

# **GEOPHYSICAL SURVEY**

## LOCATION

### **Scroggie Creek, Yukon**

Claim: P 49286, Mike 04

NTS 1150-02

63° 7' 13" 138° 37' 23"

## METHOD

### **2D Resistivity**

## FOR

10796 Yukon Ltd.

## AUTHORS

Stefan Ostermaier

Philipp Moll

Arctic Geophysics Inc.

## WORK PERFORMED

September 29<sup>th</sup> 2009

## DATE OF REPORT

November 30<sup>th</sup> 2009

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## 1. Introduction

This geophysical survey was conducted at *Scroggie Creek* for the benefit of 10796 Yukon Ltd..

The survey consists of one 2D Resistivity Profile.

The purpose of the survey was to determine depth and topography of the bedrock.

## 2. List of Claims / Prospecting Leases

Grant Number	Claim Name	Owner
P 49296	Mike 04	10796 Yukon Ltd.

## 3. Location

The placer claim Mike04 (P 49296) is located on a bench above *Scroggie Creek*, just below the confluence with *Walhalla Creek*, on the left hand side.

## 4. Access

The claim Mike04 (P 49296) was accessed by helicopter. There is a trail which runs from the Scroggie Creek valley up to the claim.

## 5. Work Method and Instrumentation

For this survey 2D RESISTIVITY was used.

The Resistivity imaging system includes:

- 4 POINT LIGHT RESISTIVITY METER<sup>1</sup>
- 75 ELECTRODE CONTROLER MODULES<sup>2</sup>
- 75 STAINLESS STEEL ELECTRODES<sup>3</sup>
- 370m MULTICORE CABLE 75x5m<sup>4</sup>

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<sup>1</sup> Constructed and produced by LGM (Germany)

<sup>2</sup> Dito

<sup>3</sup> Constructed and produced by GPM (Germany)

<sup>4</sup> Dito

The data acquisition is carried out by the automatic activation of 4-point-electrodes, several thousand measurements are taken, one every 1-2 seconds. The AC transmitter current of 0.26 to 30 Hz is amplified by the electrode control modules, up to a maximum of 100mA and 400V peak to peak. The voltage measured at the receiver electrodes (M, N) is also amplified. The system allows 2D measurements up to a depth of 65m.

In this geoelectrical survey the Schlumberger-array was used.

The measured resistivity data were then interpreted with the RES2DINV inversion program<sup>5</sup>. Details about the survey and interpretation method can be found in published papers by Keller and Frischknecht, (1966), Griffiths *et al.*, (1990), Griffiths and Barker, (1993), and Loke and Barker (1996).

To interpret the resistivity data, a 2D model for the subsurface is generated by the software. The software then calculates the resistivity so, that the calculated apparent resistivity and the measured apparent resistivity from the survey match.

The RES2DINV program automatically subdivides the subsurface into a certain number of blocks then it uses a least-squares inversion algorithm to determine the appropriate resistivity values for each block.

## **6. Work performed**

### **6.1 Claim Mike 04, P 49296**

#### **Preliminary notes:**

The resistivity profile is the foundation for the interpretation of the subsurface conditions. In it the hypothetical bedrock interface s marked with a black line.

The profiles show ground-layers approximately 15% thicker than they are in reality. The thickening of the model layers is caused by the inversion software. A correction factor for the determination of the true layer thickness of 0.85 was determined by us on the basis of numerous geoelectrical profiles verified by drilling, trenching, and mining done by our customers.

