

**REPORT  
of  
GEOLOGICAL MAPPING AND  
MECHANICAL STRIPPING  
on  
GOLDEN CHALICE RESOURCES  
RADIO HILL PROPERTY  
TIMMINS WEST PROJECT  
PORCUPINE MINING DIVISION,  
NORTHEASTERN ONTARIO**



**December 6, 2008**

**J Kevin Montgomery, P. Geo.  
George Sparling**



## SUMMARY

The Radio Hill Property, held by Golden Chalice Resources, is situated 80 km southwest of Timmins, Ontario. It is comprised of 11 unpatented mining claims (1,827 hectares) in Penhorwood Township. It forms part of Golden Chalice Resources Timmins West Project.

Exploration work in 2008 consisted of diamond drilling and mechanical stripping on the Radio Hill Iron Formation. This was conducted to get a better geological understanding of the iron formation.

The mechanical stripping program consisted of removing overburden and exposing the Radio Hill Iron Formation in three areas on claim 3010209. After removal of overburden in the three areas, a bedrock washing program was initiated that required a water truck. Geological mapping of the three areas was conducted in late 2008.

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## **INTRODUCTION**

The Radio Hill Property is comprised of 11 contiguous unpatented mining claims (113 claim units) covering approximately 1,827 hectares in Penhorwood Township. The property is held 100% by Golden Chalice Resources.

Exploration work in 2008 consisted of diamond drilling (Hartley, 2008) and mechanical stripping on the Radio Hill Iron Formation. This was conducted to get a better geological understanding of the iron formation.

This report describes the geological mapping of areas that were mechanically stripped on the Radio Hill Property, in 2008.

## **PROPERTY LOCATION AND ACCESS**

The Radio Hill Property, held by Golden Chalice Resources is located 76 kilometres southwest of Timmins, Ontario (Figure 1). It is comprised of 11 mining claims (113 claim units totalling about 1,827 hectares) that covers west central Penhorwood Township.

The property is readily accessed by motor vehicle from Highway 101 West. The north-south trending Kukatush gravel road cuts through the central portion of the property. This road extends from Highway 101 to the Kukatush railroad siding on the CNR main line. A network of ATV and drill trails off the Kukatush gravel road gives further access to the property.

The main east-west rail line of the Canadian National Railway connecting eastern and western Canada transects the southwest corner of the Radio Hill Property, about 3 km south of the stripped areas on the Radio Hill Iron formation.

## **TIMMINS WEST PROJECT GEOLOGY**

The project lies within the Superior Province of Archean basement rocks, in the Eastern Canadian Shield. It is situated in the northeastern part of the Swayze Greenstone belt which appears to be the western extension of the Abitibi Greenstone belt.

The project area is predominantly underlain by southwest trending metamorphosed (greenschist) volcanics of the Muskego-Reeves Assemblage ranging from ultramafic to felsic. The mafic volcanics are pillowed to massive andesitic or basaltic flows. They are



Figure 1 Location Map

the dominant rock type on the property. Ultramafic volcanic flow units and/or intrusive sills trending east-west occur in the central portion of the property. They are intermixed with the mafic volcanics.

The east central portion of the project area is underlain by felsic volcanics of the Hanrahan Lake Complex that extend west from Kenogaming Township. The felsic volcanics are comprised of tuffs, lapilli tuffs, agglomerates and intermediate to felsic flows. They form the core of a major northwest plunging antiform fold. A fairly continuous iron formation known as the Nat River iron formation marks the boundary between the felsic volcanics and the mafic volcanics.

In the west portion of the project area (Radio Hill Property), metasediments consisting of greywackes and conglomerates occur. South of these metasediments, the geology consists of east-west trending mafic volcanic, ultramafic volcanic, metasediments and felsic volcanic units. In the central part of this east-west sequence is situated the Radio Hill iron formation. The Radio Hill iron formation has a historical resource, non 43-101 compliant, of a minimum of 158 million tons of banded chert-magnetite iron ore with an average grade of approximately 27.8% acid soluble iron outlined by Kukatush Mining Corporation in the 1960's (Hartley, 2008). South of the east-west trending sequence is the Kukatush Stock.

The north centre part of the project area is underlain by north-south trending ultramafic, mafic and felsic porphyry intrusive units that may be part of a layered complex. These intrusive units are interpreted to be sliced up by a series of northeast trending faults. In the southwest the Kukatush Stock (Biotite hornblende granodiorite) intrudes the volcanics and in the southeast the Kenogamissi Batholith (hornblende and/or biotite bearing granodiorite to tonalite gneiss). Smaller quartz-feldspar and feldspar porphyry intrusive bodies also occur in the project area. All the rock types are intruded by late north to north-northwest trending diabase dykes.

Three major faults cross cut the project, the east-west trending Destor-Porcupine, the east-west trending Jehann Lake Fault and the southwest trending Hardiman Bay Fault (see Figure 2).

