



## ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: **Geology and ground geophysical survey, Brook property, I  
southeastern British Columbia**  
TOTAL COST: **\$21,850.00**

AUTHOR(S): T. Höy, D. Anderson  
SIGNATURE(S):

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):  
STATEMENT OF WORK EVENT NUMBER(S)/DATE(S ): 5465138

YEAR OF WORK: 2013

PROPERTY NAME: Brook, McNeil Creek

CLAIM NAME(S) (on which work was done): 507377, 507380, 507369, 505546, 505545, 505544  
505580, 505600, 505602, 505603, 505606, 508625, 508626, 508628, 505635

COMMODITIES SOUGHT: gold, lead, zinc, silver

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 082FSE111

MINING DIVISION: Fort Steele and Nelson  
NTS / BCGS: 082F08

LATITUDE: 49°21'00"N

LONGITUDE: 116°02'00"E

UTM Zone: 11                      EASTING: 571000                      NORTHING: 5467000

OWNER(S): Klondike Gold Corp.

MAILING ADDRESS:  
711-675 W. Hastings Street  
Vancouver, B.C., V6B 1N2

OPERATOR(S): Klondike Gold Corp.

MAILING ADDRESS:  
As above

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization,  
size and attitude.  
Purcell Supergroup, Aldridge Formation, Middle Proterozoic, gold vein mineralization, Brook, ,  
ground geophysical survey, VLF-EM, ground mag.

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:  
**Assessment reports** 33525, 13565, 14130

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	Approx. 12 sq km	506223 505602 506411 522275, 506224,505 603, 505606,	6315.87
GEOPHYSICAL (line-kilometres) Ground	12.2	505603 505602 505600 522275	10174.28
Magnetic	12.2		
Electromagnetic	12.2		
GEOCHEMICAL (number of samples analysed for ...)			
Soil			
Silt			
Rock			
Other			
RELATED TECHNICAL			
Sampling / Assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale/area)			
Other Report admin.			1800.00
Map compilation			3560.00
		<b>TOTAL COST</b>	21850

**Geology and Ground geophysical survey, Brook prospect**  
Southeastern British Columbia

Fort Steele Mining Division

Center of Property: 49° 21' 00"N and 116° 02' 00"E

NTS Map Sheet 082F08E; BCGS Map 082F040

Claims

507377, 507380, 507369, 505546, 505545, 505544  
505580, 505600, 505602, 505603, 505606, 508625, 508626, 508628, 505635

Claim Owner:

Klondike Gold Corp.  
Suite 711 - 675 W. Hastings St.  
Vancouver, B.C., V6B 1N2

**BC Geological Survey**  
**Assessment Report**  
**34404**

Operator:

Klondike Gold Corp.  
Suite 711 - 675 W. Hastings St.  
Vancouver, B.C., V6B 1N2

Report by:

Trygve Höy, P.Eng.  
2450 Dixon Road  
Sooke, B.C., V9Z 0X6

And

D. Anderson, P.Eng.  
Anderson Minsearch Consultants  
#100 – 2100 13<sup>th</sup> St. South  
Cranbrook, B.C., V1C 7J5

November 27, 2013

**Geology and Ground geophysical survey, Brook prospect**  
Southeastern British Columbia

NTS Map Sheet 082F08E; BCGS Map 082F040

Centered at 49° 21' 00" and 116° 02' 00"

Fort Steele Mining Division

By

T. Höy and D. Anderson (2013)

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## Introduction

The Brook prospect is within a large block of claims held by Klondike Gold Corp. in the central part of the Purcell Mountains southwest of Cranbrook (Figure 1). The area in the immediate vicinity of the Brook prospect has undergone reconnaissance geological mapping, rock geochemical sampling and prospecting since discovery of the Sullivan deposit in the early part of the 1900s. Exploration on Brook in 2012 included geological mapping, prospecting and a ground VLF-EM and magnetic geophysical survey by the operator, Klondike Gold Corp. Work in 2013 included some additional geological mapping and extension of the 2012 geophysical survey.

## Location and Access

Brook is located in the southern Purcell Mountains within the Moyie River and Ridgeway Creek drainages. Access is via the Lumberton turnoff from Highway 3/95 proceeding some 19 kilometres up the Moyie River drainage to a secondary logging road which accesses the north flowing Ridgeway creek. Access on the property is good but with some logging roads now into some disrepair. Logging has been extensive but has not impacted the entire property. Relief is moderate ranging from 1300 to 2100 metres. Forest cover is pine, fir and larch and can be quite dense locally.

## Claims

Claims held by Klondike Gold Corp. in the immediate area of the Brook prospect are listed in Table 1 and shown in Figure 2. The claims are in good standing until November 27, 2013.

<i>Tenure</i>	<i>Owner</i>	<i>Size (ha)</i>	<i>Good to date</i>
507377	Sedex Mining Corp.	421.03	Nov. 27, 2013
507380	Sedex Mining Corp	252.54	Nov. 27
507369	Sedex Mining Corp	378.67	Nov. 27
505546	Klondike Gold Corp.	42.08	Nov. 27
505545	Klondike Gold Corp	42.08	Nov. 27
505544	Klondike Gold Corp	84.14	Nov. 27
505580	Klondike Gold Corp	525.91	Nov. 27
505600	Klondike Gold Corp	841.89	Nov. 27
505602	Klondike Gold Corp	42.11	Nov. 27
505603	Klondike Gold Corp	21.05	Nov. 27
505606	Klondike Gold Corp	42.11	Nov. 27
508625	Klondike Gold Corp	42.11	Nov. 27
508626	Sedex Mining Corp	21.06	Nov. 27
508628	Sedex Mining Corp	42.1	Nov. 27
505635	Sedex Mining Corp	505.48	Nov. 27, 2013

Table 1: List of mineral tenures referred to as the Brook property.

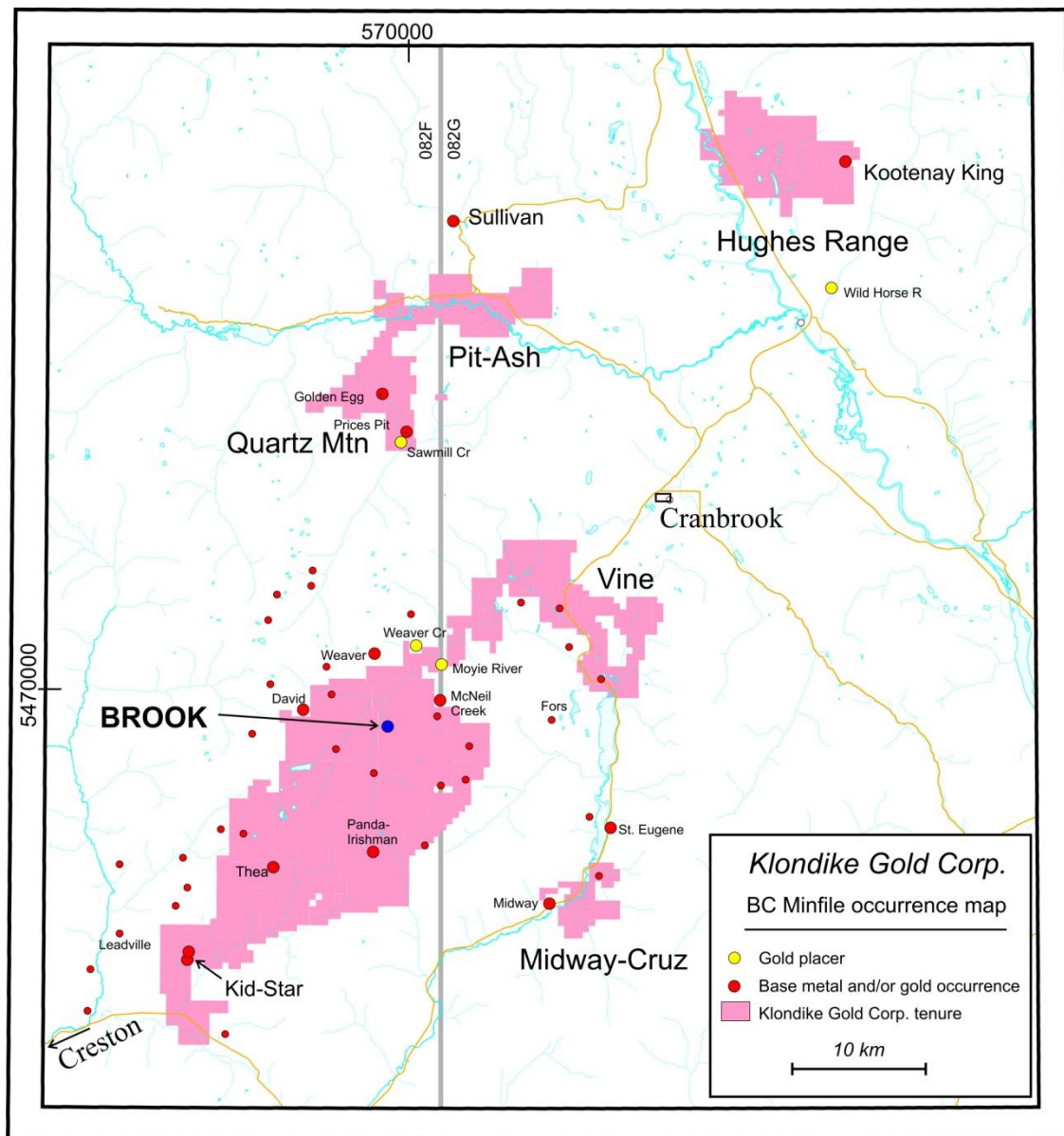


Figure 1: Brook property location map, Purcell Mountains, southeastern British Columbia; also shown are Klondike Gold Corp. mineral tenures in the central Purcell Mountains and Northern Hughes Range.

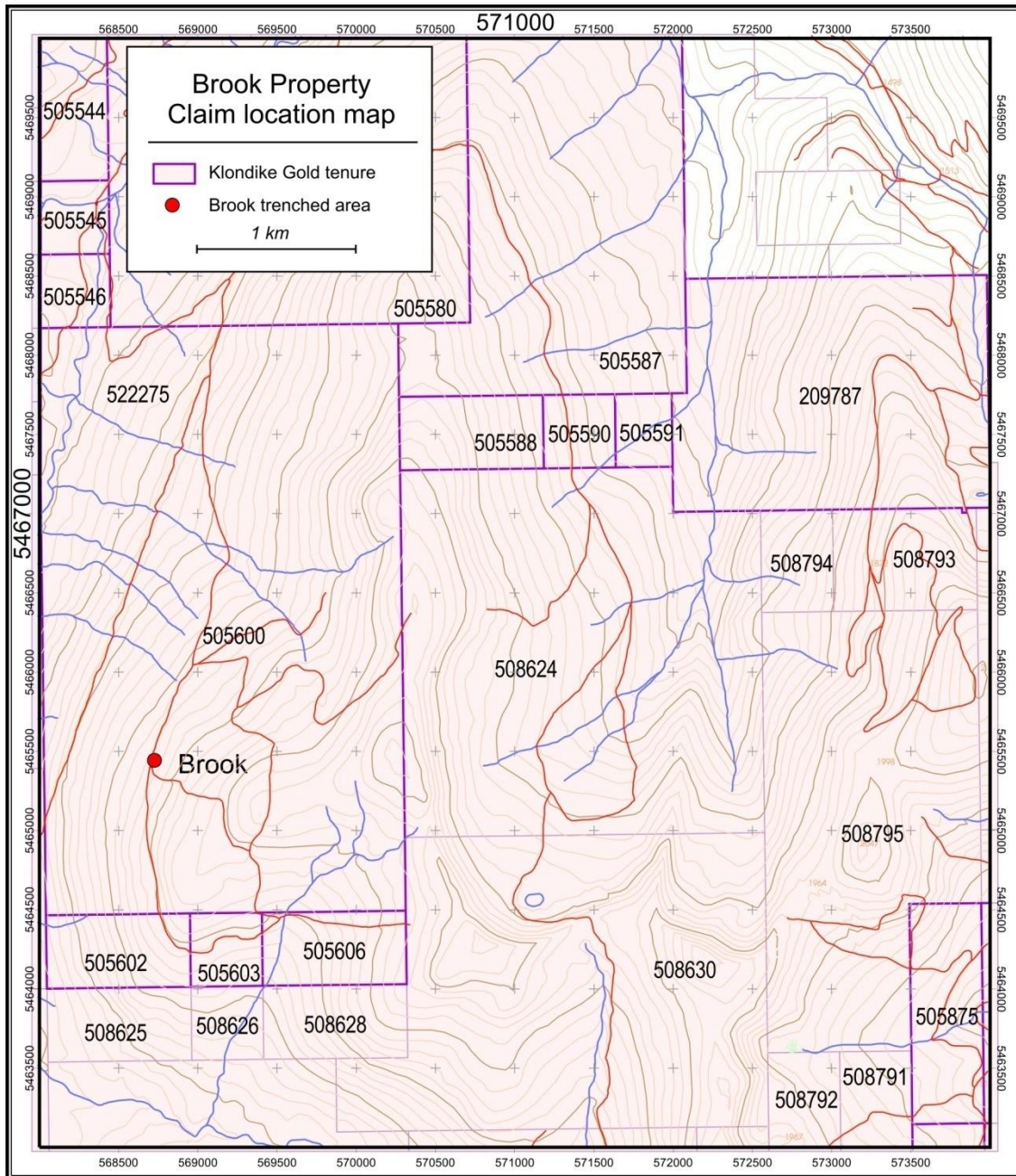


Figure 2: Map showing mineral tenures in the immediate vicinity of the Brook property; a list of tenures is given in Table 1.

