Arctic Geophysics Inc.

Geophysical Surveys • Prospecting • Consulting

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Geophysical Survey with 2D IP/Resistivity for Hardrock Investigation, Dawson Range 2013

LOCATION
Quartz Claims YE84077 and YE84079
N64 02 04.7 W138 49 56.6

FOR
Diamond Tooth Resources Inc
PO Box 1170
Marsh Lake Yukon
Y0B 1Y1

AUTHOR
Philipp Moll

WORK PERFORMED
Sept 4th 2013

DATE OF REPORT
Nov 6th 2013

Table of Contents

1 Introduction

This geophysical investigation was done for Charlie Brown, Diamond Tooth Resources Inc. The survey, using 2D IP/Resistivity, was conducted to prospect the tenure listed below for the localisation of possible targets for hardrock mining. The ground was tested with one 2D measuring line with a length of 315m; the depth of investigation is approximately 560m.

2 Placer Tenures

Grant Number	Name	Owner
YE84077	-	Diamond Tooth Resources Inc
YE84079		Diamond Tooth Resources Inc

3 Location

The quartz claim property is located app. 30km east of Dawson City in main valley of the Klondike River, map number 116B02.

4 Access

The exploration site was accessed directly from the Klondike Highway.

5 Goal

The IP/RES survey was focused on measuring and interpreting the following subsurface characteristics:

1. Concentrations of inducable minerals in bedrock
2. Depth and topography of bedrock
3. Sedimentary stratification
4. Permafrost conditions
5. Groundwater table
6. Mining/prospecting history

6 Geophysical Methods

Induced Polarization (IP): IP data are simultaneously taken when measuring Resistivity, with the same equipment and line staking. So these data are automatically at hand when using Resistivity. The IP model serves as basis for the interpretation of the mineral and petrologic conditions in hardrock. Thus, IP is an industry proven standard method for the detection of

primary mineral deposits. However, the IP model can also support the interpretation of the Resistivity profile.

Resistivity is not a time domain geophysical method such as Ground Penetrating Radar or Seismic. Resistivity measures a material property. In the Resistivity model the different underground zones are material-dependently differentiated according to their electrical conductivity. Thus, Resistivity promises good chances in respect of measuring the kind and character of the subsurface materials as well as the groundwater distribution, which would be of interest for placer mining. The equipment used (see below) allows for measuring of layer interfaces in depths from 0.5m to 100m by varying the electrode spacing. – Therefore, this prospecting concept is based on the use of 2D Resistivity.

Figure 1: 2D Resistivity measurement, Stefan Ostermaier, Arctic Geophysics Inc., Yukon 2009

7 Use of Geophysical Methods

7.1 Instrumentation

For this survey a lightweight, custom-built 2D RESISTIVITY and INDUCED POLARIZATION (IP) imaging system with rapid data acquisition was used. The system includes:

- "4 POINT LIGHT" EARTH RESISTIVITY METER[1]
- 64 ELECTRODE CONTROL MODULES[2]
- 64 STAINLESS STEEL ELECTRODES[3]
- 320m MULTICORE CABLE: CONNECTOR SPACING: 5m[4]

This system weighs approximately 150 kg which is about one third of regular standard equipment. It can be run with a 12V lead battery. The equipment facilitates high mobility and rapid data acquisition with a small crew.

7.2 Data Acquisition

IP/Resistivity

The data acquisition is carried out by the automatic activation of 4-point-electrodes by the measuring system. Thus 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.
In this geoelectrical survey the Schlumberger-array was used. This array is appropriate to image horizontal layers as is needed for placer prospecting.

The IP data is getting noisy below approx. 50m depth because the sender current is limited to a 100 m Amp. The noise of the IP data in greater depth can significantly be decreased by using an IP-specific data acquisition mode that is much more time consuming.[5]

The 2D Resistivity imaging system, used for this survey, allows measurements with a depth of up to 100m. With a depth to bedrock of more than 6m, an electrode spacing of 5m can be used for placer surveys. This allows the measuring of large profile lengths in short time with a horizontal measuring resolution of 2.5m. This system has proven itself to be reliable in the determination of the bedrock topography and sedimentary arrangement for placer investigation at the most environmental conditions.

