ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: Satellite Remote Sensing Survey and Analyses of the Knight's Inlet Group of Mineral Tenures

TOTAL COST: $22,685.00

AUTHOR(S): David J. McLelland
SIGNATURE(S):

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):

STATEMENT OF WORK EVENT NUMBER(S)/DATE(S): 5409822/2012/Oct/10, 5422520/2012/Dec/17

YEAR OF WORK: 2012

PROPERTY NAME: Knight's Inlet

CLAIM NAME(S) (on which work was done): 504928, 546091, 546094, 566538, 576383, 599857, 697883, 853702, 853703, 853704, 853705, 853706, 853707, 853708, 853709, 853710, 853711, 853712, 843713, 853714, 853715, 853716, 853717, 853718, 853719, 853720, 853721, 853722, 853724, 853725, 853726, 978573, 978595, 978602, 978607, 978608, 1012541, 1012542, 1012543, 1012544, 1012545, 1012546, 1012547, 1012723, 1012724

COMMODITIES SOUGHT: Copper, Zinc, Silver, Marble, Dimension Stone

MINERAL INVENTORY MINFILE NUMBER(S),IF KNOWN: 092K140, 092K032

MINING DIVISION: Vancouver
NTS / BCGS: 092K12W / 092K071,092K072
LATITUDE: _50_° _43_' _30_"
LONGITUDE: _125_° _48_' _19_" (at centre of work)
UTM Zone: 10N EASTING: 302000E NORTHING: 5623000N

OWNER(S): Sulo Poystila

MAILING ADDRESS: 5745 Vanderneuk Road, Nanaimo, B.C. V9T 5H3

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

MAILING ADDRESS: 5745 Vanderneuk Road, Nanaimo, B.C. V9T 5H3

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization, size and attitude. (intrusive, granodiorite, quartz diorite, diorite, orthogneiss, volcanic, limestone, marble, Paleozoic, Mesozoic, Triassic, Jurassic, Cretaceous, Coast Intrusive Complex, Vancouver Group, pendants, skarn, porphyry, vein

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

ARIS 23005

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			
Airborne			22,685.00
GEOCHEMICAL (number of samples analysed for …)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres, number of holes, size, storage location)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling / Assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale/area)			
PREPATORY / PHYSICAL			
Line/grid (km)			
Topo/Photogrammetric (scale, area)			
Legal Surveys (scale, area)			
Road, local access (km)/trail			
Trench (number/metres)			
Underground development (metres)			
Other			
		TOTAL COST	22,685.00

Technical Report

For the

KNIGHTS INLET GROUP PROJECT

Claim #s: 504928; 510914; 546091; 546094; 566538; 576383; 599857; 697883; 853702; 853703; 853704; 853705; 853706; 853707; 853708; 853709; 853710; 853711; 853712; 853713; 853714; 853715; 853716; 853717; 853718; 853719; 853720; 853721; 853722; 853724; 853725; 853726; 978573; 978595; 978602; 978607; 978608; 1012541; 1012542; 1012543; 1012544; 1012545; 1012546; 1012547; 1012723; 1012724

Events #5409822 and #5422520

Satellite Remote Sensing Survey
And Analyses
Of the
Knight's Inlet Group of Mineral Tenures:

Vancouver Mining Division
British Columbia
Canada

Lat: 50.718º Long: -125.818º
NAD 83

For

Sulo Poystila

BC Geological Survey
Assessment Report
33537

By
Auracle Geospatial Science Inc.
325 Dorset Road
Qualicum Beach B.C.
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(250) 738-0459

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INTRODUCTION

In October 2012 Auracle Geospatial Science Inc was asked by Sulo Poystila to conduct mineral exploration remote sensing work for the Knight’s Inlet Group of Mineral Tenures. The Knight’s Inlet tenures are located 87 km east of the Vancouver Island Town of Port McNeill and are considered prospective for both base and precious metals.

This project was designed to use two types of optical data, microwave synthetic aperture radar satellite data and archived geoscience spatial data to search for signals which may represent mineralization, and other geological phenomena.

Hi resolution base image data was ortho-corrected to form a suitable base, with archived data ingested into a project Geographic Information System (GIS) and spatially aligned to construct an appropriate knowledge model. This model is also designed to act in part as a special decision support tool, with which decision makers can view, distribute, and publish complex spatial information.

Radar data was also acquired and used in this project. Radar data is not affected by most atmospheric conditions, and can penetrate some ground cover. Radar is useful to detecting textural changes and structure. It does however require very specialized software and processing to be converted from raw signals into ortho correct data.

Using the spatial knowledge model as a base the three dissimilar, spatial data were processed fused and analyzed. The analysis needed to produce geologically relevant spectral and lineament maps is labour and computer intensive as different standards are selected, fused and applied to the study. The spectral responses are geographically sensitive responding differently to different climatic, physiographic, atmospheric and rock surface (e.g. weathered, solid outcrop, rubbley outcrop) conditions as well as varied sun and incidence angles. The conversion of spectral measurement to coloured pixels georeferenced to a raster based map is therefore an iterative process designed to produce results that converge and produce “maximum likelihood” units that consistently identify the presence of established signals representing geological phenomena.

Correlations to established library spectra were mapped together with textural classifications and lineaments, and finally spatially analyzed.

The results of these analyses are an extension of the project GIS, and knowledge model from which a series of representative maps were projected.

The methodologies employed in this work are evolving quickly in response to constantly improving locational precision sensors and systems, radiometric improvements in signal sensors, increased on- board data storage capacities, increased speed and number of satellite down-link facilities, as well as the constant improvements to computing science in all of its extents. This leads to higher spatial, radiometric and signal resolution data, and better analyses.

The analyses for geological content were conducted in collaboration with Geologist: Jacques Houle P. Eng., who has supplied important perspective as well as assisted the archived data selection, and provided relevant information.

Ultimately the purpose of this work has been to ingest data and using collaborative data-driven, knowledge-based remote sensing and GIS analysis, to derive new and useful information in the exploration for economic mineralization.

The results of this work include the new project GIS together with a series of maps delineating areas of interest which are considered to be prospective for further mineral exploration.

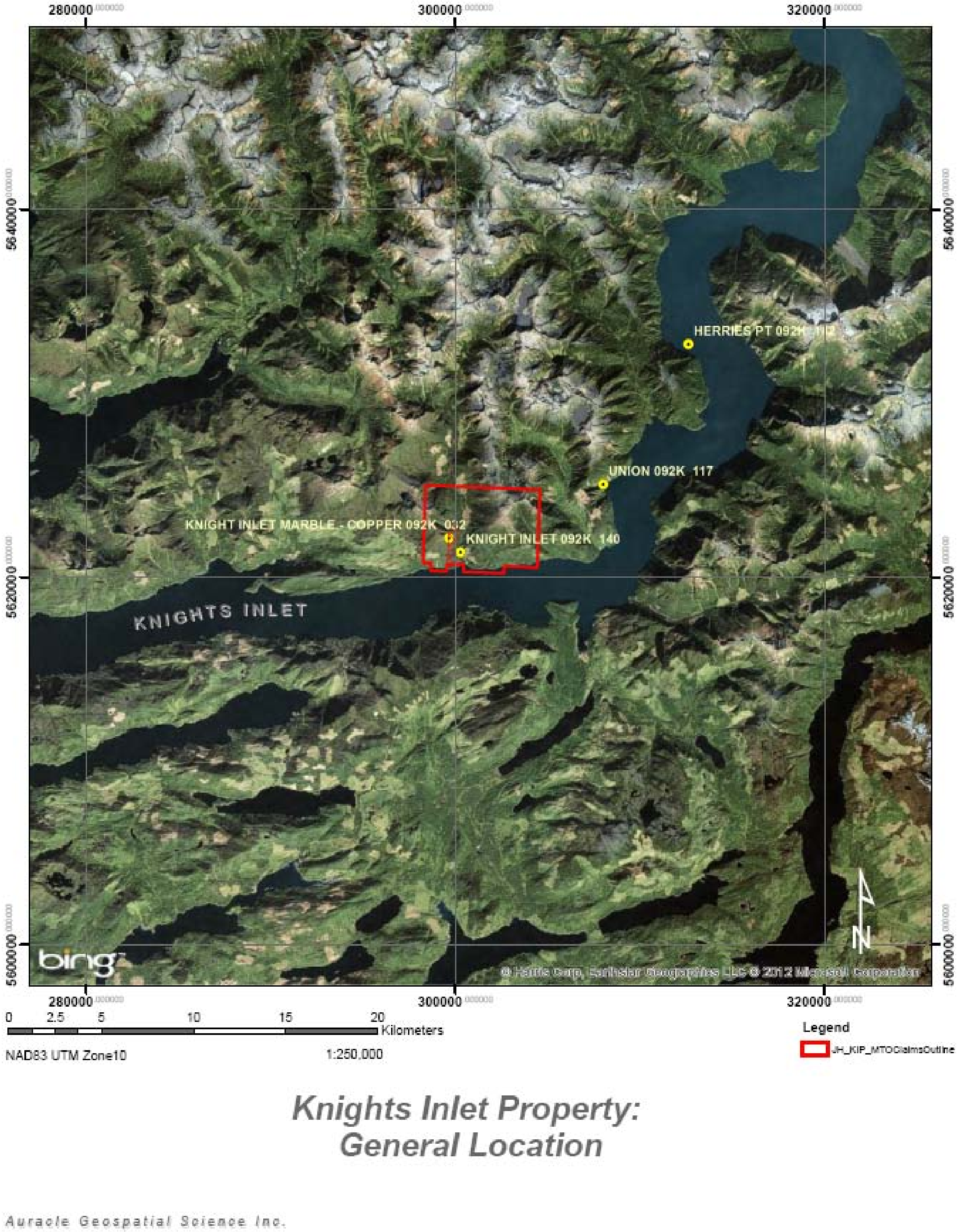


Illustration 1-General Location

Physiography and Access *(See Illustration 2 and Appendix figures 1and 10)*
The Knight's Inlet Group occupies approximately 2721 hectares of surface area, consisting of 45 claims. The Group is located on the Continental Coast of BC

approximately 87 kilometres East of the Vancouver Island Town of Port McNeill, across the Strait of Georgia in the reaches of it's namesake Knight's Inlet. Knight's Inlet is a deep fjord offering excellent navigation. The Tenure group is located along 6 kilometres of tidewater, including a landing and dock and contains approximately 78 kilometres of mapped logging road.

This coastal temperate climatic zone, with local temperatures ranging from freezing (0º) at sea level in winter to 19º in summer and 238 rainfall days per annum. Elevation Ranges from sea level to 1340 metres and winter temperatures drop significantly with elevation. Higher elevations are snow covered during winter months.

Vegetation consists of partially logged coastal rainforest containing fir, hemlock cedar and spruce species. Ground cover at low elevations is extremely dense consisting of thick salal, Oregon grape and various brambles

Proximity to Port McNeill with its world class mining and heavy industry history, and its established supply and services sector present, is an important consideration.

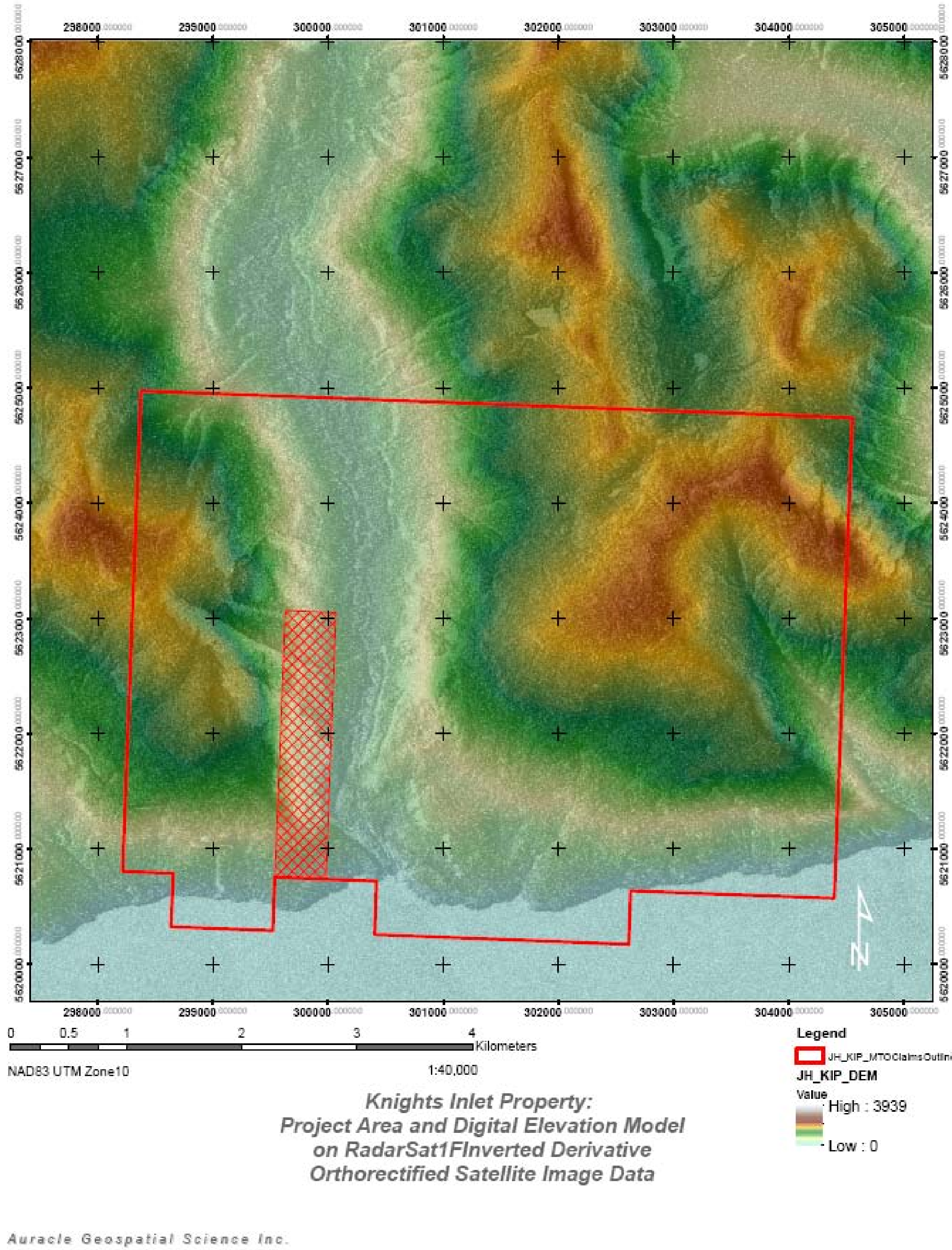
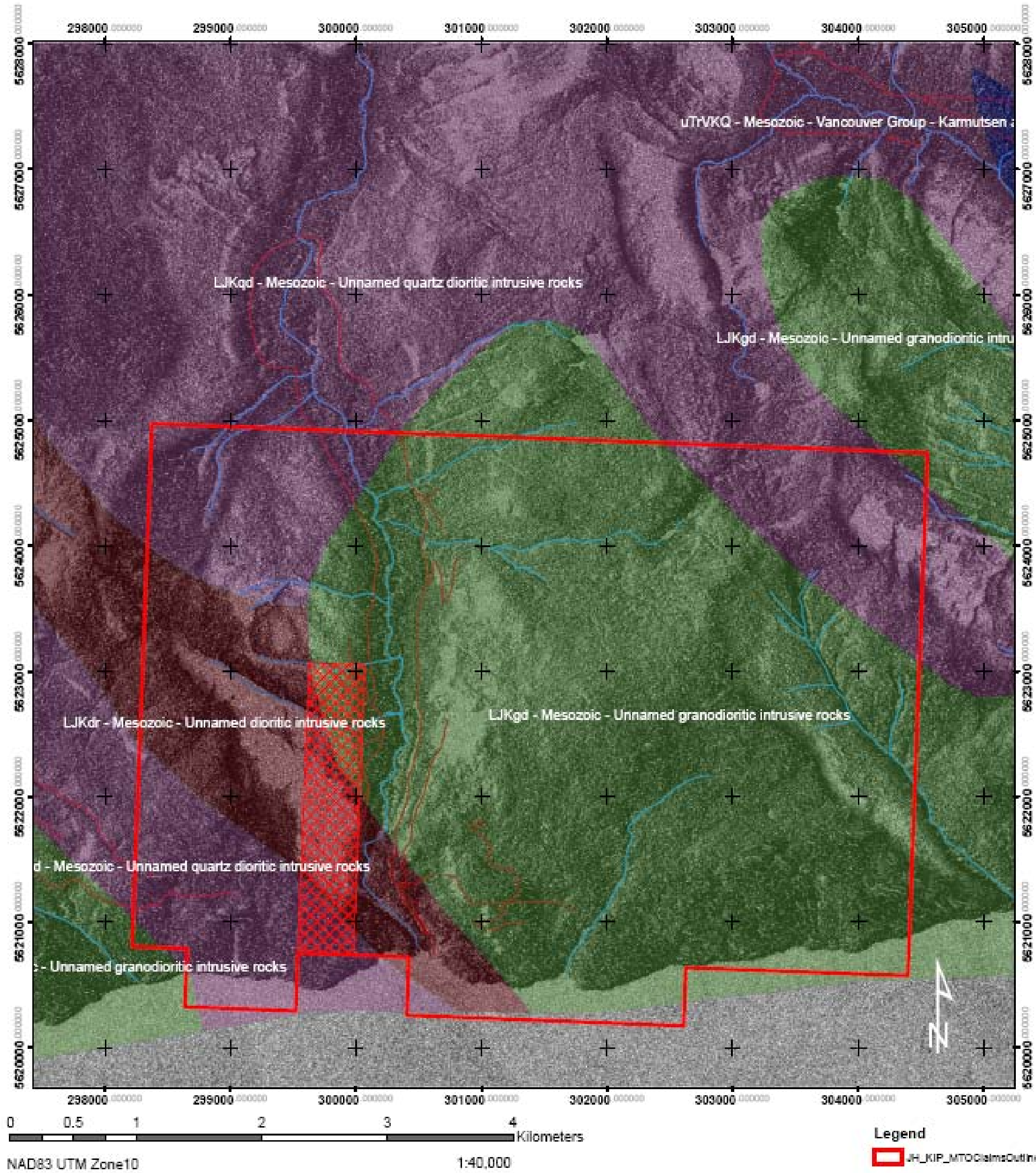


