Arctic Geophysics Inc.

Geophysical Surveys • Prospecting • Consulting

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Geophysical Survey for Placer Prospecting at Sulphur Creek

Dawson Mining District/Yukon 2011

UTM 611927 7063279

LEASE
ID00880

METHOD
2D Resistivity

FOR
Tara Christie
Box 85, Dawson YT
Canada, Y0B1G0

PROVIDED BY
Arctic Geophysics Inc.

FIELD WORK
31st July – 6th Aug 2011

REPORT /DATE
Philipp Moll / 6th Sept.2011

Index

1. Introduction

This geophysical investigation was done for Tara Christie.

The survey using 2D Resistivity was conducted to prospect the ground for placer mining interests.

The ground was tested by five 500m-measuring lines, depth 90m.

2. Location

Sulphur Creek heads in Sulphur Dome and empties into Dominion Creek 2½ miles above Australia Creek. It has a length of about 17 miles.

The center of the survey area is at UTM 611927 7063279.

3. Mining Property

Grant Number	Prospecting Lease	Owner
ID 00880	2 Miles	Tara Christie

4. Access

The survey area was accessed via the Dominion mining road.

5. Crew

Fieldwork

Survey Leader	Philipp Moll
Crew Leader	Josy Strunden
Helper	Jude Waldman

Processing, Interpretation	Philipp Moll
	Josy Strunden

Documentation	Philipp Moll

6. Goal

The survey was focussed on measuring and interpreting following **subsurface characteristics**:

1. Depth and topography of bedrock
2. Sedimentary stratification
3. Groundwater table
4. Mining/prospecting history

7. Method

Resistivity is not a time domain geophysical method such as Seismic or GPR. Resistivity measures a material property. In the Resistivity model the different underground zones are material-dependently differentiated according to their electrical conductivity. 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. Measuring of layer interfaces in depths from 0.5m to 200m is possible by varying the electrode spacing. – Therefore this prospection concept is based on the use of 2D Resistivity.

8. Use of Geophysical Method

8.1. Instrumentation

RESISTIVITY

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

- "4 POINT LIGHT" EARTH RESISTIVITY METER[1]
- 100 ELECTRODE CONTROL MODULES[2]
- 100 STAINLESS STEEL ELECTRODES[3]
- 500m MULTICORE CABLE: CONNECTOR SPACING: 5m[4]

This system weighs approximately 120 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.

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[1]Constructed and produced by **LGM**, Erich Lippmann, Kornacker 4, 94571 Schaufling, Germany, Phone ++49-(0)9904-84076, Fax ++49-9904-8119802, Lippmann@L-GM.de, http://www.l-gm.de

[2] Ditto

[3]Constructed and produced by **Geoanalysis**, Am Holderstock 6, 77652 Offenburg, Tel. ++49- (0)781-9705893; info@geoanalysis.de , www.geoanalysis.de

[4]Ditto

8.2. Data Acquisition

RESISTIVITY

The data acquisition is carried out by the automatic activation of 4-point-electrodes. 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 horizontally running layers as is needed for placer prospecting.

Our 2D Resistivity imaging system allows measurements with a depth of up to 180m. With a depth to bedrock of more than 6m we use an electrode spacing of 5m in our placer surveys. This allows us the measuring of large profile lengths in short time with a horizontal measuring resolution of 2.5m. This quantification has proven itself to be reliable in the determination of the bedrock topography and sedimentary arrangement for placer investigation at the most environmental conditions.

8.3. Processing

RESISTIVITY

The measured Resistivity data were processed with the **RES2DINV** inversion program[5].

A combination of computer settings individually adapted to the data sets were used to optimise the processing for getting most realistic profiles.

The resistivity scales of the profiles are balanced to make a compromise between 1) imaging the interfaces and 2) similarity of the scales between the profiles to facilitate its comparison.

8.4. Interpretation

The interpretation is kept ambivalent at some aspects since the profile series shows repeated data structures which did allow two different ways of interpretation and no further processing information was available.

[5]Designed by GEOTOMO SOFTWARE (Malaysia), 115, Cangkat Minden Jalan 5, Minden Heights, 11700 Gelugor, Penang, Malaysia, Tel.:++60-(0)4 657452, Fax :++60-(0)4 6588437, geotomo@gmail.com

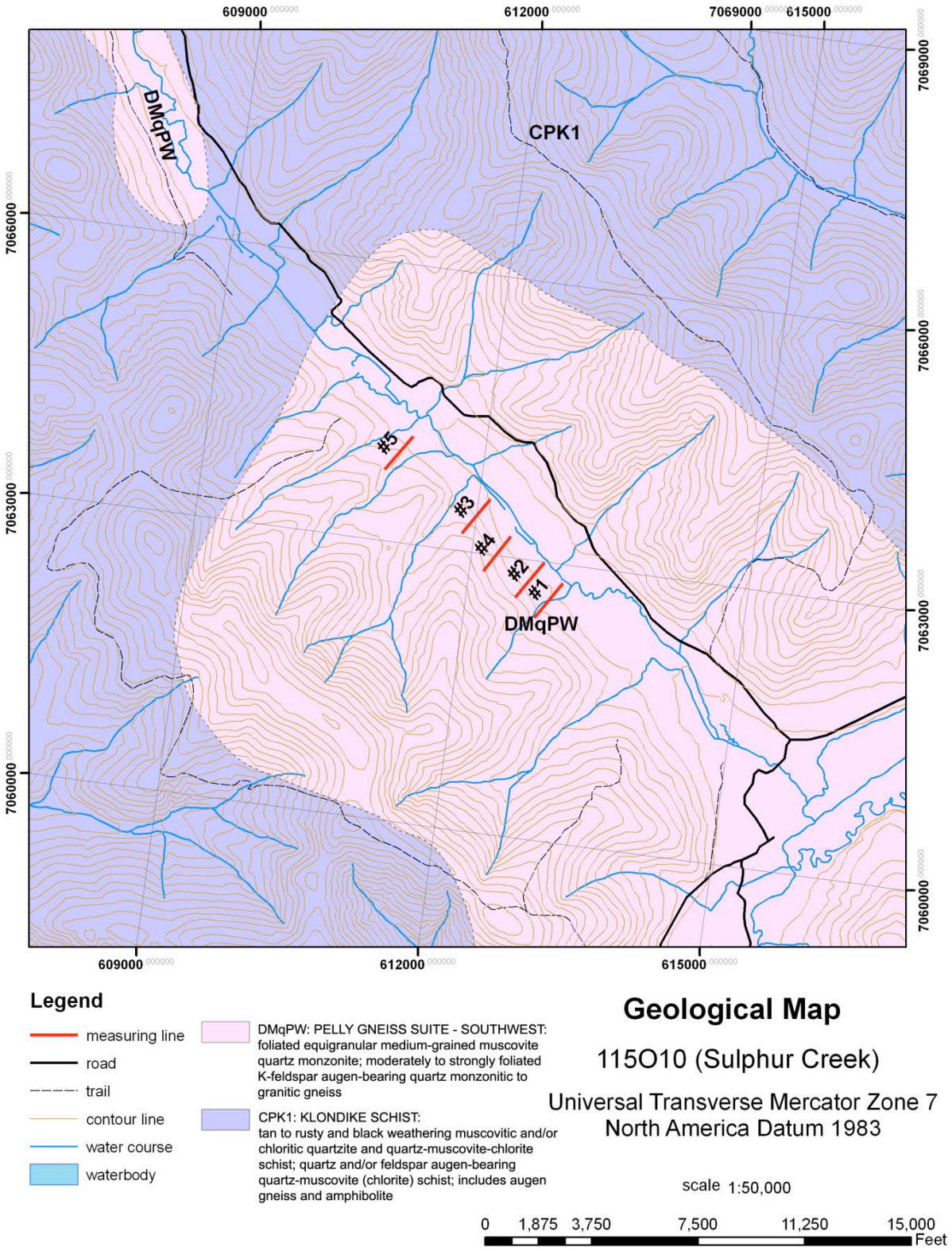
8.5. Profile image

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 expected 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 team on the basis of numerous geoelectrical profiles verified by drilling, trenching, and mining done by our customers.[6]

