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Michael Nemcsok

Alpine Silver Mine Project

2021 Ground Magnetometer Survey and Mapping Report- - Van Hise Township Gowganda Ontario

Prepared By: Michael Nemcsok
12 Dec 2021

Prepared for: Michael Nemcsok
4040 Rogers Rd. Site 3 Box 0
Tarzwell ON P0K 1V0
*(holder of Tenure ID's 185063,185064,204577, 300491
Legacy claim 4202023)*

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Summary

This report describes a ground magnetometer and field mapping program completed near the northern boundary of the Alpine Silver Mine property in southwestern Van Hise Township. The work took place between 6 and 15 November 2021 with 2 days spent in the field.

The objective of this work was to explore for more aplite veins with silver, or other valuable mineralization north of the historical production area (main shaft and open cuts) of the Alpine silver mine. A 2016 hand trenching project on the property encountered deep overburden and proposed the use of geophysics to pinpoint future targets. This project follows that suggestion with the use of a magnetometer survey. The scope of this program was to explore the north end of the claim where forestry operations had logged a large area of the property and built a new access road.

Work was completed by me, and for me, Michael Nemcsok.

A grid was marked out to cover the survey area on Tenure ID 204577, and lines spaced at 25 m were walked with a Scintrex MP-2 magnetometer. Readings were taken every 12.5m along the lines. The area with the highest readings on each line was examined closely, and the found features were mapped and sampled. There was no physical work involved that required any kind of rehabilitation. The site was not disturbed in any way. All garbage was packed out of site for proper disposal.

The magnetometer registered high values on several lines that crossed a mineralized vein. The vein was Aplite with Nipissing diabase wallrock, striking 258° az and dipping 80 ° to the south. The vein included frequent calcite with black bands of fine chlorite and patches of galena, along with very fine native silver in the calcite. The footwall contact showed heavy cobalt bloom. A deep pit or shaft was found on the vein, and samples of the vein and footwall were taken for assay. The results are detailed in section “Summary of Findings”. The high magnetic readings extend beyond the exposed length of the vein, and so further geophysics may be able to trace continuity of the mineralization in the areas of deeper overburden.

In conclusion, this ground magnetometer survey helped locate and trace a mineralized aplite vein, and established that this geophysical technique can be used to locate further mineralization on the property.

It is recommended that more ground magnetometer survey work be completed to locate other mineralized veins on the property.

The coordinate system used in the field work and this report is the Universal Transverse Mercator grid (UTM) based on the 1983 North Americal Datum (NAD83). The work is located in Zone 17T.

This ground magnetometer project continues exploration for mineralization in Van Hise Township on Provincial Grid cell numbers 41PL10L195, 41PL10L196, 41PL10L215, 41PL10L216 as included in Tenure ID's 185063,185064,204577, 300491 (Legacy claim number 4202023), about 1.5km northwest of Firth Lake. This is a block of claims covers most of the former Thompson-Gowganda or Alpine Silver Mine occurrence. All of the mining claim area is on crown land.

Property Location, Access and Description

The claim block explored in this project is located northwest of Firth Lake on the west side of Silverfive Creek in the north half of the southwest quadrant of Van Hise Township. Figure 1 (below) shows the location of the claim as indicated on the Mining Lands Administration System viewer.

Access is gained by way of a drivable seasonal gravel road north from Highway 560, 12km west of Gowganda. The gravel road crosses a new culvert 300m from the east boundary of the claim block, then forks to give road access north and south along the east boundary of the claim. The north fork is drivable by 4x4 truck to within the area of work for this report. The route is marked on map shown in Appendix 12.

The claim block is a square measuring roughly 800m on each of its four sides. Vegetation on the claim is mixed deciduous (Birch) and coniferous (Spruce, Pine). Extensive logging activities have cleared parts of the claim, and ribbon markers suggest that further logging is planned. Relief is very pronounced with a large north-south ridge of diabase rising about 170ft above the eastern third of the claim which is low and swampy. Outcrop is common, and soils range from peat and soil to boulder clay. The trenching completed in the 2016 program revealed presence of clean sand with occasional boulders on the east flank of the diabase ridge. The logging road builders developed borrow pits with good quality gravel near the east side of Tenure Id 185063.

The area of work in this 2021 ground magnetometer survey and mapping program was within Tenure ID 204577, and it is overlain with shallow sandy gravel and black muck, with occasional outcrops of Nipissing diabase. The ground was partially snow-covered and the ground was mostly frozen but relatively dry. There were no powerlines, railways or cultural features that would be expected to interfere with the measurements.

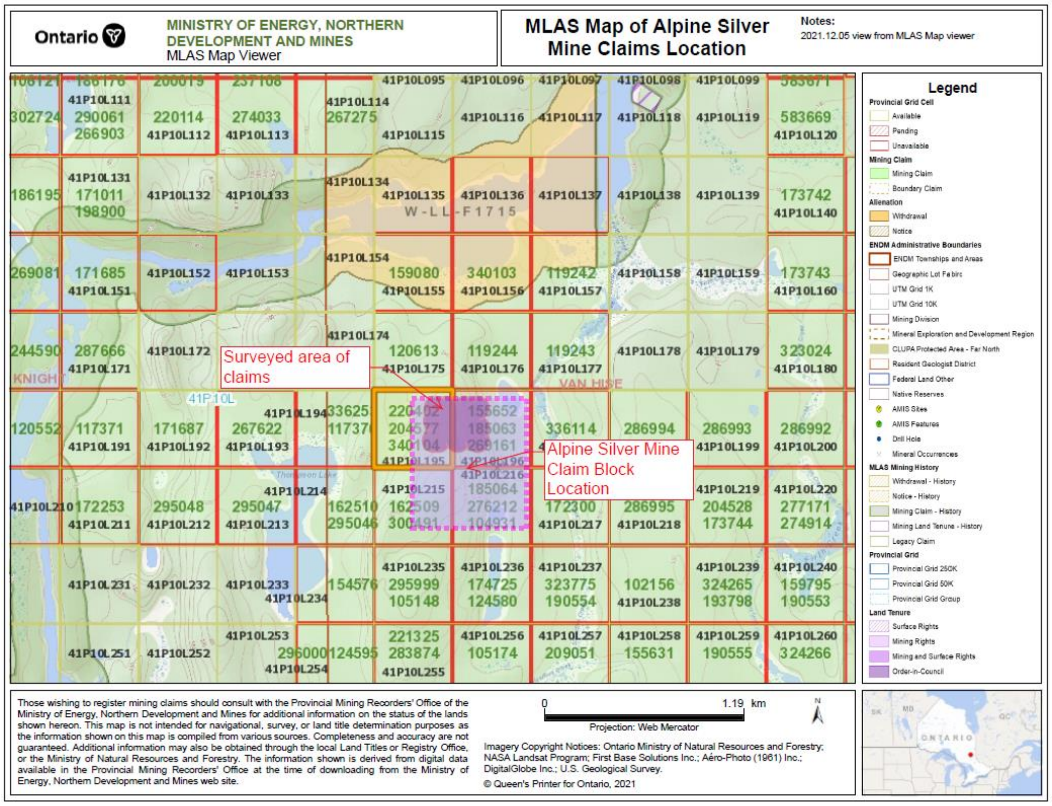

Figure 1: Claim Location Key Map

Description of Previous Work

The underlying claims were originally staked by E.J. Thompson, then acquired by Alpine Silver Mines Limited in 1920:

> "Development work for the next two years consisted of about 300m of trenching, sinking two shallow shafts, and driving an adit. The adit was driven west into a diabase ridge for 176m to intersect an aplite dike at a depth of 51m; the dike was drifted along for 24m (Burrows, 1921, P.41). The Locations of the shafts is not known, but they are reported to be 9m and 15m deep (Burrows, 1921, P.41).
>
> The Property then became dormant until 1951 when it was acquired by Holwood Mines Limited; some effort was made by this company to bring the property into production. A 50 tons per day mill was erected, and seven diamond drill holes totaling 370m were put down. There was no recorded production, and no further work was reported after 1953.
>
> Jaylac Mines Limited took an option on the property in 1960. They cleaned out old trenches and did further surface work.
> No further recorded work has been done on the property since then."

-taken from P. 57 of OGS Report 175 'Geology of the Gowganda-Miller Lake Silver Area', WH McIlwaine. 1978

Part of the claims were previously described on page 55 of ARV-35 in 1926 as follows;

> "A second aplite dike has been followed for 450 feet by means of trenches. It has a strike of N. 20° E. at the north end, and a strike of N. 60° E for the southern portion, while the dip is 80° W… …A third dike occurs at the southwest end of the second dike and has been followed for 300 feet. Just south of the intersection of the dikes, there is some high-grade ore." (Burrows, 1926)

An airborne magnetometer survey completed in 1990 provided coverage of the work area, but only 4 flight lines crossed the block of claims (Geoterrex Limited, 1990). The lines closest to the work area of this report were nearly 500 m apart (flight lines 1163 /2NE and 1164 Sw). The interpretation indicates an interesting magnetic low touching the NW corner of the claim block, but there is no anomalous data provided by the survey within the claim block. This is likely owing to the low resolution of the survey compared to the detailed scale of this work report. A scan of Map 81414 is included in Appendix 1 for reference purposes.