## Exploration History

Exploration on the Brook prospect has included prospecting, a soil survey, very limited mapping, some trenching and a ground geophysical survey. Regionally, there has been quite extensive exploration for sedex Pb-Zn mineralization including mapping, airborne and ground geophysics, and deep widely spaced diamond drilling.

Brook (BC Minfile 082FSE111) is recognized as a gold occurrence based on work done in the 1980s. In 1983, a rusty weathering, mineralized occurrence on the Ridgeway creek logging road was trenched by Endurance Minerals and sampled yielding 0.47 g/T Au over 8 metres to 4.5 g/T over 3 metres. This work and sampling information was not recorded but is referenced in later assessment reports for 1985/86. Endurance Minerals did some follow-up work to these results, recorded in assessment reports (Bratlien, 1984; 1985). This work consisted of small soil grids around the trenched areas and along what they considered to be the on-strike extension of the mineralized zone. The shear zone present in the trenching is poorly exposed but judging from the extent of the iron oxide in the floor of the trench the zone is potentially quite wide. Their soil sampling is poorly recorded, so it is of limited use, but around the trenching there are anomalous soils reaching 60 ppb Au.

In 2012 Klondike Gold Corp. did some reconnaissance mapping, additional sampling, and conducted a small ground VLF-EM and magnetic survey (Anderson *et al.*, 2012). Work in 2013 (this report) included some additional mapping and extension and fill-in of the 2012 ground geophysical survey.

## Regional geology

The Brook property lies within the Purcell anticlinorium, a gently north plunging structure that is cored by middle Proterozoic sedimentary and minor volcanic rocks of the Purcell Supergroup and flanked by unconformably overlying upper Proterozoic clastic and carbonate rocks of the Windermere Supergroup. These are generally overlain by either Cambrian or Devonian rocks, part of the North American “miogeoclinal” sequence.

The Purcell Supergroup, and correlative Belt Supergroup in the United States, comprises a syn-rift succession, the Aldridge Formation, and an overlying, generally shallow water post-rift or rift-fill sequence, including the Creston and Kitchener Formations, and younger Purcell rocks (Höy, 1993).

The exposed part of the Aldridge Formation comprises more than 3000 meters of mainly turbidite deposits and numerous, laterally extensive gabbroic sills referred to as the Moyie intrusions. The gabbroic sills are laterally extensive, typically up to several hundred meters thick and can be traced over hundreds of square kilometers. Locally, particularly in areas of growth faulting, they cut across stratigraphy as dykes. Some of



the Moyie sills have contact features that suggest intrusion into wet and partially consolidated sediments (Höy, 1993).

Brook occurs within the middle Aldridge division of the Aldridge Formation approximately 1000 metres above the lower - middle Aldridge contact.

## **Property Geology**

The Brook property is within generally north-trending, east-dipping turbidites of the middle Proterozoic Aldridge Formation. The area is in the 1:50,000 compilation map of Brown (1998). On the property, several north-trending gabbroic sills, part of Moyie sill suite, intrude the Aldridge metasediments. Mapping during 2012 (Anderson *et al.*, 2012) and this year was done at 1:10,000 scale with more detailed mapping done in the immediate vicinity of the trenched area. The area has little outcrop except in road cuts and in the trenched areas.

Detailed mapping indicates that one wide shear or several closely spaced shears are present across a width of about 15 to 20 metres. They trend approximately 010 degrees and are steeply dipping. The host rocks are dominantly argillites which are highly weathered and oxidized with limonite. Identifiable alteration includes silicification, albite and manganese. Chlorite also occurs and quartz veining is quite abundant. Magnetite was noted in parts of the shear zone. The zone of alteration extends from the main exposure and can be traced in subcrop giving surface dimensions of approximately 300 meters by 60 meters, with a core zone of intensely altered and fractured material showing widths in excess of 12 meters. The zone is elongate along a north-south trend but shows some evidence of pinching out along strike and may in fact have an overall sigmoidal shape.

Host rocks are intensely fractured and altered with some deformation of the metasediments locally producing steeper dips. Some interference structures suggest a northwest orientation and this is confirmed by the ground magnetic surveys.

Systematic sampling of the shear in exposures in the old road landing done in 2012 included both chips and grab samples from hand dug trenches (described in Anderson *et al.*, 2012). The highest value for gold recorded from the detailed sampling program came from a 20 cm wide goethite bearing quartz vein that assayed 15.3 g/t Au. Three other chip samples in the 2012 program contained values greater than 1 g/t Au (1011 – 6004 ppb Au) with several other samples containing gold over 100 ppb. All the samples collected from the Brook showing contained what is considered anomalous gold values (>15 ppb Au). In addition to elevated gold, the Brook also showed elevated values for Cu, Pb, Ag, As, Sb, Hg and Te. Additional sampling was not done during the 2013 program.

## Ground geophysical survey

Two small ground geophysical surveys were done on the Brook property in August, 2013. The surveys were a continuation of the 2012 survey, covering the intervening area as well as extending the 2012 survey approximately 600 meters farther south. The 2013 survey, a VLF-EM and magnetic survey, was done in an attempt to trace the mineralized Brook vein in an area with little exposure and to try to determine the orientation of other controlling structures. The ground survey was done by B.A. Belton and data processing by Canadian Exploration Services Ltd.

The North survey area comprised 7 east-west lines, spaced approximately 50 m apart and approximately 600 m in length, for a total survey line length of 4.2 km. The South survey area included 22 east-west lines, spaced approximately 50 m apart; the southern 18 lines were 400 m in length while the northern 4 lines ranged from 500 to 700 m in length for a total line survey length of 8.0 km. In both surveys, stations were placed 25 m apart along lines and readings taken every 12.5 m. The details of North and South survey areas are given in Appendices 3a and 3b.

### *Interpretation*

Figure 3 shows the total magnetic intensity maps superimposed on the known geology of the area. Also shown are the results of the 2012 surveys. A considerable part of the area is heavily forested and covered in overburden and hence geological contacts, as shown, are not well constrained. The 2012 surveys defined some prominent northwest trending magnetic linears that were interpreted to be faults with minimal offset that appeared to control, in part, increased alteration, mineralization and structures in the north-trending Brook shear. However, there were no significant VLF-EM responses, possibly due to poor coupling with the available VLF transmitters.

Several northwest trending magnetic anomalies are recognized throughout the extent of the 2012 and 2013 surveys (Figure 3). Several of these coincide with creeks, suggesting structural control, and in several localities the northwest trending zones coincide with structures that have been recognized in the field, including fractures, joints, veins, or small offsets (Anderson *et al.*, 2012). Also, as noted in Anderson *et al.* (*op. cit.*), the Brook shear zone is thickened and better mineralized at its intersection with a northwest trending structure.

Several weak north-trending magnetic linears are recognized in both the 2012 and 2013 surveys. Some appear to coincide with gabbro or gabbro contacts; for example, a north-trending series of highs in the South grid coincides with the location of the west gabbro sill. Farther west, however, north-trending magnetic linears are in Aldridge metasediments and these may define increased sulphide contact, probably pyrrhotite, in specific lithologies or structures. The trenched area in the central part of the

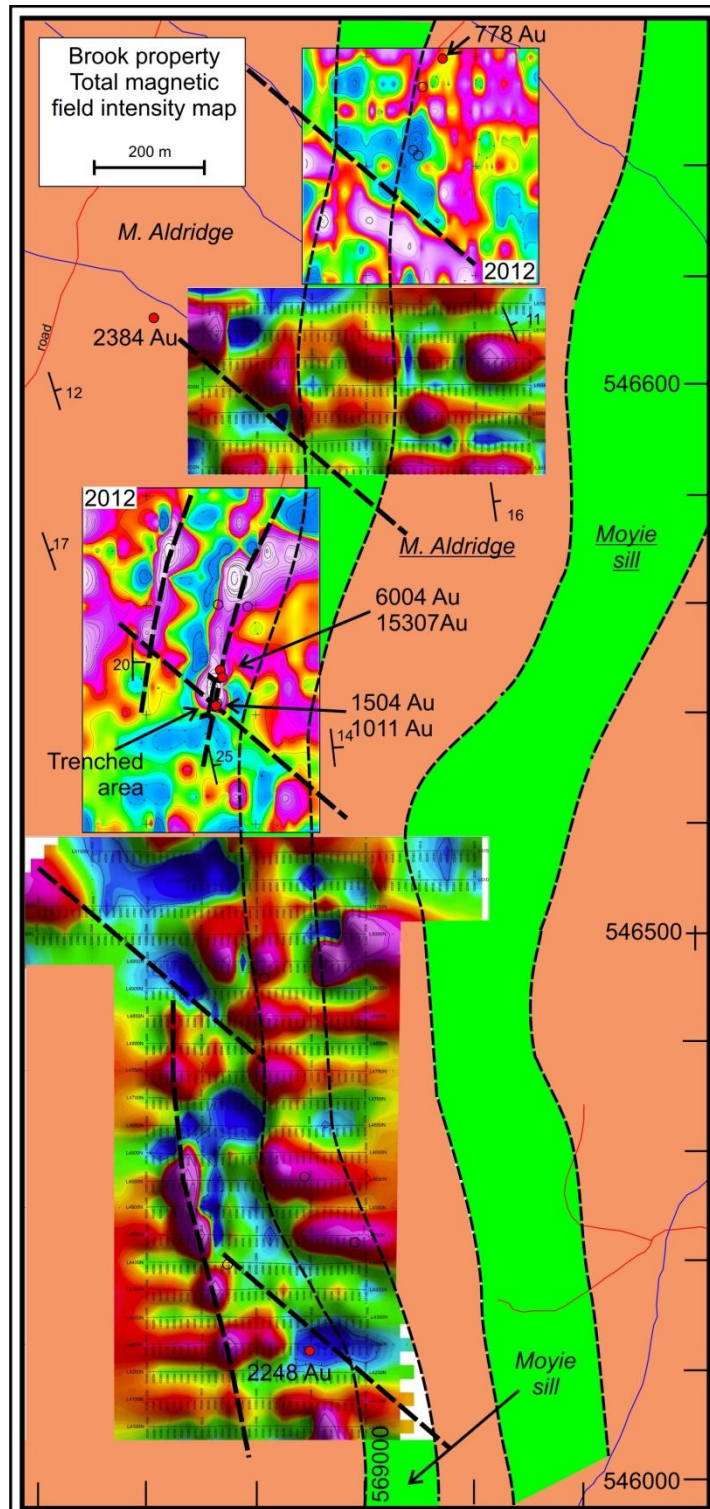


Figure 3: Total magnetic field intensity maps from the 2012 and 2013 surveys, showing geology; also shown are samples with gold contents greater than 1000 ppb (Anderson *et al.*, 2012); magnetic linears discussed in text are shown in a heavy dashed line. See Appendix 3 for ground geophysical data.

map (Figure 3) coincides with a north-trending linear that may define mineralization and associated alteration of the Brook shear zone. The parallel linear in the South grid is at an approximate similar structural position and may record the southern extension of the shear zone.

## **Summary and Recommendations**

Detailed mapping in the 2012 season outlined a composite north-trending shear zone up to approximately 20 m in width that contained selected hand samples with up to 15,307 ppb gold. Geophysical surveys in 2012 and 2013 recognized several approximately parallel northwest trending magnetic linears that intersect the more northerly trend of middle Proterozoic Aldridge Formation metasediments and gabbroic sills. The northwest-trending zones coincide with orientations of some minor structures, including small veins and fractures, and are interpreted to record northwest-trending faults with minimal displacement. The intersection of one of these structures with the north-trending Brook shear zones produces an area of enhanced mineralization at the main Brook showing.

