Ontario

We are committed to providing accessible customer service.
If you need accessible formats or communications supports, please contact us.

Nous tenons à améliorer l’accessibilité des services à la clientèle.
Si vous avez besoin de formats accessibles ou d’aide à la communication, veuillez nous contacter.

AGNICO EAGLE

2021 Assessment Report

On The

Melema Lake and Sapawe North Properties

LIDAR and ORTHOPHOTOS

Sapawe, Ontario
Thunder-Bay South Mining Division
NTS 052B14/052G03

Simon Bernier,
Agnico Eagle Mines Ltd.
February 2nd, 2022

Contents

List of Figures

Appendix I

Technical Report on the LIDAR and Imagery survey

Appendix II

Survey Maps

Appendix III

Mineral Tenures Map

Appendix IV

Statement of Expenditures

Introduction

The Melema Lake and Sapawe North Properties are located in the Thunder Bay Mining Division, in Trottier and Hutchinson Townships, approximately 35 km ENE of the town of Atikokan (NTS 052B14 and 052G03), in western Ontario (See Figure 1). The Melema Lake property is 100% owned by Traxxin Resources inc. and was optioned by AEM in March 2020. The Sapawe North property is 100% owned by Agnico Eagle Mines Ltd. and was acquired in June 2020.

This report summarizes the LIDAR and Orthophoto Survey that was conducted over the Sapawe North and Melema Lake properties.

Figure 1 : Location map of Melema Lake and Sapawe North properties in Ontario, Canada

Property Description, Location and Access

The Melema Lake and Sapawe North Projects are located in the Thunder-Bay Mining Division in Hutchinson, Ramsay wright and Trottier Townships approximately 35 km ENE of the town of Atikokan in western Ontario (Figure 2). Large part of properties are within Bellemore and Jefferson Lake areas. A larger map located in Appendix III shows mineral tenures of both properties.

Melema Lake and Sapawe North properties cover approximately 7951 hectares, consisting of 374 contiguous claims and 3 boundary claims located along NE trending lineaments and structural features. Melema Lake Property is currently 100% owned by Traxxin Resources inc. from Stratford, Ontario. Agnico-Eagles Mines Ltd. signed an option agreement with Traxxin Resources over a 4-year period in order to acquire 100% of Melema Lake property. Sapawe North property is owned at 100% by Agnico Eagle Mines Ltd. and was acquired in June 2020.

Properties can be accessed by the Sapawe-Upsala all-weather Road (Highway 623) which can be taken from Highway 11 at Niobe Lake community, 20 kilometers East of Atikokan, On. Other secondary dirt roads and trails or a boat can be used to further access the projects.

