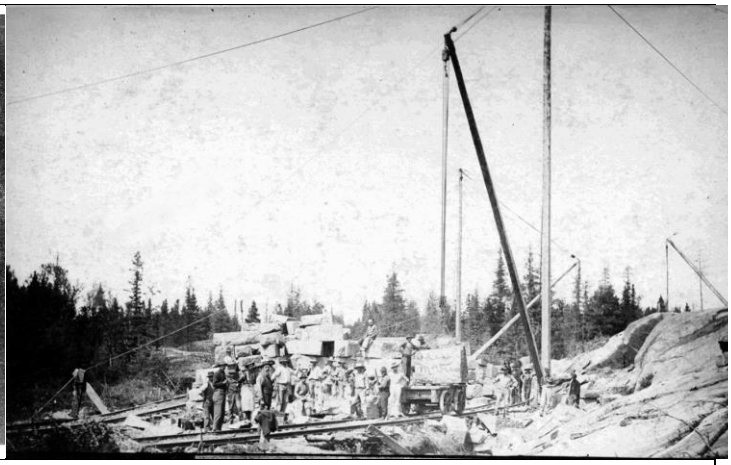

**Figure 2b.** Little Pic River Quarry (circa 1884). Photo compliments of the Thunder Bay Historical Museum Society (*from* Hinz 2019).

## 2.2 Geology

The quarry stone at Little Pic River is identified as iron(Fe)-rich augite syenite within the Coldwell Alkaline Complex, Figure 3. The Coldwell Complex comprises three, superimposed ring sub-complexes or magmatic centers (Mitchell and Platt, 1978) that young progressively (Centers 1 to 3) to the southwest.

The property has been mapped by Walker et al. (1993) as Centre 3-amphibole quartz syenites (Figure 3, dark orange-15); however, the rocks on the Little Pic River property resemble Centre 1-ferrosyenites or commonly referred as the “black” syenites (Figure 3, aqua blue-10) which have historically been extracted for stone near Marathon. Mitchell’s (2019) petrography report (included below) for samples collected on the Little Pic River property suggest the rocks are Centre 1 (ferrosyenites) and therefore

may represent a mega-xenolith within the Centre 3 rocks. The stone has a well-developed foliation defined by flow-aligned feldspar laths, which comprise 80 to 90% of the rock. Other minerals that are present include quartz, clinopyroxene and amphibole (Mitchell 2019).

In the 1880's, dimension stone in the vicinity of Marathon was developed and used in the construction of railway trestles to span the Black, Pic, Little Pic, Steel and Nipigon rivers. The unique craftsmanship and beauty of these trestles represent historical architecture that tell us about the way of life and culture during the late 1800's. Today the trestles show very little wear and tear and prove the long-standing durability of this local stone, Figure 5d. In the 1920's to early 1930's, 3 quarry operations northwest of Marathon extracted and shipped brown and black syenite to customers in Toronto, Buffalo, Chicago and Detroit (Hinz 2019), Figure 3.

