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Grass Roots Prospecting Report  
for the  
West Lake Mining Claims

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## Preamble

A technical report applied to grass roots prospecting assessment work that is required as part of an assessment work report submission pursuant to the Mining Act, R.S.O. 1990, C. M.14 and the Assessment Work Regulation (O. Reg. 65/18). This technical report includes a detailed explanation of the geoscience work done, maps or plans, where required and details of the expenses claimed for the work, together with supporting receipts, invoices and other documents for those expenses.

## Abbreviations Used

Table 1: Abbreviations used in this report.

<b>CM</b>	Christopher Mancuso
<b>BH</b>	Ben Haavisto
<b>AH</b>	Aaron Haavisto
<b>JM</b>	John Morgan
<b>PW</b>	Philip Wall
<b>SRO</b>	Surface Rights Owner
<b>MLAS</b>	Mining Land Administration System
<b>DDH</b>	Diamond Drill Hole
<b>IP</b>	Induced Polarization
<b>VLF</b>	Very Low Frequency
<b>EM</b>	Electromagnetic
<b>UAV</b>	Unmanned Aerial Vehicle
<b>GPS</b>	Global Positioning System

## 1 Claims

Mining Division: **Sudbury**

Township: **Louise** (MNDM# G-4076)

Cell Numbers:

**564469 564470 663216 663246 663247 663248**  
**564291 564292 564293 564294 564295 564296**

## 2 Coordinate System

All maps displayed in: UTM NAD83 17N

### 3 Location and Access

Access to the property claim blocks is by taking Highway 55 from Sudbury, Ontario for 30.3 km to west of the town of Walden. Then South onto Panache Lake Road (Regional Road 10) for a distance of 7.2 km, north on Grassy Lake Road for .95 km, and finally, 1.9 km on Tower Road (a gravel road), until it ends at West Lake. The claims are accessed from foot from this point on.

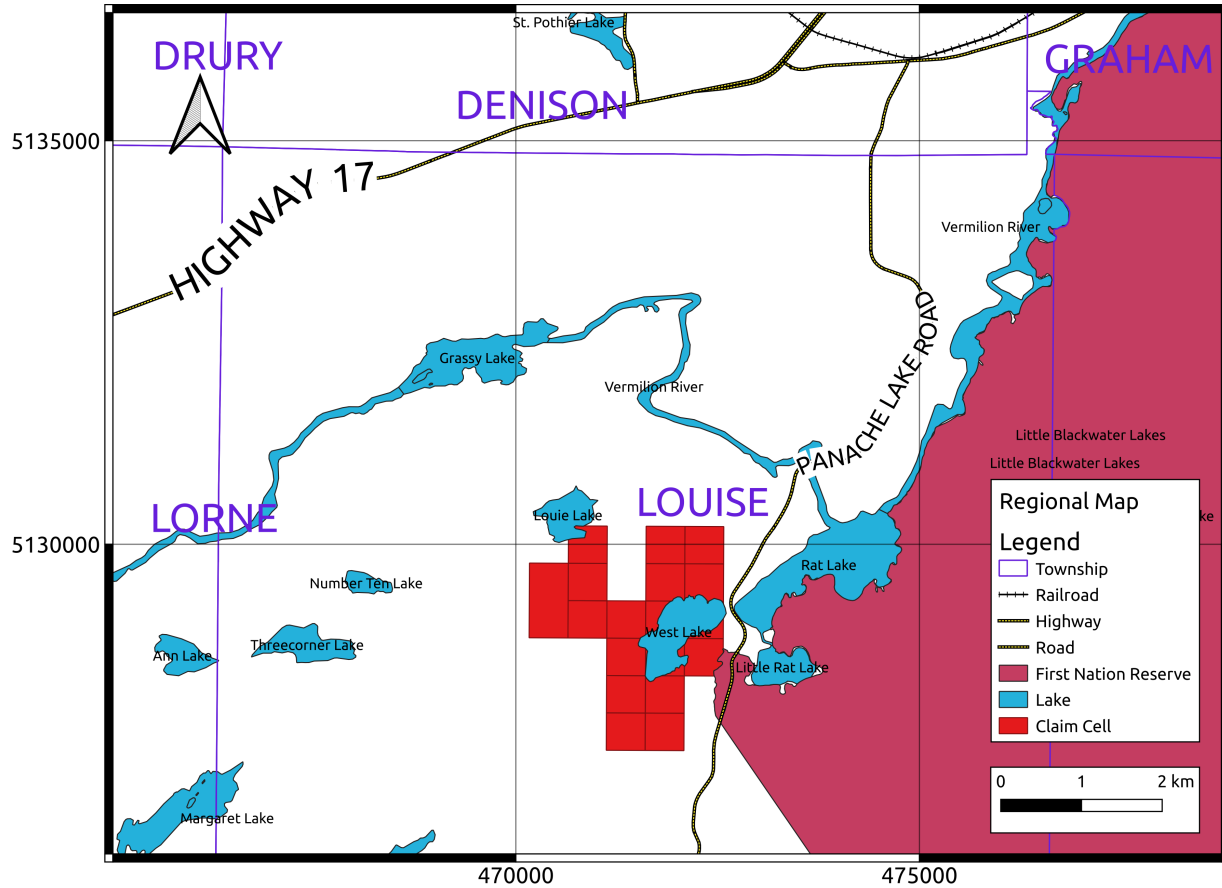


Figure 1: View of a 1:50,000 scale key map showing the cell claims in which the grass roots prospecting was done in relation to townships, major highways, First Nation lands, mining claims and bodies of water. Full sized map in Appendix A.