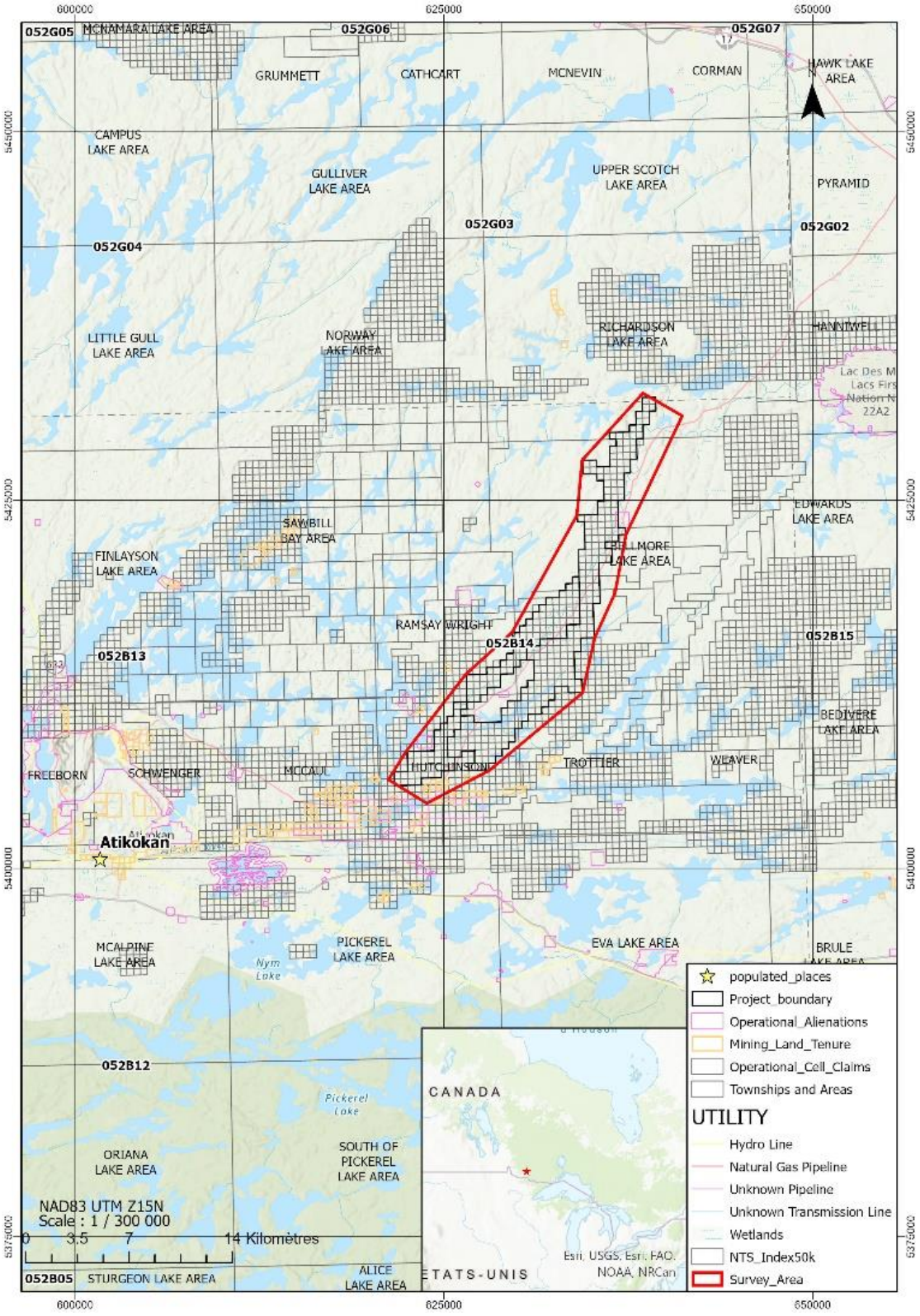


Figure 2 Property Location map and mineral tenures – Atikokan Area

Property History

Melema Lake and Sapawe North Properties have seen historical exploration work mostly on their southern portions. The area has been explored since the late 19th century. Northern portions of the projects saw very limited exploration work in the past apart from recent work that Traxxin Resources and AEM has conducted.

- **1903:** Little Rock Consolidated Mining and Development Company Lt. sinks shaft at Minto Gold Deposit.
- **1905:** Reading Mining Company Steepened shaft to 60 ft and installed stamp mill, boiler, compressor, bunkhouse, blacksmith shop, shaft house and office building.
- **1930:** Property is staked by J. R. Lumby but no significant work was done at this time.
- **1962:** D.R. Young and E. Corrigan conducted a 2 DDH campaign on the Young-Corrigan deformation zone totalizing 633 ft of core. No assays are to be found.
- **1980:** Minto Shaft was filled with dump material
- **1981:** Fern. Elizabeth Gold Mining Company proceeds with trenching and stripping of the Moose Horn discretionary occurrence.
- **1982:** Stripping and trenching was performed by M. Wicheruk around Minto Deposit.
- **1999:** OGS performs a regional till sampling campaign covering all the actual Melema Lake property.
- **2009:** OGS performs a large-scale regional magnetometer survey over the Marmion Lake area
- **2017-2018:** Traxxin Resources inc. acquires the project and performs prospection which led to the discovery of the Moffatt gold occurrence. Hand stripping was undertaken on an exposed ridge of the occurrence.
- **2020:** Traxxin Resources inc. options Melema Lake property to Agnico-Eagle Mines Ltd. over a 4-year period. Heli ported Magnetometer Survey was done over the whole property during the month of August. A small program of prospecting and channel sampling was also carried during fall season.
- **2021:** Agnico-Eagle Mines Limited performs line cutting and an Induced Polarization survey over the Main showing area during springtime.

Regional Geology

The Atikokan Area is underlain by Early Precambrian rocks of the Superior Structural Province more precisely in the Wabigoon Sub Province. The preeminent east-west Quetico Fault marks the boundary between the Wabigoon and the Quetico Sub Provinces, respectively located North and South of that major fault.

The Quetico Sub Province is mainly composed of metasediments (argilites, wackes, Cb rich Sediments) locally intruded by ultramafic and granitic plutons. The Wabigoon Sub Province is composed of narrow metavolcanics belts (Quetico, Finlayson and Lumby) and three mains granitic intrusives which are the Dashwa Lake Pluton, the Marmion Lake Batholith and the White Otter Batholith.

