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Assessment Report

Drone LiDAR Survey

Lamella Gold Corp.
Hislop Property

Hislop Township

Larder Lake Mining Division

Prepared for:

Lamella Gold Corp.

(10004971)

Prepared by:

Kevin Cool – Technical Report

Mining Claims Surveyed:

701364,701365,701428,701429

October 4th, 2022

Revised January 11, 2023

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1.0 Introduction

The ***Lamella Gold Hislop Property*** consists of 27 Active Mining Claims located in Hislop Township, Larder Lake Mining Division. This report covers a drone LiDAR survey carried out across 4 of the active mining claims. The LiDAR survey took place on September 24th, 2022.

This report documents the results of a LiDAR (light detection and ranging) remote sensing survey over part of the Hislop Property to accomplish the following;

- Establish high-resolution topographic control across the survey area.

- Generate detailed DEMs (Digital Elevation Models) of bare earth terrain below tree canopy and the top surface of tree canopy, which can be used to design a low altitude drone magnetic survey.

- Interpretation of bare-earth terrain, to aid in the identification of outcrops, soil types and to help identify features that directly apply to gold exploration, such as possible shear zones, veins, faults, and old mine workings such as shafts or pits.

- Help with overall planning and ground access on current and future exploration programs. This includes identification, mapping and digitization of existing roads and may include identification of old roads or trails that have grown over and no longer visible on satellite or air photo imagery.

Table 1 includes a list of mining claims, including the work value completed on each claim.
Figure 2 shows the LiDAR survey outline and claim location map.

Site Selection

Based on Map 2650 (see reference 4: M2650 – Quaternary Geology – Ramore Area), the Hislop Property is mainly covered by glaciolacustrine clay. There is a small area on the south end of the property identified on M2650 as a "Bedrock-Drift Complex" and described as extensive but discontinuous thin drift cover, in places sufficiently thick to subdue the bedrock topography.

Figure 8 on page 22 shows the 2022 LiDAR outline overlaid on Map 2650. This site became the focus of the 2022 LiDAR survey, as the odds of finding exposed bedrock are much higher in this area, compared to the surrounding clay-covered terrain.

1.1 Summary

On September 24th,2022 the mining claims were surveyed using a Zenmuse L1 LiDAR mounted on a DJI M300 RTK drone. Zen Geomap of Timmins, Ontario, carried out the survey on a contract basis for the client (**Lamella Gold Corp. Client # 10004971**). Data processing and maps were completed between September 24th and October 4th, 2022, and the assessment report was prepared between September 24th and October 4th, 2022.

The coordinate system used throughout this report is Nad83, UTM Zone 17 and the elevation datum is CGVD 28. The survey was successful at accomplishing the goals outlined in the introduction (establish topographic control / generate DEMs / interpret bare-earth features / aid in overall planning). The survey identified six (6) outcrops, which are described in more detail in Section 7.0. Recommendations include future drone air photo mapping and field mapping / sampling of the 6 outcrops.

2.0 Location and Access

The property is accessed by travelling east from Timmins to Matheson on Hwys 101 and 11 for 76 km, then another 19 km along Hwys 11 and 527 to the property, which is just north of Ramore and east of Holtyre.

Figure 1 shows location and access from Matheson to the Hislop Property.

Tenure ID	Tenure Type	Anniversary Date	Tenure Status	Work Required	Work Applied	Available Exploration Reserve	Total Reserve	(Sq.m) Area Surveyed	Area (%) of total	($) Work Completed	
701429	Single Cell Mining Claim	2024-01-16	Active	400	0	0	0	145685	44.0	1831	
701428	Single Cell Mining Claim	2024-01-16	Active	400	0	0	0	114588	34.6	1441	
701365	Single Cell Mining Claim	2024-01-16	Active	400	0	0	0	3600	1.1	45	
701364	Single Cell Mining Claim	2024-01-16	Active	400	0	0	0	67192	20.3	845	
701363	Single Cell Mining Claim	2024-01-16	Active	400	0	0	0				
701362	Single Cell Mining Claim	2024-01-16	Active	400	0	0	0				
701361	Single Cell Mining Claim	2024-01-16	Active	400	0	0	0				
701360	Single Cell Mining Claim	2024-01-16	Active	400	0	0	0				
678389	Single Cell Mining Claim	2023-09-27	Active	400	0	0	0				
615537	Single Cell Mining Claim	2022-10-15	Active	400	0	528	528				
615536	Single Cell Mining Claim	2022-10-15	Active	400	0	489	489				
615535	Single Cell Mining Claim	2022-10-15	Active	400	0	489	489				
615534	Single Cell Mining Claim	2022-10-15	Active	400	0	0	0				
615533	Single Cell Mining Claim	2022-10-15	Active	400	0	889	889				
615532	Single Cell Mining Claim	2022-10-15	Active	400	0	0	0				
615531	Single Cell Mining Claim	2022-10-15	Active	400	0	0	0				
615530	Single Cell Mining Claim	2022-10-15	Active	400	0	0	0				
615529	Single Cell Mining Claim	2022-10-15	Active	400	0	0	0				
615528	Single Cell Mining Claim	2022-10-15	Active	400	0	0	0				
615527	Single Cell Mining Claim	2022-10-15	Active	400	0	0	0				
595464	Single Cell Mining Claim	2023-06-14	Active	400	400	154	154				
595463	Single Cell Mining Claim	2023-06-14	Active	400	400	0	0				
595462	Single Cell Mining Claim	2023-06-14	Active	400	400	0	0				
595461	Single Cell Mining Claim	2023-06-14	Active	400	400	0	0				
594656	Single Cell Mining Claim	2023-06-09	Active	400	400	0	0				
594655	Single Cell Mining Claim	2023-06-09	Active	400	400	0	0				
594654	Single Cell Mining Claim	2023-06-09	Active	400	400	0	0				
									100.0	**4162**	CHK
				4400		2549	2549	331065			
				Work Required				**(33.1ha)**			
								331065	Total area surveyed on active claims		
								4162	Total survey cost (pre-hst)		

