



# GroundTruth Exploration Inc.

Box 70, Dawson YT, Y0B 1G0 (867) 993-5612

## GEOPHYSICAL REPORT on the Upper Coffee Creek Placer Prospecting Lease

Whitehorse, Yukon Territory

Lease No.: IW00384 – Owner: Tom Bokenfohr 100%

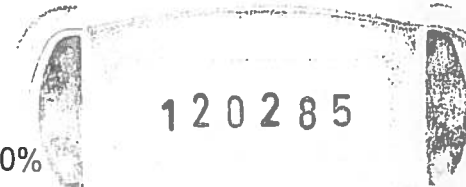
NTS # 115J/14

Latitude: 62° 51.4N Longitude: 139° 14.0 W

Whitehorse Mining District

WORK PERFORMED: September 19<sup>th</sup>, 2013

DATE OF REPORT: October 20<sup>th</sup>, 2013





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## Summary

A High Resolution Resistivity survey and coincident detailed Total Magnetic Field ground survey was conducted on the Upper Coffee Creek placer lease to map bedrock profile and classify overburden material. The lease is located 135km South of Dawson on the first major east flowing tributary of Coffee Creek which flows directly into the Yukon River (figure 1).

The survey was conducted by Groundtruth Exploration on September 19th, 2013. The property was accessed by helicopter based at the mouth of Coffee Creek. One resistivity profile was set up and read using 3 separate arrays. A detailed ground magnetic survey was ran for one day over the resistivity profiles at 25m line spacing parallel to the resistivity profile. The Resistivity Survey was read using a Supersting R84 resistivity meter with 84 electrodes spaced at 5m. The Magnetic survey was conducted using a GEM Systems GSM-19T Proton Magnetometer in 'walk mode', with a GPS tagged reading being recorded every 0.5 of a second.

The resistivity survey was successful in profiling bedrock depth and detecting permafrost depth interval. The detail mag survey was successful in focusing magnetic placer channel interpreted location over resistivity profile.

## 1.0 Location and Access

The prospecting lease is located 135km South of Dawson City within the Yukon river drainage system in west-central Yukon Territory. It is centered at 62° 51.4 N, 139° 14.0 W, on NTS mapsheet 115J/14 (Figure 1). It is accessible in winter on the Yukon river via snowmobile, and accessible by helicopter year round. Neighbouring Kaminak Coffee Camp is has a developed airstrip that can be utilized year round and is accessed seasonally by Barge from Minto Landing. Thistle Creek (~25km to the northwest) has active placer mines which are currently accessed from Dawson City by barge on the Yukon River to the mouth of Thistle creek.

## 2.0 Property

The Upper Coffee Creek Placer Prospecting lease Tenure:

Location: Upper Coffee Creek, IW00384

Length: 5 miles

Expiry: September 28/2013 (renewed)

(Figure 2)