Illustration 2 - Digital elevation Model

Regional Geology *See Illustration 3 and Appendix Figure2*

Regional Geology is delineated in the following map with digital lithologic and structural vector spatial data taken from the BC Geological Survey Branch. A discussion of local geology is presented in a memorandum contained in this report by Jacques Houle. P. Eng on pages28-30.



Knights Inlet Property:
BCGS Digital Regional Geology on
RadarSat 1F Inverted Derivative
Orthorectified Satellite Image Data

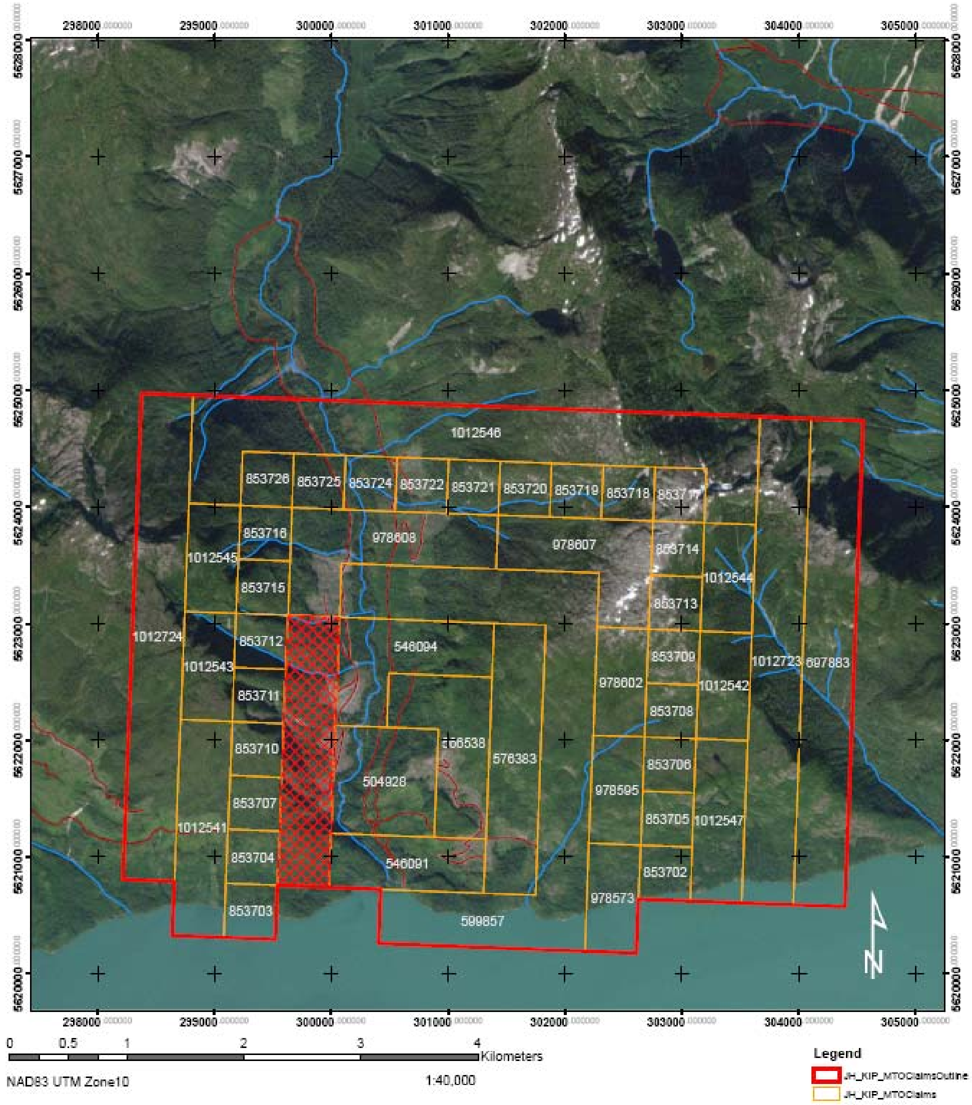
Auracle Geospatial Science Inc.

Illustration 3- Regional Geology

Mineral Tenure:

The Knight's Inlet Group includes 46 Mineral Tenures in good standing as disclosed in the attached cover letters including:

504928; 510914; 546091; 546094; 566538; 576383; 599857; 697883; 853702; 853703; 853704; 853705; 853706; 853707; 853708; 853709; 853710; 853711; 853712; 853713; 853714; 853715; 853716; 853717; 853718; 853719; 853720; 853721; 853722; 853724; 853725; 853726; 978573; 978595; 978602; 978607; 978608; 1012541; 1012542; 1012543; 1012544; 1012545; 1012546; 1012547; 1012723; and 1012724



Knights Inlet Property: Project Area and Mineral Tenures on RapidEye Multi-Band False Colour Orthorectified Satellite Image Data

Auracle Geospatial Science Inc.

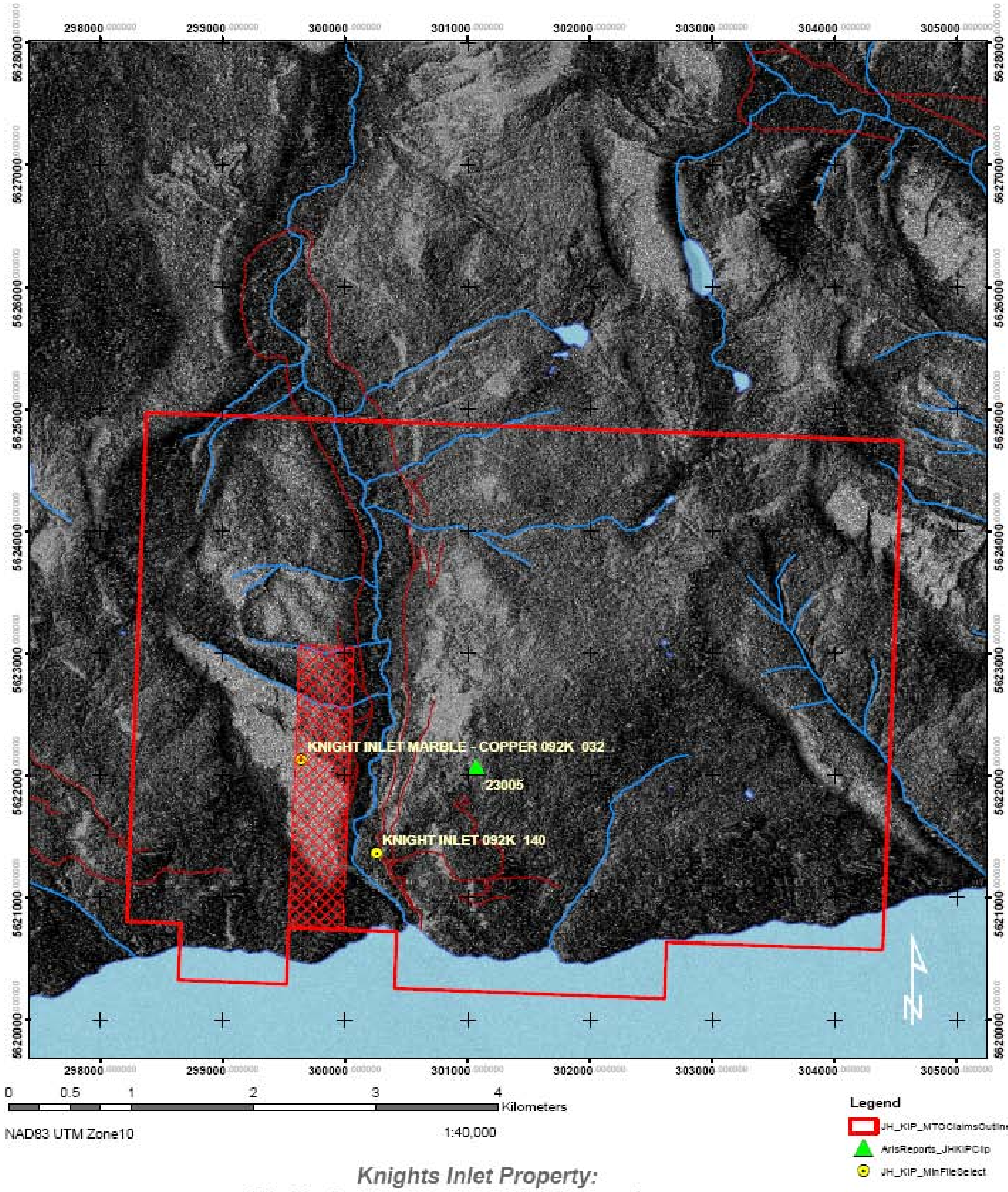
Illustration 4 Mineral Tenures

Previous Work *See Illustration 5*
According to Government of BC records contained in mineral occurrence 'Minfiles' 092K032, 092K140 and Minster of Mines Annual Report 1928, exploration for copper was conducted from 1918 to1930. Work from the 1970s forward was predominantly exploration for and development of Marble and Granite dimension stones. The Following are links to the ARIS and Minfile Reports:

http://minfile.gov.bc.ca/Summary.aspx?minfilno=092K%20%20032

http://minfile.gov.bc.ca/Summary.aspx?minfilno=092K%20%20140

http://aris.empr.gov.bc.ca/search.asp?mode=repsum&rep_no=23005



Knights Inlet Property:
Minfile Occurrences and ARIS Locations on
RadarSat 1F Inverted Derivative
Orthorectified Satellite Image Data

Auracle Geospatial Science Inc.

Illustration 5 Previous Work

DATA ACQUISITION

Archived mineral exploration, geology and geographic data were collected from various sources including:

- BC Geological Survey data download
- Geogratis
- Geobase
- BC Minfile
- BC ARIS report system

Satellite Remote Sensing data selection was based on suitability to the fusion process, and availability as a continuum of like coverage. The acquired included:

- RapidEye 5 metre multispectral data
- ASTER Multispectral 15m and 30m Short Wave Infra Red (SWIR) optical with 90m Thermal Infra Red (TIR) data from GDS IMS (Japan)
- Matched Pair of RadarSat 1 Fine 6.25 m Synthetic Aperture c-band microwave ascending and descending tracks Radar data from MDA Corporation Richmond BC

Historic archived data for the Knights' Inlet tenure area that had spatial reference was ingested as raster, vector, table and grid data., Conversions to a common datum (NAD 83) and projection (UTM 10N) were conducted where needed. Grid data was ingested using interoperability software to preserve the original content. Archived data selection was directed by Jacques Houle P. Eng according to applicability to this work.

Data Pre-Processing

Optical data including passively collected reflectance VNIR and SWIR data were converted from At Sensor data to Reflectance data using industry standard conversions. In order to proceed with further optical processing, a mosaic digital elevation model (DEM) was required.

The ASTER data included an aft looking (3B off nadir) image which when combined with its counterpart image (3N nadir) form a stereo pair of images. These were used to generate Epipolar images by selecting common ground control points in each image to <0.50 RMS. The resulting image set was photogrammetrically analyzed for differential and converted to a 'y' or elevation value within the now georeferenced data. The ASTER DEM was used to orthorectify all optical images. Orthorectification, is the process of resampling the 2D image data in order to be correctly aligned with 3D ground positions. Since all of the dissimilar data used the common DEM for orthorectification, they share the same accuracy and precision and are commonly aligned. In this case data from each set was used in data fusion to supply greater spectral resolution to the high spatial resolution data, and conversely, High spatial resolution to the high spectral resolution data. This resulted in 10 band spectral data. The raw reflectance data was atmospherically corrected using FLAASH, a Modtran type model based correction module. This atmospherically corrected fused data was masked for cloud and water using a combination of LOC (Lines of

Communication) supervised signature type water analysis and detection, and heads up manual edit digitizing.

RadarSat 1 Fine CEOS data was converted to .tif format and corrected for:

- Antenna pattern
- Slant Range
- Radiometry
- Topographic distortion (Layover and foreshortening)

The ortho-corrected 6.25 m Synthetic Aperture Microwave Radar data was then filtered for speckle using a Sobel edge detection algorithm. This pre-processed radar data was checked for alignment against the optical data and corrected by shifting.

DATA PROCESSING

Methodologies

The methodologies used in this work are consistent with scientific standards conventionally used in these types of processes and analyses (Jensen, 1996; Harris, et al., 2010).