Table 1

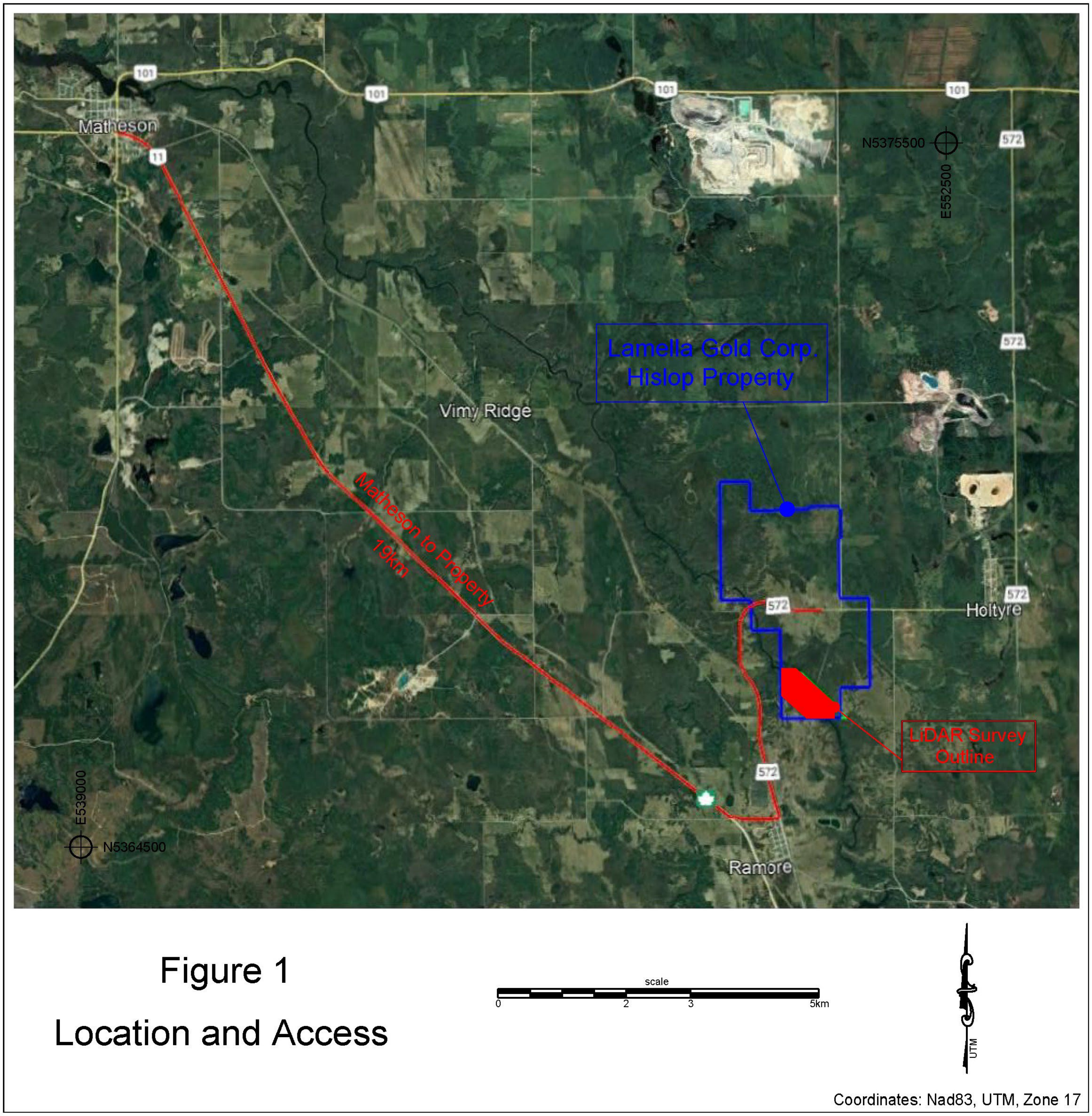


Figure 1 – Location and Access

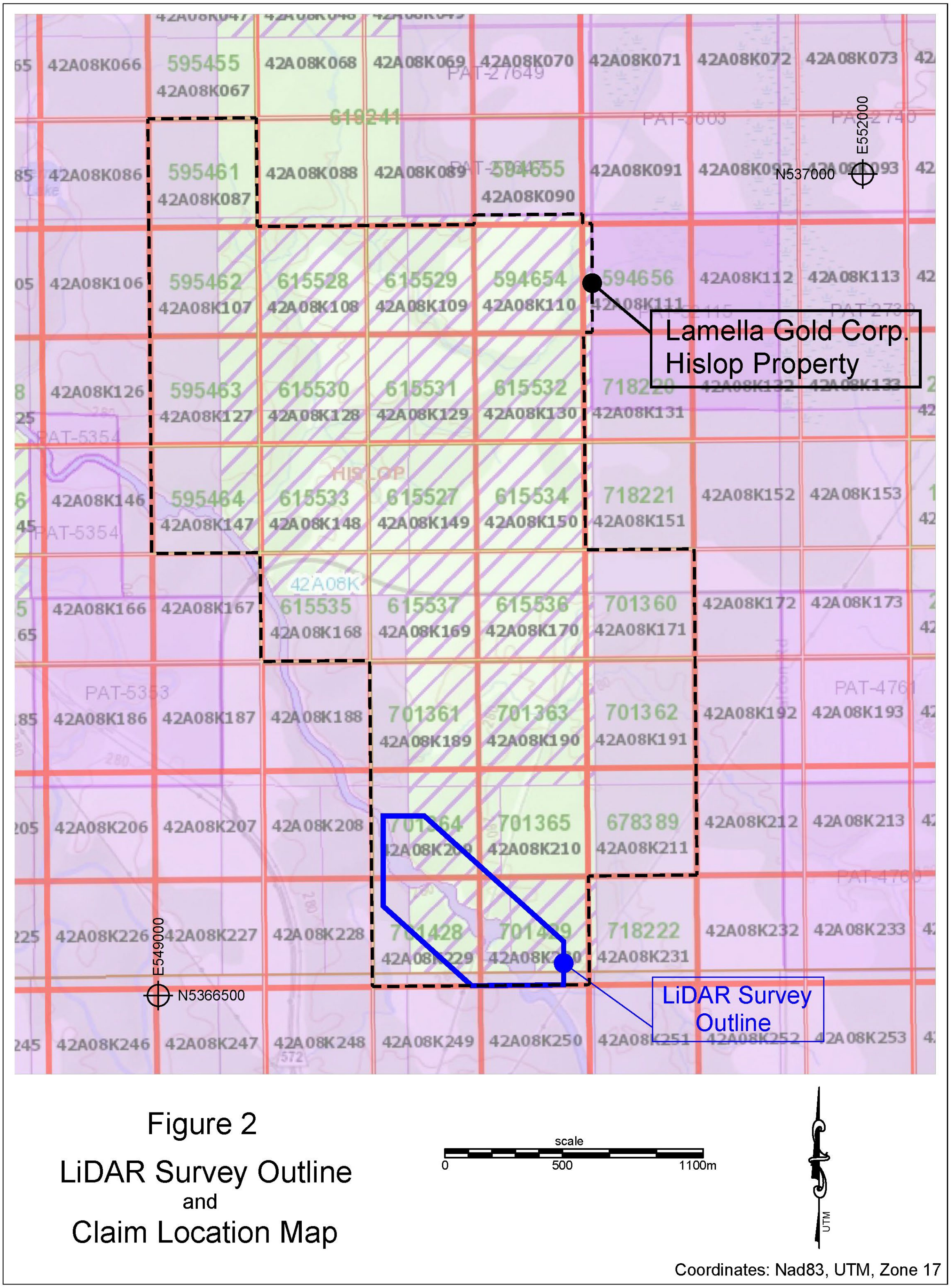


Figure 2 – LiDAR Survey Outline and Claim Location Map

3.0 Regional and Local Geology

The Hislop Property is located 14km southeast of Matheson and 39km northwest of Kirkland Lake and sits in the east central part of the Abitibi Greenstone Belt.

Figure 3 shows the Hislop Property location.

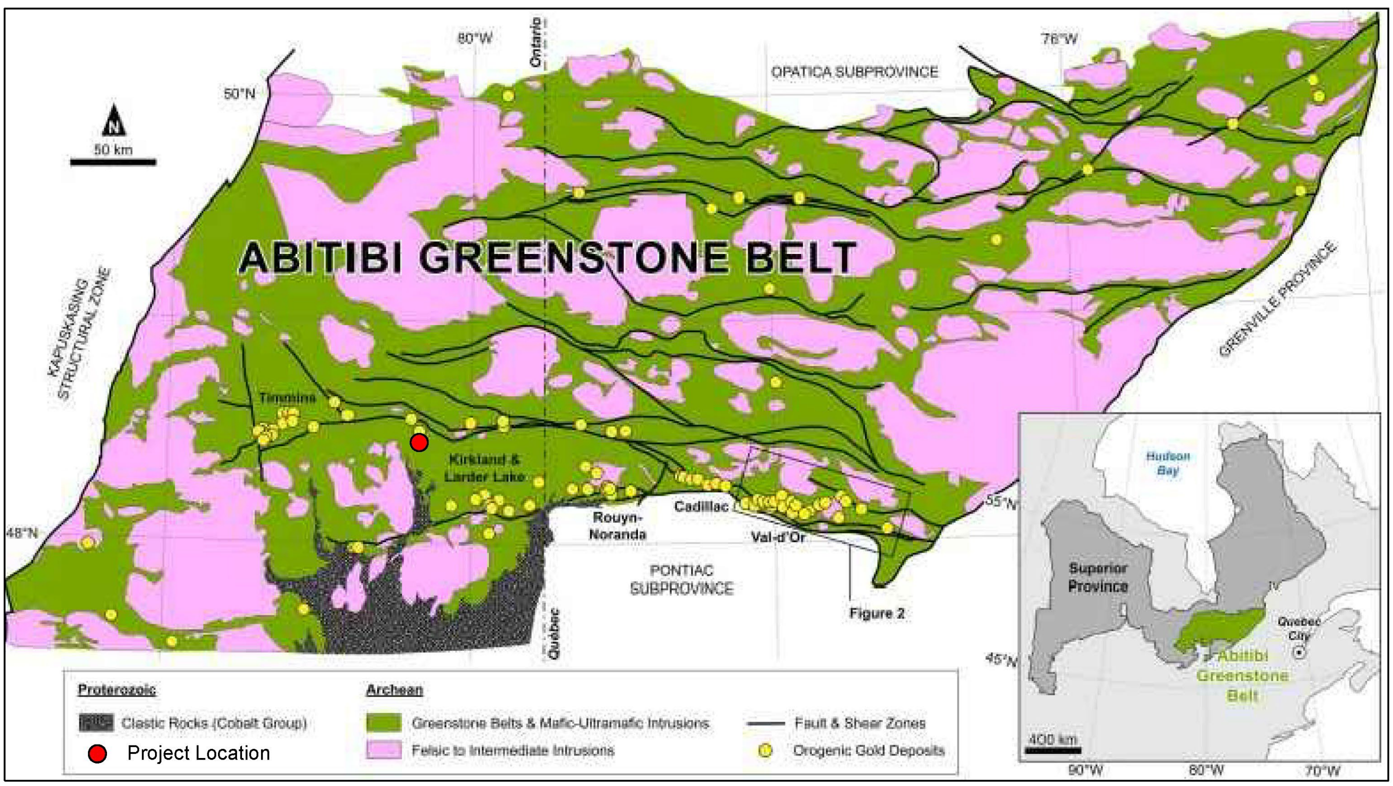


Figure 3

Project Location

Figure 3 – Project Location

<u>MRD126</u>

Overlaid on available bedrock geology (see reference 1: MRD126 – Revised Bedrock 250K available through OGS Earth);

The Hislop Property covers rock type 5 as identified on the MRD126 rock-type legend. Other nearby rock types include 9a and 9b.

Figure 4 presents above rock types, with the property outline and the location of nearby MDI showings. Some of the key MDI showings are described below. (see reference 2: MDI – Mineral Deposits Inventory, available through OGS Earth);

<u>MDI42A08NW00130</u> (Hollinger – North)

Hollinger – North is listed as an "occurrence" within MDI records.

Exploration History

1975- 1976: Hollinger Mines Ltd- VLF EM and geological surveys; DD-2-405.7 m 1990: H.A. Neal - prospecting, mapping, sampling, magnetic survey. 1996-97: Teddy Bear Valley Mines Ltd. - IP survey, Max-Min survey 2011: Mexivada Mining Corp. - magnetometer and VLF-EM surveys

<u>MDI42A08NW00131</u> (Hollinger – South)

Hollinger – South is listed as an "occurrence" within MDI records.

Exploration History

1975- 1976: Hollinger Mines Ltd.- ground geophysics, 1 DDH (182.7 m) ,1997- Teddy Bear Valley Mines Ltd. Geophysics (EM and IP); 2011- Mexivada Mining Corp. geophysics.

MDI42A08NW00154 (Hislop Gold Mine)

This showing is listed as a "past producing mine with reserves or resources" within MDI records.