## 4 Personnel

First Name	Last Name	Phone	Email	Days Worked
Ben	Haavisto	705-918-1281	bhaavisto1@gmail.com	1
Aaron	Haavisto	705-207-5764	aaron.haavisto@gmail.com	3
Christopher	Mancuso	204-962-0359	cmancuso@laurentian.ca	3
John	Morgan	705-698-2053	john.morgan@imscanada.com	3
Philip	Wall	249-360-4465	philipprestonwall@gmail.com	2

Table 2: Complete list of all personnel participating in grass roots exploration activities.

## 5 Regional and Property Geology

The West Lake property is located in the Southern Province of the Canadian Shield, near the Grenville Front to the south and the Sudbury basin to the north, and is underlain by Precambrian age rocks of the Nipissing Magmatic Province. This province is part of the Proterozoic Huronian Supergroup and stretches nearly 450 kilometres east-west and 350 kilometres north-south (Lightfoot and Naldrett, 1996). Gabbroic, tholeiitic, intrusive rocks collectively known as Nipissing Diabase cover more than 20% of this region and are intruding a sequence of quartzites arkoses and greywackes of the Mississaugi, Lorraine and Bruce formation. Nipissing Diabase intrusions created undulating sills, cone sheets or lopoliths, and dykes between Cobalt and Sault Ste. Marie and are likely the remains of an eroded Continental Flood Basalt system that occurred between 2206 Ma and 2223 Ma (Corfu and Andrews, 1986; Lightfoot et al., 1986).

Moreover, Nipissing Diabase intrusions are suggestive of an extensional environment favorable for the formation of significant concentrations of magmatic sulphide minerals rich in Cu-Ni-PGE (Jobin-Bevans, 2016). The Nipissing Diabase and the sills and intrusions that hold the rich Ni-Cu-PGE deposits in Noril'sk, Russia, share numerous geochemical and structural similarities (Lightfoot and Naldrett, 1996).

Additionally, this area host the best exposed bodies of fenite in Canada: The Nemaq Lake and Kusk lake bodies. Each is approximately 0.5 km in diameter and irregularly shaped. They occur 5 km apart in the quartzites of the Mississaugi Formation of the Huronian Supergroup, and consist of brecciated quartzite fragments cemented and extensively replaced by aegirine, riebeckite, and alkali feldspar. Carbonites associated with fenitisation emplace into extensional settings and range in age from Archean to recent. The fenitisation-type halos near West Lake are associated alkaline silicate igneous rocks and are prospective for rare earth elements (REE).

At property scale, the east-west Espanola Fault, dominates the length of the grid and is visible in outcrop along the length of the West Lake property. It is the area's primary structural feature and there are many splays that run north-east, the most notable of which being the break through tower mountain to Louie Lake.

## 6 Prior Work

- 1987 BP resources collected airborne magnetic and VLF data with a 125 m nominal line spacing (Report 2.11050).
- 1997 Ralph Huggins, P.Geol retained Timmins Geophysics to perform line cutting followed by magnetic and IP surveys.
- 1998 Ken Germundson PhD, P.Geol performed geochemical assays. Results reveal anomalous levels Pt, Pd, Ni and Cu elements.
- 2009 Ralph Huggins, P.Geol submits plan for further IP and EM prospecting (max/min). Data or results not recovered.
- 2018 BH reserves first claim cells in the West Lake property and grass roots prospecting begins (see previous reports).

## 7 Description of Exploration Activities

### 7.1 Overview

In the third and fourth quarters of 2021, the West Lake claims were explored three separate times. The activities of each day are detailed below with individual maps and tables. A 1:5000 scale map encompassing all activities is included in Appendix B.

### 7.2 Logs

#### 7.2.1 Sep. 26, 2021

9:08 – 11:12 CM, AH, and PW depart Sudbury On and travel to West Lake claims parking spot at **1g0**.

JM joins from Panache Lake road residence.

11:12 – 11:18 Hike to open area on lake shore to launch boat at **1g1** on 663248.

11:18 – 11:51 Carry boat to launch; travel to first outcrop on shore at **1g2**. Photo taken of outcrop by CM.

AH went north and explored on shore of 564295.

11:51 – 12:13 Boat to shore of 564294 across lake at **1g3**. Photo taken of outcrop by CM.

12:13 – 12:20 Explore outcrops at **1g3** and **1g4**.

12:20 – 12:51 Lunch break.

12:51 – 14:03 AH and PW collect rock samples at **1g7** and **1g8**. CM and JM explore inland for exposed bedrock, find steep cliff at **1g6** in 564293.

14:03 – 14:39 Boat to next shore. Land at **1g9** on 564470. Photo taken by CM.

14:39 – 15:26 Hike back along shore to outcrop at **1g10** on 564292.

15:26 – 16:15 Traverse inland up game trail. Exposed bedrock found at **1g11**.

16:15 – 16:22 Traverse west along rock exposure to **1g12**. Lots of sulfide staining. Photo by CM.

16:22 – 16:29 Traverse to **1g13**. Note extensive of deformation.

16:29 – 16:45 Traverse downhill to shore. Large cliff at **1g14**.

16:45 – 17:14 Hike back to boat landing at **1g9**.

17:14 – 17:19 Boat west towards next shore. Weeds impassible at 663216 and 564291.