As noted in Anderson *et al.* (2012), the “Brook showing can be traced in subcrop or extrapolated several hundred meters to the north, although rock outcropping is poor. Approximately 1 km to the north and roughly on strike with the Brook shear, discovery of visible gold in bull quartz vein material suggests that the shear extends considerably farther. A small ground magnetic survey indicates that here as well a northwest-trending fault intersects the shear zone”.

The 2013 ground magnetic survey identified several parallel northwest trending linears that appear to be related to mineralization discovered in 2012; in the North grid, a sample that returned 2384 ppb Au is on strike with a weak northwest trending magnetic anomaly and in the South grid, a sample with 2248 ppb Au also appears to be on a northwest trending magnetic anomaly.

### ***Recommendations***

The 2013 field program was restricted to two small ground geophysical surveys and 5 days of reconnaissance geological mapping. Considerable further work is warranted:

- Prospecting and sampling to trace mineralization discovered in 2012;
- Detailed geological mapping in an attempt to better define controlling structures and in conjunction with the prospecting and ground geophysics, to locate other controlling cross faults;
- A soil survey covering all known showings;
- Re-trenching of the main Brook showing, and expanding the trenched area to the north and south; and finally,
- Diamond drilling to determine extent and grade of known showings.

## Acknowledgements

Geological mapping was done by D. Anderson and the ground geophysical program was conducted by B.A. Belton of Rossland, B.C., assisted by J. Seabrook of Cranbrook, B.C. The preparation of geophysical maps and preliminary interpretation of the geophysical data was done by C.J. Ploeger of Canadian Exploration Services Ltd. In 2012, S. Kennedy prospected and discovered many of the new showings that are referred to in this report. T. Höy managed the exploration program and, in conjunction with D. Anderson, prepared and finalized this report.

## References:

- Anderson, D., Kennedy, S. and Höy, T., (2012): Exploration of the Brook, Kid-Star and Leadville Creek properties, Purcell Mountains, southeastern British Columbia; *B.C. Ministry of Energy and Mines*, Assessment report 33525, 195 pages
- Bratlien, M. (1984): Geochemical Soil Survey Report for Endurance Minerals, Fort Steele M.D., *B.C. Ministry of Energy and Mines*, Assessment report 13565, 31 pages.
- Bratlien, M. (1985): Geochemical Soil Survey Report for Endurance Minerals, Fort Steele M.D., *B.C. Ministry of Energy and Mines*, Assessment report 14130, 16 pages.
- Brown, D.A. (1998): Geological compilation of the Grassy Mountain (east half) and Moyie Lake (west half) map areas, southeastern British Columbia; *B.C. Ministry of Energy and Mines*, Geoscience Map 1998-3, southeastern British Columbia, scale 1:50000.
- Höy, T. (1993): Geology of the Purcell Supergroup in the Fernie W-half map area, southeastern B.C.; *B.C. Ministry of Energy and Mines*, Bulletin 84, 157 pages.

**Appendix 1:**  
**Statement of costs**

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Geology: D. Anderson	
7.7 days, field and compilation	\$3850.00
Assistant: 2 days	400.00
Vehicle rental	793.50
Geology: T. Hoy	
1.5 days	\$ 900.00
Airfare to Cranbrook	213.85
Meals	56.82
Accommodation	101.70
Geophysics: B.A. Belton	
10 days	\$4,000.00
Meals	212.93
Vehicle rental	1296.02
Accommodation	915.33
Assistant (9 days)	2250.00
Data processing (CXS Ltd.)	1500.00
Assessment report	1800.00
Administration	<u>3560.00</u>
<b>Total</b>	<b>\$21850.00</b>

## Appendix 2a: Statement of qualifications

Trygve Höy

---

I, Trygve Höy, PhD., P. Eng. do hereby certify that:

1. I attained the degree of Doctor of Philosophy (PhD) in geology from Queens University, Kingston, Ontario in 1974.
2. I have an MSc. in Geology from Carleton University, Ottawa, Ontario (1970), and a BSc. in Geology from the University of British Columbia (1968).
3. I am a member of the Association of Professional Engineers and Geoscientists of BC. and a member of the Society of Economic Geologists.
4. I have worked as a geologist for a total of 38 years since my graduation from university, 27 years as a project geologist with the B.C. Geological Survey Branch and 11 years as an independent consulting geologist.
5. I supervised, for Klondike Gold Corp., the 2013 exploration program on the Brook property and am familiar with all aspects of the project.
6. I, and my co-author, D. Anderson, are responsible for the preparation of this report entitled: entitled “**Geology and geophysical survey, Brook prospect, southeastern British Columbia**”, dated November 27, 2013.

Dated this 27th Day of November, 2013.

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Trygve Höy, P.Eng; PhD

## Appendix 2b: Statement of qualifications

**Doug Anderson**

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I, Douglas Anderson, Consulting Geological Engineer, have my office at #100- 2100 13<sup>th</sup>. St. South, Cranbrook, B.C. V1C 7J5

I graduated from the University of British Columbia in 1969 with a Bachelor of Applied Science in Geological Engineering.

I have practiced my profession since 1969, predominantly with one large mining company, in a number of capacities all over Western Canada and since 1998 within southeastern B.C. as a mineral exploration consultant.

I am a Registered Professional Engineer and member of the Association of Professional Engineers and Geoscientists of B.C. and I am authorized to use their seal.

I spent a total of 6 days geological mapping of the Brook property, southeastern British Columbia.

I, and my co-authors, Trygve Höy, are responsible for this report, entitled “**Geology and geophysical survey, Brook prospect, southeastern British Columbia**”, dated November 27, 2013.

D. Anderson

Douglas Anderson, P.Eng.

November 27, 2013



### **Appendix 3**

## **Ground Geophysical survey, Brook property**

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By: J. Ploeger, Canadian Exploration Services Ltd.

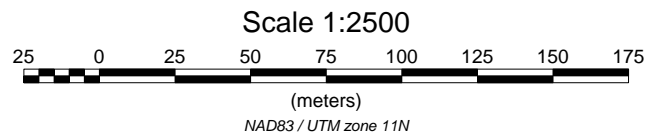
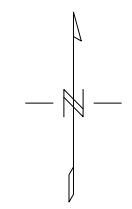
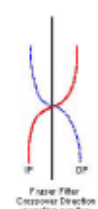
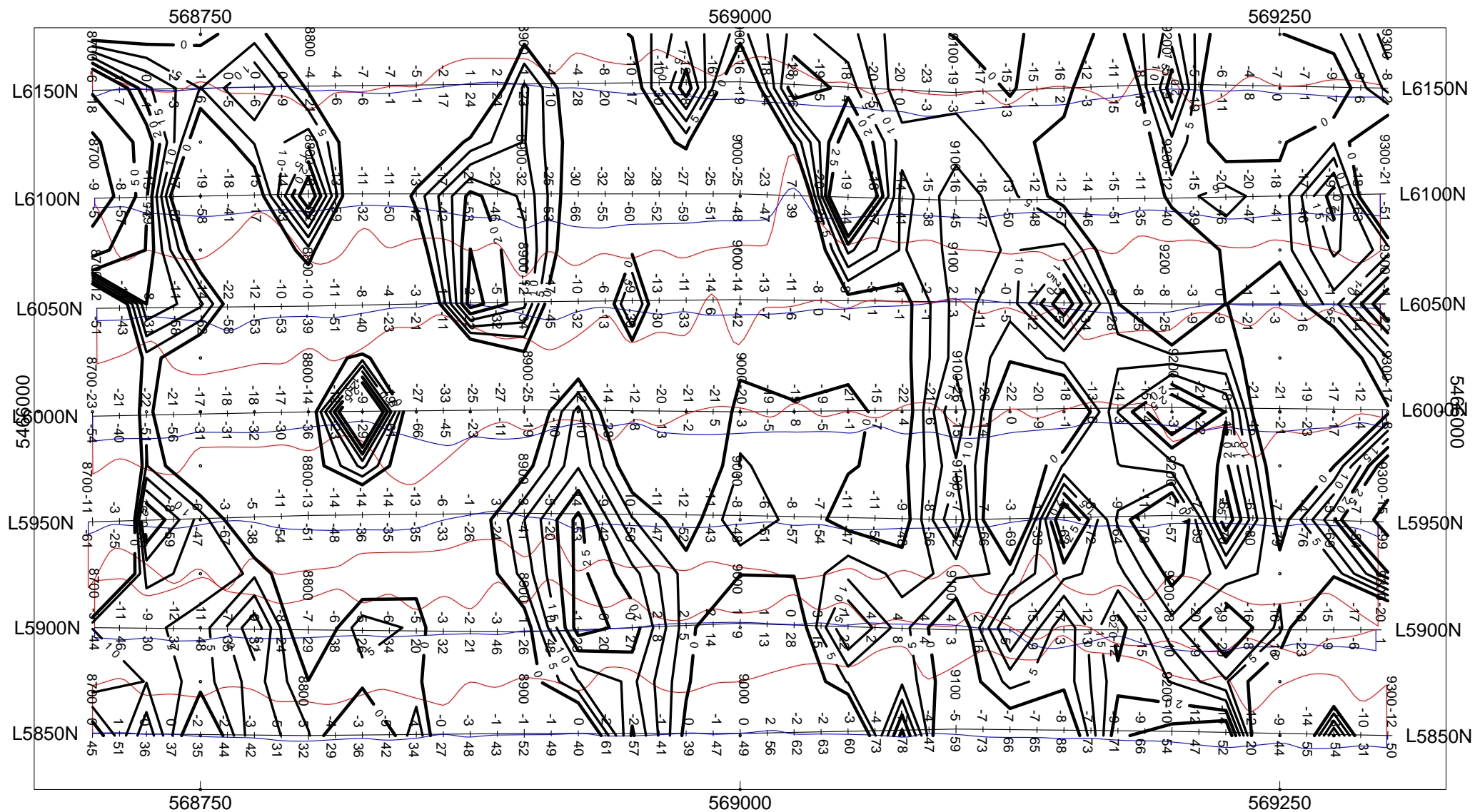
Field data collection: B.A. Belton, Rossland, B.C.

Includes two grids (1) North Grid, and (2) South Grid

Reports and List of maps:

1. Reports: Magnetometer and VLF EM surveys over the Brook-1 (and Brook-2) properties
2. Grid
3. VLF in phase/out phase profile, VLF Fraser filtered contoured plan maps, total field magnetic plan maps





**BROOK 1 PROPERTY**  
**Cranbrook, British Columbia**

VLF IN PHASE/OUT PHASE PROFILE  
 VLF FRASER FILTERED CONTOURED PLAN MAP  
 24.8kHz NLK - SEATTLE, USA

In Phase: Posted Right/Bottom (Red)  
 Out Phase: Posted Left/Top (Blue)

Vertical Profile Scales: 5%/mm  
 Contour Interval: 0, 5, 10, 15, 20, 25, 50, 100

Station Separation: 12.5 meters  
 Posting Level: 0

GSM-19 OVERHAUSER MAGNETOMETER/VLF v7

Magnetometer Operated by: BA Belton  
 Processed by: C Jason Ploeger, B.Sc.  
 Map Drawn By: C Jason Ploeger, B.Sc.  
 October 2013





**CANADIAN EXPLORATION SERVICES LTD**

PO Box 219, 14579 Government Road, Larder Lake, Ontario, P0K 1L0, Canada  
Phone (705) 643-2345 Fax (705) 643-2191 www.cxsltd.com

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# **Magnetometer and VLF EM Surveys Over the Brook-1 Property Cranbrook, British Columbia**

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## 1. SURVEY DETAILS

This project is known as the **Brook-1 Property**.