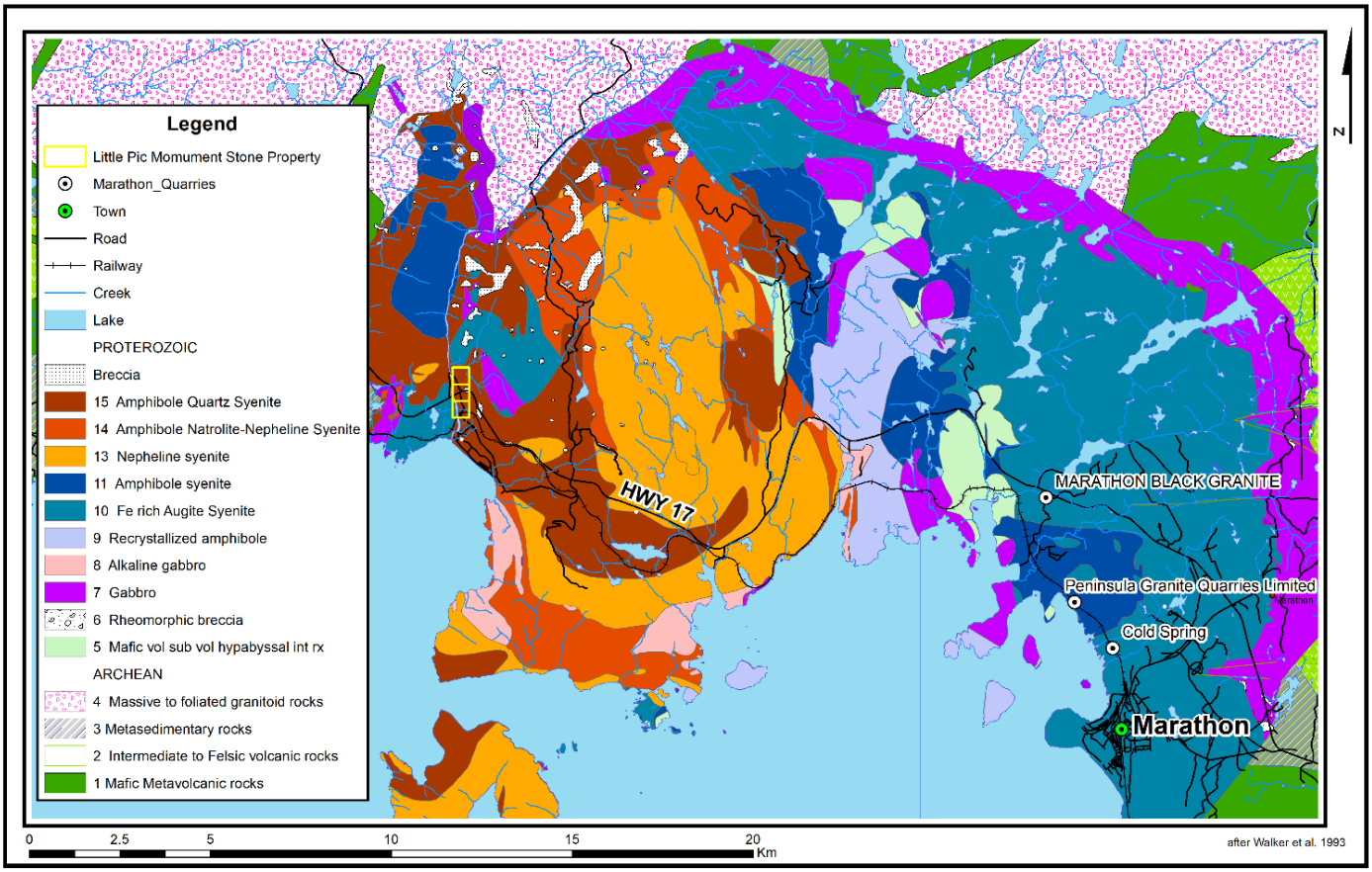


**Figure 3.** Map showing the regional geology, Coldwell Complex and location of the Little Pic River property, outlined in yellow (*after* Walker 1993).

## 2.3 Preliminary Exploration and Evaluation Work

Exploration focussed on the evaluation of the historical quarry area at the Little Pic River property. Cell claims #548859 and #549101 are the main areas of focus of activity, Figure(s) 4 (red outline) and 6. The unique nature of this quarry has a very special opportunity as monument stone which is the main driver for this work.

A list of the scope of work completed to-date has been included below in Table 1. Field and technical work has been carried out by William Skrepichuk (claim owner) assisted by geoscientists from Lakehead University and the Resident Geologist Program (RGP), surveyor; Brian Forsyth, as well as a number of field assistants, between June to November 2019 and May to October 2020.

A property visit by RGP staff, was carried out on June 10, 2019 to examine outcrop locations and determine other possible sites specifically for augite “black” syenite as potential monument quality material, Figure(s) 5a, b. The area was prospected and samples were collected (Figure(s) 4, 5a,b,d) for petrography (Figures 7), cutting and polishing (Figure 8) and for physical testing.

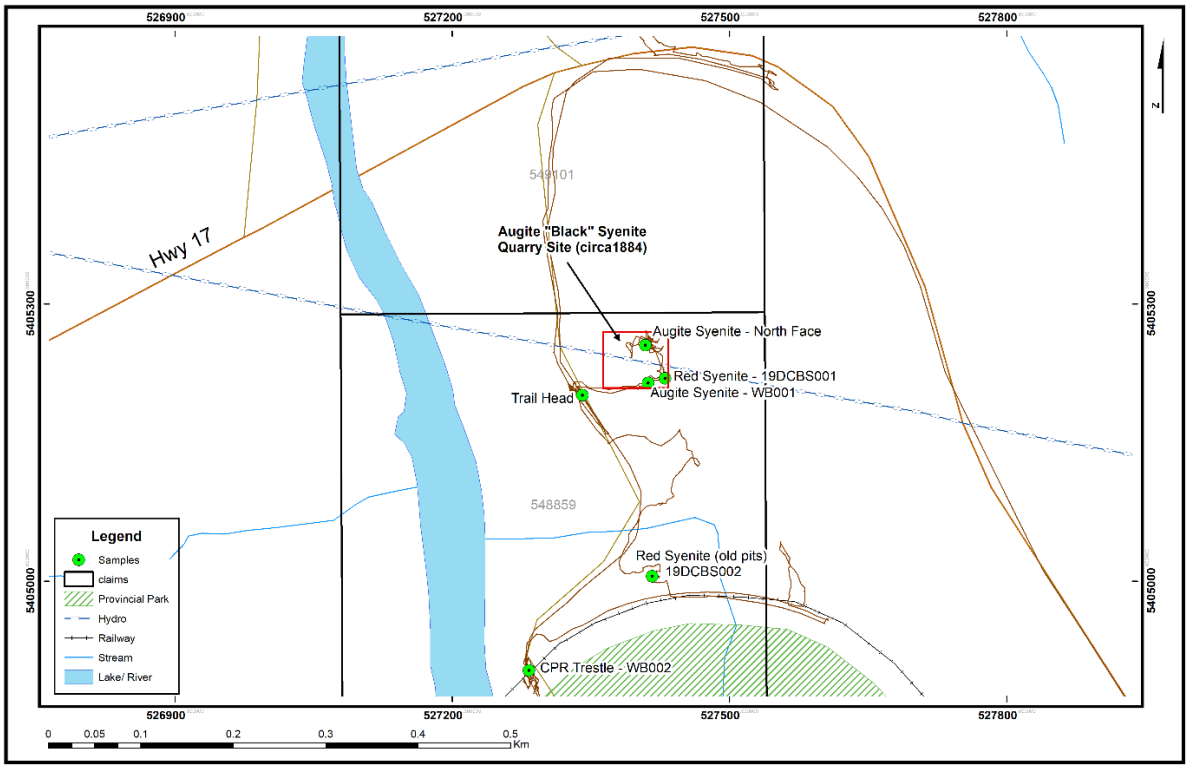


**Figure 4.** Map showing location of quarry site (red outline), tracks of prospecting (brown lines) and sampling (green dots).