17:19 – 17:26 Boat to original launch point at **1g1**.

17:26 – 17:58 Carry boat at gear back to parking area. Pack up and depart.

17:58 – 18:44 CM, AH and PW arrive in Sudbury, On.



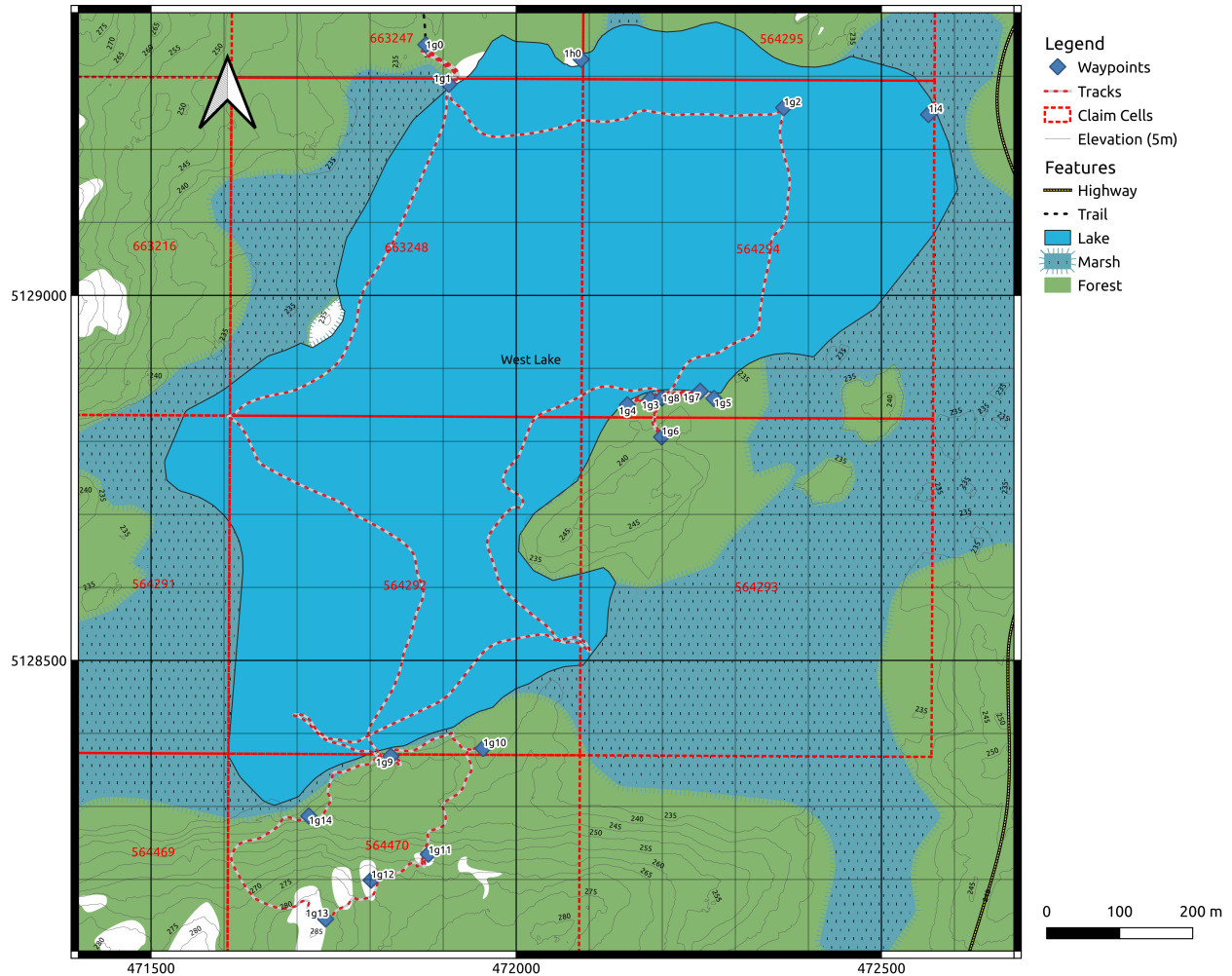


Figure 2: Map centered on area of all activities of grass roots exploration on September 26, 2021 as listed in Table 3. Bodies of water, forest cover and marsh extents compiled from interpretations of aerial photography, satellite imagery and field logs. Clear areas represent exposed bedrock.

### 7.2.2 Oct. 01, 2021

14:57 – 16:30 CM, AH, PW depart Sudbury, On and travel to West Lake claims parking spot at **1g0**.

JM joins from Panache Lake road residence.

16:30 – 16:58 Hike and carry equipment to open bedrock area on shore at **1h0**. CM made second trip to grab additional equipment.

16:58 – 18:12 UAV's flown east past inaccessible areas. Photographed exposed bedrock in forested areas.

AH first operated Skydio 2 UAV for initial recon and then CM operated DJI Phantom 3 UAV.

18:12 – 18:57 Return back to parking spot at **1g0**.

18:57 – 19:44 CM, AH and PW depart by vehicle and return to Sudbury, On.