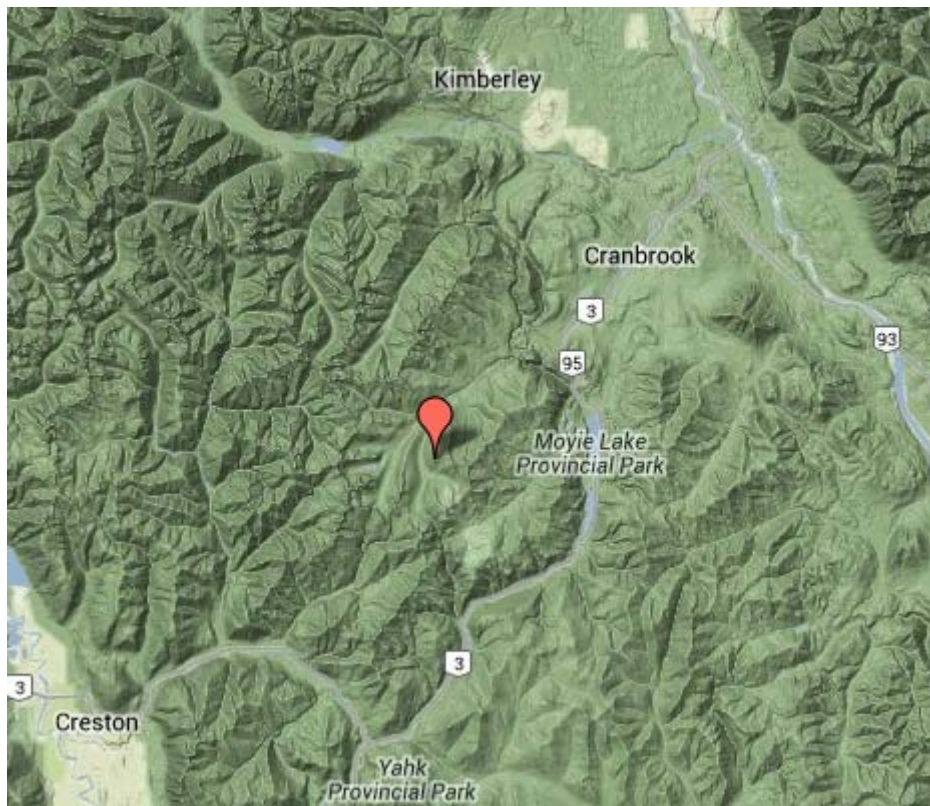
### 1.1 CLIENT

KLONDIKE GOLD CORP.

711-675 West Hastings Street.  
Vancouver, British Columbia  
V6B 1N2

### 1.2 LOCATION

The Brook-1 Property is located approximately 30 km southwest of Cranbrook, British Columbia.



**Figure 1: Location of the Brook-1 Property**

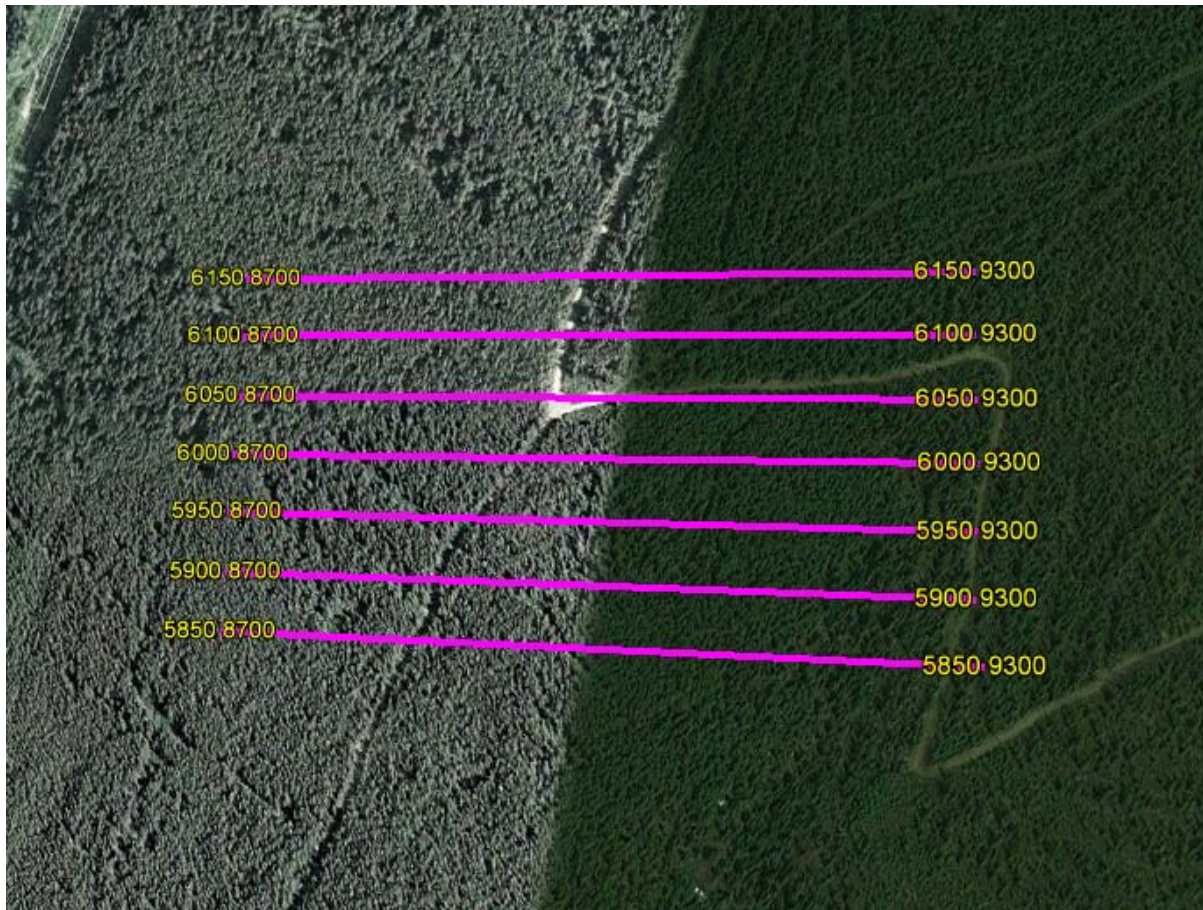
### 1.3 ACCESS

The property can be accessed 30km south of Cranbrook along highway 3 then 40km west along a series of access roads to the survey area.

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## 1.4 SURVEY GRID

The traversed lines were established using a GPS in conjunction with the execution of the survey. The GPS operator would establish sample locations while remaining approximately 12.5m in front of the magnetometer operator. GPS waypoints and magnetic samples were taken every 12.5m along these controlled traverses.



**Figure 2: Google Image of Traversed Area**

## 2. SURVEY WORK UNDERTAKEN

### 2.1 SURVEY LOG

DATE	LINE	MIN EXTENT	MAX EXTENT	TOTAL (m)
August 20, 2013	5850N	8700E	9300E	600
	5900N	8875E	9300E	425
August 21, 2013	5900N	8700E	8875E	175
	5950N	8700E	9300E	600
	6000N	8700E	9300E	600
	6050N	8700E	8975E	275
August 22, 2013	6050N	8975E	9300E	325
	6100N	8700E	9300E	600
	6150N	8700E	9300E	600

**Table 1: Survey Coverage**

### 2.2 PERSONNEL

BA Belton of Rossland, British Columbia conducted all the data collection.

### 2.3 SURVEY SPECIFICATIONS

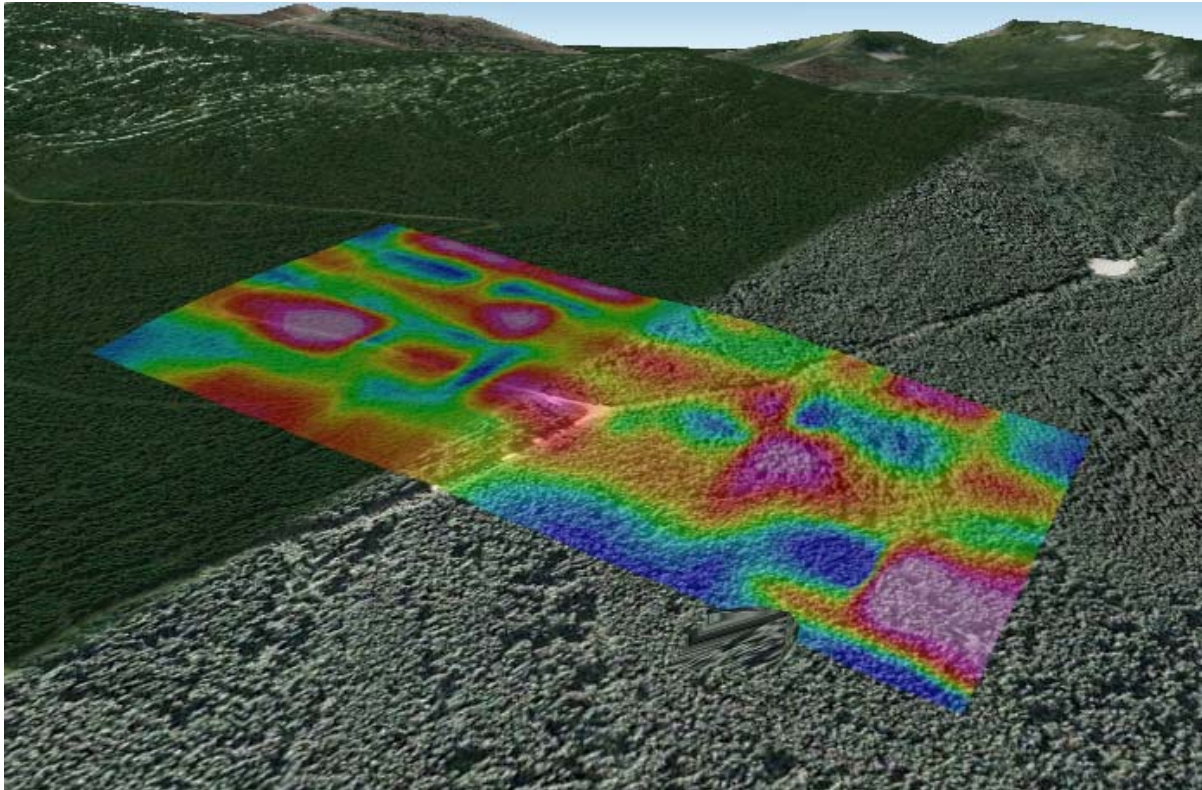
The survey was conducted with a GSM-19 v7 Overhauser magnetometer with a second GSM-19 magnetometer for a base station mode for diurnal correction.

A total of 4.2 line kilometers of mag/VLF was read between August 20<sup>th</sup> and 22<sup>nd</sup>, 2013. This consisted of 336 simultaneous magnetometer/VLF (NLK and NML) samples at 12.5m sample intervals.



### 3. OVERVIEW OF SURVEY RESULTS

#### 3.1 SUMMARY INTERPRETATION



**Figure 3: Google image with Magnetic Overlay**

Generally little magnetic variation occurs over the survey area with only a 177nT variation throughout the survey area.

No strong magnetic signatures are apparent and the variation appears to be that expected from the natural variation within a given geologic unit. When compared to the VLF EM survey, in particular the NML frequency, one trend stands out. This is a weak north-south trend extending from 5850N through 6150N near 8900E. Associated with this trend appears two parallel VLF trends that are most apparent on lines 6050N and 6100N. These associated with the slight magnetic shift may indicate an alteration system with associated mineralization along its flanks. This region should be explored more thoroughly with prospecting and possibly some soil geochemistry.

---

## APPENDIX A

### STATEMENT OF QUALIFICATIONS

I, C. Jason Ploeger, hereby declare that:

1. I am a professional geophysicist with residence in Larder Lake, Ontario and am presently employed as a Geophysicist and Geophysical Manager of Canadian Exploration Services Ltd. of Larder Lake, Ontario.
2. I am a Practising Member of the Association of Professional Geoscientists, with membership number 2172.
3. I have Special Authorization number 270 by l'Ordre des Geologues du Quebec to practice geoscience in Quebec.
4. I graduated with a Bachelor of Science degree in geophysics from the University of Western Ontario, in London Ontario, in 1999.
5. I have practiced my profession continuously since graduation in Africa, Bulgaria, Canada, Mexico and Mongolia.
6. I am a member of the Ontario Prospectors Association, a Director of the Northern Prospectors Association and a member of the Society of Exploration Geophysicists.
7. I do have an interest in the properties and securities of **Klondike Gold Corp.**
8. I am responsible for the final processing and validation of the survey results and the compilation of the presentation of this report. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.