## **DISCUSSION OF OVERBURDEN STRIPPING**

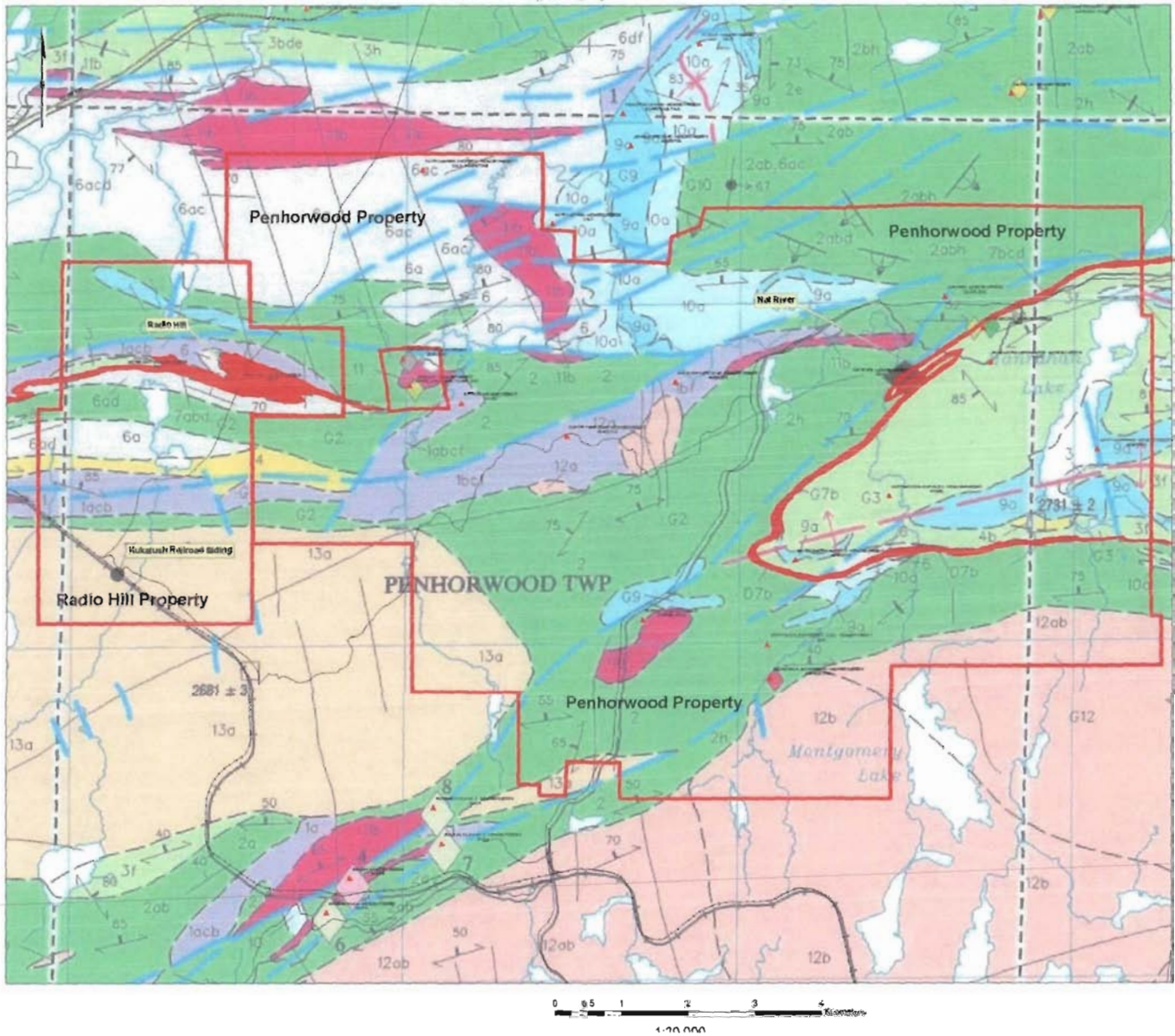
A mechanical stripping program to remove glacial overburden and expose bedrock was conducted on the Radio Hill Property from Sept 5 to Sept 17, 2008. This program was carried out on claim 3010209 (see Table 1).

The mechanical overburden stripping was done utilizing a 330 Excavator. It was carried



Figure 2 Timmins West Project Geology Map

**Golden Chalice Resources**  
**Timmins West Property (Radio Hill and Nat River Iron Zones)**



out by Larchex Inc. of Timmins Ontario. This was done from September 5 to 16, 2008. All bedrock of interest exposed by the excavator was washed by a high pressure water pump. This involved the utilization of a water truck for two days, as no significant source of water was available close to the stripped areas. The washing was carried out from September 12 to 17, by the following Golden Chalice Resources personnel; Daryl Sebesta and Damien Dmytrow all of Timmins Ontario. The overburden stripping and washing was supervised by Mr. George Ross of Timmins, Ontario.