[1] Constructed and produced by LGM (Germany)
[2] Ditto
[3] Constructed and produced by GEOANALYSIS.DE (Germany)
[4] Ditto
[5] 1) Transition Resistivity between electrodes and ground lower than 1 Kilo Ohm; 2) More single 4point measurements to calculate the average of each data point (staking) etc.

7.3 Processing

Resistivity

The measured Resistivity/IP data were processed with the RES2DINV inversion program[6].

7.4 Interpretation

The interpretation of the profiles should be verified by physical prospecting methods such as digging test holes/trenches, drilling, or shafting.

8 Profile image

In the Resistivity profile the interpreted layer interfaces are 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. The correction factor of 0.85 for the determination of the true layer thickness has been established by the Arctic Geophysics Inc. team on the basis of numerous geoelectrical profiles verified by drilling, trenching, and mining done by our customers[7].

The graphical markings showing the interpreted layer interfaces in the profiles (using a black line) are done according to the data structure in the profile itself. This means: the layers there will also show up approximately 15% thicker than they are expected in reality. At the “measuring sticks”, as well as in the interpretation text, the layer thicknesses and depths have been recalculated to the expected real values.

9 Resistivity Survey

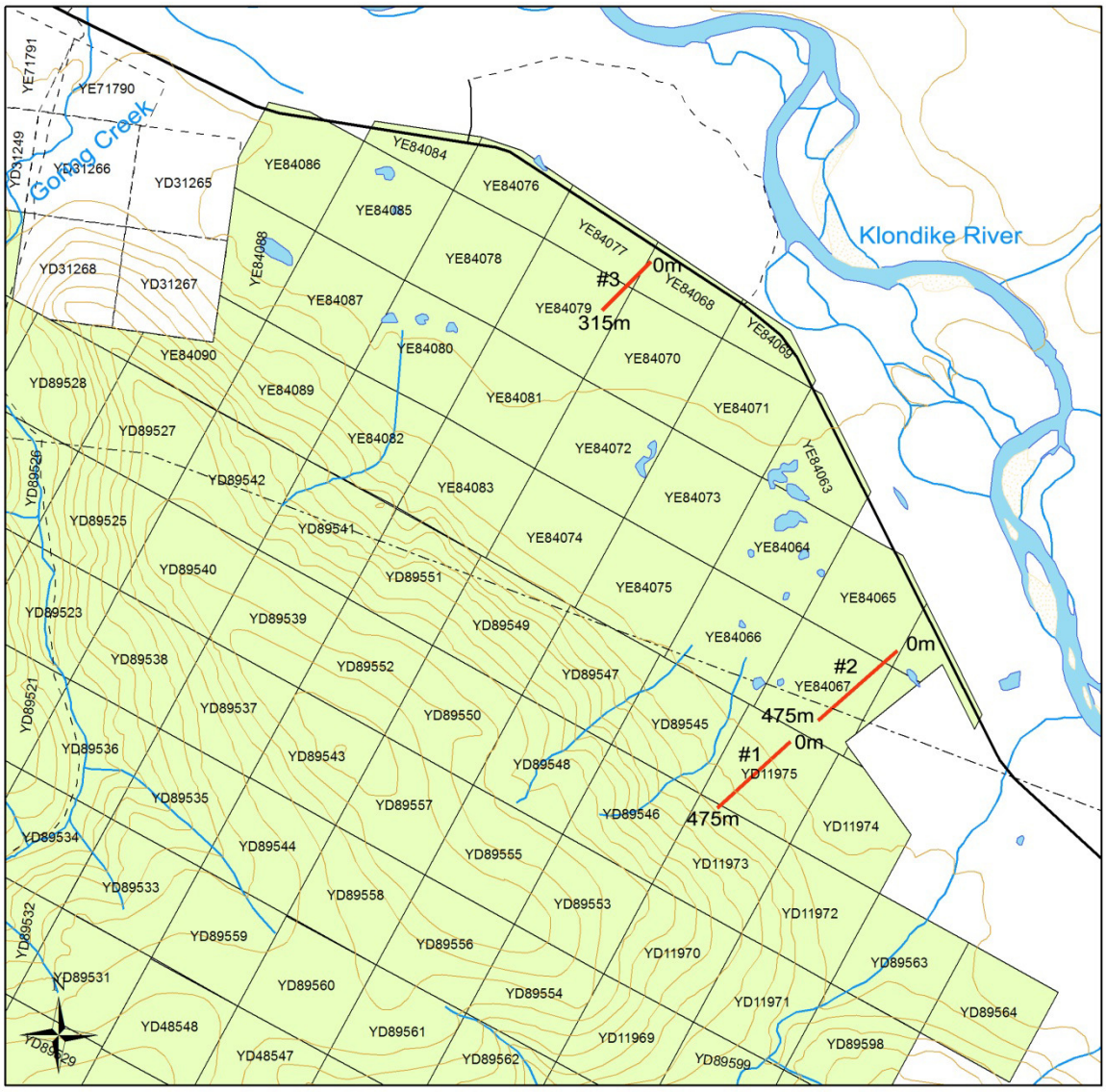
Preliminary Note!

