BC Geological Survey Assessment Report 40009

Ministry of Energy and Mines
BC Geological Survey

Assessment Report
Title Page and Summary

TYPE OF REPORT [type of survey(s)]: Remote Sensing

TOTAL COST: $44,381.40

AUTHOR(S): Jacques Houle, P.Eng.

SIGNATURE(S):

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): MX-8-231

YEAR OF WORK: 2021/22

STATEMENT OF WORK - CASH PAYMENTS EVENT NUMBER(S)/DATE(S): 5856751 / Dec 17, 2021; / 5926516 / Feb 28, 2022

PROPERTY NAME: Jasper

CLAIM NAME(S) (on which the work was done): 342740, 1067847, 1070624, 1070626

COMMODITIES SOUGHT: Cu, Pb, Zn, Ag, Au, Mo

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 092C037, -080, -081, -088, -174, -175, -176, -243, -254, 092C256

MINING DIVISION: Victoria

NTS/BCGS: 092C15E / 092C088

LATITUDE: 48 ° 50 '12 " **LONGITUDE:** 124 ° 35 '03 " **(at centre of work)**

OWNER(S):

1) Hanna Capital Corp

2)

MAILING ADDRESS:

130 King Street, Suite 1800

Toronto, Ontario, M5X 1E3

OPERATOR(S) [who paid for the work]:

1) Hanna Capital Corp

2)

MAILING ADDRESS:

same as above

PROPERTY GEOLOGY KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude):

intermediate volcanics, felsic volcanics, mafic volcanics, basalt, andesite, basaltic andesite, dacite, rhyodacite, lapilli tuff, crystal tuff, massive, breccia, granodiorite, quartz diorite, stocks, Triassic, Jurassic, volcanogenic massive sulphides, epithermal veins, quartz-calcite-sulphide veins, fiammi, flow banding, shearing, foliation, silica, calcite, chlorite, epidote, hematite, magnetite, pyrite, chalcopyrite, sphalerite, galena, lineaments, structures, faults

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS: 642,2163,3025,3649,3671,5857,5965,10388, 11196,12260,12530,13916,16700,16813,17105,24232,25863,26467,27088,27322,27657,29659,30452,31908,32906

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TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other Remote Sensing (radarsat) including report		342740, 1067847, 1070624, 1070626	$44,381.40
Airborne			
GEOCHEMICAL (number of samples analysed for...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres; number of holes, size)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling/assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale, area)			
PREPARATORY / PHYSICAL			
Line/grid (kilometres)			
Topographic/Photogrammetric (scale, area)			
Legal surveys (scale, area)			
Road, local access (kilometres)/trail			
Trench (metres)			
Underground dev. (metres)			
Other			
		TOTAL COST:	$44,381.40

2022 Assessment Report for

Remote Sensing

On the

Jasper Property

Victoria Mining Division

BCGS 092C088
NTS 092C/15E

UTM Zone 10N 5410500N 383750E

For
Hanna Capital Corp
130 King Street, Suite 1800,
Toronto, Ontario M5X 1E3

Report written by
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Technical work by
Auracle Remote Sensing Inc.

February 28, 2022

Contents

Introduction

Property location, access and physiography

The Jasper Property claims are in the Victoria Mining Division, west-central Vancouver Island, BC, Canada, as shown in Figures 1 and 2. The Property is approximately 80 kilometres northwest of Victoria and is centered at latitude 48^0 50' and longitude 124^0 35' in NTS 092C 15E or BCGS 092C 088. The southern portion of the claims overlie most of Four Mile Creek and its tributaries, which flow south to the Caycuse River. The northern portion of the claims overlie most of Jasper Creek, Granite Creek, and their tributaries which flow northwest into the Nitinat River.

Steep incised drainages with rugged relief to approximately 300 meters characterize the physiography of the area. Much of the region has been logged in recent years and young second growth forest and logging roads occur over most of the claims. Climatic conditions are temperate with abundant rainfall in fall, winter and spring. Snow is seasonally present on the upper elevations during the period of mid- December to mid-February. Summer conditions can be dry and hot from mid- July to the end of August. Local temporary closures of the woods may occur during times of extreme forest fire danger. Generally, mild West Coast climatic conditions allow for a long exploration field season.

All weather logging road access the Property is from the north via Port Alberni, approximately 45 kilometres, or from the east via Cowichan Lake (25 kilometres) and Duncan (50 kilometres) with driving times of about 90 minutes from either Port Alberni or Duncan to the Property. The Nitinat Main, Jasper Creek and Granite logging roads access the northern portion of the Property and Caycuse Main the southern portion. The Jasper Creek and Granite roads have been partially deactivated and helicopter or foot access is currently required to access the northern and central portions of the property, including the Jasper, Tenas, Avallin and Gillespie occurrences. Caycuse Main logging road from Nitinat Lake is also partially deactivated, and from Lake Cowichan the western portion of Caycuse Main is inaccessible to motor vehicles due to washed out bridges and roads on the southern part of the property, and helicopter or foot access is currently required to access the mineral occurrences within the Main Grid area of the property, including Jasper 1, Tam 16, Pan, Camp Vie, South Four Mile Creek, South Camp Creek Road, and Camp Creek. At this time, significant road rehabilitation or helicopters are required to effectively access the Jasper Property for any mechanized exploration work.

Property definition, owner, operator, geology and history

The Jasper Property consists of the Jas 3 legacy mineral claim and three cell mineral claims that together comprise four contiguous claims which cover 3978 hectares (Table 1 - Mineral Title Status). Mineral title location maps of the Property at two scales are shown in Figures 1 and 2. The Property is 100% owned and operated by Hanna Capital Corp., Free Miners License No. 232291. The Jasper Property is subject to a purchase agreement dated December 1, 2007 whereby Nitinat Mineral Corp. (since renamed Hanna Capital Corp) acquired 100% interest in the Property from Inspiration Mining Corp. in exchange for special warrants. All four mineral claims are in good standing until February 12, 2023.

Table 1 – Jasper Mineral Claims Title Status as of February 28, 2022

Title Number	Claim Name	Owner	Title Type	Issue Date	Good To Date	Status	Area (ha)
342740	JAS 3	232921 (100%)	Mineral	1995/DEC/19	2023/FEB/12	GOOD	300
1067847	JASPER MAIN	232921 (100%)	Mineral	2019/APR/11	2023/FEB/12	GOOD	1743.823
1070624	JASPER EAST	232921 (100%)	Mineral	2019/AUG/26	2023/FEB/12	GOOD	1445.204
1070626	JASPER WEST	232921 (100%)	Mineral	2019/AUG/26	2023/FEB/12	GOOD	489.0296
Totals	**4 claims**						**3978.0564**

The surface rights over the mineral claims of the Jasper Property are held by the B.C. government as crown land. Crown timber licenses over much of the Property are held by various logging companies. Communities and Reserves of the Dididaht First Nation are situated along the Nitinat River, and at the mouths of the Nitinat and Caycuse Rivers where they drain into Nitinat Lake, north and west of the Property. Two small provincial parks separated by a No Staking Reserve extends between two Reserves along the Nitinat River and the northern boundary of the Jasper Property.

The Jasper Property is hosted in a belt of volcano-sedimentary rocks mapped as upper Triassic to lower Jurassic Bonanza Group, immediately underlain by rocks of the middle Triassic Vancouver group. This belt of rocks underlies much of Vancouver Island, surrounding occasional uplifts of older Paleozoic Sicker Group volcano-sedimentary rocks which host the economically important Myra Falls Massive Sulphide district located approximately 120 kilometres to the northwest, and the Mount Sicker Massive Sulphide district located approximately 60 kilometres to the east, respectively. Intrusive rocks of both the Jurassic Island Plutonic Suite and the younger Eocene Mount Washington Plutonic Suite cut the layered rocks of the Sicker, Vancouver and Bonanza groups.

The Bonanza Group (lJBca) in the area of the Jasper Property consists of a variety of maroon to gray-green, feldspar phyric basalt and andesite flows and dacite and felsic lapilli tuff containing various minor gabbro, andesite and dacite dykes. There is a lack of lithological continuity and distinct marker beds are absent. In the basal part of the sequence, sedimentary rocks are found interbedded with lapilli and crystal tuffs, indicating a sub-aqueous environment.

Intrusive stocks of the Jurassic Island Plutonic Suite (EMJlgd) surround the Jasper Property and are mapped in the northeast and northwest portions of the property. The coeval stocks are regular to elongate in shape with steep sides and are generally exposed as rounded outcrops. The major lithology is granodiorite to quartz-diorite and most of the stocks are rich in mafic inclusions, particularly in marginal zones where magmatic intrusive breccias occur.

The northeast portions of the Property are sequentially underlain by Triassic Vancouver Group rocks consisting of mafic volcanics, tuffs and breccias of the Triassic Karmutsen Formation (uTrVK), overlain by limestone of the Quatsino Formation, and black argillites of the Parson Bay Formation, collectively grouped (muTrVs). All rocks are highly folded, faulted and intruded by lower Jurassic intermediate to mafic dykes that are coeval with the Bonanza volcanics and by felsite dykes, either Jurassic or Eocene in age.

Property area BCGS regional geology is shown in Figure 3, with the following geological legend which applies to that figure:

FAULT

EARLY TO MIDDLE JURASSIC
Island Plutonic Suite

EMJlgd granodioritic intrusive rocks

LOWER JURASSIC
Bonanza Group
Lemare Lake Formation

IJBca calc-alkaline volcanics

MIDDLE TRIASSIC TO UPPER TRIASSIC
Vancouver Group
Quatsino and/or Parson Bay Formations

muTrVs undivided sedimentary rocks

Karmutsen Formation

uTrVK basaltic volcanic rocks

From historical mapping, the Property geological setting can be described as follows: The Jasper Property is mainly underlain by mafic to felsic volcanic rocks that have been previously mapped as Bonanza group. The north-central portion of the Property (Jasper showing) is underlain by a northwest trending sequence of intermediate flows and flow breccias that are flanked to the east by mafic flows. Units appear to have a moderate dip to the southwest. A wedge-shaped body of felsic volcanic flows overlies the mafic rocks to the east. Felsite dykes intrude the intermediate and mafic volcanics, some of which may be feeders to the younger felsic flows. The intermediate and mafic flows and flow breccias are massive and bedding orientation is difficult to determine. Minor thin intercalations of pyritic argillite are present locally within the volcanic sequence.

Numerous MINFILE occurrences are found in the Alberni-Cowichan area and porphyry skarn, vein and VMS styles of mineralization have been reported by BCGS geologists based on exploration work by numerous companies over many years. Porphyry Cu-Mo occurrences are commonly associated with high level sub-volcanic dykes and sills belonging to the Jurassic Island Plutonic suites, along with Cu-Fe skarns where the intrusions cut calcareous rocks. The Mount Sicker VMS district occurs in the eastern portion of the region hosted in Paleozoic rocks of the Sicker Group. Massey and Friday (BCGS) noted VMS mineral potential where reported "sulphidic argillites are found interbedded with tuffs" in the basal part of the Bonanza sequence in the Alberni - Cowichan area. Nixon (BCGS) has proposed this same geological horizon in northern Vancouver Island as a favourable setting for volcanogenic massive sulphide deposits.

Exploration work on the Jasper Property began in the 1950's, and continued intermittently since then, resulting in the documentation of ten MINFILE occurrences on the Property, shown in Figure 2 and listed in Table 2.

Table 2 – BC MINFILE Occurrences on the Jasper Property

Name	MINFILE #	Status	Deposit Type	Commodities	On Claim
Avallin	092C 037	Prospect	Cu skarn	Cu, Ag	1070624
Jasper 1	092C 080	Showing	Cu-Ag quartz veins, Noranda-Kuroko massive sulphide Cu-Pb-Zn	Cu, Pb, Zn, Ag, Au	1067847
Tam 16	092C 081	Showing	Cu-Ag quartz veins, Noranda-Kuroko massive sulphide Cu-Pb-Zn	Cu, Zn, Ag, Au	1067847
Pan	092C 088	Showing	unspecified	Cu, Zn, Pb, Au, Ag	1067847
Camp View	092C 174	Showing	unspecified	Cu, Pb, Zn, Ag, Au	1067847
South Four Mile Creek	092C 175	Showing	unspecified	Cu, Ag, Au, Pb, Zn	1067847
South Camp Creek Road	092C 176	Showing	unspecified	Cu, Ag, Au, Pb, Zn	1067847
Camp Creek	092C 243	Showing	unspecified	Ag, Cu	1067847
Tenas	092C 254	Showing	Skarn	Cu, Ag, Au	1070624
Gillespie	092C 256	Showing	Cu skarn	Cu	1070624

The northeast portion of the Property (including the Avallin, Tenas and Gillespie skarn MINFILE occurrences) are underlain by mafic volcanics, limestones and argillites of the Vancouver Group, both intruded by granodioritic stocks of the Island Plutonic Suite. The central and southern portions of the Property (including the Jasper 1, Tam 16, South Four Mile Creek, Camp View, Camp Creek, South Camp Creek Road and Pan volcanic-hosted massive sulphide showings) are underlain by mafic and intermediate volcanic sequences. Felsic volcanics generally occur at higher elevations on the eastern portion of the claims. Local foliation is oriented north-south.

An apparent major fault suture cuts Vancouver Island from the mouth of the Carmanah River on the West Coast to Parksville on the East. Seven of the ten MINFILE occurrences lie along this major fault structure. A north trending gossanous alteration zone with a strike length greater than four kilometers underlies the Jasper Property along the fault from the Caycuse Creek drainage in the south to the Nitinat Valley in the north. Within the alteration zone, protoliths are obliterated in macroscopic outcrop scale and individual units are difficult to correlate and map. The alteration zone is characterized by moderate to intense argillization and silicification accompanied by ubiquitous pyrite flooding. The alteration zone is generally concordant with the foliation and stratigraphy throughout its strike length. Based on the huge volume of intensely altered rock present, a major period of hydrothermal activity has taken place along the strike length of the system. The Main Grid area is partially underlain by this intense alteration zone and the seven MINFILE occurrences, shown in Figures 2 to 4, with Figure 4 showing the intense aeromagnetic low coincident with the alteration zone. In the Pan area, ferricrete and locally thick till commonly overlie the alteration zone and have the effect of “masking” residual soil anomalies.

Steeply dipping, cross cutting, north trending fractures, shears and fault gouge zones are prevalent within the alteration zone and form the recessive valley containing Four Mile Creek. Coincident narrow fault and fracture zones often emanate as a conjugate set at right angles to the main north trending fault system and control second order drainages that are the side creeks of the main Four Mile Creek drainage system. Offsets of all structures are not known as volcanic units had not been mapped across structures until 2015. Local brittle faulting commonly causes minor offsets to massive sulphide lenses in outcrop at the Jasper Showing.

Approximately twelve Cu, Zn +/- Pb, Ag, Au sulphide showing areas were relocated or discovered, and sampled by the Arnex/Inspiration programs carried out between 1994 and 2004 (Birkeland, 2004 ARIS 27657). The two showings of principal interest in the central portion of the Property are the Jasper Showing (MINFILE 092C080) and the Pan Showing (MINFILE 092C088). Other showings documented in MINFILE include TAM (MINFILE 092C081), Camp View (MINFILE 092C174), South Four Mile Creek (MINFILE 092C175), South Camp Creek Road (MINFILE 092C176). In 2004, geo-referenced soil geochemistry surveys were also completed in the Main Grid area of the Property.

In 2007, Inspiration completed geochronology work (Houle, 2008 ARIS 29659) establishing the Jurassic age of sulphide mineralization at Jasper 1 and Pan.

In 2008, after acquisition of the property from Inspiration, Nitinat completed a magnetic and electro-magnetic airborne geophysical survey over the Jasper Property (Houle, 2008 ARIS 30452).

In 2010, airborne geophysical anomalies were prospected, an additional copper skarn showing was relocated and sampled (Avallin MINFILE 092C 037), an additional new Cu, Zn +/-Pb, Ag, Au sulphide showing, Camp Creek (MINFILE 092C 243) was discovered and sampled (Burgert and Houle, 2010 ARIS 31908), and soil geochemistry coverage of the Main Grid area started in the early 2000's was completed.

In 2011 mechanized trenching and detailed geological mapping and rock chip sampling was completed at four road-accessible sulphide showings in the southern portion of the Property and a three-hole 162 metre definition diamond drilling program was completed at the Pan Showing (Houle, 2011 ARIS 32906).

In 2015, detailed 1:2000 scale GPS grid-based geological mapping and concurrent whole rock lithogeochemical sampling was completed over the 3 km by 1.5 km Main Grid Area, a new Zn +/- Cu, Pb, Ag, Au, Cd, Te, Bi massive sulphide occurrence (Zincy) in subcrop was discovered and sampled (Houle, 2015 ARIS 35671). Volcanic stratigraphy was interpreted as north-south striking and variably east-dipping, consisting of mafic, intermediate and felsic volcanic units offset by northwest striking, steeply-dipping cross faults. Most of the sulphide occurrences in the Main Grid area occur within the central intermediate volcanic unit.

In 2017, modeling and inversion of the 2008 airborne magnetic and EM data by T. Pezzot, P.Geo. detected a pervasive sub-horizontal conductive horizon (Houle, 2017 ARIS 37078). In 2018, the electromagnetic inversion analysis was expanded across the entire area surveyed in 2008 and refined to help identify the thickest and shallowest portions of the high conductivity layer, also by T. Pezzot. The 2017-2018 geophysical modeling and inversion programs, particularly the EM work, identified a previously unknown sub-horizontal conductive horizon at depths of 500 to 750 metres below surface underlying portions of the Jasper Property. This horizon does not appear to be exposed at surface and has never been tested by drilling (Houle, 2018 ARIS 37601).

In 2020, a field reconnaissance of the Caycuse Main access road to the Jasper Property was completed by Onsite Engineering Ltd (see Appendix 2). Both east and west access routes were found to be seriously deteriorated and unusable. The western route from Nitinat Lake was determined as the shortest and most cost-effective route to reconstruct.

This report documents the remote sensing work completed in 2021-2022 over the Jasper Property by Auracle Remote Sensing Inc., plus integration with previous work programs and interpretation by the author.

List of claims and work completed

From January to September, 2021 intermittently the author, Jacques Houle P.Eng., researched, established and executed a strategy to maintain the Jasper Property in good standing as well as providing useful technical information. This involves engaging Auracle Remote Sensing to acquire, process and interpret satellite radar data over the Jasper Property to better understand geological structures prior to deep drilling proposed in the Main Grid Area. During this time, it was determined that permit MX-9-231 for the Property was obsolete and a new permit required for any future mechanized work.

From October 2021 to February 2022, Auracle Remote Sensing acquired satellite data and completed processing and analysis of that data on behalf of Hanna Capital Corp. The remote sensing data was acquired, processed and analyzed for an area over and surrounding the entire Jasper Property and its four claims as shown in Figure 2. The technical data and final report by Auracle Remote Sensing appears in Appendix 1.

On December 17, 2021 the author filed the initial Statement of Work; and the second Statement of Work was filed on February 28, 2022. On February 11, 2022 the author reviewed processed and interpreted data with Auracle personnel at their Parksville, BC facility. This technical report was completed by the author intermittently from January 27, 2022 to February 28, 2022. The 2021-2022 cost statement for the technical assessment work program appears in Appendix 2; and the MTO statements of work supported by and described in this technical report also appear in Appendix 2.