Time	Code	Comment
11:12:19	1g0	parking spot
11:18:05	1g1	outcrop and water access for boat
11:51:17	1g2	outcrop
12:13:10	1g3	outcrop
12:20:34	1g4	outcrop
12:51:13	1g5	outcrop
13:40:53	1g6	outcrop
13:49:30	1g7	outcrop and samples
14:03:20	1g8	outcrop and samples
14:39:34	1g9	course grained meta sandstone
15:26:55	1g10	outcrop
16:15:42	1g11	outcrop
16:22:30	1g12	outcrop
16:29:35	1g13	outcrop
16:45:46	1g14	outcrop

Table 3: Waypoints added from grass roots exploration on September 26, 2021. Collected on Magellan eXplorist 310 GPS unit. Points displayed in Figure 2.

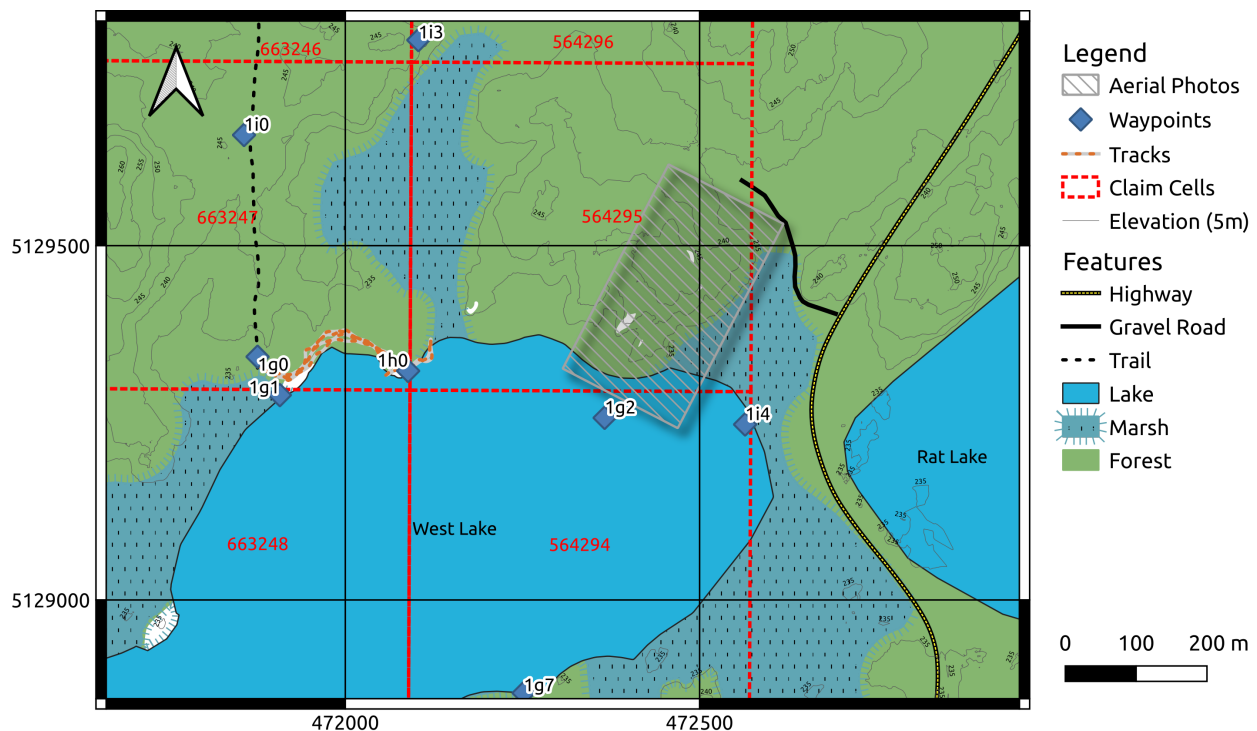


Figure 3: Map centered on area of all activities of grass roots exploration on October 01, 2021 as listed in Table 4. Bodies of water, forest cover and marsh extents compiled from interpretations of aerial photography, satellite imagery and field logs. Clear areas represent exposed bedrock. Area surveyed with UAV photography indicated in hashed quadrangle.

Time	Code	Comment
17:15:28	1h0	spot for flight

Table 4: Waypoints added from grass roots exploration on October 01, 2021. Collected on Magellan eXplorist 310 GPS unit. Points displayed in Figure 3.

### 7.2.3 Oct. 08, 2021

14:54 – 16:28 AH, CM and BH depart Sudbury, On and travel to West Lake claims parking spot at **1i0**.

JM joins from Panache Lake road residence.

16:28 – 16:58 Hike north and east into 663247 to outcrop at 663246 **1i1**. Collect hand sample.

16:58 – 17:34 Continue north and climb cliff to **1i2**. Collect hand sample.

17:34 – 18:01 Travel south east to 564295 and 564296. Find possible mafic dike. Collect hand sample.

18:01 – 18:35 Return to parking spot at **1i0** and have coffee break.

18:35 – 18:58 Drive to area off Panache Lake road just east of 564294.

18:58 – 19:03 Hike east along quad trail into 564294 and look for old claim post and exposed bedrock at **1i4**.

19:03 – 19:10 Hike back to vehicle.

19:10 – 19:40 AH, BH and CM drive back to Sudbury, On.

