

**A GEOPHYSICAL REPORT ON  
THE INDUCED POLARIZATION, TOTAL FIELD MAGNETIC  
AND VLF-EM SURVEYS  
ON THE DOT PROPERTY, BRITISH COLUMBIA**

**GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT**

**29,223**

**LATITUDE 50° 20' 00" N  
LONGITUDE 120° 51' 58" W**

**NICOLA MINING DIVISION  
N.T.S. 092I/07W**

**BY**

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INDUCED POLARIZATION PSEUDO SECTIONS WITH TOTAL MAGNETIC FIELD AND VLF-EM PROFILES

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### **APPENDIX III**

2006 GEOPHYSICAL SURVEY TECHNICAL SPECIFICATIONS INCLUDING:  
THE TIME DOMAIN INDUCED POLARIZATION SURVEY  
INSTRUMENT SPECIFICATIONS – GDD TX II IP TRANSMITTER  
INSTRUMENT SPECIFICATIONS – IRIS ELREC – 6 IP RECEIVER  
INSTRUMENT SPECIFICATIONS – GEM PROTON MAGNETOMETER  
INSTRUMENT SPECIFICATIONS – GEONICS EM 16 VLF RECEIVER

## 1.0 INTRODUCTION

During the period October 17<sup>th</sup>, to November 24<sup>th</sup>, 2006, Alhambra Resources Ltd. contracted Aurora Geosciences Ltd. to complete time domain induced polarization, total magnetic field and VLF-EM surveys on the Dot property located 25 kilometres northwest of Merritt, British Columbia.

The surveys were designed to locate copper bearing mineralization as well as map geological structures within the Dot property. The surveys were performed on lines spaced 100 to 200 metres apart with an azimuth of 060°. The Induced Polarization survey used a dipole-dipole electrode array with a dipole spacing of 25 metres extending to six separations. The depth of penetration for the Induced Polarization survey was estimated to be approximately 75 metres. The total magnetic field and VLF-EM surveys were completed employing a 12.5 metre station interval.

A total of 21.375 kilometres of Induced Polarization surveying, 21.0 kilometres of magnetic surveying and 21.0 kilometres of VLF-EM surveying were completed.

All data are plotted on Induced Polarization pseudo-sections as profiles and color contour maps (Appendix II).

The geophysical surveys outlined chargeability anomalies coincident with known zones of copper mineralization. In addition, four additional zones that are interpreted to be zones of disseminated sulphide mineralization and structures which could control copper mineralization were also located by the induced polarization survey.

## **2.0 LOCATION, ACCESSIBILITY AND CLAIM STATUS**

### **2.1 LOCATION**

The Dot Property (the "Property") is located on NTS sheet 0921/07W in south-central British Columbia, Canada. It is centered about 50°20'00" N latitude and 120°51'00" W longitude or 653528E, 5576788N (NAD 83, zone 10N). The claim group lies in the Nicola Mining Division and covers copper-gold mineralization approximately 20 kilometers southeast of the Highland Valley porphyry copper district (Figure 1). The Craigmont Mine site is located approximately 12 kilometers south-southwest along the access road to the Property. Further north along this road, the Aberdeen Mine site is adjacent the southern limit of the Property. The eastern limit of the claims extends east of Guichon Creek sub-parallel highway 97C.

### **2.2 PROPERTY ACCESS**

The Property is located 50 kilometers south of the city of Kamloops and 25 kilometers northwest of Merrit, British Columbia. It is accessed by all weather roads from Merrit or Kamloops via the Craigmont Mine site and Aberdeen Mine Road. Mobility about the property is facilitated by unmaintained logging roads that remain in good condition.

### **2.3 CLAIM STATUS**

The Property consists of 49 contiguous claim units with a combined area of 4,803 acres (Figure 2a, 2b). These claims have been staked and registered by the standards set forth in British Columbia by the Gold Commissioner Office and remain in good standing until March 2008. These claims are presented in Table-1.

Alhambra currently holds 100% interest in the Property. The Property is not subject to encumbrances, royalties, back-in rights, payments or other encumbrances as outlined in any relevant legal documentation. To the extent known, the Property is currently free of all environmental liabilities.