**Table 1 Radio Hill Property Mechanical Stripping Daily Log**

Date	Claim No.	Work Completed	Unit Cost
Sept 5	3010209	Mob to Radio Hill	\$687.50
Sept 8	3010209	14 hours 330 excavator with operator	\$110/hr
Sept 9	3010209	16 hours 330 excavator with operator	\$110/hr
Sept10	3010209	16 hours 330 excavator with operator	\$110/hr
Sept11	3010209	16 hours 330 excavator with operator	\$110/hr
Sept12	3010209	16 hours 330 excavator with operator	\$110/hr
Sept15	3010209	16 hours 330 excavator with operator	\$110/hr
Sept 16	3010209	Demob to Timmins	\$687.50

Three areas were stripped of overburden on claim 3010209 (see Figure 3).

## **GEOLOGY OF OVERBURDEN STRIPPED AREAS**

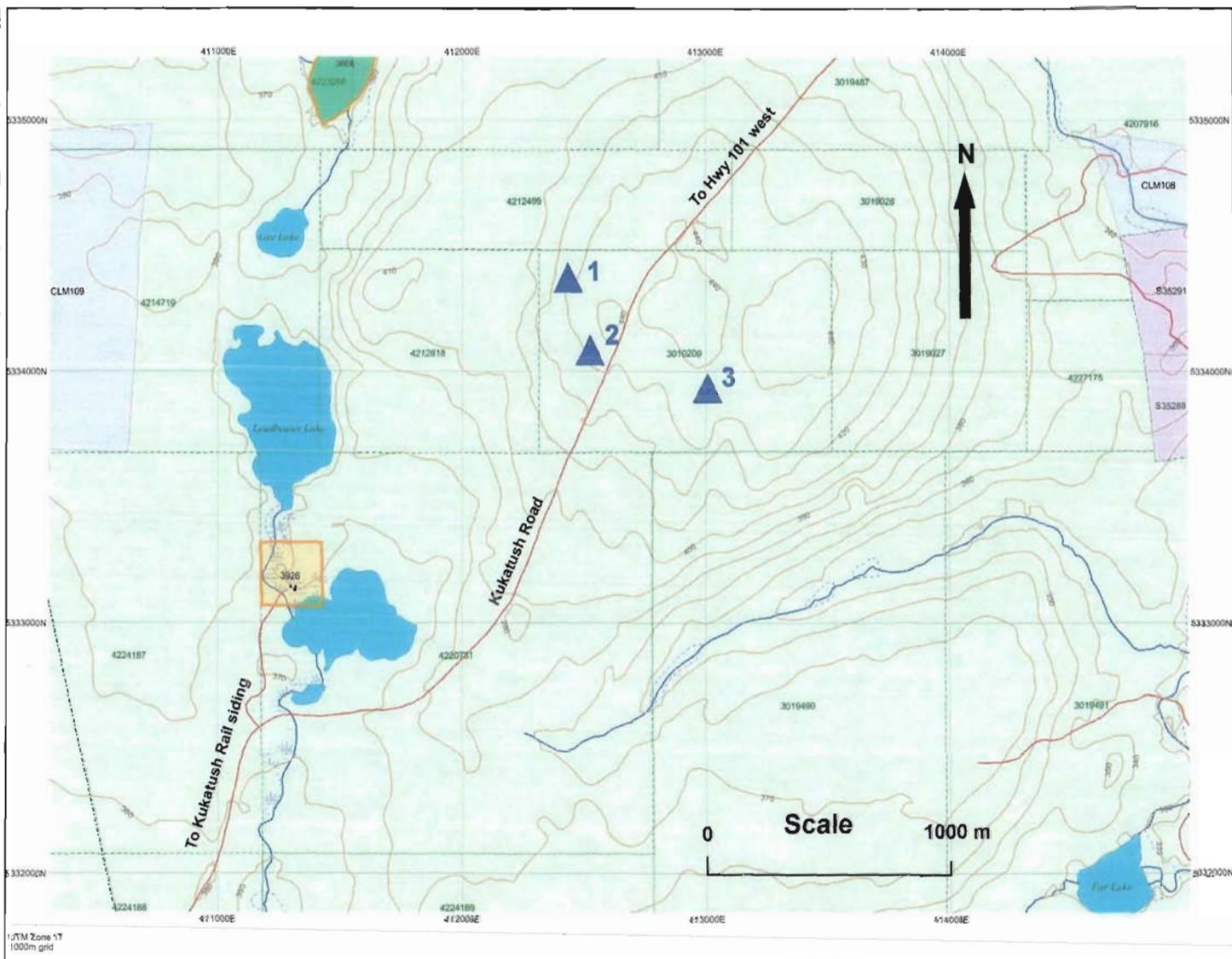
The sketch mapping and prospecting of the three stripped areas took place over three days from November 15-19, 2008. The three stripped locations are located in Penhorwood Township approximately 76 kilometers south west of Timmins Ontario. Access to the property is gained via highway 101W and then turning left and heading southbound on Kukatush road for approximately 6-8km and then turning onto the historical access roads. The three stripped locations are fairly tightly located with sites 1&2 being on the west side (roughly 200-300m from each other) and site 3 being located approximately 500m south on the east side of Kukatush Road. All of the stripped locations are located within claim# 3010209.