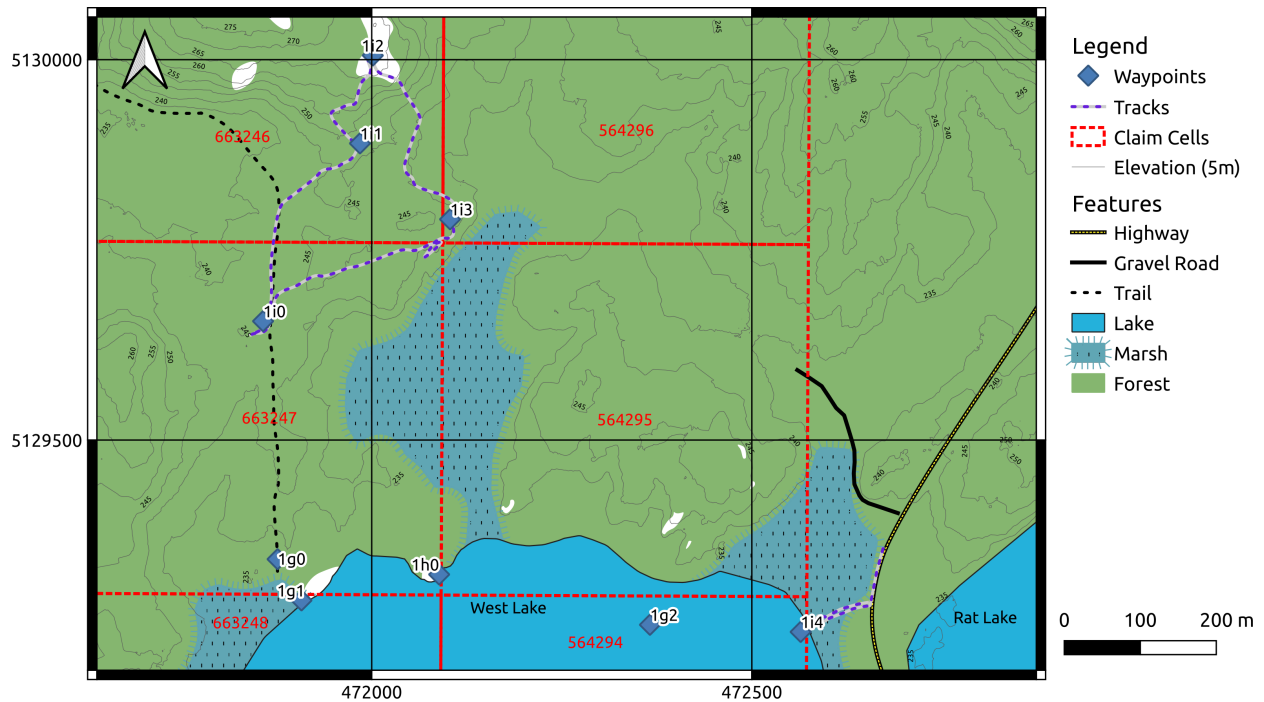


Figure 4: Map centered on area of all activities of grass roots exploration on October 08, 2021 as listed in Table 5. Bodies of water, forest cover and marsh extents compiled from interpretations of aerial photography, satellite imagery and field logs. Clear areas represent exposed bedrock.

Time	Code	Comment
16:28:52	1i0	parking spot
16:58:02	1i1	outcrop and sample
17:34:43	1i2	outcrop and sample
18:01:23	1i3	outcrop and sample
19:03:33	1i4	possible old claim post

Table 5: Waypoints added from grass roots exploration on October 08, 2021. Collected on Magellan eXplorer 310 GPS unit. Points displayed in Figure 4.

## 8 Rock samples collected

Hand samples were collected from unweathered faces of outcrops by removing them with a rock hammer. These were sealed in labelled polyethylene bags. Care was taken not to contaminate the samples with precious metals from jewellery.

ID	X	Y	Date	Time	Code	Comment
1	472252	5128869	2021-09-26	13:49:30	1g7	brecciated zone with massive quartz
2	472252	5128869	2021-09-26	13:55:55	1g7	brecciated zone with massive quartz
3	472200	5128859	2021-09-26	14:03:20	1g8	brecciated zone with massive quartz
4	472200	5128859	2021-09-26	14:13:22	1g8	brecciated zone with massive quartz
5	471985	5129890	2021-10-08	16:58:02	li1	arkosic quartzite
6	472002	5130006	2021-10-08	17:34:43	li2	arsenopyritic volcanic rock along major fault
7	472103	5129790	2021-10-08	18:01:23	li3	fine grained blue-black rock possible dyke

Table 6: Rock samples collected as part of grass roots prospecting of the West Lake claims. Codes are those listed in Tables 3-5.

## 9 Description of UAV Photography

Land access to the eastern most claims is hindered by a combination of SRO boundaries and extensive marsh surrounding West Lake and its tributaries. Therefore, it was decided to use UAVs to take high resolution photography outcrops evident on satellite imagery. A DJI Phantom 3 UAV was used to take 1080p still photos at a nominal height of 40 m.

Exposure of the thickly forested areas in cell 564295 estimated to be 2%. Of this two outcrops are remarkable. The first appears to show exposed quartzite cross cut with quartz stringers and a quartz infilled gash (see Figure 5). Deformation axis appears to be perpendicular to the Kusk Lake fault. This outcrop appears to share similar characteristics to outcrops explored on the south shore of West Lake.

The second outcrop photo appears to show quartzite or greywacke bedrock with rafts of country rock within it (see Figure 6). The surface appears to be brecciated, although leaf litter and lichens somewhat obscure the interpret-ability of this. Also of note, are heavy purple and brown staining on some of the loose cobbles which may be sulphide stains.