The subsurface information of this study is an interpretation and cannot be guaranteed.

[6] Produced by GEOTOMO SOFTWARE SDN. BHD (Malaysia)

[7] Program settings in RES2DINV for modifying the layer thickness do frequently not work well for our use and could falsify the profile. That’s why this mode was not used.

9.1 Survey Map[8]



[8] Government of Canada, Natural Resources Canada, Centre for Topographic Information ftp://ftp.geomaticsyukon.ca/Mining

9.2 Profile: Interpretation, Recommendation

Line 03
2D Resist ivity, Schlumberger array
64 Electrodes: spacing 5m, Horizontal resolution 2.5m
Horizontal and vertical measure in [meter], Iteration error in [%]
Vertical exaggeration in model section display = 1.00
Data acquisition: Stefan Ostermaier, 4th Sept 2013
Processing: Stefan Ostermaier, 7th Sep 2013
Arctic Geophysics Inc., Yukon

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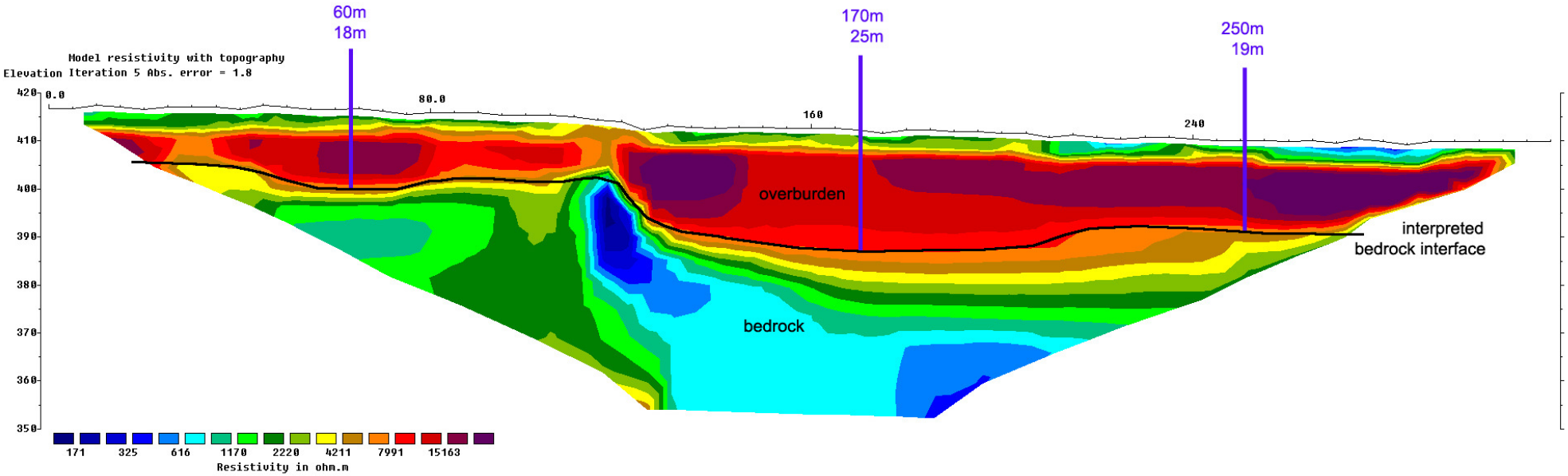