140°0'0"W

130°0'0"W

120°0'0"W

70°0'0"N

70°0'0"N



**GroundTruth Exploration Inc.**

**Placer Lease Locator**

Figure:  
Figure 1

Prepared By: I. Fage

Date: Sept 25/13

Scale: 1 : 5,000,000

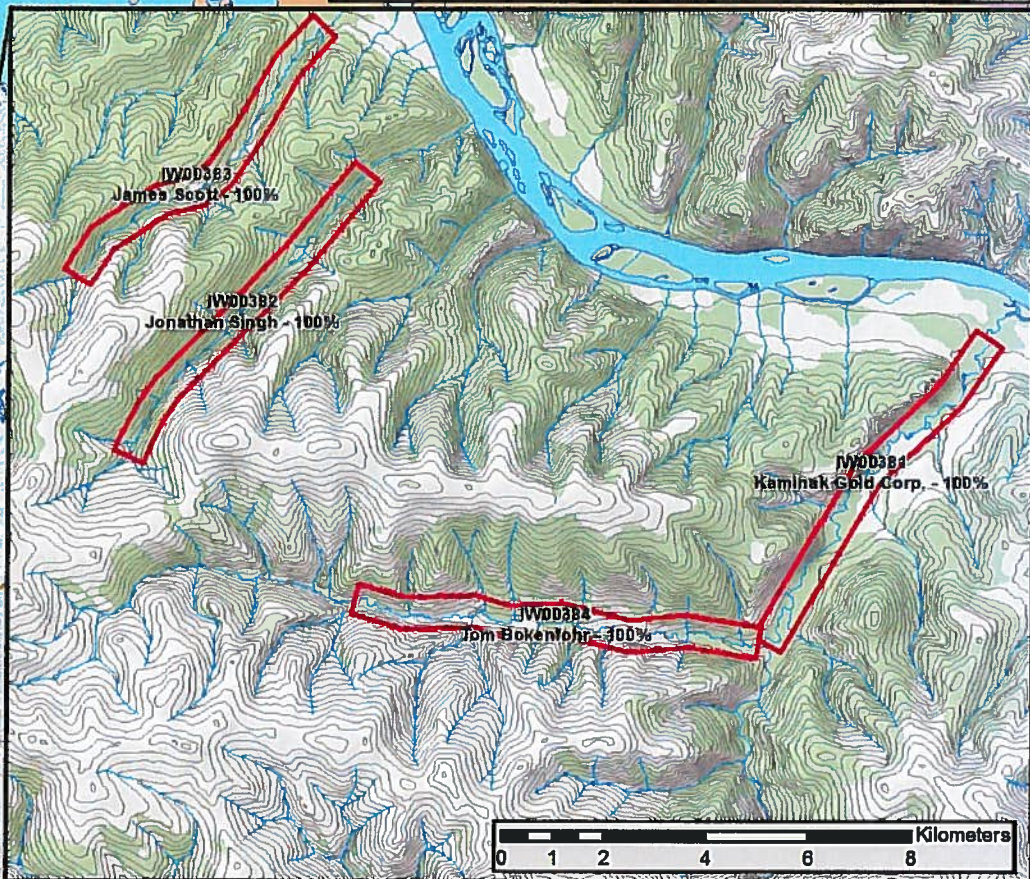
Datum: NAD83, Albers

65°0'0"N

65°0'0"N

60°0'0"N

60°0'0"N



Dawson

Mayo

Beaver Creek

Carmacks

Ross River

Haines Junction

Whitehorse

Watson Lake

0

100

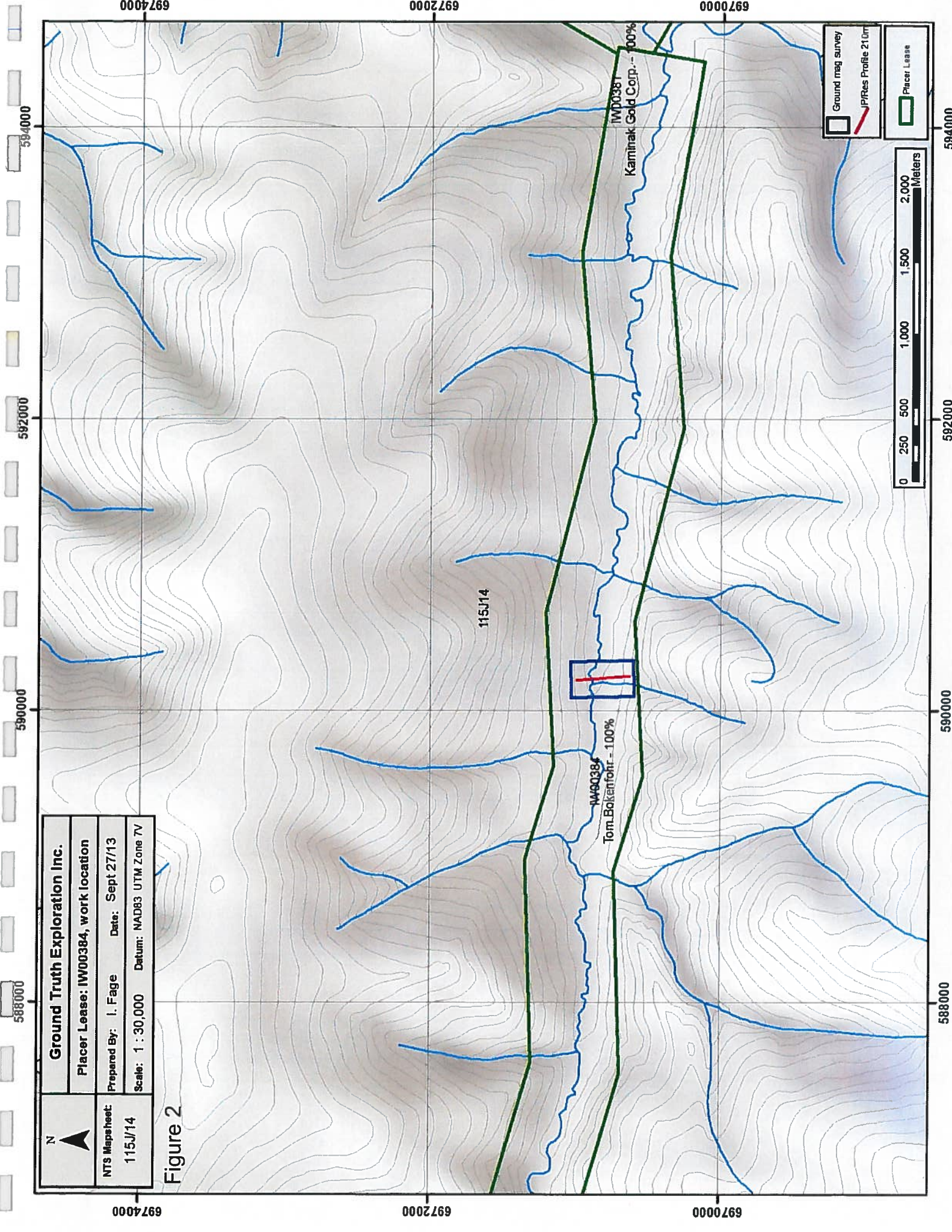
200

400 Kilometers

140°0'0"W

130°0'0"W





<p>N</p>	<p><b>Ground Truth Exploration Inc.</b></p>	
	<p>Placer Lease: IW00384, work location</p>	
<p>NTS Mapsheet: 115J/14</p>	<p>Prepared By: I. Fäge</p>	<p>Date: Sept 27/13</p>
<p>Scale: 1 : 30,000 Datum: NAD83 UTM Zone 7V</p>		

Figure 2



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## 3.0 Physiology and Geology

The Upper Coffee Creek placer prospecting lease is located within the Yukon-Tanana Terrane. The landscape is composed broad valleys bordered by moderately sloped, tree covered hills ranging in elevations from 1200 to 5000 feet. The area experiences typical climatic conditions for central Yukon Territory with short, warm and dry summers and cold winters. Temperatures range from -20°C to -60°C in the winter and +10°C to +30°C in the summer.

The downstream portion Upper Coffee Creek placer lease is underlain by a Devonian-Mississippian metamorphic unit and crosses a contact into the Coffee Creek Granite. (See Figure 3).

### Legend for Figure 3: Regional Geology:

#### Devonian-Mississippian

<b>DMN3</b>	<b>DMN3:</b> NASINA: quartzite, micaceous quartzite, quartz muscovite (chlorite; feldspar augen) schist, and minor metaconglomerate and metagrit as in (1), but may locally include significant Nisling Assemblage
-------------	--

#### Early Jurassic

<b>EJgA</b>	<b>EJgA:</b> AISHIHIK SUITE: medium- to coarse- grained, foliated biotite-hornblende granodiorite; biotite-rich screens and gneissic schlieren; foliated hornblende diorite to monzodiorite with local K-feldspar megacrysts; may include unfoliated monzonite of the Long Lake Suite (Aishihik Suite)
-------------	--

<b>EJqL</b>	<b>EJqL:</b> LONG LAKE SUITE: massive to weakly foliated, fine to coarse grained biotite, biotite-muscovite and biotite-hornblende quartz monzonite to granite, including abundant pegmatite and aplite phases; commonly K-feldspar megacrystic (Long Lake Suite)
-------------	---

#### Upper Cretaceous

<b>uKC1</b>	<b>uKC1:</b> CARMACKS: augite olivine basalt and breccia; hornblende feldspar porphyry andesite and dacite flows; vesicular, augite phyric andesite and trachyte; minor sandy tuff, granite boulder conglomerate, agglomerate and associated epiclastic rocks (Carmacks Gp., Little Ridge Volcanics, Casino Volcanics)
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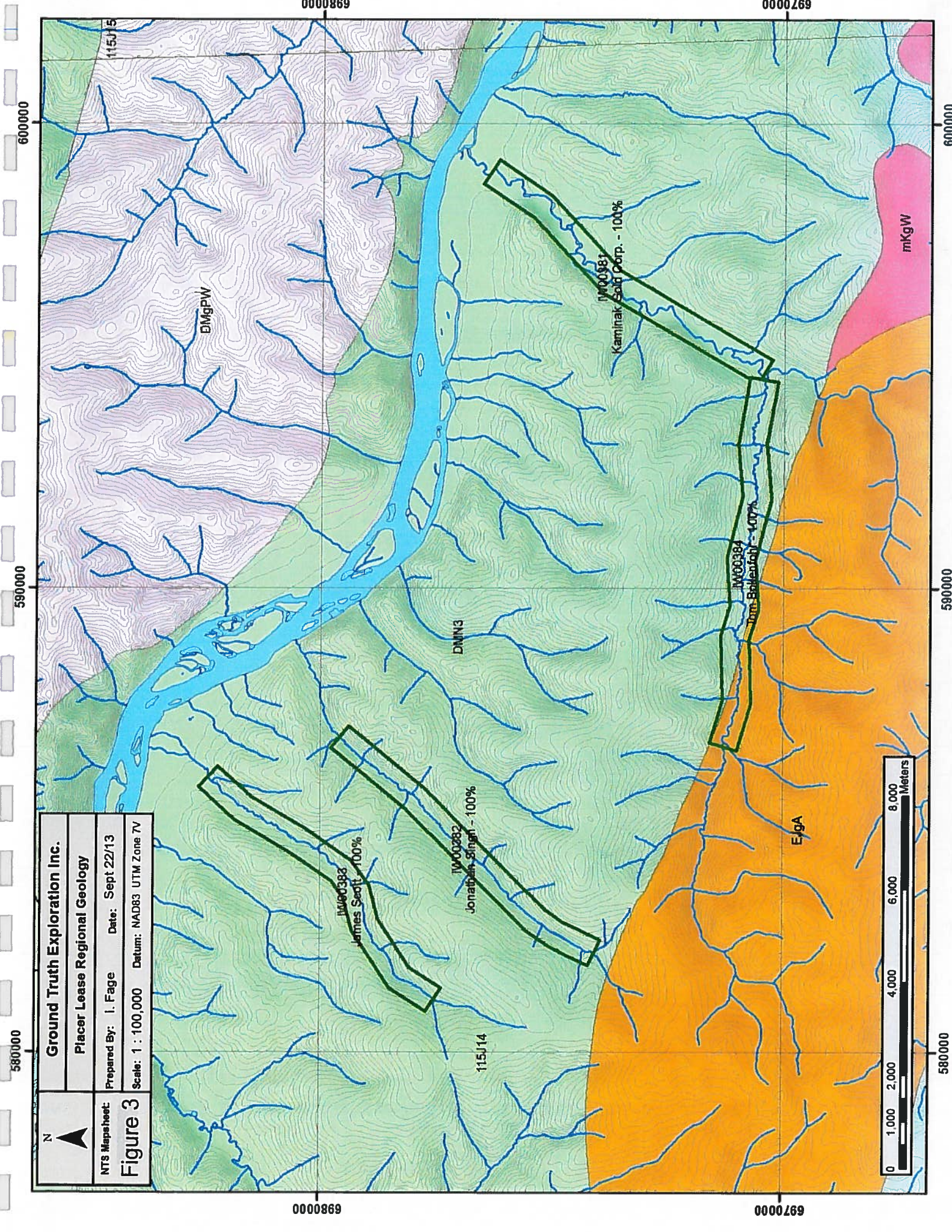




**Ground Truth Exploration Inc.**  
**Placer Lease Regional Geology**

Prepared By: I. Fage    Date: Sept 22/13  
Scale: 1 : 100,000    Datum: NAD83 UTM Zone 7V

**Figure 3**



0000869

6970000

11515

600000

600000

590000

590000

DMgPw

NW00381  
Kaminak Gold Corp. - 100%

mKgW

NW00382  
James Scott - 100%

NW00384  
Jonathan Singer - 100%

11514

EjgA



580000

580000

0000869

6970000





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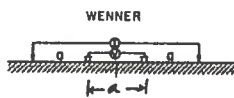
## 4.0 Resistivity Survey Procedure(s)

Ground Truth crews used a 206-L helicopter based out of the Coffee Project camp to gain access to the placer leases surveyed. The pre-arranged traverses were located using Ashtech GPS, then cut & chained at 5M, for the 420m traverses.