Technical Data, Interpretation, Conclusions and Recommendations

<u>2022 Remote Sensing Interpretations:</u>

The radarsat data after processing and interpretation yielded numerous lineaments across the property, with the greatest intensity of lineaments occurring within and immediately surrounding the Main Grid area. These lineaments are shown as yellow line segments in Figure 5 for the Jasper Property and Figure 6 for the Main Grid area. In the northeast portion of the property some lineaments are interpreted by the author as unconformable and/or faulted geological contacts between underlying Vancouver Group sediments and overlying Bonanza Group Volcanics.

In the Main Grid area these lineaments are interpreted by the author as geological structures (faults) within the altered volcanics, where over 100 foliation, shear and possible bedding measurements were documented in outcrop mapping completed in 2015 (Houle, 2015 ARIS 35671). The geological structures interpreted from the processed radarsat data visually appear to be oriented in 3 main directions and display cross-cutting and offset relationships suggesting at least 2 different ages as follows:

1. Oldest set of short structures oriented between 020 and 340 Azimuth, averaging approximately 000 Azimuth (bedding?), which are truncated, offset and rotated generally counterclockwise to approximately 320 Azimuth by all other structures, displaying both dextral and sinistral apparent offsets

2. Younger set of longer structures oriented approximately 070 Azimuth, mutually truncated and offset by item 3 structures, possibly as a set of conjugate faults

3. Younger set of longer structures oriented approximately 110 Azimuth, mutually truncated and offset by item 2 structures, possibly as a set of conjugate faults

In order to better visualize the interpreted structures in the area of the Jasper Main Grid a series of vertical cross sections were produced by Auracle at the request of the author. These cross sections were oriented sub-parallel to the 2 younger main lineament directions (070 and 110 Azimuth) and located in areas displaying fewer lineaments and presumably lesser structural complexity. The locations and numbers of the cross sections are shown in Figures 5 and 6. A total of 12 cross sections were produced by Auracle using little or no vertical exaggeration and are reproduced and notated in Figures 7 to 12, with 2 cross sections shown per Figure. Cross sections 1 to 5 are oriented at 110 Azimuth and are looking at 020 Azimuth; cross sections 6 to 12 are oriented at 070 Azimuth and are looking at 340 Azimuth.

The penetration depth of the processed radarsat data is from 50 to 100 metres from surface, which is well below the interface between overburden and bedrock in the area of the property, but well above the depth of the interpreted sub-horizontal conductor (Houle, 2018 ARIS 37601). The cross sections are notated with yellow dots and vertical lines where sections are crossed by interpreted lineaments, by green dots and vertical lines where sections are crossed by logging roads, and by blue dots and vertical lines where sections are crossed by creeks. Numbered red circles shown on the 2 figures show the locations of the 4 proposed deep vertical drill holes, and corresponding numbered red circles and vertical lines show the 4 proposed drill holes on selected cross sections near their locations. The locations of the 4 proposed drill holes have remained essentially unchanged since they are positioned in areas of relatively few structures.

The cross sections appear to show suggestions of dip orientations of interpreted structures, and possibly bedding orientations sub-parallel to topography. The orientations of these structures have been quantified by Auracle and displayed in the Strike and Dip Map and Final Report which appear in Appendix 1.

Conclusions and Recommendations:

Several conclusions have been refined for the Jasper Main Grid area resulting from the successful completion of the 2022 remote sensing program, summarized as follows:

1. Main lithology is altered intermediate volcanics (andesite or basaltic andesite), and two other apparently conformable lithological horizons occur, 250 to 500 apart and each 250 to 500 metres in horizontal thickness, including an eastern felsic volcanic (dacite or rhyodacite) horizon and a western mafic volcanic (basalt) horizon separated by a central intermediate volcanic horizon

2. Older faults and/or lithological contacts strike roughly N-S, have unknown dip orientations, and are truncated, offset and rotated by swarms of younger conjugate fault sets oriented 070 and 110 Az; the relationships between the structures mapped in outcrop and the structures interpreted from the radarsat data are unknown

3. Fifteen polymetallic sulphide zones discovered in rocks over a 2.75 km. strike length, of which eleven zones occur within or along the contacts of the central intermediate volcanic horizon, one zone occurs within the eastern felsic volcanic horizon, and three zones occur within or immediately west of the western mafic volcanic horizon

4. The 2.25 km. length by 0.5 km wide polymetallic soil geochemistry anomaly is coincident with the polymetallic zones in rocks, coincident with areas of low magnetic susceptibility, and roughly coincident with the central intermediate volcanic horizon

5. A pervasive sub-horizontal conductive horizon at depths of 500 to 750 metres below surface has been interpreted to exist in 4 clusters beneath the Jasper Property, and 1 cluster beyond the property boundary, but has never been tested by drilling

6. Possible target deposit types are many and variable, and may include the following:
    a. Noranda/Kuroko Massive Sulphide Cu-Pb-Zn – BC Deposit Profile G06
    b. Epithermal Au-Ag-Cu High Sulphidation – BC Deposit Profile H04
    c. Epithermal Au-Ag Low Sulphidation – BC Deposit Profile H05
    d. Polymetallic Veins Ag-Pb-Zn-Au – BC Deposit Profile I05
    e. Cu+/-Ag Quartz Veins – BC Deposit Profile I06
    f. Cu Skarns – BC Deposit Profile K01
    g. Pb-Zn Skarns – BC Deposit Profile K02
    h. Subvolcanic Cu-Ag-Au (As-Sb) – BC Deposit Profile L01
    i. Porphyry Cu-Mo-Au – BC Deposit Profile L04

A road-based reconnaissance diamond drilling program under a new exploration permit is recommended to adequately test the sub-horizontal conductive horizon in the Main Grid area where it is coincident with the area of low magnetic susceptibility and underlies the soil geochemical anomalies and 11 of 15 known polymetallic mineral occurrences with 4 widely spaced near-vertical NQ holes, each up to 750 m. in depth, and include downhole EM surveys. The proposed drill sites should be geologically mapped in detail and structural information integrated with the radarsat data. The drill site locations may need to be adjusted to help minimize intersecting any obvious structures near the tops of the holes. These proposed holes are shown in Figure 6, with details in Table 3.

The drilling program will require rehabilitation of the Caycuse Main Road on the Jasper Property to provide access from Port Alberni via Nitinat Lake and establishing a temporary camp at the 2004 Camp Site near the centre of the main grid and proposed drilling area. The western access route along Caycuse Main from Nitinat Lake has been inaccessible for many years due to one or more washouts along western side of Four Mile Creek, but if that road was rehabilitated and/or realigned it would be 10 km or 30-minute drive from Nitinat Lake to the Property (see Appendix 2). A cost estimate and scope of work by a qualified and experienced consultant is required, followed by approximately 3 km. of road reconstruction under a new exploration permit.

The alternative to repairing either access road route is to complete the proposed drilling program using helicopter support, based from a staging area with road access from Port Alberni from a temporary camp at a staging area located on the southwest corner of the Property. No cost estimate has been made for a helicopter-supported drilling program.

Table 3 – Proposed Work Program for the Jasper Property

Item	Units	Unit Cost	Schedule	Program Cost
Project planning	10 days for 1 senior geologist	$1,000 per day	Summer	$ 10,000
Access road survey	10 days for 2 road engineers	$2,000 per day	Summer	$ 20,000
Exploration permit	N.O.W. application, reclamation bond	estimate	Spring	$ 50,000
Access road rehab.	25 days backhoe + bridges, culverts	$10,000 per day	Fall	$ 250,000
Diamond Drilling	4 holes 3,000 metres + downhole EM	$200 per metre	Fall	$ 600,000
Compilation, Reports	10 days for 1 sr. + 1 jr. geologist	$1,500 per day	Winter	$ 15,000
Contingency	estimate			$ 55,000
Totals				**$ 1,000,000**

Additional work programs may be recommended conditional upon results.

Respectfully submitted by:

Jacques Houle, P.Eng.

Author's Qualifications

I, Jacques Houle, P.Eng. do hereby certify that:

I am currently self-employed as a consulting geologist by:
Jacques Houle, P.Eng. Mineral Exploration Consulting
6552 Peregrine Road, Nanaimo, British Columbia, Canada V9V 1P8

I graduated with a Bachelor's of Applied Science degree in Geological Engineering with specialization in Mineral Exploration from the University of Toronto in 1978.

I am a member in good standing with the Association of Professional Engineers and Geoscientists of British Columbia (Permit 1000227), the Society of Economic Geologists, the Association for Mineral Exploration British Columbia, the Association of Applied Geochemists, and the Vancouver Island Exploration Group; I am also a member of the Technical Advisory Committee for Geoscience B.C., and of the advisory committee for the Earth Science Department of Vancouver Island University.

I have worked as a geologist for over 40 years since graduating from university, including 5 years as a mine geologist in underground gold and silver mines, 15 years as an exploration manager, 3 years as a government geologist and 19 years as a mineral exploration consultant.

I previously worked on the Jasper Property in 2004, 2009, 2010, 2011 and 2015; and I am independent of Hanna Capital Corp.

Dated this 28th day of February, 2022

Signature of Author

Jacques Houle, P.Eng
Printed name of Author

References

B. C. Ministry of Energy, Mines and Low Carbon Innovation websites:

Assessment Reports
https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/british-columbia-geological-survey/assessmentreports

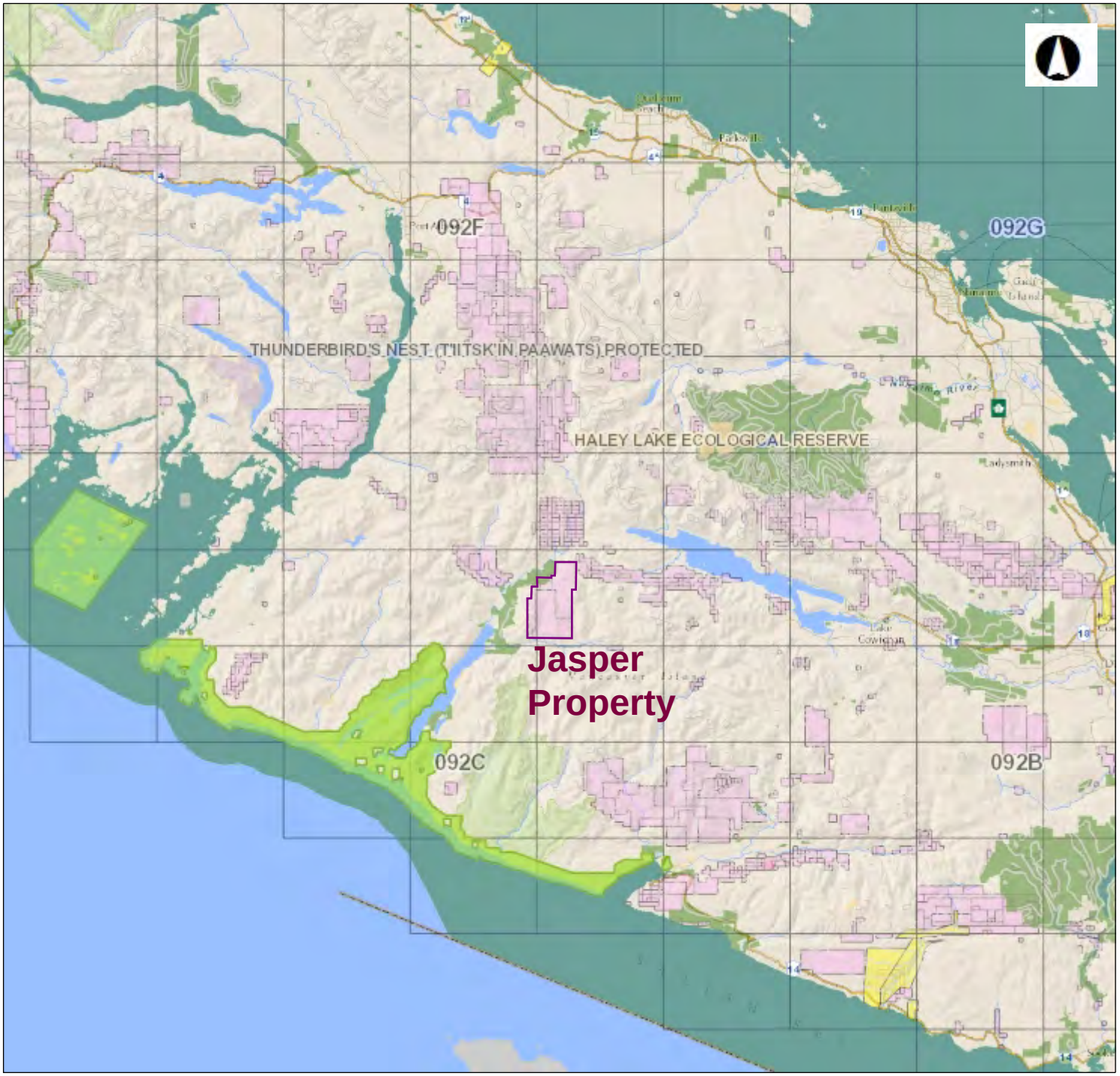
MapPlace
https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/british-columbia-geological-survey/mapplace/mapplace1

Mineral Deposit Profiles
https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/british-columbia-geological-survey/publications/mineral-deposit-profiles

MINFILE
https://minfile.gov.bc.ca/

Ministry Publications
https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/british-columbia-geological-survey/publications

Mineral Titles Online
https://www.mtonline.gov.bc.ca/mtov/home.do



BRITISH COLUMBIA

Jasper Property Location

Legend

- National Parks - Outlined
- National Parks - Colour Fille
- Ecological Reserves - Tanta
- Protected Areas - Tantalis -
- Recreation Areas - Tantalis
- Conservancy Areas - Tantal
- Mapsheet Grid (1:20,000)
- Mapsheet Grid (1:250,000)
- Contours - (1:250,000)
  - FCODE
  - Contour - Index
  - Contour - Intermediate
  - Area of Exclusion
  - Area of Indefinite Contours