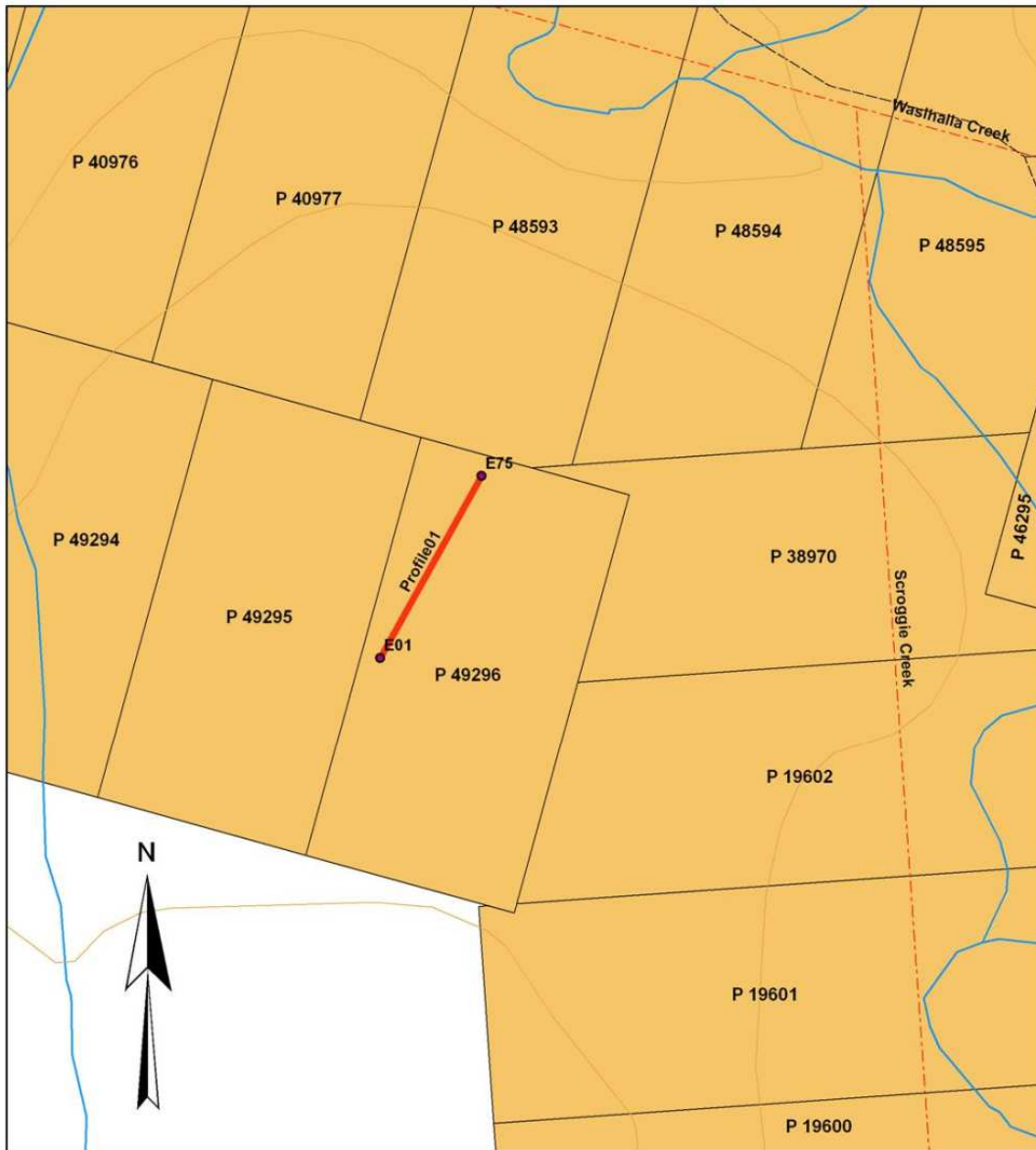
The graphical markings of the layer interfaces in the profiles, using the black lines, are done according to the data structure in the profile itself. This means that the layers there will show up approximately 15% thicker than they are in reality.

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<sup>5</sup> Constructed and produced by Geotomo Software (Malaysia)

In the interpretation text the layer thicknesses and depths have already been recalculated to the expected real values.