The DC Resistivity survey was completed using Advanced Geoscience Inc., Supersting instrument (Instr. specs. Addendum). The instrument is placed at a center point of the traverse; referred to as **electrode #42**, with 42 electrodes on either side. The Supersting gathered apparent Resistivity component only, using the following arrays:

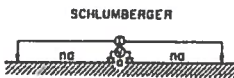
1. Schlumberger Inverted **Si3 Array** (with expanding AB and MN dipoles)
2. Schlumberger Inverted **Si2 Array** (with expanding MN only)
3. Extended Dipole Dipole **xDD**

The equipment comprises; Supersting (combined transmitter/ receiver), switch box, motor generator with 6 x 14 electrode cable = 84 electrodes.



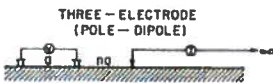
$$\rho = 2\pi \frac{V}{I} a$$

When doing small A spacings <3M, the stainless electrodes are put into the ground at a lesser depth to help avoid coupling.



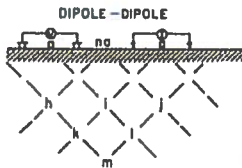
$$\rho = \pi \frac{V}{I} n(n+1)a$$

Contact Resistances (CRS) are the governing factor for collecting good data, giving high Signal/Noise ratio.



$$\rho = 2\pi \frac{V}{I} n(n+1)a$$

CRS are taken before survey, and attempts always put forward to keep them below the 2 kohm threshold when doing IP effects simultaneously.



$$\rho = \pi \frac{V}{I} n(n+1)(n+2)a$$

The traverse is also surveyed using differential GPS to produce an accurate terrain file, for post processing.

The survey result is presented here-in using Earth Imager, and Surfer software.

### 4.1 Resistivity Survey Theory Applied to Placer Exploration

High Resolution DC Resistivity surveys can be applied to placer exploration by exploiting unique petrophysical properties of overburden and bedrock material. Measurement of the apparent resistivity at depth on continuous profiles provides a method to discriminate between overburden (muck/gravel) and bedrock interface. The results are mapped in symbolized section figures and interpreted. Ideally these interpretations should be validated by drilling or test pits to confirm the resistivity based interpretation.





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## 5.0 Magnetic Survey Procedure

The Equipment necessary to complete the survey consisted of:

Magnetometer Field Unit:	GEM Systems GSM-19T Proton Magnetometer
Base Station:	GEM Systems GSM-19T Proton Magnetometer
Data Processing	Laptop Computer
Software:	GEM Systems proprietary magnetometer upload, download software, MapInfo mapping software, Oziexplorer for grid planning and GPS interface.
Grid Establishment:	Garmin map76cx GPS (x3) Machete, Flagging, Marker

The magnetometer survey was conducted according to the following specifications:

Field Magnetometer Observation Frequency: 1 reading per 0.5 of a second.

Base Station Magnetometer: Set to record an observation every 20 seconds for the duration of the survey.

Levelling: None required

### 5.1 Magnetic Field Theory Applied to Placer Exploration

In a placer setting, magnetite derived from bedrock weathering is concentrated in the main channel of a creek or river where the water flow has the highest velocity and the greatest turbulence. As a result, minerals with high specific gravity (magnetite, ilmenite, gold, etc.) are preferentially concentrated in this region of the stream, while material with lower specific gravity is winnowed from the sediment. High concentrations of "black sand" (magnetite, ilmenite, chromite) are often recorded in auriferous pay streaks where the stream bed has remained relatively immobile from some period, permitting hydraulic concentration to build up a significant volume of these materials.

The materials comprising black sand are magnetically susceptible. Magnetite has a very high magnetic susceptibility of  $1200-19200 \times 10^{-3}$  SI units, ilmenite ranges from  $300-3500 \times 10^{-3}$  SI units, and chromite measures from  $3-1100 \times 10^{-3}$  SI units. Average magnetic susceptibilities for sedimentary, igneous (excluding ultramafic) and metamorphic rocks are: 0-10, 3-160 and 0-70 x



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$10^{-3}$  SI units respectively. Fluvial sediments register magnetic susceptibility in the range of  $0-2 \times 10^{-3}$  SI units. There is consequently a significant susceptibility contrast between gravels enriched with black sand and average gravels/ underlying bedrock.

## 6.0 Resistivity and Magnetic RESULTS

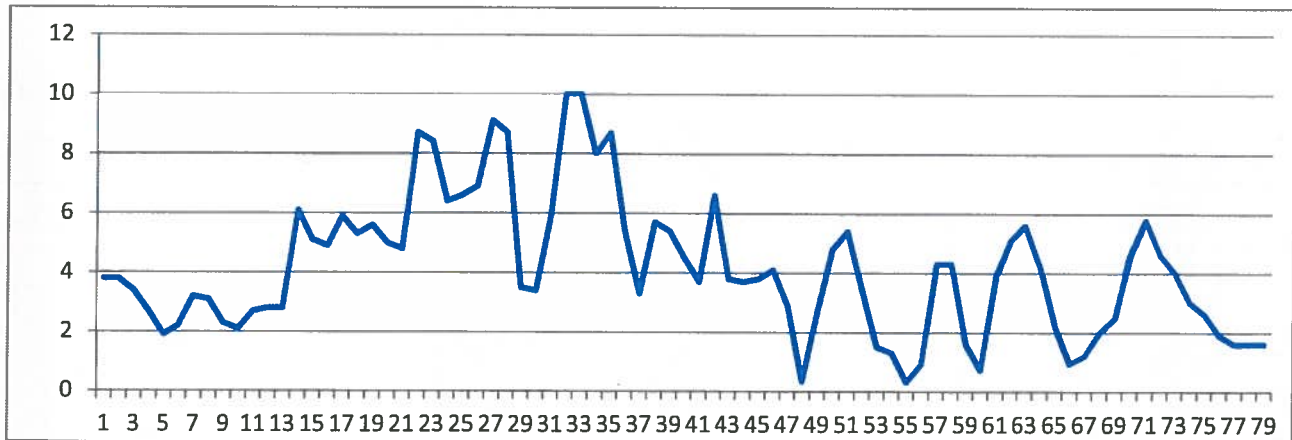
### DC Resistivity Surveys:

Survey 1: 84 Electrodes spaced at 5, 420m horizontal length

Arrays Read:

- (1) Inverse Schlumberger (Si3A),
- (2) Inverse Schlumberger (Si2A)
- (3) Extended Dipole-Dipole (xDD)

### Contact Resistance: Upper Coffee Resistivity Survey



CONTACT RESISTANCES (CRS) in Kohm's/3M (measured by electrode # 1-84)

Electrodes 1-52 were all positioned into ice found below a thin layer of moss cover. The Highest CRS were supplemented by doubling electrodes. Electrodes 1,2 and 4 were removed due to noise. Mean contact resistance was 4.3 kohms.





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Photos from Field survey on Upper Coffee  
Resistivity survey.

## **6.1 DC Resistivity Results and Interpretation:**

A prominent structural feature along the valley influences the survey impeding the delineation of horizontal impacts, under the creek and from 275 to 415N on all three surveys. The surficial geology is superposed by permafrost (ice) from 0 to 270N along the section. The apparent resistivities from 2000 to 3000 ohm's/ 5M appear to mark the transition between the surficial geology and Tertiary bedrock.

The Si2 and Si3 arrays are variations of the Inverse Schulmberger array. The xDD array collects an extremely high density dataset in Dipole-Dipole array. All arrays were successful in discriminating the highly resistive permafrost overburden layer over bedrock. It is observed that the Si3 array is favouring responses from underlying bedrock while the xDD array is favouring effects near surface from overburden and bedrock interface.