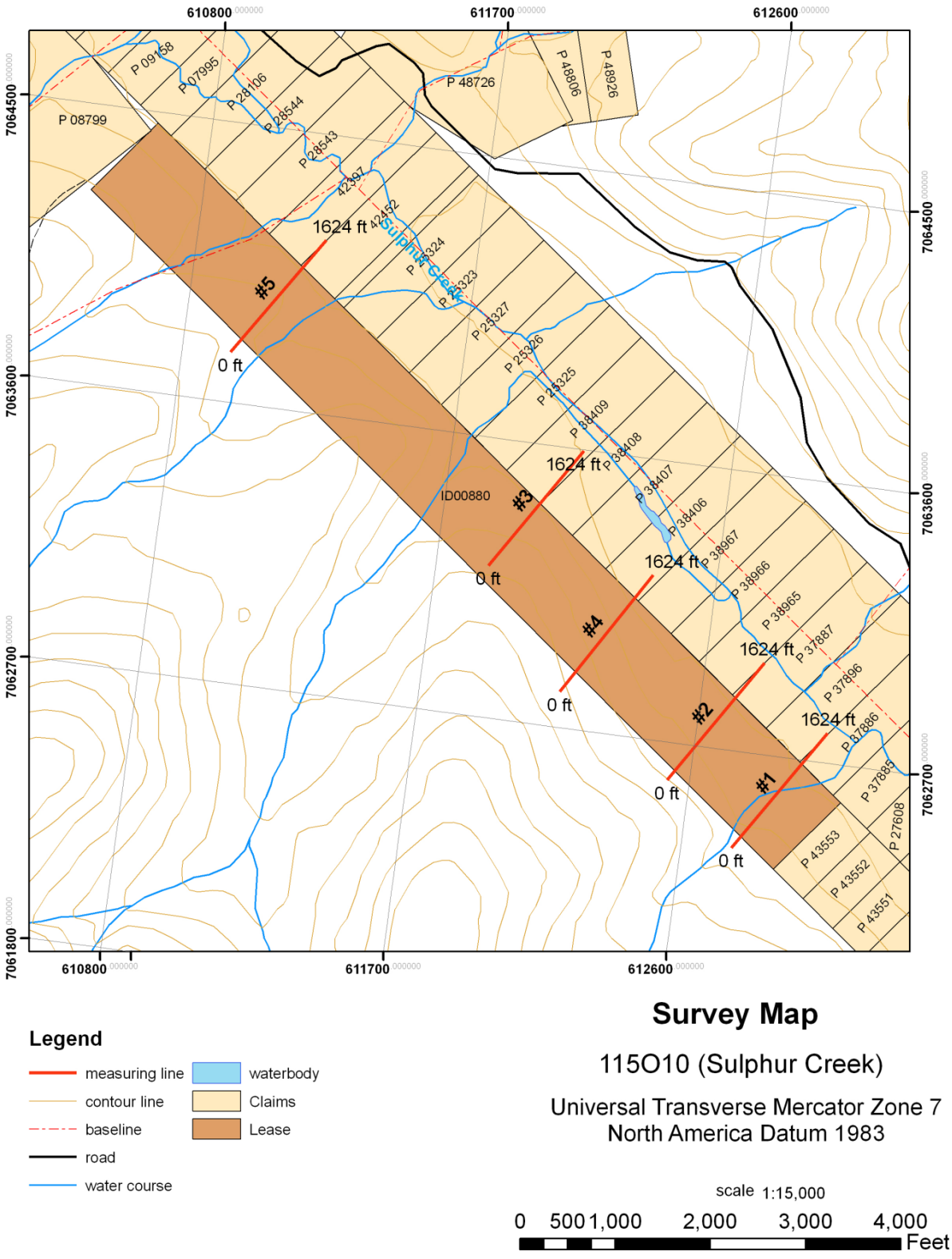
The **graphical markings** showing the interpreted layer interfaces in the profiles (using a black line) are done accordingly to the data structure in the profile itself. This means: the layers there will also show up approximately 15% thicker than they are in reality. At the measuring sticksand in the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

[6]Program settings at the 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. Bedrock Geology Map 115O/10



10. Survey Map 115O/10



11. Profiles

Preliminary Note!

The subsurface information of this study is an interpretation.

Profile_01

Sulphur Creek_01
2D Resistivity, Schlumberger array
100 Electrodes: spacing 16.4 ft, Horizontal resolution 8.2 ft
Horizontal and vertical measure in [meter], Iteration error in [%]
Vertical exaggeration in model section display = 1

Data acquisition: Josy Strunden, Jude Waldman, 31st July 2011
Processing: Josy Strunden, Philipp Moll, 31st July 2011
Interpretation: Josy Strunden, Philipp Moll, Aug 2011
Profile shows the ground-layers / layer interfaces approx.
15% thicker / deeper than expected in reality.
Comments to this/these profile/s are interpretation.

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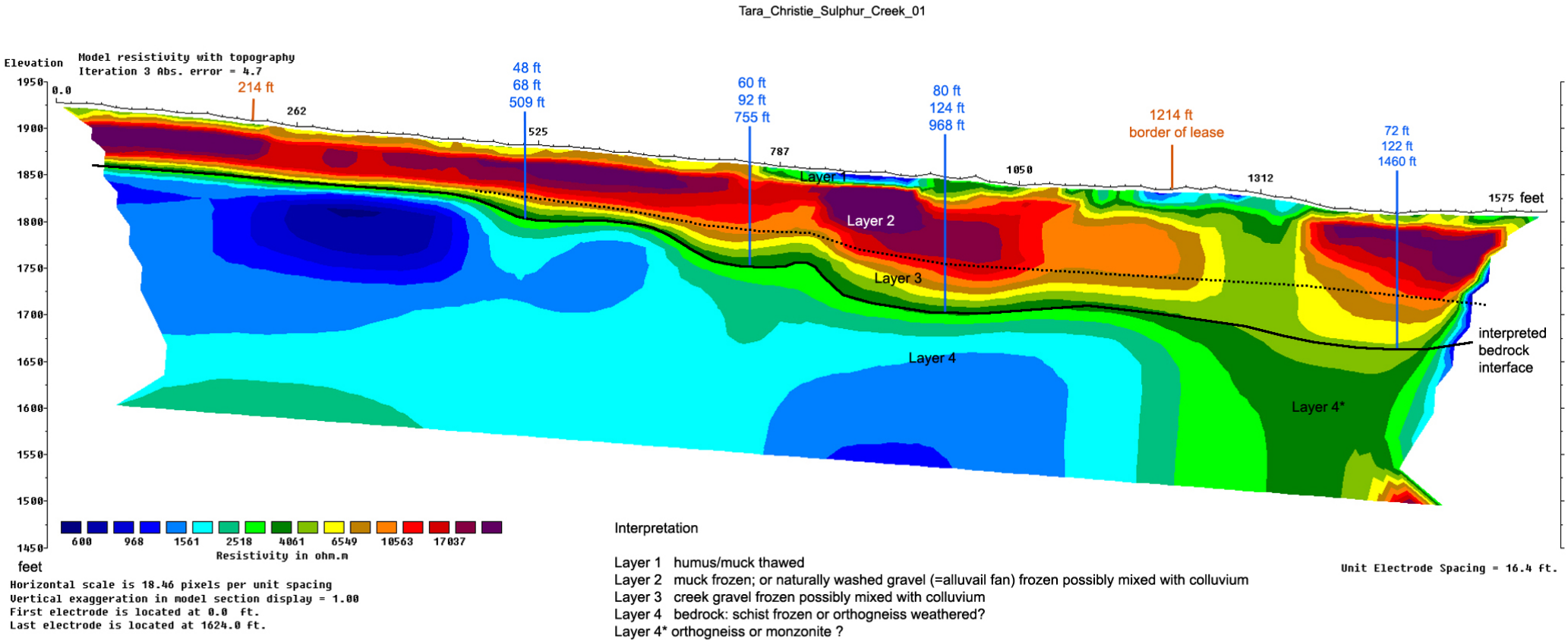

Interpretation

Layer 1 humus/muck thawed
Layer 2 muck frozen; or naturally washed gravel (=alluvail fan) frozen possibly mixed with colluvium
Layer 3 creek gravel frozen possibly mixed with colluvium
Layer 4 bedrock: schist frozen or orthogneiss weathered?
Layer 4* orthogneiss or monzonite ?

Interpretation

Layer 1, representing a thin „skin" of material better conducting than the material below, being 2-5 feet thick, might be thawed humus and/or muck with admixed gravel.

Layer 2 shows the typical data of frozen muck (10 000-20 000 ohm meter). Alternatively, the layer could consist of naturally washed gravel being poor in small sediments such as silt and sand sitting between the gravel pieces (matrix). Such a material being poor in a fine matrix can be produced when gravel moves down the slope getting mixed with pieces of broken bedrock altogether creating a colluvial deposit. This kind of deposit in frozen conditions could produce this high resistivity data.

Layer3 is defined as the data transition between the red/violet, very low conducting material of Layer 2 – and the blue high conducting material of Layer 4.The existence of some material in Layer 3 being different from the materials in Layer 2 and 4 is likely since this data transition is slow. A lack of this material is seen at 0-500 ft: there, Layer 2 and 4 show a sharp interface. Such a relatively slow data transition is characteristic for a thin frozen gravel layer below a thicker unit of frozen muck, and on top of well conducting bedrock.[7]

Layer 3 and 4 could represent a fan of alluvial and colluvial deposits produced by the small tributary.