**Figure 5a**. North Face - Augite “Black” Syenite


**Figure 5b.** Augite “Black” Syenite WB001

**Figure 5c.** Red Syenite 19DCBS001

**Figure 5d.** CPR Trestle Sample WB002


ZOOM
MOB
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266
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UTM 5405216
Elevation
211m
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On May 18, 2020, the Little Pic Quarry area was surveyed by Brian Forsyth (surveyor), W. Skrepichuk and Reijo Peltaniemi (assistant). In October 2020, Brian Forsyth generated a Computer-Aided Design (CAD) drawing locating geological formation and historical findings related to existing CPR Quarry works (1884) on Claim # 548859 & 549101, at Little Pic River, Figure 6.

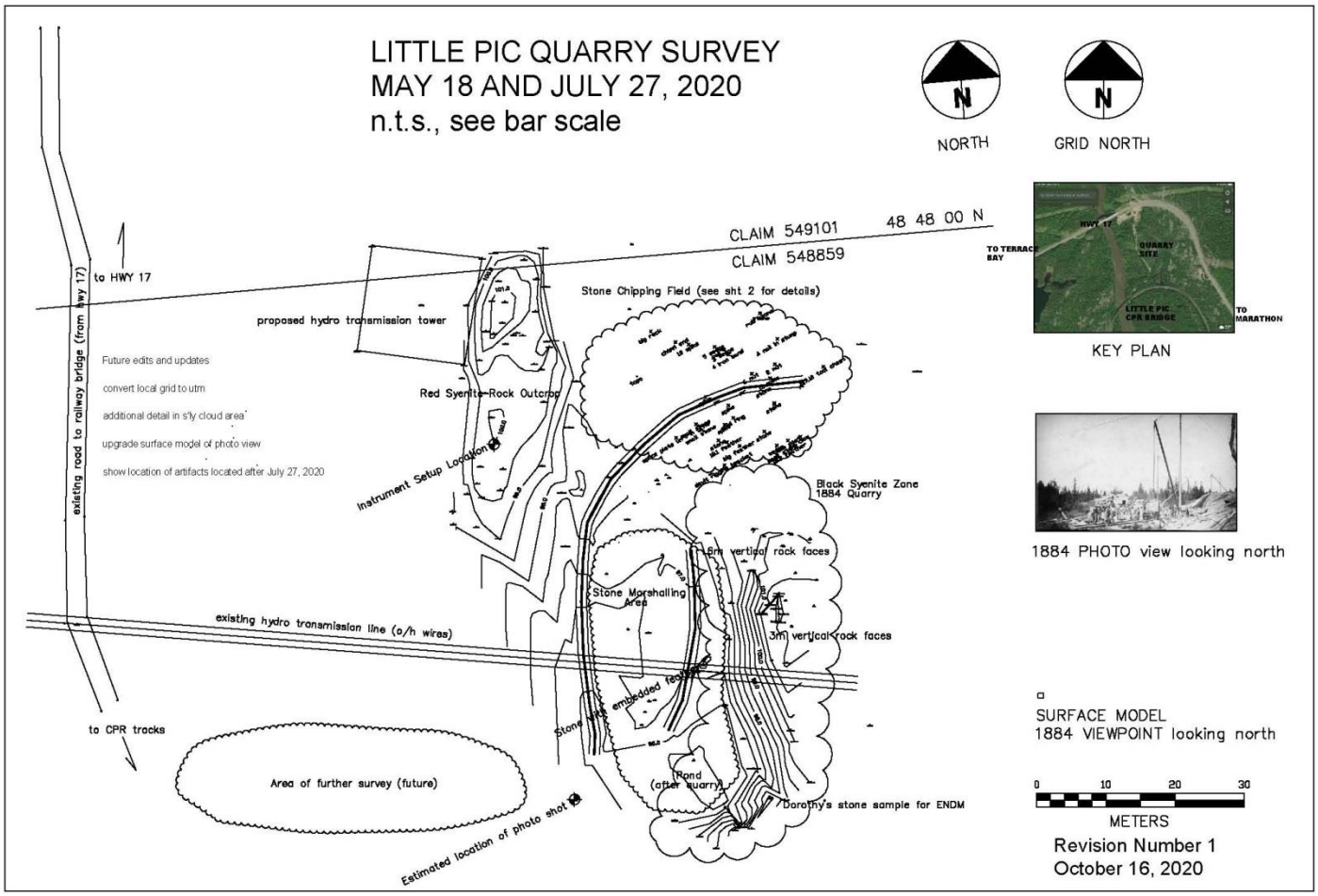



**Figure 6.** A CAD drawing locating geological formation and historical findings related to existing 1884 CPR Quarry works on Claims # 548859 & # 549101, at Little Pic River.