0 20.32 40.64 km

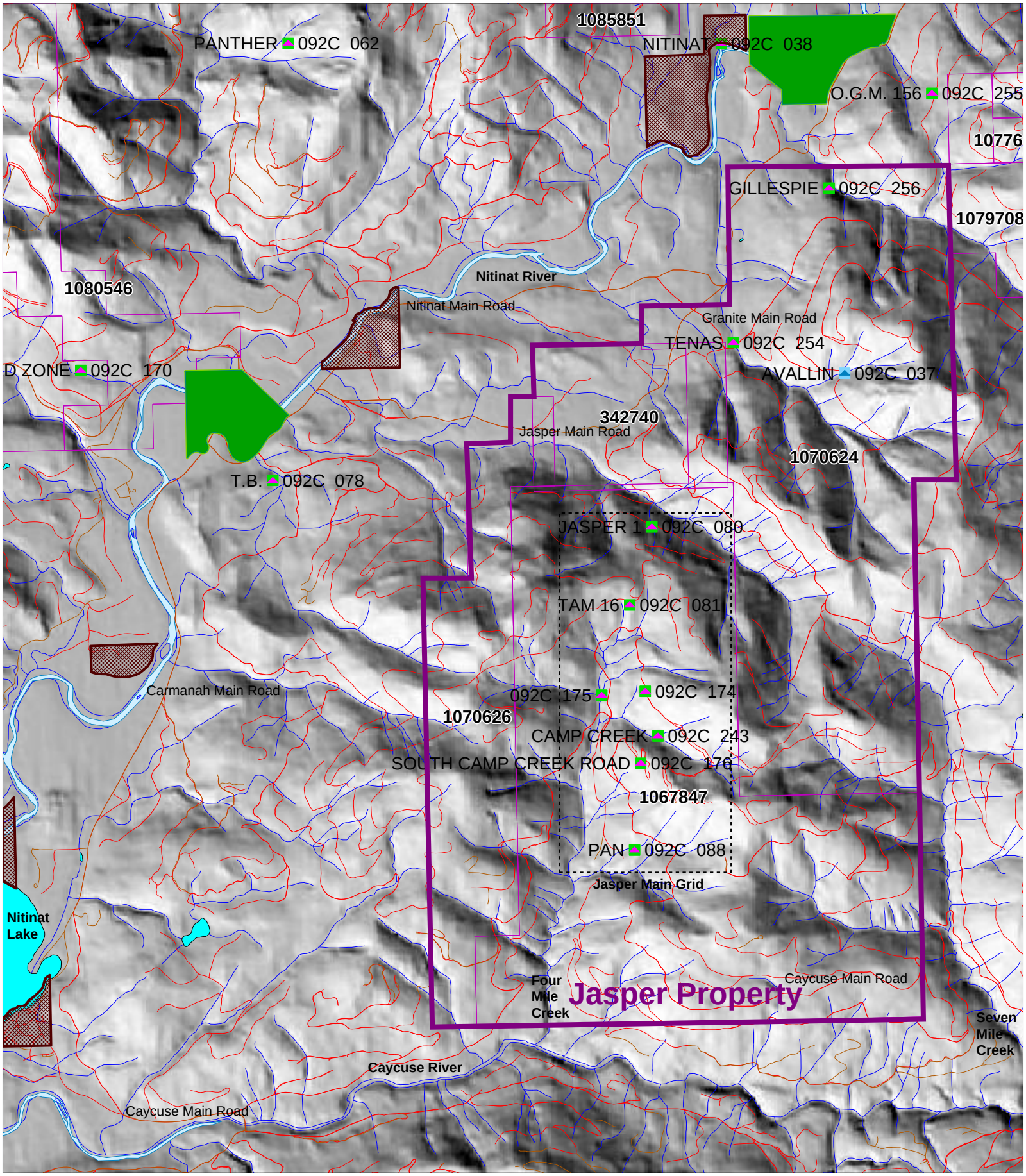
1: 1,000,000

Figure 1

Datum: NAD83

Projection: Web Mercator

Key Map of British Columbia



Legend from BC MapPlace

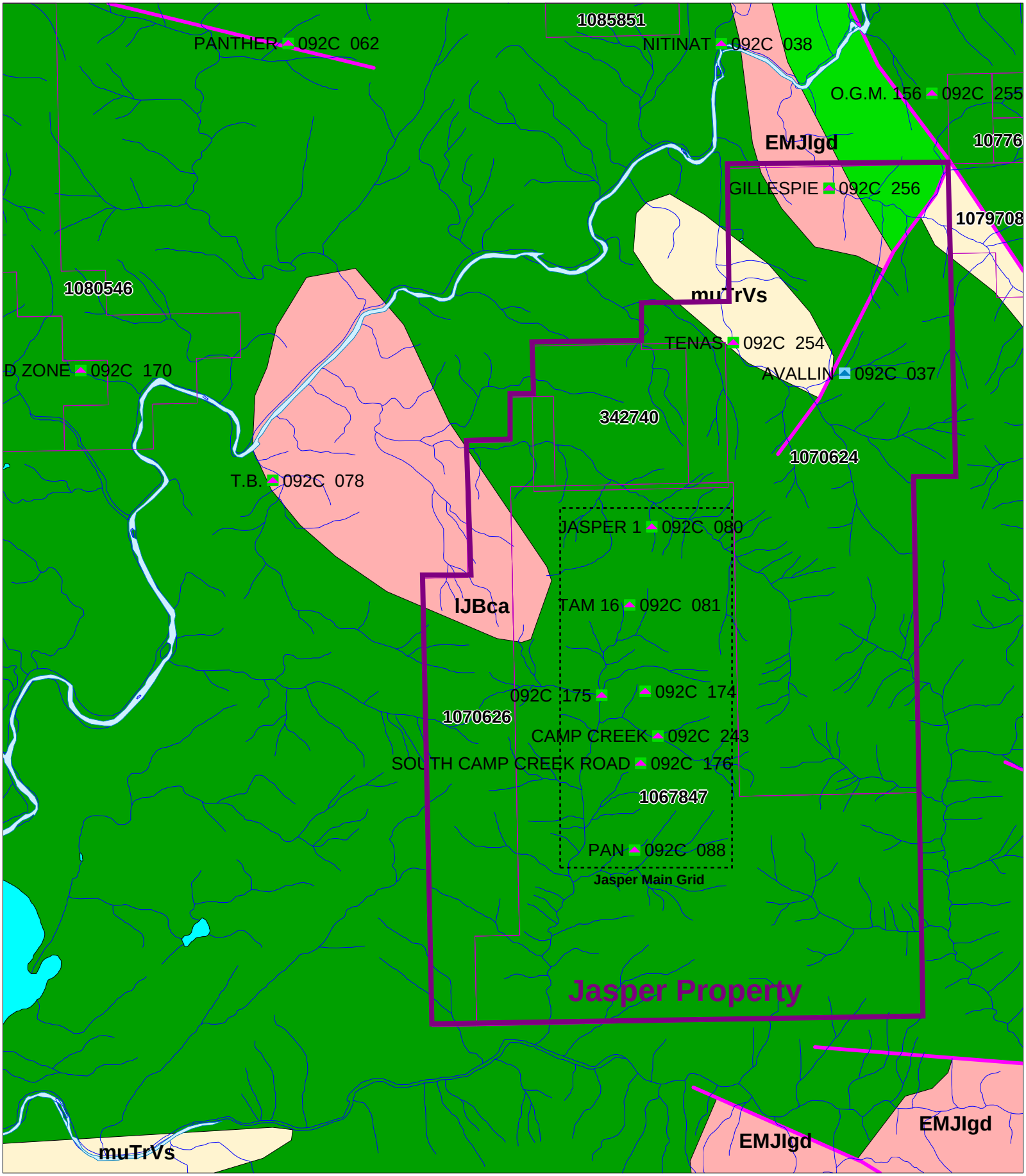
SCALE 1 : 50,000

1 0 1 2 3

KILOMETERS

N

Figure 2
Jasper Property Infrastructure



Legend from BC MapPlace Geology Legend in report text page 5

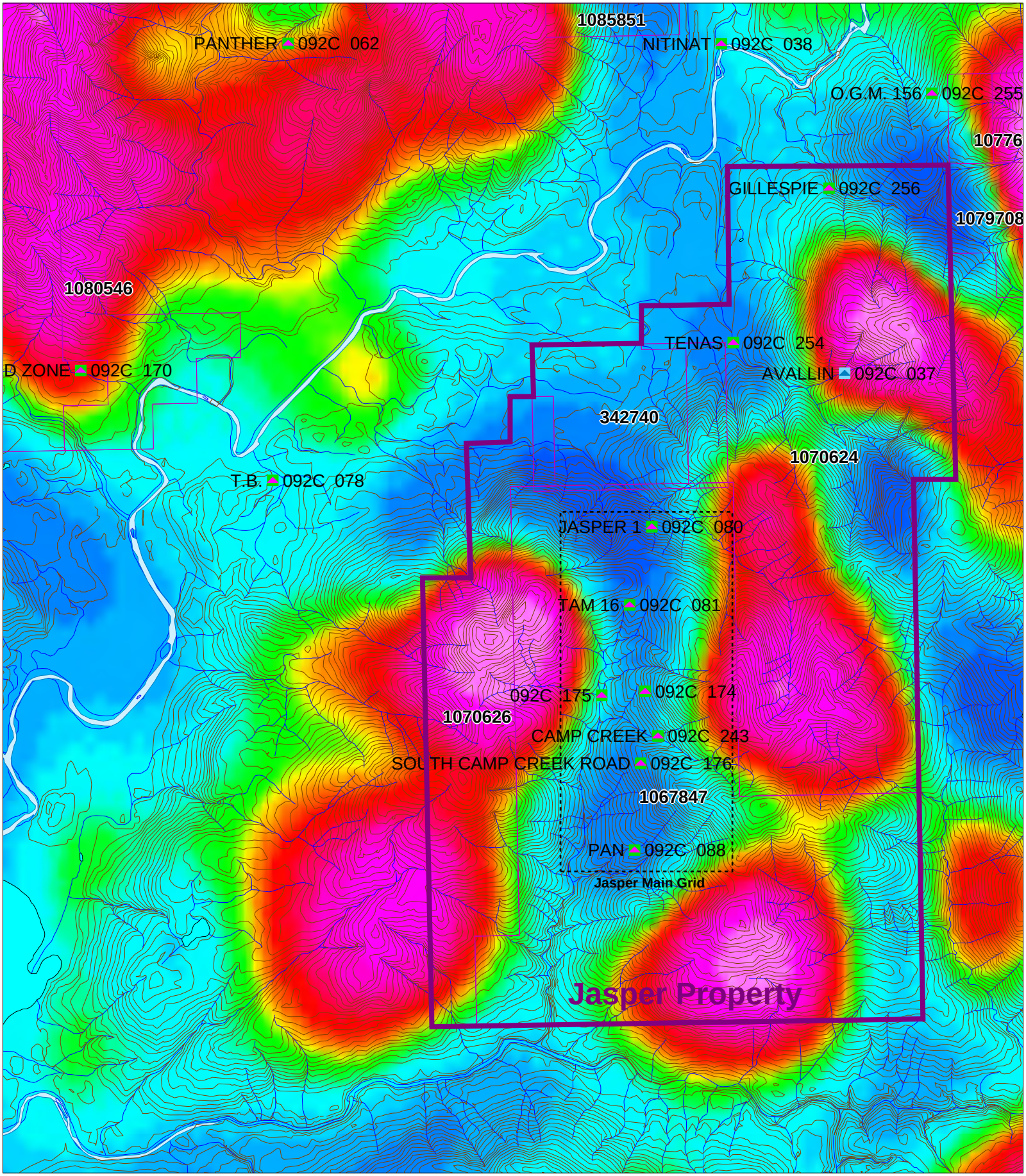
SCALE 1 : 50,000

1 0 1 2 3

KILOMETERS

Figure 3
Jasper Property
BCGS Geology

N



Legend from BC MapPlace

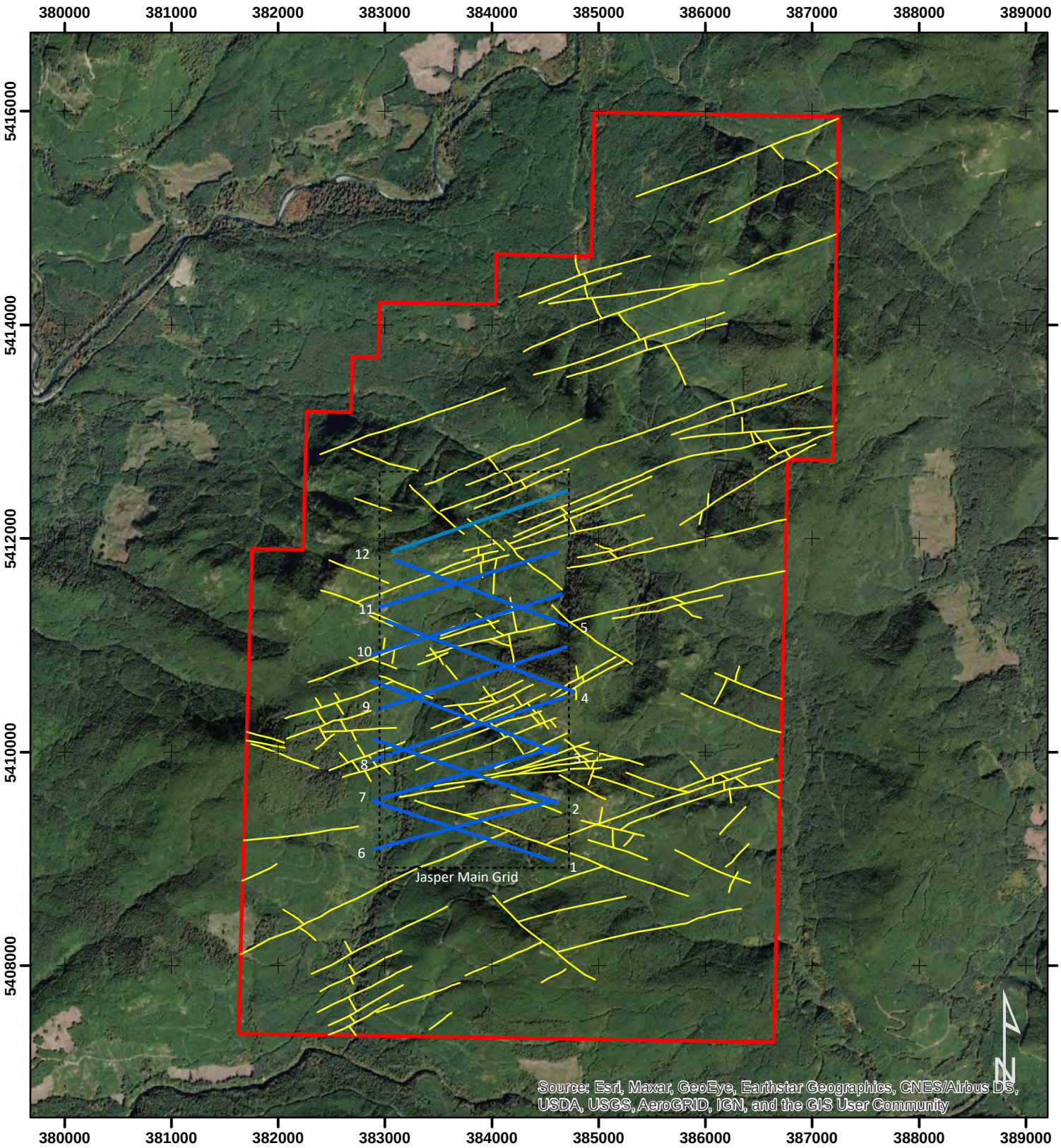
SCALE 1 : 50,000

1 0 1 2 3

KILOMETERS

Figure 4
Jasper Property
1st Vertical Derivative Aeromagnetics

N



m
750 375 0 750 1,500

Coordinate System: WGS 1984 UTM Zone 10N

1:50,000

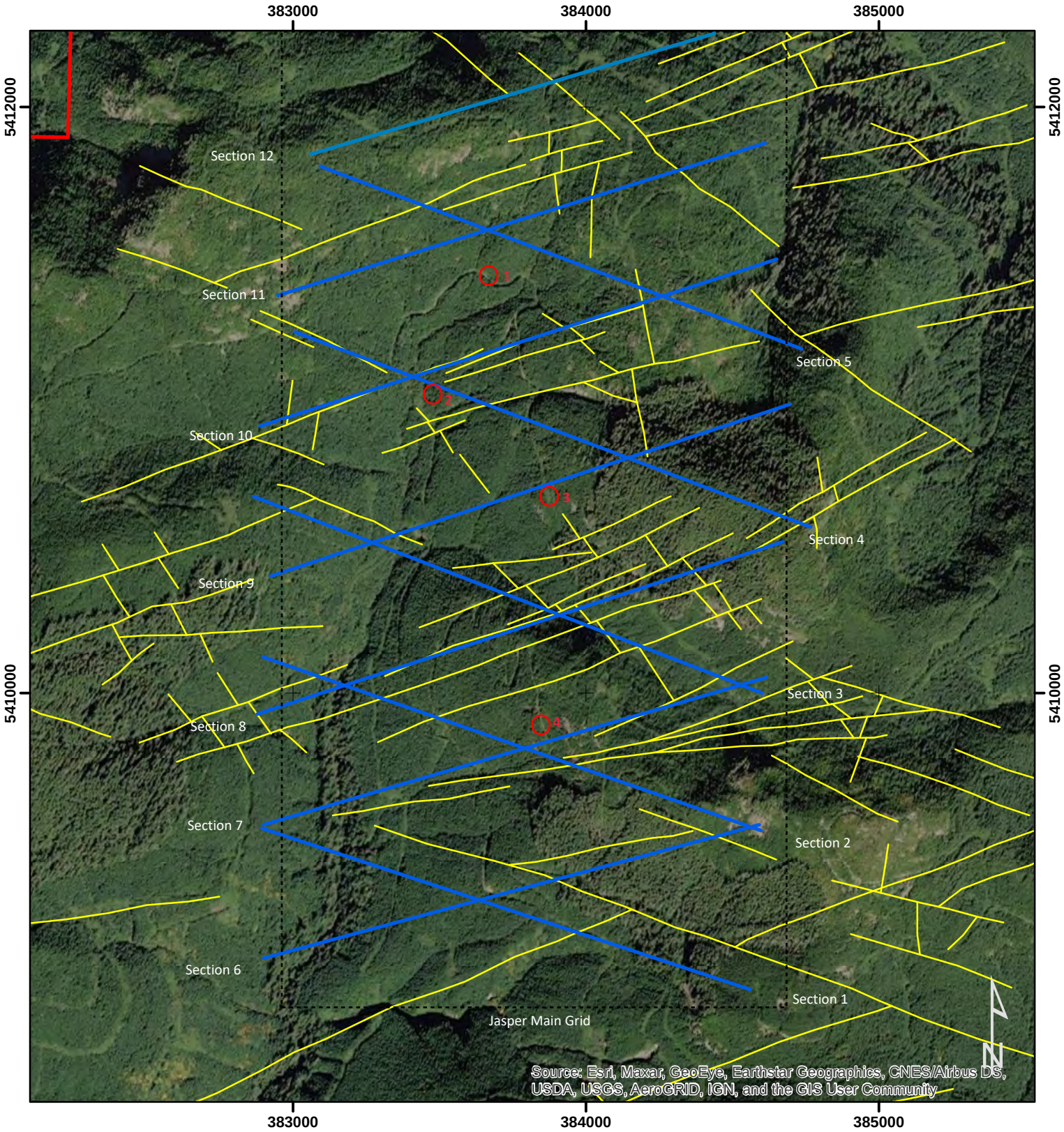
Lineament
Cross Sections
AOI

Figure 5

Hanna Capital Corp Project
Jasper Property Area of Interest

HANNA CAPITAL CORP
HCC - CANADA, FRANKFURT : 04U1

AURACLE GEOSPATIAL



275 137.5 0 275 550 m

Coordinate System: WGS 1984 UTM Zone 10N

1:18,000

Lineament
Cross Sections
AOI

Proposed Drill Site & Hole Number - also applies to Figures 7 -12

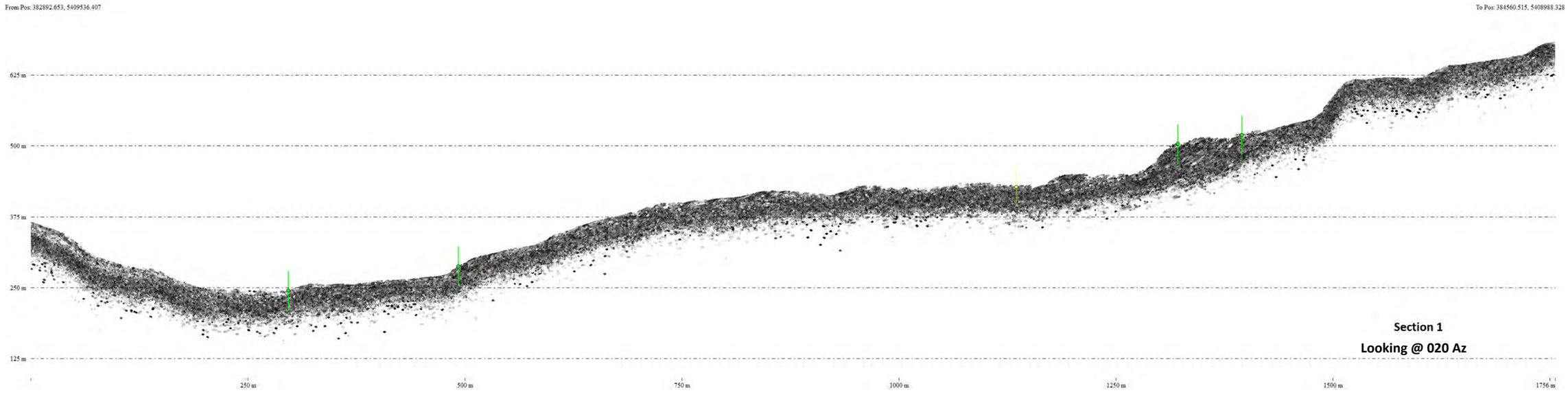
Figure 6

Hanna Capital Corp Project
Jasper Property Area of Interest

HANNA CAPITAL CORP
HCC - CANADA, FRANKFURT : 04U1

AURACLE GEOSPATIAL

Figure 7


From Pos: 382892.653, 5409536.407
To Pos: 384560.515, 5408988.328
625 m
500 m
375 m
250 m
125 m
250 m
500 m
750 m
1000 m
1250 m
1500 m
1756 m
Section 1
Looking @ 020 Az