Layer 4 is interpreted as bedrock. The data could indicate frozen schist or gneiss both suggested in the bedrock geology map. The change of the data could be caused by changes in the mineral composition or by changing amounts of weathering.[8]

[7]The computer programm does not show a thin gravel layer as homogenous data zone.

[8] In thawed conditions, weathered bedrock has usually higher conductivity since the rock becomes porous and can hold stationary water which itself becomes rich in solved ions. In frozen conditions the conductivity of weathered bedrock is lower since eroded rock particles are embedded in ice and thus are electrically insulated from each other.

Profile_02

Sulphur Creek_02
2D Resistivity, Schlumberger array
100 Electrodes: spacing 16.4 ft, Horizontal resolution 8.2 ft
Horizontal and vertical measure in [meter], Iteration error in [%]
Vertical exaggeration in model section display = 1

Data acquisition: Josy Strunden, Jude Waldman, 1st Aug 2011
Processing: Josy Strunden, Philipp Moll, 2nd Aug 2011
Interpretation: Josy Strunden, Philipp Moll, Aug 2011
Profile shows the ground-layers / layer interfaces approx.
15% thicker / deeper than expected in reality.
Comments to this/these profile/s are interpretation.

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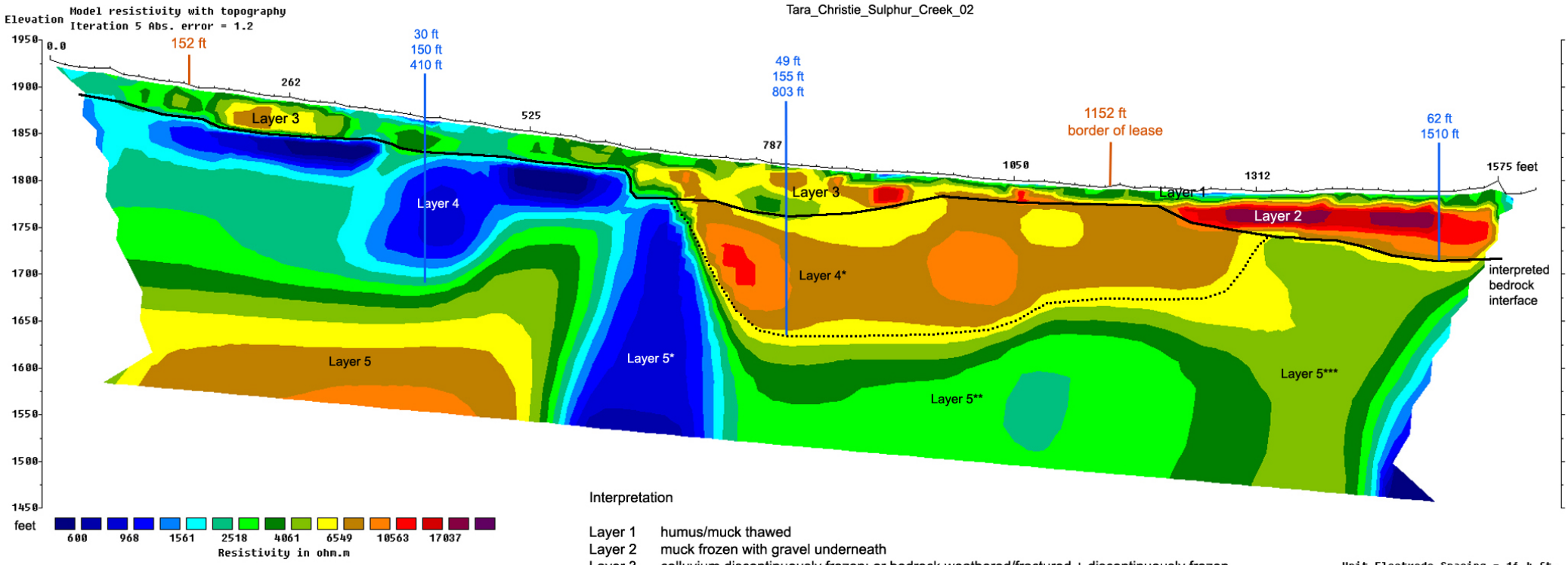

Horizontal scale is 18.58 pixels per unit spacing
Vertical exaggeration in model section display = 1.00
First electrode is located at 0.0 ft.
Last electrode is located at 1624.0 ft.

Interpretation

Layer 1 humus/muck thawed
Layer 2 muck frozen with gravel underneath
Layer 3 colluvium discontinuously frozen; or bedrock weathered/fractured + discontinuously frozen
Layer 4 bedrock: schist frozen or orthogneiss weathered ? -- less likely overburden
Layer 4* bedrock: orthogneiss ? -- less likely overburden
Layer 5 orthogneiss or monzonite?
Layer 5* bedrock: schist frozen or orthogneiss weathered?
Layer 5** orthogneiss or monzonite?
Layer 5 *** orthogneiss or monzonite?

Unit Electrode Spacing = 16.4 ft.

Interpretation

Layer 1 might be again thawed humus and/or muck with admixed gravel.

Layer 2 can be interpreted as 60% frozen muck on top of40% frozen river gravel transported by Sulphur Creek .

Layer 3 is a heterogeneous data zone likely representing partially frozen colluvium. Alternatively, this ground material could be weathered bedrock: orthogneiss is seen in the bedrock geology map and would fit with the resistivity data.

The resistivity of **Layer 4** is in the upper data range of Klondike Schist in frozen conditions. Alternatively, Layer 4 could indicate an alluvial gravel deposit; however, this might be less likely since it does not show a continuation in neighbor profile_04.

Layer4* is a bowl-shaped ground zone showing 6000-10 000 ohm meter. This feature appears in all profiles of the series outside from profile 01. It could indicate some non-schistoid bedrock since the data are quite high and better fitting with orthogneiss. Less likely this zone indicates some frozen overburden being dominated by gravel.[9] The existence of an alluvial gravel deposit created by Sulphur Creek seems to be less likely because the width and thickness of this feature changes much between profiles 03, 04 and 05. Also, the data are a slightly to high for frozen gravel at some spots of this feature. However, the existence of a gravel deposit cannot surely be disclaimed.

Layer 5 must be some solid bedrock: orthogneiss or monzonite both suggested by the bedrock geology map. This bedrock zone appears at profiles 02 to 05 and is covered by a blue, well conducting data zone at all these profiles as well. This pattern might refer to the same/similar ground materials in all these profiles.

Layer 5*, a vertical data zone, is dividing two solid masses from each other. It could be schist as being the continuation of the interpreted schist of Layer 4. Alternatively, it could be a weathered zone or another bedrock such as orthogneiss.

Layer 5** and **Layer 5***** could be orthogneiss or monzonite possibly showing a discontinuity in the mineral composition.

[9] Frozen gravel shows between 2000 and 10 000 ohm meter.

Profile_04

Sulphur Creek_04
2D Resistivity, Schlumberger array
100 Electrodes: spacing 16.4 ft, Horizontal resolution 8.2 ft
Horizontal and vertical measure in [meter], Iteration error in [%]
Vertical exaggeration in model section display = 1

Data acquisition: Josy Strunden, Jude Waldman, Bradley, 4th Aug 2011
Processing: Josy Strunden, Philipp Moll, Aug 2011
Interpretation: Philipp Moll, Josy Strunden, Aug 2011
Profile shows the ground-layers / layer interfaces approx.
15% thicker / deeper than expected in reality.
Comments to this/these profile/s are interpretation.

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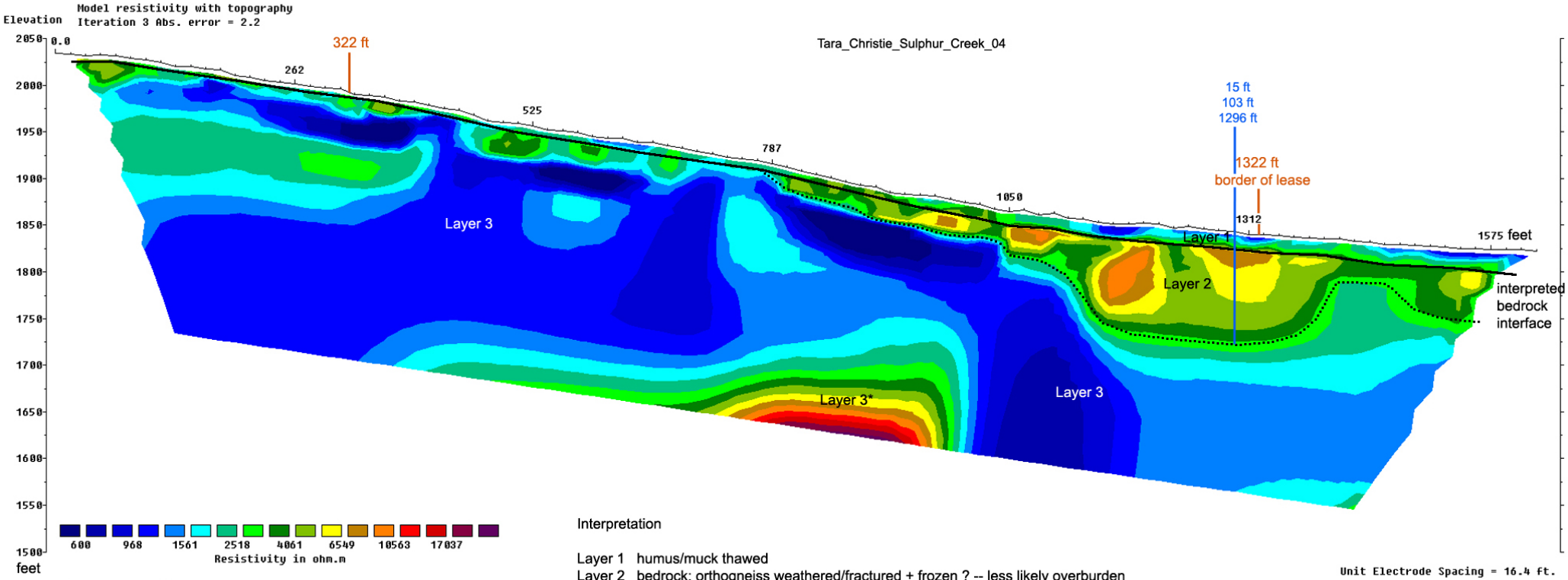