## 3.0 Interpretation

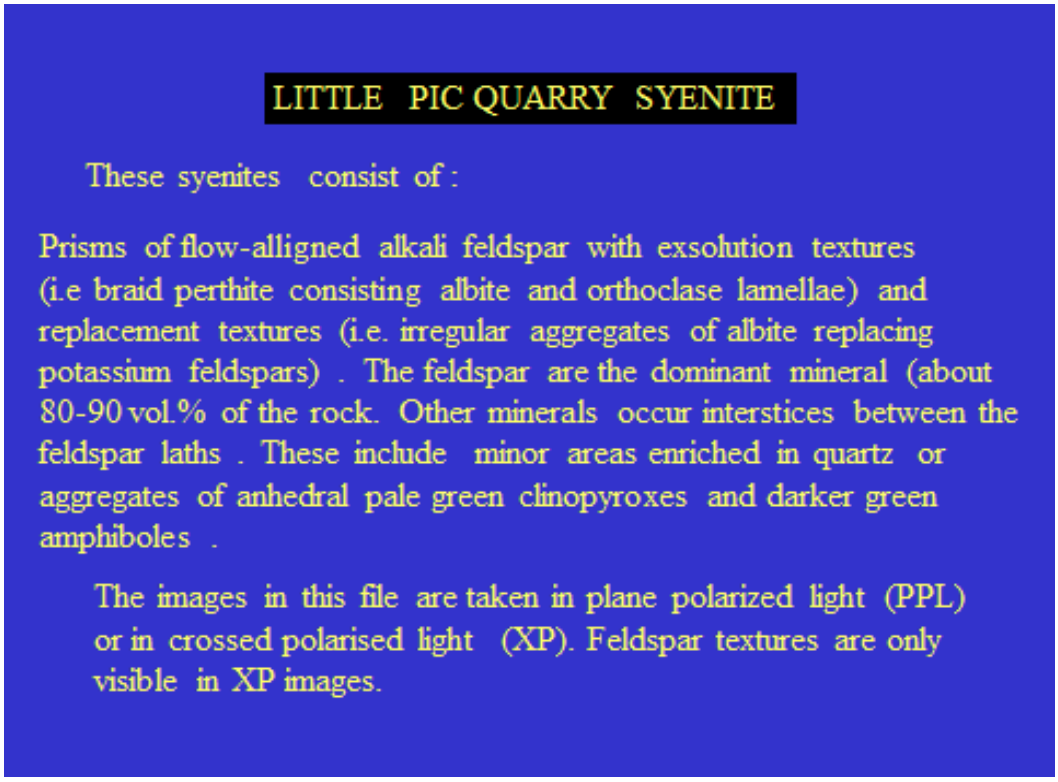
Field work completed to-date, allows improved understanding of the historical quarry area. Sample WB001 (*see* Figure 4) was collected for petrolographic study and 9 samples were collected in the vicinity of sample WB001, for physical testing, by personnel at Lakehead University in Thunder Bay, Ontario.