Exploration History

1933:Ground on which the Bush occurrence was eventually discovered was staked by V. Bush of Kirkland Lake. 1934-36: Vein material blasted and sampled. McIntyre Porcupine Mines Ltd. stripped overburden and diamond drilled 45 holes totalling about 13,000 feet on two gold occurrences in the area. 1938: Torovic Gold Mines Ltd. completed surface exploration including the diamond drilling of 4,914 feet in the area. 1939: Kelrowe Gold Mines Ltd. sunk a vertical 3 compartment exploration shaft 182 feet, established the 80 foot level, and crosscut 10 feet. 1940: Kelrowe Gold Mines deepened their exploration shaft to a depth of 319 feet, established levels at depths of 180 and 300 feet, drifted 654 feet, crosscut 363 feet, raised 11 feet, and diamond drilled from underground 40 holes totalling 4,914 feet. 1946-47: Kelwren Gold Mines diam.drilled from surf. 34 holes in totall. In 1947, Kelwren Gold Mines deepened the expl. shaft 155' to the 475' level, establ. the 450' level, drifted 478' and crosscut 229' on the 300 and 450' lev., diamond drilled from surf. 5 holes total. 3,443' surf. diam.drilling compl. and diam.drilled from underground. 1948-1950: Kelore Mines Ltd. drifted 2,218', crosscut 710', raised 196', and diam.drilled from ug 122 holes total-12,623'. 1973: Hollinger Mines dewatered the refurbished shaft, compl. surf. and ug geological mapping, compl. mag and HLEM EM SURV., installed a new surf. plant and 40' timber headframe, and diam. drilled from surf. 11 holes. 1974: Hollinger Mines erected a new headframe, sampled drifts on the 180, 300, and 450' lev., and diam.drilled 28,000' from ug. 1975-1976: By yr. end 1975, Hollinger Mines had diam.drilled 250 holes Hollinger Mines began a 6,100' long haulageway from the Ross Mine to the New Kelore workings, but this was halted after 400-500' 1986: Kelore Mines compl. MAG and VLF EM SURV., surf. diam.drilling. 1987: Goldpost Res. diam.drilled from surf. 156 holes in the area. 1988: Goldpost Res. collared 2 expl. decline ramps. Underground diamond drilling (2 holes totalling 514 feet in East Decline and 42 holes totalling 11 859 feet in Main Decline). 1990-1991: Joint venture with St Andrew Goldfields Ltd. to mine parts of the shaft zone and north zone.1993: Dewatering and resumption of mining. 1994: 777 feet of development, diamond drilling totalling 65 holes and 5064 feet. 1999-2000: Production from the west pit. The pit is located approximately 553350E 5371725N. 2005-2006: Northeast side of the west pit was extended. 2009: Diamond drilling program to bring resources to the southwest of the west pit to NI 43-101 standards. 2010: Production from a new pit to the southeast of the west pit commenced. The pit is located approximately 552400E 5371575N. 2014: Pit exhausted. Stockpiled ore still shipped to Holt Mill. Reserves and resources are for underground. 2014: St. Andrew GoldfieldsLtd. DD-20-5100 m.

MDI42A08NW00005 (Ross Mine)

This showing is listed as a "past producing mine with reserves or resources" within MDI records.

Exploration History

1933-1937: Hollinger Consolidated Gold Mines Ltd.: trenched, sampled, and diamond drilling, sank a 3 compartment 150 foot deep shaft, and crosscut on the 150 foot; shaft deepened to 450 ft. level; 1300 ft. lateral development; mining, UG and surface drilling. 1977: Pamour Inc. - mining; shaft deepened and underground station was cut. 1987-88:Giant Yellowknife Mines Ltd. - mining. 1989: Giant Yellowknife sells mine to Preston Electrical and Mechanical Ltd.

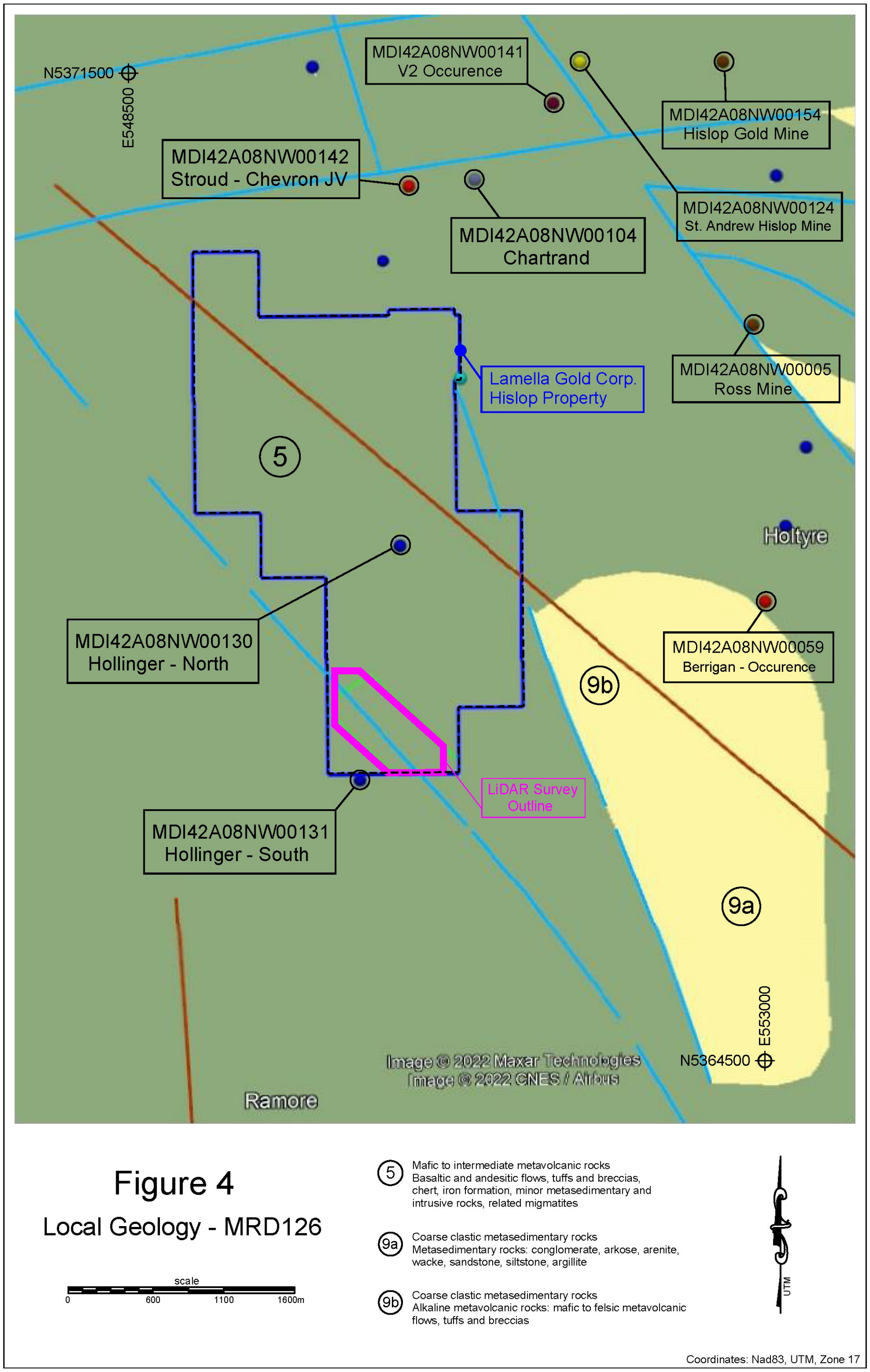


Figure 4 – Hislop Property overlaid on MRD126 bedrock geology

4.0 Property History

Table 2 presents a record of past work available through OAFD. (see reference 3: OAFD – Ontario Assessment File Database, available through OGS Earth);

Table 2 - Past Assessment Work			
	Assessment		
Work Type	File Number	Year	Performed For / Comments relevent to lidar survey
Airborne Geophysics	N/A		There are no airborne geophysical surveys on file within the property
Diamond Drilling	42A08NW0074	1976	Hollinger Mines Ltd
	42A08NW0086	1976	Hollinger Mines Ltd
Geochemistry	20000000478	2005	St Andrew Goldfields Ltd
	20000019782	2021	Lamella Gold Corp
	42A08NW0030	1991	H E Neal
	42A08NW0074	1976	Hollinger Mines Ltd
Geology	20000019782	2021	Lamella Gold Corp
	42A08NW0030	1991	H E Neal
	42A08NW0074	1976	Hollinger Mines Ltd
	42A08NW0082	1975	Hollinger Mines Ltd
Ground Geophysics	20000002027	2007	St Andrew Goldfields Ltd
	20000004013	2009	St Andrew Goldfields Ltd
	20000006813	2011	St Andrew Goldfields Ltd
	20000006894	2011	2205730 Ontario Inc
	20000014526	2015	unknown
	42A08NW0030	1991	H E Neal
	42A08NW0033	1990	H E Neal
	42A08NW0077	1975	Hollinger Mines Ltd
	42A08NW2002	1996	Teddy Bear Valley Mines Ltd
Physical	20000002027	2007	St Andrew Goldfields Ltd
	20000002958	2008	St Andrew Goldfields Ltd
	20000004013	2009	St Andrew Goldfields Ltd
	42A08NW2002	1996	Teddy Bear Valley Mines Ltd
Other	20000019782	2021	Lamella Gold Corp

Table 2 – Past work within Hislop Property

5.0 Summary of 2022 Drone LiDAR Survey

The 2022 drone LiDAR survey covers part of the Hislop Property as follows:

Surveyed: Sept 24,2022	**Total 1 hour LiDAR survey**
Altitude:	**100m above ground level**
Area:	**Total Survey Area 33.1ha**
Line Spacing:	**60m spacing / flight lines oriented N-S**

A Zenmuse L1 LiDAR mounted on a DJI M300 RTK drone was used for the survey.

A centimetre-grade control point was installed and surveyed on September 24th, 2022, using an EMLID REACH RTK base station. The same control point was occupied by a DJI RTK base station throughout the LiDAR survey, to provide centimetre-accuracy control.

Control Point Coordinates;

E550396.061 N5368208.636 El. 287.740m
Coordinates are Nad83 (CSRS), UTM, Zone 17. Elevation Datum is CGVD28.

Equipment specifications are provided in ***Appendix 1 and 2.***
CSRS processing of GPS base station control point is provided in ***Appendix 3.***

6.0 LiDAR Theory, Survey Methods and Procedure

LiDAR Theory

LiDAR is an acronym of "light detection and ranging" and is a method for determining the range of an object by targeting the objects surface with a laser and measuring the time for the reflected light to return to a receiver.

When applied to the mineral exploration industry, the main advantage of LiDAR (as opposed to other imaging, such as satellite, conventional or drone air photo) is its ability to penetrate through tree canopy. That unique ability makes LiDAR useful for identifying or interpreting the type of terrain below tree canopy, on a property or regional scale. Throughout this report, the term "***bare-earth***" is used to describe any type of terrain identified or interpreted below tree cover.