The Quetico dextral fault is the main regional structure with an extent of over 300 kilometres. Secondary structures are splaying of the Quetico fault in variable directions but ENE to NE is the preferential trend of those secondary structures. Gold deposits such as the sunbeam mine, the Minto and Hammond Reef

are generally located along these NE trending structures. We often see mafic intrusions such as gabbros and diabase along and within secondary shear zones of the Wabigoon Sub Province. The Marmion deformation zone is the most preeminent splay of the Quetico fault in the area which is located approximately 25 Km West of Melema Lake project and on the western margin of the Marmion batholith.

Property Geology

Melema Lake and Sapawe North properties are located North of the Quetico fault in the Wabigoon Sub Province of the Superior. Melema Lake project is disposed along a 27Km long deformation zone cross-cutting through the Marmion Batholith in a NE-SW trend. Metavolcanics and metasedimentary rocks can be found mostly in both extremities of property as Lumby and Quetico belts are located respectively North and South of the project. Most of the lithologies encountered in the central part of the property are intrusives and part of the Marmion Batholith. Tonalite and sheared tonalite are the most commonly seen. Trondjhemite, granodiorite, quartz monzonite, quartz diorite and amphibolite are also composing the Marmion Batholith. Deformation zones being weakness planes, often host mafic intrusives such as gabbroic rocks and diabase dikes. Massive Quartz veins are often found within these deformation zones and can be the host of gold and sulfide mineralization. Sapawe North project shows a similar geology as the Melema Lake. Part of the Marmion batholith and showing evidence of North-East trending lineaments or shear zones.

Description of Work Completed

On June 9th 2021, ATLIS Geomatics completed 153 square kilometers of airborne LIDAR and orthophotography from an altitude of 1450m Above Ground Level (AGL). Conditions were good with clear skies and calm winds consistently throughout the entire project. All relevant and technical information can be found in the LIDAR and imagery report in Appendix I. This report was written by ATLIS Geomatics Inc. from Winnipeg, Mb. Sumac Geomatics from Thunder Bay, On subcontracted this last company to do the work. All work was completed for Agnico Eagle Mines Ltd. and Traxxin resources Inc. Detailed maps showing survey results are presented in Appendix II.

Conclusions and Recommendations

The LIDAR and orthophotography data have been useful for future exploration works, especially when planning of trenching and overburden cover estimation. First pass interpretation of the data shows several lineaments and other features of interest for further exploration.

It is recommended to perform a structural interpretation from the LIDAR layer. Significant lineaments can easily be observed on this high-resolution survey. Those lineaments could be related to existing shear zones that might host gold mineralization.

Abbreviation Table			
Mb	Manitoba	MNDM	Ministery of Northern Development and Mines
AEM	Agnico Eagle Mines Limited	NAD	North American Datum
AGL	Above Ground Level	NE	North-East
ft	feet	NTS	National Topographic System
inc	Incorporated	OC	Outcrop
km	Kilometer	OGS	Ontario Geological Survey
LIDAR	Laser Detection And Ranging	On	Ontario
Ltd	Limited	UTM	Universal Transverse Mercator
m	meter	Z15	Zone 15
Mag	Magnetometer		

References

Frymire, M., Schneider, A., 2018, Melema Prospect, 2017 Prospecting Season, MNDM File # 20000017090_01, 72 pp.

Frymire, M., Schneider, A., 2019, Melema Prospect, 2018 Prospecting Season, MNDM File # 20000017091_01, 59 pp.

OGS open file Report #6365, M.A.Puumala, D.A. Campbell, G.F. Paju, C.M. Daniels, S.P. Fudge, T.K. Pettigrew, M. Dorado-Troughton, Report of Activities, 2019 Resident Geologist Program, Thunder-Bay South Regional Geologist Report, Thunder Bay South District, 2020, 124 pp.

OGS open file Report #6353, M.A.Puumala, D.A. Campbell, R.D. Tuomi, S.P. Fudge, T.K. Pettigrew, S.L.K. Hinz, Report of Activities, 2018 Resident Geologist Program, Thunder-Bay South Regional Geologist Report, Thunder Bay South District, 2019, 128 pp.

Ontario department of Mines, 1962, D.R. Young, E. Corrigan, 1962 Diamond drill records, 5pp.

OGS open file Report 5539, Property Visits and Reports of the Atikokan Economic Geologist, 1979-1983, Atikokan Geological Survey, B.R. Schnieders, R.J. Dutka, 1985, 540 pp.