The following illustrates the steps involved in preparing the spectral data and completing the spectral analyses:

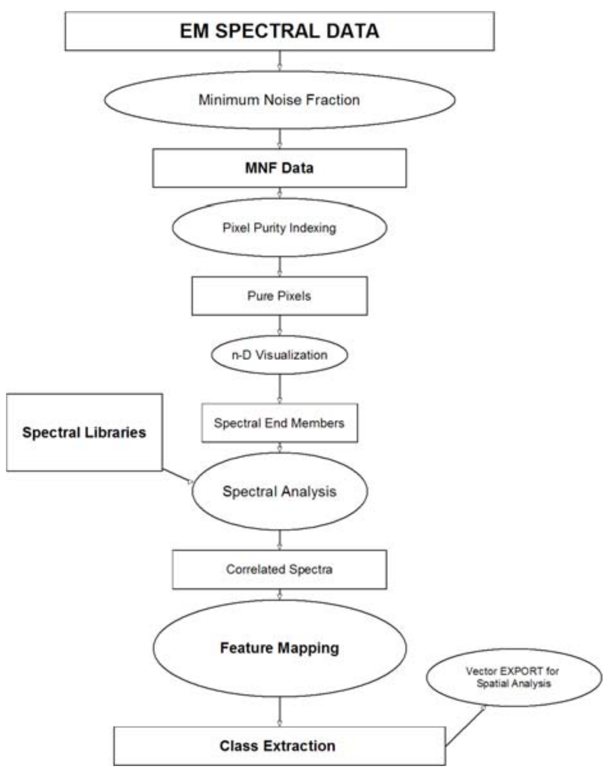


Illustration 6-- Remote Sensing Analysis Workflow

The pre-processed optical reflectance data was reduced for its data dimensionality (actual size of data package in Bytes) using a noise-whitening fast forward- fast reverse type transform application named MNF (minimum noised fraction). MNF reallocates data in order of usefulness and integrity creating a series of bands where the lower order bands contain in some cases only noise and can be discarded. The MNF data was ingested into an iterative analyzer to find end-member data which is representative of pure samples of spectra. 15,000 iterations were conducted with a purity threshold of 2.5. Ten-thousand of the end member spectra (which have spatial attributes) were ingested into an n-D Visualizer. Selections of these refined spectra were made based on their location within a dynamic statistical cloud. This process (a type of un-supervised classification) was repeated 2 times with 8 separate spectral libraries:

Mineral Libraries

- USGS Mineral Spectral Library
- Jet Propulsion Laboratory Spectral Libraries 1,2 and 3
- Johns Hopkins University Mineral Spectral Library

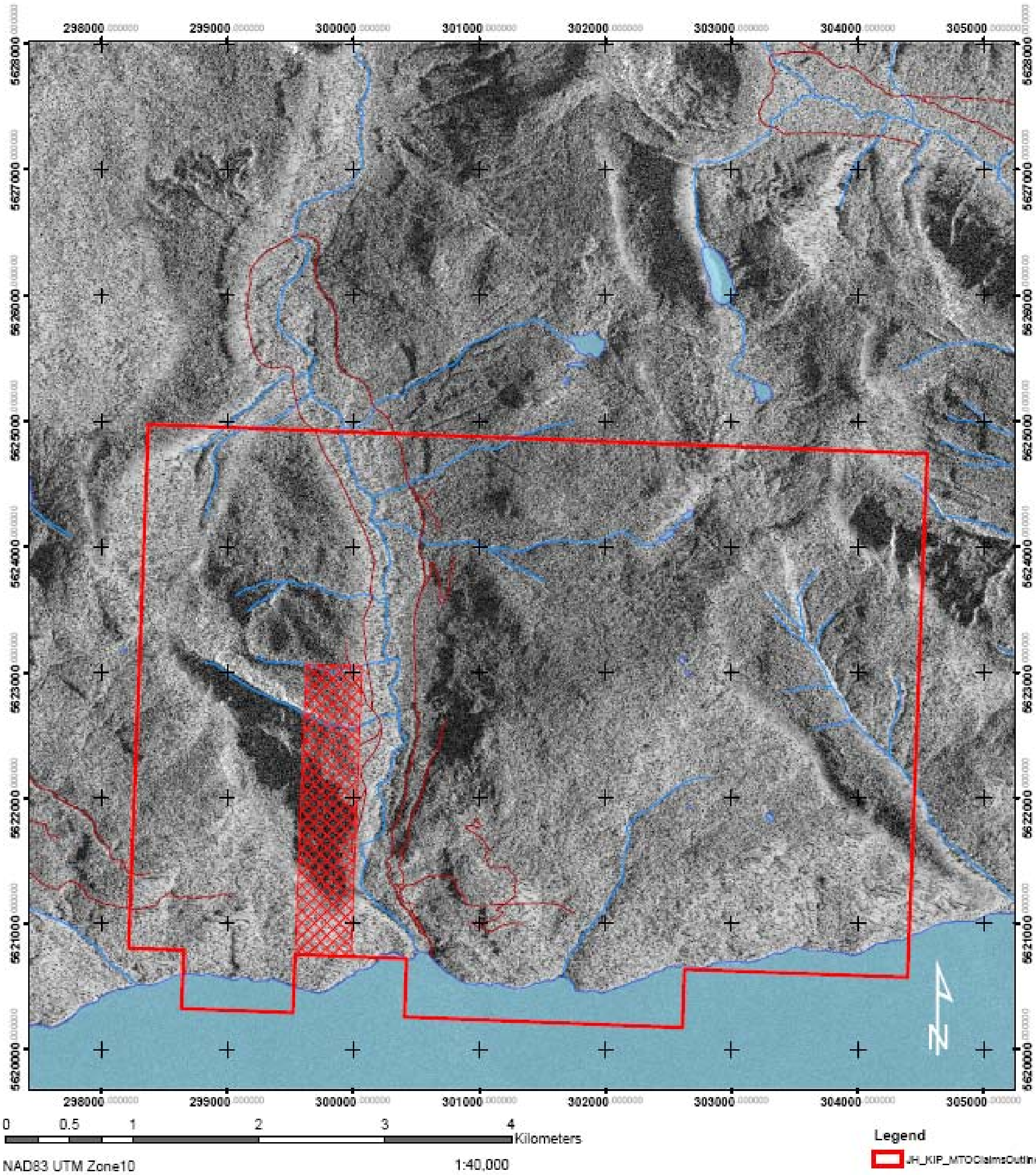
Lithology Libraries

- Johns Hopkins University Sedimentary, Metamorphic and Igneous Coarse Spectral Libraries

The resulting spectral correlations to Library samples were used as training samples and the image data was searched for ‘like’ samples using a spectral angle mapping tool. Spectra which fell within a specified angle (10º) were classified with the sample spectra and mapped in geographic space as class members.

Radar

The noise reduced and pre-processed Radar data were re-processed using a series of protocols including: Directional filters: 120º and 90º; Laplace Transforms; and several mathematic convolutions. Results from 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; density, texture or arcuate pattern. Results were projected using custom histogram displays for improved visual discrimination.



Knights Inlet Property:
Project Area Fused Pair of Orthorectified
Satellite Image Data

Auracle Geospatial Science Inc.

Illustration 7- RadarSat Ortho Laplace Derivative

Classification

Optical data was mapped in classes according to their mineralogic or lithologic membership. The classes were merged into representative groups and analyzed for their spatial relationships and to any established mineral occurrences within the AOI.
Radar data was mapped according to its attributes and digitized into lineaments and textures.

Classification Result Summary
Two optical spectra maps were produced:

- Metallic Minerals (12 Classes)
- Alteration Minerals (25 Classes)

The radar analyses resulted in a lineament map displaying previously un-mapped structure.

Classification Conclusion Summary
Results were examined in collaboration with geologist Jacques Houle P. Eng and target ‘prospective zones’ were derived for ground verification as part of the plan for the coming field season. Three prospective targets within the AOII were generated. Two of these are located in areas which have not been the focus of archived work.

DATA DESCRIPTION
<u>Spectral Data</u>:
ASTER L1B data was acquired which included:

- 3 channels of VNIR (Visible Near Infrared) 15 metre ground spatial resolution data;
- 1 channel of back-looking or aft VNIR 15 ground metre spatial resolution data;
- 6 channels of SWIR (Short Wave Infrared) 30 metre ground spatial resolution data and
- 6 channels of TIR (Thermal Infrared) 90 metre ground spatial resolution data.

The Electromagnetic (EM) spectrum covered by ASTER is as follows

1. B1 VNIR_Band1 0.52 - 0.60 µ 15m
2. B2 VNIR_Band2 0.63 - 0.69 µ 15m
3. B3 VNIR_Band3N 0.76 - 0.86 µ - Nadir view 15m
4. B4 VNIR_Band3B 0.76 - 0.86 µ 15m - Backward scan (used to create high resolution DEM)
5. B5 SWIR_Band4 1.60 - 1.70 µ 30m
6. B6 SWIR_Band5 2.145 - 2.185 µ 30m
7. B7 SWIR_Band6 2.185 - 2.225 µ 30m
8. B8 SWIR_Band7 2.235 - 2.285 µ 30m
9. B9 SWIR_Band8 2.295 - 2.365 µ 30m
10. B10 SWIR_Band 9 2.36 - 2.43 µ 30m

11. B11 TIR_Band 10 8.125 - 8.475 µ 90m
12. B12 TIR_Band 11 8.475 - 8.825 µ 90m
13. B13 TIR_Band 12 8.925 - 9.275 µ 90m
14. B14 TIR_Band 13 10.25 - 10.95 µ 90m
15. B15 TIR_Band 14 10.95 - 11.65 µ 90m

ASTER L1B data is geo-coded not georeferenced and unrectified. It is "at sensor" radiance data containing metadata describing its angle of incidence and other variables necessary to its geographic and geometric corrections and alignment.

RapidEye data is 6.5m native spatial resolution multispectral data with the following spectral resolution:

Band #	Name	Spectral Range (nm)
1	Blue	440 – 510
2	Green	520 – 590
3	Red	630 – 685
4	Red Edge	690 – 730
5	Near-Infrared	760 – 850

The RapidEye 5 Band data is acquired as an un-orthorectified georeferenced tiled data-set, and is at sensor radiance data complete with Rational Polynomial Function (RPF) data, incidence angularities, geocoding, collection, position, and datum metadata. The rest of the metadata is used to correct the image and as a basis for atmospheric correction.

Radar Data:

The acquired radar data was comprised of a pair of dissimilar track RadarSat-1 Fine, 6.25 metre spectral resolution C-Band microwave type, Synthetic Aperture (SAR) data. One of these images was ascending with its complimentary image descending. The RadarSat data is geocoded high density format data which was georeferenced and projected to the state datum. The georeferenced raw data was then ortho-corrected using a proprietary script. Radar data does not directly correspond to visual established geographic features and requires very specialized knowledge, software and equipment in order to correct for foreshortening, antenna pattern and ortho alignment. This data was corrected spatially using a proprietary script and subsequently filtered using mathematical filters to enhance edges and to reduce inherent speckle and noise. The noise reduced data was re-processed using a series of protocols including: Directional filters: 120º and 90º; Laplace Transforms; and mathematic convolutions. Results from Mathematical Convolution images included Co-occurrence: Dissimilarity; Homogeneity; Entropy; and Means. These were projected using both nearest neighbour and cubic convolutions to improve and discriminate their varied: linearity; texture or arcuate pattern.

Data Preparation and Pre-processing: All acquired data was converted into suitable projections and georeferenced. The georeferenced data was converted to radiance and orthorectified. Atmospheric Correction was conducted using an international ModTran 4 algorithm, including maritime aerosols and based on the specific moment, incidence and elevation of collection, as well as the geographic position of instrument, attitude of lens, yaw of satellite and archived weather report for the point of capture. These elements are partly contained within the metadata of the imagery. The ASTER data used contained fore and aft images, which were stereographic and were used to build a Digital Elevation Model (DEM). 24 Tie points were selected manually as being common to both the right (3N) and left (3b) images. From these points a pair of epipolar images were generated using an ENVI DEM extraction module. This DEM was subsequently employed in the orthorectification of the rest of the data, including the other ASTER channels. Orthorectification was conducted on a first iteration approach. This means that the 15 meter ASTER DEM has been used until higher resolution data is required at a later point in the exploration program

The resulting orthorectified spectral data was extremely large so the data file was dimensionally reduced in order to be analyzed using the following protocols.

Spectral analysis: Spectral data was analyzed and transformed into MNF (Minimal Noise Fraction) data. Minimum Noise Fraction is a fast forward and fast reverse transform which reduces the data dimensionality in what is often called a noise whitening procedure. The resulting MNF bands of spectral data were visually checked for coherence. That is that each of the bands needed to contain variability that would in turn represent spectral variability. I this case all of the MNF bands retained spectral variability and therefore vital data for analyses. These Bands were analyzed through 15 000 iterations, at a threshold level of 2.43 in order to identify and collect end-member or pure spectra. A cloud of 10 000 collected pixels representative of the data were resolved and ingested into an n-D Visualizer.

The n-D visualizer produced clusters, which were a spatial representation of statistical significance. From these, pixels were extracted as representative samples of their respective classes. These pixels were spectrally analyzed for correlation to 12 different spectral libraries for rocks, minerals and vegetation. These libraries included: Johns Hopkins, USGS, Jet Propulsion Laboratory and IGCP. Spectral libraries are field collected by established scientific bodies and compared with airborne and spatial collected spectra to create industry standards for iterative analyses.

Resulting differentiated spectra were re-projected spatially using three separate protocols: MTMF, Sub-pixel linear unmixing and Spectral Angle Mapping.

MTMF—assumes that most phenomenon do not exist as homogeneous substances and that a part of each pixel in a “nearest neighbour” configuration will contain the target spectra and that the surrounding pixels will contain some of the target spectra

Sub-pixel Lineal Unmixing—based on a type of Principle Components Analysis where in Eigen values are the results of a type of spatial Principles Components Analysis, which are fast-forward and fast-reverse iterations of the PCA. In other words, this creates maximum likelihoods of correlation to established library spectra where given Eigen values within a spatial matrix define classification membership by the Eigen vectors within that matrix.

Spectral Angle Mapping—refers to projection of the spectra in three dimensional space and locating like pixels within a prescribed angularity of known spectra or established spectra. This angularity was constrained to 10 degrees which is an industry-accepted standard for spectral angle mapping (that these spectra fall within a 90% likelihood of correlating to established library spectra.)

These three types of analyses were done in concert because different phenomenon (e.g. map units) obey or honour different natural patterns. For example, geology may be constrained to a more homogeneous mixture such as massive sulphides or a less homogeneous mixture, such as gneissic rock. In that case, two different analyses must be performed in order to determine class memberships when mapping pixels according to their class membership.

Classification: *(Appendix figures 3 and 4)*

Spectral Classification was conducted using both supervised signature classification and unsupervised signature classification. In the un-supervised signature classification, membership in a class means that a pixel is coloured or classed based on its relatedness to like pixels which have been defined by statistical selections. An n-D class means pixel has been determined to belong to a class by its likelihood of correlation to established spectra or a combination of spectra as they relate to a standard which is selected to represent actual phenomena.

In supervised classification specific spectra are introduced after the n-D statistical representation selection. These newly introduced spectra are also library standard spectra, and based on the preceding work are believed by the analyst to be possible minerals or phenomena types located in the AOI. The computer is ‘trained’ and programmed to search for like pixels.