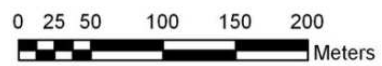
# Map 115002



## Legend

- Profile01
- Profile01\_Elektrodes
- 115002\_contour\_I
- 115002\_water\_c\_I
- placer\_claims\_shp
- prospecting\_lease\_shp
- placer\_baseline\_shp

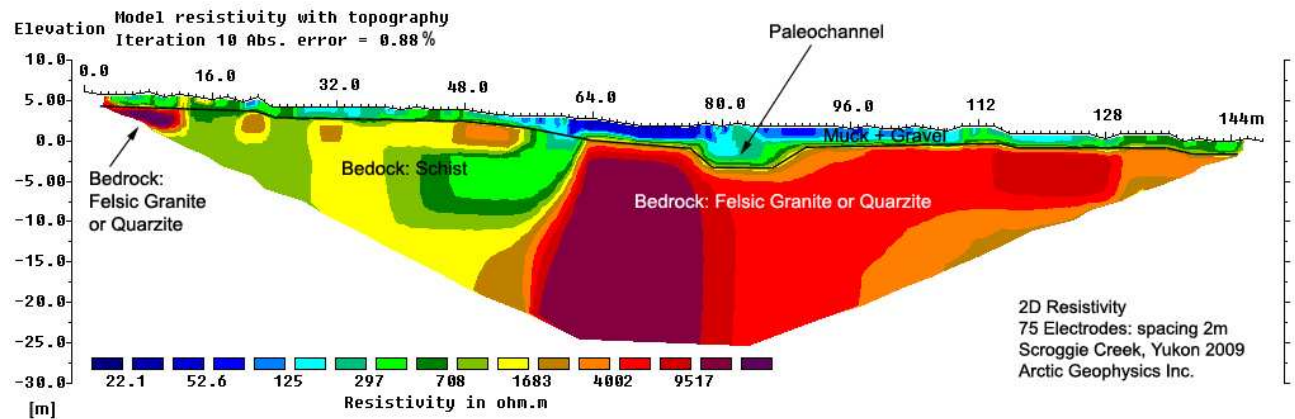
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## Profile01

Line: Cross valley  
View: Downstream  
Electrodes: 75, spacing 2m  
Array: Schlumberger  
Location: 0m N63° 07.183' W138° 37.443'  
148m N63° 07.255' W138° 37.373'

2D Resistivity - Scroggie Creek - Crossvalley Profile



### Interpretation:

The depth of the **gravel-bedrock interface** varies between 2 and 6m.<sup>6</sup>

The overburden, muck and gravel, has very little frost, if any.

At 73-90m in the profile there is a **channel**.

The quality of **bedrock** seems to change along the profile:

At 0-13m and at 62-148m in the profile there is bedrock with low conductivity (red, purple). This bedrock we interpret as Felsic Granite; this material has been observed on the surface at the survey, also the Yukon Placer database 2007 mentions this kind of bedrock for the *Scroggie Creek*. According to the data this low conducting bedrock could also be of Quarzite; although none has been seen while doing the survey but the Yukon Placer Database 2007 also specifies this type of bedrock for the Scroggie valley.

<sup>6</sup> This result fits with Kristy Ferguson's information, that the bedrock in this area should be around 3-5m deep.

At 13-62m in the profile the **bedrock** is better conducting. The resistivity data is typical for schist; the Yukon Placer Database 2007 also refers to schist as a possible bedrock at *Scroggie Creek*.

The two different **bedrock** zones might be discontinuously frozen: Zones with higher resistivity represent higher amounts of frost.



## 7. Recommendations

We recommend the verification of the results of the interpretations by trenching.

The following table shows the suitable locations on the measuring lines for the verification of the depths to bedrock, shown in the profile, with trenching.

Profile	Recommended places in the profile for verification by trenching
01	40m, 70m, 82m, 120m

## 8. Note

All these conclusions are based on the interpretation of the measured data.

## 9. References

Chesterman W. Ch. and Lowe K.E. Field Guide to Rocks and Minerals - North America, Chanticleer Press Inc. New York 2007

Evans A.M. Erzlagerstättenkunde, Ferdinand Enke Verlag Stuttgart (1992)

Griffiths, D.H.,Turnbull, J. and Olayinka,A.I. Two dimensional resistivity mapping with a computer-controlled array, First Break 8: 121-129 (1990)

Griffiths, D.H. and Barker, R.D. Two-dimensional resistivity imaging and modeling in areas of complex geology. Journal of Applied Geophysics 29 : 211 - 226. (1993)

Keller, G.V.and Frischknecht, F.C. Electrical methods in geophysical prospecting. Oxford: Pergamon Press Inc. (1966)