FIGURE 1 - DOT PROPERTY LOCATION

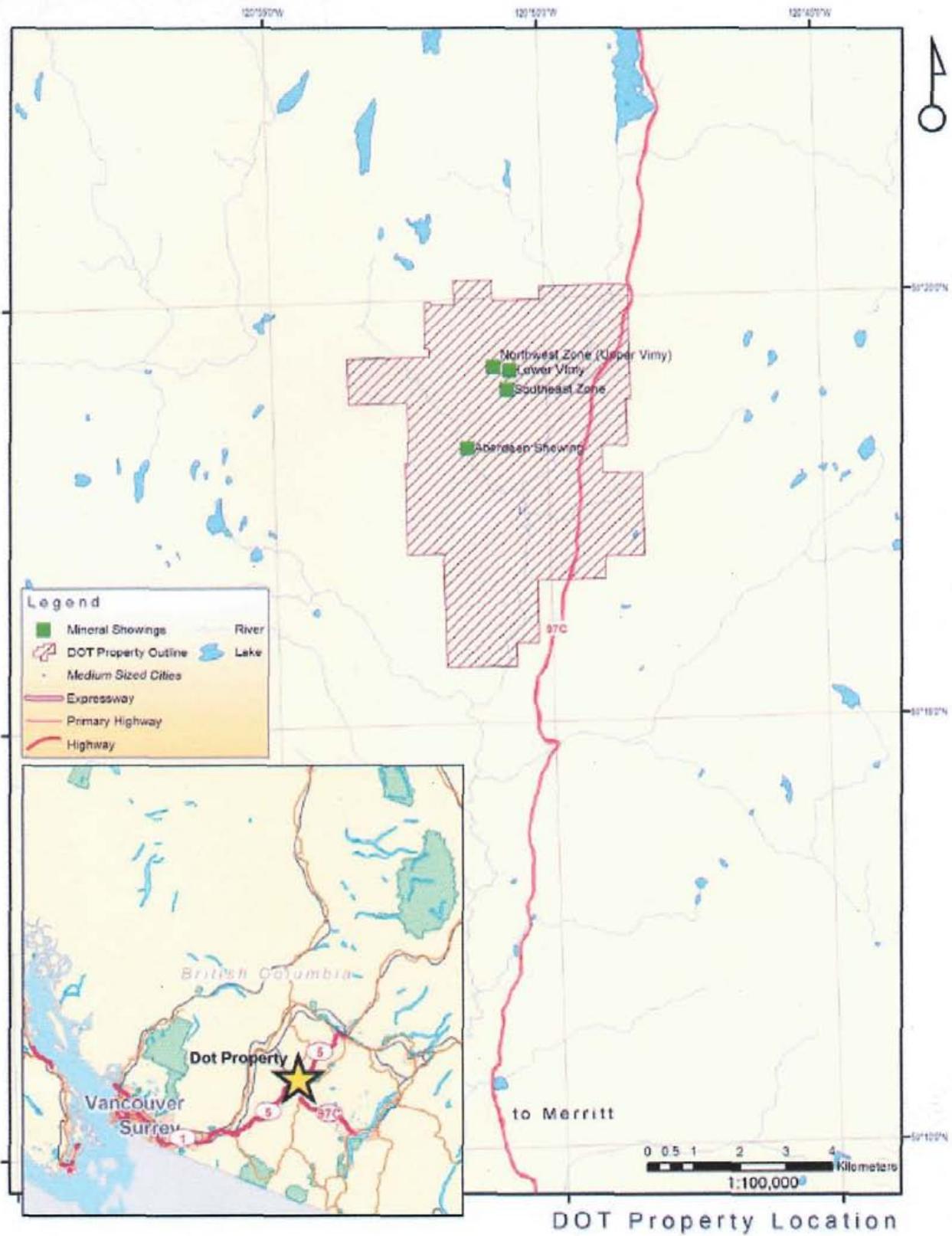