Using this method of iterative unsupervised to supervised classification 75.636% of the surface area of the AOI was classified according to 37 mineral type classes. These Classifications are separately displayed by map (in order to reduce colour key confusion.) Classes are shown by name and corresponding colour in illustration 7 (following)

KIP_Spectral Metallic MineralClasses

Unclassified
BORNITE S-9A
CHALCOPYRITE S-4A
GOETHITE OH-2A
ILLITE PS-11A
MARCASITE S-10A
MOLYBDENITE S-11A
PYRRHOTITE S-12A
covellit.spc Covellite HS477.2B
cuprite.spc Cuprite HS127.3B
hematit3.spc Hematite GDS69.a 150-250u
ilmenite.spc Ilmenite HS231.3B
pyrite2.spc Pyrite S142-1

KIP_SpectralAlterationMineralClasses

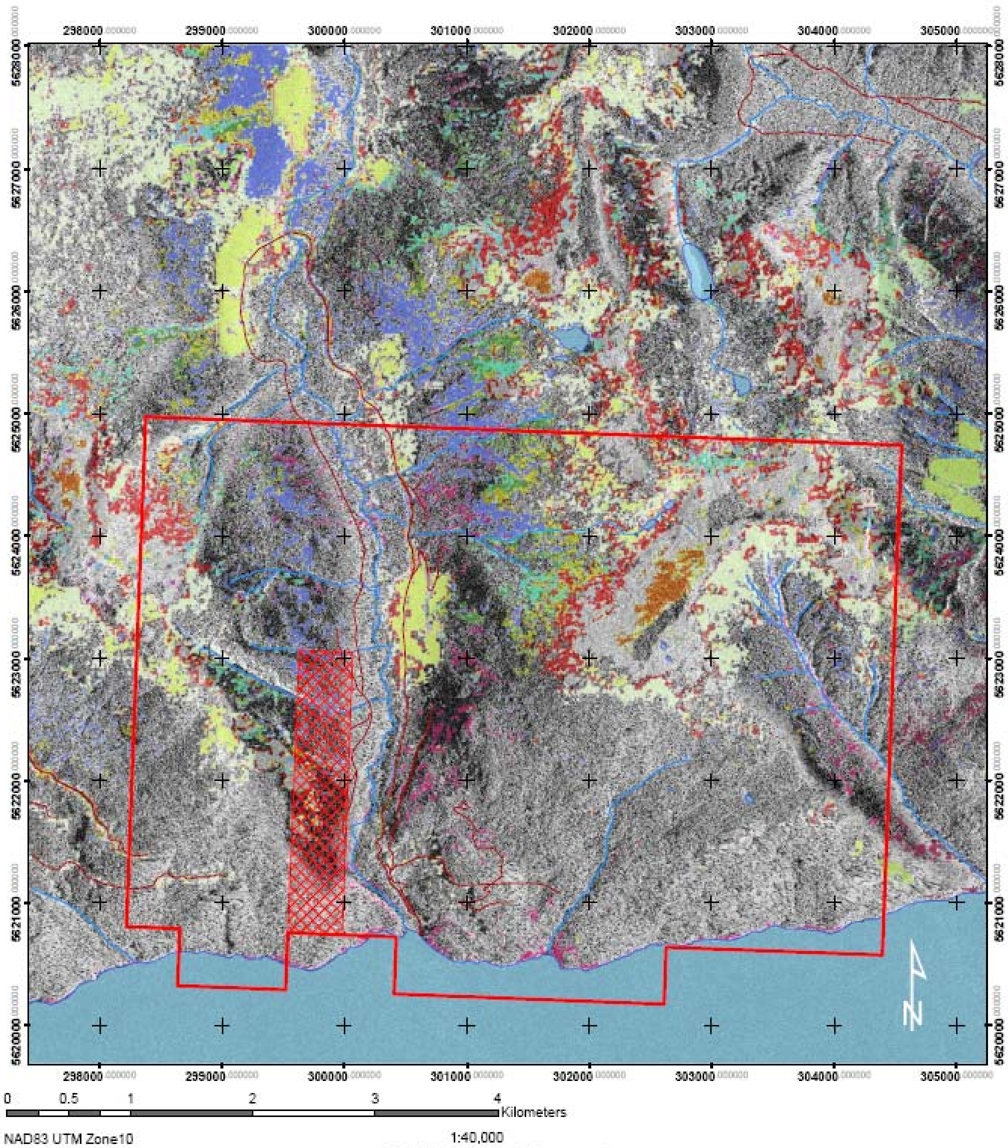
Unclassified
ACTINOLITE IN-4A
CHLORITE (PYROCHLORITE) PS-12E
CHLORITE (RIPIDOLITE) PS-12A
CUMMINGTONITE IN-6A
GLAUCONITE PS-19A
GLAUCOPHANE IN-3A
NONTRONITE PS-6D
PYROLUSITE O-6A
SODALITE TS-10A
andradi2.spc Andradite HS111.3B
antigor6.spc Antigorite NMNH96917 <30u
cchlore7.spc Clinochlore_Fe SC-CCa-1.c
corrensi.spc Corrensite CorWa-1
diopsid1.spc Diopside HS317.3B (Cr)
hapatite.spc Hydroxyl-Apatite WS425
hornble1.spc Hornblende_Mg NMNH117329
lazurite.spc Lazurite HS418.3B
microcl6.spc Microcline NMNH135231
mizzoni3.spc Mizzonite HS350.3B HLSep
olivine3.spc Olivine GDS70.a GSB 165um
prochlo3.spc Prochlorite SMR-14.c <30u
quartz1.spc Quartz HS117.3B Aventurin
thuring4.spc Thuringite SMR-15.d <30um
tremoli2.spc Tremolite NMNH117611.HCl
uvarovit.spc Uvarovite NMNH106661

Illustration 8 Colour Keys

Spectra Mapping: *(See Appendix figures 3, and 4)*

The resulting colour-keyed images or maps show locations of colour to represent classes of statistical likelihood of matches to known and established spectral libraries that have sampled rock, minerals and vegetation in different environments.

Other variables which could have affected the interpretation of spectral classification such as albedo (solar gain), angle of incidence, flight angle, time of collection (land cover), and atmospheric interferences were considered and corrected.



Knights Inlet Property:
Project Area
All Mineral Spectral Classes on
Orthorectified Satellite Image Data

Auracle Geospatial Science Inc.

Illustration 9 Spectral Mineral Classes

Thermal Analysis *(See Appendix figure 6)*

The Orthorectified ASTER data included Thermal Infrared Red data which was processed for its value in determining zones of latent heat within the earth. The data was run for correction to create a thermal emissivity index and normalized using elevation. The result is a normalized temperature index (NTI) image. The NTI image was contour extracted at 2 degree intervals for overlay and spatial comparison.

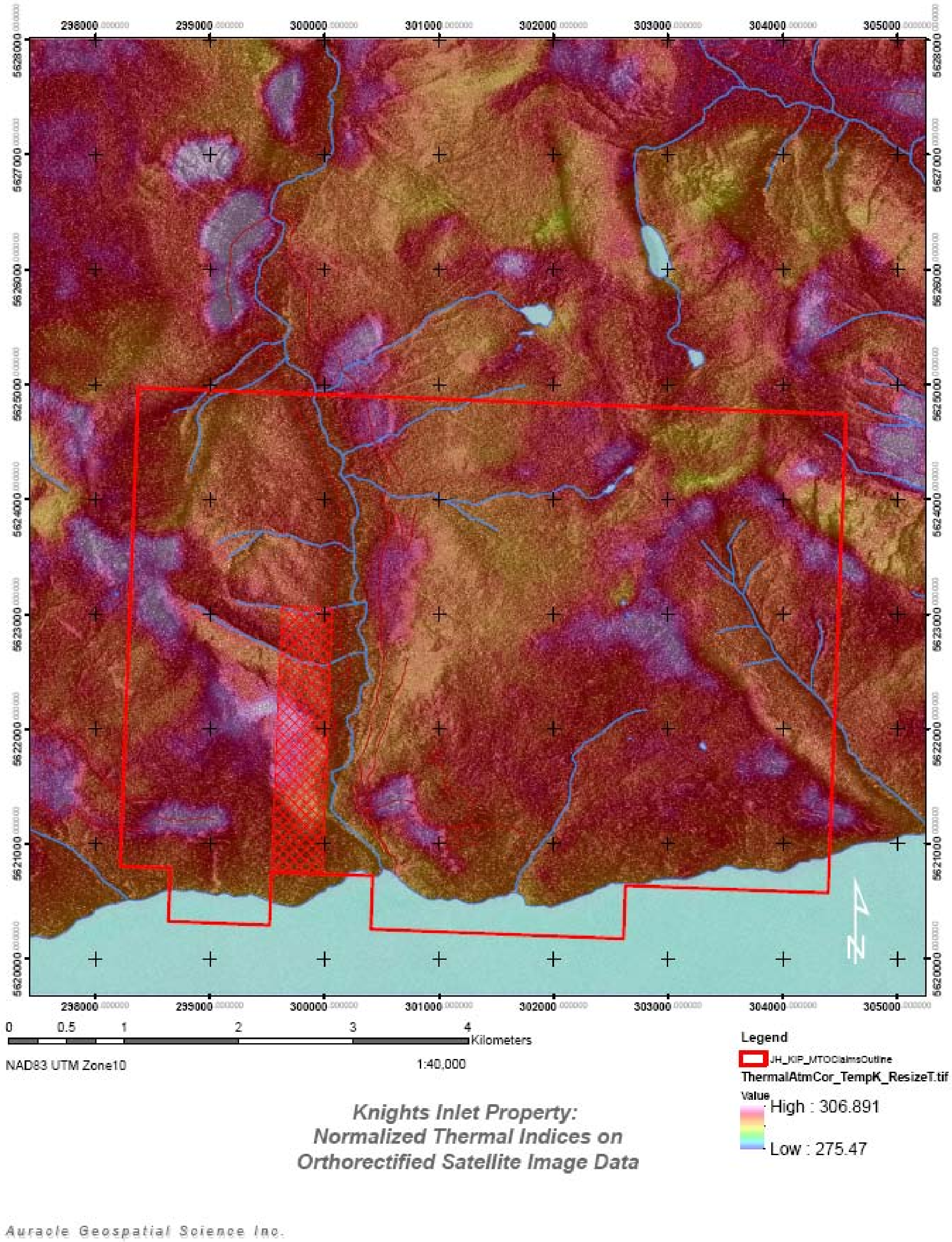


Illustration 10 Normalized Thermal Indices

Modelling:

This spectral classification was part of the visualization process which included:

- Terrain modelling
- Geological domain and boundary definition, including an examination of structure and topography
- Visual feature recognition and membership classification

In this application of spectral analysis, pattern differentiation as well as classification (colour) of the spectra was used. Pattern differentiation was extracted from analysis results including texture, texture homogeneity, texture patterns, elevation and obvious visual features that were related to the AOI's topographical features. This was included because it is not colour by itself but how it integrates with other observables that aid the geologist in making interpretations.

In addition to the mineral occurrence probability model, a terrain derivative slope model was generated for future use in soil sediment sample watershed control geochemistry modelling. This will enable the sample geochemical signals to be spatially distributed according to their potential source watersheds or constraining drainages.

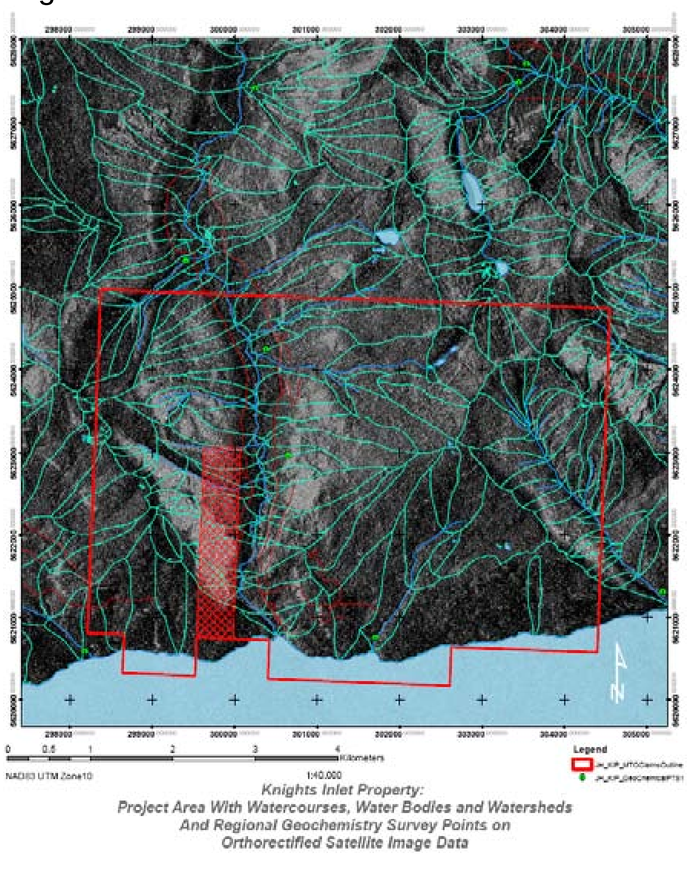


Illustration 11 Water and Watershed Model

The final model is a multivariate 3 dimensional orthographic model which allows the decision maker to drape vectors and layers of information over variably exaggerated terrain and to vary the scale (zoom in or out) while either rotating the AOI or changing the angularity of viewer perspective.

A normalized differential Water indices (NDWI) image was generated using spectral classification and a statistical protocol known as independent components analysis (ICA), from this analysis an image depicting water as white and all other areas as grey or black was generated. This was used to both eliminate erroneous linears from the radar analyses and as a base for water mapping in creating Analysis Maps.

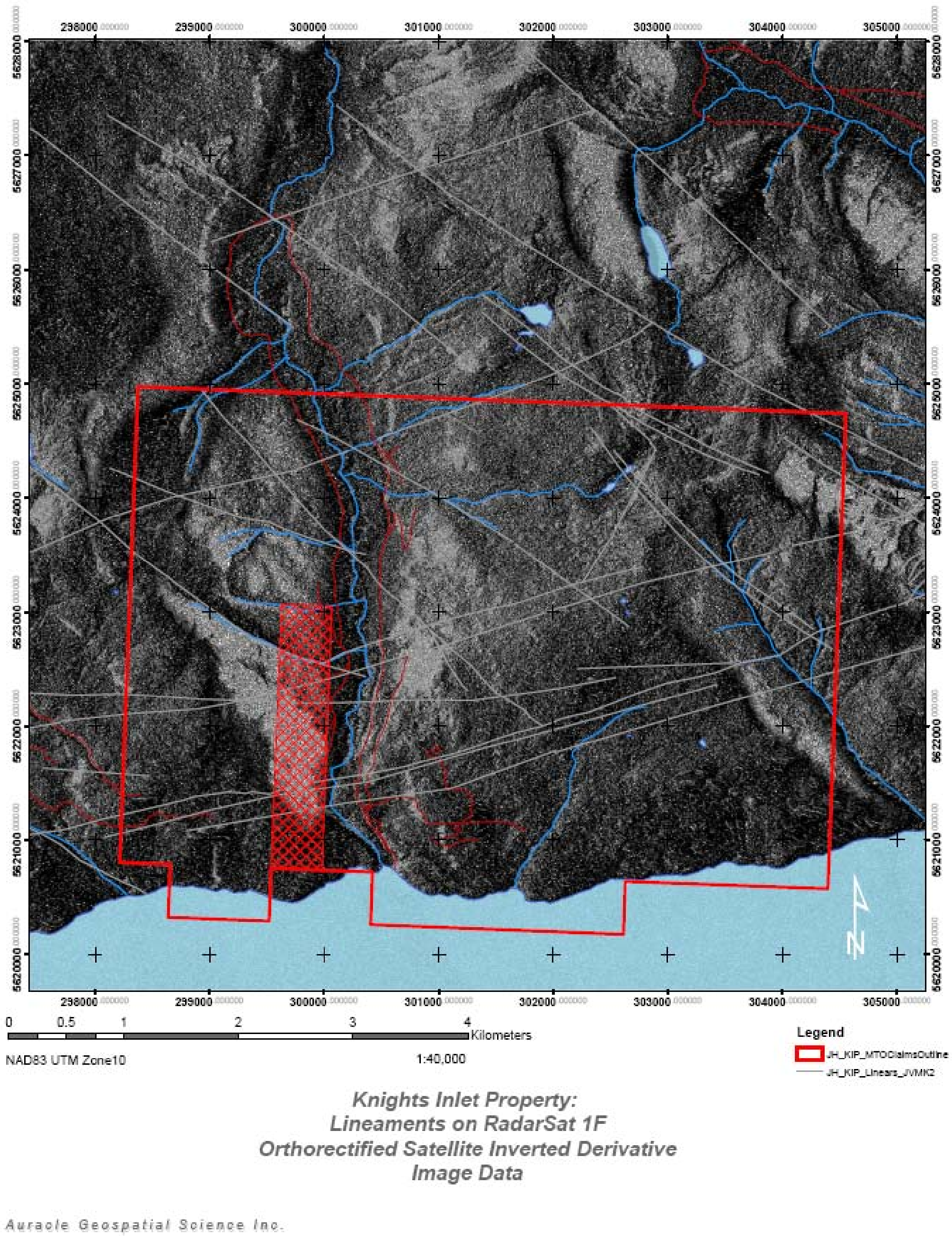


Illustration 12 Lineaments on RadarSat 1 F combined Derivative

REMOTE SENSING SOFTWARE

The following computing and analyses programs were used for the analyses of this study:

- Arc GIS with Spatial Modeller;
- ENVI 4.8 with IDL 6.3 plus atmospheric correction model ModTran 4;
- Digital Elevation and Model extraction and Orthorectification suite;
- Arc GIS 10 plus X Tools Pro

RESULTS

All result images were histogram balanced using a combination of linear and Gaussian filtering.