C. Jason Ploeger, P.Geo., B.Sc.  
Geophysical Manager  
Canadian Exploration Services Ltd.

Larder Lake, ON  
October 29, 2013

---

## APPENDIX B

### THEORETICAL BASIS AND SURVEY PROCEDURES

#### TOTAL FIELD MAGNETIC SURVEY

Base station corrected Total Field Magnetic surveying is conducted using at least two synchronized magnetometers of identical type. One magnetometer unit is set in a fixed position in a region of stable geomagnetic gradient, and away from possible cultural effects (i.e. moving vehicles) to monitor and correct for daily diurnal drift. This magnetometer, given the term 'base station', stores the time, date and total field measurement at fixed time intervals over the survey day. The second, remote mobile unit stores the coordinates, time, date, and the total field measurements simultaneously. The procedure consists of taking total magnetic measurements of the Earth's field at stations, along individual profiles, including Tie and Base lines. A 2 meter staff is used to mount the sensor, in order to optimally minimize localized near-surface geologic noise. At the end of a survey day, the mobile and base-station units are linked, via RS-232 ports, for diurnal drift and other magnetic activity (ionospheric and spheric) corrections using internal software.

For the gradiometer application, two identical sensors are mounted vertically at the ends of a rigid fiberglass tube. The centers of the coils are spaced a fixed distance apart (0.5 to 1.0m). The two coils are then read simultaneously, which alleviates the need to correct the gradient readings for diurnal variations, to measure the gradient of the total magnetic field.

#### VLF Electromagnetic

The frequency domain VLF electromagnetic survey is designed to measure both the vertical and horizontal in-phase (IP) and Quadrature (OP) components of the anomalous field from electrically conductive zones. The sources for VLF EM surveys are several powerful radio transmitters located around the world which generate EM radiation in the low frequency band of 15-25 kHz. The signals created by these long-range communications and navigational systems may be used for surveying up to several thousand kilometers away from the transmitter. The quality of the incoming VLF signal can be monitored using the field strength. A field strength above 5pT will produce excellent quality results. Anything lower indicates a weak signal strength, and possibly lower data quality. A very low signal strength (<1pT) may indicate the radio station is down.

The EM field is planar and horizontal at large distances from the EM source. The two components, electric (E) and magnetic (H), created by the source field are orthogonal to each other. E lies in a vertical plane while H lies at right angles to the direction of propagation in a horizontal plane. In order to ensure good coupling, the strike of possible conductors should lie in the direction of the transmitter to allow the H vector to pass through the anomaly, in turn, creating a secondary EM field.



Magnetometer and VLF EM Surveys  
Brook-1 Property  
Cranbrook, British Columbia



---

The VLF EM receiver has two orthogonal aerials which are tuned to the frequency of the transmitting station. The direction of the source station is located by rotating the sensor around a vertical axis until a null position is found. The VLF EM survey procedure consists of taking measurements at stations along each line on the grid. The receiver is rotated about a horizontal axis, right angles to the traverse and the tilt recorded at the null position.

## APPENDIX C

### GSM 19



### Specifications

#### Overhauser Performance

- Resolution: 0.01 nT
- Relative Sensitivity: 0.02 nT
- Absolute Accuracy: 0.2nT
- Range: 20,000 to 120,000 nT
- Gradient Tolerance: Over 10,000nT/m
- Operating Temperature: -40°C to +60°C

#### Operation Modes

- Manual: Coordinates, time, date and reading stored automatically at min. 3 second interval.
- Base Station: Time, date and reading stored at 3 to 60 second intervals.
- Walking Mag: Time, date and reading stored at coordinates of fiducial.
- Remote Control: Optional remote control using RS-232 interface.
- Input/Output: RS-232 or analog (optional) output using 6-pin weatherproof connector.

#### Operating Parameters

- Power Consumption: Only 2Ws per reading. Operates continuously for 45 hours on standby.
- Power Source: 12V 2.6Ah sealed lead acid battery standard, other batteries available
- Operating Temperature: -50°C to +60°C

#### Storage Capacity

- Manual Operation: 29,000 readings standard, with up to 116,000 optional. With 3 VLF stations: 12,000 standard and up to 48,000 optional.
- Base Station: 105,000 readings standard, with up to 419,000 optional (88 hours or 14 days uninterrupted operation with 3 sec. intervals)
- Gradiometer: 25,000 readings standard, with up to 100,000 optional. With 3 VLF stations: 12,000, with up to 45,000 optional.

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## Omnidirectional VLF

Performance Parameters: Resolution 0.5% and range to  $\pm 200\%$  of total field.  
Frequency 15 to 30 kHz.

Measured Parameters: Vertical in-phase & out-of-phase, 2 horizontal components, total field coordinates, date, and time.

Features: Up to 3 stations measured automatically, in-field data review, displays station field strength continuously, and tilt correction for up to  $\pm 10^\circ$  tilts.

Dimensions and Weights: 93 x 143 x 150mm and weighs only 1.0kg.

## Dimensions and Weights

Dimensions:

Console: 223 x 69 x 240mm

Sensor: 170 x 71mm diameter cylinder

Weight:

Console: 2.1kg

Sensor and Staff Assembly: 2.0kg

## Standard Components

GSM-19 magnetometer console, harness, battery charger, shipping case, sensor with cable, staff, instruction manual, data transfer cable and software.

## Taking Advantage of a “Quirk” of Physics

Overhauser effect magnetometers are essentially proton precession devices except that they produce an order-of magnitude greater sensitivity. These "supercharged" quantum magnetometers also deliver high absolute accuracy, rapid cycling (up to 5 readings / second), and exceptionally low power consumption.

The Overhauser effect occurs when a special liquid (with unpaired electrons) is combined with hydrogen atoms and then exposed to secondary polarization from a radio frequency (RF) magnetic field. The unpaired electrons transfer their stronger polarization to hydrogen atoms, thereby generating a strong precession signal-- that is ideal for very high-sensitivity total field measurement. In comparison with proton precession methods, RF signal generation also keeps power consumption to an absolute minimum and reduces noise (i.e. generating RF frequencies are well out of the bandwidth of the precession signal).

In addition, polarization and signal measurement can occur simultaneously - which enables faster, sequential measurements. This, in turn, facilitates advanced statistical averaging over the sampling period and/or increased cycling rates (i.e. sampling speeds).

The unique Overhauser unit blends physics, data quality, operational efficiency, system design and options into an instrumentation package that ... exceeds proton precession and matches costlier optically pumped cesium capabilities APPENDIX C

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## APPENDIX D

### LIST OF MAPS (IN MAP POCKET)

Posted contoured TFM plan map (1:2500)

- 1) KLONDIKE GOLD-BROOK 1-MAG-CONT

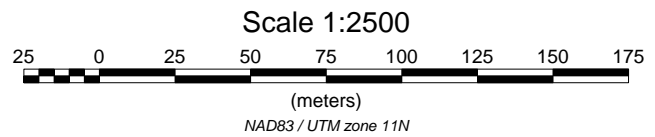
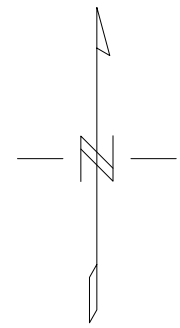
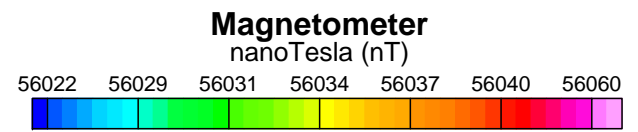
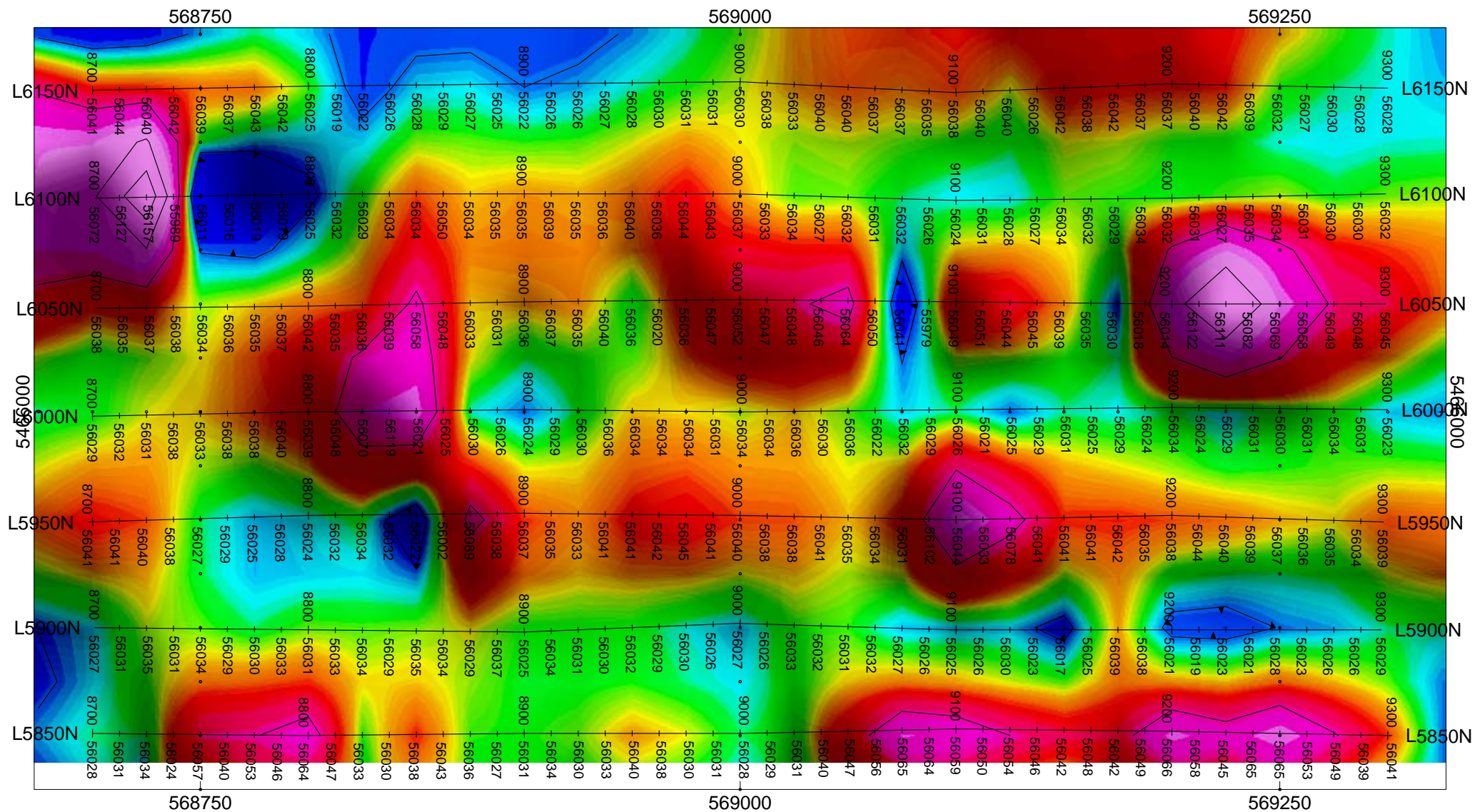
Posted profiled VLF EM Fraser Filtered plan map (1:2500)

- 2) KLONDIKE GOLD- BROOK 1-VLF-NLK
- 3) KLONDIKE GOLD- BROOK 1-VLF-NML

Survey Area Location Map (1:10000)

- 4) KLONDIKE GOLD-BROOK 1-GRID

**TOTAL MAPS=4**



**BROOK 1 PROPERTY**  
Cranbrook, British Columbia

TOTAL FIELD MAGNETIC PLAN MAP  
Base Station Corrected (568978E 5466021N)