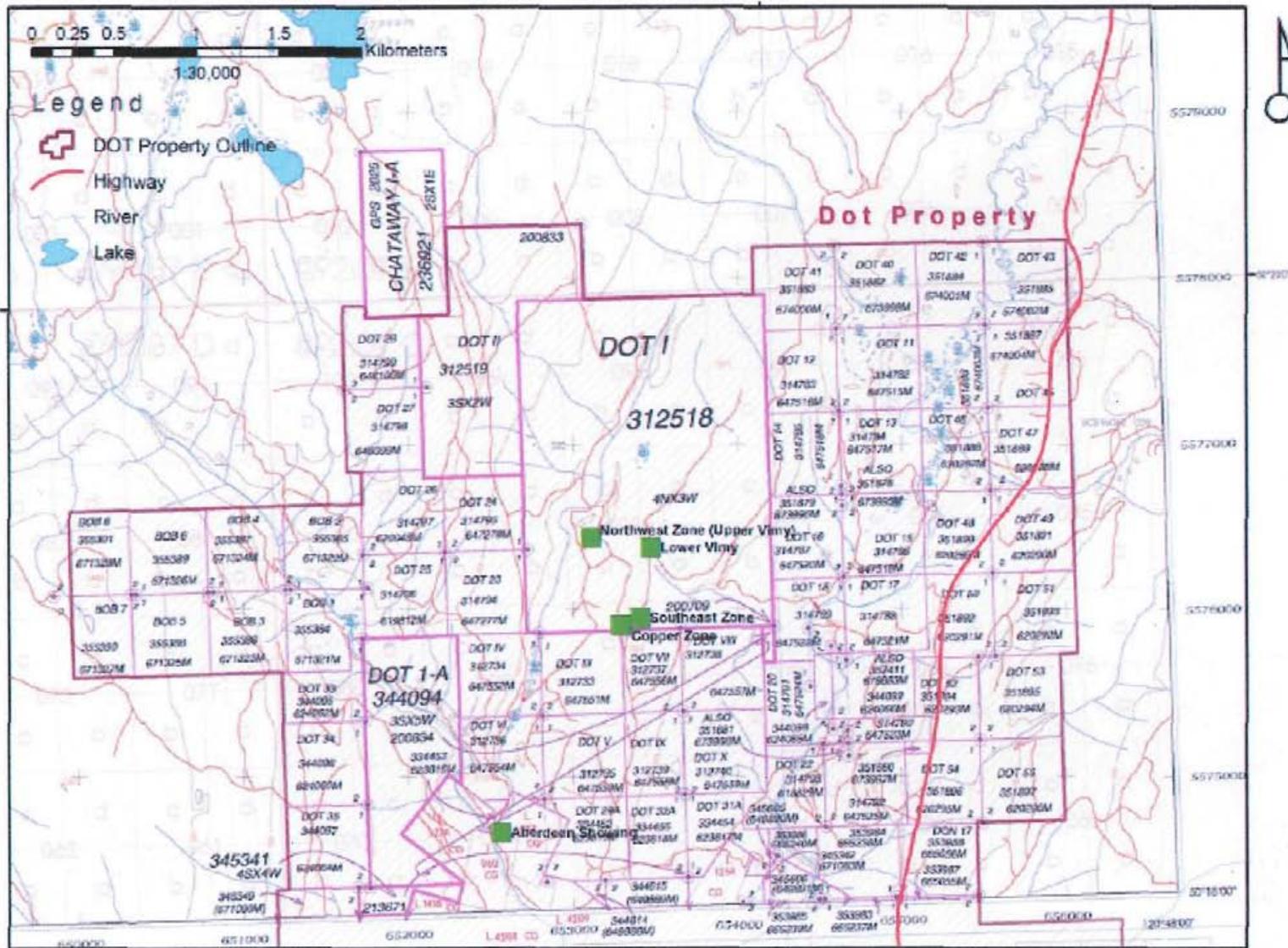