Definition of "bare-earth" used in this report

The LiDAR scanning process generates a dense group of 3D points that effectively model or depict any object on the ground below. In a densely forested area for example, the LiDAR scan will include detail of individual trees, from tree top down to the base of tree. The LiDAR scan will include detail of the ground surface between the trees as well. The LiDAR scan penetrates into places not visible using conventional air photo.

LiDAR processing software allows you to view, filter or hide any part of the 3D point cloud. For many applications, filtering-out the tree cover will produce a detailed view of the bare-earth terrain.

Examples of bare-earth terrain;

- Exposed rock outcrop
- Exposed sand or gravel
- Moss ground cover with unknown material below
- Cedar swamp with poor walking conditions
- Easy walking conditions in jack pine forest / esker setting

This report focuses on identifying or interpreting the type of bare-earth terrain that exists below tree canopy. For example, spotting rock outcrop not visible on satellite or air photo imagery, allows the client to plan future sampling programs. The surrounding bare-earth terrain conditions further allow the client to decide best way to gain access on the ground.

Methods and Procedures

Drone-based LiDAR survey requires careful planning in advance. Having a good radio signal is the most important factor to consider. Many sites do not have an obvious high point (example – a hill that has been clear-cut). The operator must decide where to launch and land the drone, with as few setups as possible.

The best operating site for drone (radio signal), is a hilltop with little or no tree cover, where the hilltop elevation sits higher than the tree canopy across the area you plan to fly. The worst condition, is to work from a low spot surrounded by mature, dense forest. Regardless of the absolute elevation of the operating site, if there's a wall of dense forest between you and the drone, radio range is reduced to 300m or less. Visual line of sight between the operator and the drone is important to maintain as well, due to Transport Canada drone regulations.

The Zenmuse L1 / DJI M300 RTK system utilizes a GPS base station to track the drone position to centimeter accuracy throughout the survey. One of the first steps is to install and survey a control point (or multiple control points) to approximately 1cm accuracy. Control points are tied-into the Canadian Spatial Reference System (CSRS).

Once the launch sites and control points have been established, the drone will fly a pre-programmed grid across the site. The survey altitude and line spacing are determined based on the density of tree cover, along with the client's budget.

Processing

The raw LiDAR data is processed using DJI Terra software.
The corrected data is imported into Global Mapper Pro software, for point cloud classification and filtering. The final classified bare-earth point cloud is then surfaced and contoured in DXF format and imported into AutoCad software, which is used to prepare final maps including UTM reference grid, title block, north arrow, and scale bar.

7.0 Interpretation

As stated in the Introduction, the goals of the 2022 lidar survey are as follows;

- Establish high-resolution topographic control across the survey area.

- Generate detailed DEMs (Digital Elevation Models) of bare earth terrain below tree canopy and the top surface of tree canopy, which can be used to design a low altitude drone magnetic survey.

- Interpretation of bare-earth terrain, to aid in the identification of outcrops, soil types and to help identify features that directly apply to gold exploration, such as possible shear zones, veins, faults, and old mine workings such as shafts or pits.

- Help with overall planning and ground access on current and future exploration programs. This includes identification, mapping and digitization of existing roads and may include identification of old roads or trails that have grown over and no longer visible on satellite or air photo imagery.

High-resolution Topographic Control

High-resolution topographic control was established across the survey area. ***Figure 6*** includes topographic contours at 2m interval. Contour elevations are based on CSRS control fabric as described in ***Appendix 3*** (CSRS Processing for survey control point).

Detailed DEMs

Detailed DEMs have been generated to aid in the design of any future drone magnetic survey.
Figure 6 includes topographic contours to define the bare-earth surface below tree canopy. ***Figure 7*** includes surface contours to define the top of tree canopy. Both surfaces can be used to prepare a flight path suitable for a detailed drone magnetic survey.

Interpretation of Bare-earth Terrain

Figure 5 includes interpretation of bare-earth terrain. Six (6) outcrops have been interpreted across the survey area. ***Outcrop 1*** is the most likely to be exposed bedrock. That interpretation is based on how the apparent erosion of the riverbank stops abruptly, approximately 25m south of the interpreted outcrop. ***Outcrop 2*** is likely to be exposed bedrock, possibly covered by thin overburden. ***Outcrops 3-6*** are most likely bedrock with thin to moderate overburden cover.

Overall Planning

There are no roads visible in the LiDAR data, within the 2022 survey area.
The location of 6 identified outcrops can be used to plan future field sampling or geological mapping programs.

High-resolution maps are included at the back of this report. The high-resolution maps include topographic contours at a detail greater than available published topographic maps.