The profile might show the ground-layers up to approximately 15% thicker than they are in reality.

This 2D Resistivity measuring result is an interpretation of geophysical data. We recommend the verification of the profile by drilling or trenching or shafting.

Line 03
2D Induced Polarity, Schlumberger array
64 Electrodes: spacing 5m, Horizontal resolution 2.5m
Horizontal and vertical measure in [meter], Iteration error in [%]
Vertical exaggeration in model section display = 1.00
Data acquisition: Stefan Ostermaier, 4th Sept 2013
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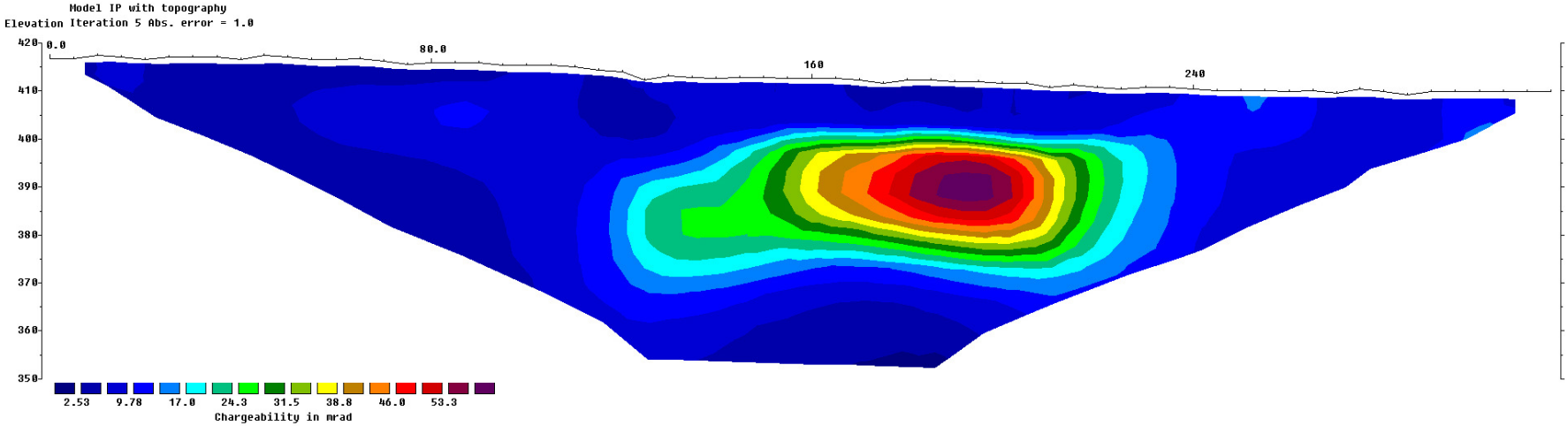

The profile might show the ground-layers up to approximately 15% thicker than they are in reality.