2021 LIDAR & Imagery. Agnico Eagle, Atikokan Project, Brooker, Mark, 11 pp.

Certificate of qualification

I, Simon Bernier, Geol. of 212, Place Rainville, Québec, Province of Québec, hereby certify as follows:

1. I graduated from Université Laval with a Bachelor of Science degree in Geology, in 2012.

2. I am a registered Professional Geoscientist with the association of Professional Geoscientists of Ontario (PGO), Registration number 3236.

3. I have practiced my profession since 2012.

4. I was involved in the preparation of this report.

5. This report is an accurate account of the 2021 LIDAR and Imagery Survey contracted by Agnico Eagle Mines Ltd. on the Melema Lake and Sapawe North properties in Ontario.

6. I have direct knowledge and have confirmed the expenditures made relating to the activities described in this report as outlined in the Statement of Expenditures.

Simon Bernier

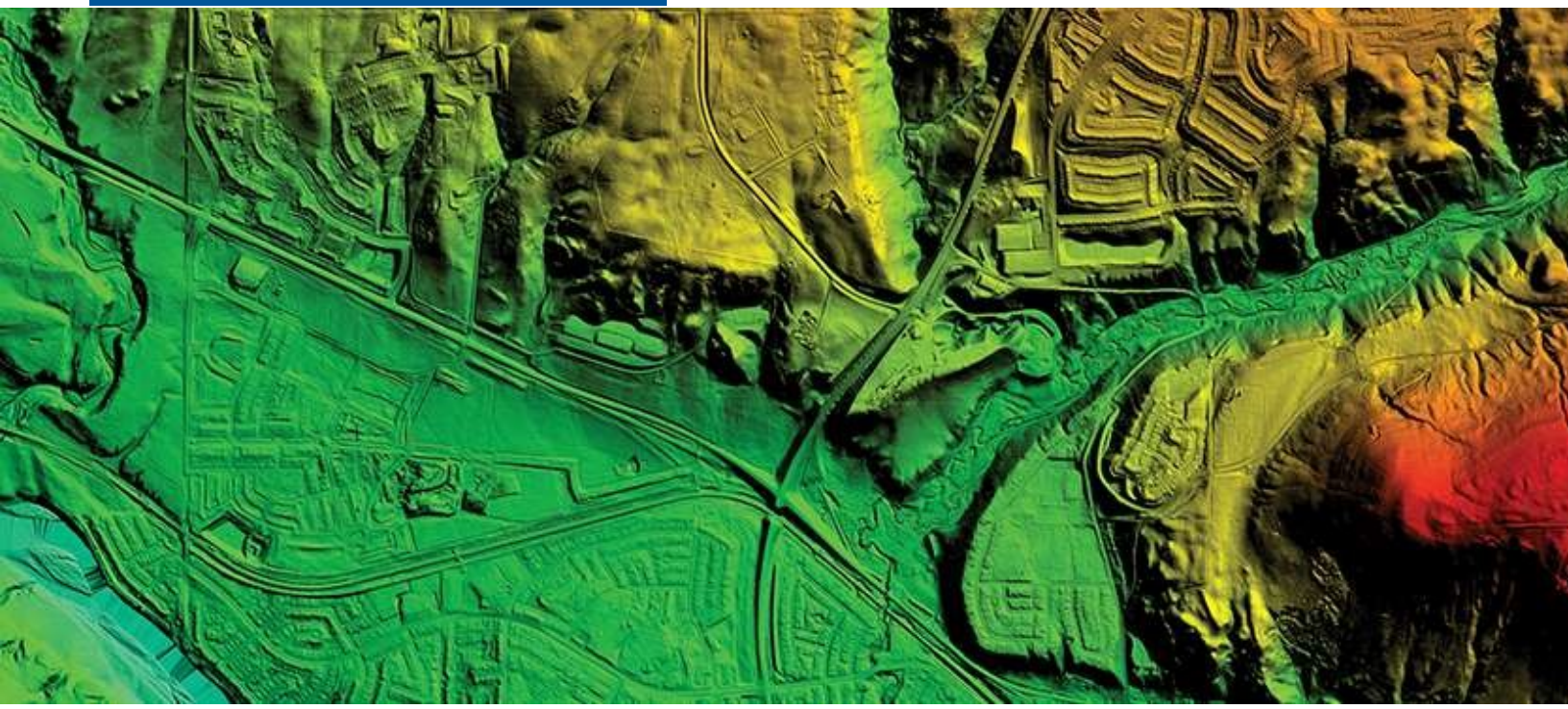
Signature de Simon
Date : 202
14:44:11 -(