The creek is found at 255m along profile. Resistivity indicates deeper overburden on the south side of creek from 0-255m along profile. Depth of permafrost overburden is estimated at 10-20m on south side of creek. The Si3 array shows a sharp vertical resistivity structure at 210m suggesting a possible bedrock contact or fault. The profile section on north side of creek suggests shallow bedrock near surface. Ground was observed to be frozen at surface and interpreted to be permafrost to bedrock on south side of creek.

(See interpretation Figures 4-6)

Figure 4

# KAMINAK Gold Corporation

DC Resistivity Imaging  
Scumberger Inverted Array  
AB=5, 15m MN=expanding

Placer Lease IW 00384 (Coffee Creek)

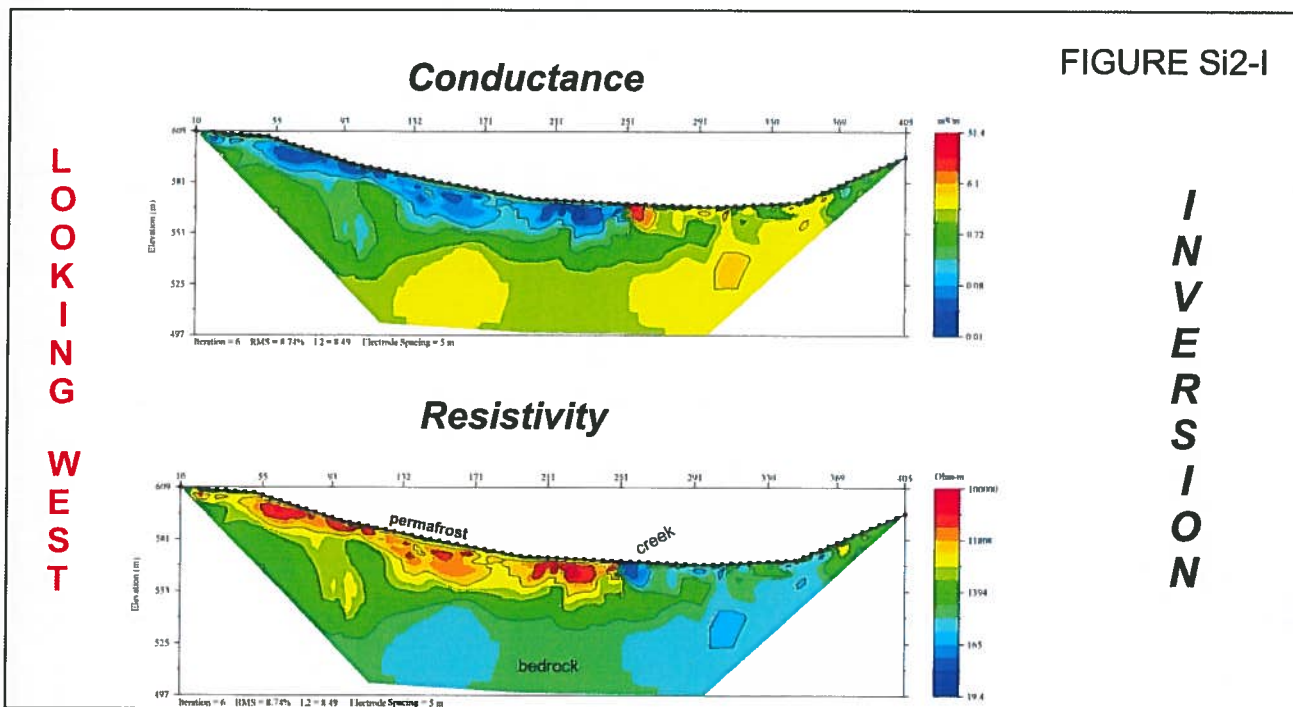


FIGURE S12-1

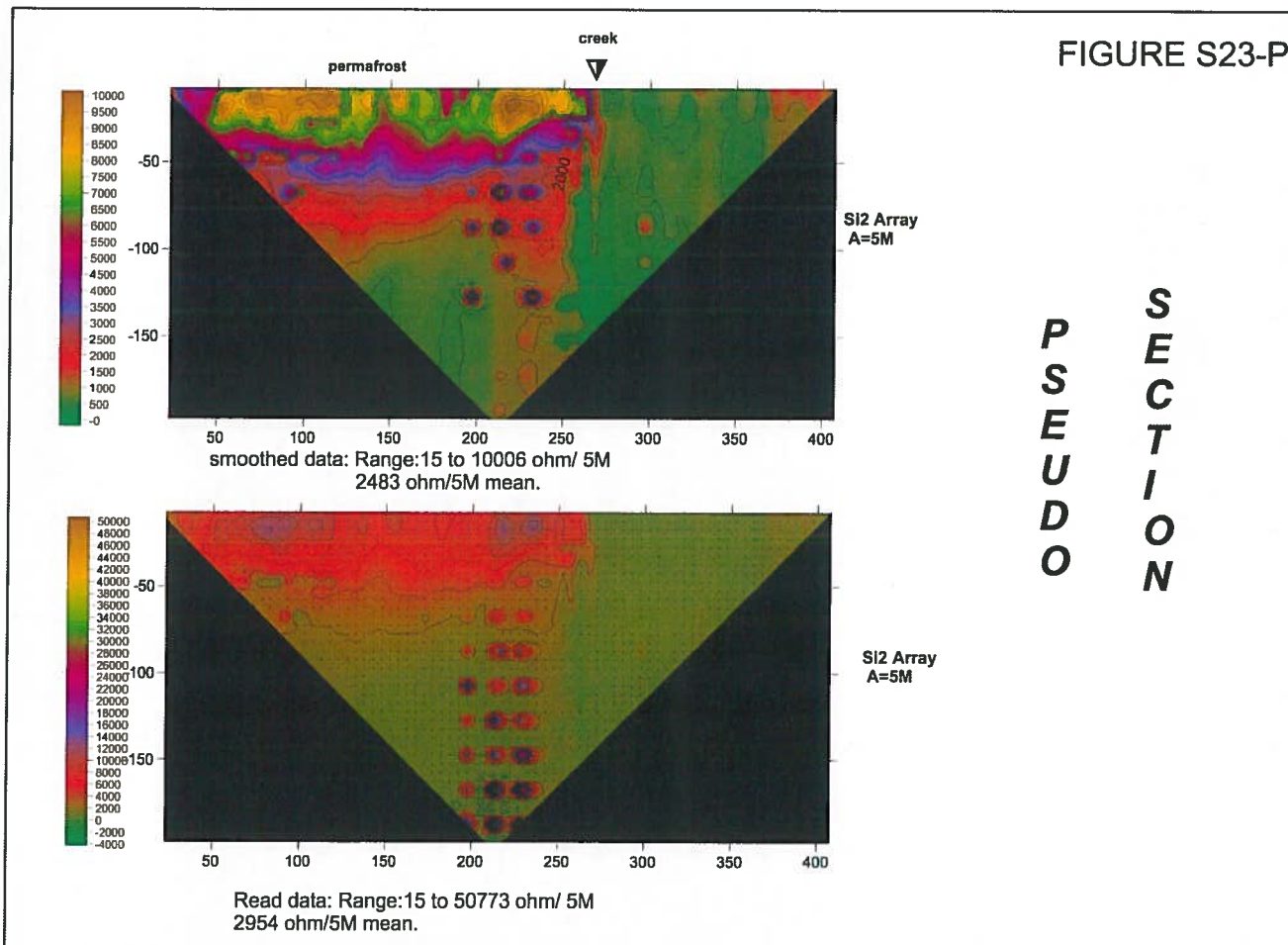


FIGURE S23-P



Figure 5

# KAMINAK Gold Corporation

DC Resistivity Imaging  
Slumberger Inverted Array  
AB=expanding MN=expanding

Placer Lease IW 00384 (Coffee Creek)