This 2D Resistivity measuring result is an interpretation of geophysical data. We recommend the verification of the profile by drilling or trenching or shafting.

Interpretation

The interpretation of resistivity profile_03 indicates 15-25m of overburden on top of bedrock.

The overburden shows relatively continuous resistivity data from 10000 to 20000 Ohm meter representing a domination permafrost. The overburden material might consist of muck on top of gravel. The interface between muck and gravel cannot be detected in the profile, because the materials do have similar resistivity. The gravel (Klondike Gravel) must have a voluminous matrix[9]. On the surface the overburden is thawed.

In the IP Profile, at 195m on the line and in a depth of 20m the chargeability ranges around 50 milliradian. This data indicates the possible existence of a bedrock type containing IP-active accessory minerals. This data zone could represent a primary ore deposit containing sulfide minerals. This IP anomaly could show the beginning of an ore deposit being extending across the profile line.

Recommendation

We recommend to drill or to dig a test pit at the following location in the profile to verify the interpretation of a possible ore deposit.

180m - bedrock expected at approx. 20m
- beginning of IP-active data zone expected at 20m depth

[9] matrix: fine sediments such as silt, sand, and mud in the gravel.

10 References

10.1 Literature

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

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

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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

10.2 Maps

Government of Canada, Natural Resources Canada, Centre for Topographic Information

ftp://ftp.geomaticsyukon.ca/Mining

11 Qualification

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- Study of geology, University of Freiburg, Germany
- Visit of geophysical field courses, University of Karlsruhe, Germany
- Working for Arctic Geophysics Inc. since June 2007 (foundation)
  Geophysical field surveys using 2D Resistivity, Induced Polarization, Magnetics: Data acquisition, processing, interpretation, documentation
- Geophysical surveying for Mining Exploration in the Yukon since 2005, and geological prospecting for precious metals and minerals in the Yukon, NWTs, and Alaska since 1989
- Publications:
  a. Numerous Assessment Reports about geophysical surveys done for Yukon mining companies, filed at Yukon Mining Recorder
  b. Geophysical survey (45 field days) for Yukon Government: Yukon Geological Survey,
  c. http://virtua.gov.yk.ca:8080/lib/item?id=chamo:164867&theme=emr "2D resestivity / IP data release for placer mining and shallow quartz mining - Yukon 2010 : Los Angeles Creek, Wolf Creek, Ladue River, and Rice Creek ; Philipp Moll and Stefan Ostermaier"

12 Confirmation

I have prepared this report entitled "Geophysical Survey with 2D Resistivity for Placer Investigation, Dawson Range 2013" for assessment credit, and have collected and reviewed the data. The survey was carried out by Arctic Geophysics Inc.

Schutterwald, Germany, 6th Nov 2013
"Signed" Philipp Moll

Philipp Moll

13 Addendum

13.1 Cost

Arctic Geophysics Inc.

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Diamond Tooth Resources

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Survey Location: YE84077 and YE84079

Invoice # 20131019_C

Date: 19th Oct, 2013

Quantity	Description	Amount $CAN
Geophysical Survey		
1day	Inspection of survey ground	400.--
1day	Geo VE84077 and YE84079 electrical 2D-Resistivity/IP Imaging System + Operator, 880.--/day	880.--
	Data processing, Documentation	120.--
	NET Amount	$ 1 400.--
GST Number 846363216RT0001	**G.S.T. (5%)**	$ 70.--
Total Due		**$ 1 470.--**