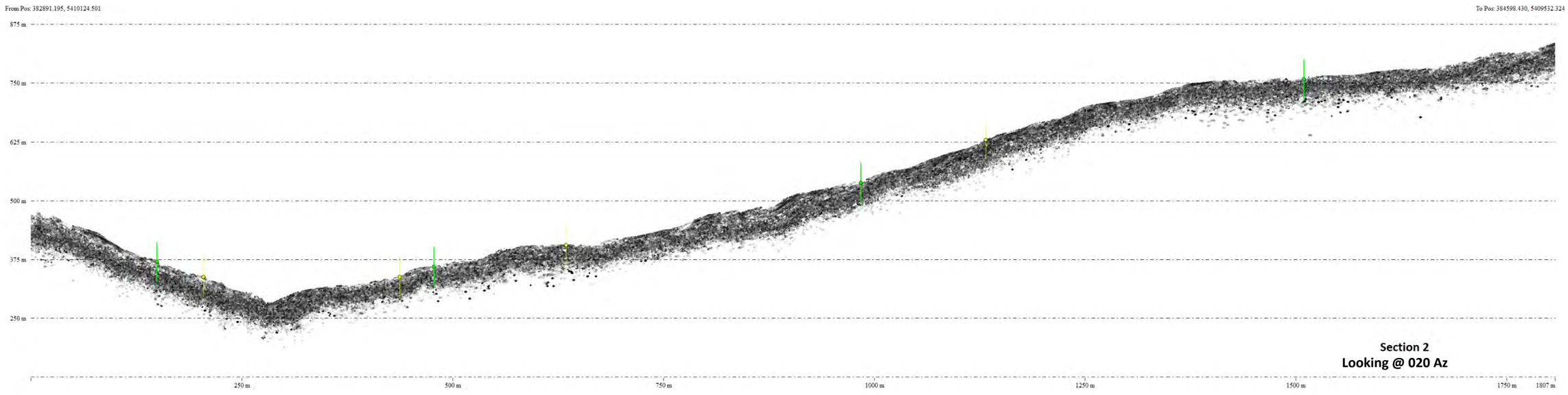
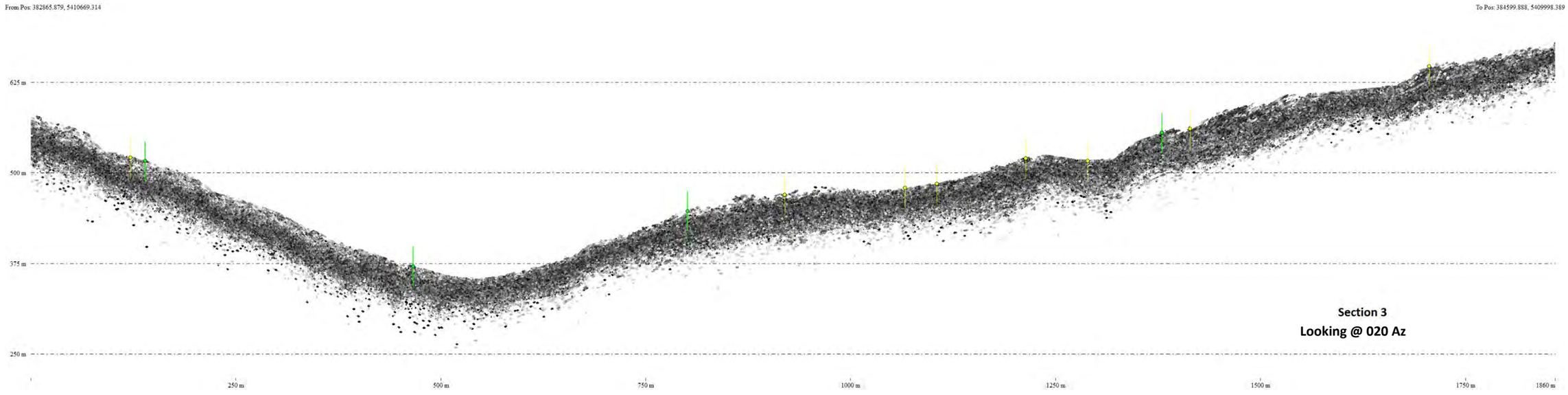

From Pos: 382891.195, 5410124.501
To Pos: 384598.430, 5409532.324
875 m
750 m
625 m
500 m
375 m
250 m
250 m
500 m
750 m
1000 m
1250 m
1500 m
1750 m
1807 m
Section 2
Looking @ 020 Az

Figure 8


From Pos: 382865.879, 5410669.314
To Pos: 384599.888, 5409998.389
625 m
500 m
375 m
250 m
250 m
500 m
750 m
1000 m
1250 m
1500 m
1750 m
1860 m
Section 3
Looking @ 020 Az

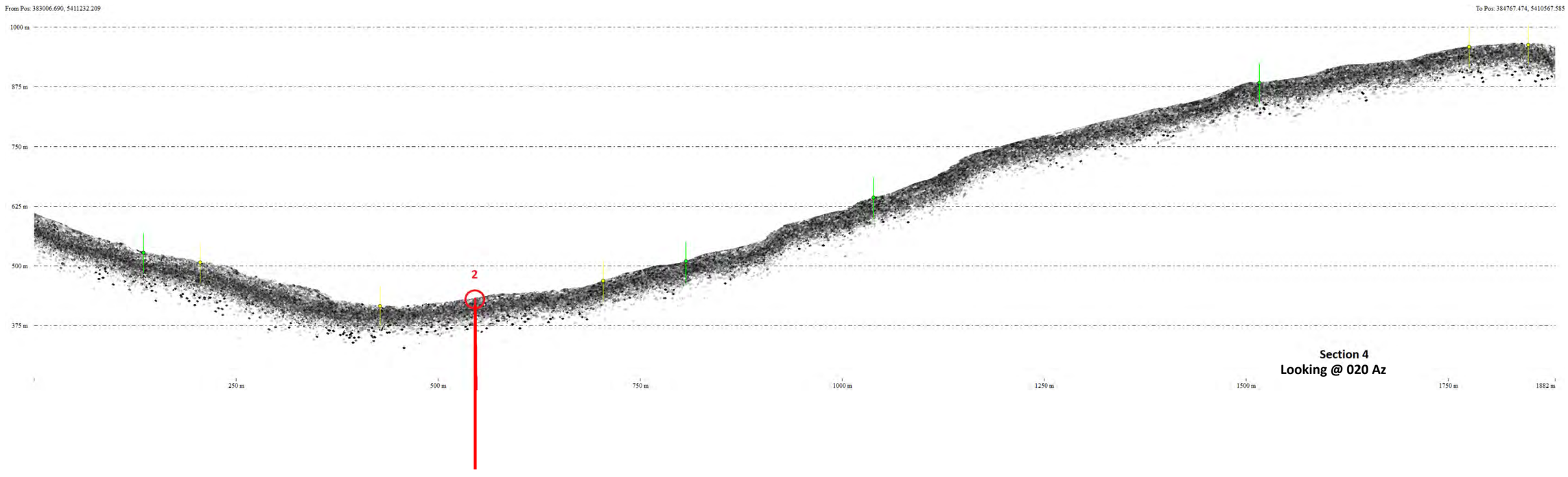
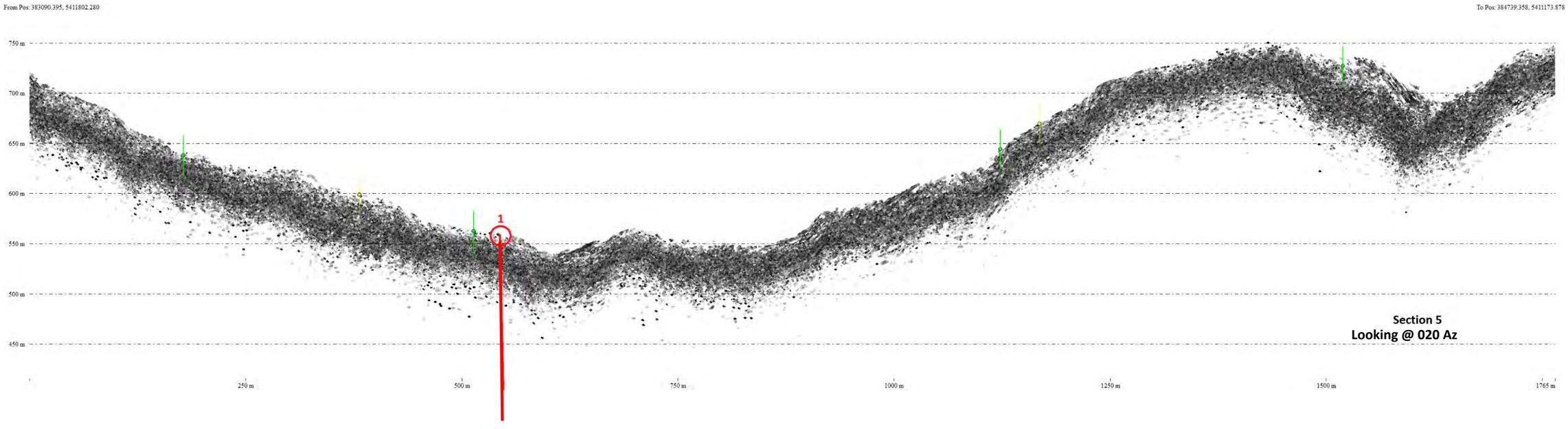

From Pos: 383006.690, 5411232.209
To Pos: 384767.474, 5410567.585
1000 m
875 m
750 m
625 m
500 m
375 m
2
250 m
500 m
750 m
1000 m
1250 m
1500 m
1750 m
1882 m
Section 4
Looking @ 020 Az

Figure 9


From Pos: 383090.395, 5411802.280
To Pos: 384739.358, 5411173.878
750 m
700 m
650 m
600 m
550 m
500 m
450 m
1
250 m
500 m
750 m
1000 m
1250 m
1500 m
1765 m
Section 5
Looking @ 020 Az

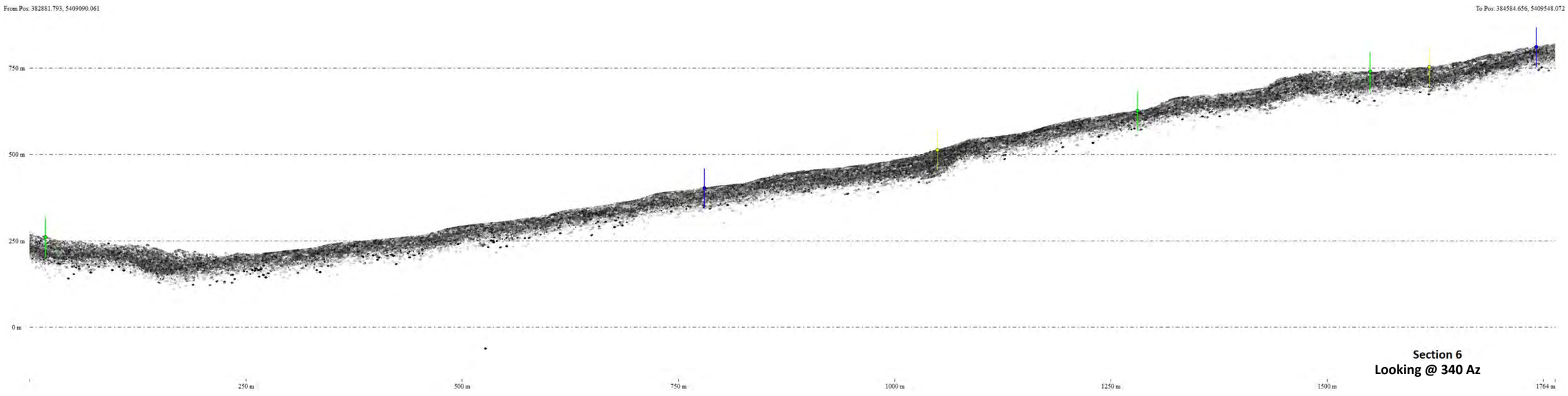
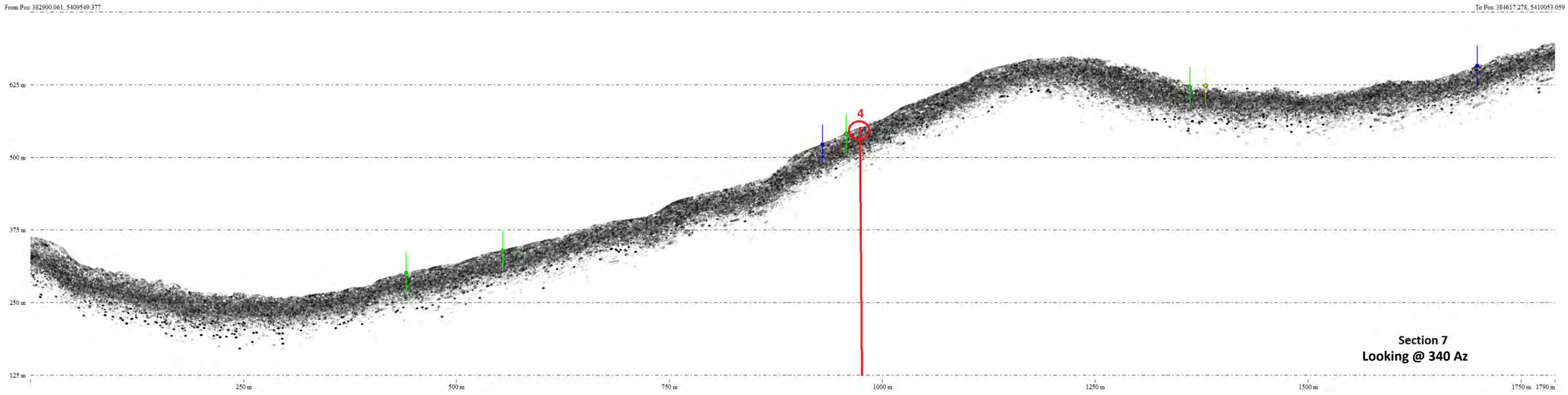

From Pos: 382881.793, 5409090.061
To Pos: 384584.656, 5409548.072
750 m
500 m
250 m
0 m
250 m
500 m
750 m
1000 m
1250 m
1500 m
1764 m
Section 6
Looking @ 340 Az

Figure 10


From Pos: 382900.061, 5409549.377
To Pos: 384617.278, 5410053.059
625 m
500 m
375 m
250 m
125 m
4
250 m
500 m
750 m
1000 m
1250 m
1500 m
1750 m
1790 m
Section 7
Looking @ 340 Az

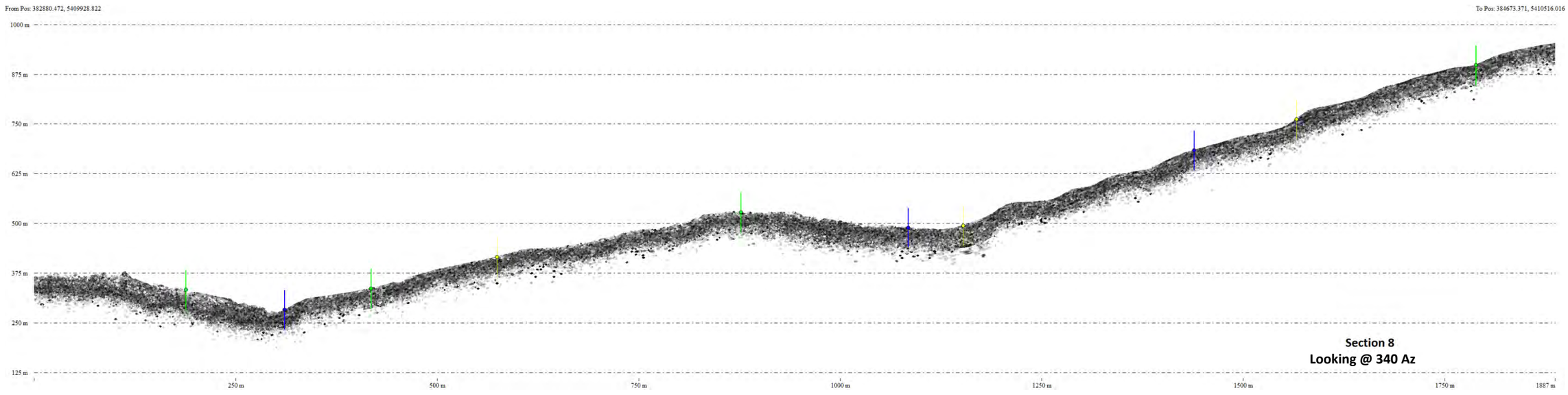
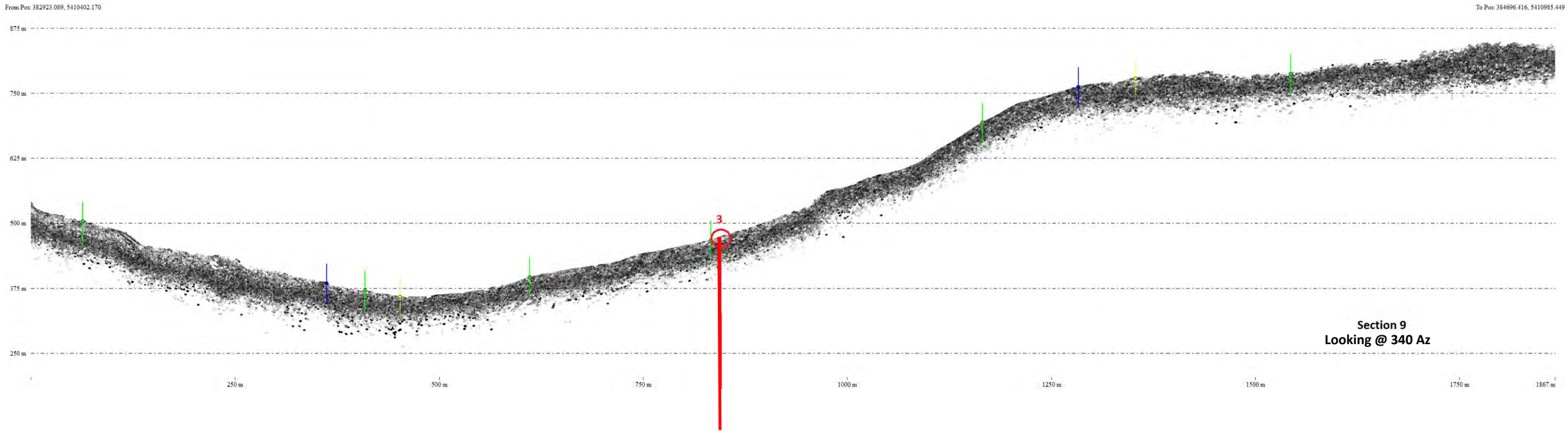

From Pos: 382880.472, 5409928.822
To Pos: 384673.371, 5410516.016
1000 m
875 m
750 m
625 m
500 m
375 m
250 m
125 m
250 m
500 m
750 m
1000 m
1250 m
1500 m
1750 m
1887 m
Section 8
Looking @ 340 Az

Figure 11


From Pos: 382923.089, 5410402.170
To Pos: 384696.416, 5410985.449
875 m
750 m
625 m
500 m
375 m
250 m
3
250 m
500 m
750 m
1000 m
1250 m
1500 m
1750 m
1867 m
Section 9
Looking @ 340 Az