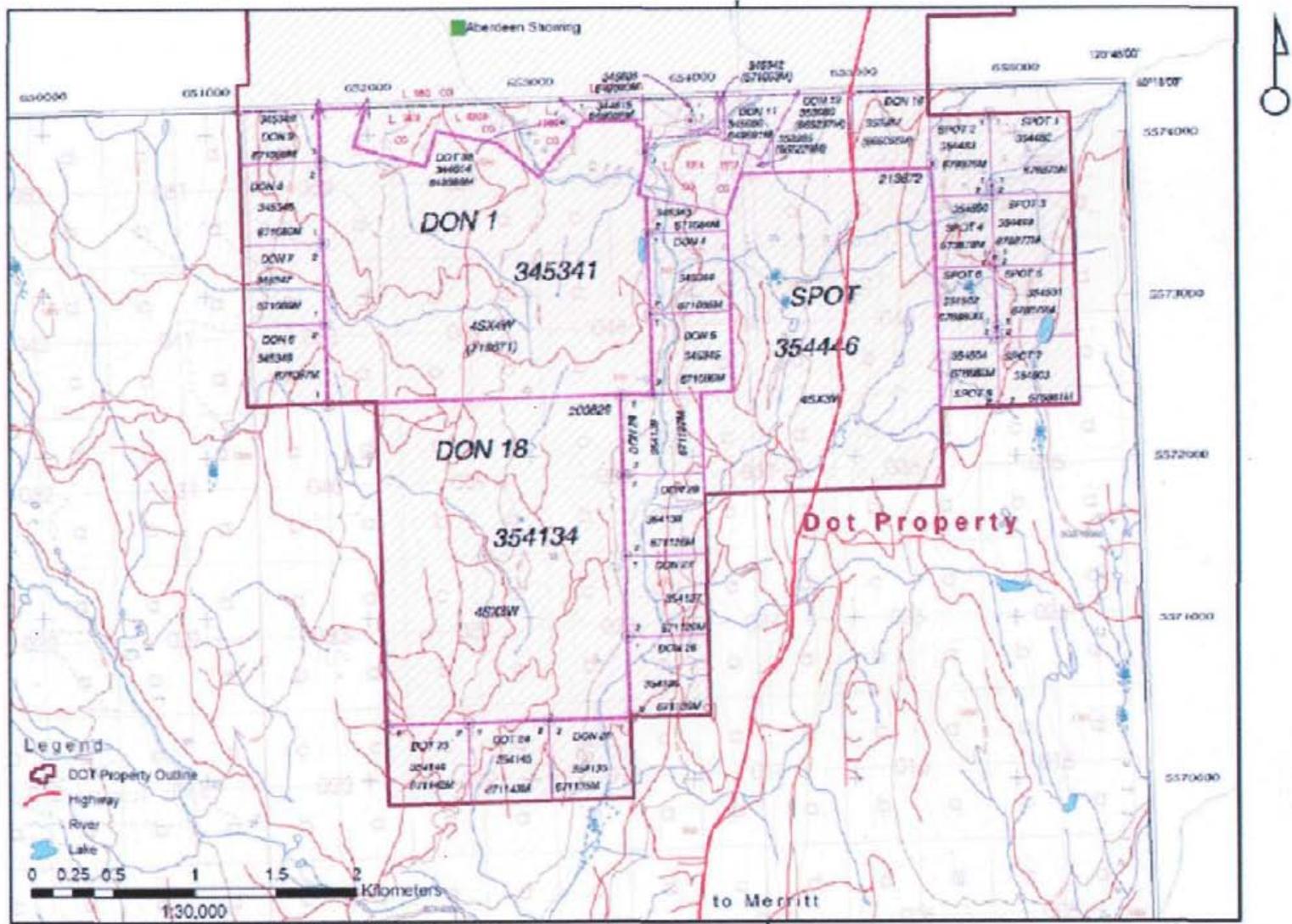
FIGURE 2A - DOT PROPERTY CLAIM GROUP - NORTHERN HALF