13.2 GPS-Data

GPS-Data

Line03

Electrode No.	Location in Profile [m]	GPS-Coordinates ddd° mm' ss.s'' WGS 1984	GPS-Accuracy [m]	Post [*]
1	0	N64 02 00.5 W138 50 04.3	3	*
2	5	N64 01 59.7 W138 50 05.7	3	
3	10	N64 02 00.7 W138 50 04.1	3	
4	15	N64 02 00.3 W138 50 04.6	3	
5	20	N64 02 00.2 W138 50 04.8	3	
6	25	N64 02 00.1 W138 50 05.1	3	
7	30	N64 01 59.9 W138 50 05.5	3	
8	35	N64 02 01.0 W138 50 03.3	3	
9	40	N64 01 59.6 W138 50 05.9	3	
10	45	N64 01 59.5 W138 50 06.0	3	
11	50	N64 02 00.9 W138 50 03.6	3	
12	55	N64 02 00.8 W138 50 03.8	3	
13	60	N64 02 00.4 W138 50 04.5	3	
14	65	N64 02 00.0 W138 50 05.4	3	
15	70	N64 02 01.2 W138 50 03.0	3	
16	75	N64 02 01.6 W138 50 02.3	3	
17	80	N64 02 01.5 W138 50 02.5	3	
18	85	N64 02 01.4 W138 50 02.7	3	
19	90	N64 02 01.3 W138 50 02.9	3	
20	95	N64 02 02.1 W138 50 01.5	3	
21	100	N64 02 01.9 W138 50 01.8	3	
22	105	N64 02 01.8 W138 50 02.0	3	
23	110	N64 02 02.1 W138 50 01.3	3	
24	115	N64 02 02.2 W138 50 01.0	3	
25	120	N64 02 02.4 W138 50 00.8	3	
26	125	N64 02 02.7 W138 50 00.3	3	
27	130	N64 02 03.1 W138 49 59.4	3	
28	135	N64 02 03.0 W138 49 59.6	3	
29	140	N64 02 02.8 W138 50 00.1	3	
30	145	N64 02 03.6 W138 49 58.8	3	
31	150	N64 02 03.4 W138 49 59.0	3	
32	155	N64 02 03.3 W138 49 59.2	3	
33	160	N64 02 02.9 W138 49 59.8	3	
34	165	N64 02 04.1 W138 49 57.9	3	
35	170	N64 02 03.9 W138 49 58.2	3	
36	175	N64 02 03.8 W138 49 58.6	3	
37	180	N64 02 02.6 W138 50 00.5	3	
38	185	N64 02 04.3 W138 49 57.4	3	
39	190	N64 02 04.2 W138 49 57.6	3	

Electrode No.	Location in Profile [m]	GPS-Coordinates ddd° mm' ss.s'' WGS 1984	GPS-Accuracy [m]	Post [*]
40	195	N64 02 04.6 W138 49 56.9	3	
41	200	N64 02 04.5 W138 49 57.1	3	
42	205	N64 02 03.8 W138 49 58.3	3	
43	210	N64 02 04.8 W138 49 56.3	3	
44	215	N64 02 05.3 W138 49 55.3	3	
45	220	N64 02 05.2 W138 49 55.5	3	
46	225	N64 02 04.9 W138 49 56.1	3	
47	230	N64 02 04.7 W138 49 56.6	3	
48	235	N64 02 06.3 W138 49 53.3	3	
49	240	N64 02 05.4 W138 49 54.9	3	
50	245	N64 02 05.0 W138 49 55.8	3	
51	250	N64 02 05.9 W138 49 53.7	3	
52	255	N64 02 05.7 W138 49 54.2	3	
53	260	N64 02 05.6 W138 49 54.5	3	
54	265	N64 02 05.5 W138 49 54.8	3	
55	270	N64 02 06.9 W138 49 52.2	3	
56	275	N64 02 06.8 W138 49 52.3	3	
57	280	N64 02 06.7 W138 49 52.7	3	
58	285	N64 02 06.4 W138 49 53.1	3	
59	290	N64 02 05.8 W138 49 54.0	3	
60	295	N64 02 06.1 W138 49 53.6	3	
61	300	N64 02 06.5 W138 49 52.9	3	
62	305	N64 02 07.0 W138 49 52.0	3	
63	310	N64 02 07.1 W138 49 51.9	3	
64	315	N64 02 07.2 W138 49 51.7	3	*