I, Michael Nemcsok completed an exploration project of line cutting, mapping, cleaning of trenches and sampling in 2006 and 2007. A report on that work has been submitted to the Ontario Ministry of Northern Development and Mines and is entitled "Alpine Silver Mine Project and dated 3 Nov 2007 on its cover page.

I also completed a channel sampling program on the subject claim and submitted a corresponding report entitled “2010 Channel Sampling Project” in November 2010.

More recently, I have sampled the contacts of the aplite dike and examined sawn pieces to characterize the mineralization at the contacts. In 2016 I completed some hand trenching at the north end of the historical workings to look for extensions of the dikes to the north.

In 2017 I mapped trenches south of the main Alpine silver mine workings.
It was the depth of overburden during the hand trenching in 2016 that gave me the idea to perform a geophysics survey in the northern part of the claim block.

Approach

The scope of this program was to perform a ground magnetometer survey on the north part of the claim where recent logging activity had cleared land on the claims, with the objective of exploring for mineralization north of the historical production area (main shaft and open cuts) of the Alpine silver mine.

The approach undertaken in the field was to access the recent logging areas and establish a baseline for the survey, mark out survey lines, then walk the lines taking and recording measurements with the magnetometer a GPS and a notebook.

- The north claim line was used as a baseline, and was flagged at 12.5 m intervals to demarcate survey line positions
- Lines were marked from the baseline to the nearest edge of the logging cut.
- Lines were walked from south to north, taking magnetometer readings every 12.5m along each line. GPS coordinates and the magnetometer readings were recorded in a notebook.
- The points along each line with highest readings were examined more closely after all lines were completed, and were found to align with the footwall of a mineralized aplite vein in exposed bedrock.
- The mineralized aplite vein was followed, and a small shaft was found on it.
- The vein was mapped at the shaft and samples were taken:
    - Chip samples across the width of the aplite vein.
    - A grab sample of the mineralized footwall.

The field work was completed by Michael Nemcsok in 2 days.

Upon return from the field, the samples were brought to Swastika labs for analysis and the magnetometer survey data was tabulated in excel then processed in 3d Field (Version 3.8.2.0) software to produce a contour map (see Appendix 2).

Summary of Findings

This project explored the northern part of the Alpine Silver mine property for more aplite veins with silver or other economic mineralization. The 2016 trenching program's difficulty with deep overburden led to use of magnetometer survey for this exploration. The patterns identified in the field were used to guide some localized prospecting.

Geophysics: Ground Magnetometer Survey Parameters

Total Distance Surveyed:	340 m of line was surveyed
Survey point spacing:	12.5 m along lines
Days in Field:	2 (1 day for scouting & set-up, one day for survey)
Instrument Identification	Name: Scintrex Type: Portable Proton Precession Magnetometer Model: MP-2 (No. 767010) Base Value Setting: 58,000 gamma Resolution: 1 gamma (ɣ) Total field accuracy: +/- 1 gamma (ɣ)
Overall Survey Accuracy (including operator interference, diurnal drift, and local station noise)	~ +/- 5 gammas

Figure 2: Ground Magnetometer Survey Parameters

The survey was performed using the instrument in the front holster mode. Operational technique was to traverse the grid lines crossing the trend of the targets in order to detect and locate changes in magnetic susceptibilities. The principles of the survey technique are described in the Scintrex MP-2 manual as included in Appendix 5 (Scintrex, 1982).

Quality Control Methods

The following steps were taken to maintain the quality of the survey data:

- The space weather conditons were observed to be uneventful for the period of the survey work (National Oceanic and Atmospheric Administration, 2021).

- Multiple magnetometer readings were taken on the same location at the start and end of each line and whenever a significant step in values was observed to ensure consistency of the unit's readings. Consistency was found in all cases and the average value was recorded.

- Values recorded in the field were compared against the regional airborne survey and found to be within the range of values reported on Map 81414 (Geoterrex Limited, 1990).

Survey Data Corrections and Processing Steps

All readings were tabulated in Microsoft Excel and reviewed for possible errors in readings or data entry.

- A basic statistical analysis was completed on the data set (see Appendix 4) Gamma readings were reviewed for values that were more than 2 times the standard deviation (σ) away from the mean ($\bar{x}$) of the dataset. Values in excess of this range were plotted on the contour map, but excluded from direct consideration, and instead capped at ($\bar{x} + 2\sigma$) for the purposes of interpreting the data. Values subject to capping are marked with an "X" on the table in Appendix 3.

- UTM Coordinates values were reviewed to be sure they fit within the extents of the mapped work area. This review identified one data entry error which was corrected by updating the tabulated value with the correct value from the GPS unit.

- The tabulated data was uploaded to the 3d Field (Version 3.8.2.0) software to process into a contour map. The map was reviewed and compared against the tabulated data to verify that locations and values as mapped were the same as the readings collected in the field. The resulting map is presented in Appendix 2.

- The GPS coordinates of the found mineralized aplite vein were compared with the tabulated and contour-mapped data to identify the anomaly (Mag Low) that corresponds to the field-located mineralization.

Analysis of the Geophysical Data

Magnetic readings vary from 50108 to 56534 gammas. This range of 6426 gammas indicates that the underlying rocks are of high magnetic susceptibility and magnetic contrast. The volcanic intrusive rocks of the types noted in the OGS reports (McIlwaine) would correspond to the high magnetic relief found in the measurements taken during this survey, with mineralized aplite veins and diabase contrasting the barren diabase country rock.

The anomalous zones can be interpreted geometrically as parrellel to the mineralized vein and strong joint sets observed in the diabase country rock. It is suspected that the paramagnetic anomolies of same strike as the aplite vein that was detected in the survey may represent more mineralized features beneath the overburden, and these should be examined more closely with detailed mapping and trenching as may be required. These areas are illustrated in Figure 3 below.

The high value of 52481 gammas on Line 1 may represent tramp steel from the shaft development, as this is directly down-slope from the shaft collar. The other *high* (ferromagnetic) values such as those in the west part of the survey area should be explored as well when the ground is thawed, to characterize the source of the anomaly.