Interpretation

Layer 1 humus/muck thawed
Layer 2 bedrock: orthogneiss weathered/fractured + frozen ? -- less likely overburden
Layer 3 bedrock: schist ? showing moderately discontinuous weathering + permafrost; or orthogneiss weathered
Layer 3* orthogneiss or monzonite?

Interpretation

Layer 1 might again indicate thawed humus and/or muck, 1-3 feet thick below the surface, possibly mixed with gravel.

Layer 2 shows the bowl-shaped feature, repeated in profiles 02 to 04, being interpreted in the same way like in profile 02: as orthogneiss or less likely gravel. In this profile, the zone is much smaller and the resistivity data show a pattern being more “patchy” than in profile 02. Since this pattern does not look layer-like at all, plus is presenting vertical data boundaries, the interpretation of a bedrock zone is strengthened. – However, the less likely hypothesis of a bedrock channel filled with discontinuously frozen gravel is not impossible.

Layer 3 and **Layer 3***present the typical structure of the profile series: again we see a low conducting bedrock plateau (red) surrounded by some low conducting material (blue) both strongly assumed to be bedrock. However, the upper part of Layer 3, where the resistivity is lower (dark blue), could alternatively and less likely consist of gravel.

Profile_03

Sulphur Creek_03
2D Resistivity, Schlumberger array
100 Electrodes: spacing 16.4 ft, Horizontal resolution 8.2 ft
Horizontal and vertical measure in [meter], Iteration error in [%]
Vertical exaggeration in model section display = 1

Data acquisition: Josy Strunden, Jude Waldman, 2nd Aug 2011
Processing: Philipp Moll, Aug 2011
Interpretation: Philipp Moll, Josy Strunden, Aug 2011
Profile shows the ground-layers / layer interfaces approx.
15% thicker / deeper than expected in reality.
Comments to this/these profile/s are interpretation.

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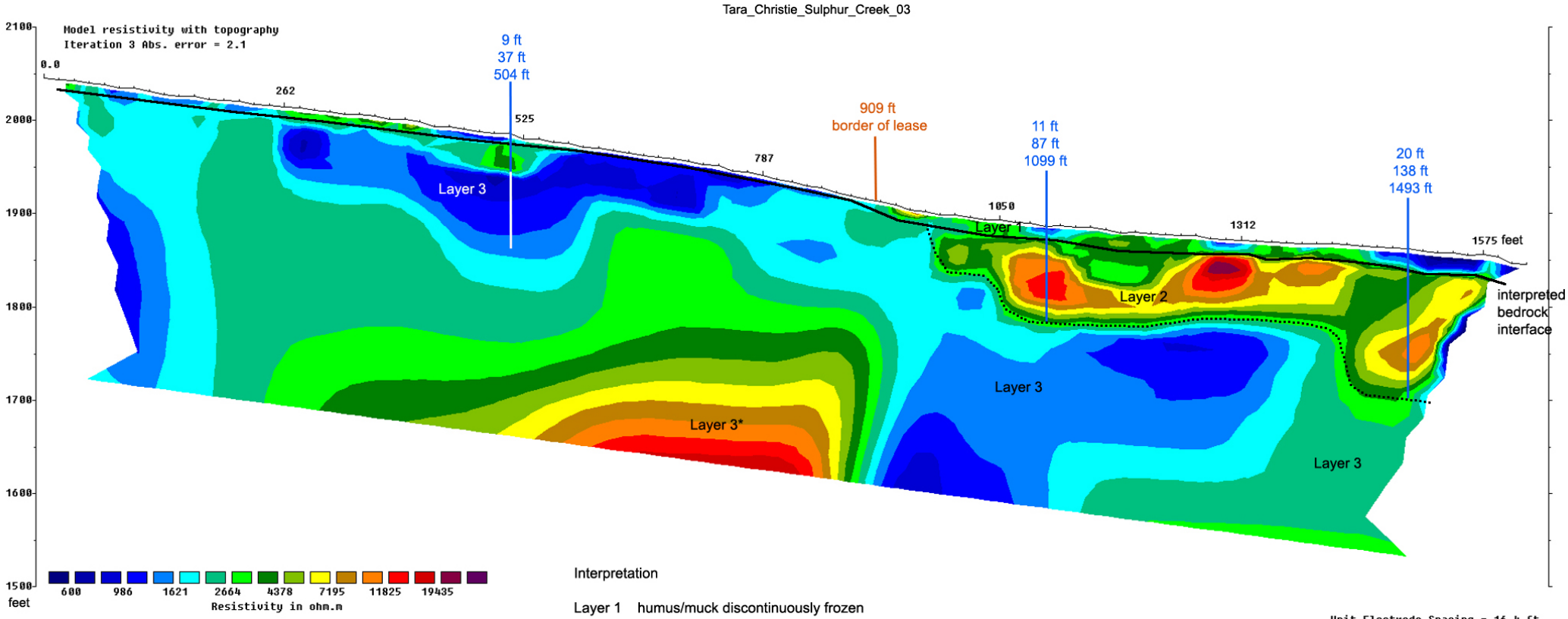

Horizontal scale is 18.58 pixels per unit spacing
Vertical exaggeration in model section display = 1.00
First electrode is located at 0.0 ft.
Last electrode is located at 1624.0 ft.

Interpretation

Layer 1 humus/muck discontinuously frozen
Layer 2 bedrock: orthogneiss ? weathered/fractured + frozen -- less likely overburden
Layer 3 bedrock: schist ? showing moderately discontinuous weathering + permafrost, or orthogneiss weathered
Layer 3* orthogneiss or monzonite ?

Unit Electrode Spacing = 16.4 ft.

Interpretation

Layer 1 seems again indicating thawed humus and/or muck, 1-3 feet thick below the surface, possibly mixed with gravel.

Layer 2 shows the bowl-shaped feature, repeated in profiles 02 to 04, being interpreted in the same way like in profile 02: as bedrock (orthogneiss?) or less likely gravel. In this profile the repeated structure has similar dimensions as the neighbor profile 03. The data pattern is similar as well: some insular zones with higher data (red) also appear in this profile. These are again some reasons for the continuity of this geological feature along the valley. The bedrock hypothesis is supported by the repeated similarity of the resistivity pattern. However, the trough could alternatively and less likely be a gravel deposit in bedrock.

Layer 3 and **Layer 3***present the typical structure in the profiles of this series: again we see a low conducting bedrock plateau (red) surrounded by some low conducting material (blue) both strongly assumed to be bedrock. Around 500 ft, the ground material of Layer 3 could alternatively and less likely be an alluvial gravel deposit.

Profile_05

Sulphur Creek_05
2D Resistivity, Schlumberger array
100 Electrodes: spacing 16.4 ft, Horizontal resolution 8.2 ft
Horizontal and vertical measure in [meter], Iteration error in [%]
Vertical exaggeration in model section display = 1

Data acquisition: Josy Strunden, Jude Waldman, Trevor, 6th Aug 2011
Processing: Philipp Moll, 7th July 2011
Interpretation: Philipp Moll, Josy Strunden, Aug 2011
Profile shows the ground-layers / layer interfaces approx.
15% thicker / deeper than expected in reality.
Comments to this/these profile/s are interpretation.