25 YEARS OF EXCELLENCE

ATLIS

LIDAR + IMAGERY + GEOMATICS

PROJECT REPORT



2021 LIDAR & IMAGERY

AgnicoEagle, Atikokan Project

Submitted To:

SUMAC
1194 Dawson Rd
Thunder Bay, ON
P7G 1H7

Attn: Todd Domney

Submitted By:

Mark Brooker,
President

Phone: 855-288-4823
Email: mbrooker@atlisgo.com

Corporate
ATLIS Geomatics Inc.
13-875 Gateway Road
Winnipeg, MB R2K 3L1

Alberta Branch
ATLIS Geomatics Inc.
208 – 3016 19th St NE
Calgary, AB T2E 0Y9

Contents

1.0 PROJECT SUMMARY

Atlis Geomatics completed an aerial survey for SUMAC of the Melena project site using Light Detection and Ranging (Lidar) technology and aerial imagery. The collected point data and generated surface models were provided to Sumac for further analysis. All the data collected was processed in house by employees of ATLIS Geomatics in Winnipeg, MB and Calgary, AB.

1.1 PROJECT AREA

The project had an overall area of 153km^2. It is situated North East of Atikokan, Ontario.

Appendix A shows the proposed Area of Interest (AOI) for the project that was used by the aerial survey.

1.2 COORDINATE SYSTEM

Table 1 shows the coordinate system that was used for all survey activities on this project and for which all results are reported unless otherwise stated.

Reference System	NAD83 CSRS
Epoch	2010.0
Coordinate System	UTM Z15N
Geoid	CGVD2013
Units	Metric (m)

Table 1: Project Coordinate System

2.0 ACQUISTION

2.1 FLIGHT PLAN

This project was planned at an altitude of 1450m Above Ground Level (AGL). Conditions were good on June 9, 2021 with clear skies and calm winds consistently throughout the entire project. Appendix A shows the project area.

2.2 FLIGHT PARAMETERS

The project flight plan was based on the project specifications and site characteristics. Considerations taken into account when planning the aerial survey included: required project accuracies, level of development, amount and types of vegetation, project schedule and flight regulations.

2.3 AERIAL SURVEY MISSION

The aerial survey for the SUMAC - Melena project was conducted on June 9, 2021. Conditions were good for the flight with calm and clear skies.

No issues were reported during the flight

2.4 GNSS-IMU POSITIONING

The data was combined with static GNSS data that was collected on the ground during the aerial survey. This process greatly improves the accuracy of the on board GNSS flight data. The GNSS data is then combined with data collected by an Inertial Reference System (IMU). Once the GNSS and IMU data is processed together the final trajectory data can be output and applied to the laser data.

Table 2 summarizes the GNSS statistics observed during the aerial survey. Detailed graphs of the PDOP values experienced during the aerial survey are shown in *Appendix B* , Graphs of the number of satellites tracked during the aerial survey are shown in *Appendix C* . The graphs demonstrate that the trajectory of the aerial survey was successfully processed.

Maximum PDOP	1.3
Minimum Number of SVs	15
Correction Data Frequency	1Hz

Table 2: GNSS Flight Statistics

3.0 QUALITY CONTROL

3.1 SENSOR CALIBRATION

ATLIS performs a calibration of the LiDAR and imaging sensors at the beginning of each production season.

3.2 POST-FLIGHT

The flight was reviewed by the operations manager and the data files were checked for coverage of the project area during file conversion. No issues were found with the flight or data coverage. Review of the trajectory data found that a proper orbit was executed over the base station as planned.

3.3 FLIGHT DATA PROCESSING

Flight lines were inspected against the flight plans and for any IMU gaps, no significant deviation or gaps were found in the final flight line datasets. Reviews of the line-to-line overlap were acceptable and no range gate errors were found.

3.4 LIDAR CALIBRATION

To help ensure the relative accuracy of this project, flight lines were kept short to minimize IMU drift and there was an extensive amount of survey check shots to compare against the LiDAR data. Analysing and making adjustments to the line to line correlation, the overlap between flight lines were used. No significant misalignment was found.

3.5 GROUND CONTROL VALIDATION

30 non-vegetation survey points collected during the ground control survey were compared against the adjusted DEM produced from the LiDAR data. Elevations were interpolated from the DEM at the horizontal locations of the control points and compared to the elevations of the control points. The results of this comparison are summarized in *Table* 7 and the full table of ground control check residuals are presented in *Appendix E*.