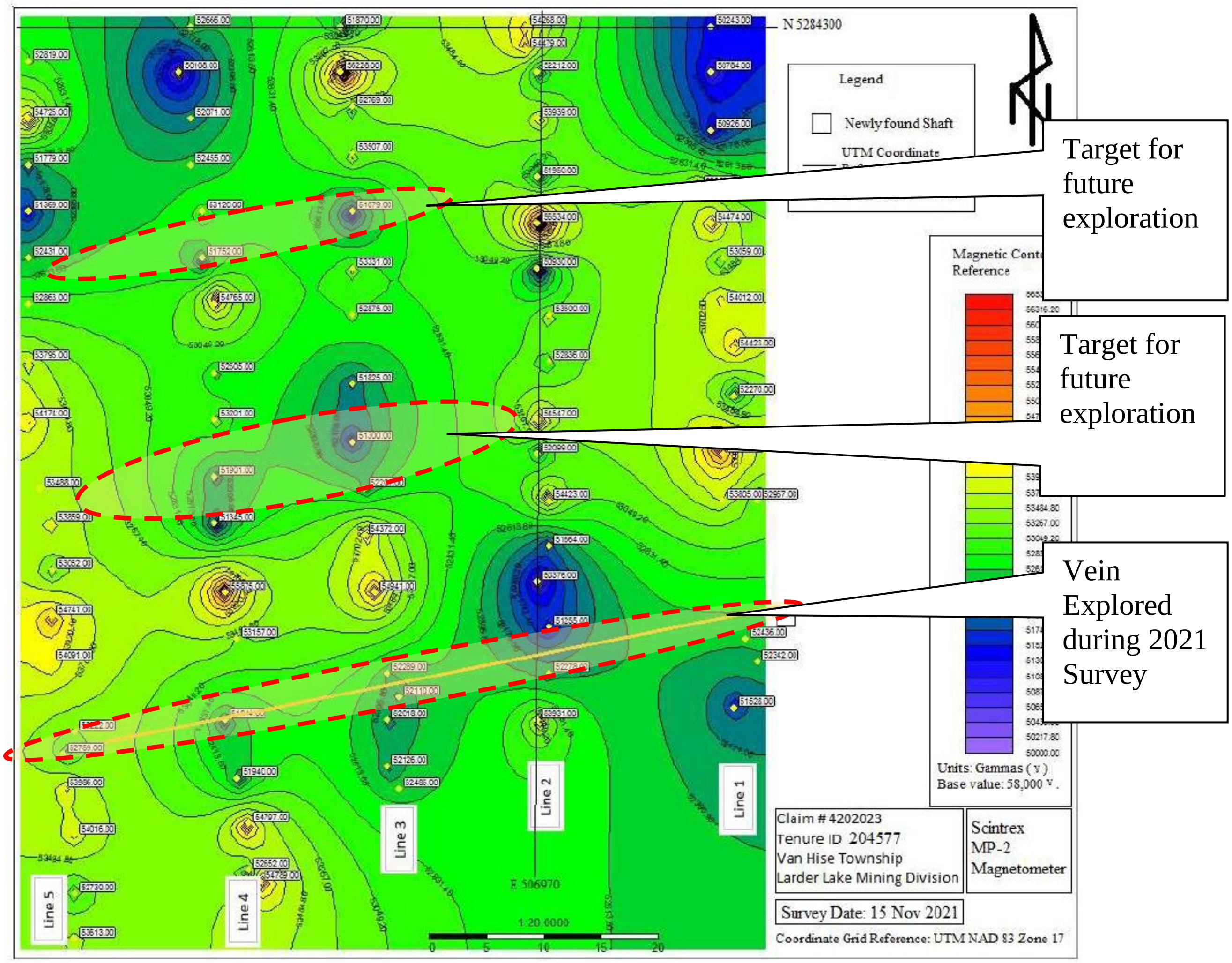

Figure 3: Ground Magnetometer Survey Contour Map Illustrating Geometric Parameters of Anomalous zones (Paramagnetic values: possible exploration targets).

No unusual background values were noted during the survey or in the data processing.

Prospecting

A mineralized aplite vein was found during the magnetometer survey of the first two survey lines. The magnetometer indicated a repeating pattern as the vein was crossed: there was a high reading on one station, then low reading, then a high reading again. The vein was located in the ‘valley’ of the pattern in the magnetometer readings, which repeated in line with the strike of the vein on every survey line in the survey area. This is illustrated above in Figure 3 and labeled as ‘Vein Explored during 2021 Survey’.

The vein was explored along strike, and a shallow shaft was found about 5 m east of survey Line 1. Logging debris was cleared from the shaft collar area to expose the vein so it could be mapped and sampled.

Mapping

Mapping of the vein and its location was completed with a Keeson 100 foot fiberglass tape, a Silva Magnetic compass (-12 degree declination) and a Garmin Etrex GPS.

Maps are included with this report to show

- Vein location, dimension and orientation
- Shaft location and dimensions
- Geology of the shaft wall at the vein as exposed
- Location of samples as taken for assay

The map can be found in Appendix 6: Aplite Vein and Shaft Mapping.

Samples Summary

Two samples were collected for assay. Descriptions of the samples are provided below in Table 1.

	Sample Description	Assay Certificate Number	Certificate Location in this Report
Sample 1	Chip sample from across width of aplite vein at shaft. Aplite includes approximately 10% calcite veins with narrow bands of very fine galena crystals along the edges. Sample was taken from an area with no visible native silver. Photo of the aplite vein is provided below in Figure 5.	21-5264	Appendix 7: Assay Certificate Sample #1 (Chip Sample Across face of Vein at Shaft Collar)
Sample 2	Grab sample of Nipissing diabase from footwall of aplite vein at shaft collar. Diabase is medium-grained with many small fractures filled with calcite. Erythrite in microcrystalline form is coated on all weatherable fracture planes. Some macrocrystalline erythrite visible under hand lens. Photo of the Nippissing Diabase with cobalt bloom is provided below in Figure 6.	21-5265	Appendix 8:Assay Certificate Sample #2 (Grab Sample of Diabase from FW of vein with cobalt bloom)

Table 1: Sample Reference Table.

Assay Results

Samples were taken to Swastika Laboratories Ltd for assay. The results of the assays are summarized below in Table 2: Assay results summary table (Silver, Copper, Lead, Zinc, Cobalt, Nickel and Arsenic). All values are presented in parts per million (ppm).

	Assay Certificate #	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Co ppm	Ni ppm	As ppm
Sample 1	21-5264	6.5	91	210	26	57.3	42	53
Sample 2	21-5265	11.8	9	24	44	1270	267	1051

Table 2: Assay results summary table (Silver, Copper, Lead, Zinc, Cobalt, Nickel and Arsenic).

Photos of Aplite Vein and Shaft

Figure 4: Photo of shaft, looking North. Note west side of shaft is broken to the N-S joint set of the diabase. A ten foot pole probed through floating woody debris could not reach bottom of shaft.

Figure 5: Photo of Aplite Vein in NW corner of shaft, Looking West. Chip Sample #2 taken across aplite vein mid-height of photo. North wall of shaft (right side of photo) has significant cobalt bloom in diabase.

Figure 6: Diabase grab samples from north wall of shaft. Cobalt bloom through approximately 2 inches of diabase on footwall side of vein.

Interpretation

The ground magnetometer survey data shows repeating anomalous values along strike with the vein and continuing to the west-southwest of the shaft. The coincidence of the recognizable paramagnetic anomalies bracketed by ferromagnetic readings on either side of the aplite vein, and then along strike with it beneath overburden is a compelling indicator that the vein continues along the 258 degree azimuth strike from the shaft. It is possible that it extends for the 75 meters that the anomaly was measured with crossing survey lines.

Similar patterns of magnetic susceptibility in the north part of the surveyed area could indicate separate mineralized structures. These are circled on Figure 3 and labeled as possible exploration targets.

The assay results confirm that the erythrite is an indication of notable cobalt mineralization along the footwall of the aplite vein. The absence of cobalt from the aplite vein itself suggests that there are separate events of mineralization. Cobalt bloom of this intensity has not been seen any where else on the block of claims, and so this could be important information in exploring for cobalt in this area: it's not part of the same deposition event thar brought the aplite veins. The presence of galena is also interesting, as this is also not typical to the other mineralized aplite veins explored on the property over the last 16 years. This warrants re-sampling of the other aplite veins to test for lead and cobalt.

This project met its objective of exploring for silver and other mineralization in the north part of the claim block. The field work and contoured data corroborate the effectiveness of the magnetometer survey for locating aplite veins beneath overburden, and the vein located appears to be worth examining more closely as a possible resource for cobalt as a mineral valuable to the growing battery industry.

Recommendations for Further Work

The interpretation of the data from the exploration work completed in this project has generated the following opportunities for further work that will add to the value of the property through a greater understanding of the mineralization:

- Drill or excavate to confirm the extension of the aplite along the full strike length that gave magnetometer responses.

- Drill or excavate to identify the two buried targets identified in the north part of the survey area.

- Sample the previously explored aplite veins and assay for Pb to research whether there were separate mineralization events that placed and/or enriched the aplite veins.

- Explore for continuation of the aplite vein to the east of the shaft.

- Explore whether the North-south striking aplite veins found farther south on the claim block might extend northwards to this newest found vein.

Each of these recommended points would be relatively low cost, and are things I could do myself for $2,000 to $10,000 or more, depending on the scale of exploration undertaken.

Statement of Qualifications: Michael Nemcsok

I, Michael Nemcsok graduated from Haileybury School of Mines in 2001 with a Diploma as a Mining Engineering Technician. In that course of studies I was educated in geology, mineralogy, sampling, field mapping techniques and mining exploration.

I have worked as a Mining Engineering Technician and Mining Engineer at mines and exploration sites across Canada, in Europe, Africa, Asia, Central America and South America. I have been an active prospector in Ontario, British Columbia and Northwest Territories since 1999.

I have a degree from Queen's University in Mining Engineering, which included studies in mineral exploration, data analysis, resource modelling and estimation and development. I apply the principles of this education in my prospecting work.

I have formal education and previous experience in all the types of work involved in this project, and consider myself to be duly qualified to conduct such work as has been done here on Claim #4202023 (Tenure ID 204577) in the year 2021, as outlined in this report.