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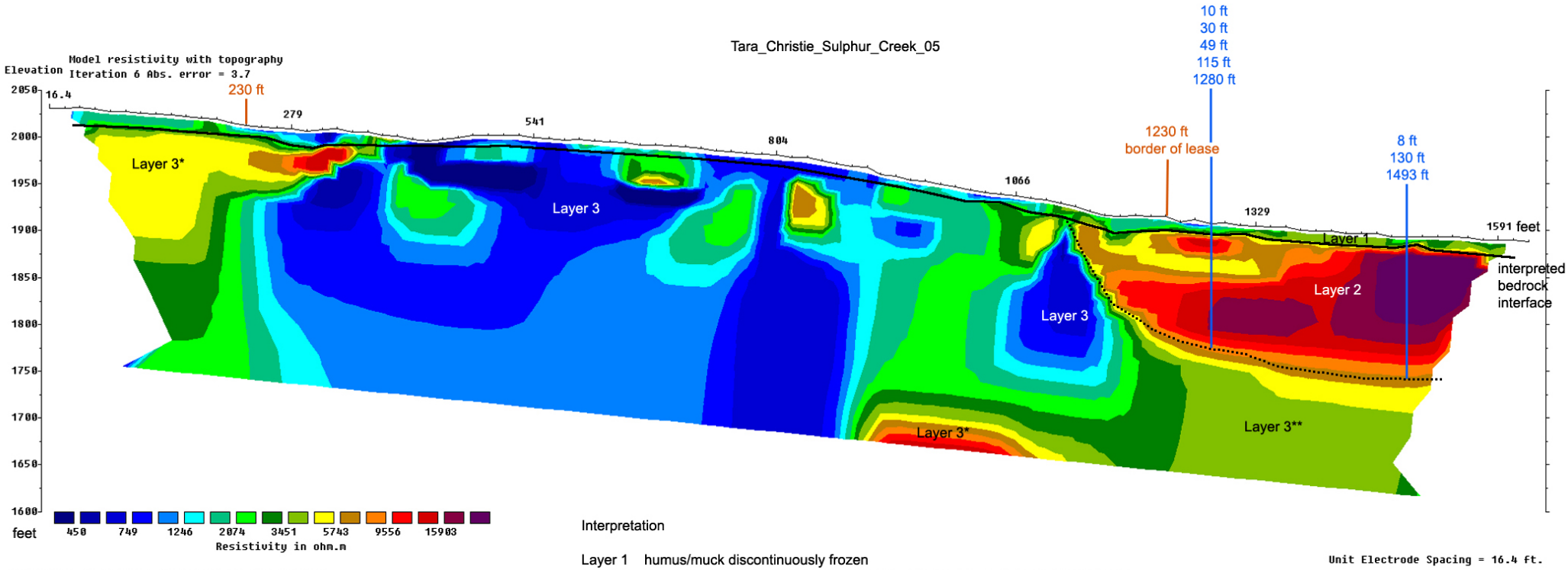

Horizontal scale is 18.77 pixels per unit spacing
Vertical exaggeration in model section display = 1.00
First electrode is located at 16.4 ft.
Last electrode is located at 1624.0 ft.

Interpretation

Layer 1 humus/muck discontinuously frozen
Layer 2 bedrock: orthogneiss weathered/fractured + frozen ? -- less likely overburden
Layer 3 bedrock: schist ? showing discontinuous weathering + permafrost; or orthogneiss weathered
Layer 3* orthogneiss ?
Layer 3** orthogneiss or monzonite

Unit Electrode Spacing = 16.4 ft.

Interpretation

Layer 1 might again indicate thawed humus and/or muck, 1-3 feet thick below the surface, possibly mixed with gravel.

Layer 2: The bowl-shaped structure, repeated in profiles 02 to 04, is partly seen at the right edge of the profile. At this profile, the trough shows resistivity data being more homogeneous and presenting a better conducting interlayer (yellow). This data structure is characteristic for frozen gravel horizontally penetrated by groundwater finding its way between two frozen units. This is an aspect for the gravel hypothesis.

Layer 3 and **Layer3***are drawing roughly the same zone arrangement than in the profiles before. The blue, better conducting data zone covering the red, low conducting bedrock plateau on the bottom of the profile is much more unordered than in the other profiles. The green/brown, lower conducting zones surrounded by the blue matrix might indicate some weathered areas in permafrost – or some fragments of the lower conducting bedrock type. On the left side of the profile another mass of low conducting bedrock starts.

12. Recommendations

In this text, the channel-shaped feature on the right side in the profiles has consequently been interpreted in an ambivalent way. Even if the existence of an alluvial channel is estimated to be less likely, it might be reasonable to check it by drilling. To verify or falsify the interpretation aspects mentioned above, we recommend drilling at the locations seen in the table below.

Note:

The length of the lines (495m) was chosen to reach the full measuring depth of the system (approx. 90m). Thus the measuring lines are longer than the width of the lease. The recommendations for drilling refer to the whole ground which was measured in this survey. The red numbers show recommended drill locations located outside of the lease: this information is given for the case that this property will be afforded or staked later.

Profile	**Drill Location**
01	509 ft, 755 ft, 968 ft, 1460 ft
02	410 ft, 803 ft, 1510 ft
03	504 ft, 1099 ft, 1493 ft
04	360 ft, 673 ft, 918 ft, 1296 ft
05	279 ft., 1230 ft, 1280 ft, 1493 ft

The expected depths/thicknesses of the ground layers and their interpreted materials are shown in the profile images and interpretation texts above.

13. References

Literature

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

Maps

http://www.yukonminingrecorder.ca/PDFs: 115O/10

Gordey, S.P. and Makepeace, A.J. (comp.) 1999: Yukon bedrock geology in Yukon digital geology, S.P.

14. Qualification

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- Study of geology, University of Freiburg, Germany

- Visit of geophysical field courses, University of Karlsruhe and University of Stuttgart, 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

- 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, filedat Yukon Mining Recorder

  B) Geophysical survey (45 field days) for Yukon Government: Yukon Geological Survey, Publication:
  http://www.geology.gov.yk.ca/recent.html Open Files: Moll, P., &Ostermaier, S., 2010. 2D Resistivity/IP Data Release for Placer Mining and shallow Quartz Mining - Yukon 2010.Yukon Geological Survey Miscellaneous Report MR-4.PDF Report [10.3 MB] &Data Profiles [45.4 MB]

Philipp Moll

Attachment 1: Geophysical Data

Geophysical Data Table

Rock type	Resistivity range (Ωm)
Granite porphyry	4.5×10^3 (wet) – 1.3×10^6 (dry)
Feldspar porphyry	4×10^3 (wet)
Syenite	10^2 – 10^6
Diorite porphyry	1.9×10^3 (wet) – 2.8×10^4 (dry)
Porphyrite	10 – 5×10^4 (wet) – 3.3×10^3 (dry)
Carbonatized porphyry	2.5×10^3 (wet) – 6×10^4 (dry)
Quartz diorite	2×10^4 – 2×10^6 (wet) – 1.8×10^5 (dry)
Porphyry (various)	60 – 10^4
Dacite	2×10^4 (wet)
Andesite	4.5×10^4 (wet) – 1.7×10^2 (dry)
Diabase (various)	20 – 5×10^7
Lavas	10^2 – 5×10^4
Gabbro	10^3 – 10^6
Basalt	10 – 1.3×10^7 (dry)
Olivine norite	10^3 – 6×10^4 (wet)
Peridotite	3×10^3 (wet) – 6.5×10^3 (dry)
Hornfels	8×10^3 (wet) – 6×10^7 (dry)
Schists (calcareous and mica)	20 – 10^4
Tuffs	2×10^3 (wet) – 10^5 (dry)
Graphite schist	10 – 10^2
Slates (various)	6×10^2 – 4×10^7
Gneiss (various)	6.8×10^4 (wet) – 3×10^6 (dry)
Marble	10^2 – 2.5×10^8 (dry)
Skarn	2.5×10^2 (wet) – 2.5×10^8 (dry)
Quartzites (various)	10 – 2×10^8
Consolidated shales	20 – 2×10^3
Argillites	10 – 8×10^2
Conglomerates	2×10^3 – 10^4
Sandstones	1 – 6.4×10^8
Limestones	50 – 10^7
Dolomite	3.5×10^2 – 5×10^3
Unconsolidated wet clay	20
Marls	3 – 70
Clays	1 – 100
Oil sands	4 – 800

Type	Susceptibility × 10^3 (SI)	
	Range	Average
Sedimentary		
Dolomite	0 – 0.9	0.1
Limestones	0 – 3	0.3
Sandstones	0 – 20	0.4
Shales	0.01 – 15	0.6
Av. 48 sedimentary	0 – 18	0.9
Metamorphic		
Amphibolite		0.7
Schist	0.3 – 3	1.4
Phyllite		1.5
Gneiss	0.1 – 25	
Quartzite		4
Serpentine	3 – 17	
Slate	0 – 35	6
Av. 61 metamorphic	0 – 70	4.2
Igneous		
Granite	0 – 50	2.5
Rhyolite	0.2 – 35	
Dolorite	1 – 35	17
Augite-syenite	30 – 40	
Olivine-diabase		25
Diabase	1 – 160	55
Porphyry	0.3 – 200	60
Gabbro	1 – 90	70
Basalts	0.2 – 175	70
Diorite	0.6 – 120	85
Pyroxenite		125
Peridotite	90 – 200	150
Andesite		160
Av. acidic igneous	0 – 80	8
Av. basic igneous	0.5 – 97	25
Minerals		
Graphite		0.1
Quartz		−0.01
Rock salt		−0.01
Anhydrite, gypsum		−0.01
Calcite	−0.001 – − 0.01	
Coal		0.02
Clays		0.2
Chalcopyrite		0.4
Sphalerite		0.7
Cassiterite		0.9
Siderite	1 – 4	
Pyrite	0.05 – 5	1.5
Limonite		2.5
Arsenopyrite		3
Hematite	0.5 – 35	6.5
Chromite	3 – 110	7
Franklinite		430
Pyrrhotite	1 – 6000	1500
Ilmenite	300 – 3500	1800
Magnetite	1200 – 19200	6000

Telford et al. (1990)

Attachment 2: Costs

Arctic Geophysics Inc.