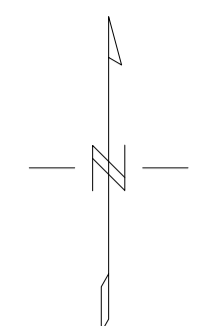
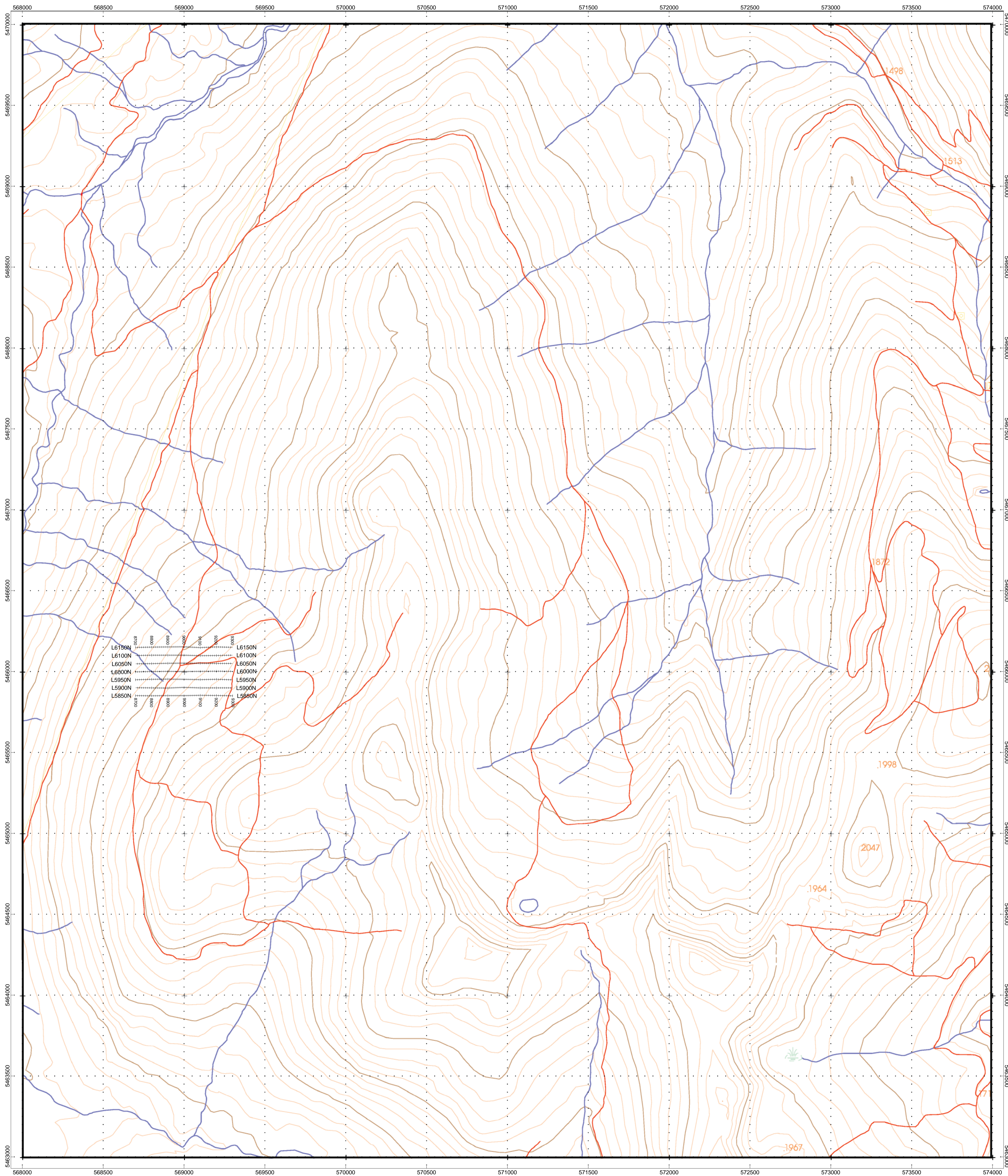
Posting Level: 0nT  
Field Inclination/Declination: 16.6degN/72.3degW  
Station Separation: 12.5 meters  
Total Field Magnetic Contours: 25nT

GSM-19 OVERHAUSER MAGNETOMETER/VLF v7

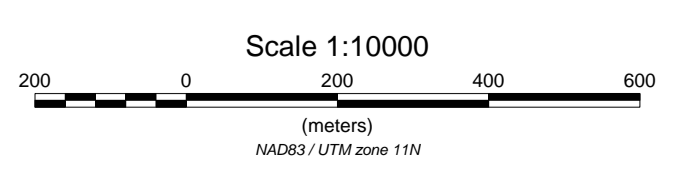
Magnetometer Operated by: BA Belton  
Processed by: C Jason Ploeger, B.Sc.  
Map Drawn By: C Jason Ploeger, B.Sc.  
October 2013







L6150N L6150E  
 L6100N L6100E  
 L6050N L6050E  
 L6000N L6000E  
 L5950N L5950E  
 L5900N L5900E  
 L5850N L5850E



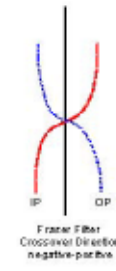
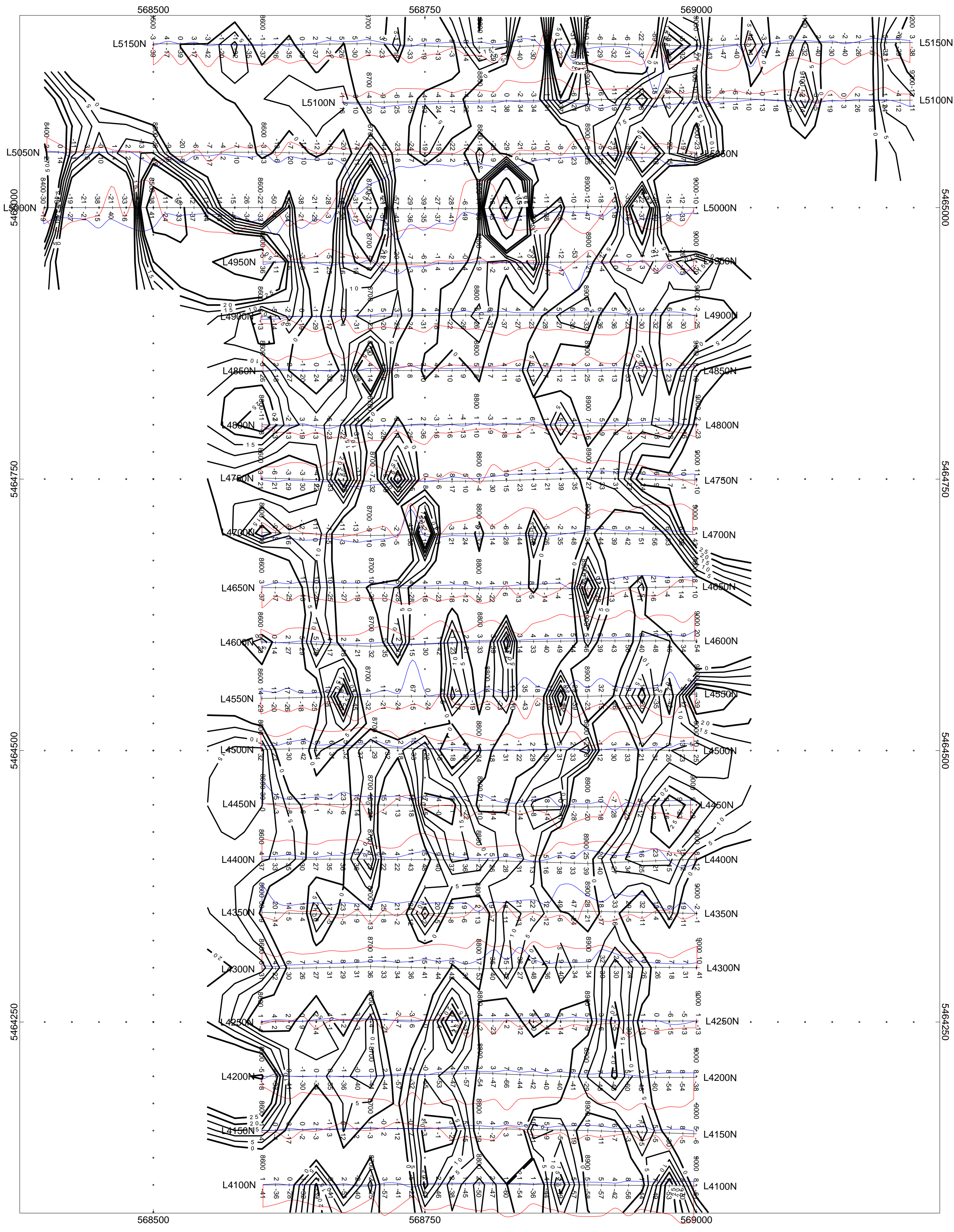
**BROOK 1 PROPERTY**  
Cranbrook, British Columbia

SURVEY LOCATION PLAN MAP

Magnetometer Operated by: BA Belton  
 Processed by: C Jason Ploeger, B.Sc.  
 Map Drawn By: C Jason Ploeger, B.Sc.  
 October 2013



Drawing: KLONDIKE GOLD-BROOK 1-GRID



**BROOK-4 PROPERTY**  
**Cranbrook, British Columbia**

VLF IN PHASE/OUT PHASE PROFILE  
 VLF FRASER FILTERED CONTOURED PLAN MAP  
 25.2kHz NML - LaMOUR, USA

In Phase: Posted Right/Bottom (Red)  
 Out Phase: Posted Left/Top (Blue)

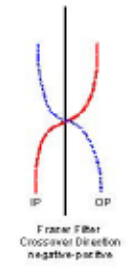
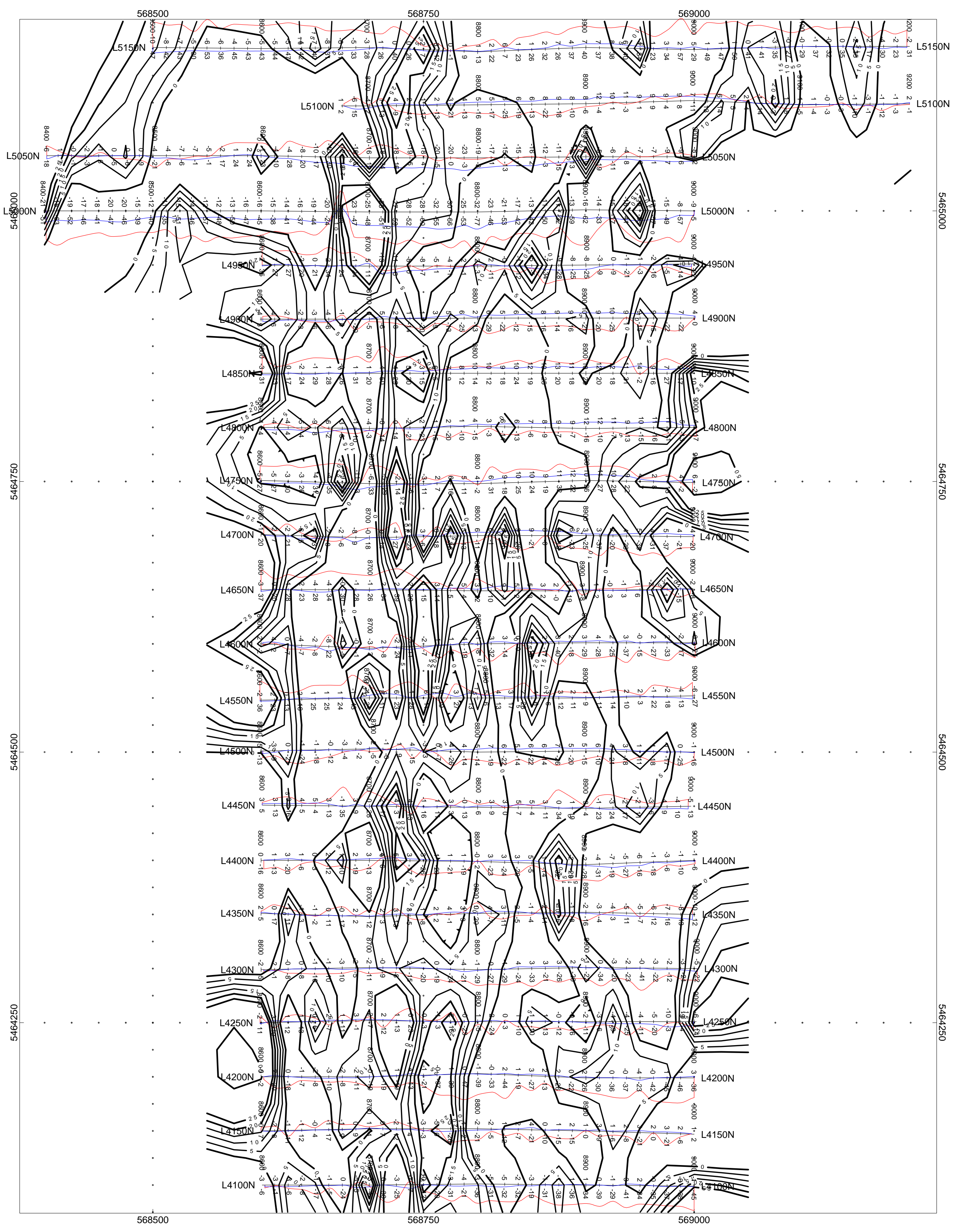
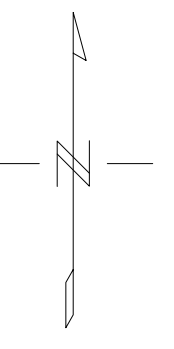
Vertical Profile Scales: 5%/mm  
 Contour Interval: 0, 5, 10, 15, 20, 25, 50, 100

Station Separation: 12.5 meters  
 Posting Level: 0

GSM-19 OVERHAUSER MAGNETOMETER/VLF v7

Magnetometer Operated by: BA Belton  
 Processed by: C Jason Ploeger, B.Sc.  
 Map Drawn By: C Jason Ploeger, B.Sc.  
 October 2013





**BROOK-4 PROPERTY**  
Cranbrook, British Columbia

VLF IN PHASE/OUT PHASE PROFILE  
VLF FRASER FILTERED CONTOURED PLAN MAP  
24.8kHz NLK - SEATTLE, USA

In Phase: Posted Right/Bottom (Red)  
Out Phase: Posted Left/Top (Blue)

Vertical Profile Scales: 5%/mm  
Contour Interval: 0, 5, 10, 15, 20, 25, 50, 100

Station Separation: 12.5 meters  
Posting Level: 0

GSM-19 OVERHAUSER MAGNETOMETER/VLF v7

Magnetometer Operated by: BA Belton  
Processed by: C Jason Ploeger, B.Sc.  
Map Drawn By: C Jason Ploeger, B.Sc.  
October 2013





PO Box 219, 14579 Government Road, Larder Lake, Ontario, P0K 1L0, Canada  
Phone (705) 643-2345 Fax (705) 643-2191 www.cxsltd.com

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# **Magnetometer and VLF EM Surveys Over the Brook-4 Property Cranbrook, British Columbia**

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1.3	ACCESS .....	3
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<b>APPENDIX B: THEORETICAL BASIS AND SURVEY PROCEDURES</b>
<b>APPENDIX C: INSTRUMENT SPECIFICATIONS</b>
<b>APPENDIX D: LIST OF MAPS (IN MAP POCKET)</b>

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## 1. SURVEY DETAILS

This project is known as the **Brook-4 Property**.