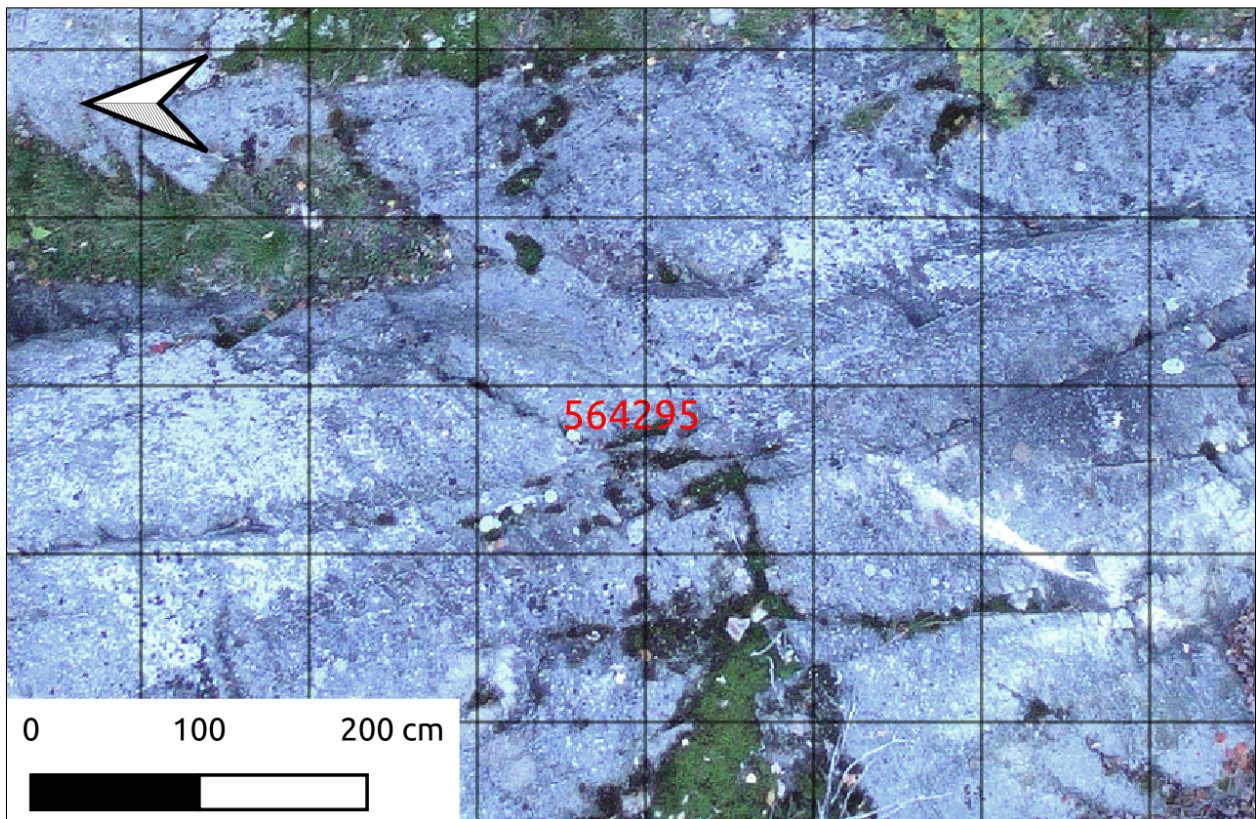


Figure 5: Aerial photo of exposed bedrock. Center of photo located approximately at UTM point 472489.48 mE and 5129489.81 mN. Grid lines spaced at 1.0 m.