### **Overview of Work Performed**

The mapping and prospecting was completed by George Sparling (Geological Technologist) and Daryl Sebesta (Geological Technician). The purpose of the sketch mapping and prospecting was to obtain a greater understanding of the geological features unearthed by the mechanical stripping in and around the historical trenching and bulk sample area and to thoroughly prospect in and around the immediate perimeters of all three stripped locations. The poor weather conditions and accumulation of snow however both slowed and severely inhibited detailed geological mapping and also limited the



**Figure 3** Trenching Location Map



effectiveness of thorough prospecting. A GPS track was taken of all access roads leading to the stripped locations from Kukatush road and GPS co-ordinates were taken of any pertinent items such as historic trenches that litter the local landscape. All of the outcrops in the three stripped locations were fully covered by snow accumulation and had to be swept clean before work could begin, which also allowed the baseline and grid lines to be appropriately placed. A GPS, pace and compass and string box were used to establish a baseline across each of the three stripped locations with perpendicular grid lines set up every 20 meters. The end points of all the baselines and grid line were flagged and GPS co ordinates were taken (see maps). A GPS track was then completed around the perimeter of the stripped areas. The immediate area around the stripped areas was then thoroughly prospected uncovering several items such as historical pits/trenches, flagged locations and a claim post. The sketch mapping and geological interpretation of the exposed outcrops in the stripped locations was then performed by Mr. George Sparling. The outer mechanical stripped perimeter was sketched in all three locations. The geological boundaries of the out crops along with strike and dip measurements were taken of all visible geologic features and any mineralized sections were also noted. Historical trenches, drill holes and all access roads were then noted. Detailed notes were also taken of all tasks completed and items discovered, so that they can be followed up next field season.

### **Geological Overview**

The dominant rock type observed was a Hematite-Magnetite Iron Formation. The Iron Formation subdivided into four categories based on general geological occurrence of Iron Formations and historical drilling and mapping of the area. The categories are as follows Carbonate-Magnetite Iron Formation, Chert-Magnetite Iron Formation, Hematite-Magnetite Iron Formation and Limonite-Magnetite Iron Formation. The Limonite-Magnetite Iron Formation unit was added due to research of historical data that indicated it was a traceable unit from drill hole to drill hole. The rock is generally greyish black and reddish orange in color, fine to medium grained, hard to very hard (5-7 Mohs scale), and weakly to strongly magnetic with massive, dense, bedded, foliated, fractured and sheared sections. The outcrop exposure extends 40-90% of the stripped area with both poorly stripped areas and snow accumulation effecting more accurate estimates. It should be note that further outcrop exposure is noted in all directions around all three stripped locations. This is noted in historical documentation and was confirmed with perimeter prospecting. The overall trend of the Iron Formation is SW/NW 290-350 degrees with a steep 80-85 degree dip to the NE. Accuracy of strike and dip measurements were definitely affected due to the presence of magnetism (magnetite).

### **Location 1**

Stripped location # 1 was first visited on November 15, 2008 and work was completed on November 18, 2008 by Mr. George Sparling and Mr. Daryl Sebesta. The area was then prospected and sketch mapped. The start of the baseline (0 BL) was established at

5334245N 412425E and extends due north for 148m to the end of the baseline at 5334391N 412430E. A total of 9 east-west grid lines were established ranging from 8-44m in total length. A sketch map of the mechanically stripped area was completed and called location map #1. An access road from Kukatush road is show in the Southeast portion of the sketch map of Location #1. The access road continues in the Southwest portion of the map in meandering Southwesterly direction. Geological boundaries or visible outcrop exposure was determined and placed on the sketch map. The outcrop exposure is estimated to cover 60-75% of the stripped area. The greatest portion of visible outcrop is concentrated in the Southwestern part of the stripping with the extreme East parts and North parts of the stripped area under more overburden and thus decreased exposure is noted. The dominant rock type is a Carbonate-Magnetite Iron Formation labeled as 1a on the sketch map of location #1. Chert-Magnetite Iron Formation (1b) section is noted locally between grid line 20 and 40 on both the east and west parts of the grid. The Northeastern part of the grid is increasingly dominated by Hematite-Magnetite bedded Iron Formation (1c). Various strike and dip measurements were taken and noted of the strongly folded sections with local shearing 16m east of the baseline on gridline 60. A poorly stripped historical trench was also noted and called Trench A for mapping purposes on the sketch. Trench A extends N-S for roughly 110m on the eastern most side of the stripped area and ranges from 2-6m in width. Massive yellow-brown pyrite bands were observed in chert-magnetite bedded section at 5334312N 412429E.