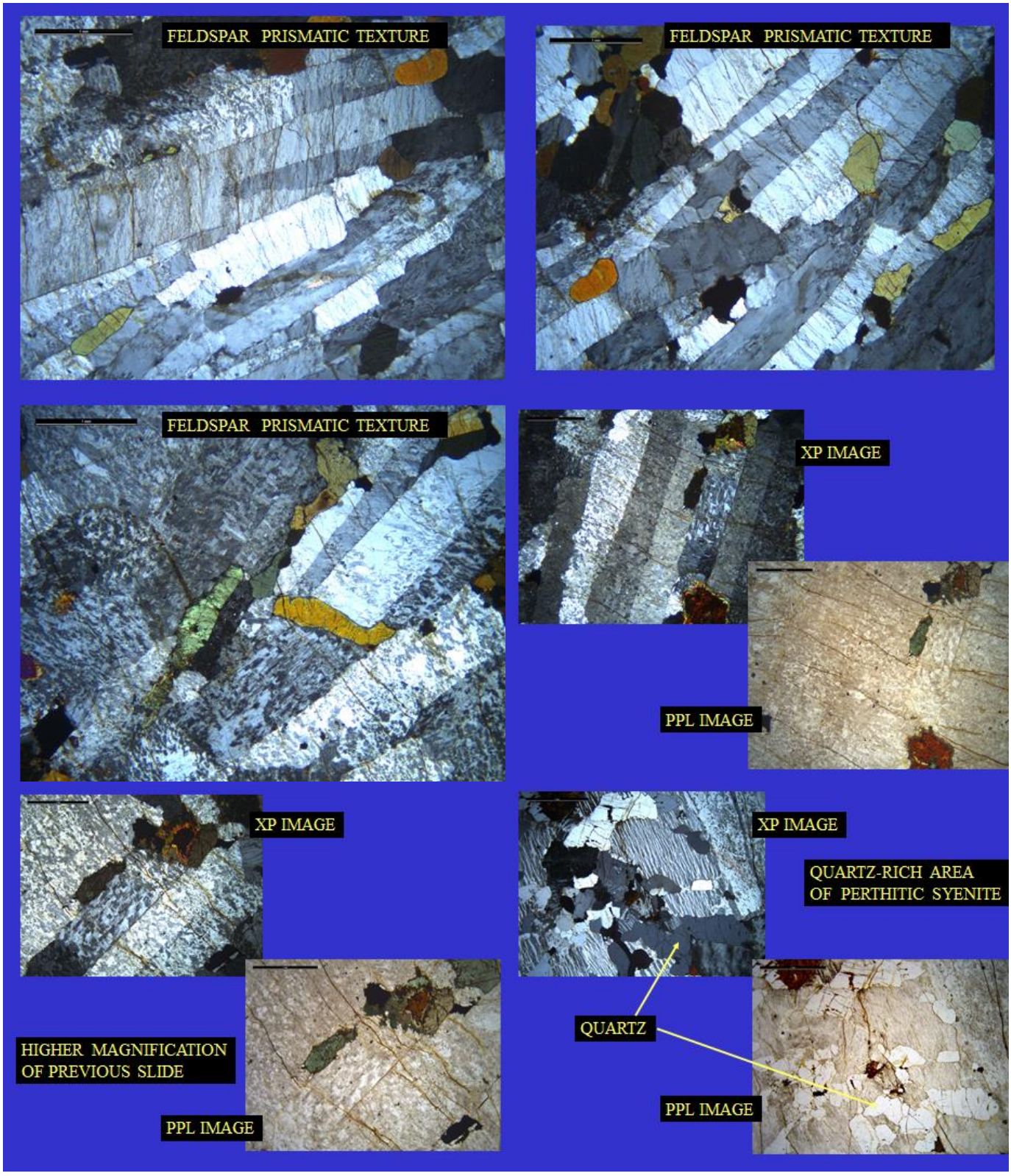
Petrography Report

In October 2019, Dr. R. Mitchell (Lakehead University-Geology Department) completed a preliminary report and petrology report; providing the following descriptions and images of 8 thin sections with captions of textures observed in sample WB001, Figures 7. Dr. Mitchell describes the syenite as follows; –
*"this is a syenite with a well-defined foliation resulting from the sub-parallel orientation of the feldspar prisms - which have very complex textures.*

*The content of other minerals is quite low - there are some quartz-rich patches and pyroxenes and amphiboles occur between the feldspar laths.*
*The rock is not obviously a center 3 ferroedenite syenite - has some similarities to center 1 ferroaugite syenites - and if so is a mega-xenolith.*

*I will have a further look at this sample by X-ray spectrometry next week to determine the pyroxene and amphibole compositions -to learn more about the genetic affinities with either C3 or C1 syenites."*




FELDSPAR PRISMATIC TEXTURE
FELDSPAR PRISMATIC TEXTURE
FELDSPAR PRISMATIC TEXTURE
XP IMAGE
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HIGHER MAGNIFICATION
OF PREVIOUS SLIDE
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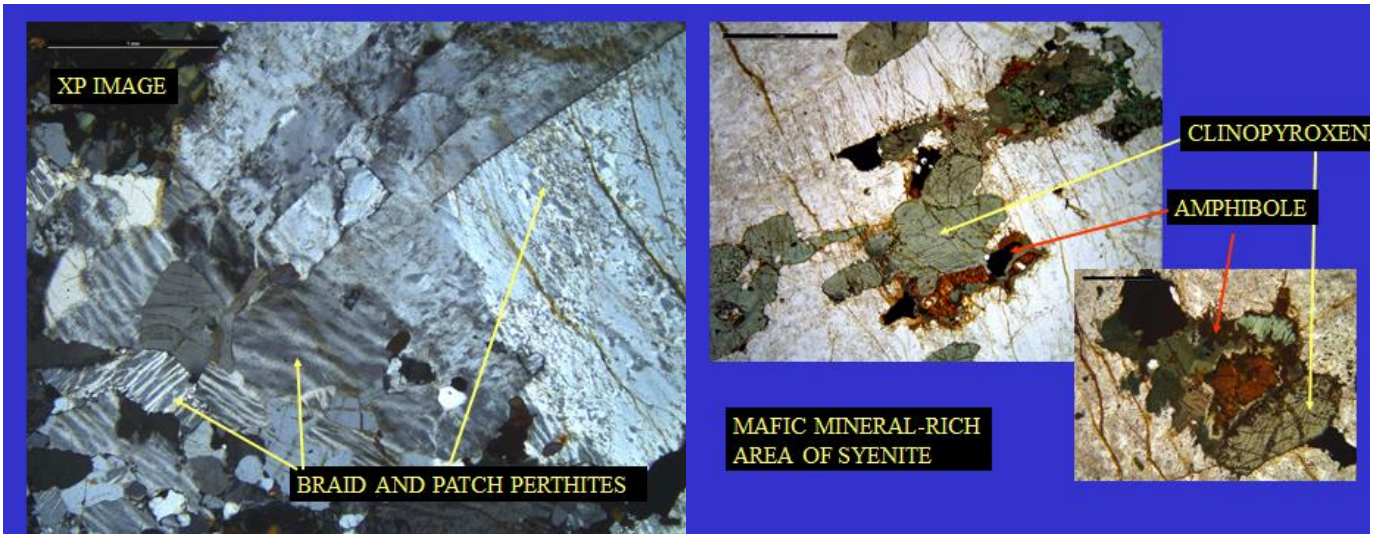
QUARTZ-RICH AREA
OF PERTHITIC SYENITE
QUARTZ
PPL IMAGE




**Figures 7**. Photos of thin sections (sample WB001) with captions describing textures *(from* Dr. R. Mitchell 2019).

## 4.0 Cutting and Polishing

Samples WB001 and WB002 were collected from the historical quarry and trestle areas (*see* Figure 4), from which 10 slabs were cut and polished, for promotional and marketing purposes, example Figure 8.