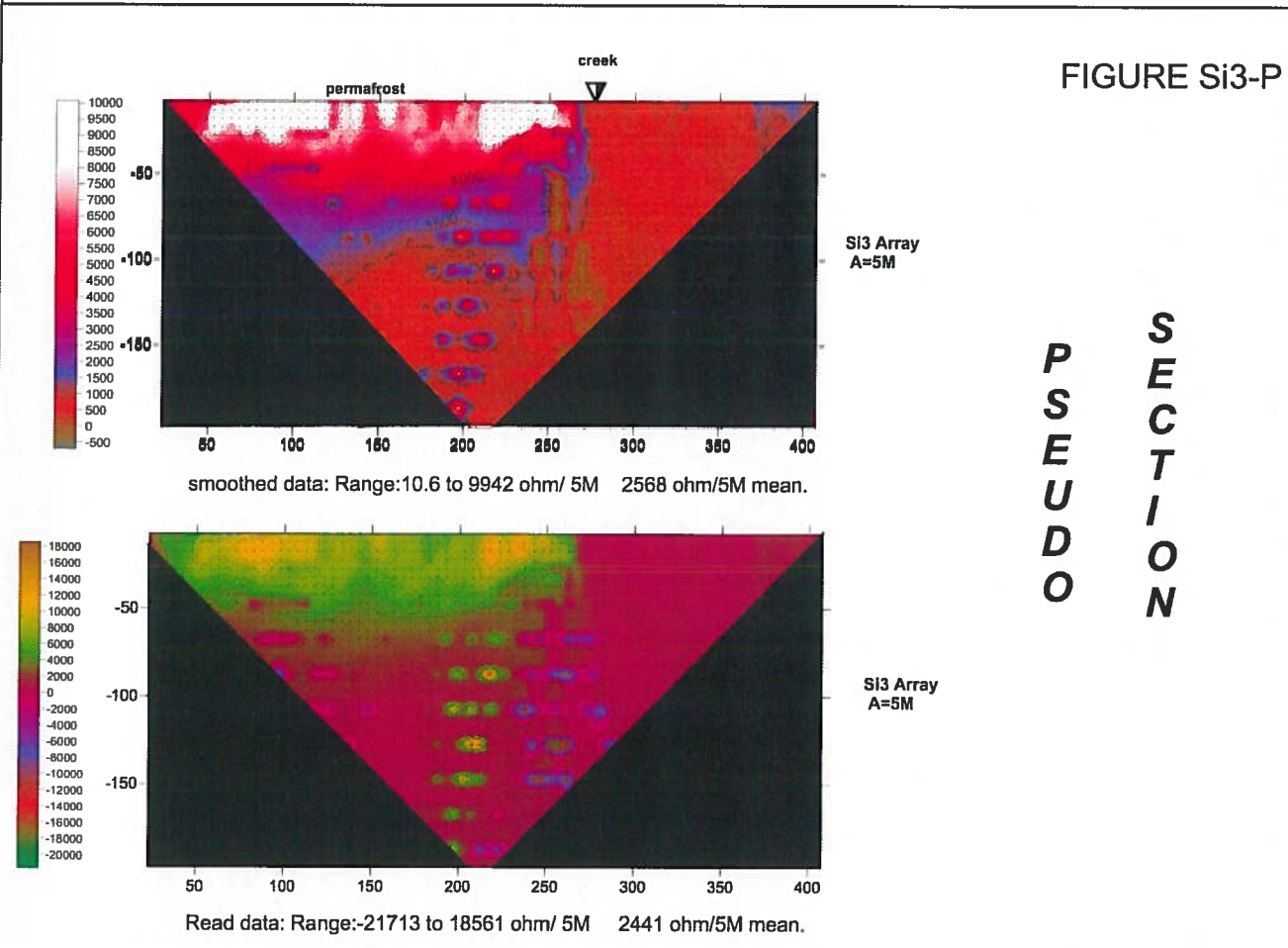
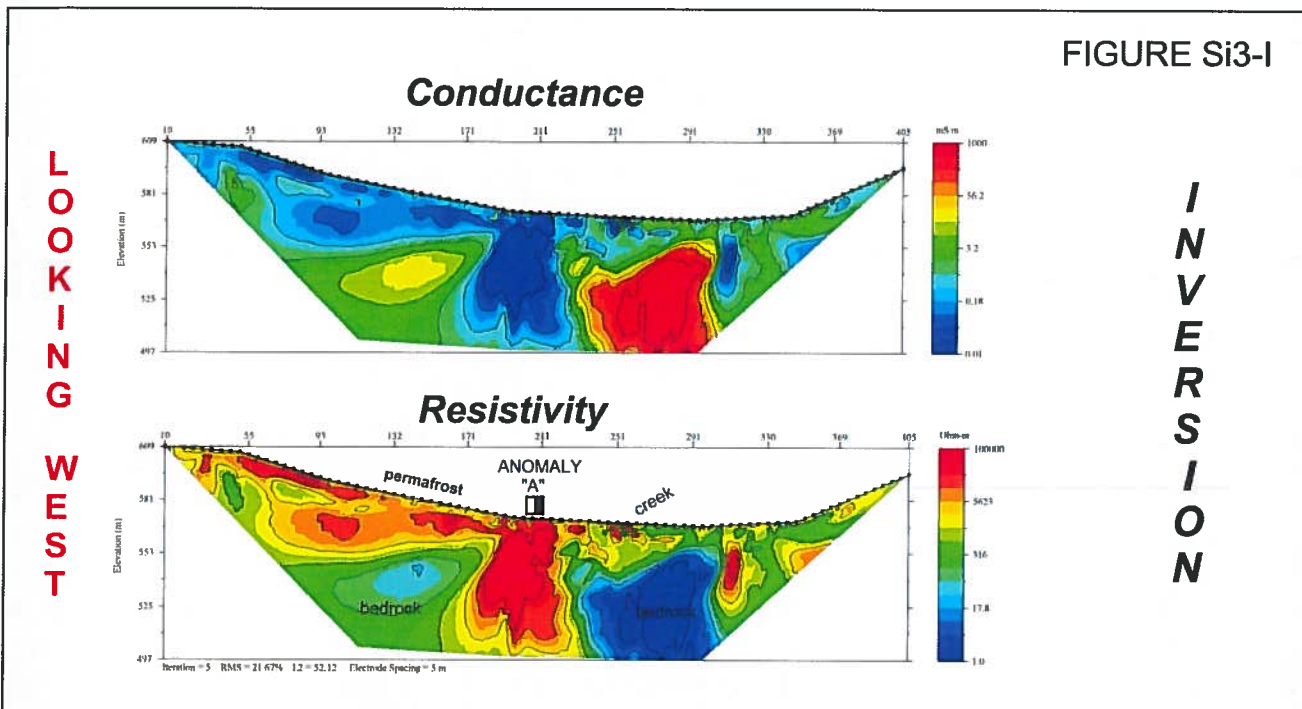
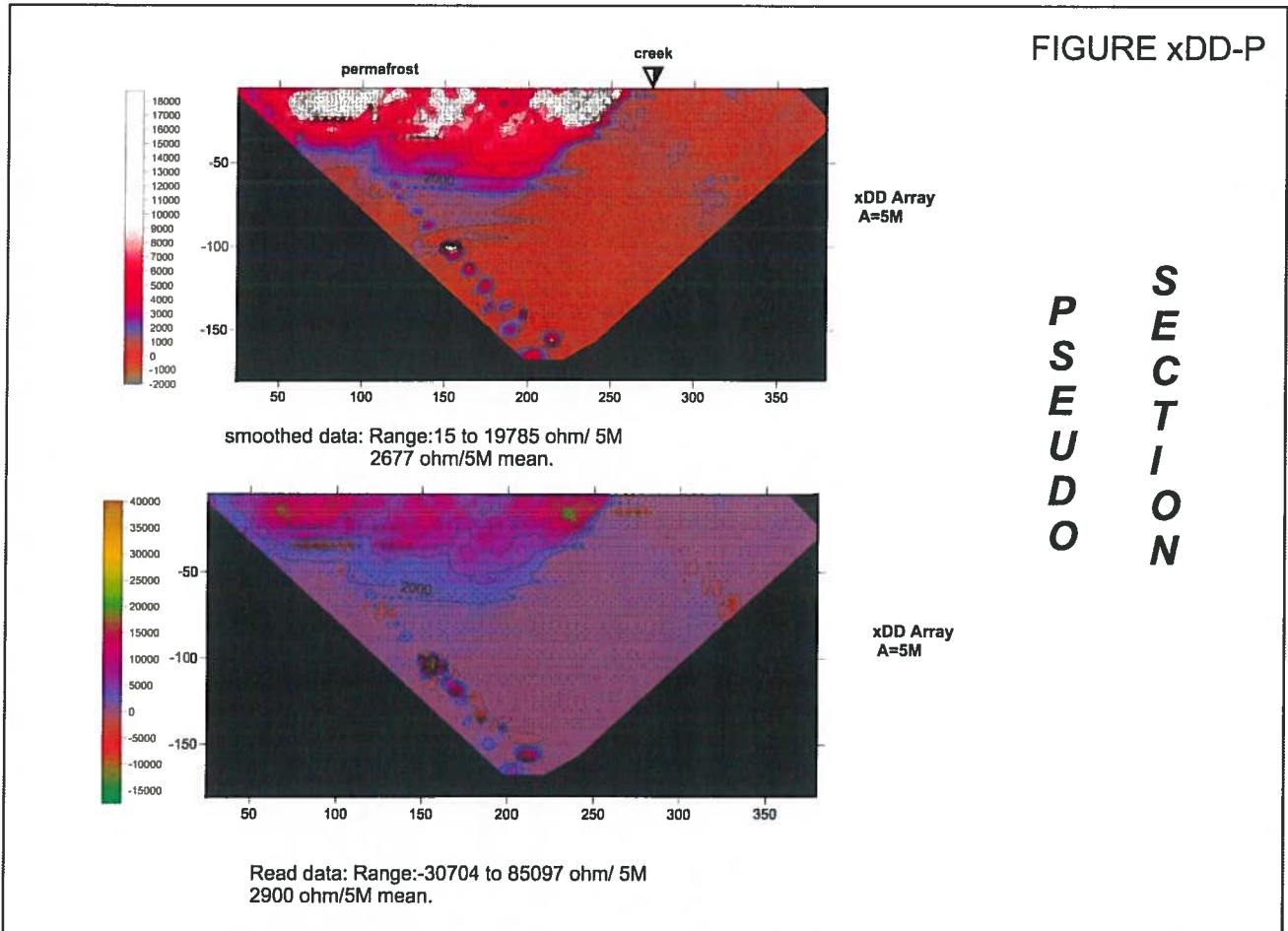
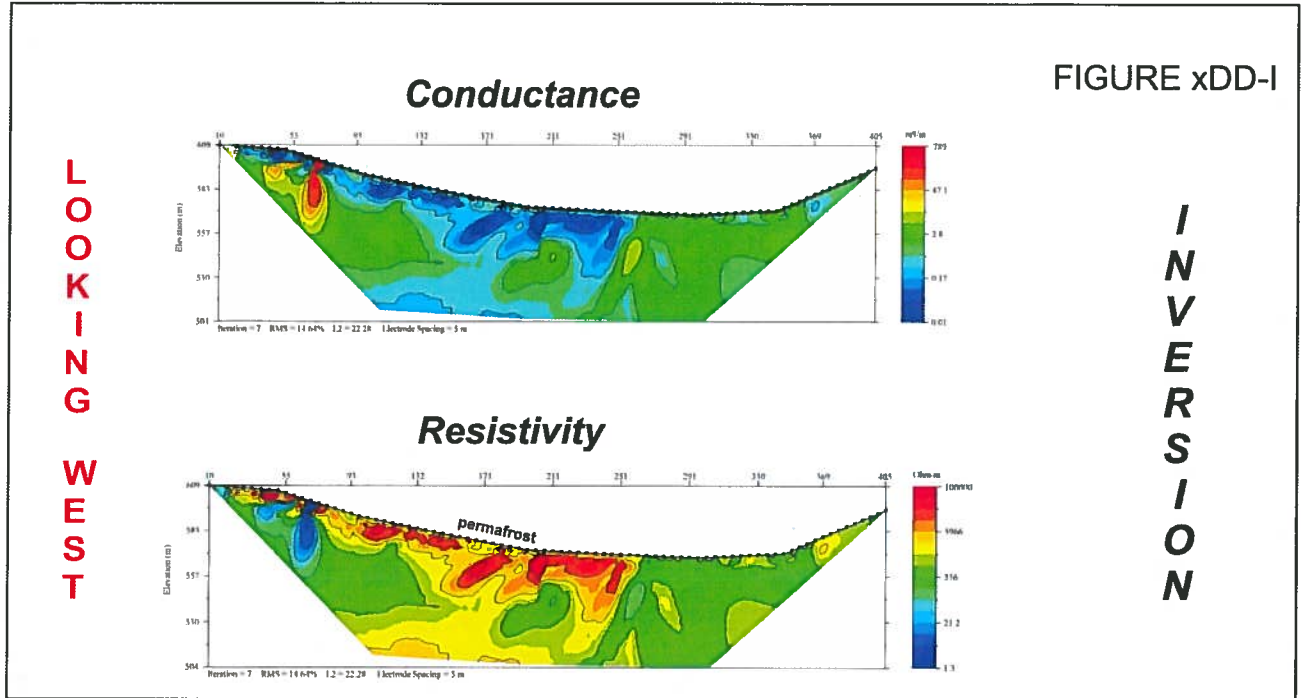