A Digital Elevation Model, (DEM) covering the entire AOI was generated to an elevation accuracy of 15 m vertical located within a 15 m radius area. This greatly improves elevation and spatial accuracy of existing topographic data, currently available at 1:50 0000 scale, at +/- 25m vertical and located within a 30 m radius area. The spatial accuracy of the DEM maps is significantly better in locating and placing geological, geophysical and geochemical information on maps and subsequently in using this information in UTM space to locate drill holes and trenches.

The altitude, orbital location, yaw and attitude of the satellite collecting the data are recorded at the point of capture of the data. When these are combined with the orbit velocity of 15 000 km/h, the data capture is relatively instant. On the other hand, the air photos used to construct 1:50,000 topographic maps are collected as clusters of images collected on flights lines from a moving aircraft that have more highly variable YAW, tilt and attitude and much less accurate position location systems. Consequently printed topographic maps (and their shape file equivalents) often display by comparison, spatial offsets or error in the locations of features such as lakes, trails and streams. In other words, the internal accuracies of position within the satellite images are relatively more precise. Any improvement in accuracy results is a significant improvement in multivariate data alignment. This improvement allows us to integrate and fuse multidisciplinary data such as geophysics and geochemistry which are part of the strategic plan for further work.

Two Spectral Classification Maps representing the metallic mineral and alteration mineral and rock classes were displayed using Spectral angle maps to delineate the areas of probable membership to spectral classes.
Based in part on the spectral classifications together with current geological mapping a revision to the project are geological contacts was constructed as a prospective model, this model is designed to more closely honour both the stratigraphic domains and the improvement s in orthometry and alignment

A final radar derivative map interpretation was generated to provide linearity and texture.

Vectors in the form of lineaments were extracted where justified by offsets to represent potential faults.
(See Appendix figure 6)

A normalized Temperature map was vectorized into temperature gradient contours. (*See appendix figure 5)*

A topographic map was also created fro the DEM and from a Normalized Differential Water Indices Model (NDWI) to include the watercourses and water-bodies as an extraction digitization of vector data from the Spectral NDVI image map.

An Elevation Contour map with 10, and 20 metre contours was extracted from the DEM together with a classified slope map.

A watershed polygon map was extracted from the model for future use in analyzing geochemical spatial data.

These several maps were subsequently integrated with the existing geophysics derivatives.

CONCLUSIONS *(See appendix figures 3-10)*

There are three areas delineated as prospective targets which satisfied three or more requisites including but not limited to: spatial correlation/covariance or alignment with: existing geophysics derivative data or geochemical data; intersection with the 500 metre radius Minfile envelope, or spatial alignment with the spatially projected results of earlier work.

A program of ground-truthing is required to match classification species with actual phenomenon such as lithologies, mineralogies and vegetation. 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” programs, as stated by Harris et al (2010). This report only considers the preliminary work to undertake ground-truthing and verification of statistical correlations to the spectral libraries. The appended images show a spectral and radar result of each work area within the project AOI.

RECOMMENDATIONS

General

A program of ground-truthing is required to investigate the prospective zones delineated in this work and to verify and map the matched classification species with actual phenomenon such as lithology, and mineralogies. 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” programs, as stated by Harris et al (2010). This report only considers the preliminary work to undertake ground-truthing and verification of statistical correlations to the spectral libraries. The appended images show a spectral and radar result of each work area within the project AOI.

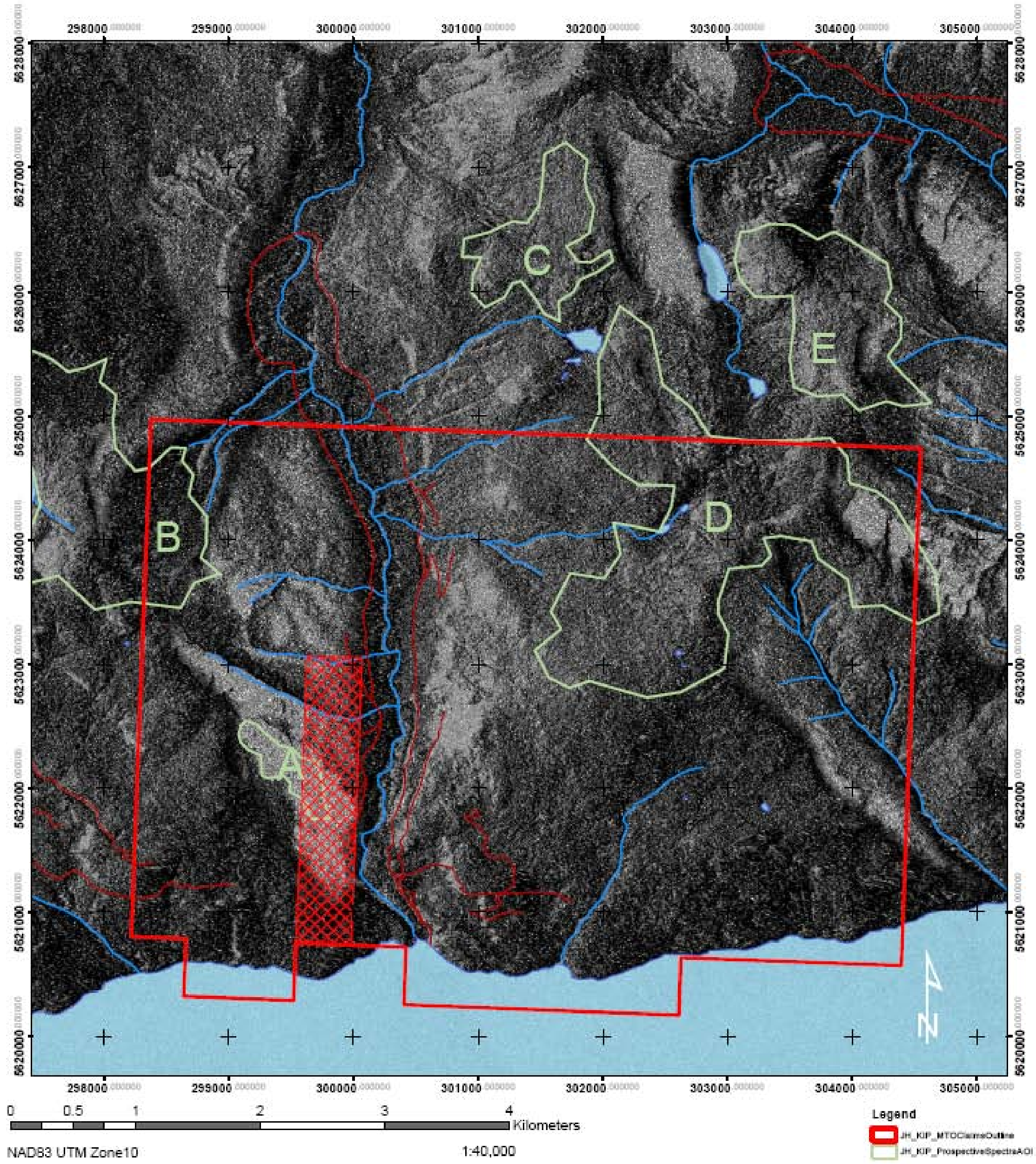
All Results were subsequently projected and stored in UTM 10N NAD 83.

It is recommended that additional field samples be collected and submitted for spectral analysis for use as spectral standards on this claim group, as confirmation of spectral class differentiation. These spectral standards will provide additional spectral data on rocks, and their altered counterparts specific to this area which are presumably related to mineralization centers.

In subsequent work, it is recommended to use:

1. Higher Spectral/Spatial Resolution RadarSat 2 data (4 channel versus present 2 channel data)
2. Collection of 10 widely spaced DGPS Ground Control positions of significant geographic features for absolute correction and DSM
3. Collection of Ground Based Spectrometric data

It is anticipated that these strategic advances will make it possible to isolate those areas hosting potential mineral showings, to more quickly map them on the ground and to begin the process of evaluating their economic potential by undertaking detailed geophysical (IP) and drilling programs.



Knights Inlet Property:
Project Area with Prospective Zones on
Orthorectified Satellite Image Data

Auracle Geospatial Science Inc.

Illustration 13 Prospective Zones

Geologist Memorandum *(see Appendix Figure 8)*

Jacques Houle, P.Eng.

Mineral Exploration Consulting

6552 Peregrine Road **ph. (250) 390-3930**

Nanaimo, B.C. V9V 1P8 **jhoule06@shaw.ca**

Memorandum

To: **David McLelland**

From: **Jacques Houle**

cc. **files**

Date: **December 13, 2012**

Re. **Knight Inlet Project Summary revised, South Coast, British Columbia**

Government regional geological mapping in the area of the Knight Inlet Project shows an area dominated by inter-fingered, northwest-trending intrusive bodies of the Coast Intrusive Complex of various compositions from granodiorite through quartz diorite to diorite, and of ages from Lower Jurassic to Cretaceous. About 10% of the area contains sub-parallel, folded and fragmented pendants of older volcano-sedimentary rocks including orthogneiss of Paleozoic to Mesozoic age, and Upper Triassic Vancouver Group mafic volcanics (Karmutsen Formation) and limestones (Quatsino Formation).

Government first derivative regional aeromagnetic mapping in the same area matches the geology fairly well, with intrusives generally corresponding to areas of high magnetic response, and volcano-sedimentary pendants generally corresponding to areas of low magnetic response. However, the low magnetic response areas are more extensive than are the mapped pendants, suggesting either the pendants may be larger and more numerous than indicated by mapping, or that other factors (i.e. alteration and resulting destruction of magnetic minerals) have caused reduced magnetic responses in some areas mapped as intrusives. One such anomalous and intense magnetic low area covers the middle of the Knight Inlet Property claims held by Mr. Sulo Poystila.

BC MINFILE occurrences are un-common in the area of the Knight Inlet Project, all are situated proximal to the coastal tidewaters of Knight Inlet, and generally occur within the volcano-sedimentary pendants, and consist of the following:

- **092K140 – Knight Inlet** – Dimension Stone past producer of hornblende diorite, located in an area mapped as diorite near a contact with granodiorite, and along a northwest-trending transition line between a low magnetic response to the northeast and a high to the southwest, and situated on the western part of the Knight Inlet Property claims

- **092K032 – Knight Inlet Marble** – Cu Skarn showing of copper, zinc, silver hosted by a marble lens within granodiorite, located in the same geological and geophysical setting as, and situated approximately 2 km. northwest of, the dimension stone past producer 092K140 – Knight Inlet
- **092K117 – Union** – Quartz Vein showing containing gold and silver hosted by metamorphosed mafic volcanics, and along a northwest trending transition line between a high magnetic response to the northeast and a low to the southwest, and situated approximately 4 km. east of the Knight Inlet Property claims
- **092K142 – Herries Pt** – Copper showing of indeterminate style hosted by granodiorite near a large mapped pendant of orthogneiss, and situated approximately 10 km. northeast of the Knight Inlet Property claims

Remotely sensed alteration and metallic mineral spectral and radar data compiled and fused by Auracle has been interpreted, and prospective metallic mineral zones have been identified, outlined and labeled (A, B, C, D, E) on maps and at scales as follows:

- 1:25,000 scale radar data for area of interest overlain by partially transparent government regional geological mapping, showing selected topography, infrastructure and the property boundary
- 1:25,000 scale radar data for area of interest overlain by partially transparent government 1st derivative regional aeromagnetic data, showing selected topography, infrastructure and the property boundary
- 1:25,000 scale radar data for area of interest overlain by partially transparent government regional geological mapping showing selected topography, infrastructure, the property boundary, and proposed revised contacts based on interpretation of remote sensing data
- 1:25,000 scale metallic mineral spectral and radar data for area of interest showing selected topography, infrastructure, and the property boundary
- 1:15,000 scale metallic mineral spectral and radar data for the immediate property area showing selected topography, infrastructure, and the property boundary
- 1:15,000 scale alteration mineral spectral and radar data for the immediate property area showing selected topography, infrastructure, and the property boundary

The 1:25,000 scale maps show five areas containing prospective metallic minerals, mainly copper-bearing sulphides, located within the area of interest. Three of the five areas (A, B, and D) are located at least partially on the claims of the Knight Inlet Property, and the other two (C and E) are located north of the claims. The two western areas (A and B) are joined by a thin line of pyrite/bornite mineral spectra, and therefore may be part of a single elongate 5 km long zone. Similarly, areas C and D are joined by an area of illite spectra, and areas C and E are joined by an area of discontinuous bornite spectra, and therefore may be part of a single very large 4 km diameter zone. All five areas are located mainly along topographic ridges.
Each of the five areas will be described and discussed in detail as follows:

- **Area A** is centred at NAD83 UTM Zone 10N 299500E 5622250N, is 1 km x 0.25 km in area, is elongated NW-SE, contains MINFILE 092K032 – Knight Inlet Marble, is underlain entirely by mapped dioritic intrusive rocks, is along a transition between magnetic high and low responses, and is located entirely within and in the western part of the Knight Inlet Property claims. Metallic mineral spectra mapped for this area include pyrite, bornite, hematite and illite. This area may be prospective for porphyry copper and copper skarn mineralization.
- **Area B** is centred at NAD83 UTM Zone 10N 298000E 5624250N, is 2.5 km x 1 km in area, is elongated NW-SE, is located on a flexure along a transition between magnetic high and low responses, straddles the mapped contact between dioritic (SW) and quartz dioritic (NE) intrusive rocks, and also straddles the northwest boundary of the Knight Inlet Property. Metallic mineral spectra mapped for this area include bornite, hematite, chalcopyrite and illite. This area may be prospective for porphyry copper and copper skarn mineralization.
- **Area C** is centred at NAD83 UTM Zone 10N 301500E 5626500N, is 1 km x 1 km in area, is inverted T-shaped, is underlain by mapped quartz dioritic rocks immediately north of the northern apex of a granodiorite body, has a very high magnetic response, and is located 1 km north of the Knight Inlet Property. Metallic mineral spectra mapped for this area include bornite, pyrite, hematite and chalcopyrite, with an area of illite immediately to the south. This area may be prospective for porphyry copper and copper skarn mineralization.
- **Area D** is centred at NAD83 UTM Zone 10N 303000E 5624000N, is 3 km x 3 km in area, is right-tilted T-shaped, has a very high magnetic response, straddles the mapped contact between quartz dioritic (NE) and granodioritic (SW) intrusive rocks, and also straddles the northern boundary of the Knight Inlet Property. Metallic mineral spectra mapped for this area include pyrite, bornite, hematite, marcasite and chalcopyrite, with an area of illite immediately to the west. This area may be prospective for porphyry copper and copper skarn mineralization.
- **Area E** is centred at NAD83 UTM Zone 10N 303750E 5625750N, is 2 km x 1 km in area, is elongated NW-SE, is underlain by rocks mapped as either quartz dioritic (revised) or granodioritic (government) intrusive rocks, is along a transition between magnetic high and low responses, and is located just north of and beyond the northeast corner of the Knight Inlet Property. Metallic mineral spectra mapped for this area include pyrite, bornite, hematite and chalcopyrite. This area may be prospective for porphyry copper and copper skarn mineralization.