Geophysical Surveys • Prospecting • Consulting

Tara Christie, Box 85
Dawson YT
Canada, Y0B1G0

Arctic Geophysics Inc.
Box 747, Dawson City, Yukon
Y0B-1G0, Canada
Phone: 867-993-3671 (Cell)
info@arctic-geophysics.com
www.arctic-geophysics.com

Survey Location: Sulphur Creek, (115O/10h): 2Miles Lease ID 00880

List of costs

Date: 9th Aug, 2011

Services provided:

Quantity	Description	Amount $CAN
Transportation		
7 days	Vehicle, $ 50.-- / day	350.--
720 Km	$ 0.45 / km	324.--
1/2 day	Driving, $ 250-- / day, Crew Leader	125.--
Geophysical Survey		
5 days	Geoelectrical 2D-Resistivity/IP Imaging System + Survey Leader $ 700.-- / day	3 500.--
1½ day	Fieldwork, Crew Leader 300.-- /day	450.--
1 day	Computer work, Crew Leader, $ 250.-- / day	250.--
1 day	Processing/Interpretation/Documentation, Survey Leader 300.--/day	300.--
25 min	Satellite Phone $ 1.99 / min	49.75
	Salary field assistant	1212.20
2 days	Writing Report, 300.-- day	600.--
	Printing, Binding, Shipping	60.--
		NET Amount$ 7 220.95
GST Number 846363216RT0001		**G.S.T. (5%)**$ 361.04
Total Due		**$ 7 581.99**

Attachment 3: GPS-Data

Sulphur Creek 01					
			* WGS 1984		
Electrode No.	**Location in Profile [m]**	**Location in Profile [ft]**	**GPS Coordinates (UTM* Zone 7)**	**GPS-Accuracy [m]**	**Post [*]**
1	0	0,0	612762 7062389	4	*
2	5	16,4	612765 7062391	4	
3	10	32,8	612768 7062395	4	
4	15	49,2	612772 7062399	4	
5	20	65,6	612774 7062403	4	
6	25	82,0	612777 7062407	4	
7	30	98,4	612780 7062410	4	
8	35	114,8	612783 7062414	4	
9	40	131,2	612786 7062419	4	
10	45	147,6	612788 7062423	4	
11	50	164,0	612791 7062427	4	
12	55	180,4	612794 7062432	4	
13	60	196,9	612796 7062436	4	
14	65	213,3	612799 7062440	4	
15	70	229,7	612801 7062443	4	
16	75	246,1	612804 7062448	4	
17	80	262,5	612807 7062453	4	
18	85	278,9	612808 7062456	4	
19	90	295,3	612811 7062461	4	
20	95	311,7	612814 7062466	4	

21	100	328,1	612817 7062470	4	
22	105	344,5	612819 7062474	4	
23	110	360,9	612822 7062477	4	
24	115	377,3	612825 7062481	4	
25	120	393,7	612828 7062485	4	*
26	125	410,1	612830 7062490	4	
27	130	426,5	612833 7062494	4	
28	135	442,9	612835 7062498	4	
29	140	459,3	612838 7062501	4	
30	145	475,7	612841 7062505	4	
31	150	492,1	612843 7062509	4	
32	155	508,5	612845 7062514	4	
33	160	524,9	612848 7062517	4	
34	165	541,3	612850 7062522	4	
35	170	557,7	612853 7062527	4	
36	175	574,1	612854 7062531	4	
37	180	590,6	612857 7062536	4	
38	185	607,0	612860 7062540	4	
39	190	623,4	612862 7062545	4	
40	195	639,8	612864 7062548	4	
41	200	656,2	612867 7062552	4	
42	205	672,6	612870 7062556	4	
43	210	689,0	612872 7062560	4	
44	215	705,4	612875 7062565	4	
45	220	721,8	612877	4	

			7062569		
46	225	738,2	612878 7062574	4	
47	230	754,6	612881 7062578	4	
48	235	771,0	612884 7062583	4	
49	240	787,4	612886 7062588	4	
50	245	803,8	612889 7062592	4	*
51	250	820,2	612892 7062597	4	
52	255	836,6	612895 7062601	4	
53	260	853,0	612897 7062605	4	
54	265	869,4	612899 7062610	4	
55	270	885,8	612902 7062614	4	
56	275	902,2	612905 7062619	4	
57	280	918,6	612907 7062623	4	
58	285	935,0	612910 7062628	4	
59	290	951,4	612911 7062632	4	
60	295	967,8	612913 7062636	4	
61	300	984,3	612916 7062640	4	
62	305	1000,7	612920 7062645	4	
63	310	1017,1	612921 7062649	4	
64	315	1033,5	612924 7062653	4	
65	320	1049,9	612928 7062657	4	
66	325	1066,3	612930 7062659	4	
67	330	1082,7	612932 7062664	4	
68	335	1099,1	612934 7062668	4	
69	340	1115,5	612937 7062671	4	

70	345	1131,9	612939 7062677	4	
71	350	1148,3	612941 7062681	4	
72	355	1164,7	612943 7062685	4	
73	360	1181,1	612946 7062689	4	
74	365	1197,5	612949 7062693	4	
75	370	1213,9	612951 7062697	4	*
76	375	1230,3	612954 7062701	4	
77	380	1246,7	612957 7062705	4	
78	385	1263,1	612958 7062709	4	
79	390	1279,5	612961 7062713	4	
80	395	1295,9	612964 7062717	4	
81	400	1312,3	612967 7062722	4	
82	405	1328,7	612970 7062726	4	
83	410	1345,1	612974 7062729	4	
84	415	1361,5	612978 7062735	4	
85	420	1378,0	612979 7062736	4	
86	425	1394,4	612984 7062740	4	
87	430	1410,8	612986 7062745	4	
88	435	1427,2	612989 7062750	4	
89	440	1443,6	612990 7062754	4	
90	445	1460,0	612993 7062758	4	
91	450	1476,4	612996 7062765	4	
92	455	1492,8	612998 7062769	4	
93	460	1509,2	613000 7062773	4	
94	465	1525,6	613004	4	

			7062776		
95	470	1542,0	613007 7062780	4	
96	475	1558,4	613009 7062785	4	
97	480	1574,8	613011 7062789	4	
98	485	1591,2	613012 7062791	4	
99	490	1607,6	613014 7062794	4	
100	495	1624,0	613018 7062797	4	*

Sulphur Creek 02					
			* WGS 1984		
Electrode No.	**Location in Profile [m]**	**Location in Profile [ft]**	**GPS Coordinates (UTM* Zone 7)**	**GPS-Accuracy [m]**	**Post [*]**
1	0	0,0	612528 7062578	4	*
2	5	16,4	612531 7062582	4	
3	10	32,8	612535 7062587	4	
4	15	49,2	612537 7062591	4	
5	20	65,6	612539 7062595	4	
6	25	82,0	612542 7062599	4	
7	30	98,4	612545 7062604	4	
8	35	114,8	612548 7062608	4	
9	40	131,2	612550 7062611	4	
10	45	147,6	612553 7062616	4	
11	50	164,0	612556 7062621	4	
12	55	180,4	612559 7062625	4	
13	60	196,9	612561 7062630	4	
14	65	213,3	612564 7062634	4	
15	70	229,7	612567 7062637	4	
16	75	246,1	612569 7062643	4	
17	80	262,5	612572 7062647	4	
18	85	278,9	612574 7062651	4	
19	90	295,3	612578 7062655	4	
20	95	311,7	612580 7062659	4	
21	100	328,1	612582 7062663	4	
22	105	344,5	612584	4	