## Location 2

Stripped location # 2 was visited on November 18, 2008 by Mr. George Sparling and Mr. Daryl Sebesta. The area was then prospected and sketch mapped. The start of the baseline (0 BL) was established at 5333984N 412480E and extends Northeast at 23 degrees for 100m to the end of the baseline at 5334073N 412519E. A total of 6 east-west grid lines were established ranging from 12-28m in total length. The historic Bulk sample/ Trench B area is roughly 85-90m long with a 4-5m average width and 1-2m depth. A sketch map of the mechanically stripped area was completed and called location map #2. An access road from Kukatush road is show in the Northeast portion of the sketch map of Location #2. Due to the size and depth of the previously mention Trench B/ Bulk sample area the stripping was limited to the eastern portion of the grid in which no visible outcrop was noted. The geological boundary was therefore set as the perimeter of the bulk sample/ trench B area. The dominant rock type is a Carbonate-Magnetite Iron formation labeled as 1a on the sketch map of location #2. Limonite-Magnetite Iron Formation is noted relative to shearing around the 50m mark of the baseline. Various strike and dip measurements of joint sets and local shearing were taken from the eastern side of the trench wall and noted on the sketch map of Location #2. Minor mostly cubic pyrite was noted in and around bedding throughout the trench walls.

### Location 3

Stripped location # 3 was visited on November 19, 2008 by Mr. George Sparling and Mr. Daryl Sebesta. The area was then prospected and sketch mapped. The start of the baseline (0 BL) was established at 5333915N 413001E and extends due north for 116m to the end of the baseline at 5334031N 413001E. A total of 6 east-west grid lines were established ranging from 44-53m in total length. A sketch map of the mechanically stripped area was completed and called Location map #3. An access road from Kukatush road is shown in the North Eastern portion of the sketch map of Location #3. Geological boundaries or visible outcrop exposure was determined and placed on the sketch map. The outcrop exposure is estimated to cover 80-90% of the stripped area. The dominant rock type is a Hematite-Magnetite Iron formation labeled as 1c on the sketch map of location #3. A poorly unearthed section of outcrop was called Carbonate-Magnetite Iron Formation in the most northeasterly portion of the grid. Limited strike and dip measurements were taken and noted due to poor weather conditions and significant snow accumulation. Please refer to sketch map of location #3 for strike and dip measurements. No visible mineralization was noted in any of the observed outcrops. An N-S drill road was established by Golden Chalice Resources to access drill targets in early to mid 2008. The center of the drill road was used to establish the zero point of the baseline. A rough sketch was made of Historic Trench and labeled Trench C on the sketch map for location #3. Trench C was located outside the mechanically stripped area but rough dimensions were taken and sketched onto the map. A N-S trench called Trench D was sketched in the south western portion of the grid. Trench D extends for roughly 50m until it begins to run E-W for roughly 24m and then returns to a N-S direction for roughly 16m. Two historic collars extend from the outcrop roughly 12m and 13m west of the baseline on gridline 60. The 2 drill holes were drilled from S-N at a dip of -55 to -60 with BQ and NQ sized drill rods.

## **CONCLUSION AND RECOMMENDATIONS**

The mechanical stripping program exposed three areas of bedrock on claim 3010209. Geological mapping of these three areas identified four different phases of the Radio Hill Iron Formation.

It is recommended that mini bulk sampling and metallurgical testing be conducted on these four phases to determine iron recovery and grades with modern technology. The studies conducted by Kukatush Mining in the 1970's are clearly out of date and non 43-101 compliant.

Expenditures for the mechanical stripping program, bedrock washing program and geological mapping of the stripped areas totalled \$ 31,234.43 (see Appendix A).

## **REFERENCES**

Hartley, C.

2008 Report on Diamond Drilling for Golden Chalice Resources on the Timmins West Project, Porcupine Mining Division, Northeastern Ontario.