Loke M.H. and Barker R.D. Rapid least-squares inversion of apparent resistivity pseudosections by a quasi-Newton method. Geophysical Prospecting 44: 131-152 (1996)

Press F., Siever R., Grotzinger J., Thomas H.J. Understanding Earth, W.H. Freeman and Company, New York (2004)

Robb L. Introducing to Ore-Forming Processes, Backwell Science Ltd., 2005

<http://www.yukonminingrecorder.ca/PDFs/115/115O02.pdf>

LeBarge, W.P. (compiler), 2007. Yukon Placer Database 2007 - Geology and Mining Activity of Placer Occurrences. Yukon Geological Survey.

## 10. Qualification

Stefan Ostermaier

- Study of geology, University of Tübingen, Germany
- Geophysical lectures and field courses, University of Karlsruhe and University of Stuttgart, Germany
- Geological prospecting for precious metals and minerals in the Yukon and Alaska since 2001
- Geophysical Surveying for Mining Exploration in the Yukon since 2005
- Study of computer science, University of Stuttgart, Germany



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Stefan Ostermaier

Philipp Moll

- Study of geology, University of Freiburg, Germany
- Geophysical lectures and field courses, University of Karlsruhe and University of Stuttgart, Germany
- Geological Prospecting for precious metals and minerals in the Yukon, NWTs, and Alaska since 1989
- Geophysical surveying for Mining Exploration in the Yukon since 2005
- Study of biology and German language and literature, University of Freiburg, Germany
- Apprenticeship of precision mechanic, Tools Factory Hermann Bilz, Zell, Germany

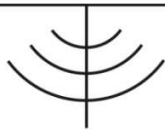


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Philipp Moll

## 11. Cost

### Arctic Geophysics Inc.



Geophysical Surveys • Prospecting • Consulting

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Whitehorse, YT, Canada  
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**Invoice #** 200909301

Date: September 30, 2009

Services provided:

Quantity	Description	Amount \$CAN
<b>Geophysical Survey</b>		
1	Geoelectrical 2D-Resistivity Survey @ \$ CAN 600.00 / day	600.00
<b>Report</b>		
1	Report writing @ \$CAN 200.00 / day	200.00
1	Printing, shipping and handling	45.00
		<b>NET Amount \$CAN 845.00</b>
<b>GST Number 846363216RT0001</b>		<b>G.S.T. \$ 42.25</b>
		<b>Total Due \$ 887.25</b>



HEMI PAYMENT ID:  
**TRANS NORTH HELICOPTERS**  
 TRANS NORTH TURBO AIR LTD.  
 P.O. Box 8, 115 Range Rd.  
 Whitehorse, Yukon Canada Y1A 5X9  
 Tel: (867) 668-2177 - Fax: (867) 668-3420

Kim Ferguson  
 12 Couch Road  
 Whitehorse, Yukon  
 Y1A 5W5

ACCOUNT NUMBER	Misc Acc
INVOICE NUMBER	45990
INVOICE DATE	30/09/09
A/C TYPE	BEL 206
AIRCRAFT REGISTRATION C	4 PLW 1
FLIGHT DATE	29/09/09
PURCHASE ORDER NO.	

FUEL & OIL X TNTA CLUST.	TNTA FUEL USED JETA	HRS. LITRES 285	FROM YON
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HOOK INSURANCE	DECLINED <input type="checkbox"/> INT <input type="checkbox"/>	TNTA'S TARIFF LIMITS THAT TNTA'S LIABILITY FOR LOSS OR DAMAGE TO GOODS CARRIED IS 50¢ PER LB.
VALUE	ACCEPTED <input type="checkbox"/>	

FROM	UP	DOWN	HOURS	REMARKS	NO. OF PASS
DANAN CITY					
TO INDIAN RIVER	0815	1822	2.5	1 PAX (STEVEAN)	
SCR06912 CRZR				NAR TIC GROUPYI.CI	
				EX DANAN PLUS	
				PICK-UP LIAM @	
				INDIAN RIVER	
				→ SCR06912 CR	
			2.5		

SUB	GL	AMOUNT	D.G. TRANSPORTED			
1809	502	2612.50	2.5	@	1045-00	2612.50
1800	131	370.50		@		
0000	323	149.15		@		

TERMS: PAYABLE UPON RECEIPT OF INVOICE.  
 2% INTEREST PER MONTH (24% PER ANNUM) WILL BE CHARGED ON ALL OUTSTANDING AMOUNTS OVER 30 DAYS.  
 IF INTEREST IS NOT PAID, FUTURE FLIGHTS WILL BE ON A CASH BASIS.