			7062668		
23	110	360,9	612588 7062671	4	
24	115	377,3	612591 7062677	4	
25	120	393,7	612592 7062680	4	*
26	125	410,1	612596 7062684	4	
27	130	426,5	612598 7062688	4	
28	135	442,9	612601 7062692	4	
29	140	459,3	612603 7062697	4	
30	145	475,7	612605 7062701	4	
31	150	492,1	612608 7062705	4	
32	155	508,5	612610 7062709	4	
33	160	524,9	612613 7062713	4	
34	165	541,3	612617 7062717	4	
35	170	557,7	612618 7062722	4	
36	175	574,1	612620 7062726	4	
37	180	590,6	612623 7062730	4	
38	185	607,0	612625 7062734	4	
39	190	623,4	612628 7062738	4	
40	195	639,8	612630 7062742	4	
41	200	656,2	612633 7062746	4	
42	205	672,6	612635 7062750	4	
43	210	689,0	612636 7062754	4	
44	215	705,4	612639 7062759	4	
45	220	721,8	612641 7062763	4	
46	225	738,2	612643 7062767	4	

47	230	754,6	612646 7062772	4	
48	235	771,0	612649 7062775	4	
49	240	787,4	612651 7062779	4	
50	245	803,8	612654 7062783	4	*
51	250	820,2	612657 7062788	4	
52	255	836,6	612659 7062792	4	
53	260	853,0	612661 7062796	4	
54	265	869,4	612662 7062801	4	
55	270	885,8	612665 7062805	4	
56	275	902,2	612668 7062809	4	
57	280	918,6	612670 7062814	4	
58	285	935,0	612672 7062818	4	
59	290	951,4	612675 7062822	4	
60	295	967,8	612677 7062827	4	
61	300	984,3	612680 7062831	4	
62	305	1000,7	612681 7062836	4	
63	310	1017,1	612684 7062840	4	
64	315	1033,5	612687 7062845	4	
65	320	1049,9	612690 7062847	4	
66	325	1066,3	612693 7062852	4	
67	330	1082,7	612695 7062856	4	
68	335	1099,1	612698 7062860	4	
69	340	1115,5	612701 7062864	4	
70	345	1131,9	612704 7062868	4	
71	350	1148,3	612706	4	

			7062873		
72	355	1164,7	612709 7062876	4	
73	360	1181,1	612712 7062880	4	
74	365	1197,5	612716 7062885	4	
75	370	1213,9	612717 7062890	4	*
76	375	1230,3	612721 7062893	4	
77	380	1246,7	612724 7062898	4	
78	385	1263,1	612726 7062903	4	
79	390	1279,5	612729 7062909	4	
80	395	1295,9	612732 7062913	4	
81	400	1312,3	612735 7062917	4	
82	405	1328,7	612738 7062921	4	
83	410	1345,1	612741 7062927	4	
84	415	1361,5	612744 7062931	4	
85	420	1378,0	612747 7062934	4	
86	425	1394,4	612749 7062938	4	
87	430	1410,8	612752 7062944	4	
88	435	1427,2	612755 7062948	4	
89	440	1443,6	612758 7062952	4	
90	445	1460,0	612760 7062956	4	
91	450	1476,4	612762 7062960	4	
92	455	1492,8	612765 7062964	4	
93	460	1509,2	612768 7062969	4	
94	465	1525,6	612770 7062973	4	
95	470	1542,0	612773 7062978	4	

96	475	1558,4	612776 7062981	4	
97	480	1574,8	612779 7062985	4	
98	485	1591,2	612782 7062989	4	
99	490	1607,6	612785 7062992	4	
100	495	1624,0	612788 7062995	4	*

Sulphur Creek 03						
			* WGS 1984			
Electrode No.	**Location in Profile [m]**	**Location in Profile [ft]**	**GPS Coordinates (UTM *Zone 7)**		**GPS-Accuracy [m]**	**Post [*]**
1	0	0,0	611868	7063189	4	*
2	5	16,4	611869	7063193	4	
3	10	32,8	611871	7063196	4	
4	15	49,2	611874	7063199	4	
5	20	65,6	611878	7063201	4	
6	25	82,0	611880	7063205	4	
7	30	98,4	611882	7063208	4	
8	35	114,8	611886	7063213	4	
9	40	131,2	611888	7063217	4	
10	45	147,6	611891	7063220	4	
11	50	164,0	611893	7063224	4	
12	55	180,4	611894	7063230	4	
13	60	196,9	611899	7063234	4	
14	65	213,3	611900	7063238	4	
15	70	229,7	611903	7063242	4	
16	75	246,1	611905	7063246	4	
17	80	262,5	611908	7063251	4	
18	85	278,9	611910	7063256	4	
19	90	295,3	611913	7063259	4	
20	95	311,7	611916	7063263	4	
21	100	328,1	611920	7063267	4	
22	105	344,5	611921	7063270	4	
23	110	360,9	611924	7063274	4	
24	115	377,3	611927	7063279	4	
25	120	393,7	611930	7063283	4	*
26	125	410,1	611932	7063287	4	
27	130	426,5	611934	7063291	4	
28	135	442,9	611937	7063295	4	

29	140	459,3	611939	7063299	4	
30	145	475,7	611942	7063303	4	
31	150	492,1	611945	7063308	4	
32	155	508,5	611948	7063312	4	
33	160	524,9	611950	7063315	4	
34	165	541,3	611953	7063319	4	
35	170	557,7	611956	7063323	4	
36	175	574,1	611958	7063327	4	
37	180	590,6	611961	7063331	4	
38	185	607,0	611962	7063335	4	
39	190	623,4	611966	7063339	4	
40	195	639,8	611969	7063344	4	
41	200	656,2	611971	7063347	4	
42	205	672,6	611973	7063352	4	
43	210	689,0	611975	7063355	4	
44	215	705,4	611978	7063360	4	
45	220	721,8	611982	7063363	4	
46	225	738,2	611985	7063368	4	
47	230	754,6	611987	7063372	4	
48	235	771,0	611989	7063377	4	
49	240	787,4	611992	7063379	4	
50	245	803,8	611995	7063384	4	*
51	250	820,2	611996	7063389	4	
52	255	836,6	611999	7063392	4	
53	260	853,0	612001	7063398	4	
54	265	869,4	612004	7063403	4	
55	270	885,8	612007	7063406	4	
56	275	902,2	612009	7063410	4	
57	280	918,6	612012	7063413	4	
58	285	935,0	612015	7063417	4	
59	290	951,4	612016	7063422	4	
60	295	967,8	612019	7063425	4	

61	300	984,3	612023	7063430	4	
62	305	1000,7	612025	7063433	4	
63	310	1017,1	612026	7063438	4	
64	315	1033,5	612029	7063444	4	
65	320	1049,9	612032	7063448	4	
66	325	1066,3	612034	7063452	4	
67	330	1082,7	612037	7063456	4	
68	335	1099,1	612040	7063460	4	
69	340	1115,5	612042	7063465	4	
70	345	1131,9	612045	7063470	4	
71	350	1148,3	612047	7063475	4	
72	355	1164,7	612050	7063480	4	
73	360	1181,1	612052	7063484	4	
74	365	1197,5	612054	7063488	4	
75	370	1213,9	612056	7063492	4	*
76	375	1230,3	612060	7063495	4	
77	380	1246,7	612063	7063500	4	
78	385	1263,1	612065	7063504	4	
79	390	1279,5	612069	7063508	4	
80	395	1295,9	612070	7063513	4	
81	400	1312,3	612074	7063517	4	
82	405	1328,7	612076	7063521	4	
83	410	1345,1	612079	7063525	4	
84	415	1361,5	612080	7063530	4	
85	420	1378,0	612083	7063532	4	
86	425	1394,4	612086	7063536	4	
87	430	1410,8	612088	7063539	4	
88	435	1427,2	612092	7063544	4	
89	440	1443,6	612095	7063548	4	
90	445	1460,0	612097	7063553	4	
91	450	1476,4	612099	7063559	4	
92	455	1492,8	612102	7063563	4	

93	460	1509,2	612104	7063567	4	
94	465	1525,6	612108	7063572	4	
95	470	1542,0	612110	7063576	4	
96	475	1558,4	612113	7063581	4	
97	480	1574,8	612115	7063585	4	
98	485	1591,2	612118	7063589	4	
99	490	1607,6	612119	7063593	4	
100	495	1624,0	612122	7063596	4	*

Sulphur Creek 04						
			* WGS 1984			
Electrode No.	**Location in Profile [m]**	**Location in Profile [ft]**	**GPS Coordinates (UTM* Zone 7)**		**GPS-Accuracy [m]**	**Post [*]**
1	0	0,0	612149	7062815	4	*
2	5	16,4	612151	7062818	4	
3	10	32,8	612153	7062823	4	
4	15	49,2	612156	7062826	4	
5	20	65,6	612158	7062831	4	
6	25	82,0	612159	7062835	4	
7	30	98,4	612163	7062840	4	
8	35	114,8	612164	7062844	4	
9	40	131,2	612168	7062848	4	
10	45	147,6	612170	7062852	4	
11	50	164,0	612171	7062857	4	
12	55	180,4	612174	7062861	4	
13	60	196,9	612177	7062867	4	
14	65	213,3	612177	7062870	4	
15	70	229,7	612179	7062874	4	
16	75	246,1	612182	7062878	4	
17	80	262,5	612185	7062882	4	
18	85	278,9	612186	7062887	4	
19	90	295,3	612188	7062892	4	
20	95	311,7	612190	7062896	4	
21	100	328,1	612194	7062900	4	
22	105	344,5	612195	7062905	4	
23	110	360,9	612196	7062909	4	
24	115	377,3	612199	7062912	4	
25	120	393,7	612202	7062917	4	*
26	125	410,1	612204	7062922	4	
27	130	426,5	612206	7062026	4	