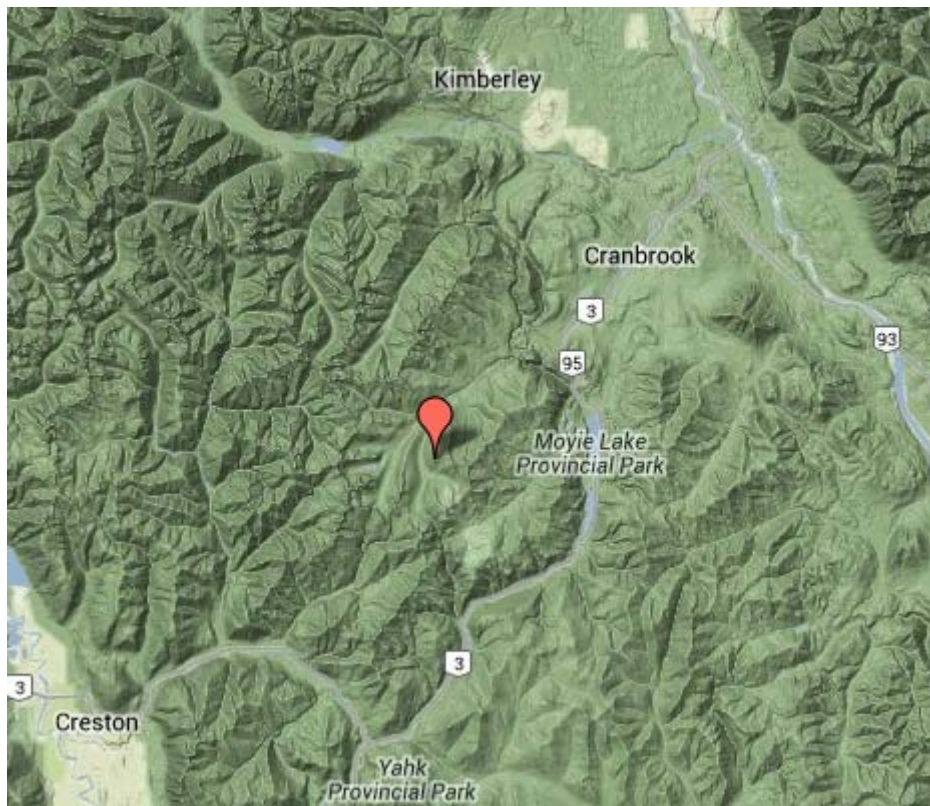
### 1.1 CLIENT

KLONDIKE GOLD CORP.

711-675 West Hastings Street.  
Vancouver, British Columbia  
V6B 1N2

### 1.2 LOCATION

The Brook-4 Property is located approximately 30 km southwest of Cranbrook, British Columbia.



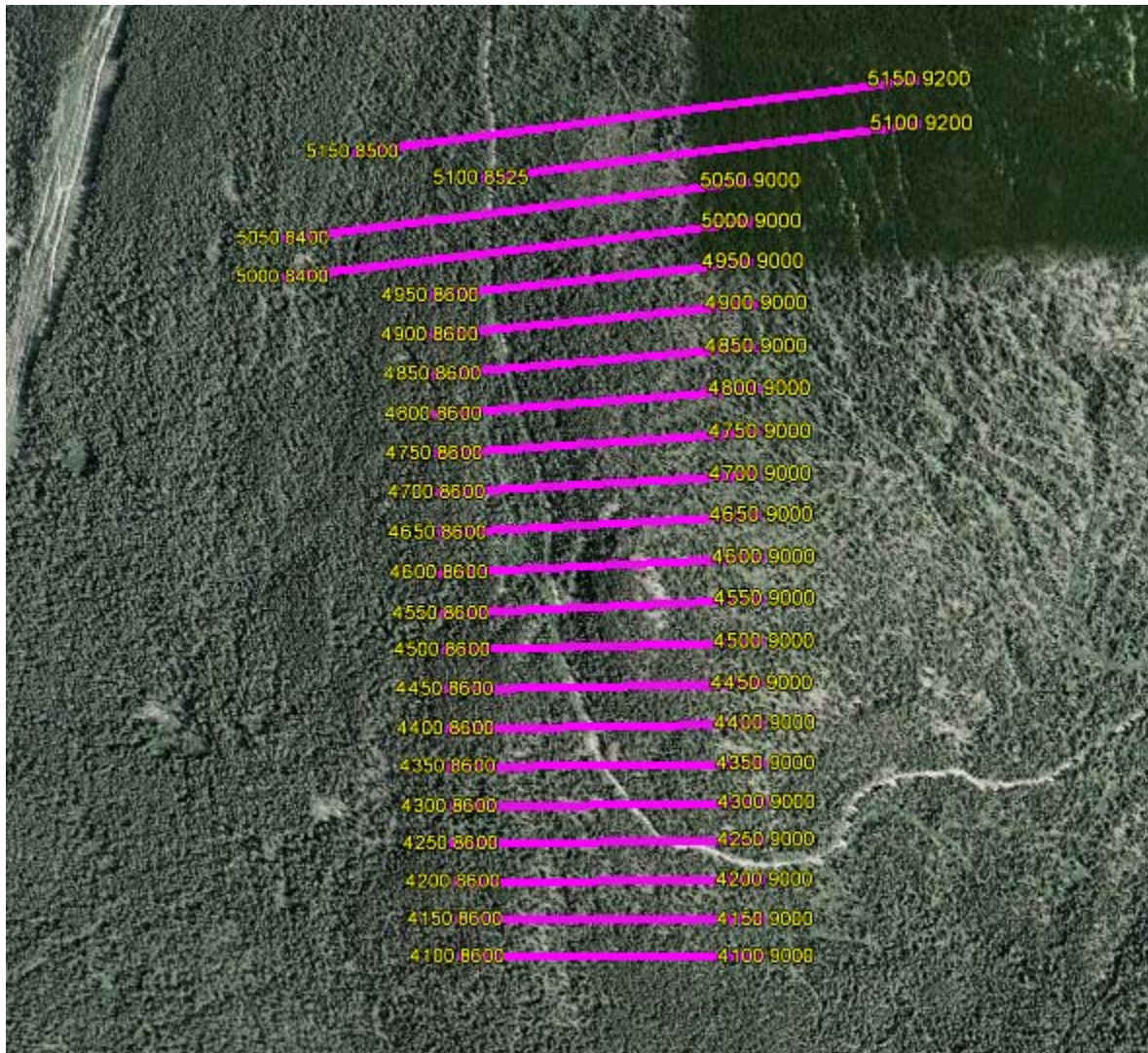
**Figure 1: Location of the Brook-4 Property**

### 1.3 ACCESS

The property can be accessed 30km south of Cranbrook along highway 3 then 40km west along a series of access roads to the survey area.

## 1.4 SURVEY GRID

The traversed lines were established using a GPS in conjunction with the execution of the survey. The GPS operator would establish sample locations while remaining approximately 12.5m in front of the magnetometer operator. GPS waypoints and magnetic samples were taken every 12.5m along these controlled traverses.



**Figure 2: Google Image of Traversed Area**

## 2. SURVEY WORK UNDERTAKEN

### 2.1 SURVEY LOG

DATE	LINE	MIN EXTENT	MAX EXTENT	TOTAL (m)
August 23, 2013	5100N	8675E	9200E	525
	5150N	8500E	9200E	700
August 24, 2013	4100N	8600E	9000E	400
	4150N	8600E	9000E	400
	4200N	8600E	9000E	400
	4250N	8600E	9000E	400
August 25, 2013	4300N	8600E	9000E	400
	4350N	8600E	9000E	400
	4400N	8600E	9000E	400
	4450N	8600E	9000E	400
	4500N	8750E	9000E	250
August 26, 2013	4500N	8600E	8750E	150
	4550N	8600E	9000E	400
	4600N	8600E	9000E	400
	4650N	8600E	9000E	400
	4700N	8725E	9000E	275
August 27, 2013	4700E	8600E	8725E	125
	4750E	8600E	9000E	400
	4800E	8600E	9000E	400
	4850N	8600E	9000E	400
	4900N	8600E	9000E	400
August 28, 2013	4950N	8600E	8700E	100
	4950N	9000E	9300E	325
	5000N	8700E	9300E	600
	5050N	8700E	9300E	600

**Table 1: Survey Coverage**

### 2.2 PERSONNEL

BA Belton of Rossland, British Columbia conducted all the data collection.



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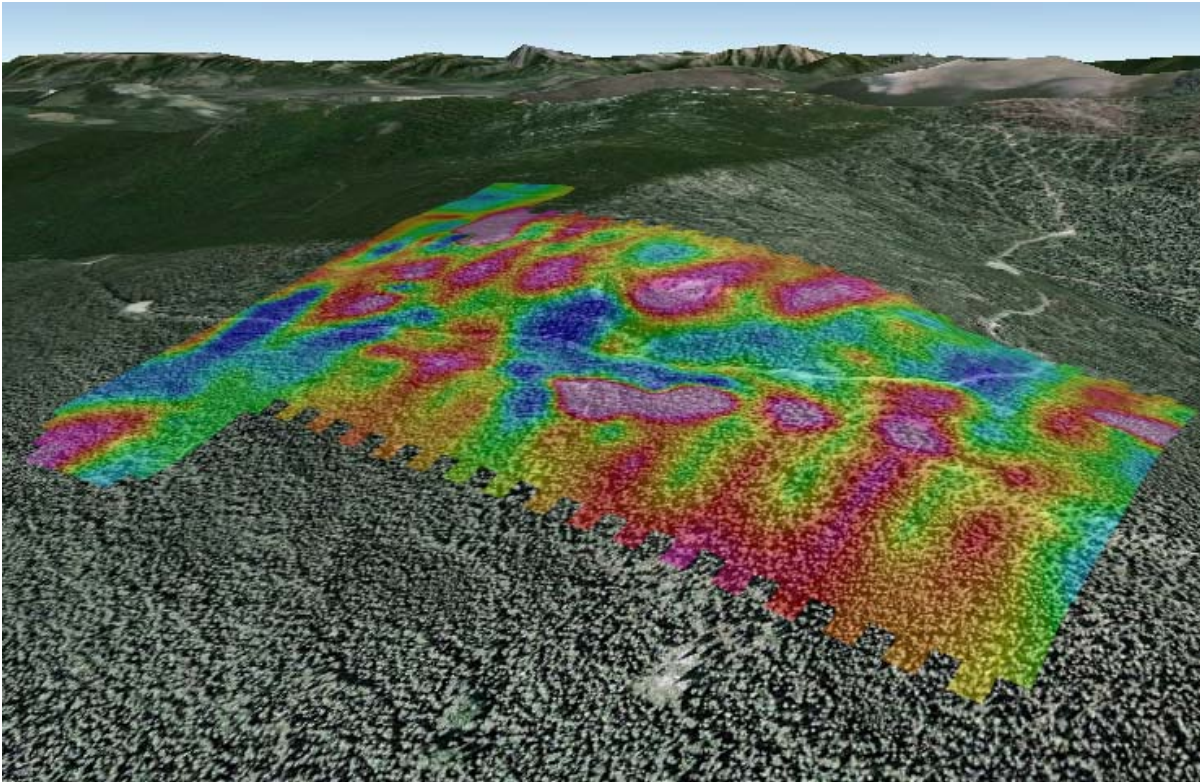
### **2.3 SURVEY SPECIFICATIONS**

The survey was conducted with a GSM-19 v7 Overhauser magnetometer with a second GSM-19 magnetometer for a base station mode for diurnal correction.