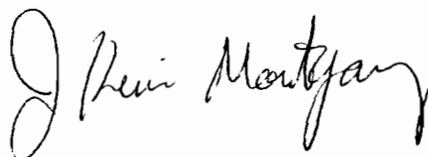


**CERTIFICATE OF QUALIFICATIONS**

I, J. Kevin Montgomery, of the City of Timmins, Province of Ontario, do hereby certify that:

- (1) I am a professional Consulting Geologist, residing at 1190 Lozanne Crescent, Timmins Ontario, P4P 1E8.
- (2) I hold a B.Sc. Honours degree in Geological Sciences (1984) from Queen's University of Kingston, Ontario and a M.Sc.(App.) in Mineral Exploration (1987) from McGill University at Montreal, Quebec.
- (3) I am a registered professional geoscientist with the Association of Professional Geoscientists of Ontario.
- (4) This report is based on my supervision of the trenching on the Radio Hill Property in 2007.
- (5) I have no personal interest in the property covered by this report.
- (6) Permission is granted for the use of this report, in whole or in part, for assessment and qualification requirements but not for advertising purposes.

Dated at Timmins, Ontario  
This 6th day of December, 2008.



J. Kevin Montgomery, P.Geo., M.Sc. (App.)

**APPENDIX A      CERTIFICATE OF EXPENDITURES**

Golden Chalice Resources  
Radio Hill Property  
Mapping & Trenching Program  
Porcupine Mining Division  
September 5, 2008 to December 6, 2008

**Mechanical Stripping Program**

Field supervisor (7 days)	\$ 2,450.00
Stripping	\$ 17,415.80
Truck Rental (7 days)	\$ 700.00

TOTAL \$ 20,565.80

**Bedrock Washing Program**

Field supervisor (1 day)	\$ 350.00
Two Geological technicians (3 days)	\$ 1,308.75
Water truck (2 days)	\$ 1,204.88
Truck Rental (3 days)	\$ 300.00

TOTAL \$ 3,163.63

**Geological Mapping**

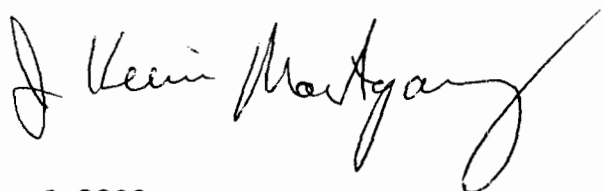
Senior Geological Technician	\$ 1102.50
Geological Technician	\$ 675.00
Truck Rental (3 days)	\$ 300.00

TOTAL \$ 2,077.50

Report Writing & Drafting of Maps	\$ 1,995.00
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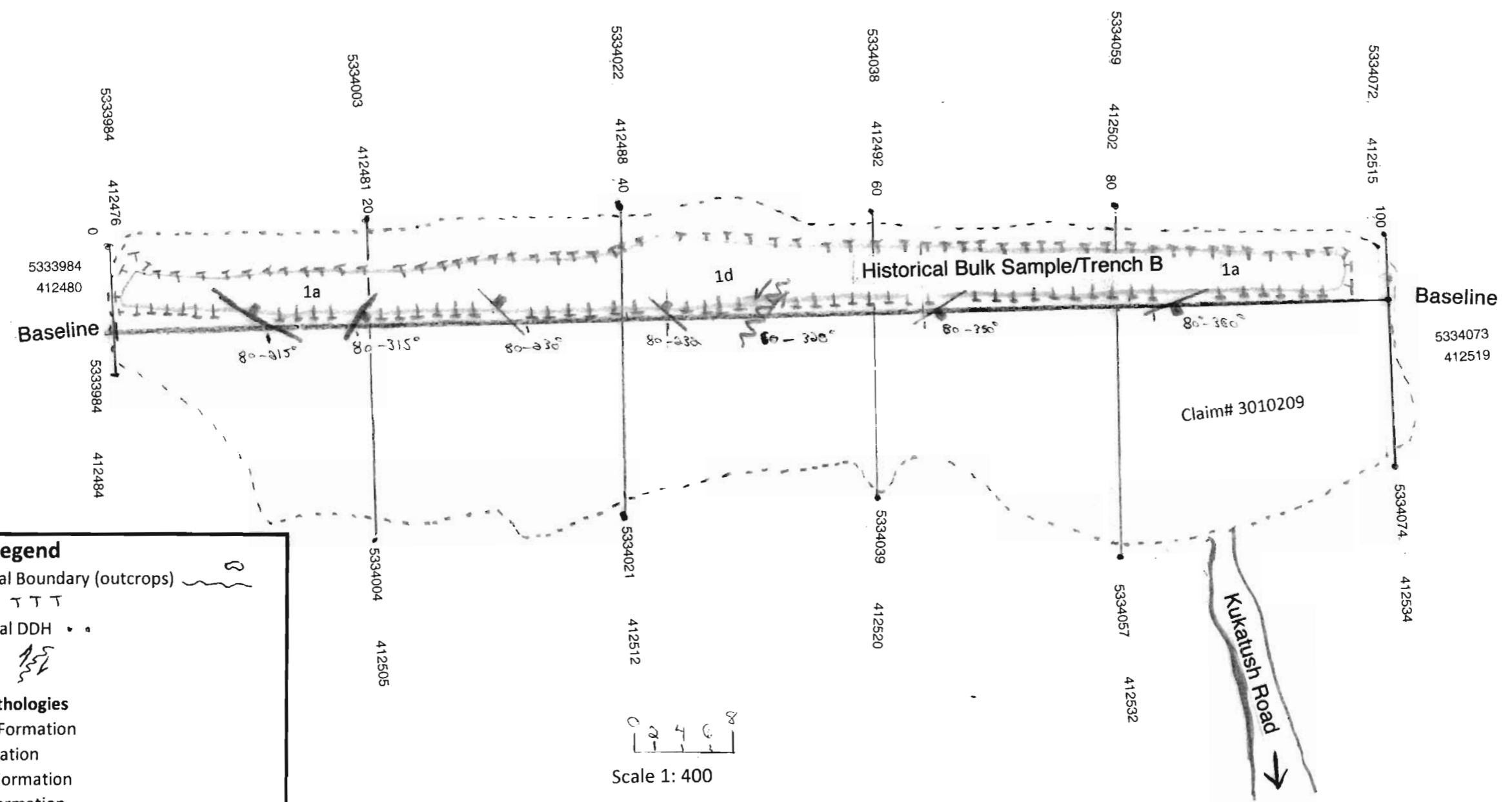
**TOTAL \$ 27,801.93**