In summary, the metallic mineral spectral mapping project has identified five areas that require follow-up prospecting, and possibly additional work if warranted. All five areas should be accessible at least in some places by helicopter during summer conditions.

REFERENCES

Harris, J.R., McGregor R., and Budkewitsch, P. (2010.) *Geological analysis of hyperspectral data over southwest Baffin Island: methods for producing spectral maps that relate to variations in surface lithologies.* Canadian Journal of Remote Sensing, 36, 412-435.

Jensen, J.R. (1996.) *Introductory Digital Image Processing: A Remote Sensing Perspective.* 3rd ed. Pearson Prentice Hall, Upper Saddle River;

Statement of Qualification

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

1. I am a Principal in:
Auracle Geospatial Science Inc,
325 Dorset Road Qualicum Beach,
British Columbia, Canada V9K 1H5

2. 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, and have received a postgraduate diploma in applied and theoretical GI Science from Simon Fraser University.

3. I have completed the B.C.I.T. B.C.Y.C.M. Mineral Exploration program, and Completed the B.C.I.T. B.C.Y.C.M. Advanced field School.

4. I have 10 years of experience in Remote Sensing, and I am the Remote Sensing Project Manager and responsible for the acquisition and management of data and execution of analyses.

5. This report was prepared on behalf of Auracle Geospatial Science Inc. who has been engaged by Sulo Poystila, to complete a remote sensing program, on this property.

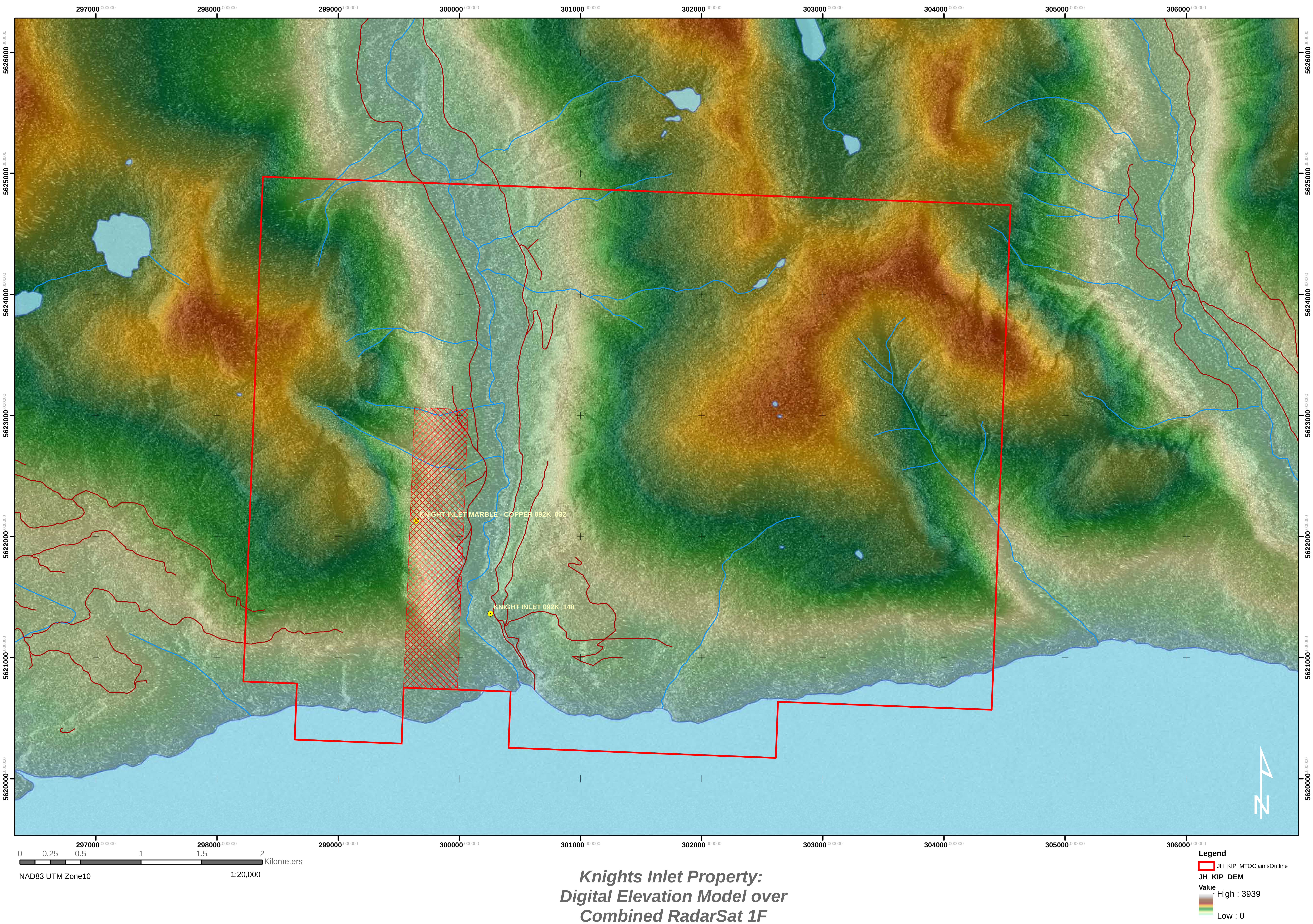
6. I have no material or financial interest in the subject properties or the companies that own them.

7. 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.

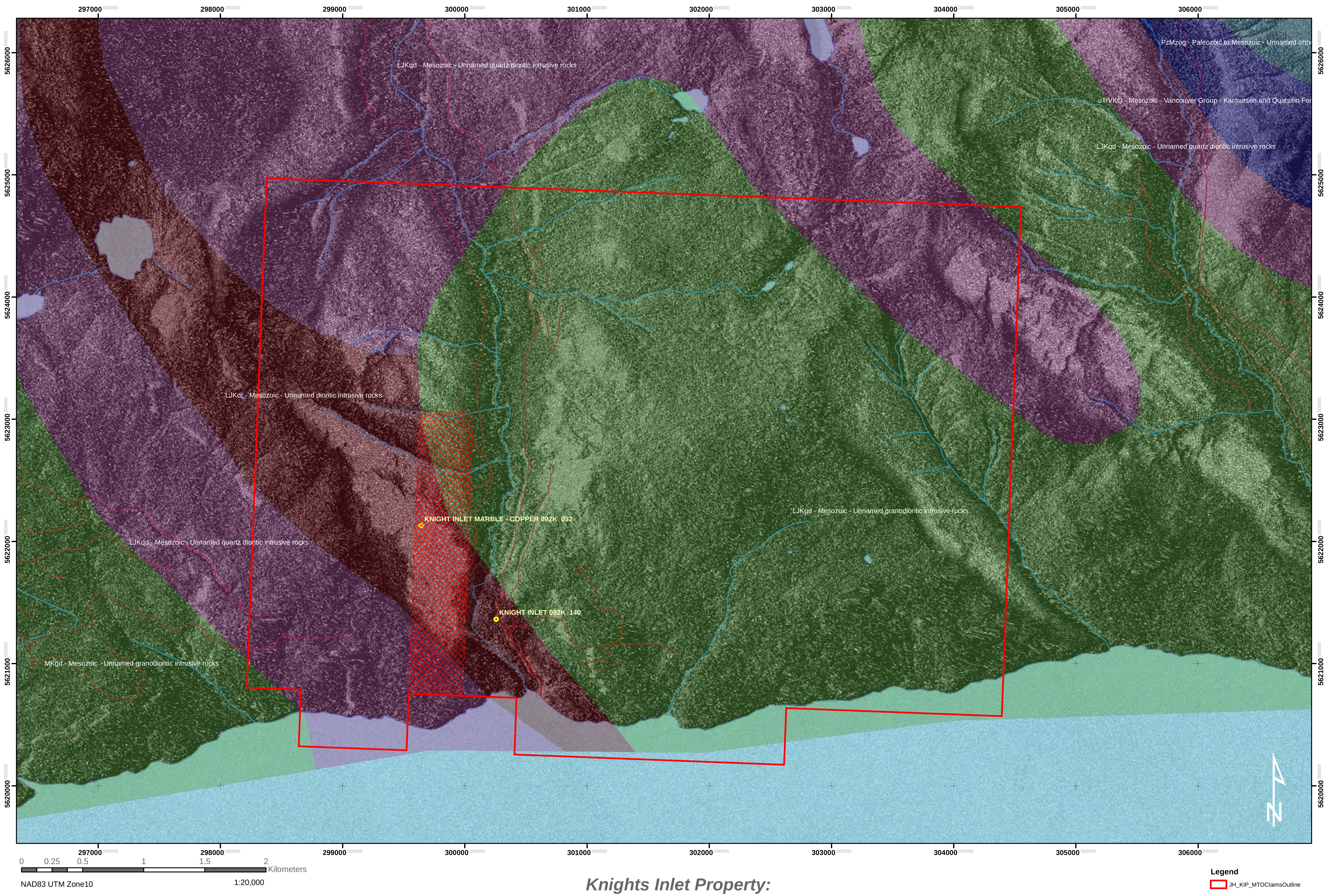
I am not aware of any material fact or material change with respect to the subject matter of the report that is not reflected in the report and therefore the omission of fact.

Date: December 12, 2012
Qualicum Beach, British Columbia, Canada

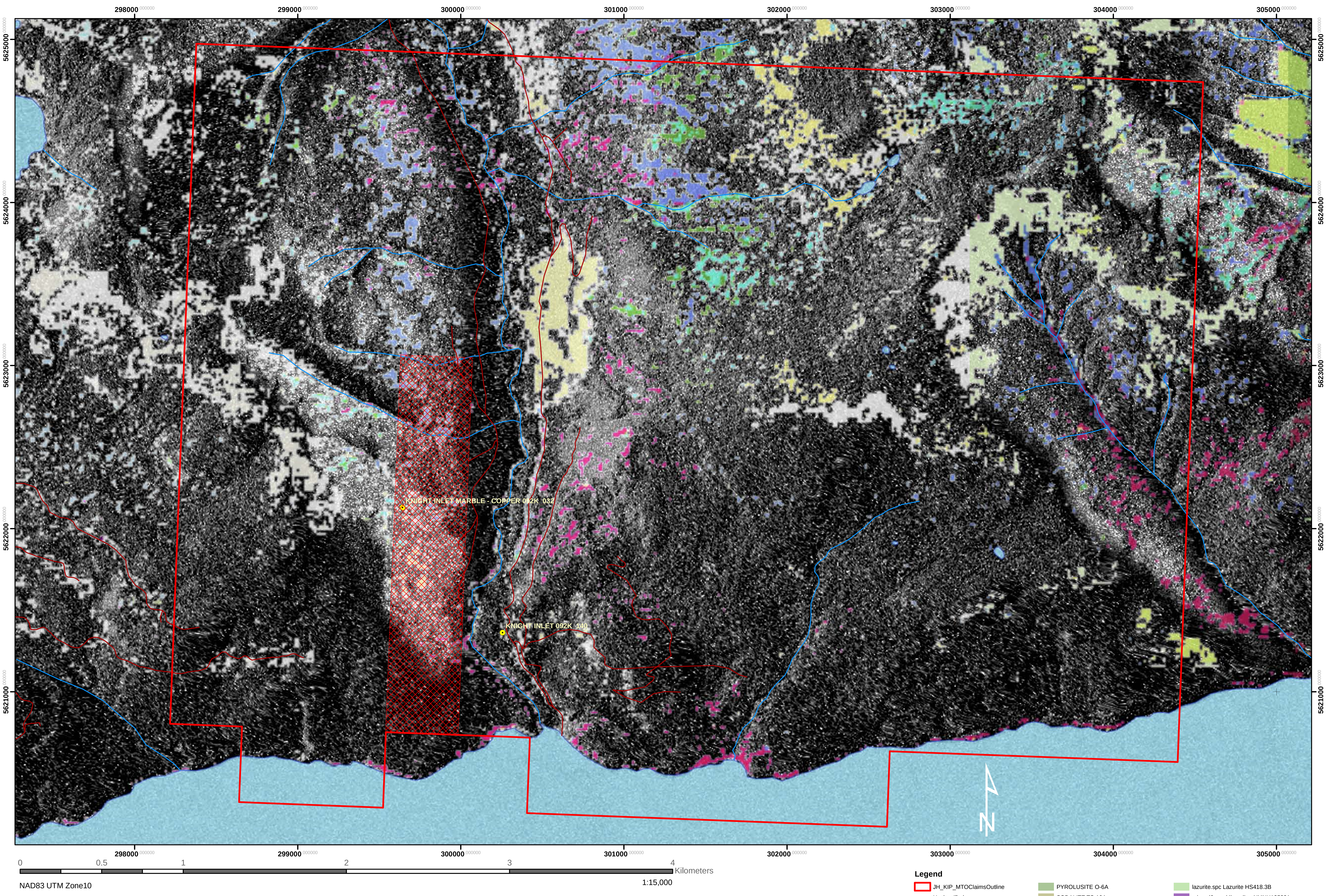
David J McLelland MSc, PGdip, (FRGS, MCRSS)



Knights Inlet Property: Digital Elevation Model over Combined RadarSat 1F Orthorectified Satellite Inverted Derivative Image Data



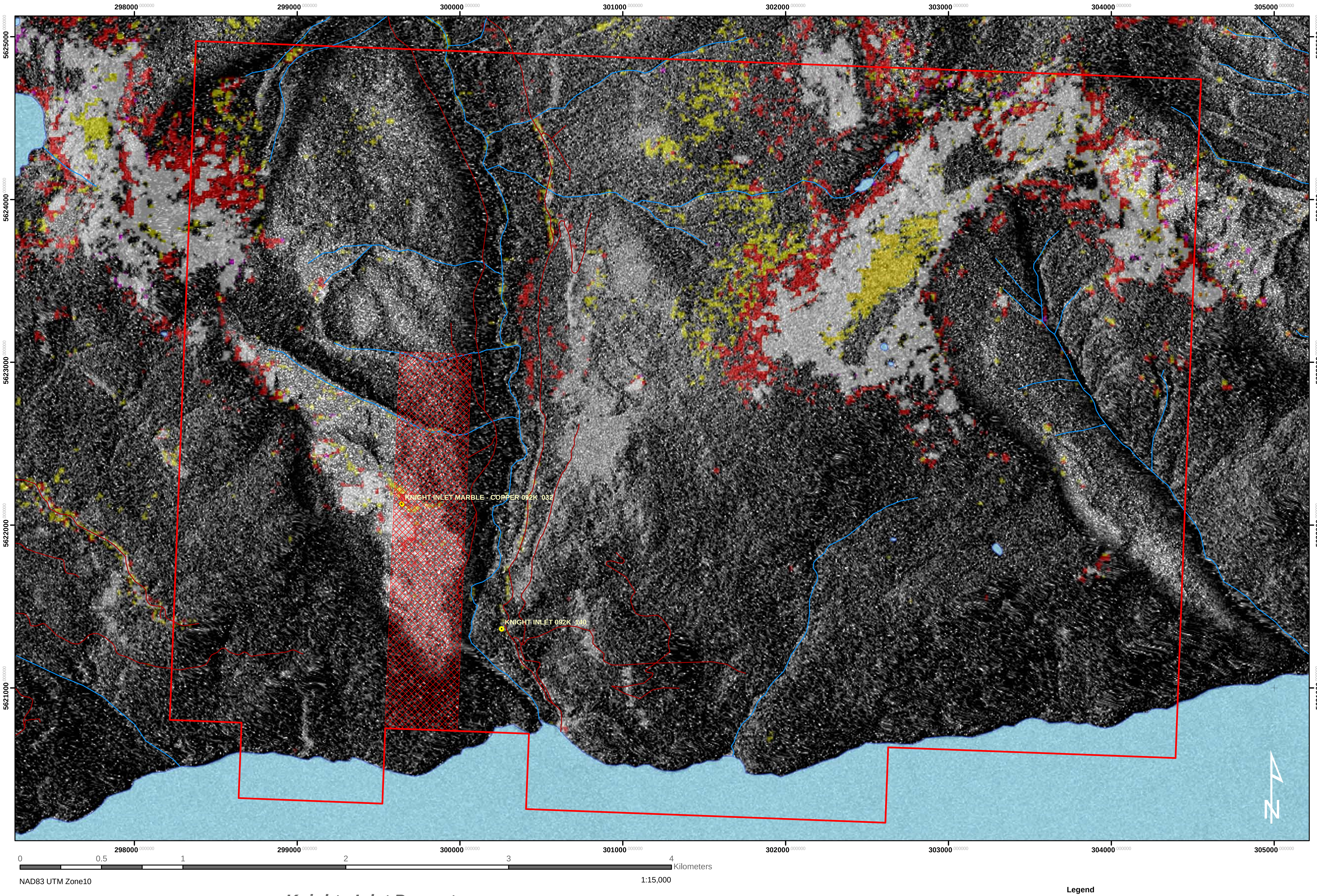
Knights Inlet Property:
BCGS Digital Regional Geology on
Combined RadarSat 1F
Orthorectified Satellite Inverted Derivative
Image Data