10 Dec 2021

Michael Nemcsok

Appendix Index (Including Maps)

References

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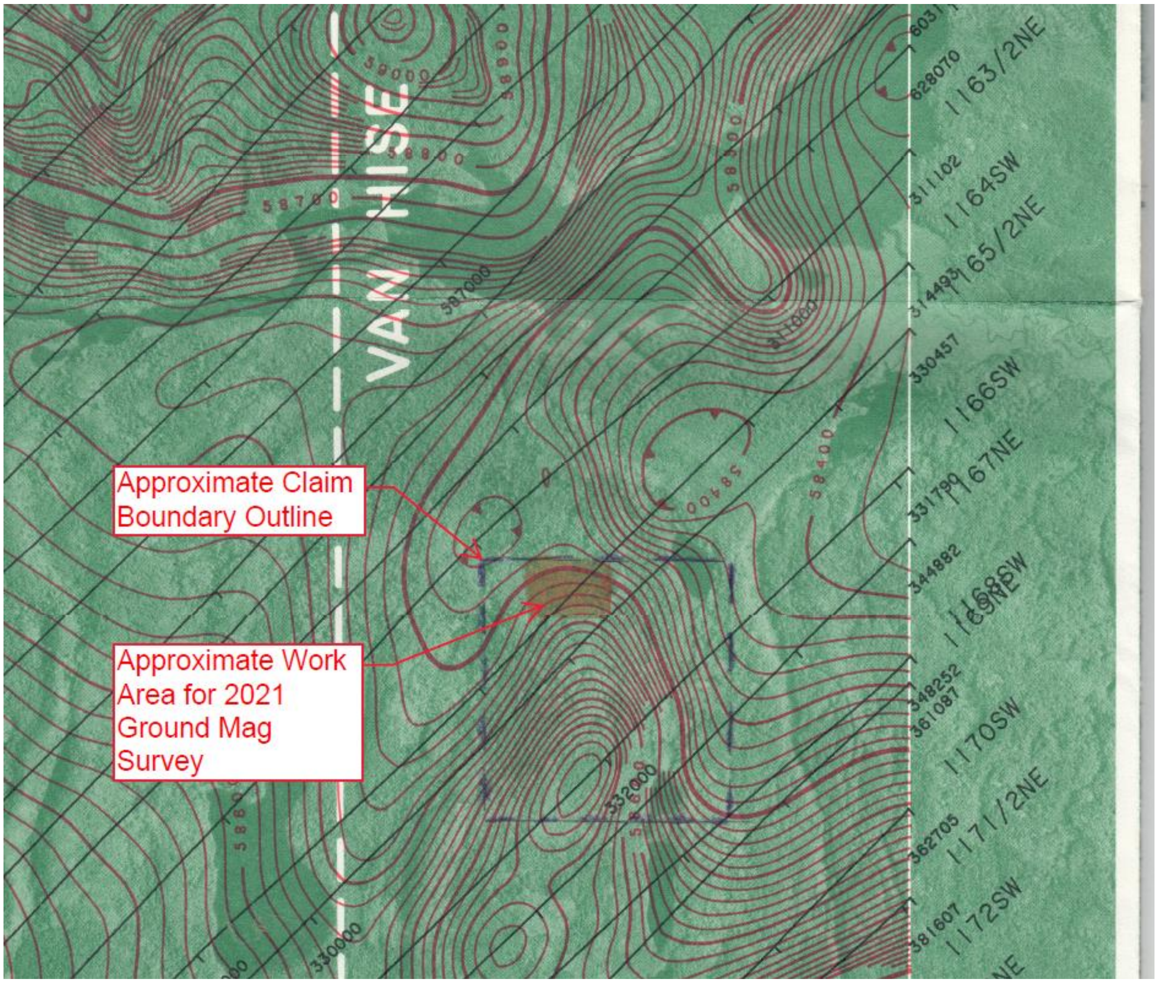
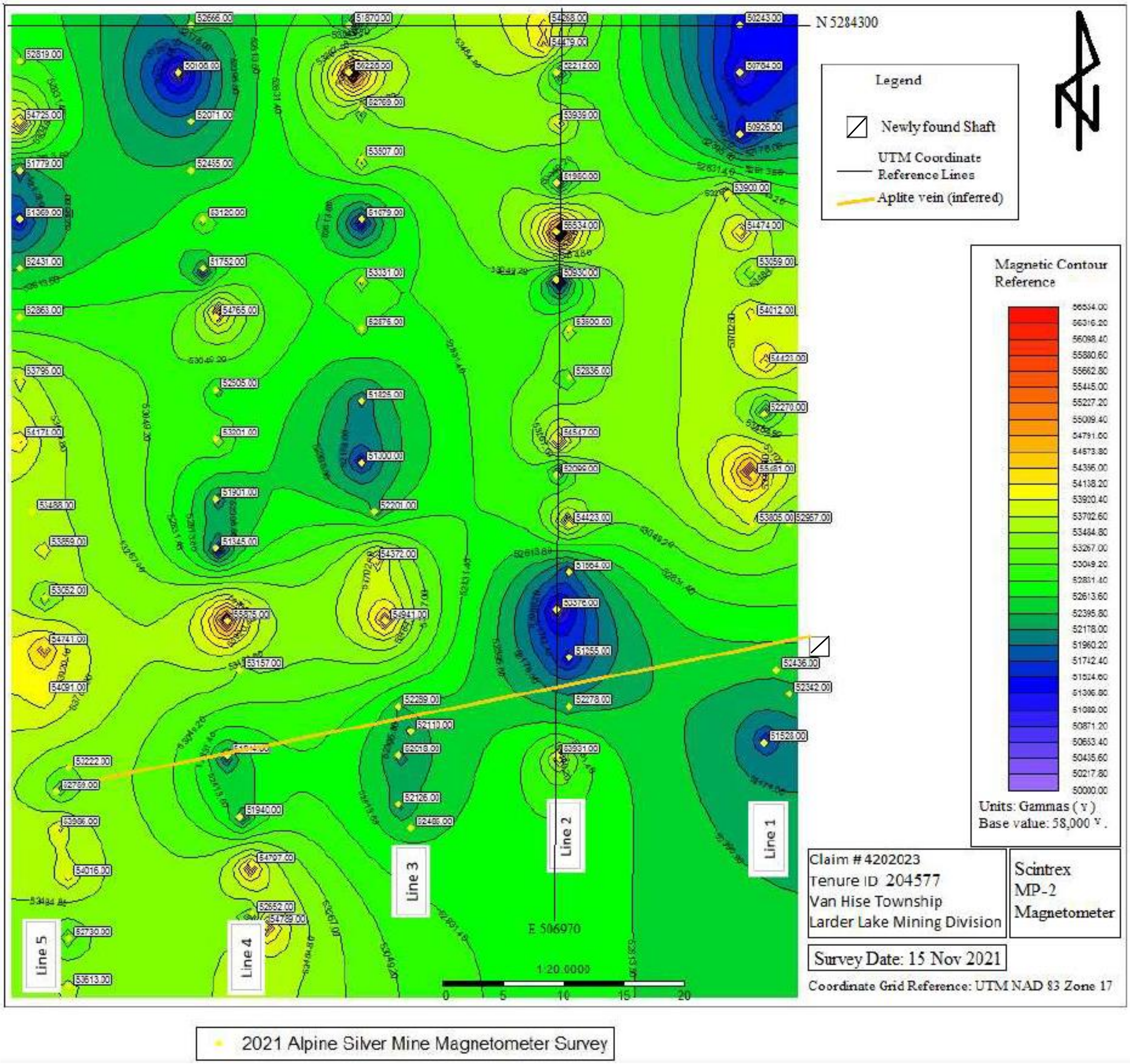


Appendix 1: Airborne Electromagnetic Survey Total Intensity Magnetic Survey Map 81414 (Geoterrex Limited, 1990). Note: Claim boundary and survey work area drawn in for reference to this report (not part of original map).



Appendix 2: 2021 Alpine Silver Mine Ground Magnetometer Survey Data Contour Map

Alpine Silver Mine Project
2021 Ground Magnetometer Survey

Notes	GPS Waypoint ID	Easting	Northing	Mag Reading (γ)	Capped Value	$\gamma > (\bar{x} + 2\sigma)$ or $\gamma < (\bar{x} - 2\sigma)$	Length of Line, meters
		line 1					59
	19	506987	5284241	51528			
	20	506989	5284245	52342			
	21	506988	5284247	52436			
	22	506989	5284259	52967		X	
	23	506986	5284259	53805			
	24	506986	5284263	55481			
	25	506987	5284268	52270			
	26	506987	5284272	54423			
	27	506986	5284276	54012			
	28	506986	5284280	53059			
	29	506985	5284283	54474			
	30	506984	5284286	53900			
	31	506985	5284291	50926			
	32	506985	5284296	50784			
	33	506985	5284300	52461			
	34	506985	5284300	50243			
		line 2					60
	35	506970	5284240	53931			
	36	506971	5284244	52278			
	37	506971	5284248	51255			
ok	39	506970	5284252	50376			
ok	48	506971	5284255	51664			
	49	506971	5284259	54423			
	50	506970	5284263	52099			
	51	506970	5284266	54547			
ok	128	506971	5284271	52836			
	129	506971	5284275	53500			
	130	506970	5284279	50930			
	131	506970	5284283	56534	55677	X	
	132	506970	5284287	51950			
	133	506970	5284292	53939			
	134	506970	5284296	52212			
	135	506969	5284298	54479			
	136	506969	5284300	54268			