Figure 6

# KAMINAK Gold Corporation

DC Resistivity Imaging  
extended Dipole Dipole Array  
AB=expanding MN=expanding

Placer Lease IW 00384 (Coffee Creek)







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## 6.2 Magnetic Survey Results and interpretation:

The survey is comprised of a total of 2,514 geo-referenced magnetometer readings. The detail survey was successful in locating a creek parallel magnetic high lineament that is potentially associated with magnetite bearing placer channel at meterage 170-180 on Resistivity profile. (See Figure 7)

## 6.3 Combined Interpretation:

**Si3 Resistivity Array with Magnetics:** Bedrock depth is interpreted to exist variably at 10-25m depth on the south side of the creek and comes to surface on North side of creek along profile. There is an interpreted entrapment zone with deeper interpreted bedrock basement (~30m) which may be fault or contact associated at 200-220m on Resistivity profile of the Si3 Array. The cross cutting magnetic high lineament is present at 170-180m on Resistivity profile and is not significantly correlated.

**xDD Resistivity array with Magnetics:** There is strong agreement between the cross cutting magnetic high an interpreted entrapment zone with deeper bedrock depth at 170-180m along profile. **The xDD array is preferred for bedrock profiling and placer interpretation in this case.**

See figure 8 and 9 for interpretation with Inverted Resistivity.

## 7.0 Conclusion/ Recommendations

Additional work is left to the clients discretion. Results need to be proofed by follow-up. The comparative arrays make are useful for comparison and interpretation of overburden and underlying bedrock The Si3 array favors effects from the bedrock and accentuates the interpreted fault/possible entrapment zone. This is due to broader N expansion and resulting in better depth penetration. The xDD array is useful for interpretation of overburden and near to surface features due to extreme data density generated. Additional flanking lines can build confidence in this interpretation. Drill testing along profile can confirm interpreted results from Res/Mag survey.


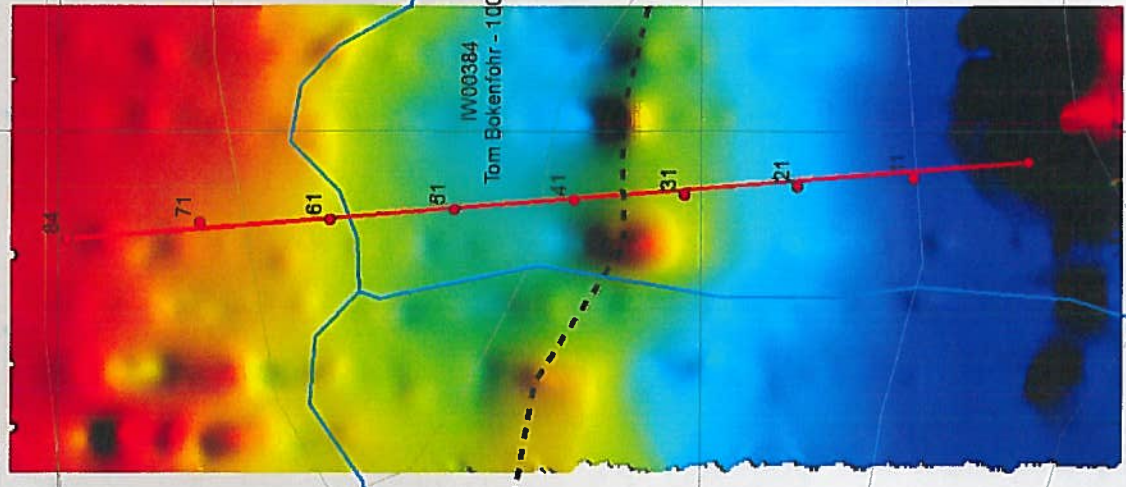
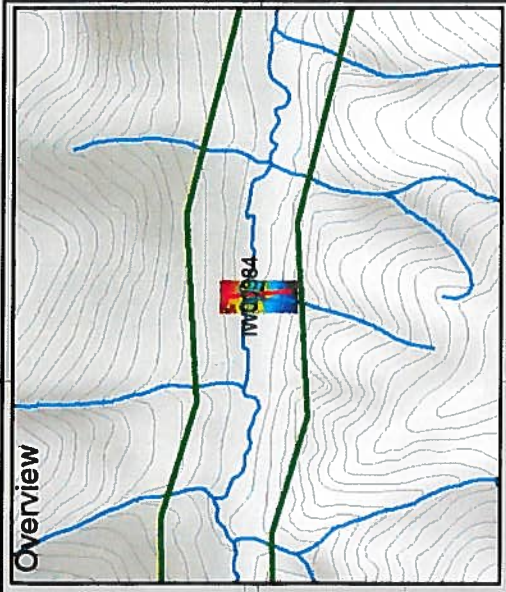
	<b>Ground Truth Exploration Inc.</b>	
	Upper Coffee Magnetic Survey	
NTS Mapsheet: 115J/14	Prepared By: I. Fage	Date: October 23/13
	Scale: 1 : 3,000	Datum: NAD83 UTM Zone 7V