Claims map modified after: Ministry of Energy and Mines,  
 Mineral Titles Reference Map M0921036  
 Compilation Date: 2004 AUG 01

Dot Property Claim Blocks - Northern Half

FIGURE 2B - DOT PROPERTY CLAIM GROUP - SOUTHERN HALF



Claims map modified after: Ministry of Energy and Mines.  
 Mineral Titles Reference Map M0921026  
 Compilation Date: 2004 AUG 01

Dot Property Claim Blocks - Southern Half

TABLE 1 CLAIM STATUS OF THE DOT PROPERTY

Tenure Number	Tenure Type	Claim Name	Owner	Map Number	Good To Date	Status	Mining Division	Area	Tag Number
			Alhambra Resources Ltd.						
312515	Mineral	DO- V	202294 (100%)	0521036	2008-aug-18	GOOD	NICCO_A	150	220833
312735	Mineral	DO- V	202294 (100%)	0521035	2008-aug-24	GOOD	NICCO_A	25	647553M
312736	Mineral	DO- VI	202294 (100%)	092-035	2008-aug-24	GOOD	NICCO_A	25	647654M
314799	Mineral	DO- 29	202294 (100%)	0521036	2008-nov-18	GOOD	NICCO_A	25	646103M
334452	Mineral	DO- 29A	202294 (100%)	0521036	2008-mar-27	GOOD	NICCO_A	25	623815M
334453	Mineral	DO- 30A	202294 (100%)	0521036	2008-mar-27	GOOD	NICCO_A	25	623915M
334454	Mineral	DO- 31A	202294 (100%)	0521036	2008-mar-27	GOOD	NICCO_A	25	623917M
334455	Mineral	DO- 32A	202294 (100%)	0521036	2008-mar-27	GOOD	NICCO_A	25	623918M
344294	Mineral	DO- 1-A	202294 (100%)	0521036	2008-mar-10	GOOD	NICCO_A	375	230934
344295	Mineral	DO- 33	202294 (100%)	0521036	2008-mar-12	GOOD	NICCO_A	25	624362M
344296	Mineral	DO- 34	202294 (100%)	0521036	2008-mar-12	GOOD	NICCO_A	25	624363M
344297	Mineral	DO- 35	202294 (100%)	0521036	2008-mar-12	GOOD	NICCO_A	25	624364M
344298	Mineral	DO- 36	202294 (100%)	0521036	2008-mar-12	GOOD	NICCO_A	25	624365M
344299	Mineral	DO- 37	202294 (100%)	0521036	2008-mar-12	GOOD	NICCO_A	25	624366M
344314	Mineral	DO- 38	202294 (100%)	0521036	2008-mar-27	GOOD	NICCO_A	25	649585M
344315	Mineral	DO- 39	202294 (100%)	0521026	2008-mar-27	GOOD	NICCO_A	25	649583M
345341	Mineral	DON 1	202294 (100%)	0521036	2008-apr-29	GOOD	NICCO_A	400	213571
345342	Mineral	DON 2	202294 (100%)	0521036	2008-apr-27	GOOD	NICCO_A	25	671383M
345343	Mineral	DON 3	202294 (100%)	0521026	2008-apr-27	GOOD	NICCO_A	25	671384M
345344	Mineral	DON 4	202294 (100%)	0521026	2008-apr-27	GOOD	NICCO_A	25	671385M
345345	Mineral	DON 5	202294 (100%)	0521026	2008-apr-28	GOOD	NICCO_A	25	671387M
345347	Mineral	DON 6	202294 (100%)	0521026	2008-apr-28	GOOD	NICCO_A	25	671389M
345348	Mineral	DON 7	202294 (100%)	0521026	2008-apr-29	GOOD	NICCO_A	25	671390M
345349	Mineral	DON 8	202294 (100%)	0521026	2008-apr-29	GOOD	NICCO_A	25	671391M
345349	Mineral	DON 9	202294 (100%)	0521026	2008-apr-29	GOOD	NICCO_A	25	671392M
345350	Mineral	DON 10	202294 (100%)	0521026	2008-may-28	GOOD	NICCO_A	25	649992M
345350	Mineral	DON 11	202294 (100%)	0521026	2008-may-26	GOOD	NICCO_A	25	649991M
351473	Mineral	DO- 13A	202294 (100%)	0521036	2008-oct-05	GOOD	NICCO_A	25	673395M
351473	Mineral	DO- 14A	202294 (100%)	0521036	2008-oct-05	GOOD	NICCO_A	25	673396M
351480	Mineral	DO- 15A	202294 (100%)	0521036	2008-oct-05	GOOD	NICCO_A	25	673397M
351481	Mineral	DO- 22A	202294 (100%)	0521036	2008-oct-05	GOOD	NICCO_A	25	673398M
353365	Mineral	DON 14	202294 (100%)	0521036	2008-mar-03	GOOD	NICCO_A	25	665233M
353365	Mineral	DON 15	202294 (100%)	0521036	2008-mar-03	GOOD	NICCO_A	25	665242M
354134	Mineral	DON 16	202294 (100%)	0521026	2008-mar-11	GOOD	NICCO_A	300	220923
354446	Mineral	BOB	202294 (100%)	0521026	2008-mar-24	GOOD	NICCO_A	300	213572
355365	Mineral	BOB 2	202294 (100%)	0521036	2008-apr-30	GOOD	NICCO_A	25	671322M
355366	Mineral	BOB 3	202294 (100%)	0521036	2008-apr-30	GOOD	NICCO_A	25	671323M
355367	Mineral	BOB 4	202294 (100%)	0521036	2008-apr-30	GOOD	NICCO_A	25	671324M
355368	Mineral	BOB 5	202294 (100%)	0521036	2008-apr-30	GOOD	NICCO_A	25	671325M
355369	Mineral	BOB 6	202294 (100%)	0521036	2008-apr-30	GOOD	NICCO_A	25	671326M
355390	Mineral	BOB 7	202294 (100%)	0521036	2008-apr-30	GOOD	NICCO_A	25	671327M
355391	Mineral	BOB 9	202294 (100%)	0521036	2008-apr-30	GOOD	NICCO_A	25	671328M
357411	Mineral	DO- 36A	202294 (100%)	0521036	2008-jun-11	GOOD	NICCO_A	25	678883M
534016	Mineral		202294 (100%)	0521	2008-nov-17	GOOD		226.54	
534017	Mineral		202294 (100%)	0521	2008-oct-05	GOOD		825.23	
534018	Mineral		202294 (100%)	0521	2008-aug-16	GOOD		371.36	
534019	Mineral		202294 (100%)	0521	2008-mar-11	GOOD		433.69	
534020	Mineral		202294 (100%)	0521	2008-mar-03	GOOD		412.86	
534021	Mineral	DO-	202294 (100%)	0521	2008-may-13	GOOD		41.249	
534022	Mineral		202294 (100%)	0521	2008-apr-30	GOOD		41.265	