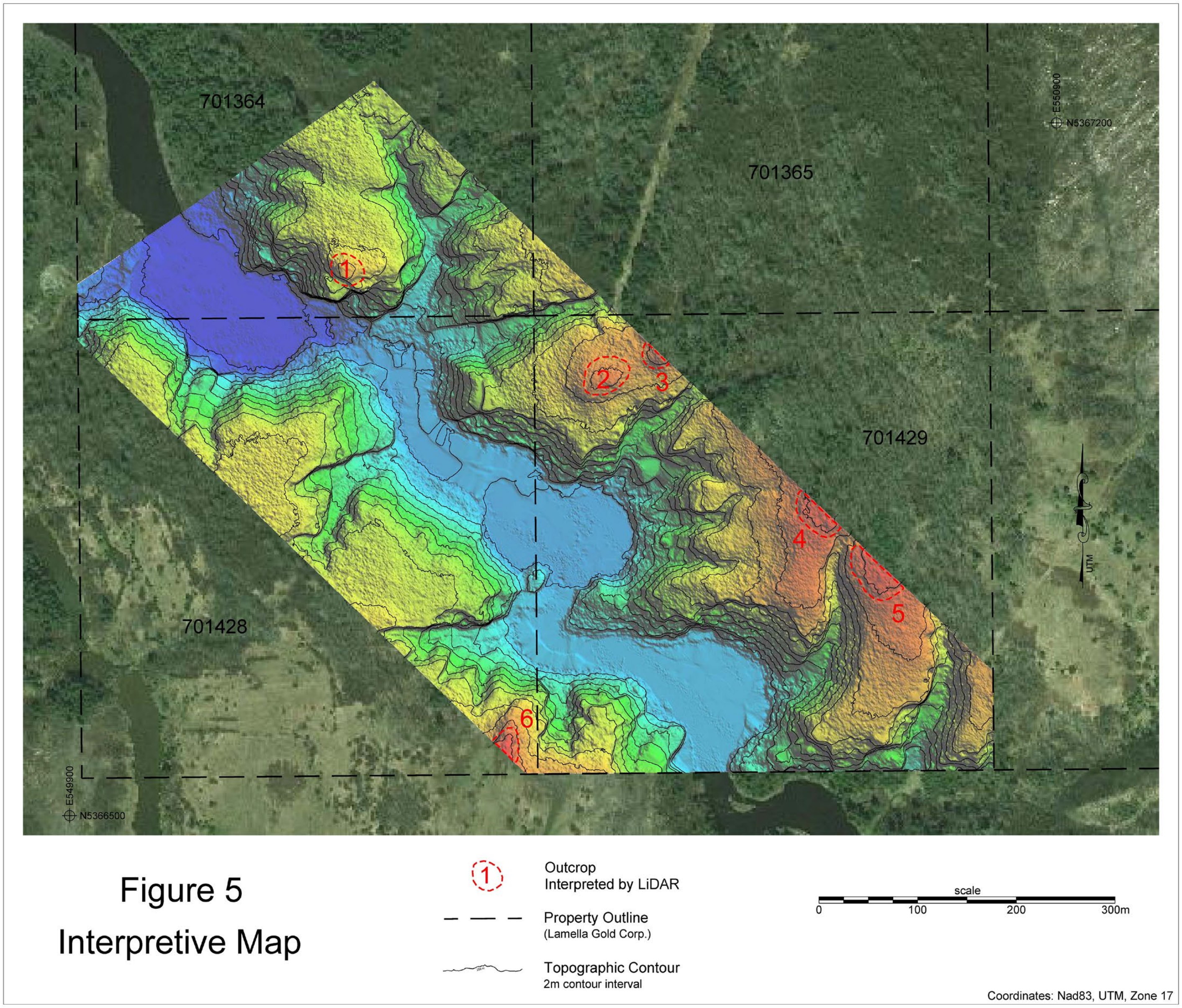


Figure 5 – Interpretive Map overlaid on LiDAR Atlas image

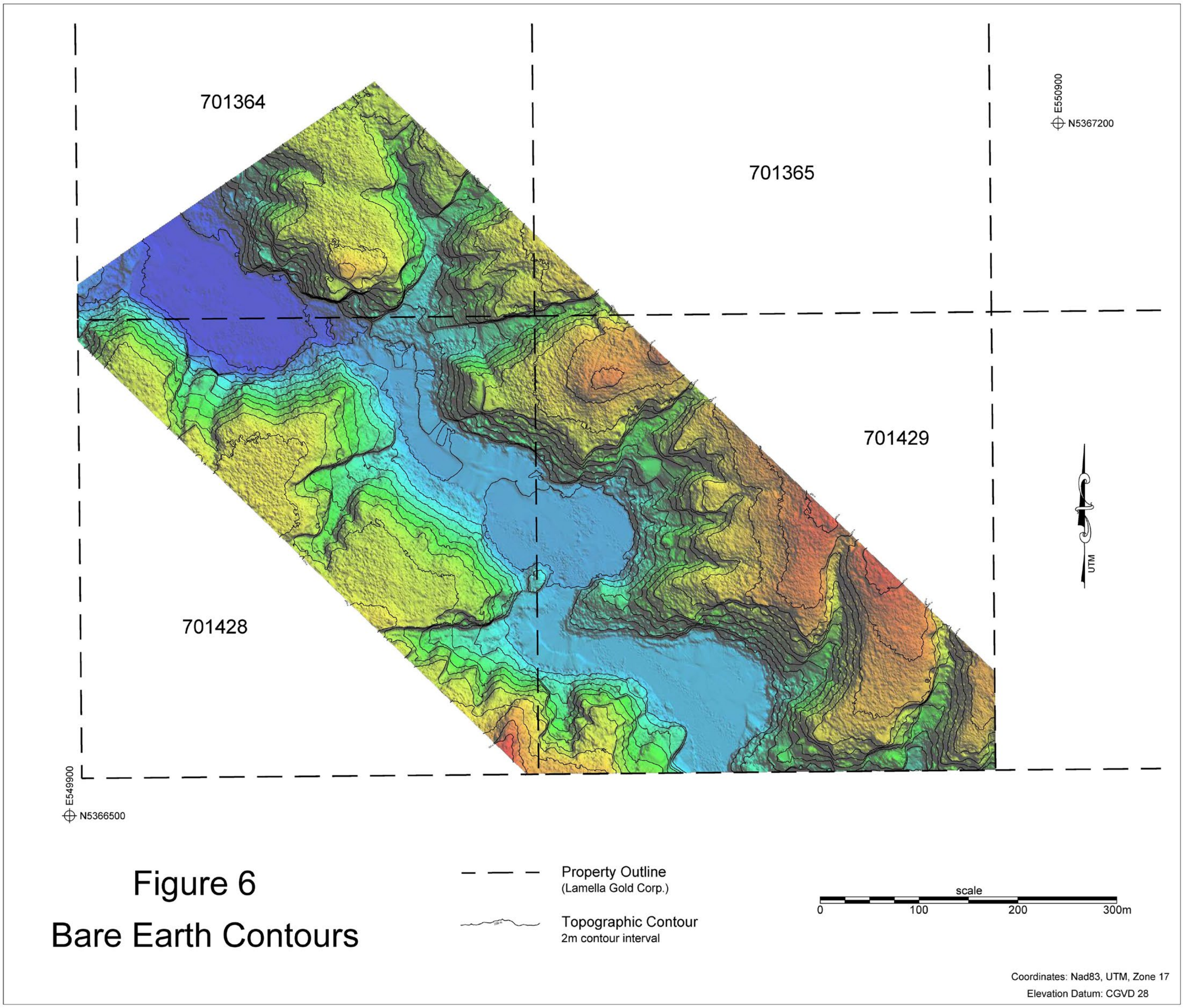


Figure 6 – Bare-earth contours overlaid on LiDAR Atlas image

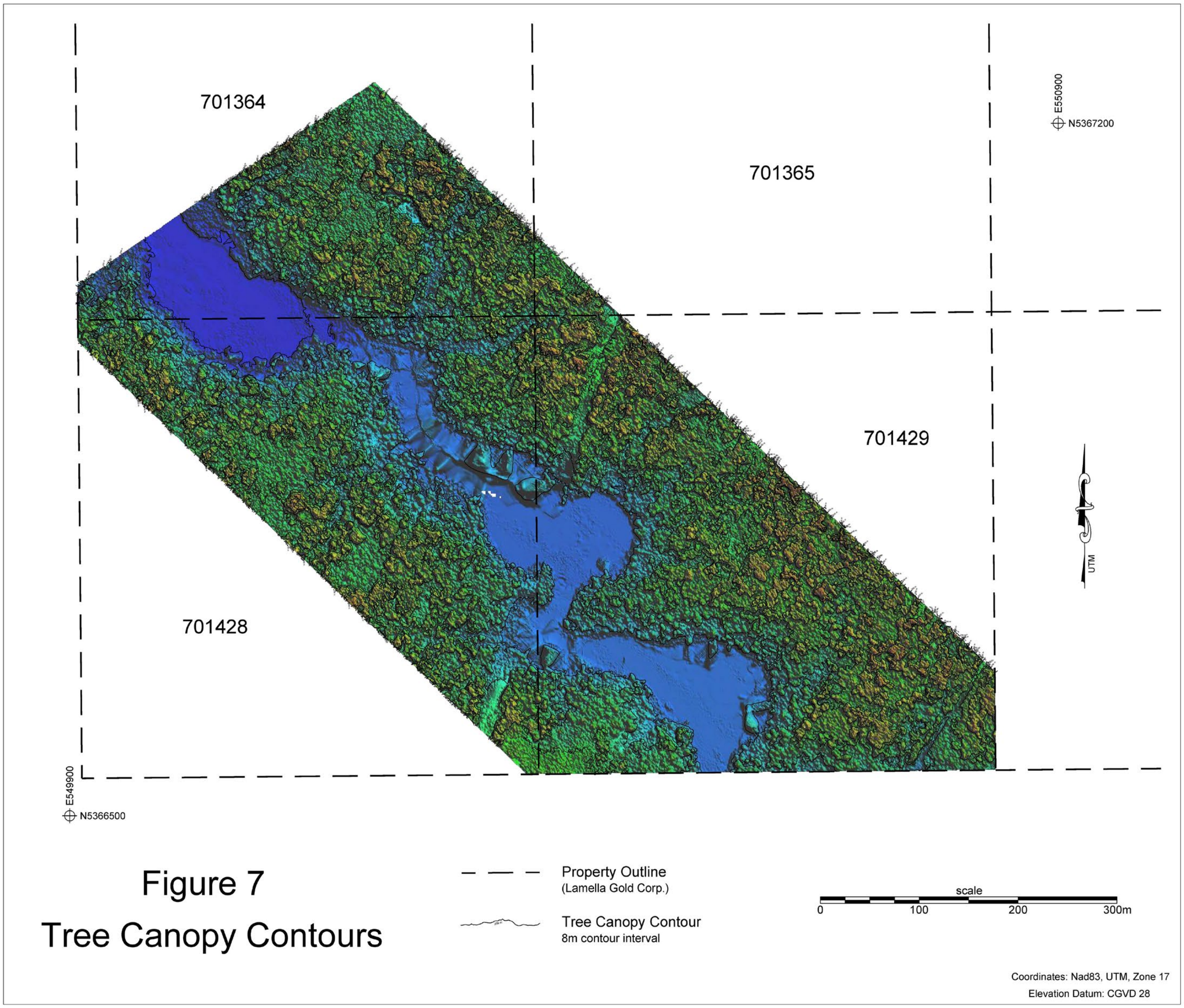


***Figure** 7* – Tree Canopy contours overlaid on LiDAR Atlas image

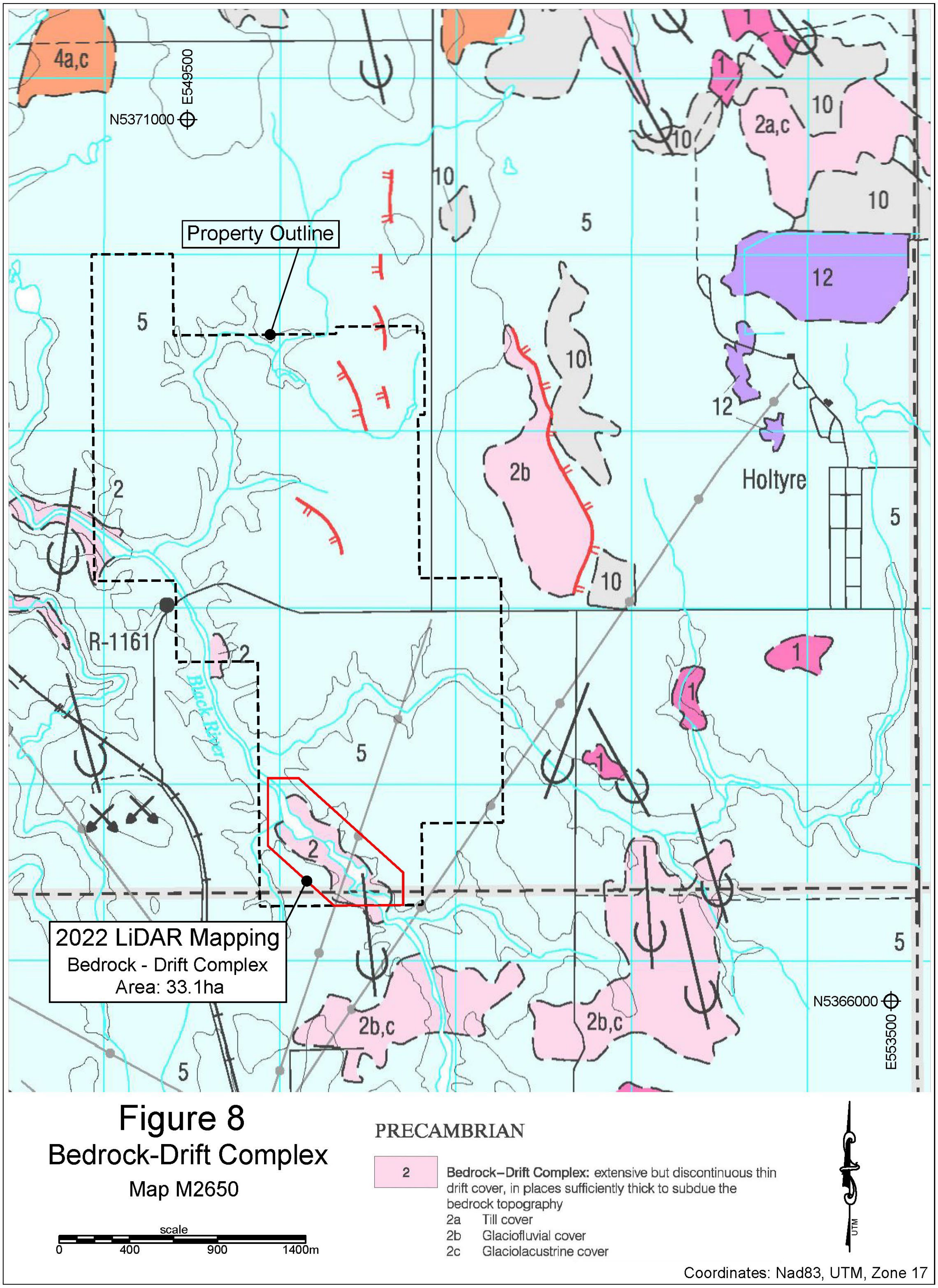


Figure 8 – Bedrock-Drift Complex from M2650

8.0 Conclusions

The 2022 LiDAR survey at Hislop Property was successful at establishing high-resolution topographic control. Detailed maps with 2m and 8m contour interval are include at the back of report. The survey is tied into CSRS control fabric and supported by the survey statistics in ***Appendix 3***.