Figure 7



Magnetic lineament interpreted to be placer channel potential.



	Electrode #
	Resistivity Profile

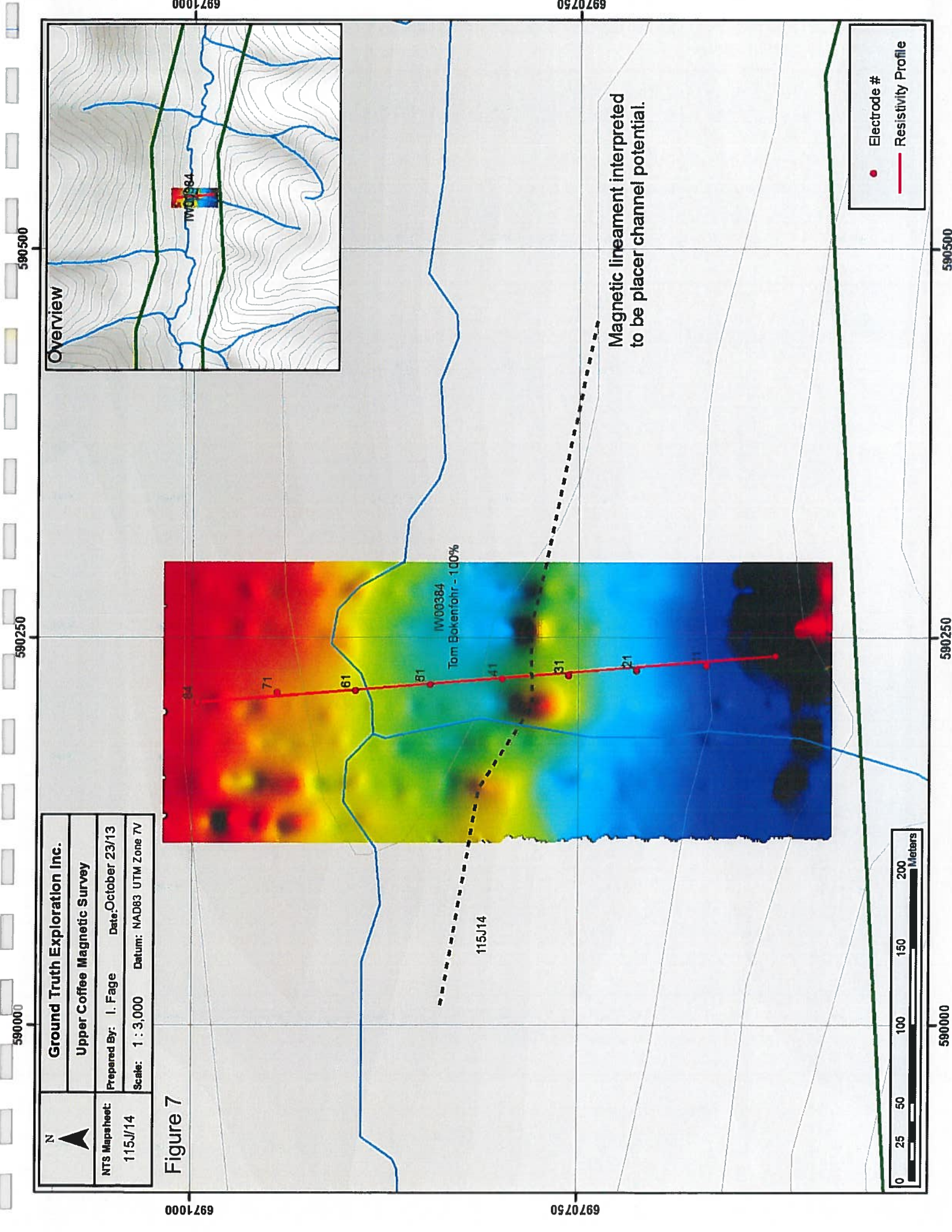




Figure 8

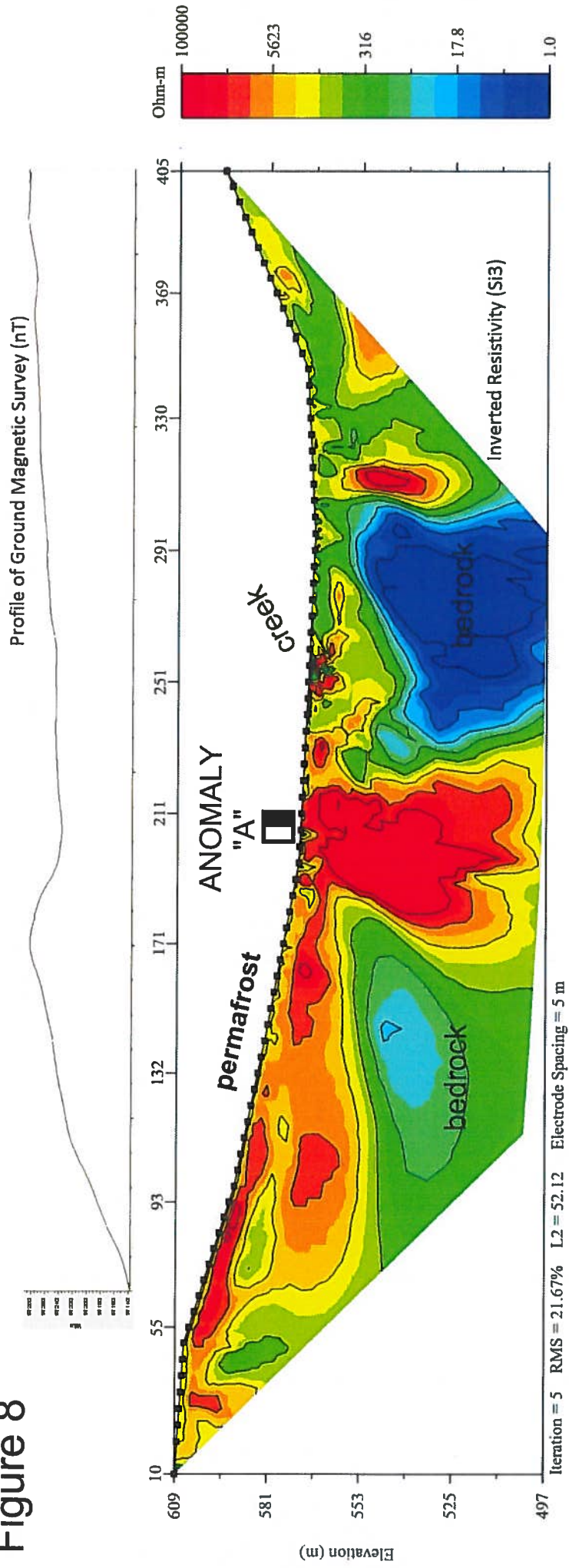
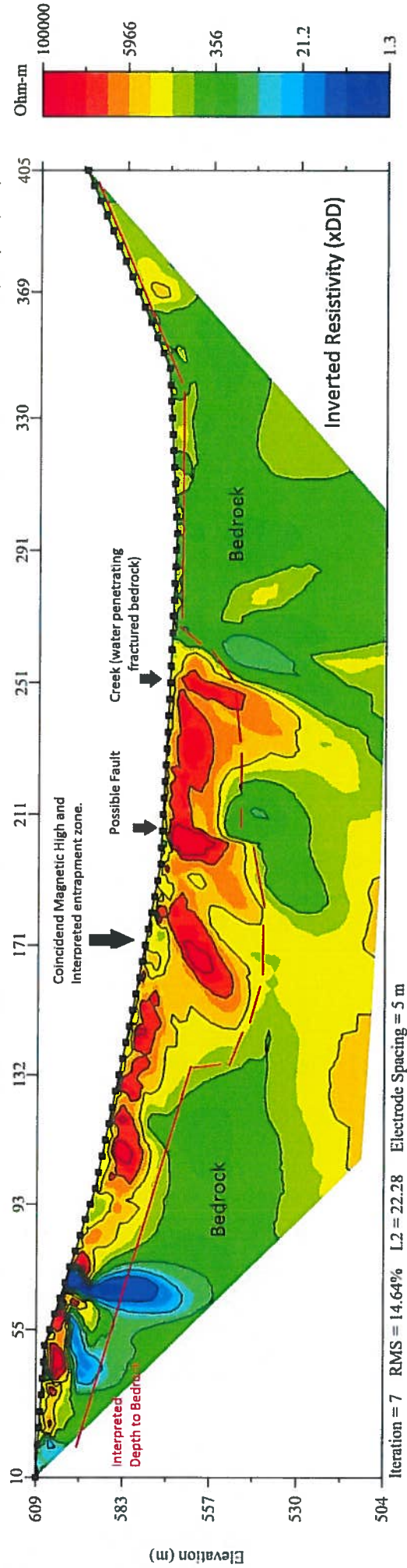