Certified by:



Date: December 6, 2008

Note: This certificate has been constructed from the invoices submitted to Golden Chalice Resources.



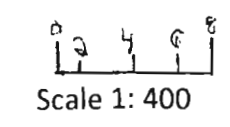
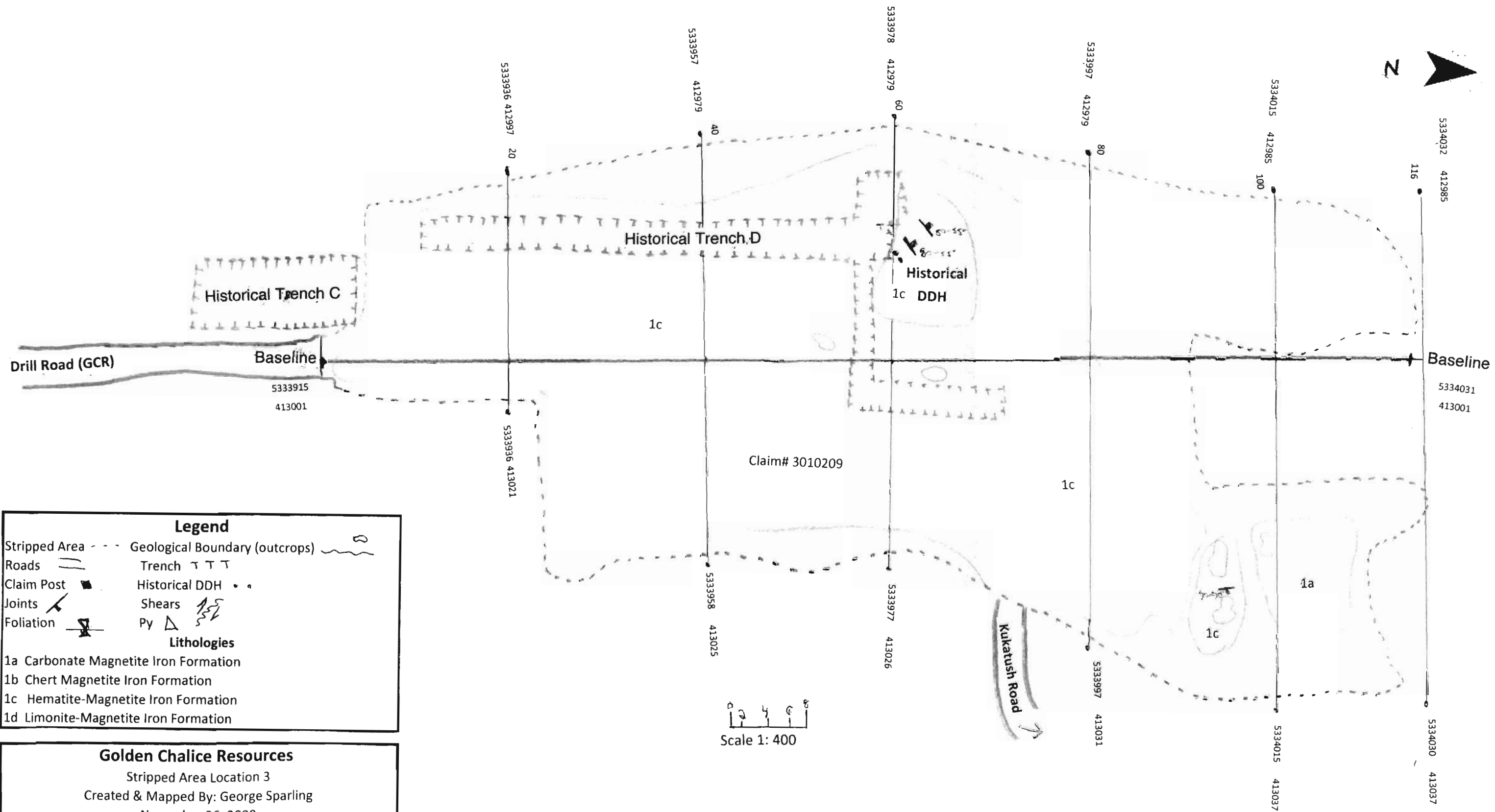
**Legend**