### **3.0 PHYSIOGRAPHY, VEGITATION AND CLIMATE**

The Property is located at an approximate elevation of 1,075 meters on the southeast slope of Gypsum Mountain. Gypsum Mountain has a peak elevation of 1,546 meters and extends to the Guichon River at an elevation of approximately 930 meters near the eastern limit of the Property. Topography across the Property is moderate. Much of the central area of the Property covers a terrace midway up the mountain where the elevation varies from 1,000 meters at the south end of the claim block and 1,375 at the northern end. An esker ridge traverses the northern half of the Property; a small tributary to the Broom Creek cuts the southwestern portion of the claims.

#### **3.1 PHYSIOGRAPHY**

The Property is located east of the Cascade Mountains and south of the Highland Valley in the Thompson Plateau physiographic region of BC. Most of the Property is covered by windfall of dense stands of Lodgepole Pine. Spruce and Fir grow in at lower elevations to the southeast and in localized areas of greater moisture. The Broom and Guichon Creeks cross the property from north to south sub-parallel to the western and eastern property boundaries respectively. The Property is also traversed by numerous small seasonal and year round creeks. Two small lakes are located in the northeastern quadrant of the property. Glacial overburden covers much of the Property. Scattered outcrops of granodiorite are present to the north and west of the property at greater elevation.

The climate is typical of the southern interior with an average annual precipitation of 30 centimetres. Temperatures in the summer can reach 35°C and plunge to -40°C in the winter. Snow covers the property from mid November to May.

#### **3.2 INFRASTRUCTURE**

All services required to conduct exploration on the Property can be sourced in either Merritt or Kamloops, British Columbia.

#### 4.0 PROPERTY HISTORY AND PREVIOUS WORK

Chalcocite at the Aberdeen Mine site, located approximately 1,500 meters to the south of the Southeast Zone, was first recognized in 1887. Small shipments of copper grading 7% were shipped in 1916 and 1917 (Sanguinetti, 1972).

Historic exploration focused on, and leading up to, the identification of the Northwest (Upper Vimy Zone) will be addressed collectively as much of it has been focused on the Dot Property as a whole. Of most importance have been the documentation of three significant areas of mineralization; the Northwest Zone, Southeast Zone, and Copper Zone. The Lower Vimy Zone is significant in that it is a past producer; however little is known of early exploration related to this occurrence and it has not been the focus of more recent exploration.

Documented exploration on the Property has been sporadic since the 1920's. Previous work conducted on the Property up to the discovery of the Northwest was often part of exploration of semi-regional focus.