The 2022 LiDAR survey was successful at identifying 6 outcrops across the survey area. Details of the 6 outcrops are noted in the Interpretation on page 18.

9.0 Recommendations

It is recommended that the client fly a drone air photo survey, to generate a detailed air photo mosaic across the LiDAR survey area. The resulting mosaic would provide a photographic base map, which is useful for planning and presenting future field work. Air photos may help to further classify the 6 outcrops identified by LiDAR, as either exposed rock, or drift covered terrain. This type of survey would cost approximately $4,000 to complete.

The 6 identified outcrops could be mapped and sampled on the ground. The outcrops identified by LiDAR, provide immediate targets that can be mapped and sampled, where outcrops 1 and 2 are likely to be exposed bedrock, and outcrops 3-6 are likely to have thin to moderate overburden. This type of sampling program would cost approximately $6,000 to complete.

References;

1) MRD126 – Revised Bedrock 250K available through OGSEarth.
OGSEarth can be found at link: geologyontario.mndm.gov.on.ca/ogsearth.html
Under the main menu, you will see "**Bedrock Geology**" which includes a tab to download a KML file.
The KML file will launch automatically if you already have Google Earth installed on your computer.

2) MDI – Mineral Deposits Inventory, available through OGS Earth
OGSEarth can be found at link: geologyontario.mndm.gov.on.ca/ogsearth.html
Under the main menu, you will see "**Ontario Mineral Inventory (OMI)**" which includes a tab to download a KML file.
The KML file will launch automatically if you already have Google Earth installed on your computer.

3) OAFD – Ontario Assessment File Database, available through OGS Earth
OGSEarth can be found at link: geologyontario.mndm.gov.on.ca/ogsearth.html
Under the main menu, you will see "**Ontario Assessment File Database (OAFD)**" which includes a tab to download a KML file.
The KML file will launch automatically if you already have Google Earth installed on your computer.

4) Map 2650 – Quaternary Geology, Ramore Area. Published in 2000 by the Ontario Geological Survey, scale 1:50,000.

Statement of Qualifications

Author - Kevin Cool		
		Education
from	to	Description
	1983	Photography - 1 year, Humber College, Toronto Ontario
1988	1990	Survey Engineering Technician - 2 year honours diploma, Northern College Porcupine Campus
	2014	Received Permanent Prospectors Licence, by reason of having held a Prospector's Licence for 25 years or more
	2014	Aviation Ground School, Transport Canada Compliant Unmanned Aerial System training seminar
	2014	Radio Operators Certificate - Aeronautical
		Companies owned and operated
1990	2001	**General Surveys & Exploration** - mining, exploration, aggregate, construction survey and computer drafting.
2000	2005	**Big Red Diamond Corp.** - traded publicly on TSX Venture excahange under symbol DIA. Junior mining company exploring for diamonds.
		Participated in and managed regional-scale airborne geophysical programs, stream sampling, geochem sampling and camp construction.
		Property-scale work includes ground magnetometer, grid cutting and survey.
2005	2011	**True North Mineral Laboratories Inc.** - heavy mineral separation by heavy liquid. Crushing / pulverizing for other assay. 30+ employees.
		Provided services to the mining and exploration industry such as claim staking, till and geochem sampling, magnetometer survey.
2014	current	**UAV Timmins** - drone aerial mapping and survey. 1st company to apply drone air photo survey as valid mining claim assessment in Ontario.
2017	current	**Zen Geomap Inc.** - drone magnetometer survey. 1st company to apply drone mag survey as valid mining claim assessment in Ontario.

I, Kevin Scott Cool, of 15 Prospector St., Gold Centre in the City of Timmins, Province of Ontario, hereby certify that:

1) I am a graduate of Northern College of Applied Arts and Technology, May 26th 1990, Porcupine Campus, with a 2 year Honors Diploma in Survey Engineering Technology

2) I have subsequently operated above businesses, directly engaged with the mining and exploration industry.

3) I have been actively engaged in my profession since May, 1990, in all aspects of ground and airborne exploration programs including the planning and execution of regional and property-scale programs, supervision, data processing, maps, interpretation and reports.

Kevin Scott Cool

Zen Geomap
204-70C Mountjoy ST. N.
Timmins, ON P4N 4V7

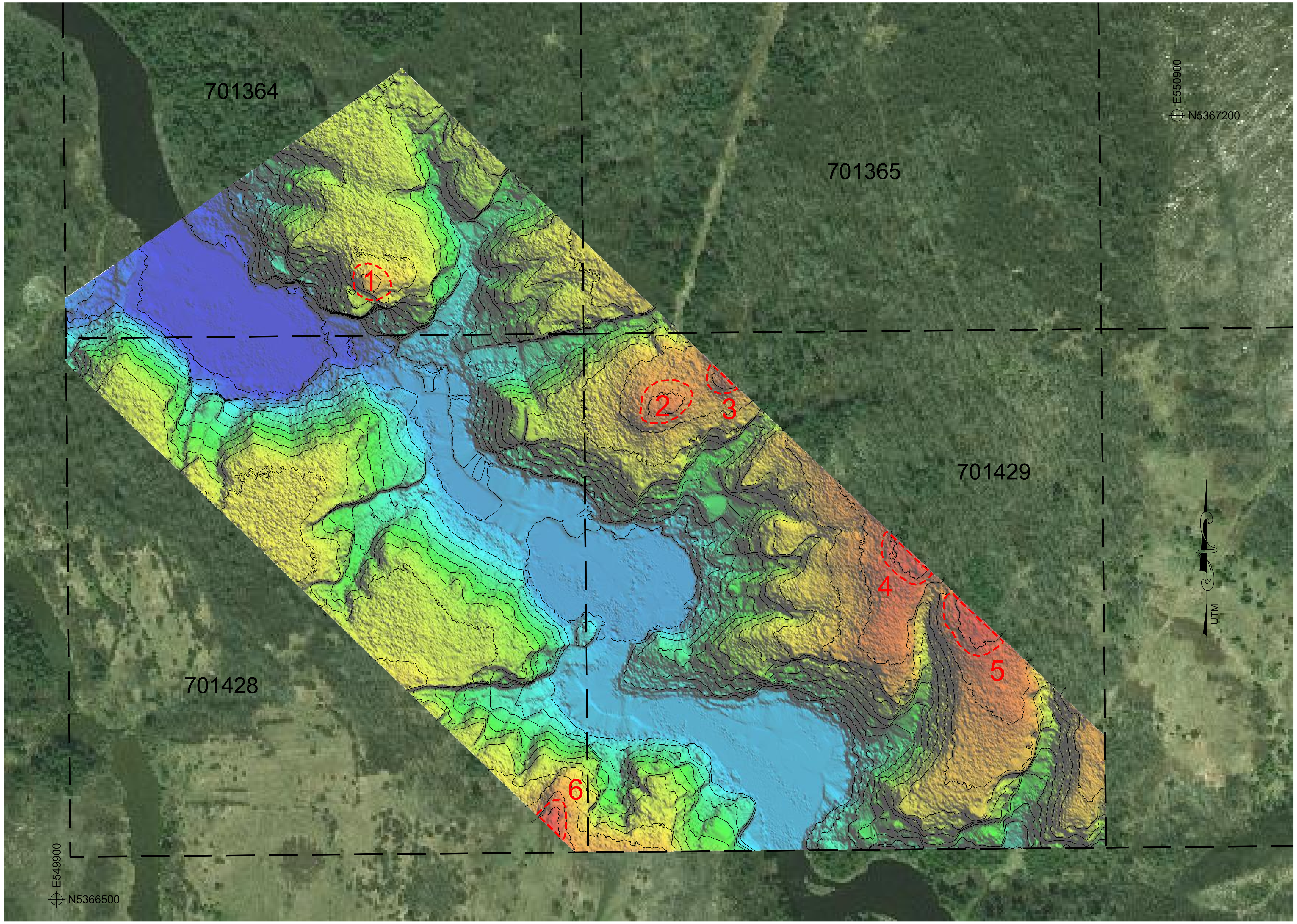


Figure 5
Interpretive Map

Outcrop
Interpreted by LiDAR

Property Outline
(Lamella Gold Corp.)