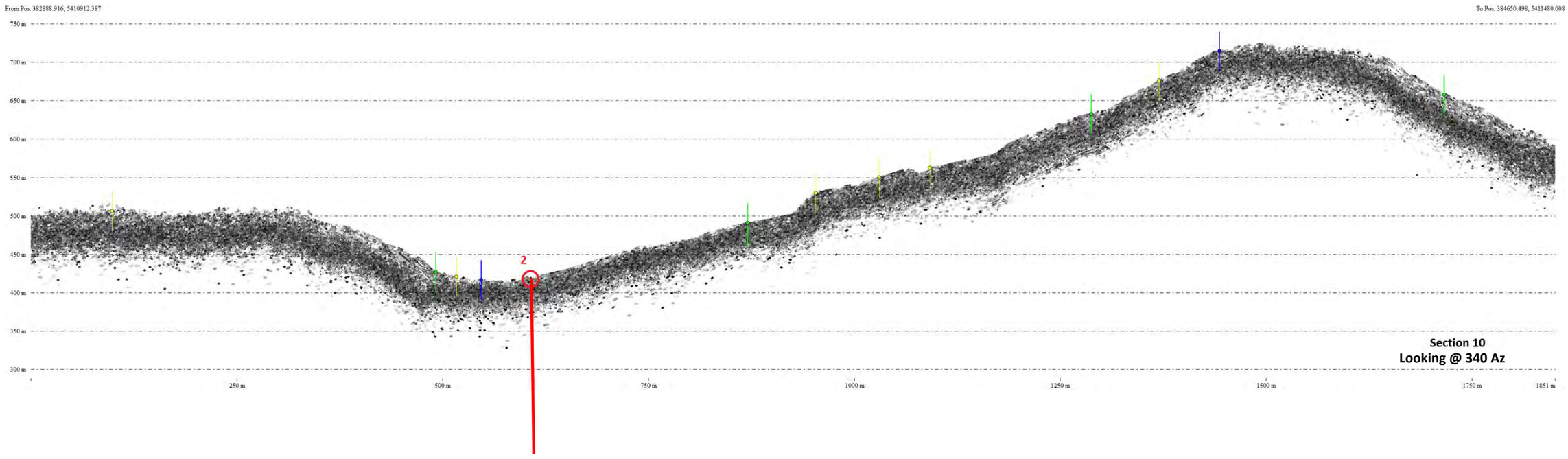
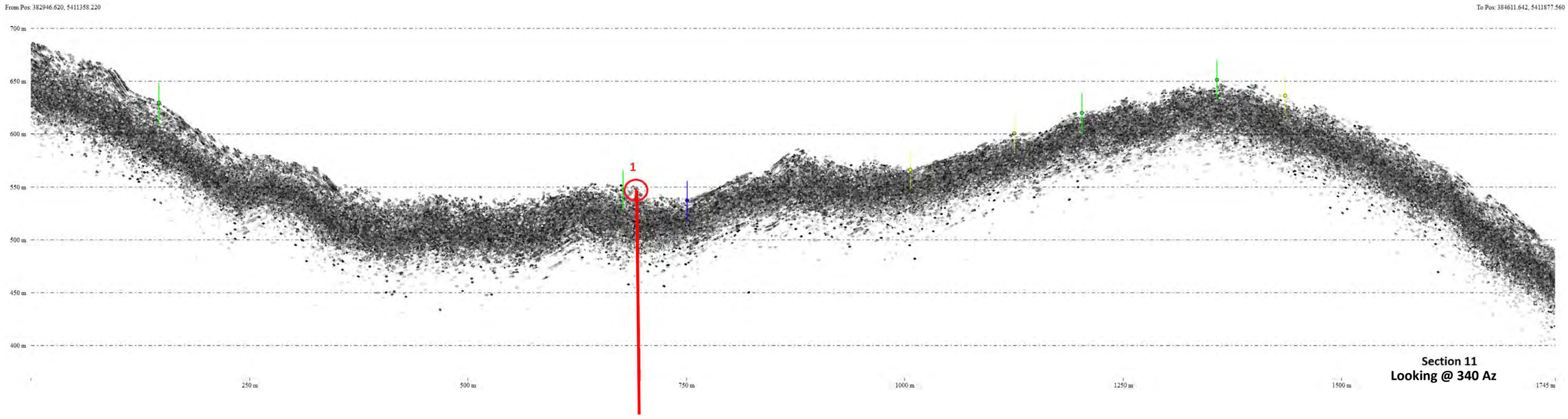
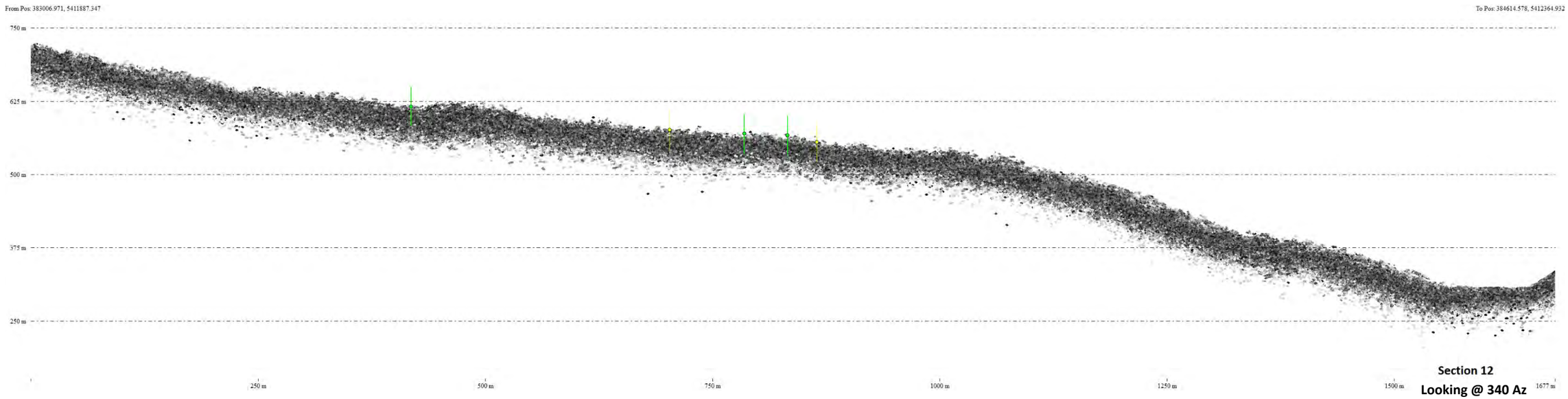

From Pos: 382888.916, 5410912.387
To Pos: 384650.498, 5411480.008
750 m
700 m
650 m
600 m
550 m
500 m
450 m
400 m
350 m
300 m
2
250 m
500 m
750 m
1000 m
1250 m
1500 m
1750 m
1851 m
Section 10
Looking @ 340 Az

Figure 12


From Pos: 382946.620, 5411358.220
To Pos: 384611.642, 5411877.560
700 m
650 m
600 m
550 m
500 m
450 m
400 m
1
250 m
500 m
750 m
1000 m
1250 m
1500 m
1745 m
Section 11
Looking @ 340 Az


From Pos: 383006.971, 5411887.347
To Pos: 384614.578, 5412364.932
750 m
625 m
500 m
375 m
250 m
250 m
500 m
750 m
1000 m
1250 m
1500 m
1677 m
Section 12
Looking @ 340 Az

Appendix 1

Remote Sensing Report

TECHNICAL REPORT

HANNA CAPITAL CORP

JASPER PROPERTY

EXECUTIVE SUMMARY

Auracle Geospatial Science Inc. was asked by Hanna Capital Corp., to use Auracle's 3D Surface and Subsurface Radar Model -3D MUD™ System to provide developmental geospatial information as Teck Resources develops facilities and interests within its 37.8 km² Jasper Property, British Columbia, Canada Area of Interest.

The primary objective of this work was to add to the understanding of fracture networks and rock competency for future drilling program and possible development with the following outcomes:

- Mapped apparent and non-apparent geological structures including faults, fractures, lineaments and shear zones

Auracle applied its 3D Radar technologies to successfully penetrate unconsolidated soils, sands and sediments to model structure at and under the land surface. The major results of this work include:

- 3D MUD ™ System Radar Model
- Point Cloud sub-surface model
- New Lineament Model with Strike and Dip
- Geological and Structural interpretation

PHYSIOGRAPHY

The Jasper Property is Located on the South Western end of the Vancouver Island, the area of interest lies approximately 35 km West of the Town of Lake Cowichan, in British Columbia, Canada. The Property is predominantly covered with thick second growth forest growing on rugged topography made up of a numer of steep creeks and drainages. Numerous fair condition logging roads criss cross the property allowing for adequate access, both by vehicle and on foot.

REGIONAL GEOLOGY

The mapped bedrock geology occurring within the Jasper Property is mapped as the Bonanza Group, aged as upper Triassic to Lower Jurassic. This geological unit is composed of mainly volcanics of varying composition, observed and loosely mapped as intermidate to mafic in the form of basalts,andesites,dacites and gabbros. This unit is underlain by Vancouver group rocks aged as Middle Triassic. Granodiorite Intrusional stocks occur in the area surrounding the property and have been mapped in the northerstern portion of the property. Some of these rocks occur within the same geological units that host volcanic massive sulfide (VMS) deposits in the Northern region of Vancouver Island.

PROJECT LOCATION

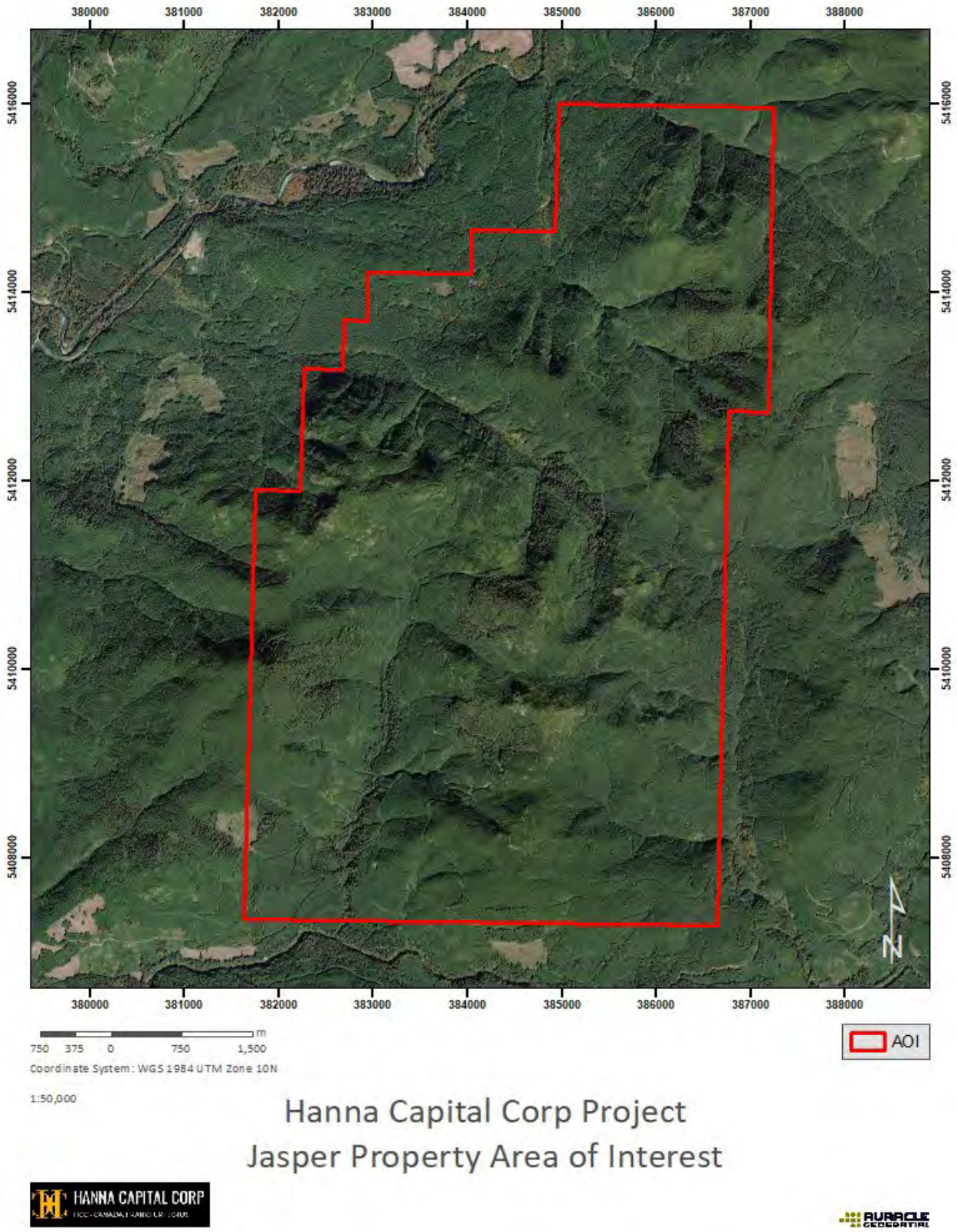


FIGURE 1: Project Area of Interest

METHODOLOGY

Because the AURACLE SYSTEM penetrates consolidated and unconsolidated ground cover, and fresh water, microwave Synthetic Aperture Radar (SAR) satellite data, which is an integral part the work , was acquired and used in the project. This type of satellite data is not affected by weather conditions and is useful in detecting textural,electrical and density qualities. Auracle's system uses specialized software and proprietary processes to convert raw signals into ortho-correct and derivative radar data which is needed to build the subsurface 3D Radar Model.

DATA ACQUISITION

Archived satellite data suitable for Auracle's methodologies were not available for the AOI. Customized satellite mission--tasking was arranged to acquire new satellite data:

- 5 specified geometry and polarization ,Ultrafine C-Band microwave- type Synthetic Aperture (SAR) data sets were tasked and collected from 5 temporal periods.

REMOTE SENSING SOFTWARE

The following computing and analyses programs were used in this study:

- Proprietary Auracle System
- PCI Geomatic plus Radar Suite and Ortho Engine with Elevation Extraction Suite
- Arc GIS with Spatial Modeller, Spatial Analyst, 3D Analyst and proprietary Auracle extensions
- ENVI 5.0 with IDL 6.3 plus atmospheric correction model Mod Tran 4 and DEM extraction Module

REMOTE SENSING HARDWARE

Processing was conducted on TITAN Multi-processor, multi GPU supercomputer systems and served on quadruple redundant off-site SUN secure storage arrays.

DATA DESCRIPTION

RADAR

Five Ultrafine RadarSat C Band data were supplier geocoded, in high density format data

(HDF). These were ingested, georeferenced and projected to WGS 84 and UTM zone 14N coordinate systems, which provides an increase in spatial accuracy and can be easily converted to project projections.

DATA PRE-PROCESSING

RADAR

Ultrafine satellite data images were tasked at specific geometries and once acquired were converted from CEOS file format to standard processing format (PIX.) The data was corrected for antenna pattern, slant range, radiometry and topographic distortion using specialized knowledge and software. Radar data does not directly correspond to established visually-recognizable geographic features and as a result, the georeferenced raw data had to be ortho-corrected using a proprietary Auracle script.

The ortho-corrected 1.0 m data were then filtered for speckle using a Sobel edge detection algorithm. The pre-processed radar data were the aligned against the high spatial accuracy DEM provided by Teck and resampled. The two aligned radar data sets were layered into a single data set and used to generate an Epipolar base. The fusion of this data rendered 0.5m orthodata.

DATA PROCESSING

RADAR

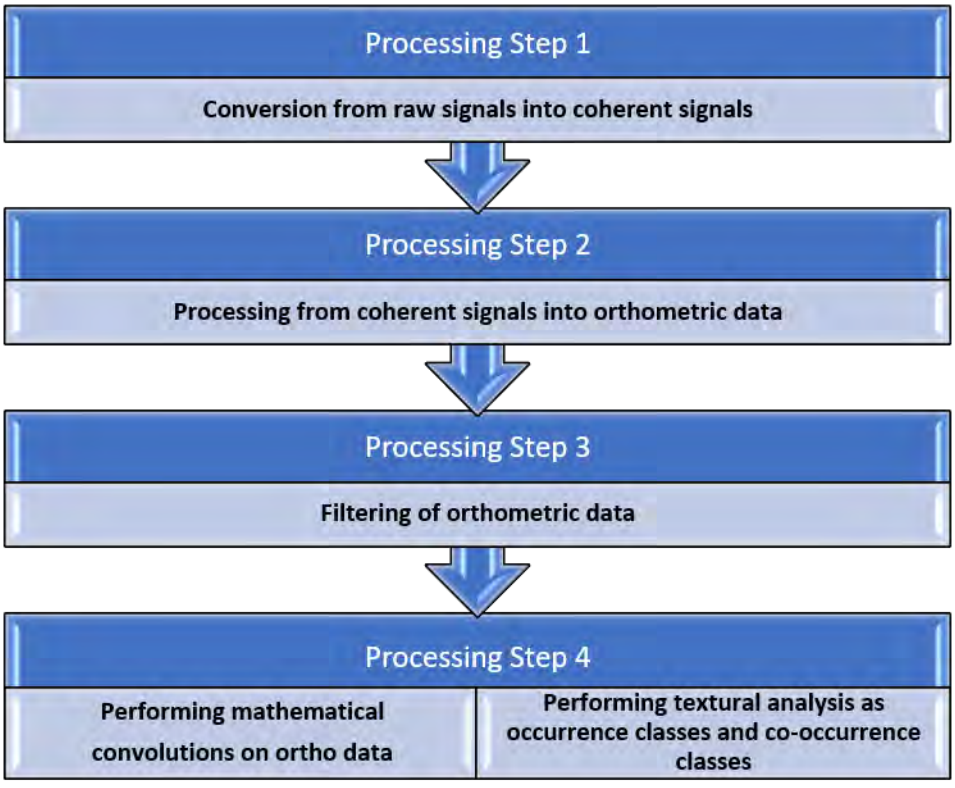


FIGURE 2: Processing Flow Chart SAR Data

The RadarSat2 sympathetic-stereo radar data were fused into single low noise, non-layover, and non-foreshortened 1.2 m ground-spatial-resolution image data pair and re-processed using a series of proprietary protocols. The series of protocols included: Directional filters at 120º and 90º; Laplace Transforms and Mathematical convolutions. Results from the Mathematical Convolution images included Co-occurrence, Dissimilarity, Homogeneity, Entropy, and Means. These were projected using both nearest neighbour and cubic convolution resampling to improve and discriminate their varied linearity, texture or arcuate pattern.

The resultant increase in spatial resolution is a result of the stereographic conversion which creates smaller pixels due to the overlap or hypersampling of data. This Auracle fusion process also makes it possible to detect and model through land cover, overburden and through water. They were then modeled as a single multi-temporal 3D model to form the high spatial accuracy base data from which measurements were made. Using this methodology, horizontal spatial accuracy was incorporated into the work.

Results were projected using custom histographic analyses to improve visual discrimination. Final derivative results were generated as 3D point Clouds for computer image analyses. From this data an additional 3D Red/Blue Anaglyphic Radar Model designed for viewing and verification using red/blue stereo glasses.

All of the data was ingested into a project Geographic Information System (GIS) and were spatially aligned to construct an appropriate knowledge model, designed to act in part as a special decision support tool with which further processing work can be conducted and with which decision makers can view, distribute and publish complex spatial information.

The results of these analyses produced new information as a basis for further phenomenological analyses. The results of this work include the new project GIS and a series of maps and models which are detailed in the Results Section. Map PDF versions are included as Appendices.

LINEAR MODELLING

Following a series of proprietary order of standard mathematic convolutions and morphology operators including directional filters, radar image stacks were analyzed for co-linearity. Standard edge detection software coupled with delineation tools rendered a construct termed a Fracture Model. This model contained lineaments that were both probable and improbable so editing was conducted to render a linear probability model.

This linear probability model was tested for 3D co-planarity with final edits being used to generate a Strike-Dip model. In addition to fractures and faulting, lithological or formational contacts were delineated. Geologic contacts are the boundaries (and sometimes fuzzy boundaries) where dissimilar

geological units come into contact. The varied stratigraphic units were analyzed for their signatures or signals to define their shape, density, texture and composition. Contacts do not typically present in their entirety at surface.

In addition to fractures and faulting, lithological or formational contacts were delineated. Geologic contacts are the boundaries (and sometimes fuzzy boundaries) where dissimilar geological units come into contact. The varied stratigraphic units were analyzed for their signatures or signals to define their shape, density, texture and composition. Contacts do not typically present in their entirety at surface.

POINT CLOUD MODELLING

Point clouds were produced from the stereo radar pair using a proprietary algorithm. The clouds were fused and further analyzed in 3D for density using a search radius of 5 meters, without vertical exaggeration.