The Upper and Lower Vimy showings were sporadically mined between 1920 and 1927 (Sanguinetti, 1972). A shaft was sunk at the Upper Vimy Showing to a depth of 50 meters with a crosscut at the bottom that intersected a chalcopyrite-bornite-hematite-mineralized shear zone (Meyer, 1968). Mineralization was described as sporadic and discontinuous. The Lower Vimy showing was the target of stripping, drilling, and two short adits. The adits in the Lower Vimy showing were driven into small high-grade lenses of chalcopyrite, bornite, and copper carbonate mineralization hosted in narrow shear zones (Meyer, 1968). In 1956 and 1957 Northwest Explorations Limited stripped and drilled the main showings and potential extensions with poor results.

In 1962 Chataway Exploration Co. Ltd. conducted exploration that included prospecting, geophysical and geochemical surveys, stripping and diamond drilling.

Beginning in 1965, much exploration work including geophysical, geochemical, geological investigation, and later drilling began to target the Northwest Zone.

In 1965, Bralorne Pioneer Mines Ltd. conducted magnetometer (Minfile 00737), Induced Polarization (Minfile 00764), and geochemical surveys (Minfile 00749) over ground presently covered by the Property. The magnetometer survey recognized anomalous magnetic lows proximal the Lower Vimy occurrence. These features were attributed to volcanic rocks, but follow up work was recommended on these anomalies. The geochemical survey showed anomalous copper values that correlated with copper mineralization at the Zone 4 showing was exposed by trenching south of Gypsum Lake, approximately three kilometers northwest of the Northwest Zone on the property and related IP anomalies, but nothing which supported mineralization in the Northwest or Southeast zones. An IP survey conducted during the winter of 1965 for Bralorne Pioneer Mines Ltd. identified three anomalous zones coincident with the Northwest and Southeast zones and extending southwest to the Aberdeen Mine.

Additional exploration which included stripping, diamond and percussion drilling, and a geophysical survey (Induced Polarization), delineated a low tonnage, high grade mineral occurrence (Zone 4) that was deemed uneconomical at the time (Meyer, 1968). A total of 57 diamond drill holes totaling 3,999 meters and 20 percussion drill holes totaling 3,097 meters were completed on Zone 4 by the end of 1967.

Work in 1968 by Chataway Exploration Co. Ltd. and Bralorne Pioneer Mines Ltd. included geological mapping, surveying, sampling, geochemical and geophysical (Induced Polarization) surveys, and limited trenching. No new mineralized occurrences were identified and it was determined that all existing showings were sub-economic.

There is reference to additional exploration documented in historic reports including: 24 holes (5,566ft) completed by Bralorne Pioneer Mines Ltd. in the mid 1960's; 50 holes (12,000ft) between 1960-67 completed by Chataway Exploration Co.; 30 drill holes (3,652m) proximal to the Northwest and Southeast zones and Lower Vimy occurrence by Kennco Exploration. In 1970 Asarco completed 148 percussion holes totaling 5,166 meters (Wells, 1981). The exact location the Asarco drilling is unknown; however, it is assumed to related to the Zone 4 occurrence and therefore to the northwest of the Dot occurrences (Norman, 1992, - now held by Alhambra Resources Ltd.). Because of the lack of suitable references, and point-form descriptions provided in many of the historic reports the author have been unable to confirm the exact location of this exploration. It is the author's interpretation that most of this exploration was focused on, and adjacent, the Zone 4 occurrence that is currently covered by the Chataway 1-A claim group located 2,100 meters northwest of the Northwest Zone.

A magnetometer survey conducted in 1972 for Asele Industries Ltd. identified magnetic lows associated with fault and shear zones coincident with intense alteration that hosts copper mineralization at the Lower Vimy occurrence. Two other linear magnetic low trends identified to the east of the Lower Vimy occurrence were interpreted to be caused by structural disruption and alteration (Minfile 04056, Minfile 04043).

In 1979, Lawrence Mining Corp. conducted an IP survey near the Lower Vimy showing. The purpose of this survey was to delineate previously identified chargeable anomalies to greater depth. The survey showed a weakly anomalous chargeable zone striking northwest and extending to depth. This zone was open to the northwest extending to the Lower Vimy occurrence and to the southeast (Minfile 07494).