Topographic Contour
2m contour interval

scale
0 100 200 300m

Coordinates: Nad83, UTM, Zone 17

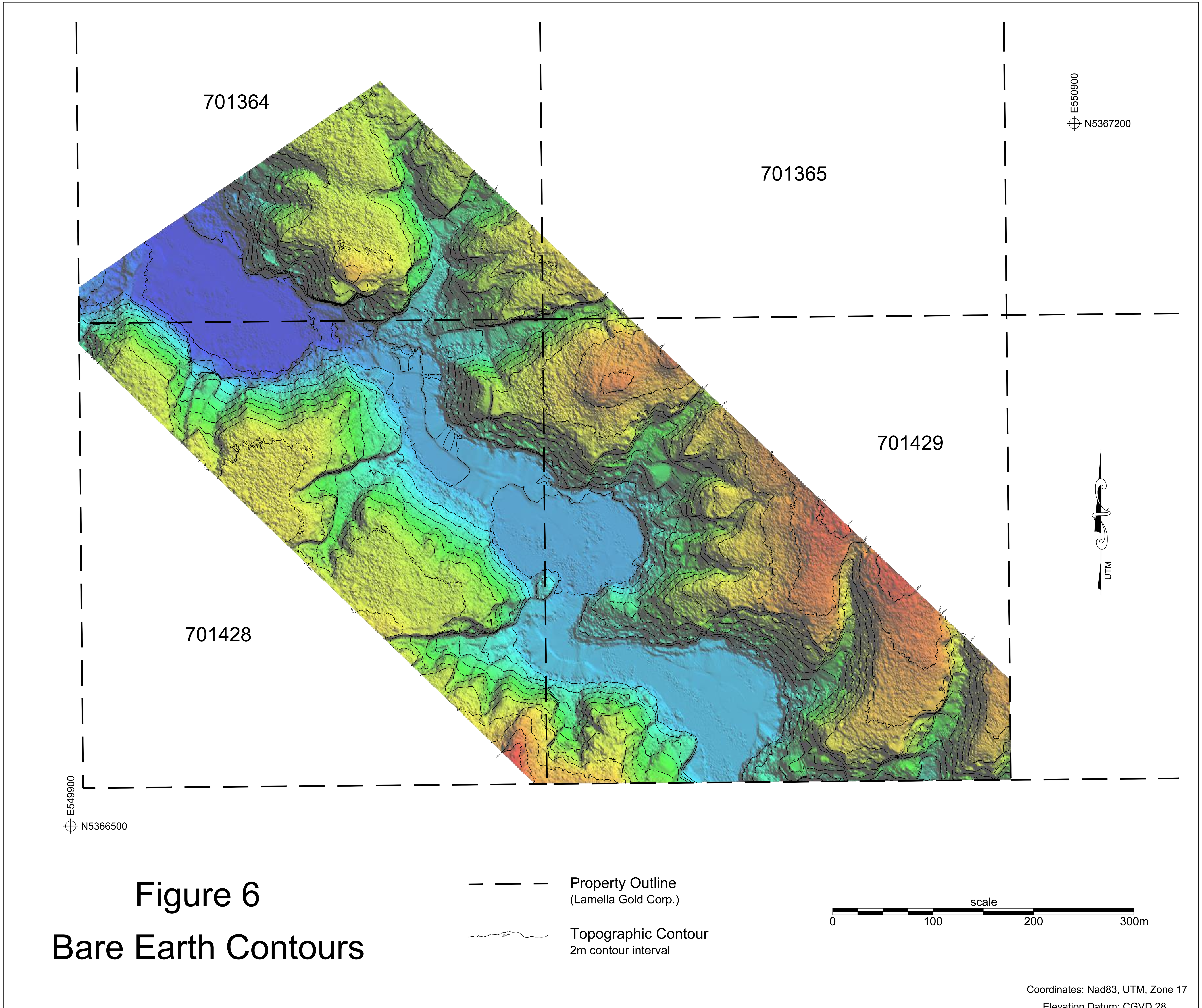


Figure 6
Bare Earth Contours

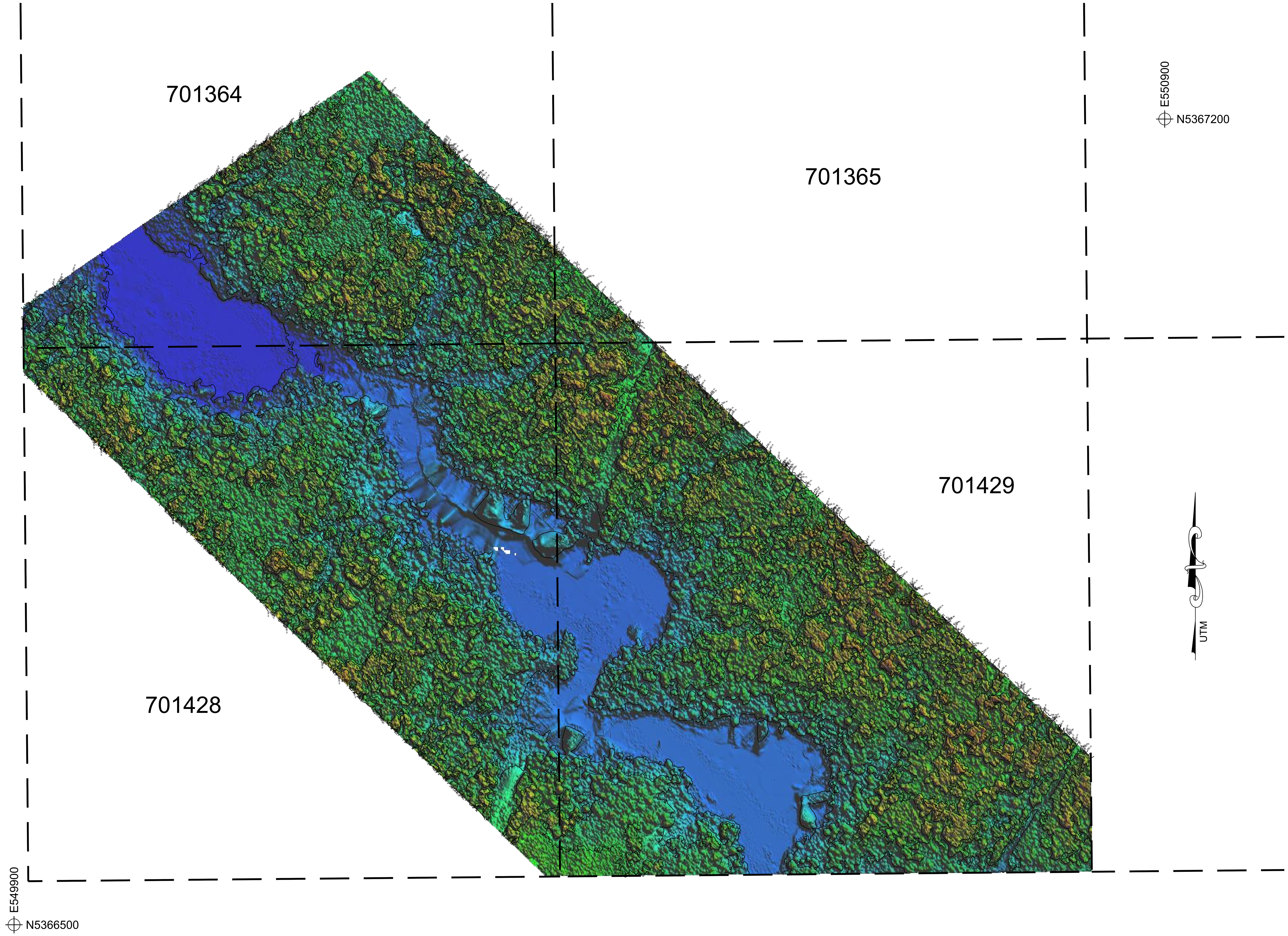


Figure 7

Tree Canopy Contours

Property Outline
(Lamella Gold Corp.)

Tree Canopy Contour
8m contour interval

scale
0 100 200 300m

Coordinates: Nad83, UTM, Zone 17
Elevation Datum: CGVD 28

Appendix 1

Zenmuse L1 Lidar Specifications

Specs

General

Product Name	Zenmuse L1
Dimensions	152×110×169 mm
Weight	930±10 g
Power	Typical: 30 W; Max: 60 W
IP Rating	IP54
Supported Aircraft	Matrice 300 RTK
Operating Temperature Range	-20° to 50° C (-4° to 122° F) 0° to 50° C (32° to 122° F) (when using RGB mapping camera)
Storage Temperature Range	-20° to 60° C (-4° to 140° F)

System Performance

Detection Range	450 m @ 80% reflectivity, 0 klx ; 190 m @ 10% reflectivity, 100 klx
Point Rate	Single return: max. 240,000 pts/s ; Multiple return: max. 480,000 pts/s
System Accuracy(RMS 1σ)[1]	Horizontal: 10 cm @ 50 m; Vertical: 5 cm @ 50 m
Real-time Point Cloud Coloring Modes	Reflectivity, Height, Distance, RGB

Lidar

Ranging Accuracy (RMS 1σ)[2]	3 cm @ 100 m
Maximum Returns Supported	3
Scan Modes	Non-repetitive scanning pattern, Repetitive scanning pattern
FOV	Non-repetitive scanning pattern: 70.4° (horizontal) × 77.2° (vertical) ; Repetitive scanning pattern: 70.4° (horizontal) × 4.5° (vertical)

Laser Safety	Class 1 (IEC 60825-1:2014) (Eye Safety)

Inertial Navigation System

IMU Update Frequency	200 Hz
Accelerometer Range	±8 g
Angular Velocity Meter Range	±2000 dps
Yaw Accuracy（RMS 1σ）[1]	Real-time: 0.3°, Post-processing: 0.15°
Pitch / Roll Accuracy（RMS 1σ）[1]	Real-time: 0.05°, Post-processing: 0.025°

Auxiliary Positioning Vision Sensor

Resolution	1280×960
FOV	95°

RGB Mapping Camera

Sensor Size	1 inch
Effective Pixels	20 MP
Photo Size	5472×3078 (16:9); 4864×3648 (4:3); 5472×3648 (3:2)
Focal Length	8.8 mm / 24 mm (Equivalent)
Shutter Speed	Mechanical Shutter Speed: 1/2000 - 8 s Electronic Shutter Speed: 1/8000 - 8 s
ISO	Video: 100 – 3200 (Auto), 100 – 6400 (Manual) Photo: 100 - 3200 (Auto), 100 - 12800 (Manual)
Aperture Range	f/2.8 - f/11
Supported File System	FAT (≤32 GB); exFAT (>32 GB)
Photo Format	JPEG
Video Format	MOV, MP4
Video Resolution	H.264, 4K: 3840×2160 30p

Gimbal

Stabilized System	3-axis (tilt, roll, pan)
Angular Vibration Range	0.01°
Mount	Detachable DJI SKYPORT

Mechanical Range	Tilt: -120° to +30°; Pan: ±320°
Operation Modes	Follow/Free/Re-center

Data Storage

Raw Data Storage	Photo/IMU/Point cloud data storage/GNSS/Calibration files
Supported microSD Cards	microSD: Sequential writing speed 50 MB/s or above and UHS-I Speed Grade 3 rating or above; Max capacity:
Recommended microSD Cards[3]	SanDisk Extreme 128GB UHS-I Speed Grade 3 SanDisk Extreme 64GB UHS-I Speed Grade 3 SanDisk Extreme 32GB UHS-I Speed Grade 3 SanDisk Extreme 16GB UHS-I Speed Grade 3 Lexar 1066x 128GB U3 Samsung EVO Plus 128GB