Knights Inlet Property: Alteration Mineral Spectra over RadarSat 1F Fused Orbit Roberts Derivative Ortho Image Data

Legend

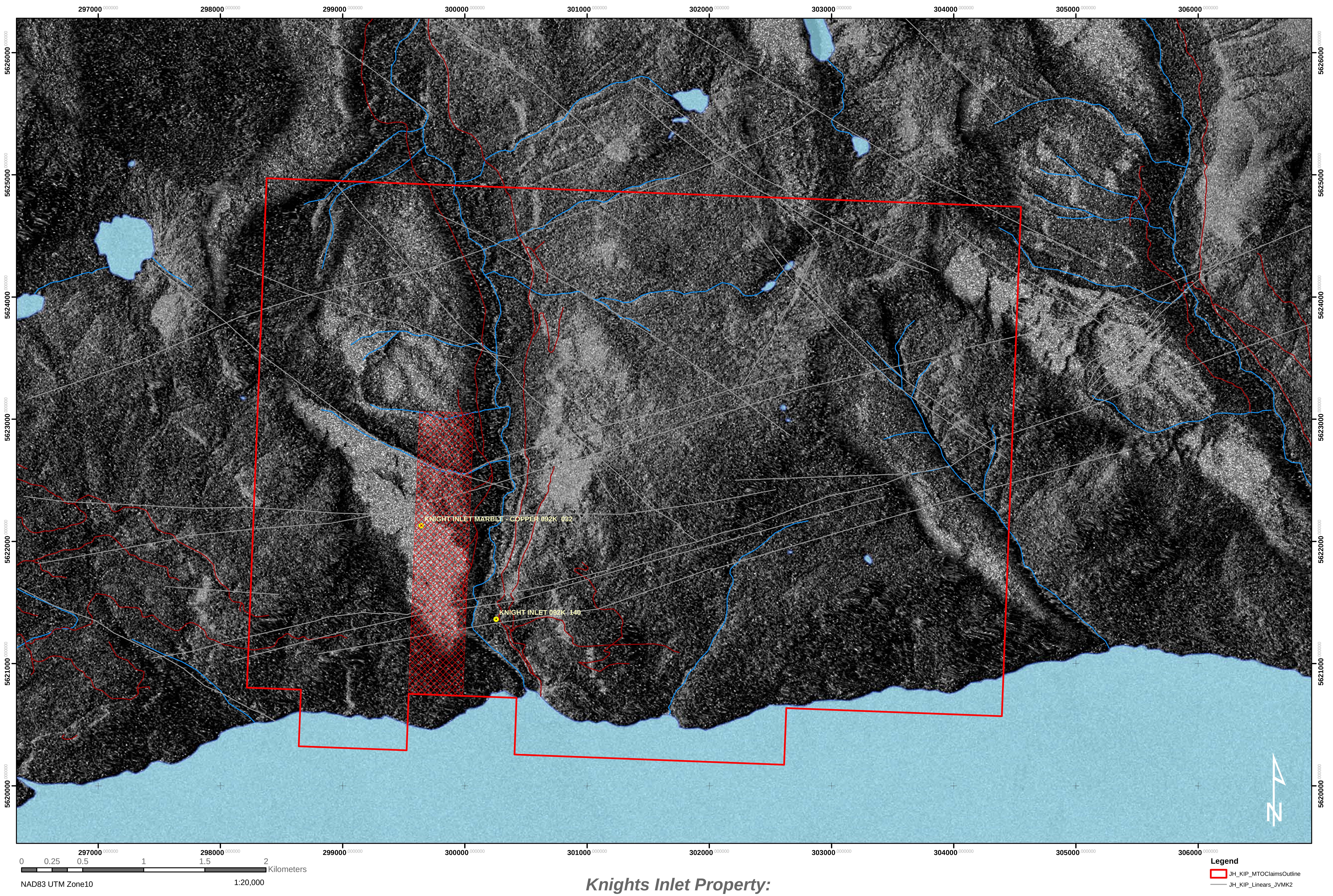
- JH_KIP_MTOClaimsOutline
- Unclassified
- ACTINOLITE IN-4A
- CHLORITE (PYROCHLORITE) PS-12E
- CHLORITE (RIPIDOLITE) PS-12A
- CUMMINGTONITE IN-6A
- GLAUCONITE PS-19A
- GLAUCOPHANE IN-3A
- NONTRONITE PS-6D
- PYROLUSITE O-6A
- SODALITE TS-10A
- andradi2.spc Andradite HS111.3B
- antigor6.spc Antigorite NMNH96917 <30u
- cchlore7.spc Clinochlore_Fe SC-CCa-1.c
- corrensi.spc Corrensite CorWa-1
- diopsid1.spc Diopside HS317.3B (Cr)
- hapatite.spc Hydroxyl-Apatite WS425
- horrnble1.spc Hornblende_Mg NMNH117329
- lazurite.spc Lazurite HS418.3B
- microcl6.spc Microcline NMNH135231
- mizzoni3.spc Mizzonite HS350.3B HLSep
- olivine3.spc Olivine GDS70.a GSB 165um
- prochlo3.spc Prochlorite SMR-14.c <30u
- quartz1.spc Quartz HS117.3B Aventurin
- thuring4.spc Thuringite SMR-15.d <30um
- tremoli2.spc Tremolite NMNH117611.HCl
- uvarovit.spc Uvarovite NMNH106661



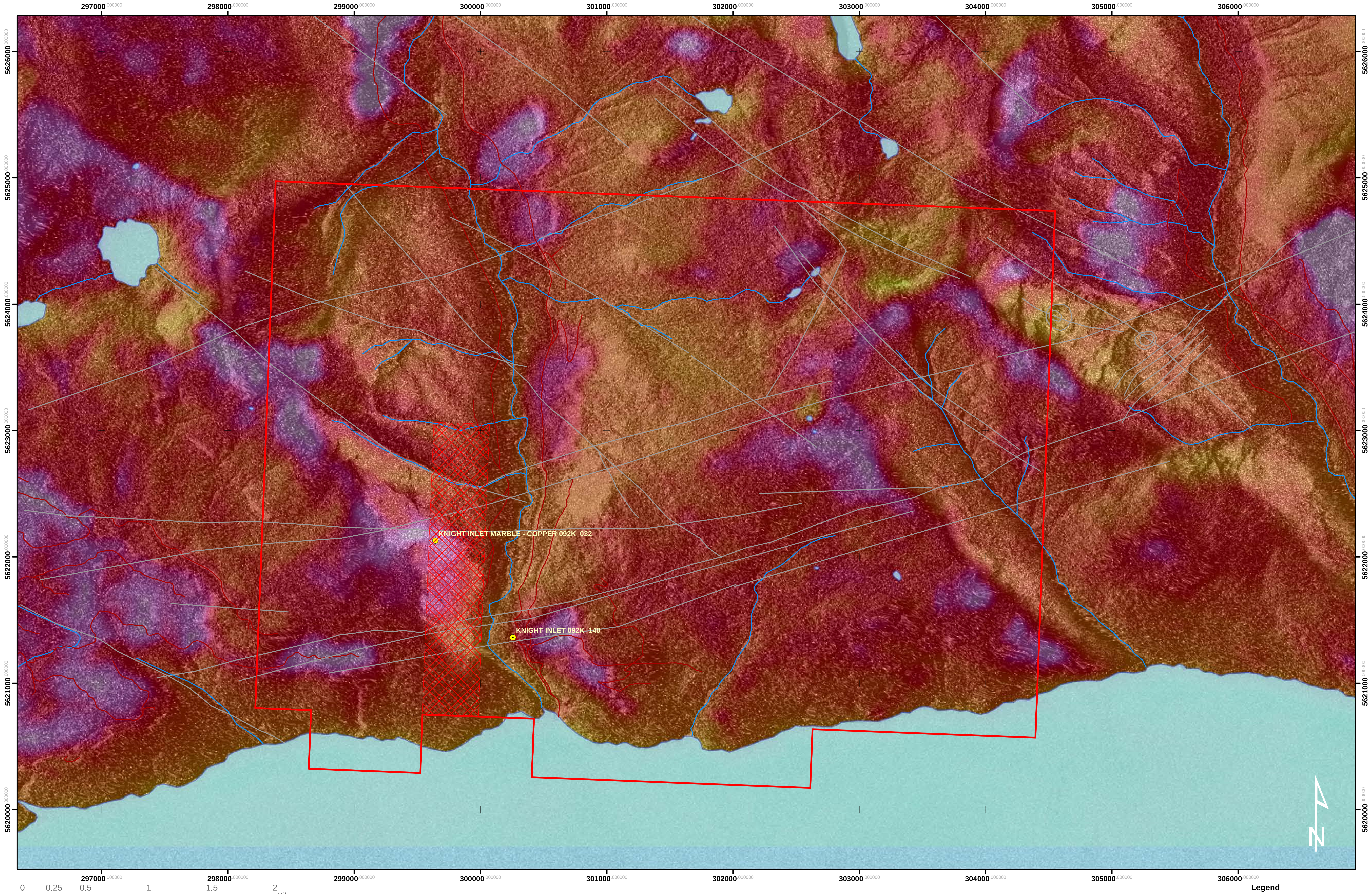
Knights Inlet Property:
Metallic Mineral Spectra over
RadarSat 1F Fused Orbit
Roberts Derivative Ortho Image Data

Legend

- JH_KIP_MTOClaimsOutline
- Unclassified
- BORNITE S-9A
- CHALCOPYRITE S-4A
- GOETHITE OH-2A
- ILLITE PS-11A
- MARCASITE S-10A
- MOLYBDENITE S-11A
- PYRRHOTITE S-12A
- covellit.spc Covellite HS477.2B
- cuprite.spc Cuprite HS127.3B
- hematit3.spc Hematite GDS69.a 150-250u
- ilmenite.spc Ilmenite HS231.3B
- pyrite2.spc Pyrite S142-1



Knights Inlet Property: Lineaments on Combined RadarSat 1F Orthorectified Satellite Inverted Derivative Image Data