Average Vertical Error	-0.011m
Minimum Error	-0.066m
Maximum Error	0.052m
RMSE	0.031m

Table 7: Ground Control Check Summary

3.6 LIDAR CLASSIFICATION

The first step in the classification process was to build and execute a macro to remove the data with a FOV greater than the project requirements. This process only reduced the overlap of the already calibrated dataset. The integrity of the survey was not altered. A second macro was then used to automatically classify the ground points in the model. The results of the macro were then manually checked throughout the project to ensure a classification accuracy of 95% was met or exceeded.

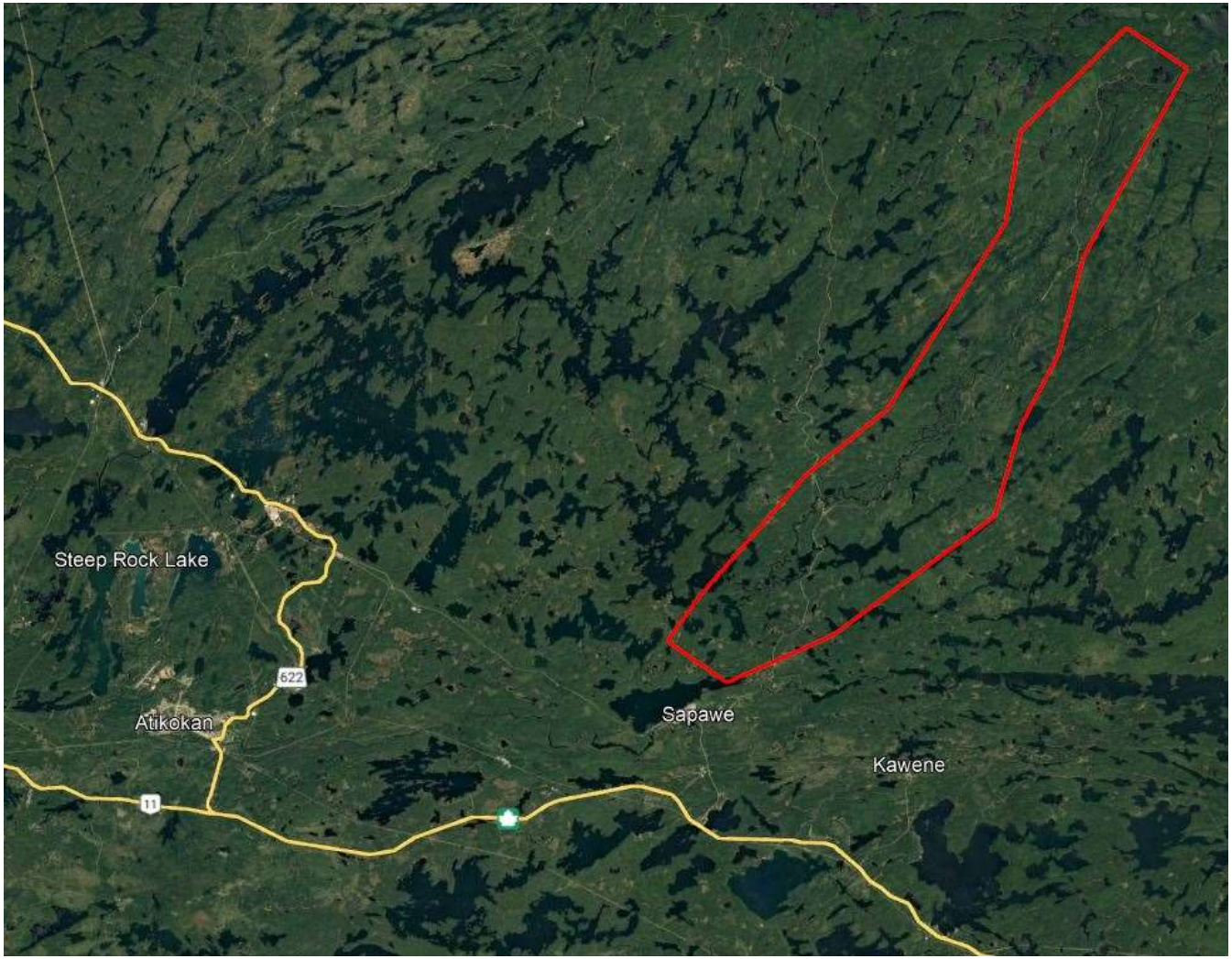
3.7 FINAL QUALITY CONTROL

ATLIS inspected the data to ensure that it loads to the correct geographic extent, thus verifying the projection definitions. The gridded data was overlaid on the tile index to verify area coverage and ensure that no files were corrupted. Classification of the LAS dataset was verified and that there were no corrupt or empty files. *Table 8* shows the classification for the project.