28	135	442,9	612208	7062930	4	
29	140	459,3	612211	7062935	4	
30	145	475,7	612213	7062938	4	
31	150	492,1	612216	7062942	4	
32	155	508,5	612219	7062946	4	
33	160	524,9	612222	7062950	4	
34	165	541,3	612225	7062955	4	
35	170	557,7	612227	7062959	4	
36	175	574,1	612229	7062963	4	
37	180	590,6	612232	7062967	4	
38	185	607,0	612234	7062971	4	
39	190	623,4	612238	7062975	4	
40	195	639,8	612242	7062978	4	
41	200	656,2	612243	7062983	4	
42	205	672,6	612246	7062987	4	
43	210	689,0	612250	7062991	4	
44	215	705,4	612252	7062996	4	
45	220	721,8	612253	7062999	4	
46	225	738,2	612255	7063003	4	
47	230	754,6	612257	7063008	4	
48	235	771,0	612259	7063013	4	
49	240	787,4	612261	7063017	4	
50	245	803,8	612264	7063022	4	*
51	250	820,2	612268	7063026	4	
52	255	836,6	612269	7063030	4	
53	260	853,0	612272	7063034	4	
54	265	869,4	612274	7063039	4	
55	270	885,8	612278	7063042	4	
56	275	902,2	612280	7063047	4	
57	280	918,6	612284	7063051	4	
58	285	935,0	612286	7063055	4	
59	290	951,4	612287	7063057	4	

60	295	967,8	612291	7063063	4	
61	300	984,3	612293	7063067	4	
62	305	1000,7	612296	7063070	4	
63	310	1017,1	612298	7063074	4	
64	315	1033,5	612302	7063079	4	
65	320	1049,9	612304	7063083	4	
66	325	1066,3	612306	7063087	4	
67	330	1082,7	612309	7063090	4	
68	335	1099,1	612312	7063095	4	
69	340	1115,5	612314	7063099	4	
70	345	1131,9	612317	7063104	4	
71	350	1148,3	612320	7063107	4	
72	355	1164,7	612322	7063111	4	
73	360	1181,1	612324	7063116	4	
74	365	1197,5	612327	7063121	4	
75	370	1213,9	612330	7063124	4	*
76	375	1230,3	612332	7063128	4	
77	380	1246,7	612335	7063133	4	
78	385	1263,1	612339	7063137	4	
79	390	1279,5	612341	7063141	4	
80	395	1295,9	612343	7063145	4	
81	400	1312,3	612346	7063149	4	
82	405	1328,7	612349	7063153	4	
83	410	1345,1	612352	7063157	4	
84	415	1361,5	612355	7063161	4	
85	420	1378,0	612357	7063166	4	
86	425	1394,4	612359	7063170	4	
87	430	1410,8	612362	7063174	4	
88	435	1427,2	612365	7063178	4	
89	440	1443,6	612368	7063183	4	
90	445	1460,0	612370	7063187	4	
91	450	1476,4	612373	7063191	4	

92	455	1492,8	612375	7063196	4	
93	460	1509,2	612377	7063200	4	
94	465	1525,6	612380	7063203	4	
95	470	1542,0	612384	7063207	4	
96	475	1558,4	612386	7063211	4	
97	480	1574,8	612388	7063216	4	
98	485	1591,2	612391	7063221	4	
99	490	1607,6	612393	7063224	4	
100	495	1624,0	612396	7063228	4	*

Sulphur Creek 05						
			* WGS 1984			
Electrode No.	**Location in Profile [m]**	**Location in Profile [ft]**	**GPS Coordinates (UTM* Zone 7)**		**GPS-Accuracy [m]**	**Post [*]**
1	0	0,0	610955	7063762	4	*
2	5	16,4	610957	7063765	4	
3	10	32,8	610959	7063768	4	
4	15	49,2	610962	7063771	4	
5	20	65,6	610964	7063774	4	
6	25	82,0	610966	7063778	4	
7	30	98,4	610970	7063782	4	
8	35	114,8	610973	7063784	4	
9	40	131,2	610977	7063789	4	
10	45	147,6	610979	7063793	4	
11	50	164,0	610982	7063796	4	
12	55	180,4	610984	7063800	4	
13	60	196,9	610987	7063805	4	
14	65	213,3	610989	7063811	4	
15	70	229,7	610992	7063813	4	
16	75	246,1	610995	7063816	4	
17	80	262,5	610999	7063820	4	
18	85	278,9	611000	7063824	4	
19	90	295,3	611003	7063829	4	
20	95	311,7	611006	7063833	4	
21	100	328,1	611009	7063838	4	
22	105	344,5	611012	7063844	4	
23	110	360,9	611015	7063848	4	
24	115	377,3	611017	7063851	4	
25	120	393,7	611020	7063854	4	*
26	125	410,1	611022	7063855	4	
27	130	426,5	611028	7063862	4	

28	135	442,9	611032	7063865	4	
29	140	459,3	611035	7063869	4	
30	145	475,7	611037	7063874	4	
31	150	492,1	611041	7063878	4	
32	155	508,5	611044	7063882	4	
33	160	524,9	611047	7063886	4	
34	165	541,3	611049	7063891	4	
35	170	557,7	611053	7063894	4	
36	175	574,1	611054	7063898	4	
37	180	590,6	611056	7063903	4	
38	185	607,0	611059	7063908	4	
39	190	623,4	611062	7063912	4	
40	195	639,8	611064	7063916	4	
41	200	656,2	611066	7063918	4	
42	205	672,6	611069	7063923	4	
43	210	689,0	611071	7063925	4	
44	215	705,4	611074	7063931	4	
45	220	721,8	611076	7063936	4	
46	225	738,2	611078	7063941	4	
47	230	754,6	611081	7063946	4	
48	235	771,0	611085	7063950	4	
49	240	787,4	611087	7063953	4	
50	245	803,8	611088	7063957	4	*
51	250	820,2	611093	7063961	4	
52	255	836,6	611096	7063964	4	
53	260	853,0	611098	7063968	4	
54	265	869,4	611100	7063971	4	
55	270	885,8	611101	7063978	4	
56	275	902,2	611104	7063983	4	
57	280	918,6	611107	7063986	4	
58	285	935,0	611109	7063992	4	
59	290	951,4	611111	7063997	4	

60	295	967,8	611113	7064002	4	
61	300	984,3	611115	7064005	4	
62	305	1000,7	611118	7064008	4	
63	310	1017,1	611122	7064013	4	
64	315	1033,5	611125	7064017	4	
65	320	1049,9	611127	7064021	4	
66	325	1066,3	611130	7064025	4	
67	330	1082,7	611133	7064028	4	
68	335	1099,1	611135	7064031	4	
69	340	1115,5	611137	7064034	4	
70	345	1131,9	611138	7064039	4	
71	350	1148,3	611140	7064042	4	
72	355	1164,7	611141	7064046	4	
73	360	1181,1	611143	7064051	4	
74	365	1197,5	611145	7064055	4	
75	370	1213,9	611148	7064058	4	*
76	375	1230,3	611151	7064064	4	
77	380	1246,7	611153	7064068	4	
78	385	1263,1	611157	7064073	4	
79	390	1279,5	611159	7064077	4	
80	395	1295,9	611160	7064081	4	
81	400	1312,3	611162	7064084	4	
82	405	1328,7	611165	7064090	4	
83	410	1345,1	611166	7064093	4	
84	415	1361,5	611169	7064098	4	
85	420	1378,0	611172	7064102	4	
86	425	1394,4	611174	7064106	4	
87	430	1410,8	611176	7064109	4	
88	435	1427,2	611180	7064113	4	
89	440	1443,6	611182	7064118	4	
90	445	1460,0	611185	7064121	4	
91	450	1476,4	611187	7064125	4	

92	455	1492,8	611190	7064130	4	
93	460	1509,2	611192	7064134	4	
94	465	1525,6	611196	7064139	4	
95	470	1542,0	611199	7064142	4	
96	475	1558,4	611201	7064145	4	
97	480	1574,8	611203	7064150	4	
98	485	1591,2	611205	7064153	4	
99	490	1607,6	611208	7064157	4	
100	495	1624,0	611212	7064161	4	*