Stripped Area	Geological Boundary (outcrops)
Roads	Trench
Claim Post	Historical DDH
Joints	Shears
Foliation	Py

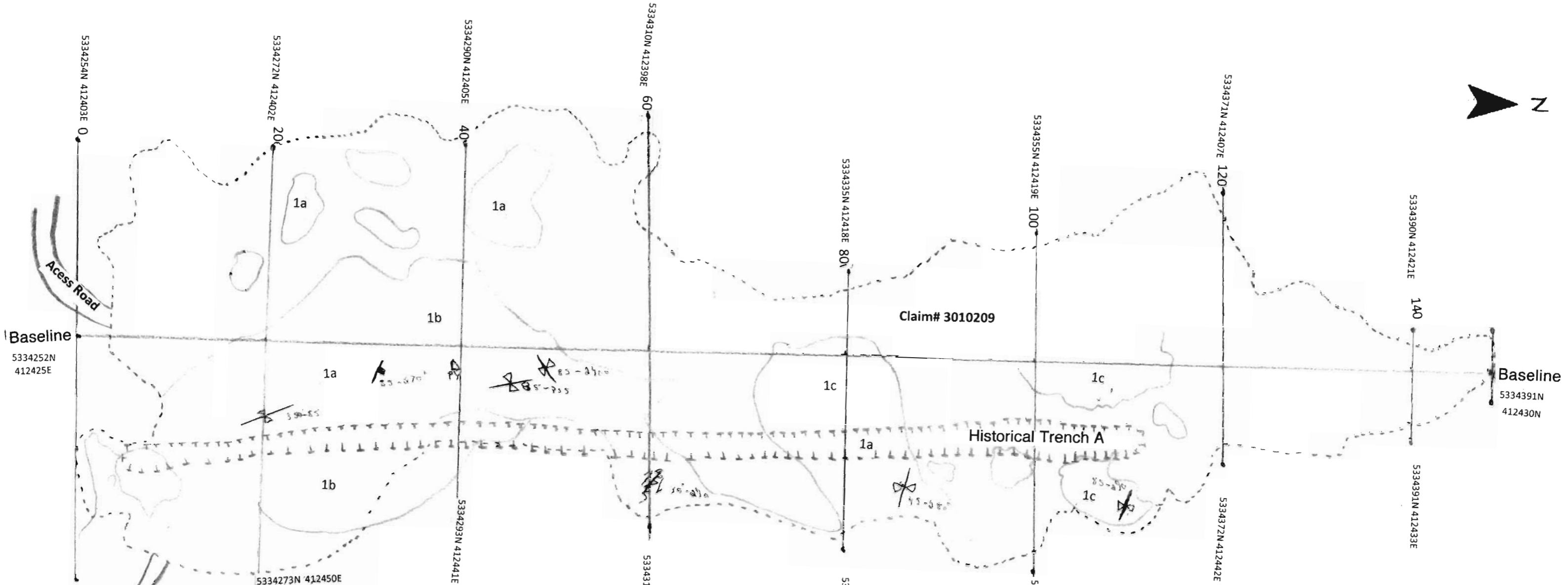
**Lithologies**

- 1a Carbonate Magnetite Iron Formation
- 1b Chert Magnetite Iron Formation
- 1c Hematite-Magnetite Iron Formation
- 1d Limonite-Magnetite Iron Formation

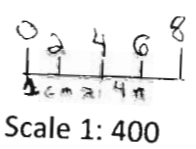
**Golden Chalice Resources**  
 Stripped Area Location 2  
 Created & Mapped By: George Sparling  
 November 26, 2008







Legend	
Stripped Area - - -	Geological Boundary (outcrops) ~~~~~
Roads ==	Trench T T T
Claim Post ■	Historical DDH •
Joints X	Shears <i>AS</i>
Foliation S	Py Δ <i>5</i>
Lithologies	
1a Carbonate Magnetite Iron Formation	
1b Chert Magnetite Iron Formation	
1c Hematite-Magnetite Iron Formation	
1d Limonite-Magnetite Iron Formation	



**Golden Chalice Resources**  
 Stripped Area Location 1  
 Created & Mapped By: George Sparling  
 November 26, 2008