2_Ground	
3_Low_Vegetation	
4_Med_Vegetation	
5_Hight Vegetation	

Table 8: Classification

APPENDIX A – PROJECT AREA



APPENDIX B- PDOP GRAPHS

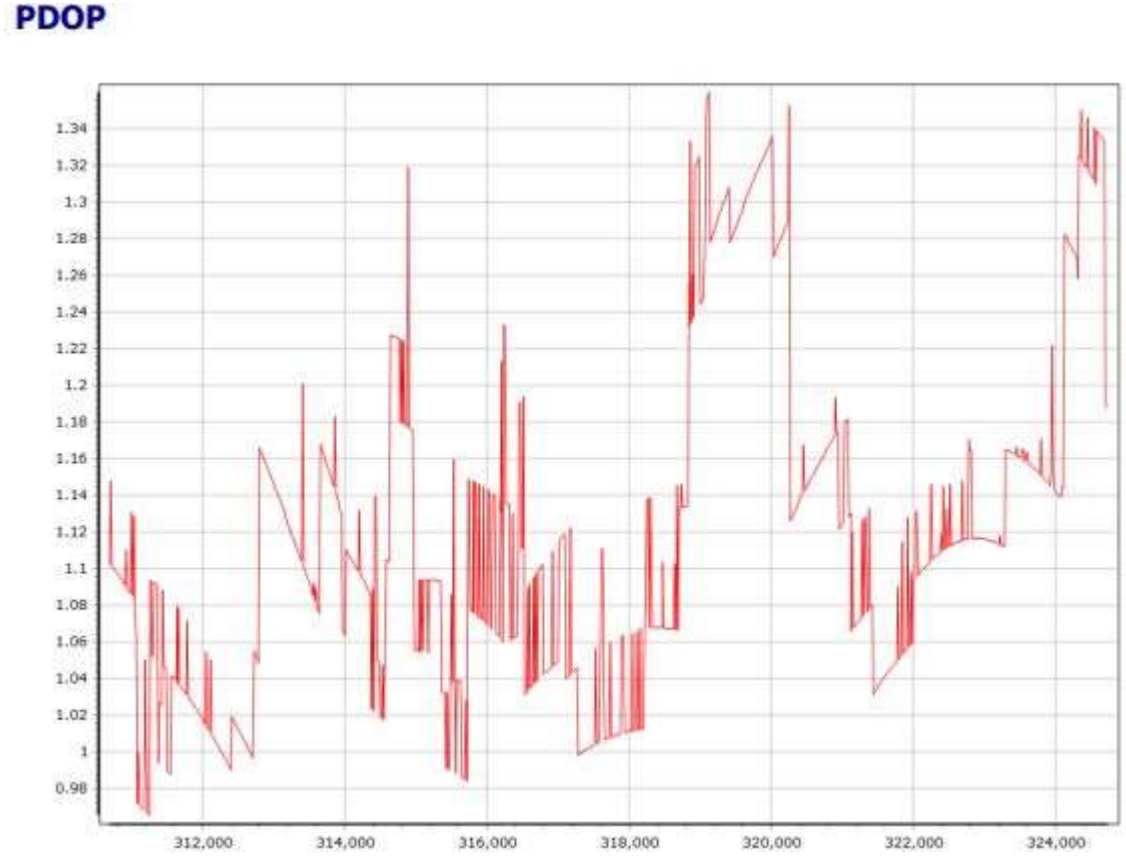


Figure 1: PDOP Graph June 9, 2021

APPENDIX C– SV GRAPHS

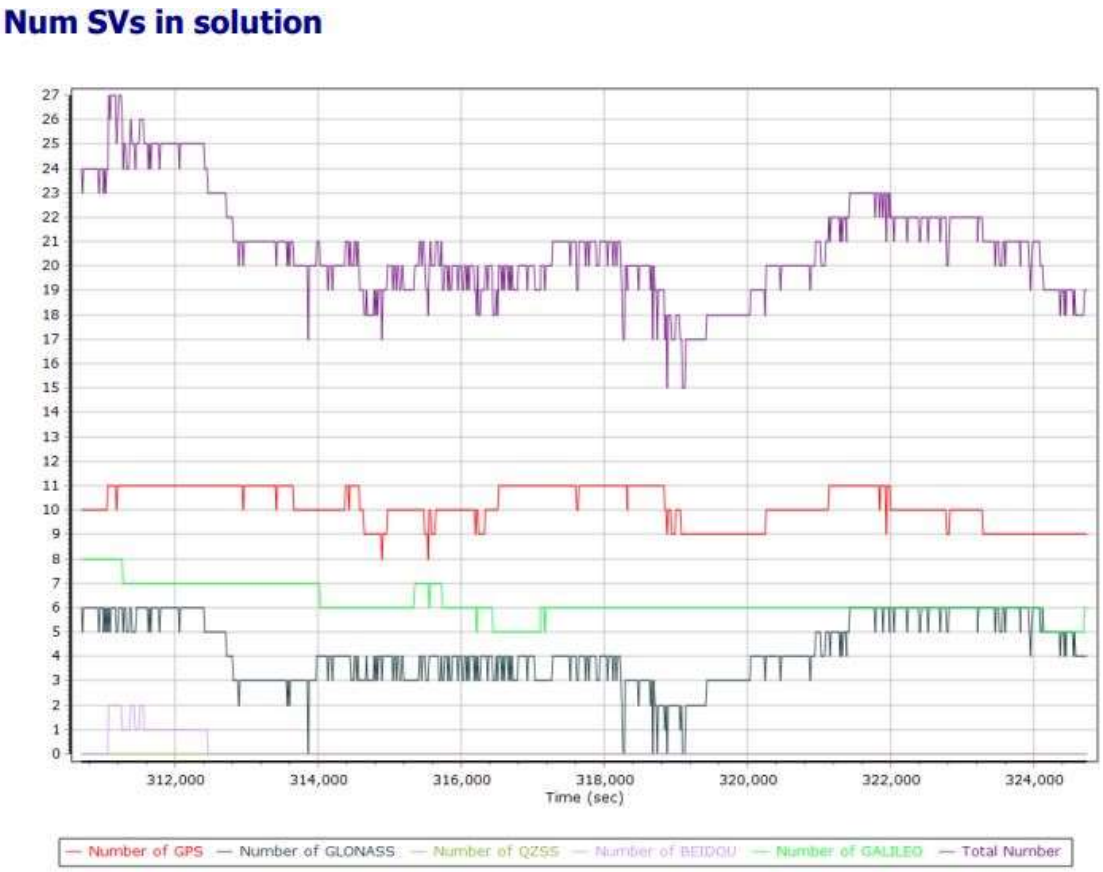


Figure 1: Number of SV Graph June 9, 2021

APPENDIX E– GROUND CONTROL CHECK RESIDUALS

ID	EASTING	NORTHING	ELEV	dz
0	635300.130	5420476.924	432.373	-0.004
1	635301.803	5420474.987	432.164	-0.021
2	635302.494	5420473.720	431.992	-0.023
3	635297.263	5420477.918	432.301	-0.019
4	635398.213	5420526.199	433.695	0.000
5	635511.642	5420586.834	433.900	-0.022
6	635611.557	5420664.314	433.461	0.052
7	635647.894	5420713.653	432.693	0.025
8	635674.715	5420758.517	433.051	0.029
9	635672.759	5420759.719	432.991	-0.006
10	635671.084	5420760.008	432.874	0.010
12	635772.402	5420924.686	435.507	-0.024
13	635795.534	5420964.028	435.374	-0.034
14	635846.848	5421048.305	434.233	-0.040
15	635844.772	5421049.663	434.452	-0.021