Magnetometer Field Data Table Page 1 of 3

Appendix 3: 2021 Alpine Silver Mine Ground Magnetometer Survey Data Table

Alpine Silver Mine Project
2021 Ground Magnetometer Survey

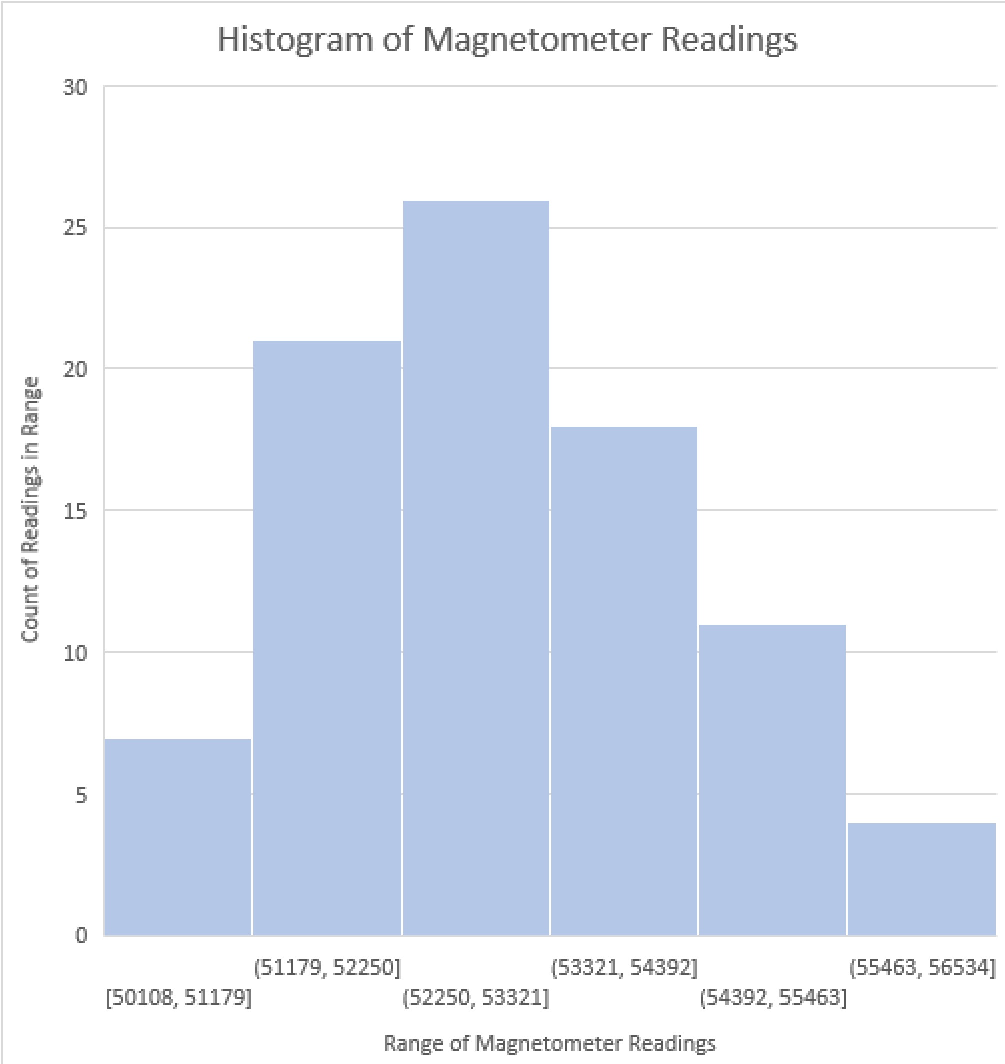
Notes	GPS Waypoint ID	Easting	Northing	Mag Reading (¥)	Capped Value	¥ > (x̄ + 2 σ) or ¥ < (x̄ - 2 σ)	Length of Line, meters
	line 3						66
	137	506958	5284234	52485			
	138	506957	5284236	52126			
	139	506957	5284240	52018			
	140	506958	5284242	52110			
	141	506957	5284244	52289			
	142	506956	5284251	54941			
	143	506955	5284256	54372			
	144	506955	5284260	52201			
	145	506954	5284264	51300			
truck nearby	146	506954	5284269	51825			
	147	506954	5284275	52875			
	148	506954	5284279	53331			
	149	506954	5284284	51079			
	150	506954	5284289	53507			
	151	506954	5284293	52769			
	152	506953	5284296	56228	55677	X	
	153	506953	5284300	51870			
	line 4						74
	154	506946	5284226	54789			
	155	506945	5284227	52652			
	156	506945	5284231	54797			
	157	506944	5284235	51940			
	158	506943	5284240	51844			
	159	506944	5284247	53157			
	160	506943	5284251	55875	55677	X	
	161	506942	5284257	51345			
	162	506942	5284261	51901			
	163	506942	5284266	53201			
	164	506942	5284270	52505			
	165	506942	5284276	54765			
	166	506941	5284280	51752			
	167	506941	5284284	53120			
	168	506940	5284288	52455			
	169	506940	5284292	52071			
ok	173	506939	5284296	50108			
	174	506940	5284300	52666			

Magnetometer Field Data Table Page 2 of 3

Alpine Silver Mine Project
2021 Ground Magnetometer Survey

Notes	GPS Waypoint ID	Easting	Northing	Mag Reading (γ)	Capped Value	$\gamma > (\bar{x} + 2\sigma)$ or $\gamma < (\bar{x} - 2\sigma)$	Length of Line, meters
		line 5					76
	175	506930	5284221	53613			
	176	506930	5284225	52730			
	177	506930	5284230	54016			
	178	506929	5284234	53986			
	179	506929	5284237	52759			
	180	506930	5284239	53222			
	181	506928	5284245	54091			
	182	506928	5284249	54741			
	183	506928	5284253	53052			
	184	506928	5284257	53859			
	185	506927	5284260	53488			
	186	506926	5284266	54174			
	187	506926	5284271	53795			
	188	506926	5284276	52863			
	189	506926	5284280	52431			
ok	190	506926	5284284	51369			
	191	506926	5284288	51779			
	192	506926	5284292	54725			
	193	506926	5284297	52819			

Magnetometer Field Data Table Page 3 of 3



Max:	56534
Min:	50108

Mean (x̄):	52967

Std Dev (σ):	1354.94

(x̄ + 2 σ)	55676.7
(x̄ - 2 σ)	50256.94

Appendix 4: Statistical Analysis of Magnetometer Readings

MP-2
Portable Proton Precession
Magnetometer

787 700
February 82

Appendix 5: Scintrex MP-2 Manual

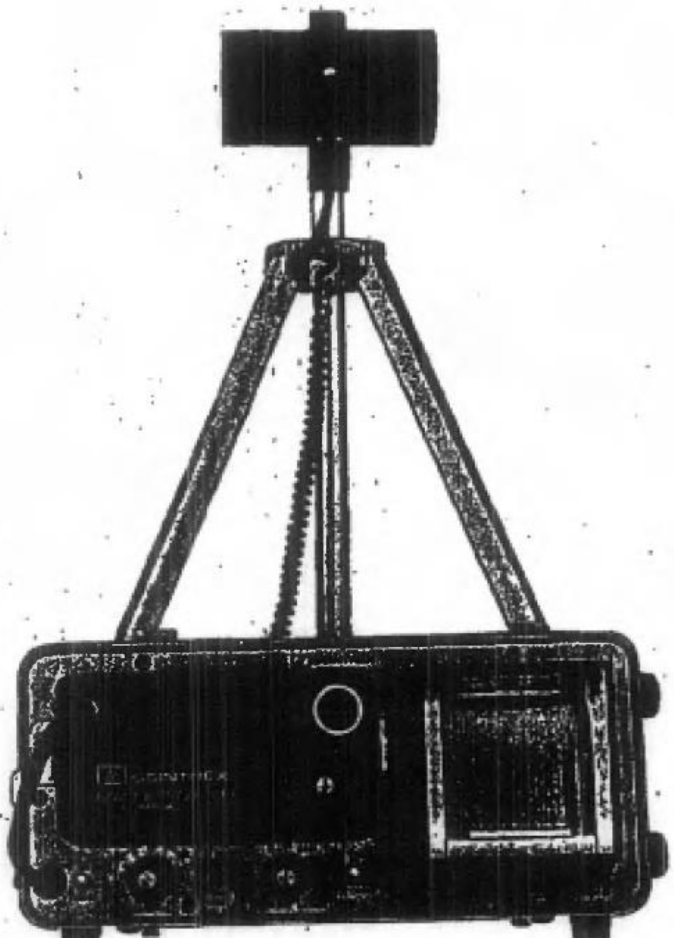


Figure 1
MP-2 with module forming the MBS-2 Base Station Magnetometer

1.2 Magnetic Environment

Figure 2 is a map of the total intensity of the earth's magnetic field in kilogammas (kγ). Comparison of the magnitude of these values with those on the Range Switch of the MP-2 indicates that the instrument has a world wide range. The contours on Figure 2 are, however, undisturbed background values which might be altered considerably by localized magnetic bodies. This should be considered when selecting the proper Range Switch setting after entering an unknown area.

Superimposed on the map are two dashed horizontal lines marked $\pm 45^{\circ}$. These are the contours of 45° inclination of the total field. It should be remembered that toward the poles the strongest component of the earth's field is vertical, while between the lines, in equatorial regions, the horizontal component is most important. These facts will be of importance when setting up the instrument as outlined in Section 3.2.