A separate mass density model was created and used to further discretize zones and delineate boundaries of probable pseudo-stratigraphy and features of co-linearity.

A series of volume sections were produced showing the apparent pseudo-stratigraphy of the cloud within a regular grid of points for orientation/location purposes. Variations in density within the point cloud were used to create horizons as an interpretation of the variation in subsurface composition and to delineate both linear and planar features.

Density was symbolized with a Red>Orange>Yellow>Green>Blue>Purple>Magenta color ramp. Magenta points symbolizing “least dense” and Red points symbolizing “most dense”.

ERROR

Satellite data was analyzed for its signal to noise quality (beam to position graphs) and spatial accuracy during the pre-processing phase. In this stage the data are checked for general fit to existing georeferenced points. Error was within the supplier stated 2.0m CE90 spatial accuracy for non-ortho-corrected data.

RESULTS

Auracle successfully used its proprietary 3D radar technology to penetrate water, vegetation and overburden (unconsolidated soils, sands, and sediments) to produce complete-surface structural composition data.

All of the data was ingested into a project Geographic Information System (GIS) and were spatially aligned to construct an appropriate knowledge model, designed to act in part as a decision support tool with which further processing work can be conducted and with which decision makers can view, distribute and publish complex spatial information.

The results of these analyses produced new information as a basis for further phenomenological analyses. They do not constitute geological or engineering findings and are designed in this case as tools for specialist engineers and earth scientists. The results of this work include the new project GIS and a series of maps and models.

The result data is organized in a client GIS which contains all of the data in a spatially organized framework. This information is searchable by geographic coordinates or type and has been supplied as a map package that can be opened, complete with symbologies and native projections in ArcGIS. GIS data has been provided for these results as separate geospatial data files on the client FTP site, which is password protected.

3D RADAR MODEL

Auracle successfully used its proprietary 3D Radar technology to penetrate consolidated and unconsolidated material, vegetation and water within the area of interest. Auracle's 3D RADAR Model, (fig. 3), provides accurate location of geologic contacts, faults and fractures and composition data at, and in the near surface and subsurface.

The 3D RADAR Model is included in this report as Appendice

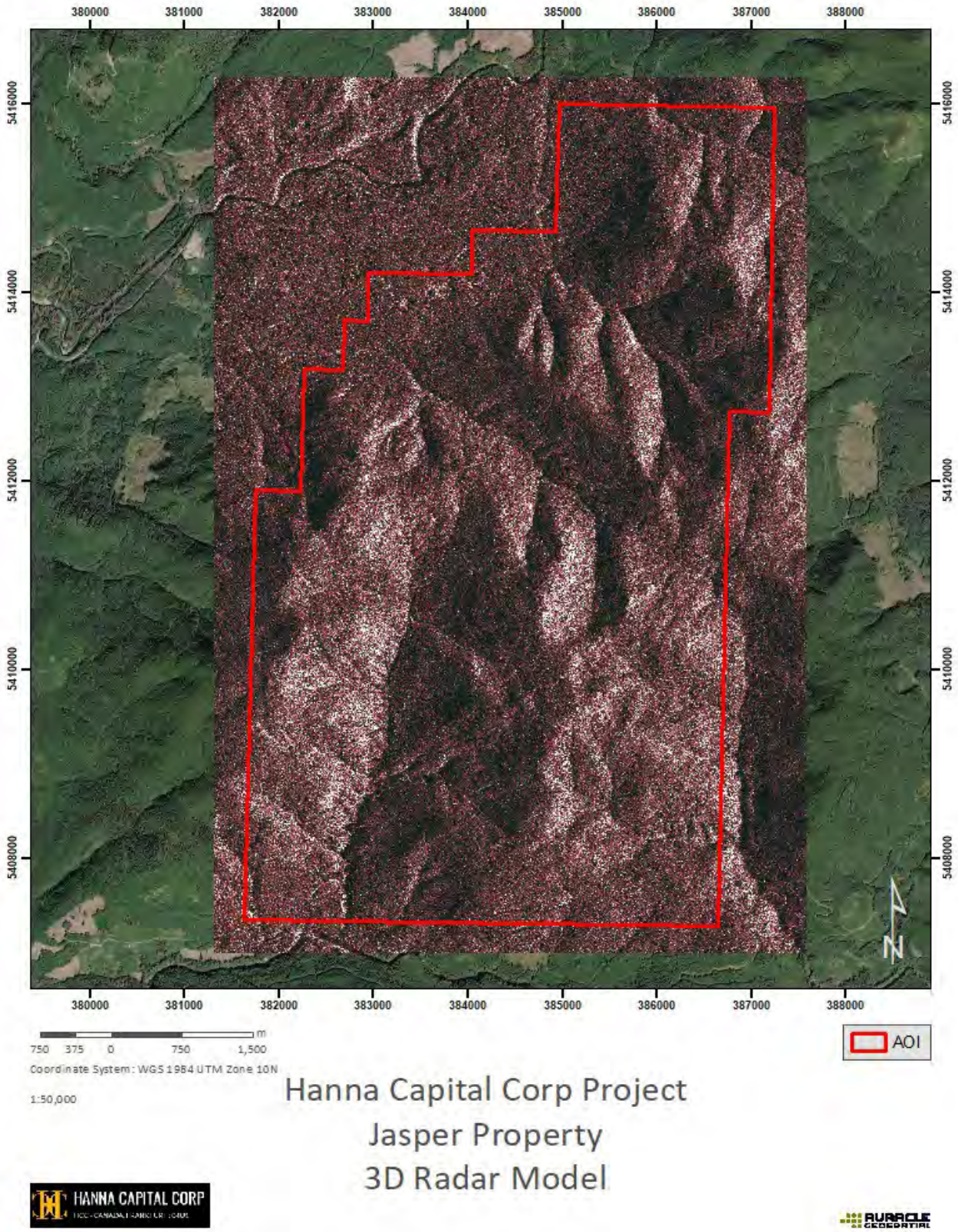


FIGURE 3: 3D Radar Model

STRIKE AND DIP MODEL

The Linear Probability modelling was tested for 3D co-planarity with final edits used to generate a Strike-Dip Model. The Strike-Dip Model was constructed using a proprietary Auracle Strike and Dip analysis tool derived from the combination of the edited linear model and the DEM. This SD model takes the aparrent, and non apparent surfaces into account during calculation.

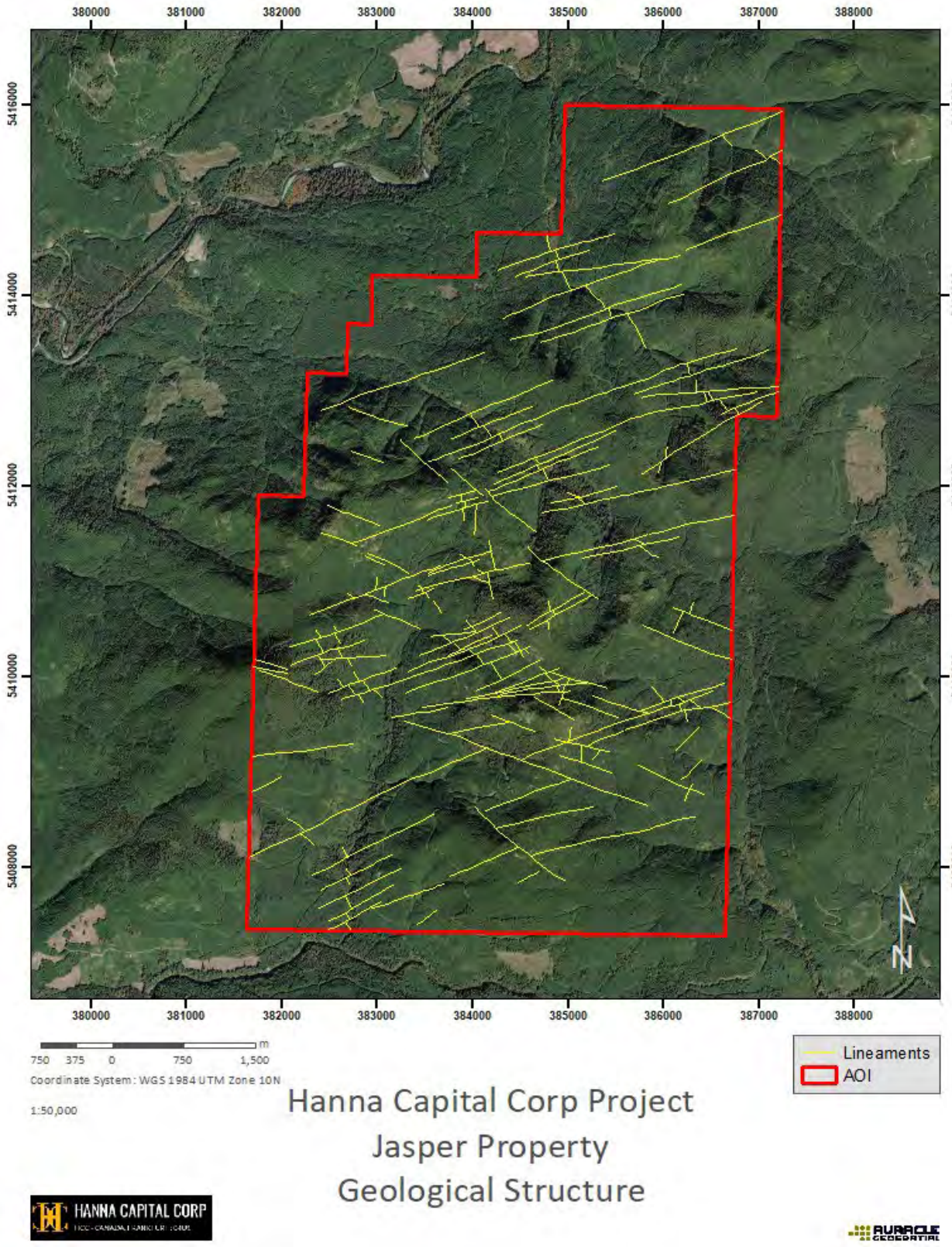
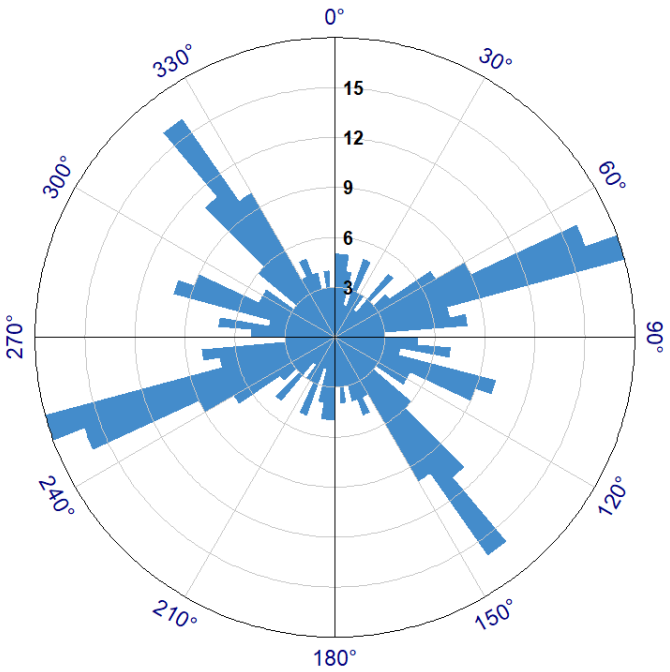


Figure 4: Lineaments interpreted as faults, and fractures

Jasper Project

Azimuth Values from calculated strike of Auracle Lineaments

N = 446



3D POINT CLOUD

A series of four Cross Sections were collected from the 3D Point Cloud, located across lineaments interpreted from the 3D Bare Model to be faluting or fracturing. These cross sections where there analysised looking for structures or patterns within the 3D Point Cloud fabric. In the four cross ections you can see obvious planes or surfaces. These were then compared to the Strike and Dip Model results and corilation in the dip direction and angle was observed.

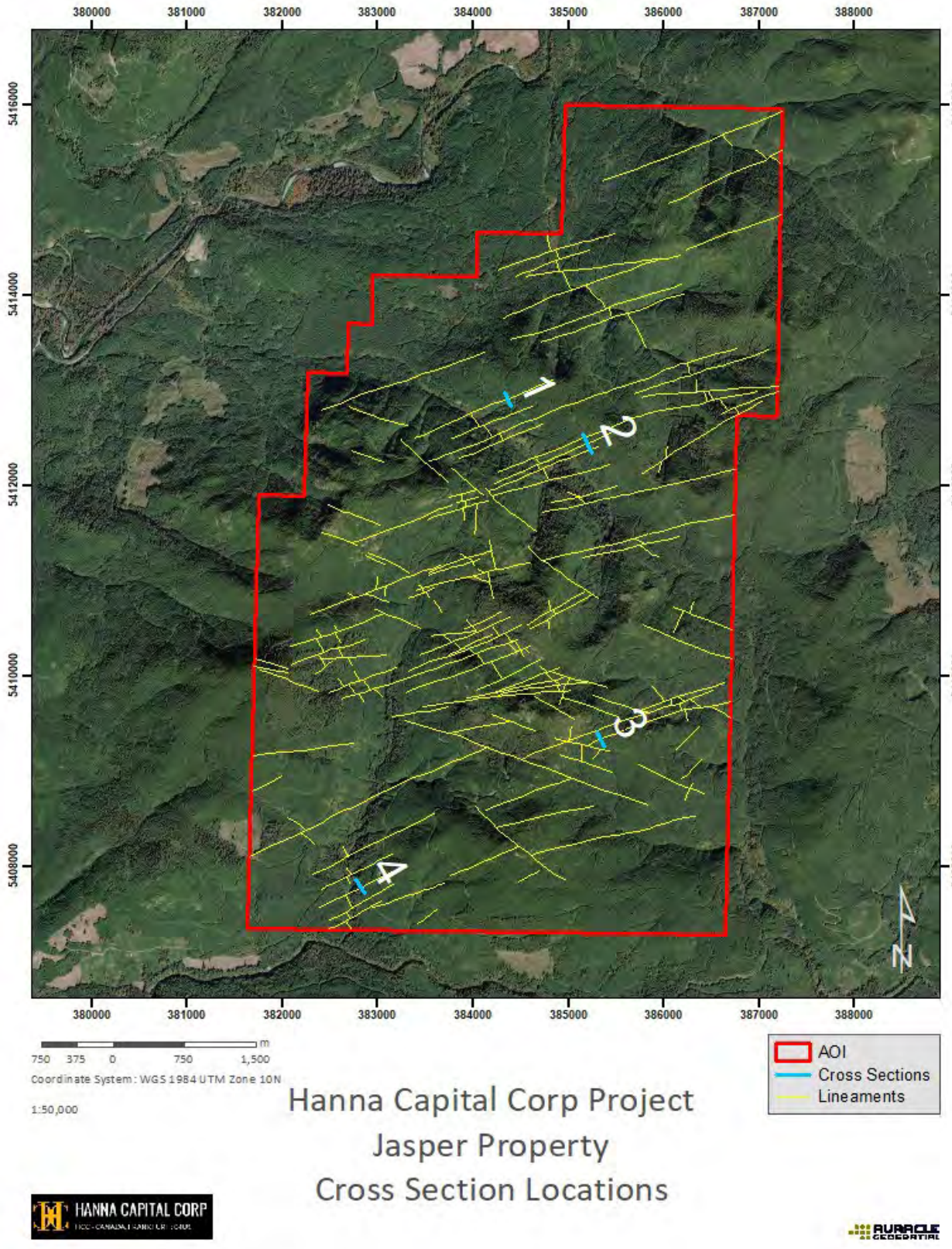


Figure 5: Map showing location of Cross-Sections

The complete display of 3D Point Cloud Cross Sections is included as Appendices 1-4.

DISCUSSION
RECOMMENDATIONS

All remotely sensed data and derivative products including the work carried out by Auracle for Hanna during this period require expert analyses by qualified professionals. This typically includes but is not limited to ground truthing and testing. Field verification works best when used as part of an iterative cycle. Supplying Auracle with any test results can improve information outcomes.
A follow-up program of ground-truthing is required to investigate the results delineated in this work and to verify and map these correlations. Actual phenomenon such as potential lithology and their contacts need to be located where they are exposed and present in outcrop. The correlation of pixel domains, boundaries and line features shown on resulting maps to geological and structural attributes present on the ground still need to be validated by a “boots to the ground” program.

DISCLAIMER

The remote sensing work completed by Auracle on the Jasper Property was performed exclusively for the purposes of Hanna Capital Corp. Should the data and/or report be made available in whole or part to any third party and such party relies thereon, that party does so wholly at its own risk and Auracle disclaims any liability to such party.

STATEMENT OF QUALIFICATIONS

I, David J. McLelland, do hereby certify that:

I am a principal in Auracle Geospatial Science Inc., located at Suite 1435 1188 West Georgia St. Vancouver, British Columbia, Canada V6E 4A2

I have received a Master of Science with Distinction in Remote Sensing and Geospatial Science from Manchester Metropolitan University's faculty of Earth and Environmental Science. I have received a postgraduate diploma in Applied and Theoretical Geographic Information Science from Simon Fraser University.

I have completed the B.C.Y.C.M. Mineral Exploration program and completed the B.C.Y.C.M. Advanced field School at BCIT.

I have 18 years of experience in Remote Sensing. I am the Remote Sensing Project Manager and responsible for the acquisition and management of data and execution of analyses.

This report was prepared on behalf of Auracle Geospatial Science Inc. who has been engaged by Hanna Capital Corp.

I have no material or financial interest in the subject properties or the companies that own them.

This report has been prepared in accordance with generally accepted scientific principles and is based upon the best information available at the time of preparation.

I am not aware of any material fact or material change with respect to the subject matter of the report that is not reflected in the report and could therefore constitute the omission of fact(s).