Figure 9

Profile of Ground Magnetic Survey (nT)







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## 8.0 Statement of Expenditures

**IP/Resistivity Survey: On 5 mile Placer Lease: IW00384**



**Survey Date: September 19, 2013**

**Work Performed:**

1 IP/Resistivity line set up and read plus one day of ground magnetic survey on IW00384 lease.

Survey 1: 84 electrodes spaced at 5m, 420m horizontal length.

Inverse Schlumberger x2 (two variations), and Dipole-Dipole arrays read for IP and Resistivity.

Survey 2: Ground magnetic survey over IP profile line plus 8 mag lines ran at 25m line spacing on either side of IP profile

**Survey Operation Daily Cost:**

<b>Wages:</b>	
1 Geophysical Operator * \$450/day	\$450
4 Field Assistants * \$350/day	\$1,400
Daily Data Processing: 1h*\$60/h	
Download survey, DGPS, QC Field Data, Package and email to Client/Geophysicist	\$60
<b>Food/Camp:</b>	
Food: Crew of 5 * \$50/day	\$250
Camp: Crew of 5* \$35/day	\$175
<b>Survey Equipment:</b>	
IP/Resistivity Meter: Supersting 8 Channel meter w/cables, electrodes	\$600
Precision GPS: Ashtech Promark 100 differential GPS	\$75
Laptop w/Inversion and Mag processing software for nightly dowload and review	\$50
Iridium Sat Phone	\$35
Chainsaw	\$50
Radios \$5/day * 5	\$25
<b>Consumable Supplies:</b>	
Electrodes: wear & tear- 2 per profile, \$6 ea	\$12
Calcium Chloride: 4kg per profile, \$2/kg	\$8
Pickets every 50m: 9 per profile, \$1/picket	\$9
Spray paint: 1 can per profile, \$10/can	\$10
<b>Total Cost:</b>	<b>\$3,209</b>

<b>Ground Magnetic Survey: Operator \$400, Walk Mag \$200, Base \$100, Camp \$35, Food \$50</b>	<b>\$785</b>
<b>Processing of Magnetic Data: 2 hours @ \$60/hour</b>	<b>\$120</b>
<b>Assessment Report for Placer Lease: \$1000</b>	<b>\$1,000</b>

<b>Total Expenditures for Assessment on Lease:</b>	<b>\$5,114</b>
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*[Handwritten Signature]*  
 Sept 27/13





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## 9.0 Certification

I, Richard Daigle of Thorold, Ontario certify that I am a graduate Certified Electronic Technologist. I have been practicing Geophysics since 1980.

R. J Daigle

October 2013

I, Isaac Fage of Dawson, Yukon Territory certify that I hold an Advanced Diploma in GIS/Remote Sensing from the Centre of Geographic Sciences (COGS). I am an owner and President of GroundTruth Exploration Inc. I have been working in the Mineral Exploration continuously since 2004.

I. Fage

October 2013

## 10.0 Figures

1. Property Location
2. Tenure
3. Geology
- 4-6. Resistivity Survey
7. Magnetic Survey
- 8-9. Combined Survey Interpretation



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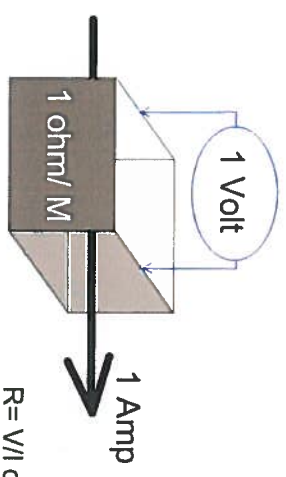
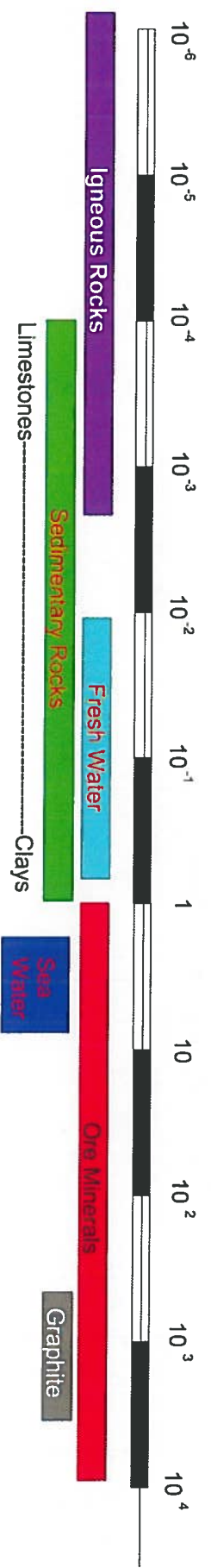
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## 11.0 Supersting R8 IP Technical Specifications

from [www.agiusa.com](http://www.agiusa.com)

Measurement modes	Apparent resistivity, resistance, induced polarization (IP), battery voltage.
Measurement range	+/- 10V.
Measuring resolution	Max 30 nV, depends on voltage level.
Output current intensity	1mA - 2000 mA continuous, measured to high accuracy.
Output voltage	800 Vp-p, actual electrode voltage depends on transmitted current and ground resistivity.
Output power	200W.
Input channels	Eight channels.
Input gain ranging	Automatic, always uses full dynamic range of receiver.
Input impedance	>150 MOhm.
Input voltage	Max 10 V.
SP compensation	Automatic cancellation of SP voltages during resistivity measurement. Constant and linearly varying SP cancels completely (V/I and IP measurements).
Type of IP measurement	Time domain chargeability (M), six time slots measured and stored in memory.
IP current transmission	ON+, OFF, ON-, OFF.
IP cycle times	0.5, 1, 2, 4 and 8 s.
Noise suppression	Better than 100 dB at f >20 Hz.
Powerline noise suppression	Better than 120 dB at power line frequencies (16 2/3, 20, 50 & 60 Hz) for measurement cycles of 1.2 s and above.
Total accuracy	Better than 1% of reading in most cases (lab measurements). Field measurement accuracy depends on ground noise and resistivity. Instrument will calculate and display running estimate of measuring accuracy.

# Crude apparent CONDUCTIVITY/ RESISTIVITY classification



$R = V/I$  ohm's law.

Resistance Voltage (V) / Current (I) in ohms  $\Omega$  (ohm)  
 Resistivity Resistance per unit volume in ohms  $\rho$  (rho)  
 Conductivity  $1/R$   $\sigma$  (siemens)