0 0.25 0.5 1 1.5 2 Kilometers

NAD83 UTM Zone10

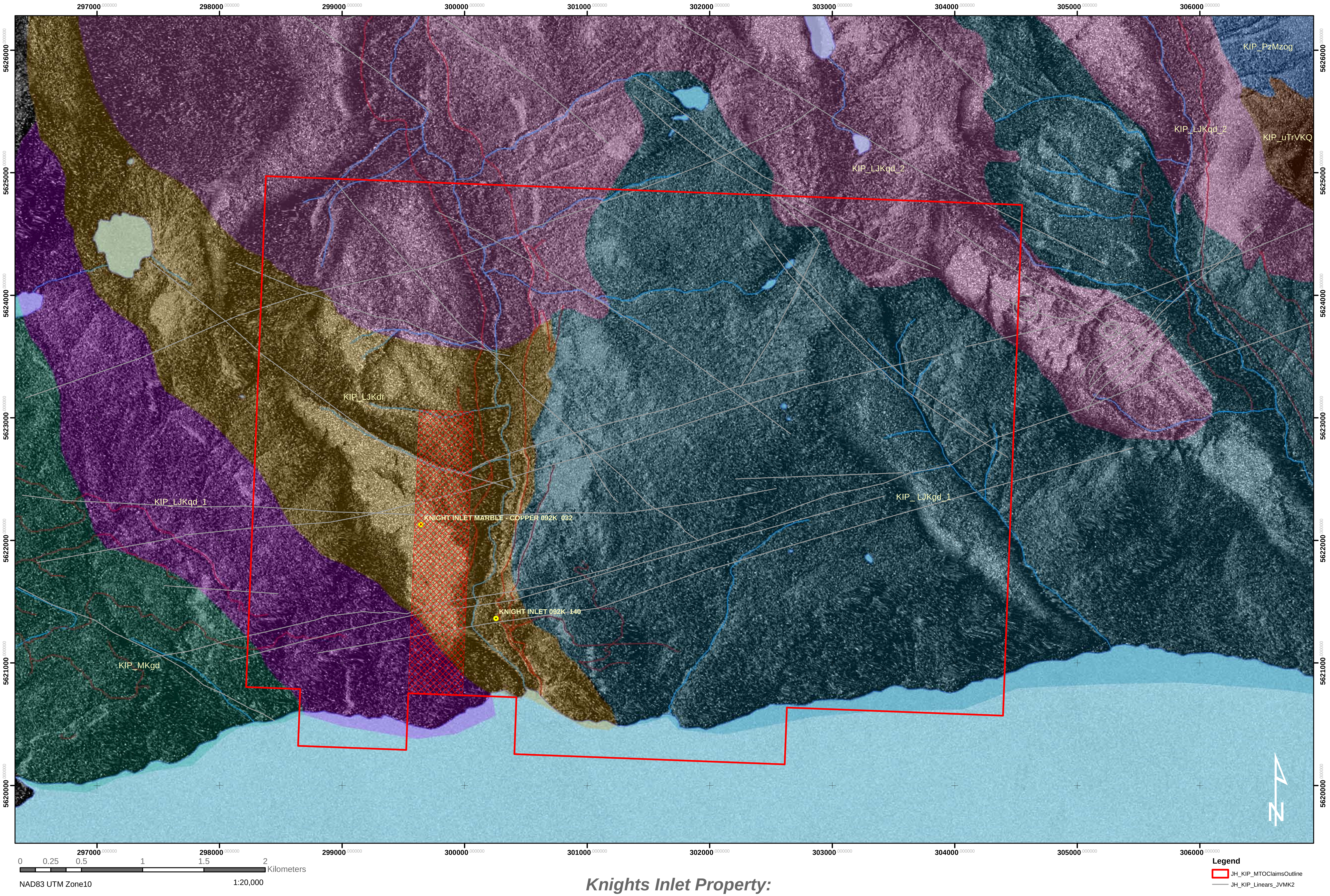
1:20,000

Legend

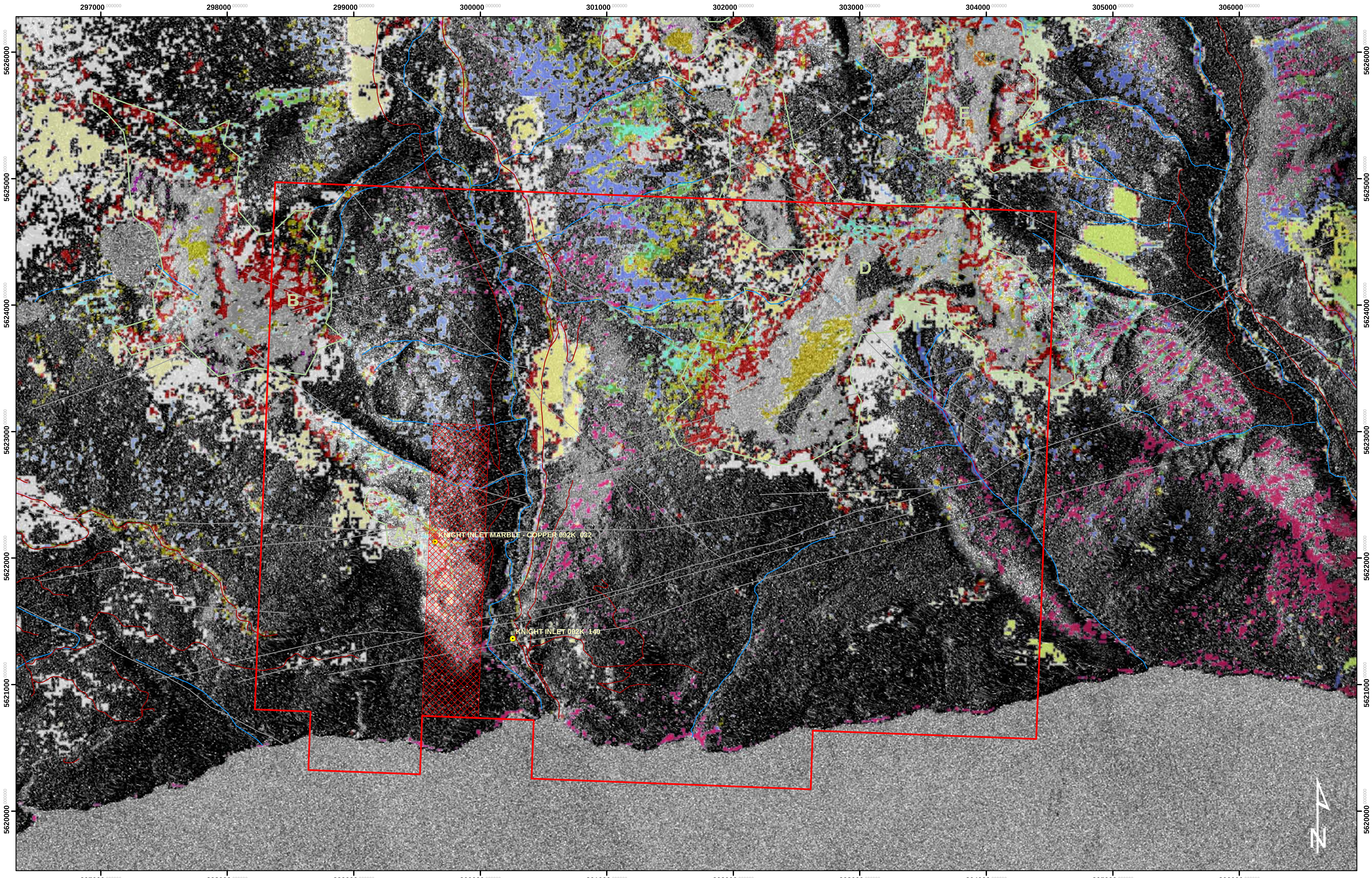
JH_KIP_MTOClaimsOutline

JH_KIP_Linears_JVMK2

Knights Inlet Property: Lineaments on Normalized Thermal Indices over RadarSat1F Orthorectified Satellite Inverted Derivative Image Data



Knights Inlet Property:
Upgraded Radar Geology Contacts and Lineaments over
Combined RadarSat 1F
Orthorectified Satellite Inverted Derivative
Image Data



0 0.25 0.5 1 1.5 2 Kilometers

NAD83 UTM Zone10

1:20,000

Legend

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- JH_KIP_Linears_JVMK2
- JH_KIP_ProspectiveSpectraAOI
- Unclassified
- BORNITE S-9A
- CHALCOPYRITE S-4A
- GOETHITE OH-2A
- ILLITE PS-11A
- MARCASITE S-10A
- MOLYBDENITE S-11A
- PYRRHOTITE S-12A
- covellit.spc Covellite HS477.2B
- cuprite.spc Cuprite HS127.3B
- hematit3.spc Hematite GDS69.a 150-250u
- ilmenite.spc Ilmenite HS231.3B
- pyrite2.spc Pyrite S142-1
- Unclassified
- ACTINOLITE IN-4A
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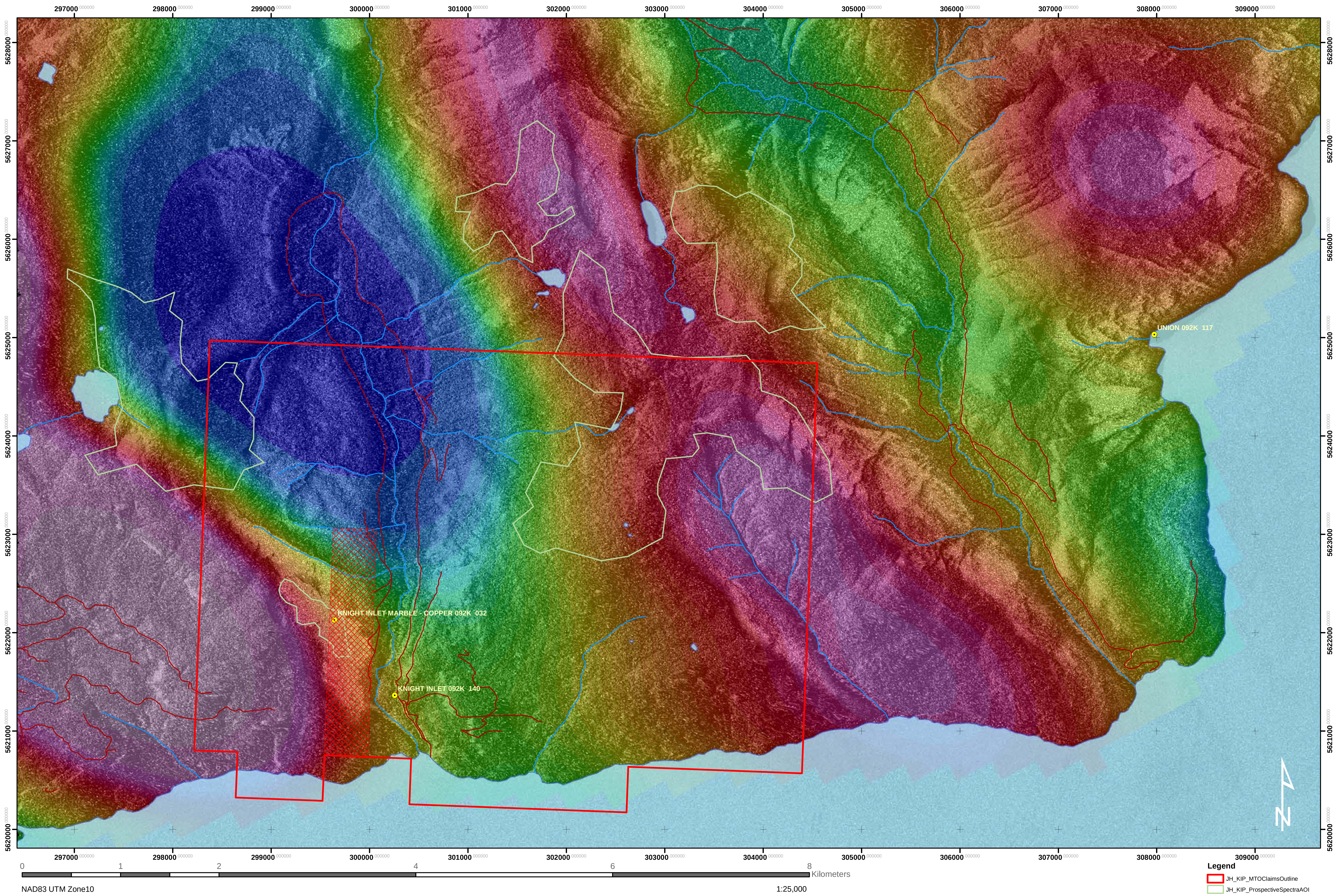
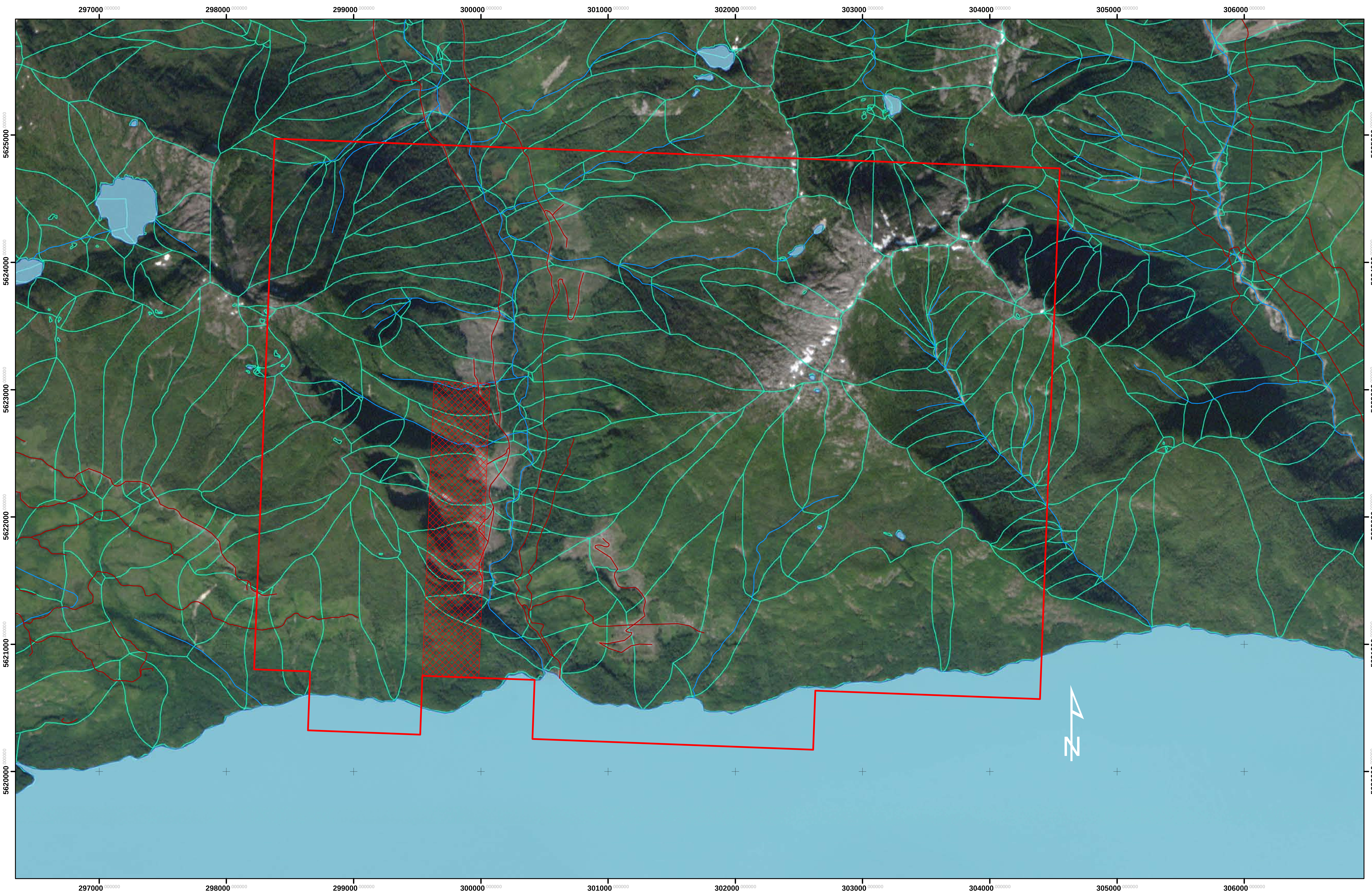
- CHLORITE (RIPIDOLITE) PS-12A
- CUMMINGTONITE IN-6A
- GLAUCONITE PS-19A
- GLAUCOPHANE IN-3A
- NONTRONITE PS-6D
- PYROLUSITE O-6A
- SODALITE TS-10A
- andradi2.spc Andradite HS111.3B
- antigor6.spc Antigorite NMNH96917 <30u
- cchlore7.spc Clinochlore_Fe SC-CCa-1.c
- corrensi.spc Corrensite CorWa-1
- diopsid1.spc Diopside HS317.3B (Cr)
- hapatite.spc Hydroxyl-Apatite WS425
- hornble1.spc Hornblende_Mg NMNH117329
- lazurite.spc Lazurite HS418.3B
- microcl6.spc Microcline NMNH135231
- mizzoni3.spc Mizzonite HS350.3B HLSep
- olivine3.spc Olivine GDS70.a GSB 165um
- prochlo3.spc Prochlorite SMR-14.c <30u
- quartz1.spc Quartz HS117.3B Aventurin
- thuring4.spc Thuringite SMR-15.d <30um
- tremoli2.spc Tremolite NMNH117611.HCl
- uvarovit.spc Uvarovite NMNH106661

Knights Inlet Property: Vertical DerivativeMag over Combined RadarSat 1F Orthorectified Satellite Inverted Derivative Image Data



Knights Inlet Property:
Vertical Deriv. Mag and Outlined Prospective Zones over
RadarSat 1F Fused Orbit
Roberts Derivative Ortho Image Data



0 0.325 0.65 1.3 1.95 2.6 Kilometers

NAD83 UTM Zone10

1:20,000

Knights Inlet Property:
Water Course, Water Body, and Watershed
Over Orthorectified RapidEye False Colour
Satellite Image Data

Auracle Geospatial Science Inc.

Legend

- JH_KIP_MTOClaimsOutline
- JH_KIP_WaterNetwork
- JH_KIP_WaterBodies
- JH_KIP_LDWR_Watersheds

SW BC	**Statement of Work**							
Knights Inlet								
Sulo Postila								
2012 Work	Budget 24-05-2012		Tenure Area 26.664Km2					
Project Area: ***Knights Inlet***				Mineral Expl	***Remote Sensing***			
Cost Categories		Type	Descript	Units	Rate	#	Qty	extended
Personnel								
	Project Manager	Est Plan/acqu		$/Day(8hr.)	$600.00	1	1	$600.00
	QP			$/Day(8hr.)	$750.00	4	1	$3,000.00
	Field Assistants			$/Day(8hr.)	$350.00	1	0	$0.00
	GIStech			$/Day(8hr.)	$275.00	4	1	$1,100.00
	Geospatial Analyst			$/Day(8hr.)	$600.00	4	2	$4,800.00
	Remote Sensing Analyst			$/Day(8hr.)	$625.00	10	1	$6,250.00
Data Acquisition							1	$240.00
	ASTER							$120.00
	TRIM							$0.00
	RapidEye Stereo	100km	5.0m		$750.00		2	$1,500.00
	3.8m Multi		3.8m				2	
	1 Pan		1m					
	SAR	Rsat 1F			$0.50		2	$3,200.00
	preprocessing	Rsat						$400.00
	Processing	RS			$500.00	24	1	
	Scanning Digital	36"	map	per lin inch	$0.50	2,736	0	$0.00
	Digitization	processing						$0.00
Mapping and Reporting								
	Mapping							$600.00
	Reporting	ppt						$500.00
	Priniting and copying							$125.00
	LS Printing							$250.00
Licences and Permits								
	Exploration Permit							
	Bond							
	WCB	inc						
	Insurances	Equipment						
		Liability						
	ATV	in rental						
Total								$22,685.00

Plus HST (applicable Taxes)

Acquisistion and processing Work was Conducted between September 10 2012 and October 10 2012