**Figures 8**. Photo of cut and polished sample (WB002) from the Little Pic River property.

## 4.1 Physical Testing

ASTM standard testing was performed on 9 samples (collected within 1 m radius of sample WB001) to determine strength and bulk specific gravity characteristics using equipment and personnel at Lakehead University, School of Engineering Civil/Structural Department. Test results and photos of the testing equipment provided in Appendix I.

ASTM testing results show that the existing CPR Quarry (black) syenite has average compressive (flat grain) strength (3 tests) of **101.0 Mpa (14,700 Psi)** and an average compressive (edge grain) strength (2 tests) of **88.6 Mpa (12,850 Psi**). The bulk density (3 tests) average measures at **2739.1 Kg/cu. m. (171 lbs./cu.ft.)**

## 5.0 Work Conducted on the Property

Table 1. Assessment Work Breakdown for 2019 and 2020

| Type of Work | Names in Group | Date of Work | ManDays Field | Work Office | Travel |
|---|---|---|---|---|---|
| Prospecting, along property lines of Claims #549101, 549102 and #548859 with ENDM Group | W.Skrepichuk D.Crawford (assist Mark Puumala Dorothy Campbell (RGP/OGS) | June 10, 2019 | **2** | | Return Travel Thunder Bay-Site **560 Km** |
| Prospecting, sampling on existing Quarry site, Claims 548859&549101 | W.Skrepichuk | July 19, 2019 | **1** | | Return Travel Thunder Bay-Site **560 Km** |
| Prospecting, stripping sampling on Quarry site Claims 548859&549101 | W.Skrepichuk | Sept. 8, 2019 | **1** | | Return Travel Thunder Bay-Site **560 Km** |
| Prospecting, sampling, grubbing, clearing on Claims 548859&549101 | W.Skrepichuk R.Choisellet(assist | Oct. 10, 2019 | **2** | | Return Travel Thunder Bay –Site **560 Km** |
| Preliminary Petrology Report work with Dr. R. Mitchell | W. Skrepichuk Dr. R. Mitchell (consultant) | Oct. 18, 2019 | | **1** | Return Travel to Lakehead Univ. **30 Km** |
| Petrology Report from Dr. R. Mitchell | Dr. R. Mitchell (consultant) | Oct.24, 2019 | | **1** | |
| Prospecting, hand stripping, sampling on Quarry site Claim #548859 & #549101 | W. Skrepichuk P. Bailey (assistant) | Nov 20, 2019 | **2** | | Return Travel Thunder Bay-Site **560 Km** |
| 2019 Subtotals = | | | **(Man-Days) 8** | **2** | **2,830 (Km)** |

## Year 2020

| Type of Work | Names in Group | Date of Work | ManDays Field | Work Office | Others |
|---|---|---|---|---|---|
| Prospecting, hand stripping and sampling on the existing Quarry site, Claim #548859 | W. Skrepichuk<br>P. Bailey (assistant) | Feb. 10. 2020 | **2** | | Return Travel Thunder Bay-Site **560 Km** |
| Sample preparation at Lakehead University Civil Eng. Dept. | W. Skrepichuk<br>Cory Hubbard (L.U. Civil Tech) | Feb. 24. 2020 | | **1** | Return Travel to Lakehead Univ. **30 Km** |
| Sample Testing at Lakehead University Civil Eng. Dept. | W. Skrepichuk<br>Cory Hubbard (L.U. Civil Tech) | Feb. 26, 2020 | | **1** | Return Travel to Lakehead Univ. **30 Km** |
| Sample preparation at Lakehead University Civil Eng. Dept. | W. Skrepichuk<br>Cory Hubbard (L.U. Civil Tech) | Mar, 9, 2020 | | **1** | Return Travel to Lakehead Univ. **30 Km** |
| Sample Testing at Lakehead University Civil Eng. Dept. | W. Skrepichuk<br>Cory Hubbard (L.U. Civil Tech) | Mar.10, 2020 | | **.5** | Return Travel to Lakehead Univ. **30 Km** |
| Sample preparation/testing at Lakehead University Civil Eng. Dept. | W. Skrepichuk<br>Cory Hubbard (L.U. Civil Tech) | Apr. 28, 2020 | | **.5** | Return Travel to Lakehead Univ. **30 Km** |
| Hand stripping, sampling on Quarry site, Claims #548859 & #549101 | W.Skrepichuk<br>R. Peltaniemi (assistant) | Apr.30, 2020 | **2** | | Return Travel Thunder Bay-Site **560 Km** |
| Hand stripping, sampling on Quarry site, Claim #548859 | W.Skrepichuk | May 6, 2020 | **1** | | Return Travel Thunder Bay-Site **560 Km** |
| Surveying, hand stripping sampling on Quarry site Claims #548859 & #549101 | W.Skrepichuk<br>R. Peltaniemi (assistant)<br>B.Forsyth survey | May 18, 2020 | **3** | | Return Travel Thunder Bay-Site **560 Km** |
| Hand stripping and sampling on the existing Quarry site Claim #548859 & #549101 | W.Skrepichuk<br>D. Crawford (assistant) | May 30, 2020 | **2** | | Return Travel Thunder Bay-Site **560 Km** |
| Metal Detecting, hand strip & sampling on Quarry Claim #548859 | W.Skrepichuk | June 12, 2020 | **1** | | Return Travel Thunder Bay-Site **560 Km** |
| Metal Detecting, hand stripping, sampling on Quarry Claim #548859 | W.Skrepichuk<br>A. North (assistant) | July 8, 2020 | **2** | | Return Travel Thunder Bay-Site **560 Km** |
| Surveying, hand stripping on existing Quarry site Claims #548859 & #549101 | W.Skrepichuk<br>L. Pepper (assist<br>B Forsyth(survey | July 27, 2020 | **3** | | Return Travel Thunder Bay-Site **560 Km** |