For accurate measurements, the sensor has to be exposed to a "clean" magnetic environment. Objects carried by the operator such as metal parts on clothing, knives, or pencils are frequently magnetic and can severely affect the results, especially when the sensor is carried in the backpack.

To establish if an object is magnetic, the sensor is set up in a stationary position and the readings compared first with the object removed and then with the object in the position with respect to the sensor in which it is to be carried. Various orientations of the object should be tried as certain positions may not affect the reading. Small objects such as a screwdriver, file etc. can give anomalies ranging between 5 and 150 gammas when they are placed within 1 m of the sensor. Large objects such as an automobile or an iron fence could give anomalies between 40 and 2000 gammas when within 10m of the sensor.

1.3 The Magnetic Method

The magnetic method of applied geophysics consists of measuring accurately the resultant magnetic field of the earth's magnetism acting on rock formations having different magnetic properties and configurations. The resultant field is the vector sum of induced and remanent magnetism. Thus, there are three factors, excluding geometrical factors, which determine the magnetic field at any particular locality. These are the strength of the earth's magnetic field, the magnetic suscepti-

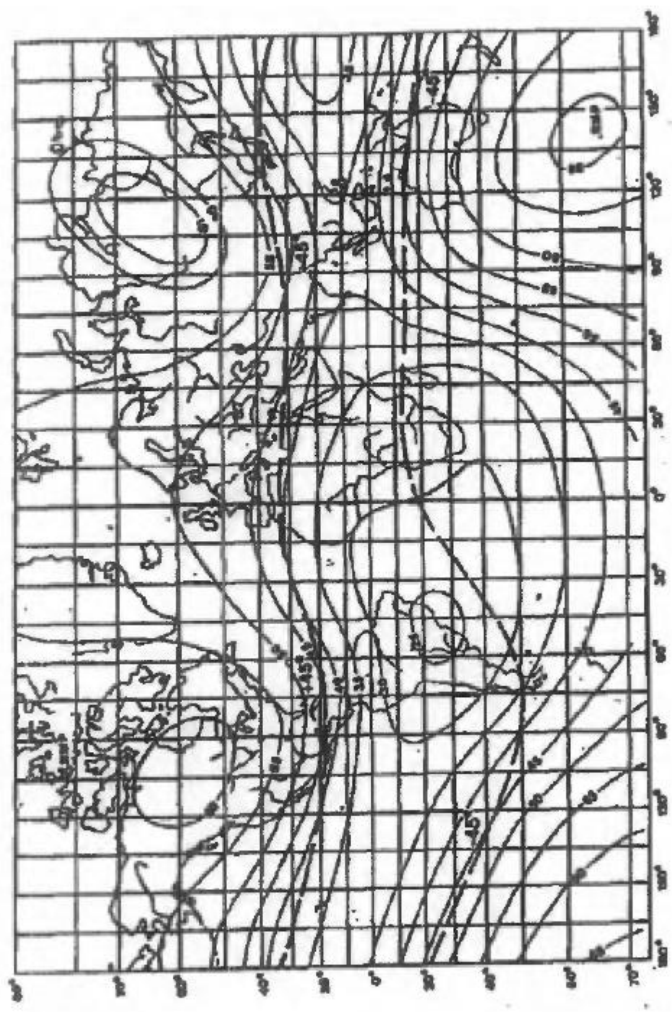


Figure 2
Total magnetic intensity in kilogammas with contours of 45° inclination. In the northern hemisphere, the total field direction is considered to be downwards (positive) and in the southern hemisphere, to be upwards (negative).

bilities of the rocks present and their remnant magnetism.

The earth's magnetic field can be represented to a close approximation as the field due to a bar magnet situated near the center of the earth. Both the polarity and the orientation of this bar magnet are variable.

The flux lines of the geomagnetic field are vertical at the north and south magnetic poles where the strength is approximately 63,000 γ. In the equatorial region, the field is horizontal and its strength is approximately 30,000 γ. The geomagnetic field is variable in both space and time. The spatial variation has magnitude and direction components and these must be taken into account when magnetic measurements are taken over large areas.

The short term temporal variation is perhaps more troublesome. Significant variations in the earth's magnetic field may occur within periods of seconds, minutes and hours. There are also long term variations extending over months, years and millions of years, but these secular variations can be neglected in magnetic surveys. The magnitude of the short term variations is extremely variable and in the case of sudden magnetic storms, may reach several hundred gammas. This means that in magnetically active areas, it may be necessary to take continuous readings of the geomagnetic field with a base station magnetometer such as the MBS-2, while the magnetic survey is being done. An alternative field procedure is to make periodic repeat measurements at convenient traverse points.

The intensity of magnetization induced in rocks by the geomagnetic field F is given by:

$$\vec{I}_I = k\vec{F}$$

where $\vec{I}_I$ is the induced magnetization in cgs units

k is the volume magnetic susceptibility

$\vec{F}$ is the strength of the geomagnetic field

For most materials, k is very much less than 1. If k is negative, the body is said to be diamagnetic. Examples are quartz, marble, graphite and rock salt. If k is positive, but very small, the body is said to be paramagnetic, examples of which are gneiss, pegmatite, dolomite and syenite. If k is positive and the body is strongly magnetic, it is said to be ferromagnetic, for example, magnetite (k = 0.3).

The susceptibilities of rocks is mostly determined by their magnetite content since this mineral is so strongly magnetic and so widely distributed in the various rock types.

The remanent magnetization of rocks depends both on their composition and their previous history. Whereas the induced magnetization is always parallel (or, rarely, anti-parallel) to the direction of the geomagnetic field, the natural remanent magnetization may bear no relation whatsoever to the present direction and intensity of the earth's field. The remanent magnetization is related to the direction of the earth's field at the time the rocks were last magnetized. Movement of the body through folding etc. and the chemical history since the previous magnetization are additional factors which affect the magnitude and direction of the remanent magnetic vector.

Thus, the resultant magnetization M of a rock is given by:

$$\vec{M} = \vec{M}_n + k\vec{F}$$

where $\vec{M}_n$ is the natural remanent magnetization. $\vec{F}$ is a vector which can be completely specified by its horizontal (H) and vertical (Z) components and by the declination (D) from true north. Similarly, $\vec{M}_n$ is specified when its magnitude and direction are known. Thus, considerably simplification results if $\vec{M}_n = 0$, whereupon M merely reduces to $k\vec{F}$. In the early days of magnetic prospecting, it was usually assumed that there was no remanent magnetization. However, it has now been established that both igneous and sedimentary rocks possess remanent magnetization, and that the phenomenon is a widespread one.

1.4 Applications of the MP-2

Basic Geological Mapping

Readings taken with the MP-2 are normally presented as profiles and/or as contoured maps. These are now routinely used as integral parts of geological mapping programs. Qualitative interpretation of these maps and profiles assists in the identification of rocks, in mapping their distribution, in indicating sub-surface plutons and in revealing structural features such as faults. Quantitative interpretation provides depths to basement, dip and strike of dike-like features and estimates of magnetic susceptibility.

Mining Exploration

The MP-2 is an excellent instrument to use in exploring for certain types of iron deposits which can be strongly ferromagnetic. Under some circumstances, the grade and tonnage of the deposit may be estimated.

In other cases, an anomalous magnetic field may arise from ore bodies containing metals such as nickel, chrome and asbestos, since these bodies often have magnetic pyrrhotite or magnetite as accessory minerals.

Iron Objects

Iron objects hidden from view will nevertheless have an associated magnetic field, the strength of which *will depend on* the size of the object and the depth of burial. A lightweight, sensitive instrument such as the MP-2 can be used to find such objects.

Archaeological Exploration

This is an extension of the use of the MP-2 to find iron objects. At some archaeological sites the contrast in magnetic properties between cultural features (iron tools, bricks, pottery, etc.) and the surrounding medium is sufficient to produce a magnetic effect that is detectable with a sensitive instrument. Such features as buried walls, pathways, entrances, fire-pits, etc. have all been detected and mapped by portable magnetometers.

2.0 Specifications

The MP-2 has the following specifications:

Resolution	1 gamma
Total Field Accuracy	±1 gamma over full operating range
Range	20,000 to 100,000 gammas in 25 overlapping steps.
Internal Measuring Program	A reading appears 1.5 seconds after depression of the Operate Switch and remains displayed for 2.2 seconds for a total of 3.7 seconds per single reading. Recycling feature permits automatic repetitive readings at 3.7 second intervals.