Post-processing Software

Supported Software	DJI Terra
Data Format	DJI Terra supports exporting standard format point cloud models: Point cloud format: PNTS/LAS/PLY/PCD/S3MB format

Notes

1. The accuracy was measured under the following conditions in a DJI laboratory environment: after a 5-minu up, using Mapping Mission with Calibration Flight enabled in DJI Pilot, and with the RTK in FIX status. The relati altitude was set to 50 m, flight speed to 10 m/s, gimbal pitch to -90°, and each straight segment of the flight ro less than 1000 m. DJI Terra was used for post-processing.
2. Measured in an environment of 25℃ with a target (80% reflectivity) 100 meters away. The result may vary u different test conditions.
3. The recommended microSD cards may be updated in future. Visit the DJI official website for the latest infor

Appendix 2

DJI M300 RTK (drone) Specifications

Specs

Aircraft

Dimensions	Unfolded, propellers excluded, 810×670×430 mm (L×W×H) Folded, propellers included, 430×420×430 mm (L×W×H)
Diagonal Wheelbase	895 mm
Weight (with single downward gimbal)	Approx. 3.6 kg (without batteries) Approx. 6.3 kg (with two TB60 batteries)
Single Gimbal Damper's Max Payload	930g
Max Takeoff Weight	9 kg
Operating Frequency	2.4000-2.4835 GHz 5.725-5.850 GHz
EIRP	2.4000-2.4835 GHz: 29.5 dBm (FCC); 18.5dBm (CE) 18.5 dBm (SRRC); 18.5dBm (MIC) 5.725-5.850 GHz: 28.5 dBm (FCC); 12.5dBm (CE) 28.5 dBm (SRRC)
Hovering Accuracy (P-mode with GPS)	Vertical: ±0.1 m (Vision System enabled) ±0.5 m (GPS enabled) ±0.1 m (RTK enabled) Horizontal: ±0.3 m (Vision System enabled) ±1.5 m (GPS enabled) ±0.1 m (RTK enabled)
RTK Positioning Accuracy	When RTK enabled and fixed: 1 cm+1 ppm (Horizontal) 1.5 cm + 1 ppm (Vertical)
Max Angular Velocity	Pitch: 300°/s, Yaw: 100°/s
Max Pitch Angle	30° (P-mode, Forward Vision System enabled: 25°)
Max Ascent Speed	S mode: 6 m/s P mode：5 m/s
Max Descent Speed (vertical)	S mode: 5 m/s

	P mode：4 m/s
Max Descent Speed (tilt)	S Mode: 7 m/s
Max Speed	S mode: 23 m/s P mode：17 m/s
Service Ceiling Above Sea Level	5000 m (with 2110 propellers, takeoff weight ≤ 7 kg) / 7000 m (with 2195 propellers, takeoff weight ≤ 7 kg)
Max Wind Resistance	15 m/s (12 m/s when taking off or landing)
Max Flight Time	55 min
Supported DJI Gimbals	Zenmuse XT2/XT S/Z30/H20/H20T/DJI P1/DJI L1
Supported Gimbal Configurations	Single Downward Gimbal, Dual Downward Gimbals, Single Upward Gimbal, Upward and Downward Gimbals, Gimbals
Ingress Protection Rating	IP45
GNSS	GPS+GLONASS+BeiDou+Galileo
Operating Temperature	-20°C to 50°C (-4°F to 122° F)

Remote Controller

Operating Frequency	2.4000-2.4835 GHz 5.725-5.850 GHz
Max Transmitting Distance (unobstructed, free of interference)	NCC/FCC: 15 km CE/MIC: 8 km SRRC: 8 km
EIRP	2.4000-2.4835 GHz: 29.5 dBm (FCC) 18.5dBm (CE) 18.5 dBm (SRRC); 18.5dBm (MIC) 5.725-5.850 GHz: 28.5 dBm (FCC); 12.5dBm (CE) 20.5 dBm (SRRC)
External battery	Name: WB37 Intelligent Battery Capacity: 4920 mAh Voltage: 7.6V Type: LiPo Energy: 37.39Wh Charging time (using BS60 Intelligent Battery Station): 70 minutes (15°C to 45°C); 130 minutes (0°C to 15°C)
Built-in battery	Type: 18650 lithium ion battery (5000 mAh @ 7.2 V) Charging: Use a USB charger with specification of 12V / 2A Rated power: 17 W Charging time: 2 hours and 15 minutes (Using a USB charger with specification of 12V / 2A)
Battery Life	Built-in battery: Approx. 2.5h Built-in battery+External battery: Approx. 4.5h
USB Power Supply	5 V / 1.5 A
Operating Temperature	-20°C to 40°C (-4 °F to 104 °F)

Vision System

Obstacle Sensing Range	Forward/Backward/Left/Right: 0.7-40m Upward/Downward: 0.6-30m
FOV	Forward/Backward/Downward: 65° (H), 50° (V) Left/Right/Upward: 75°(H), 60°(V)
Operating Environment	Surfaces with clear patterns and adequate lighting (> 15 lux)

Infrared ToF Sensing System

Obstacle Sensing Range	0.1-8m
FOV	30° (±15°)
Operating Environment	Large, diffuse and reflective obstacles (reflectivity >10%)

Top and bottom auxiliary light

Effective lighting distance	5 m

FPV Camera

Resolution	960p
FOV	145°
Frame rate	30 fps

Intelligent Flight Battery

Name	TB60
Capacity	5935 mAh
Voltage	52.8 V
Battery Type	LiPo 12S
Energy	274 Wh
Net Weight	Approx. 1.35 kg
Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Ideal storage temperature	71.6°F to 86°F (22°C to 30°C)
Charging Temperature	-4°F to 104°F (-20°C to 40°C) (When the temperature is lower than 5°C, the self-heating function will be automatically enabled. Charging in temperature may shorten the lifetime of the battery)

Charging time	Using BS60 Intelligent Battery Station: 220V input: 60 minutes (fully charging two TB60 batteries), 30 minutes (charging two TB60 batteries from 20% 110V input: 70 minutes (fully charging two TB60 batteries), 40 minutes (charging two TB60 batteries from 20%

BS60 Intelligent Battery Station

Dimensions	501*403*252mm
Net Weight	8.37kg
Maximum Capacity	TB60 Intelligent Flight Battery × 8 WB37 Intelligent Battery × 4
Input	100-120 VAC, 50-60 Hz / 220-240 VAC, 50-60 Hz
Max. Input Power	1070W
Output Power	100-120 V: 750 W 220-240 V: 992 W
Operating Temperature	-4°F to 104°F (-20°C to 40°C)

Appendix 3

CSRS Processing for Survey Control Point (Lamella Gold Hislop Property)

Please Note: Antenna Height during this session was 1.801m

Subtract 1.801m from the antenna height reported in the CSRS output file

to calculate elevation of the control monument at ground level

CSRS-PPP 3.50.3 (2022-03-04)

RTK132_202209241719_13ALJ5K10500DH.obs
0000

Data Start	**Data End**	**Duration of Observations**
2022-09-24 17:20:30.00	2022-09-24 17:44:30.00	0:24:00
Processing Time		**Product Type**
00:27:54 UTC 2022/09/25		NRCan Ultra-rapid
Observations	**Frequency**	**Mode**
Phase and Code	Double	Static

Elevation Cut-Off	**Rejected Epochs**	**Fixed Ambiguities**	**Estimation Steps**
7.5 degrees	0.00 %	76.99 %	30.00 sec

Antenna Model	**APC to ARP**	**ARP to Marker**
ADVNULLANTENNA	Unknown	H:0.000m / E:0.000m / N:0.000m

(APC = antenna phase center; ARP = antenna reference point)

Estimated Position for RTK132_202209241719_13ALJ5K10500DH.obs

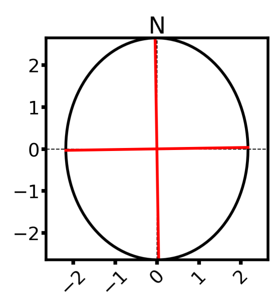
	Latitude (+n)	Longitude (+e)	Ell. Height
NAD83(CSRS) (2022.7)	48° 27' 53.96938"	-80° 19' 5.72921"	252.722 m
Sigmas(95%)	0.021 m	0.017 m	0.093 m
A priori*	48° 27' 54.01620"	-80° 19' 5.80156"	251.236 m
Estimated – A priori	-1.446 m	1.486 m	1.486 m

Orthometric Height
CGVD28 (HTv2.0)†

289.541 m

(click for height reference information)

95% Error Ellipse (cm)
semi-major: 2.6 cm
semi-minor: 2.2 cm
semi-major azimuth: 0° 5' 33.11"



UTM (North)
Zone 17

5368208.636 m (N)
550396.061 m (E)

Scale Factors
0.99963120 (point)
0.99959161 (combined)

*(Coordinates from RINEX header used as a priori position)

†(Epoch transformation using velocity grid NAD83v70VG (click for documentation))

APPENDIX 4

Statement of Costs - Lamella Gold Corp - Hislop Property

		$	$
	qty	rate	amt
Mobilization (September 24, 2022)			
Vehicle Km Timmins to Parking	95	0.60	57.00
Crew time Timmins to Site	1	165.00	165.00
Field Work (September 24, 2022)			
Install and survey centimetre control point for RTK mapping	1	165.00	165.00
1 Hour LiDAR survey using M300RTK drone and Zenmuse L1 LiDAR	1	825.00	825.00
Demobilization (September 24, 2022)			
Vehicle Km Parking to Timmins	95	0.60	57.00
Crew time Site to Timmins	1	165.00	165.00
TOTAL FIELD PROGRAM			**1434.00**
Computer Processing and Report (September 24 to October 4, 2022)			
Download and Process field data	1.5	88.00	132.00
Generate bare earth contours and shaded image	2	88.00	176.00
Overlay contours on RGB image and interpretation	2.5	88.00	220.00
TOTAL COMPUTER PROCESSING			**528.00**
Assessment Report to ENDM Standards	25	88.00	2200.00
SUB			**4162.00**
HST			541.06
Total Project			**4703.06**