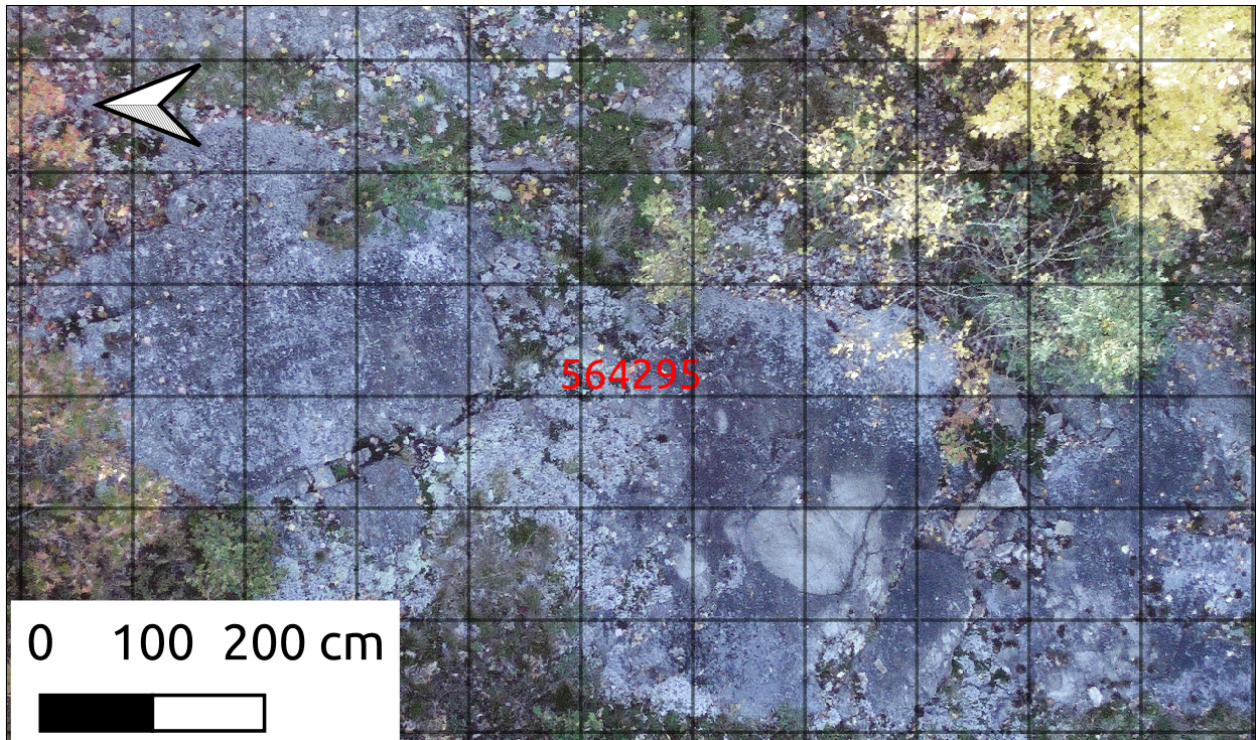
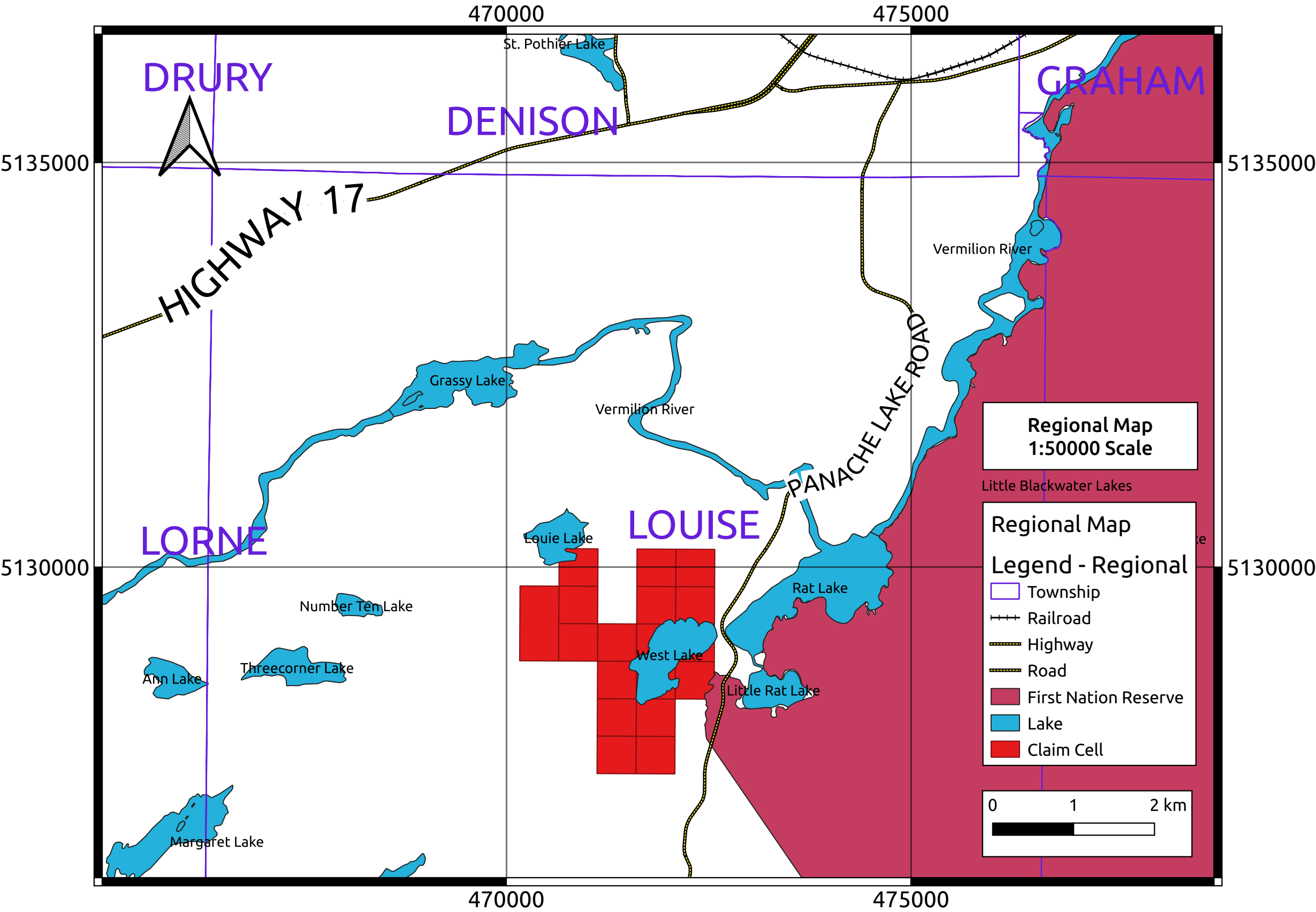
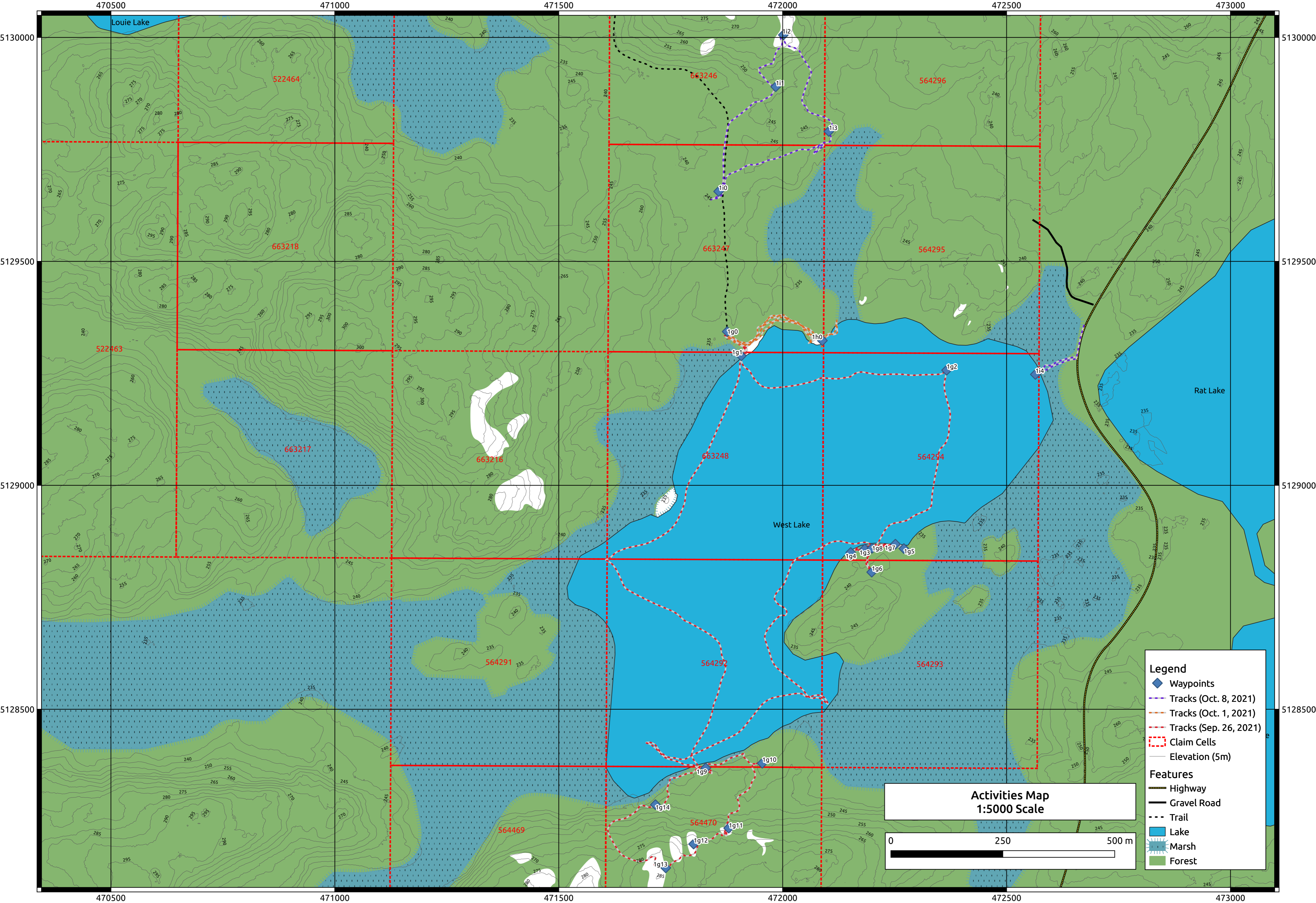