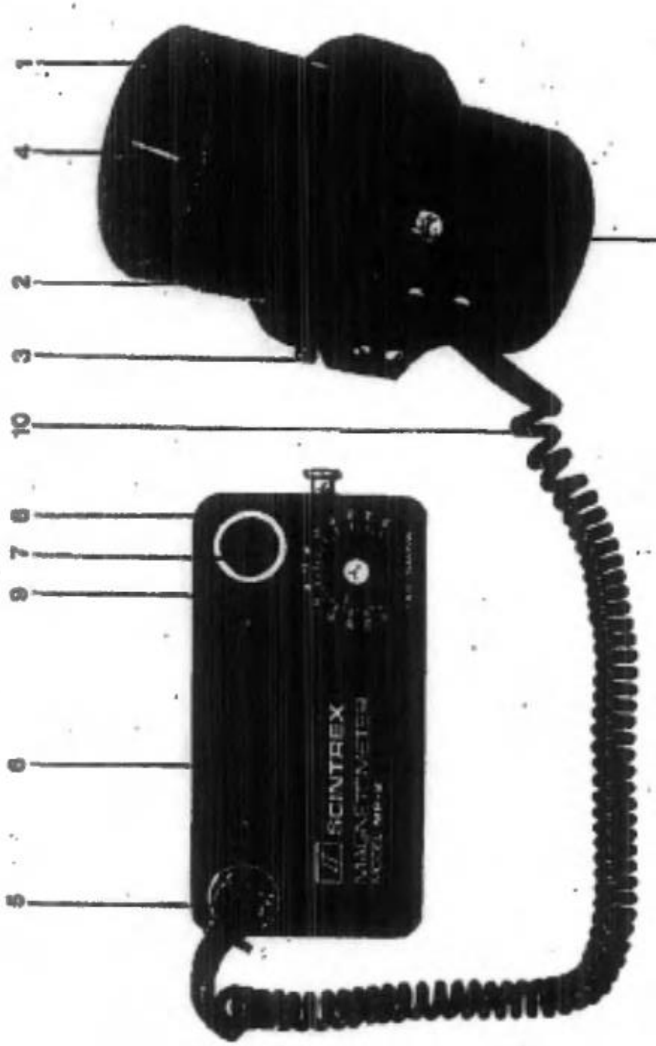


Figure 3
Features of the MP-2 Proton Precession Magnetometer

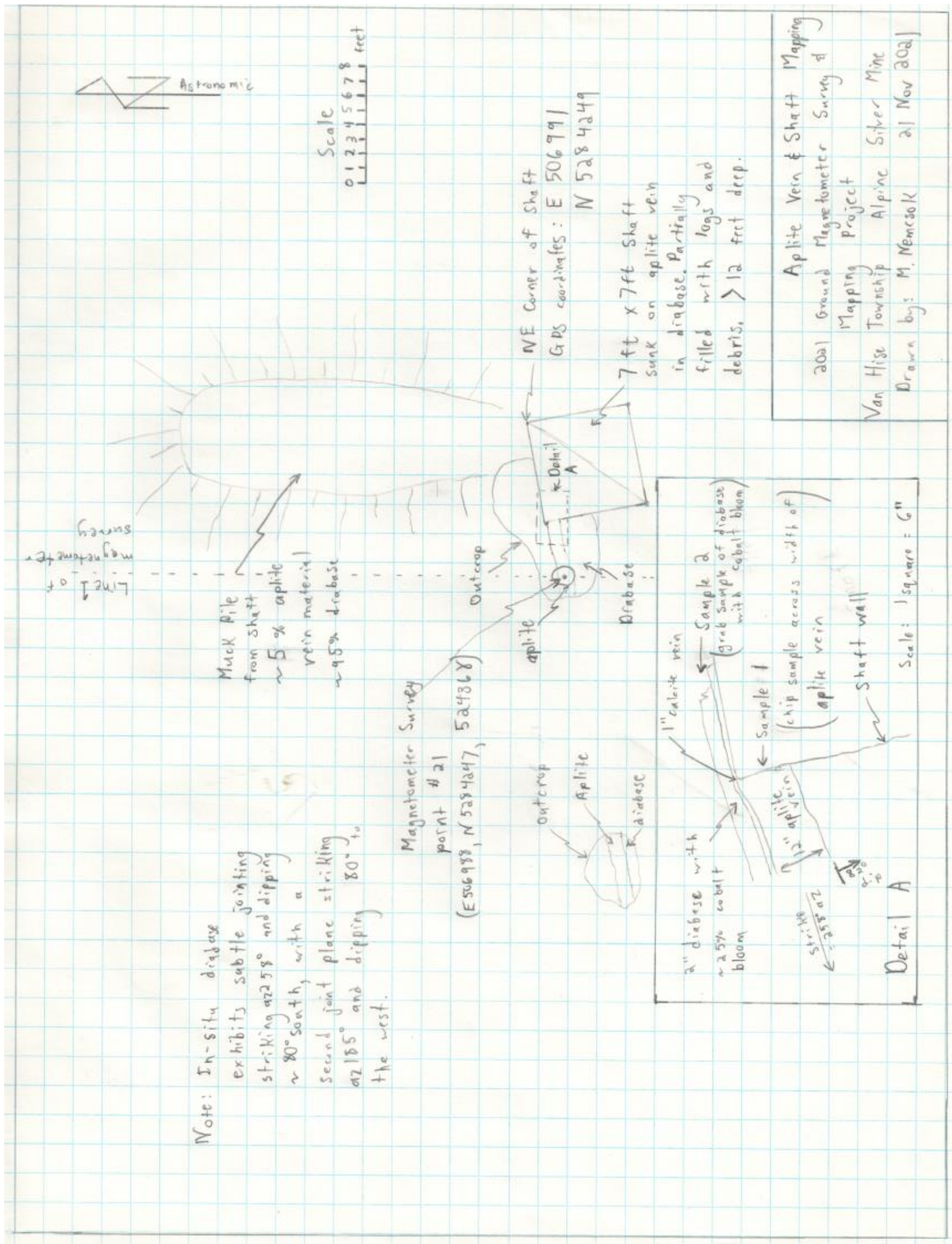
External Trigger	External trigger input permits use of sampling intervals longer than 3.7 seconds.
Display	5 digit LED (light emitting diode) readout displaying total magnetic field in gammas or normalized battery voltage.
Data Output	Multiplied precession frequency and gate time outputs for base station recording using interfacing optionally available from Scintrex.
Gradient Tolerance	Up to 5000 gammas/meter.
Power Source	8 alkaline "D" cells provide up to 25,000 readings at 25°C under reasonable signal/noise conditions (less at lower temperatures). Premium carbon-zinc cells provide about 40% of this number.
Sensor	Omnidirectional, shielded, noise-cancelling dual coil, optimized for high gradient tolerance.
Harness	Complete for operation with staff or back pack sensor.
Operating Temperature Range	-35°C to +60°C
Size	Console, with batteries: 80 x 160 x 250 mm Sensor: 80 x 150 mm Staff: 30 x 1550 mm (extended) 30 x 660 mm (collapsed)
Weights	Console, with batteries: 1.8 kg Sensor: 1.3 kg Staff: 0.6 kg

3.0 Operating Instructions

3.1 *Instrument Description*

The numbers in brackets refer to the features of the MP-2 shown in Figures 3, 4, and 5.

(1) Sensor: Shielded, noise cancelling, dual coil type.



Appendix 6: Aplite Vein and Shaft Mapping

Established 1928

Swastika Laboratories Ltd

Assaying - Consulting - Representation

Page 1 of 1

Assay Certificate

Certificate Number: 21-5264

Company: **Michael Nemcsok**

Project: Alpine 2021

Report Date: 29-Nov-21

Attn: Michael Nemcsok

We hereby certify the following Assay of 1 chips samples submitted 23-Nov-21 by Michael Nemcsok

Sample Number	Ag AR-AAS ppm	Cu AR-AAS ppm	Pb AR-AAS ppm	Zn AR-AAS ppm	Co AR-AAS ppm	Ni AR-AAS ppm	As AR-AAS ppm
PTC-1b			782				238
Sample 1	6.5	91	210	26	57.3	42	53

Rush

Certified by

Valid Abu Ammar

1 Cameron Ave., P.O. Box 10, Swastika, Ontario P0K 1T0
Telephone (705) 642-3244 Fax (705) 642-3300

Appendix 7: Assay Certificate Sample #1 (Chip Sample Across face of Vein at Shaft Collar)

Swastika Laboratories Ltd

Established 1928

Assaying - Consulting - Representation

Page 1 of 1

Assay Certificate

Certificate Number: 21-5265

Company: **Michael Nemcsok**

Project: Alpine 2021

Report Date: 29-Nov-21

Attn: Michael Nemcsok

We hereby certify the following Assay of 1 rock/grab samples
submitted 23-Nov-21 by Michael Nemcsok

Sample Number	Ag AR-AAS ppm	Cu AR-AAS ppm	Pb AR-AAS ppm	Zn AR-AAS ppm	Co AR-AAS ppm	Ni AR-AAS ppm	As AR-AAS ppm
PTC-1b			792		3160		219
Sample 2	11.8	9	24	44	1270	267	1051