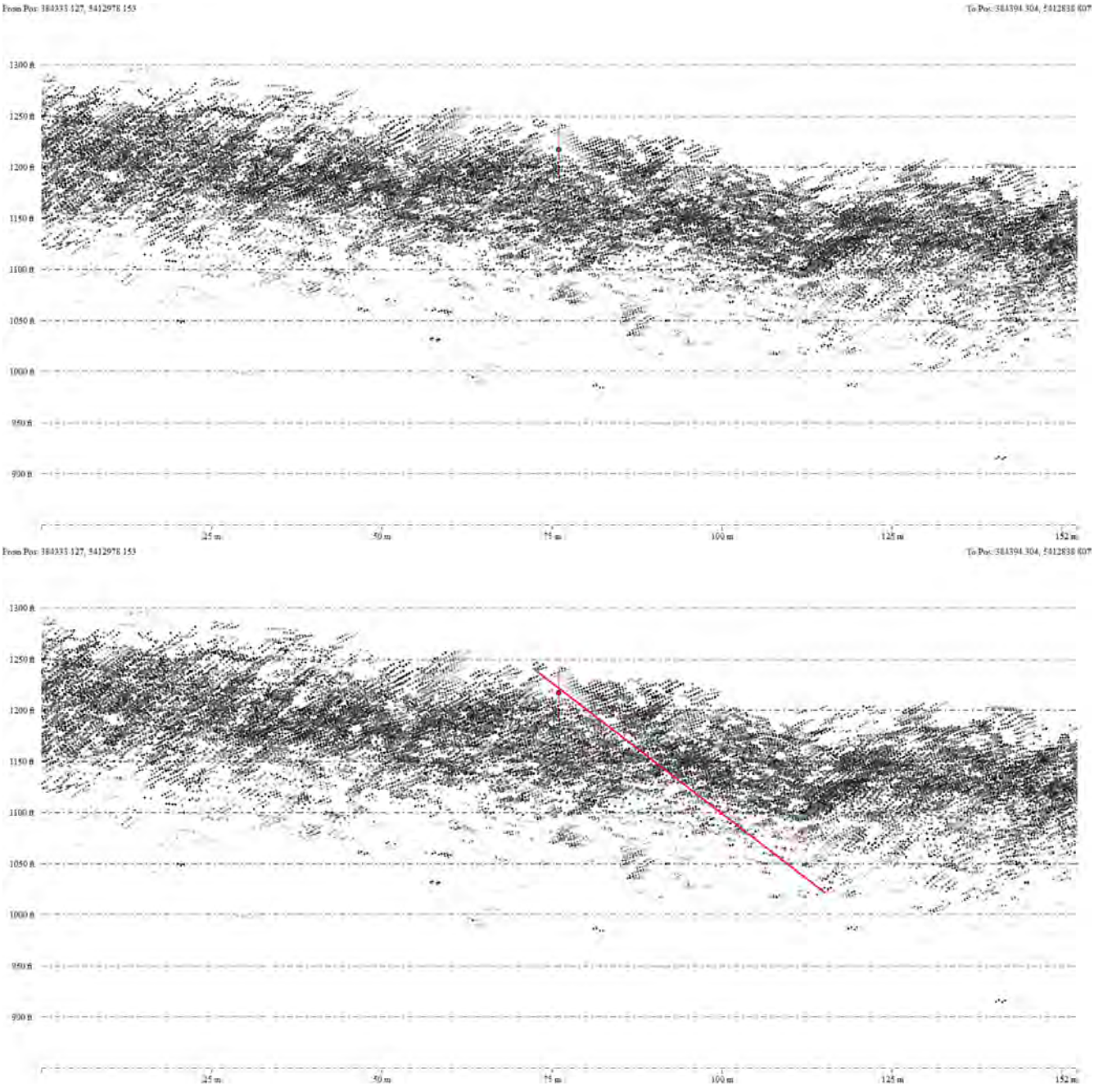
Date: Feb. 24 2020
Vancouver, British Columbia, Canada

David J McLelland M Sc, Pg Dip, (FRGS, MCRSS)

APPENDICES

Appendices 1 - 4: Point Cloud Cross-Sections Examples

Cross Section 1



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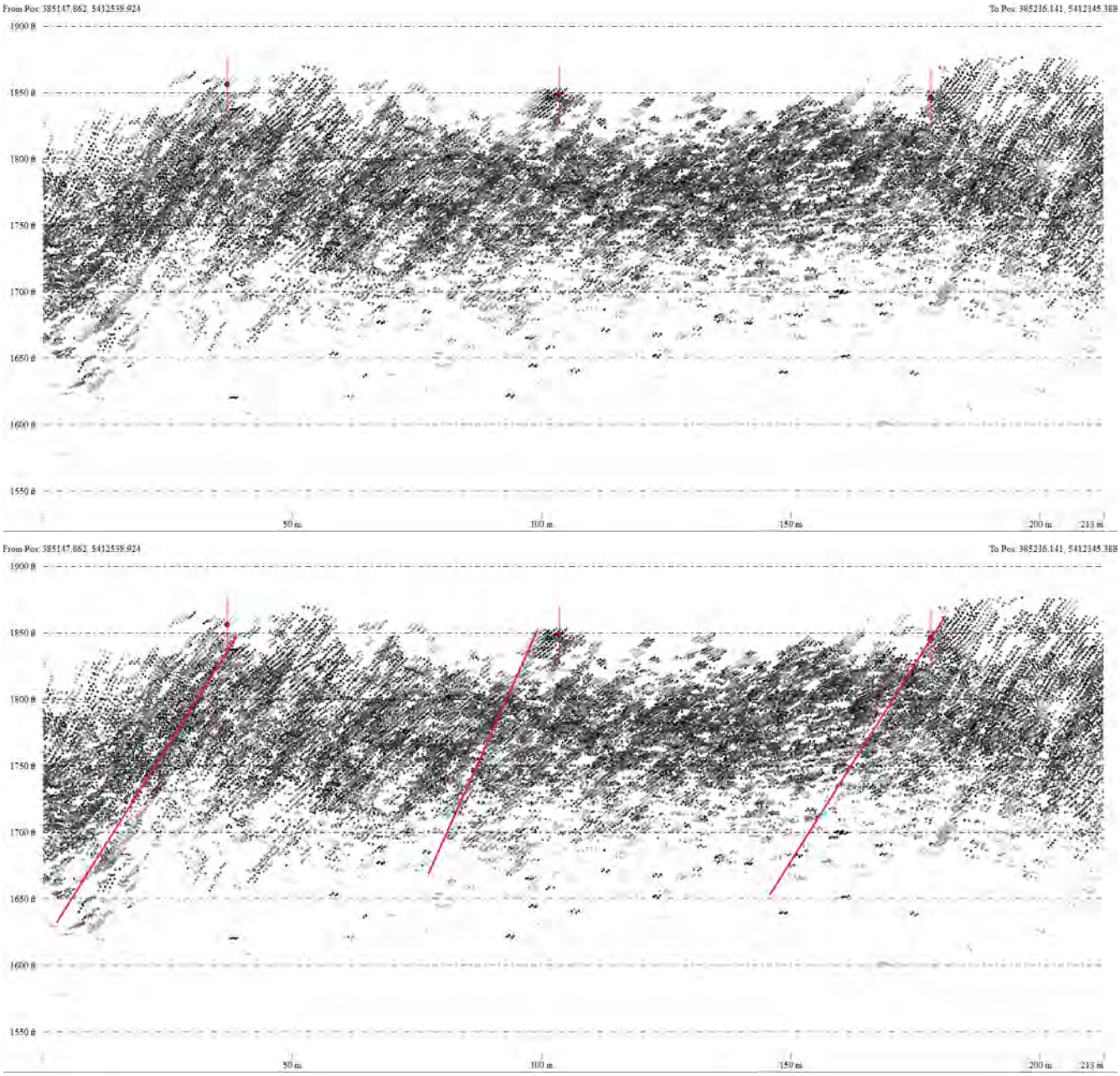
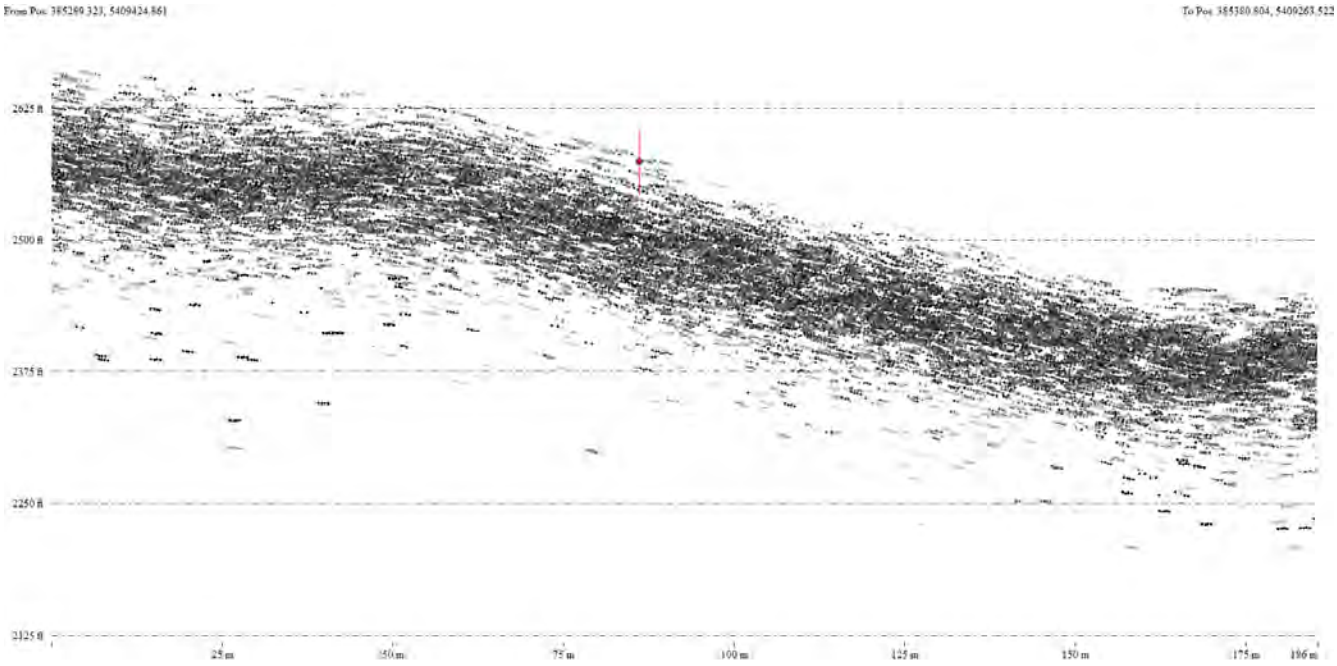
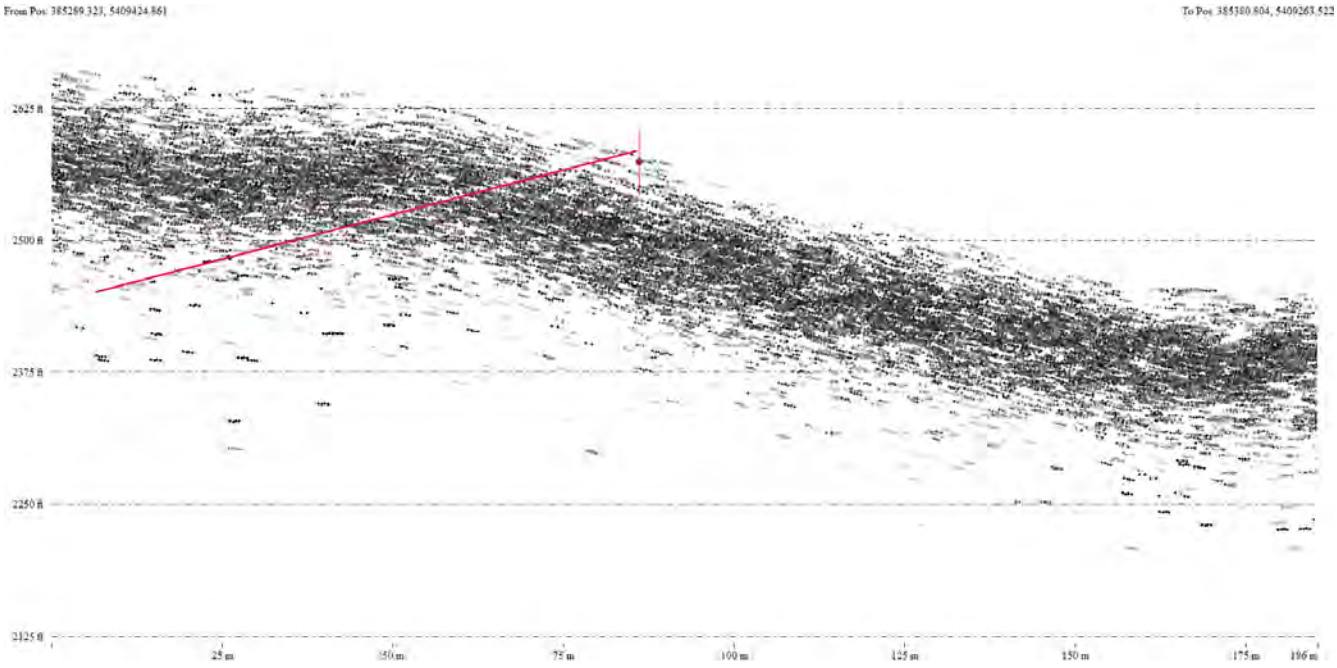
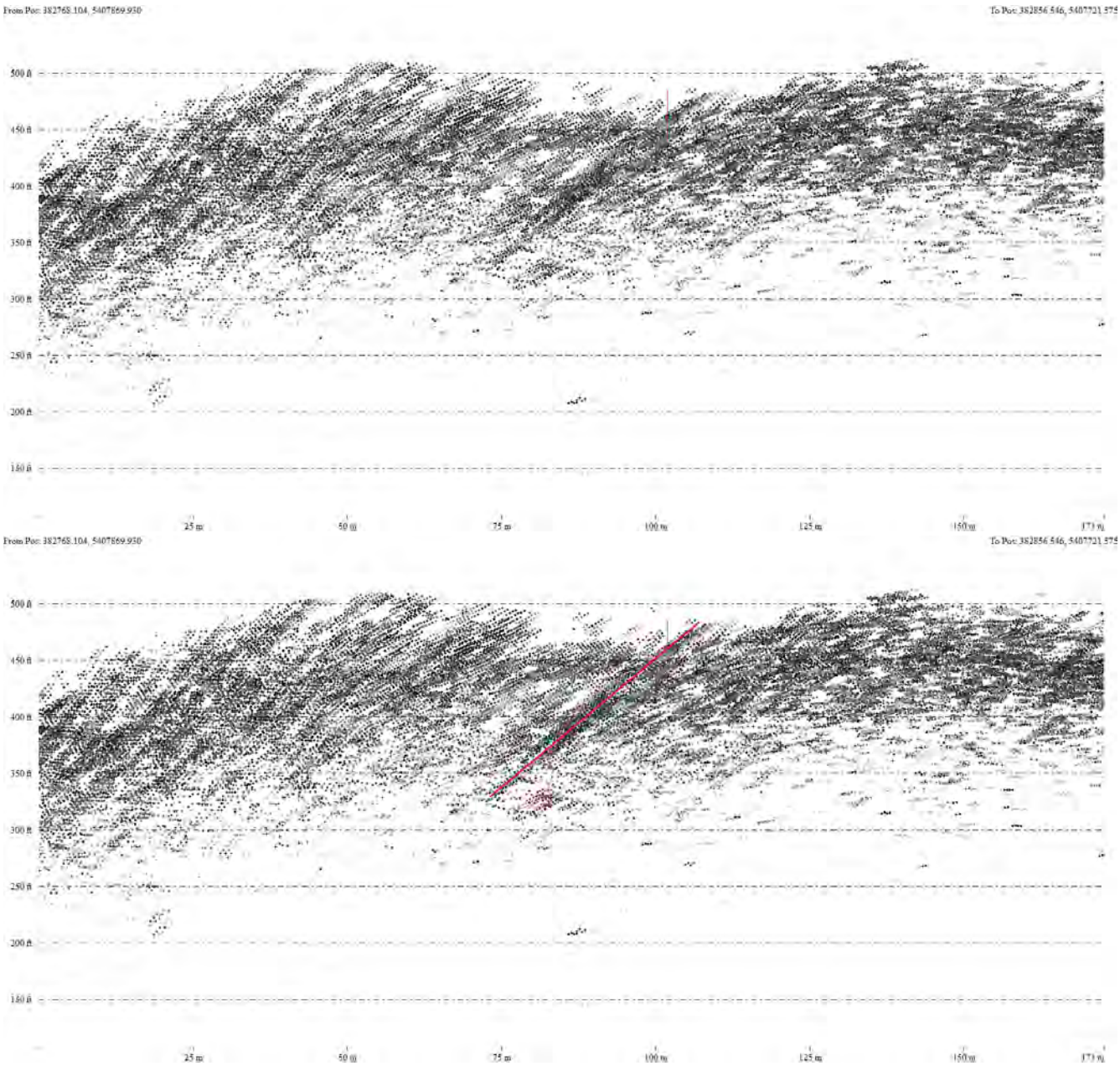


Cross Section 3





Cross Section 4



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AOI
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Coordinate System: WGS 1984 UTM Zone 10N

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HANNA CAPITAL CORP
HCC - CANADA, FRANKFURT : 04U1

Hanna Capital Corp Project
Jasper Property
Strike and Dip Model

AURACLE GEOSPATIAL

Appendix 2

Access Road Report

ONSITE Engineering Ltd.

Southern Operations
201-231 Trans Canada Highway
PO Box 2012, Salmon Arm BC
V1E 4R1
Tel: 250-833-5643
Fax: 1-866-235-6943

North Vancouver Office
Unit 2 – 252 East 1st Street
North Vancouver, BC
V7L 1B3
Tel: 778-802-1263
Fax: 1-866-235-6943

Abbotsford Office
103-32310 South Fraser Way
Abbotsford, BC
V2T 1X1
Tel: 604-309-1788
Fax: 1-866-235-6943

Coastal Operations
1040 Cedar Street
Campbell River, BC
V9W 7E2
Tel: 250-287-9174
Fax: 1-866-235-6943

Northern Operations
3661 15th Ave.
Prince George, BC
V2N 1A3
Tel: 250-562-2252
Fax: 1-866-235-6943

OEL File: 1987-1

April 2, 2020

Jacques Houle, P.Eng.
Mineral Exploration Consulting
Nanaimo, BC

Re: Field Observations of Caycuse Main Access for Jasper Project.

Introduction

A field reconnaissance of the Caycuse Main was conducted on March 31, 2020 by Richard Norman, P.Geo of Onsite Engineering Ltd. (OEL). Conditions during the field visit were overcast with light rain and short periods of snow and cool temperatures. There was a light covering of snow on the ground that melted through the day. The purpose of the field visit was to review Caycuse Main between Seven Mile Creek and Four Mile Creek to determine access and road conditions to prepare a full scope of work and cost estimate.

The Caycuse Main was drivable up to approximately 1 km short of the Seven Mile Creek crossing where a landslide from this past winter stopped further vehicle access. From this point the assessment was carried out on foot. Figure 1 shows the distance reached by vehicle.