Figure 6: Aerial photo of exposed bedrock. Grid lines spaced at 1.0 m. Center of photo located approximately at UTM point 472502.71 mE and 5129441.68 mN.

## References

- Corfu, F., and A. Andrews, 1986, Au–pb age for mineralized nipissing diabase, gowganda, ontario: *Canadian Journal of Earth Sciences*, **23**, 107–109.
- Jobin-Bevans, L., 2016, Geochemical data related to a study of platinum group element mineralization in nipissing gabbro intrusions and the river valley intrusion, sudbury region, southern province: Ontario Geological Survey, Miscellaneous Release—Data, **336**.
- Lightfoot, P., D. Conrod, A. Naldrett, and N. Evensen, 1986, Petrologic, chemical, isotopic, and economic potential studies of the nipissing diabase: Ontario Geological Survey Miscellaneous Paper, **130**, 87–106.
- Lightfoot, P., and A. Naldrett, 1996, Petrology and geochemistry of the nipissing gabbro: Exploration strategies for ni, cu and pge in a large igneous province: Ontario Geological Survey Study 58, 80.





470500

471000

471500

472000

472500

473000

5130000

5130000

5129500

5129500

5129000

5129000

5128500

5128500

470500

471000

471500

472000

472500

473000

**Legend**

- Waypoints
- Tracks (Oct. 8, 2021)
- Tracks (Oct. 1, 2021)
- Tracks (Sep. 26, 2021)
- Claim Cells
- Elevation (5m)

**Features**

- Highway
- Gravel Road
- Trail
- Lake
- Marsh
- Forest

**Activities Map  
1:5000 Scale**

0 250 500 m

522464

663218

663246

564296

522463

663217

663247

564295

663216

663248

564294

564291

564292

564293

564469

564470

Louie Lake

West Lake

Rat Lake

110

111

112

113

1g0

1g1

1h0

1g2

114

1g4

1g3

1g8

1g7

1g5

1g6

1g9

1g10

1g14

1g12

1g11

1g13