| | | | | | |
|---|---|---|---|---|---|
| Metal Detecting sampling on existing Quarry site Claim #548859 & 549101 | W. Skrepichuk A. North (assistant) | Sept.23, 2020 | **2** | | Return Travel Thunder Bay-Site **560 Km** |
| Cutting samples at Lakehead University | W. Skrepichuk | Sept.25, 2020 | | **1** | Return Travel to Lakehead Univ. **30 Km** |
| Polishing at Nipigon Specialty Rock Shop | W. Skrepichuk | Sept.28, 2020 | **1** | | Return Travel Thunder Bay to Nip. **220 Km** |
| CAD Drawings of Quarry Site Survey | Brian Forsyth (surveyor) | Oct. 16, 2020 | | **3** | |
| Hand stripping and sampling on existing Quarry Claim #548859 | W. Skrepichuk A. North (assistant) | Oct. 28, 2020 | **2** | | Return Travel Thunder Bay-Site **560 Km** |

2020 Subtotals = **(Man-Days)** **21** **8** **6,000 (Km)**

**(2019-2020) Totals = (Man-Days)** **29** **10** **8,830 (Km)**

Rates = **$700** **$350** **$.50 / Km**

**(2019-2020) Rated Values claimed = $20,300 + $3500 + $4,415**

## 6.0 Assessment Work Summary

A total of **29** Man-Days field (sweat) work and **10** Man-Days office work were incurred and **8,830** Km of travel, primarily return trips from Thunder Bay to site, have been accumulated between May 07, 2019 and October 28, 2020 . Work undertaken to-date includes prospecting, hand stripping and clearing, rock sampling, cutting and polishing, ASTM physical material testing, quarry surveying, and geological and historical mapping of the Little Pic River Monument Stone property. Values of prospecting effort for this report should be at **$350/Man-Day** (doubled to **$700/Man-Day** for field (sweat) work) plus current government rate **$.50/km** for mileage travelled. No receipts are involved. For this Claims Assessment Report the Total Rated Value claimed is **$28, 215.**

Dated April 9, 2021 Signed William P. Skrepichuk P.Eng.

(William P. Skrepichuk P.Eng.)

## 7.0 References

Hinz, P. 2019. Building and ornamental stone sites of the Marathon Area, Ontario In; MacTavish, A. and Hollings, P. (Eds.), Institute on Lake Superior Geology Proceedings, 65th Annual Meeting, Terrace Bay, Ontario, Part 2 - Field trip guidebook, v.65, part 2, 7-105.

Mitchell, R.H. and Platt, G. R. 1978. Mafic mineralogy of ferroaugite syenite from the Coldwell alkaline complex, Ontario, Canada; Journal of Petrology, v.19, p.627-651.

Mitchell, R. 2019. Petrography Report, Little Pic Quarry Syenite, *personal communication,* October 24, 2019.

Mitchell, R. 2019. Preliminary Report, Little Pic Quarry Syenite, *personal communication,* October 18, 2019.

Walker, E.C., Sutcliffe, R.H., Shaw, C.S.J., Shore, G.T., and Penczak, R.S. 1993. Precambrian geology of the Coldwell Alkalic Complex; Ontario Geological Survey, Open File Report 5868, 30p.

# Appendix I

# Test Results Summary for ASTM C170 & C97

Little Pic River Syenite from '1884 CPR Quarry' (Coldwell Complex area)
Results of physical strength tests completed, Mar. 10, 2020, @ L.U. Structures Labs

| Dry Samples | | Imperial | Metric |
|---|---|---|---|
| Compressive strength (flat) | ASTM C170 | 14,320 Psi | 98.73 Mpa |
| Compressive strength (flat) | ASTM C170 | 18,800 Psi | 129.62 Mpa |
| Compressive strength (flat) | ASTM C170 | 10,900 Psi | 75.15 Mpa |
| Average (flat)(dry) | | 14,700 Psi | 101.0 Mpa |
| Compressive strength (edge) | ASTM C170 | 12,500 Psi | 86.18 Mpa |
| Compressive strength (edge) | ASTM C170 | 13,200 Psi | 91.01 Mpa |
| Average (edge)(dry) | | 12,850 Psi | 88.6 Mpa |