Rush

Certified by

Valid Abu Ammar

1 Cameron Ave., P.O. Box 10, Swastika, Ontario P0K 1T0
Telephone (705) 642-3244 Fax (705) 642-3300

Appendix 8:Assay Certificate Sample #2 (Grab Sample of Diabase from FW of vein with cobalt bloom)

Van Hise Twp. Claim # 4202023 Alpine Silver Mine Project 2021

Appendix Item

Daily Log: Activity Summary

Date	Work Performed	Work Performed (Details)	Observations / Notes	Personnel	Man - Days Worked	Equipment	Distance Travelled to Worksite (km)	Supplies
02-Nov-21	Prepare Equipment and Supplies	Review past work reports, Program GPS, gather flagging, mapping supplies.		Michael Nemcsok	0.25	Computer, GPS, Maps.	0	flagging
06-Nov-21	Drive to claim, verify access and mark out survey grid	Drove to claim and into work area. Marked north line of claim as survey baseline and marked survey lines for Mag Survey.	Road was in excellent condition as maintained by recent logging operations. Late day trip, minimal exploration work possible in low light.	Michael Nemcsok	0.7	GPS, Compass.	259	Food, water.
07-Nov-21	Drive to pick up Scintrex MP-2 Magnetometer for survey	Drove from home to North Cobalt and back.	Rented Mag survey instrument from Alan Kon.	Michael Nemcsok	0.25		165	
15-Nov-21	Drive to claim, Complete ground Magnetometer survey	Walked survey lines with Scintrex MP-2 and Garmin Etrex, taking readings every 12.5 m.	Readings were stable and conditions were cold, but excellent for the field work. Aplite vein found on line #1 and detected with Mag readings on subsequent lines. Decision made to return to site to map vein before heavy snowfall.	Michael Nemcsok	1	Scintrex MP-2 Magnetometer, GPS, Notebook.	259	D-cell Batteries, food, water. Snacks from Gowganda grocery
16-Nov-21	Drive to drop off Scintrex MP-2 Magnetometer	Drove from home to North Cobalt and back.	Return rental Magnetometer. Engaged services to process Mag Survey Data into a contour map.	Michael Nemcsok	0.5		165	
23-Nov-21	submit samples for assay	Drive to Swastika Labs to submit samples for assay		Michael Nemcsok	0.2		56	Markers, ziploc bags
6 Dec 2021 to 12 Dec 2021	Preparation & submission of Report	Reporting	Draft maps, Write Report. Submit report to MNDMF online	Michael Nemcsok	3	Computer	0	
				Totals:	5.9	man days	904	km

Appendix 9: Daily Log: Activity Summary Equipment Usage Details

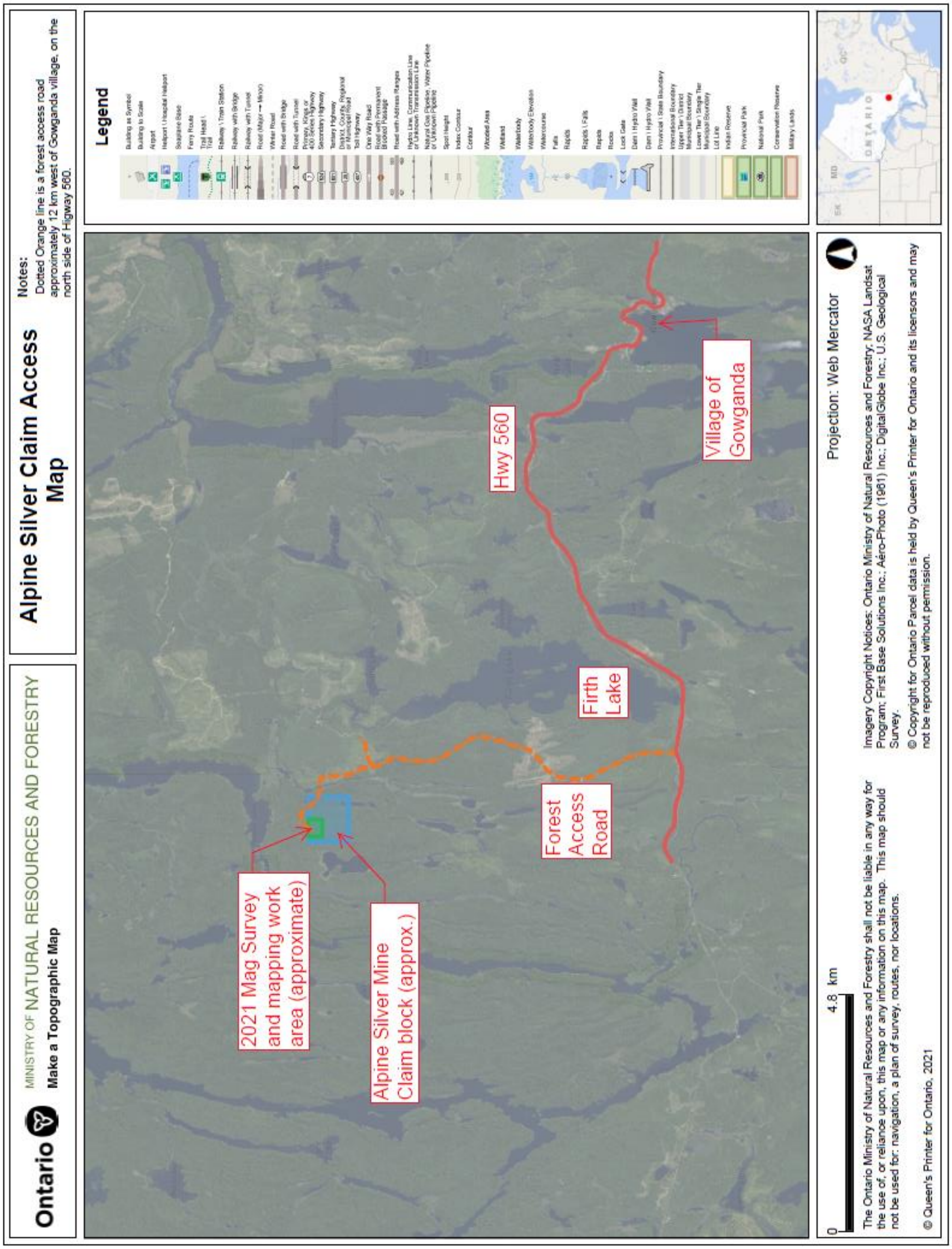
Van Hise Twp. Claim # 4202023 Alpine Silver Mine Project 2021

Appendix Item

Daily Log: Activity Summary

Cost Description	Usage		Rate		Cost	Notes
2021-11-02 Prep work	0.25	10h days	500	$/day	$ 125.00	Computer, GPS, Maps, reports
2021-11-06 Field work - Verify Access, Mark baseline and Magnetometer survey lines in forestry harvested area.	1	10h days	500	$/day	$ 500.00	GPS, Compass, axe, fiberglass tape, flagging.
2021-11-07 Pick up Scintrex MP-2 magnetometer from North Cobalt	0.25	10h days	250	$/day	$ 62.50	
2021.11.08 Purchase D Cell Batteries to power Scintrex MP-2 Magnetometer.	2	ea	14.59	$/ea	$ 29.18	
2021-11-15 Field work - Ground Magnetometer Survey, Prospecting, Mapping vein	1	10h days	500	$/day	$ 500.00	Scintrex MP-2 Magnetometer, GPS, Compass, shovel, muck scoop
2021-11-15 Snacks from Gowganda store "Gowganda Lake Lodge"	3	lot	1.99	$	$ 5.97	
2021-11-16 Drop off Scintrex MP-2 magnetometer in North Cobalt	0.25	10h days	250	$/day	$ 62.50	
2021-11-06, 15 Commute from Pacaud Twp to Alpine Silver Mine (259 km per trip)	518	km	0.59	$/km	$ 305.62	
2021-11-07, 2021-11-16 commute to North Cobalt to pick up and drop off Scintrex MP-2 Magnetometer and buy batteries.	330	km	0.59	$/km	$ 194.70	
2021-11-23 drive to Swastika to drop off samples for analysis.	56	km	0.59	$/km	$ 33.04	
2021-11-07 to 2021-11-16 Rental of Scintrex MP-2 Magnetometer. (Charged for 2 days of use only)	2	10h days	125	$/day	$ 250.00	
2021-12-06 Data Processing (Mapping) of Magnetometer data to produce contour map.	3	hrs	45	$/h	$ 135.00	
2021-11-30 Assays of Chip Sample and grab sample (certificates 21-5264 and 21-5265)	1	lot	136	$	$ 136.00	
2021-12-06, 11,12 Drafting and Report preparation	2	10h days	500	$/day	$ 1,000.00	Computer, printer, field notes.
			Project Total		$ 3,339.51	

Appendix 10: Equipment, Services, Materials and Labour Expense Summary



Appendix 12: Alpine Silver Mine Claim Block Access Map (Ontario Ministry of Natural Resources and Foresty, 2021)