X \_\_\_\_\_  
 CHARTERER'S SIGNATURE

\_\_\_\_\_  
 CHARTERER'S NAME (PRINTED)

INITIALS: SW  
 PILOT'S SIGNATURE: [Signature]

DS  
 ENGINEER'S NAME: [Signature]

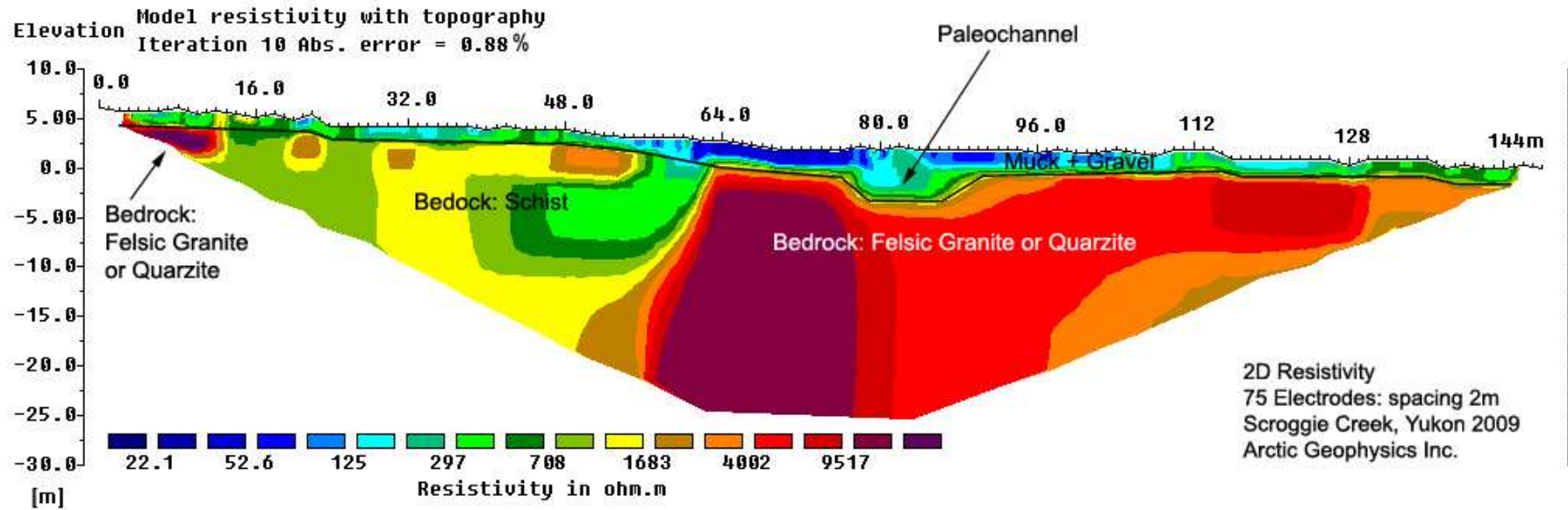
HOLDING TIME:	@	/ HR.	
FUEL	@	/ LITRE	
FUEL	285 @ 1.3	/ LITRE	370.50
MEALS & LODGINGS			
OTHER			
OTHER			
SUB TOTAL			2983.00
GOODS & SERVICES TAX			149.15
REGISTRATION NO. R121483135			