16	635842.873	5421050.887	434.497	0.012
17	635840.486	5421052.404	434.371	-0.006
18	636101.853	5421516.147	432.211	-0.066
19	636076.718	5421469.540	432.054	-0.047
20	636040.106	5421399.983	432.494	-0.015
21	636137.510	5421582.531	431.965	-0.010
23	636164.733	5421631.904	432.129	0.048

24	636163.064	5421632.686	432.150	0.020
25	636160.270	5421632.815	431.932	-0.050
26	636097.990	5421524.433	432.125	-0.009
27	635193.913	5420335.951	430.049	0.004
28	635162.622	5420298.626	429.341	-0.058
29	635290.071	5420477.976	432.009	-0.045

Sapawe North

Melema Lake

NORWAY LAKE AREA

RICHARDSON LAKE AREA

BELLMORE LAKE AREA

SAWBILL BAY AREA

RAMSAY WRIGHT

HUTCHINSON

MCCAUL

TROTTIER

WEAVER

Scale : 1 / 30 000

0 1.5 3 6 Kilometers

NAD83 UTM Z15N

Province of Ontario, Esri Canada, Esri, HERE, Garmin, SafeGraph, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, NRCan, Parks Canada, Esri, N

Legend

- Claim Cells
- Projects boundaries
- Operational Alienations
- Mining Land Tenure
- Townships and Areas

Utility

- Natural Gas Pipeline