A total of 9.65 line kilometers of mag/VLF was read between August 23<sup>rd</sup> and 28<sup>th</sup>, 2013. This consisted of 772 simultaneous magnetometer/VLF (NLK and NML) samples at 12.5m sample intervals.

### 3. OVERVIEW OF SURVEY RESULTS

#### 3.1 SUMMARY INTERPRETATION



**Figure 3: Google image with Magnetic Overlay**

Generally little magnetic variation occurs over the survey area. Concern was originally raised at some striping that occurred based on direction of travel, however due to the small variation this striping is negligible.

Two weak north south magnetic signatures occur. These weak signatures appear to flank a magnetically depressed signature. Correlating with this magnetically depressed signature exists a weak VLF EM response. These may indicate a weak structural feature or intrusive feature striking through the area. This being said it may also represent a weak conductive horizon. This should be investigated further through prospecting to determine its source.

---

## APPENDIX A

### STATEMENT OF QUALIFICATIONS

I, C. Jason Ploeger, hereby declare that:

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C. Jason Ploeger, P.Geo., B.Sc.  
Geophysical Manager  
Canadian Exploration Services Ltd.

Larder Lake, ON  
October 29, 2013

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### GSM 19



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The unique Overhauser unit blends physics, data quality, operational efficiency, system design and options into an instrumentation package that ... exceeds proton precession and matches costlier optically pumped cesium capabilities APPENDIX C

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## APPENDIX D

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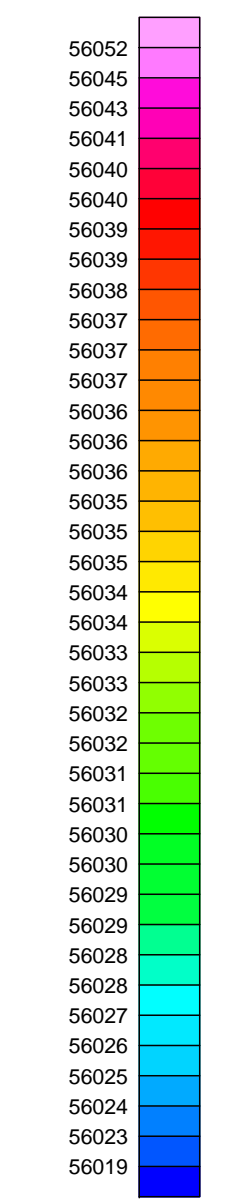
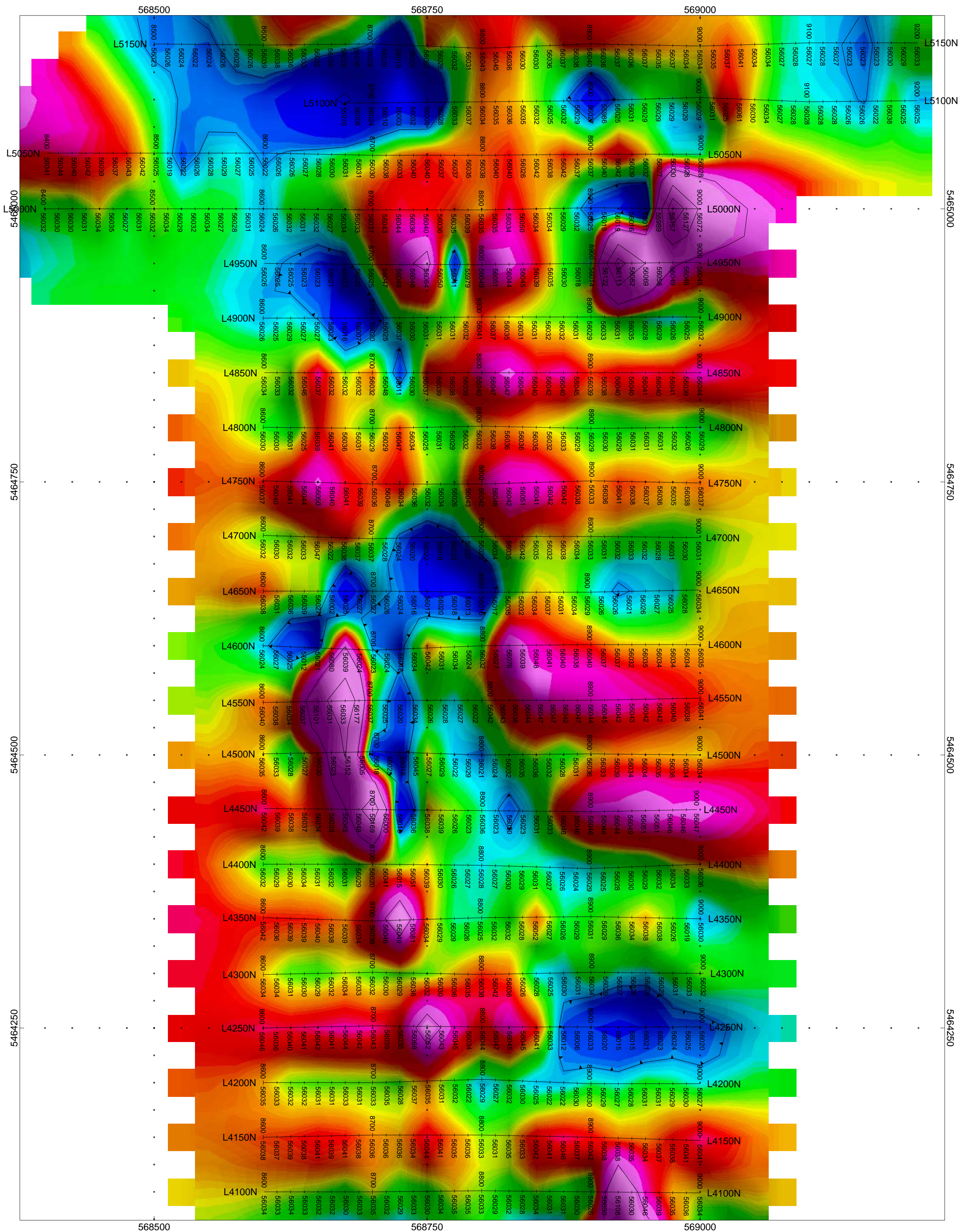
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- 3) KLONDIKE GOLD- BROOK 4-VLF-NML

Survey Area Location Map (1:10000)

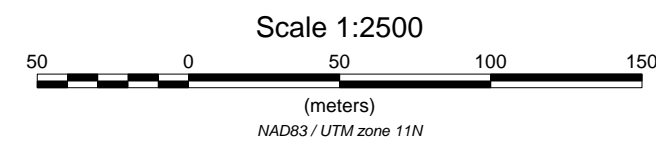
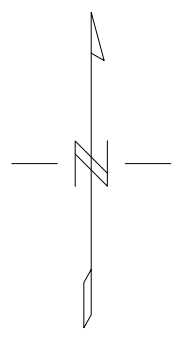
- 4) KLONDIKE GOLD- BROOK 4-GRID

**TOTAL MAPS=4**





Magnetometer  
nanoTesla (nT)

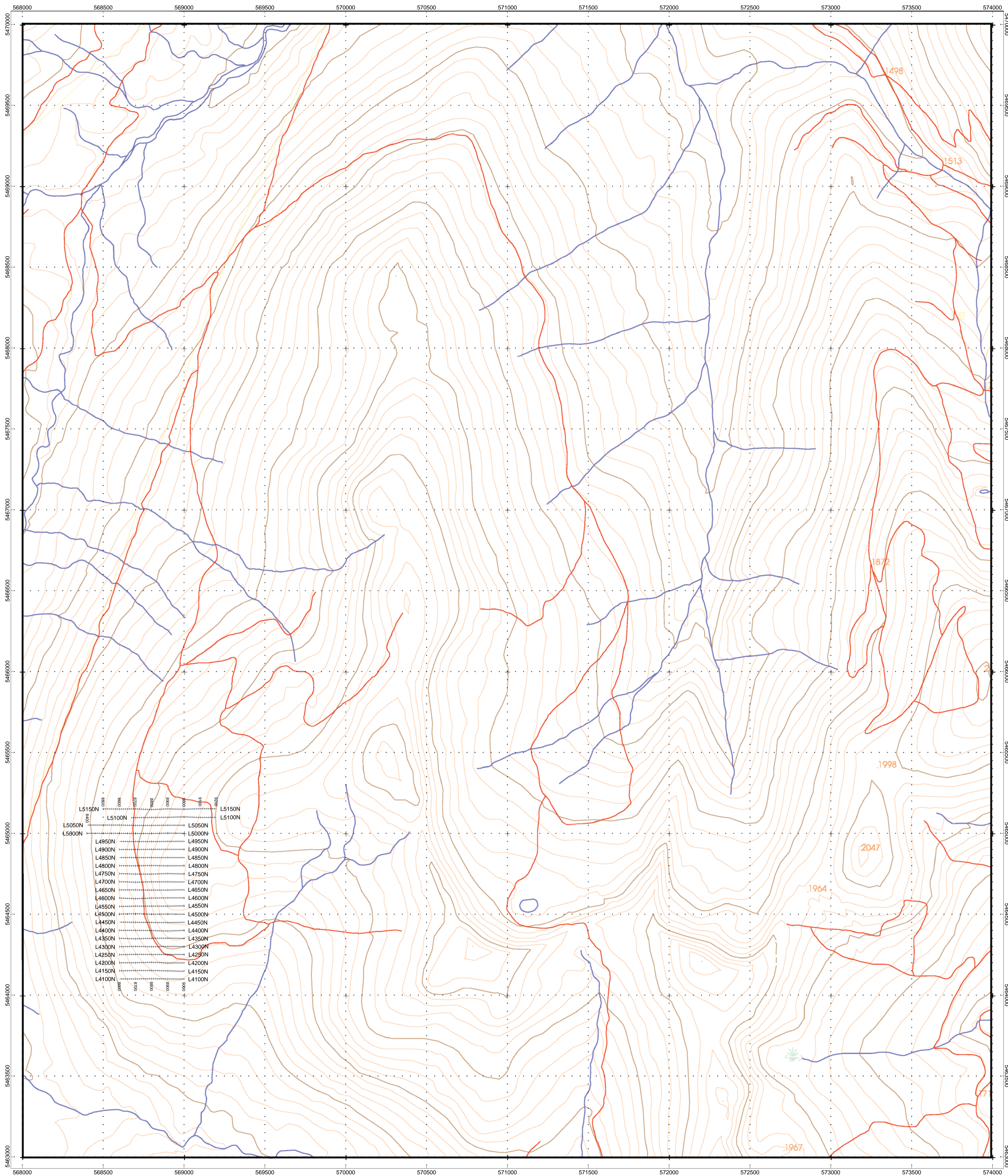


**BROOK 4 GRID**  
Cranbrook, British Columbia

TOTAL FIELD MAGNETIC PLAN MAP  
Base Station Corrected (568689E 5465034N)  
Posting Level: 0nT  
Field Inclination/Declination: 16.6degN/72.3degW  
Station Separation: 12.5 meters  
Total Field Magnetic Contours: 25nT  
GSM-19 OVERHAUSER MAGNETOMETER/LF v7

Magnetometer Operated by: BA Belton  
Processed by: C Jason Ploeger, B.Sc.  
Map Drawn By: C Jason Ploeger, B.Sc.  
October 2013





**BROOK 4 PROPERTY**  
Cranbrook, British Columbia

SURVEY LOCATION PLAN MAP

Magnetometer Operated by: BA Belton  
Processed by: C Jason Ploeger, B.Sc.  
Map Drawn By: C Jason Ploeger, B.Sc.  
October 2013



Drawing: KLONDIKE GOLD-BROOK 4-GRID