TOTAL \$ 3132.15

## 12. Addendum

### Profile Large

2D Resistivity - Scroggie Creek - Crossvalley Profile



## GPS-Data

### Mike 04, P 49286

#### Profile01

Electrode	m	Lat. Long.	Elevation
1	0	N63 07.183 W138 37.443	6,1
2	2	N63 07.184 W138 37.442	5,79
3	4	N63 07.185 W138 37.441	5,79
4	6	N63 07.185 W138 37.440	5,79
5	8	N63 07.186 W138 37.439	6,1
6	10	N63 07.187 W138 37.438	5,49
7	12	N63 07.188 W138 37.437	5,79
8	14	N63 07.189 W138 37.436	5,49
9	16	N63 07.190 W138 37.435	5,18
10	18	N63 07.190 W138 37.434	5,49
11	20	N63 07.191 W138 37.432	4,88
12	22	N63 07.192 W138 37.430	5,49
13	24	N63 07.193 W138 37.429	4,27
14	26	N63 07.194 W138 37.427	4,27
15	28	N63 07.195 W138 37.426	4,27
16	30	N63 07.196 W138 37.424	4,27
17	32	N63 07.196 W138 37.423	4,27
18	34	N63 07.197 W138 37.422	4,27
19	36	N63 07.198 W138 37.421	4,27
20	38	N63 07.199 W138 37.420	4,27
21	40	N63 07.200 W138 37.420	3,96
22	42	N63 07.201 W138 37.419	4,27
23	44	N63 07.202 W138 37.418	3,96
24	46	N63 07.203 W138 37.417	3,96

Electrode	m	Lat. Long.	Elevation
25	48	N63 07.204 W138 37.416	3,96
26	50	N63 07.205 W138 37.415	3,66
27	52	N63 07.206 W138 37.414	3,35
28	54	N63 07.207 W138 37.413	3,05
29	56	N63 07.209 W138 37.413	3,05
30	58	N63 07.210 W138 37.412	3,05
31	60	N63 07.211 W138 37.411	3,05
32	62	N63 07.213 W138 37.410	2,74
33	64	N63 07.213 W138 37.409	2,74
34	66	N63 07.214 W138 37.408	2,44
35	68	N63 07.215 W138 37.408	2,13
36	70	N63 07.216 W138 37.407	1,83
37	72	N63 07.217 W138 37.406	1,83
38	74	N63 07.218 W138 37.405	1,83
39	76	N63 07.219 W138 37.404	1,83
40	78	N63 07.220 W138 37.403	2,13
41	80	N63 07.220 W138 37.402	1,83
42	82	N63 07.222 W138 37.400	2,13
43	84	N63 07.223 W138 37.399	1,83
44	86	N63 07.224 W138 37.398	1,83
45	88	N63 07.225 W138 37.397	1,83
46	90	N63 07.226 W138 37.396	1,83
47	92	N63 07.227 W138 37.395	1,83
48	94	N63 07.228 W138 37.394	1,83

Electrode	m	Lat. Long.	Elevation
49	96	N63 07.229 W138 37.393	1,52
50	98	N63 07.229 W138 37.392	1,83
51	100	N63 07.231 W138 37.391	1,52
52	102	N63 07.232 W138 37.389	1,52
53	104	N63 07.232 W138 37.388	1,83
54	106	N63 07.233 W138 37.387	1,52
55	108	N63 07.234 W138 37.386	1,22
56	110	N63 07.235 W138 37.385	1,83
57	112	N63 07.236 W138 37.384	1,83
58	114	N63 07.237 W138 37.384	1,83
59	116	N63 07.238 W138 37.383	0,91
60	118	N63 07.239 W138 37.382	0,91
61	120	N63 07.240 W138 37.381	0,91
62	122	N63 07.241	0,91

Electrode	m	Lat. Long.	Elevation
		W138 37.380	
63	124	N63 07.242 W138 37.379	0,91
64	126	N63 07.243 W138 37.378	0,91
65	128	N63 07.244 W138 37.378	0,3
66	130	N63 07.246 W138 37.378	0,91
67	132	N63 07.247 W138 37.377	0,91
68	134	N63 07.248 W138 37.376	0,91
69	136	N63 07.249 W138 37.375	0,91
70	138	N63 07.250 W138 37.375	0
71	140	N63 07.251 W138 37.374	0,3
72	142	N63 07.252 W138 37.374	0
73	144	N63 07.253 W138 37.374	0
74	146	N63 07.254 W138 37.373	0,3
75	148	N63 07.255 W138 37.373	0