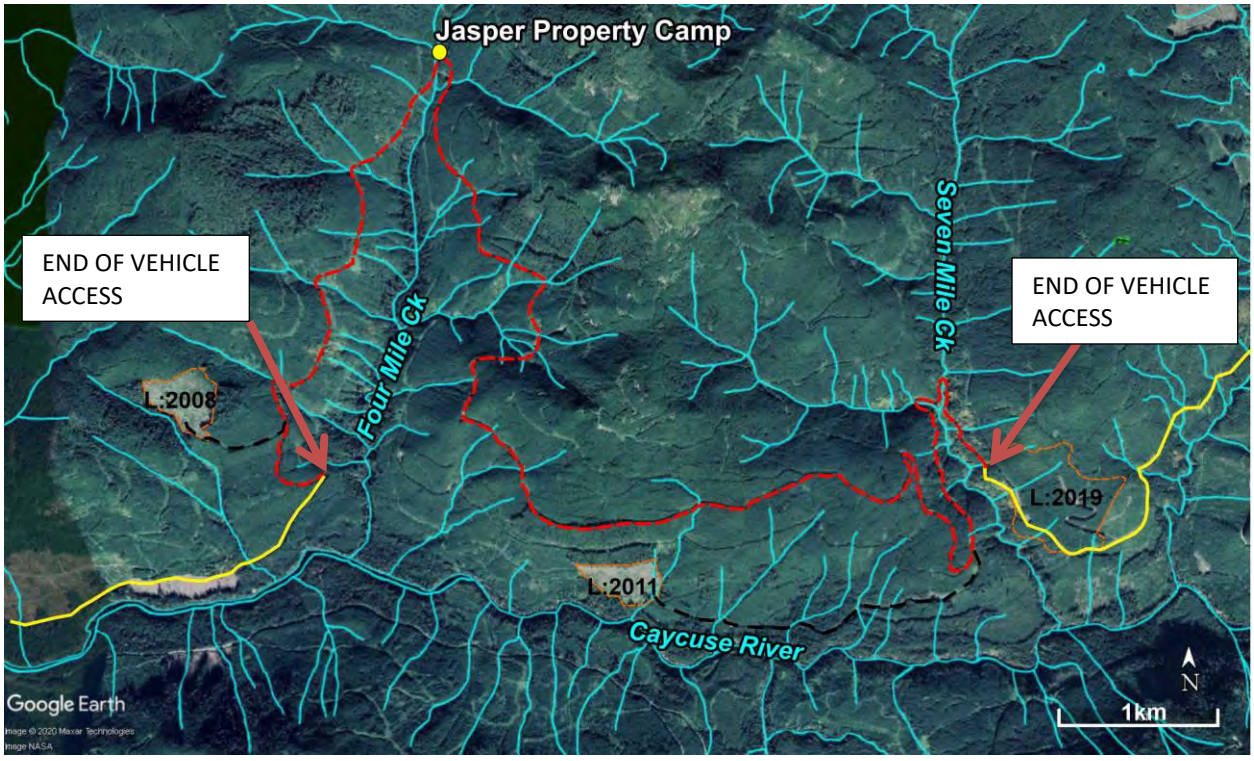

Figure 1: Current vehicle access on Caycuse Main shown by yellow line. Red line shows area not vehicle accessible.

Observations

Caycuse Main East Access Assessment:

From where progress was stopped at a slide path it is approximately 10 km distance on the mainline to reach the proposed camp of the Jasper Property. Assessment of the mainline was conducted by foot from the slide path for approximately 1 km distance from point 1 to 7 as shown on Figure 2. A series of road failures, landslides and damaged bridges were encountered over this first kilometer. The foot traverse was stopped after 1 km due to the number of major construction issues encountered and the 9 km of road to still assess to reach the Jasper Property. It was decided to review the potential for access along the western end of the Caycuse Main.

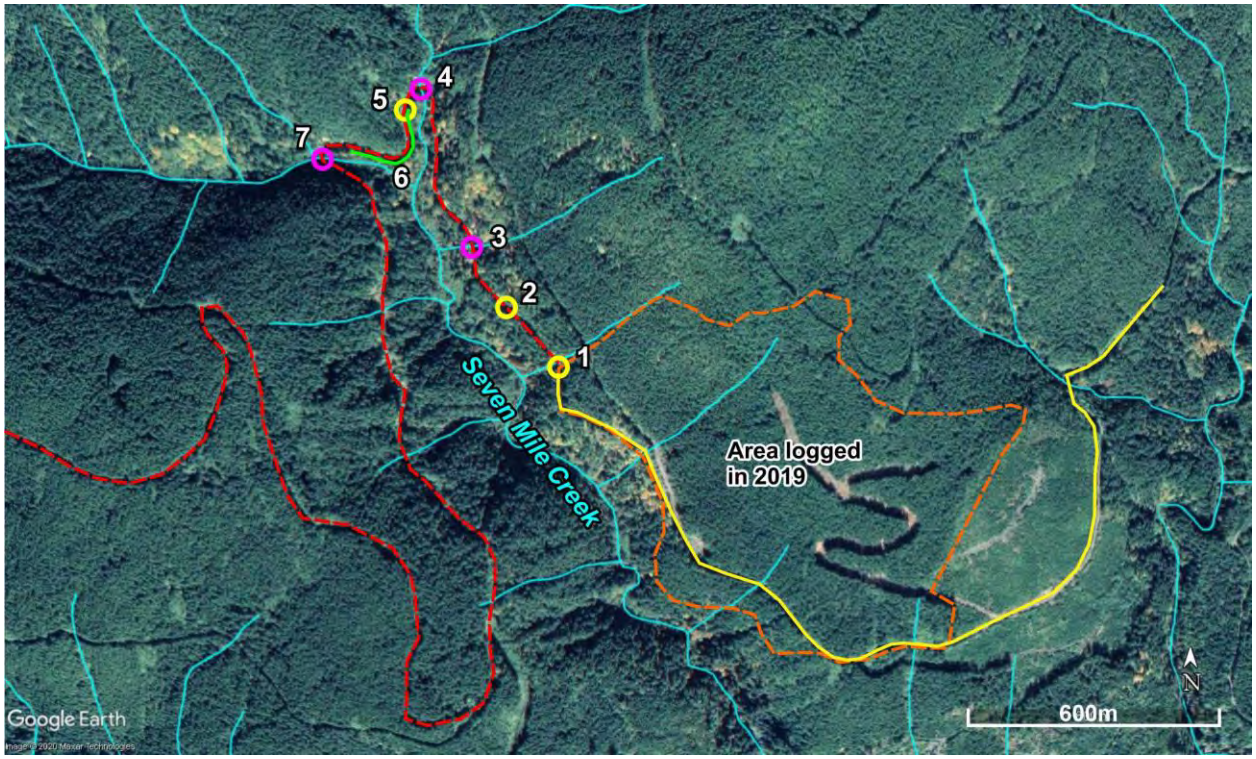

Figure 2: Construction/reactivation concerns along the Caycuse Main east access – landslides shown in yellow, bridge/crossing replacements in pink, and recontouring/pullback of fill slope in green.

Issues encountered along the assessed section are as follows:

1- Landslide – Occurred this past winter as fill slope failure removing most of road surface, marks end of current vehicle access. Road crew has recontoured the road here and added ditch for runoff. Slide occurred around stream crossing at lower edge of recently harvested cutblock. Slide is 16 m wide (Photo 1 & 2).
2- Landslide – Fill slope failure removing outer 1/2 of road surface. Is a recent failure from this past winter due to drainage blockage. (Photo 3)
3- Old Wood Box Culvert (WBC) 1x5m shows sign of rot and likely needs to be replaced.
4- Seven Mile Creek Bridge – is old log stringer bridge (Teal Jones structure B-9-2) with sign of logs rotting and holes starting to appear on surface. Bridge is a 15 to 20 m span that will need to be assessed and likely replaced (Photo 4 & 5).

5- Landslides – Cutslope and Fill slope failures over short section. Cutslope failure has deposited ~50m^3 of material across road. Fill slope failure has taken out outer 1/4 of fill slope on shoulder of road over a 17 m wide zone with tension cracks starting 1.5 m back from headwall. Will require pullback and recontouring of fill slope (Photo 6)
6- Tension Cracks
7- Tributary Stream Bridge – Bridge is a 15 m span with large hole in middle due to rotting of log stringers in middle of span. Bridge will need to be replaced. (Photo 7 & 8).

Caycuse Main West Access Assessment:

Vehicle access was possible up the first 3 km of the Caycuse Mainline from its junction with the Carmanah Mainline. Last 900 m of access on mainline is partially overgrown with alder but still drivable up to switchback as shown on Figure 3. Beyond this point the road starts upslope and the road surface has been eroded from overland flow stopping safe vehicle access. The road was walked from this point up a further 2 km distance to point 17. Some small fill slope failures, failing drainage structures and stability concerns were also encountered along the road over this section as highlighted in Figure 3.

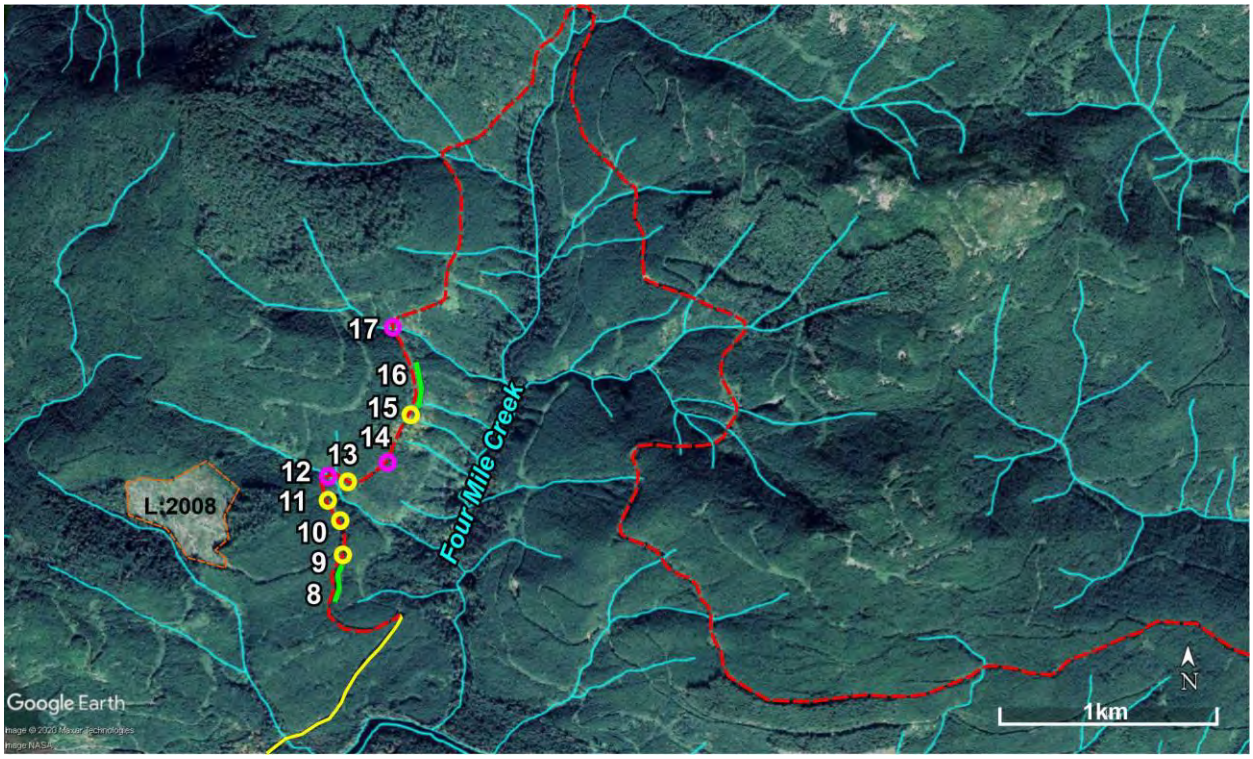

Figure 3: Construction/reactivation concerns along the Caycuse Main west access – landslides shown in yellow, bridge/crossing replacements in pink, and recontouring/pullback of fillslope in green.

Issues encountered along the assessed section are as follows:

8- Erosion & Tension Cracks – Road scoured from drainage diversion onto road surface from blocked culvert. Some tension cracks on outer 1 to 1.5 m of road. (Photo 9).
9- Landslide – Fillslope failure removing outer 1/4 of road surface. Is a recent failure from this past 2-3 yearsr due to drainage blockage. (Photo 10)
10- Landslide – small fillslope failure on outer 1 m of road. Recent, 2-3 years old.

11- Landslide – Old fillslope failure, 10 m wide with 2 m high headwall removing outer 1/3 of road surface.
12- Old WBC (1x5m) over high transport creek, is failing and needs to be replaced.
13- Landslides – erosion and series of cutslope slumps onto road surface blocking ditch resulting in small fillslope failure below due to drainage diversion. Will be simple reconstruction and drainage management upgrading required.
14- Failed WBC (1x3m)
15- Landslide - Fillslope failure removing outer 1/4 of road surface. Is a recent failure from this past 2-3 years due to drainage blockage. (Photo 11)
16- Tension Cracks on outer 1.5 to 2 m of road over 50 to 75 m long section.
17- Old bridge crossing removed. Will require new 15 to 20 m long span to get across gully (Photo 12).

Conclusions

It can be assumed that the series of road failures, tension cracks, and drainage blockages will persist along the Caycuse Main for both the east and west access options. Based on the review of imagery the Caycuse Main road up to the Jasper Property was last active in the 1980s to early 1990s and was never properly deactivated. At this time we can prepare a cost estimate and scope of work for either access option to the Jasper Property.

For the East access on Caycuse Main it will require a reconstruction survey over the 10 km distance from the Seven Mile Creek Crossing to Four Mile Creek. This will provide the information required to develop a cost estimate to reconstruct the road. Estimated field time will likely take 2 to 3 field days with use of a quad to cover the long distance.

For the West access on Caycuse Main it will require an estimated 1 to 2 days of field work to assess the road up the 5 km distance to reach Four Mile Creek. The road is currently overgrown with alders and quad access is not possible past point 12 on Figure 3.

At this time we would suggest that the west access option is likely the most cost effective route into the Jasper Property Camp.

Closure

This assessment has been carried out in accordance with generally accepted engineering and geoscientific practice for the area. We trust that this report satisfies your present requirements. Should you have any questions or comments, please contact our office at your convenience.

Sincerely,

Onsite Engineering Ltd.

Prepared by:

Richard Norman P.Geo
Geologist

Reviewed by:

Michael Foster, P.Eng.
Reviewing Engineer

Attached: Photos 1 to 12

Photo 1 – Slide path blocking further vehicle access

Photo 2 – view across slide path

Photo 3 – Fillslope failure removing outer ½ of road surface.

Photo 4 – Seven Mile Creek log stringer bridge.

Photo 5 – Seven Mile Creek bridge partially rotten/failing on left side of crossing.

Photo 6 – Fillslope failure with tension cracks on outer ¼ of road.

Photo 7 – Large hole in bridge across tributary of Seven Mile Ck.

Photo 8 – Looking into hole at rotten logs.

Photo 9 – Surface erosion of road from blocked drainage.

Photo 10-Fillslope failure.

Photo 11 – Fillslope failure near blocked drainage.

Photo 12 – Bridge removed from 15-20 m span of gully crossing on large tributary stream.

Appendix 3

MTO Data

Jasper Property 2021-2022 Cost Statement

Exploration Work type	Comment	Days			Totals
Personnel (Name)* / Position	**Field Days (list actual days)**	**Days**	**Rate**	**Subtotal***	
Jacques Houle / Consultant			$0.00	$0.00	
Auracle Remote Sensing / Consultant			$0.00	$0.00	
				$0.00	**$0.00**
Office Studies	**List Personnel (note - Office only, do not include field days**				
General research (Jacques Houle)	Jacques Houle Jan 20, 2021 - Dec 16, 2021	1.90	$924.00	$1,755.60	
Report preparation (Jacques Houle)	Jacques Houle Dec 17, 2021 - Feb 28, 2022	2.95	$924.00	$2,725.80	
				$4,481.40	**$4,481.40**
Remote Sensing	**Area in Hectares / Enter total invoiced amount or list personnel**				
3-D Satellite Radar (Auracle)	3978 ha / 100% data acquisition, 50% substantial completion by Auracle as per contract			$26,932.50	
3-D Satellite Radar (Auracle)	3978 ha / 50% substantial completion by Auracle; 100% final products by Auracle as per contract			$12,967.50	
				$39,900.00	**$39,900.00**
TOTAL Expenditures					**$44,381.40**
	Date		Applied	PAC debit	
SOW 5856751	17-Dec-21		$39,092.35	$11,686.75	$27,405.60
SOW 5926516	28-Feb-22		$24,175.16	$7,199.36	$16,975.80

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Mineral Titles Online

Mineral Claim Exploration and Development Work/Expiry Date Change

Confirmation

Recorder: HOULE, JACQUES R. (137830) **Submitter:** HOULE, JACQUES R. (137830)
Recorded: 2021/DEC/17 **Effective:** 2021/DEC/17
D/E Date: 2021/DEC/17

Confirmation

If you have not yet submitted your report for this work program, your technical work report is due in 90 days. The Exploration and Development Work/Expiry Date Change event number is required with your report submission. **Please attach a copy of this confirmation page to your report.** Contact Mineral Titles Branch for more information.

Event Number: **5856751**

Work Type: Technical Work
Technical Items: Geophysical, PAC Withdrawal (up to 30% of technical work required)

Work Start Date: 2021/JAN/20
Work Stop Date: 2021/DEC/16
Total Value of Work: $ 27405.60
Mine Permit No: MX-8-231

Summary of the work value:

Title Number	Claim Name	Issue Date	Good To Date	New Good To Date	# of Days For-ward	Area in Ha	Applied Work Value	Sub-mission Fee
342740	JAS 3	1995/DEC/19	2022/AUG/25	2022/AUG/25	0	300.00	$ 0.00	$ 0.00
1067847	JASPER MAIN	2019/APR/11	2020/APR/11	2022/JUN/30	810	1743.82	$ 21260.31	$ 0.00
1070624	JASPER EAST	2019/AUG/26	2020/AUG/26	2022/JUN/30	673	1445.20	$ 13323.59	$ 0.00
1070626	JASPER WEST	2019/AUG/26	2020/AUG/26	2022/JUN/30	673	489.03	$ 4508.45	$ 0.00

Financial Summary:

Total applied work value: $ 39092.35

PAC name: Hanna Capital Corp
Debited PAC amount: $ 11686.75
Credited PAC amount: $ 0

Total Submission Fees: $ 0.0

Total Paid: **$ 0.0**

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BRITISH COLUMBIA

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Mineral Titles Online

Mineral Claim Exploration and Development Work/Expiry Date Change

Confirmation

Recorder: HOULE, JACQUES R. (137830)
Submitter: HOULE, JACQUES R. (137830)
Recorded: 2022/FEB/28
Effective: 2022/FEB/28
D/E Date: 2022/FEB/28

Confirmation

If you have not yet submitted your report for this work program, your technical work report is due in 90 days. The Exploration and Development Work/Expiry Date Change event number is required with your report submission. **Please attach a copy of this confirmation page to your report.** Contact Mineral Titles Branch for more information.

Event Number: **5926516**

Work Type: Technical Work
Technical Items: Geophysical, PAC Withdrawal (up to 30% of technical work required)

Work Start Date: 2021/DEC/17
Work Stop Date: 2022/FEB/27
Total Value of Work: $ 16975.80
Mine Permit No: MX-8-231

Summary of the work value:

Title Number	Claim Name	Issue Date	Good To Date	New Good To Date	# of Days For-ward	Area in Ha	Applied Work Value	Sub-mission Fee
342740	JAS 3	1995/DEC/19	2022/AUG/25	2023/FEB/12	171	300.00	$ 2810.96	$ 0.00
1067847	JASPER MAIN	2019/APR/11	2022/JUN/30	2023/FEB/12	227	1743.82	$ 10845.15	$ 0.00
1070624	JASPER EAST	2019/AUG/26	2022/JUN/30	2023/FEB/12	227	1445.20	$ 7859.53	$ 0.00
1070626	JASPER WEST	2019/AUG/26	2022/JUN/30	2023/FEB/12	227	489.03	$ 2659.52	$ 0.00

Financial Summary:

Total applied work value: $ 24175.16

PAC name: Hanna Capital Corp
Debited PAC amount: $ 7199.36
Credited PAC amount: $ 0

Total Submission Fees: $ 0.0

Total Paid: **$ 0.0**

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The event was successfully saved.

Click here to return to the Main Menu.