## Raw Data,

(preparation & testing in Structural labs at Lakehead University, Civil Dept., with Cory Hubbard, Lab Assistant)

Sample #1 Cross (flat) foliation side, Dimensions 2.25"x2.25" x2.25", all parallel saw cut edges
Compression test to failure, (dry) 14,320 Psi

Sample #2 Cross (flat) foliation side, Dimensions 2.125"x2.25" x2.25", all parallel saw cut edges
Compression test to failure, (dry) 18,800 Psi

Sample #3 Cross (flat) foliation side, Dimensions 2.125"x2.25" x2.25", 5 sides parallel saw cut, 1 side rough corner
Compression test to failure, (dry) 10,900 Psi

Sample #4 Edge Foliation side, Dimensions 2.125"x2.1875" x 2.25", all parallel saw cut edges
Compression test to failure, (dry) 12,500 Psi

Sample #5 Edge Foliation side, Dimensions 2.125"x2.25" x2.125", all parallel saw cut edges
Compression test to failure, (dry) 13,200 Psi

Sample #6 Edge Foliation side, Dimensions 2.25"x2.25" x2.25", all parallel saw cut edges,
Compression test to failure, (dry) 8,100 Psi (result not representative, due to unseen edge cracks)

Results of Strength & Bulk Density tests completed, Feb. 26, 2020, @ L.U. Civil Labs

| Wet Samples | | Imperial | Metric |
|---|---|---|---|
| Absorption by weight | ASTM C97 | 0.17% | 0.171% |
| Bulk Density | ASTM C97 | 171 lb/ft$^3$ | 2739.1 kg/m$^3$ |
| Compressive strength (flat)(wet) | ASTM C170 | 14,300 Psi | 98.60 Mpa |
| Compressive strength (flat)(wet) | ASTM C170 | 10,800 Psi | 74.47 Mpa |
| Compressive strength (edge)(wet) | ASTM C170 | 9,900 Psi | 68.25 Mpa |

## Raw Data,

(preparations in Soils and Structural labs at Lakehead University, Civil Dept., with Cory Hubbard Lab. Assistant)

Sample #1 Edge foliation side, Dimensions 2.5”x2.5”x2.5”, all parallel saw cuts
Dry wt. 699.0 gr. (after 50hr. at 40 C. oven)
Wet wt. 700.2 gr. (after 100hr. soak in room Temp. water)
Wt. in Bath 442.3 gr. (in room Temp. water)

Compression test to failure, (wet) 9,900 Psi

Sample #2 Cross (flat) foliation side, Dimensions 2.5”x2.5”x2.5”, all parallel saw cuts
Dry wt. 695.0 gr. (after 50hr. at 40 C. oven)
Wet wt. 696.2 gr. (after 100hr. soak in room Temp. water)
Wt. in Bath 439.6 gr. (in room Temp. water)

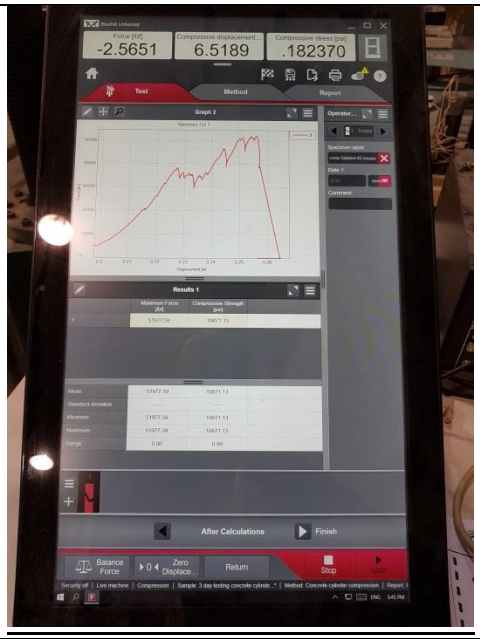
Compression test to failure, (wet) 14,300 Psi

Sample #3 Cross (flat) foliation side, Dimensions 2.5”x2.5”x2.5”, all sides parallel saw cut edges, 1 side rough corner
Dry wt. 697.0 gr. (after 50hr. at 40 C. oven)
Wet wt. 698.2 gr. (after 100hr. soak in room Temp. water)
Wt. in Bath 441.2 gr. (in room Temp. water)

Compression test to failure, (wet) 10,800 Psi

| Ident | Easting (N83Z16) | Northing(N83Z16) | Date/Time | Description |
|---|---|---|---|---|
| Trail Head | 5405201 | 527341 | 05/10/2019 14:10 | Trail Head |
| WB001 | 5405215 | 527412 | 06/10/2019 13:32 | Black Syenite |
| WB002 | 5405220 | 527430 | 06/10/2019 14:04 | Black Syenite |
| North Face | 5405255 | 527409 | 06/10/2019 14:35 | Black Syenite |
| 19DCBS002 | 5405006 | 527417 | 06/10/2019 15:41 | Red Syenite |

Strength Testing Equipment used at Lakehead University Structures Laboratory




Bulk Density Testing Equipment used at Lakehead University Soils Testing Laboratory