In 1981, Lawrence Mining Corp. conducted a soil sampling survey and two Percussion drill holes to the southwest of the Aberdeen Mine site. The geochemical soil survey identified two anomalous trends to the southwest of the Aberdeen Mine and further work was recommended.

Lawrence Mining completed an Induced Polarization and Magnetometer survey to the north and south of the existing occurrences. Coincident magnetic lows and chargeable anomalies were drilled by percussion and diamond drilling methods. The drill holes were collared to test coincident magnetic and IP anomalies. This drilling intersected copper values generally less than 0.02%; the anomalies were explained by elevated magnetite concentrations in the host granodiorite (Minfile 09187).

A total of 20 diamond drill holes (3,400.5 m) and 30 percussion drill holes (2,301.2 m) were completed between May and October of 1981 (Wells, 1981). This drilling identified what is presently known by Alhambra Resources Ltd. as the Northwest Zone. An additional three diamond drill holes were completed by Lawrence Mining in 1982 west of the Aberdeen Mine site.

Zappa Resources Ltd. completed six reverse circulation drill holes totaling 638.5 meters to further delineate the Northwest Zone to a strike length of 255 meters and to a depth of 100 meters. All six holes intersected copper-bearing mineralization that graded from 0.33% to 0.91% Cu (Norman, 1992). A preliminary inferred resource of 2.93 million tonnes grading 0.5% Cu was reported (Norman, 1992). Zappa Resources Ltd. also contracted Westcoast Biotech of Vancouver to conduct preliminary metallurgical testing; results of this work indicate Copper sulphide/oxide mineralization at the Dot property is amenable to heap leaching (Norman, 1992).

In 1996 and 1997 Alhambra Resources Ltd. discovered two new zones of copper mineralization, the Southeast Zone and adjacent Copper Zone, both of which are along strike to the southeast of the Northwest Zone. These two zones were tested with 16 diamond drill holes totaling 3,109 meters in 1996 and five diamond drill holes totaling 1,290 meters in 1997. Based on copper mineralization delineated by this drilling and historical drilling, Alhambra used the Inverse Distance Squared method to estimate a resource of 9.8 million tonnes grading 0.46% Cu.

Exploration conducted on the property in 2006 included ground Induced Polarization, VLF EM and Total Magnetic Field surveys. These surveys were centered on the Northwest and Southeast zones.

## 5.0 REGIONAL GEOLOGY

### 5.1 REGIONAL SETTING

The Property is located in the Intermontane Belt a linear allochthonous morphogeological belt that extends the length of central British Columbia from Washington to the Yukon and is flanked by the Crystalline Belt and the Omineca Belt to the west and east, respectively. The belt is comprised of a number of terranes of volcanic, sedimentary, and granitic rocks including:

- 1) Devonian to early Jurassic sedimentary and volcanic rocks formed in island arcs and chert-rich accretionary complexes;
- 2) Middle Jurassic to early Cenozoic volcanic rocks formed mainly in continental arcs and marine and non-marine clastics eroded from the uplifting Omineca Belt;
- 3) Devonian to Cenozoic granitic rocks deformed by compression and subduction to the west during the Mesozoic and extension during the early Cenozoic (Monger, 2002).

The geologic terranes of the Intermontane Belt are generally of sub-greenschist metamorphic facies.

### 5.2 REGIONAL GEOLOGY

The Quesnel Terrane is a volcanic arc terrane that is found along most of the length of the Canadian Cordillera. This terrane is dominantly represented by Middle and Upper Triassic volcanic and sedimentary rocks assigned to the Takla Group in northern and central British Columbia and to the Cache Creek and Nicola groups in the southern British Columbia. These rocks are locally overlain by Lower Jurassic to Middle Tertiary volcanic and sedimentary rocks and are intruded by several suites of Late Triassic through Early Jurassic plutons such as the Guichon Creek batholith (Schiarizza, 2003). Late Triassic-Early Jurassic intrusive rocks are a prominent and economically important component of the Quesnel Terrane and include both calc-alkaline and alkaline plutonic suites, as well as Alaskan-type ultramafic-mafic intrusions.

The Guichon Creek batholith (Figure 3) intrudes sedimentary and volcanic strata of the Mississippian to Triassic Cache Creek and Upper Triassic Nicola groups and is unconformably overlain by sedimentary and volcanic strata ranging in age from Lower Jurassic to Middle Tertiary including:

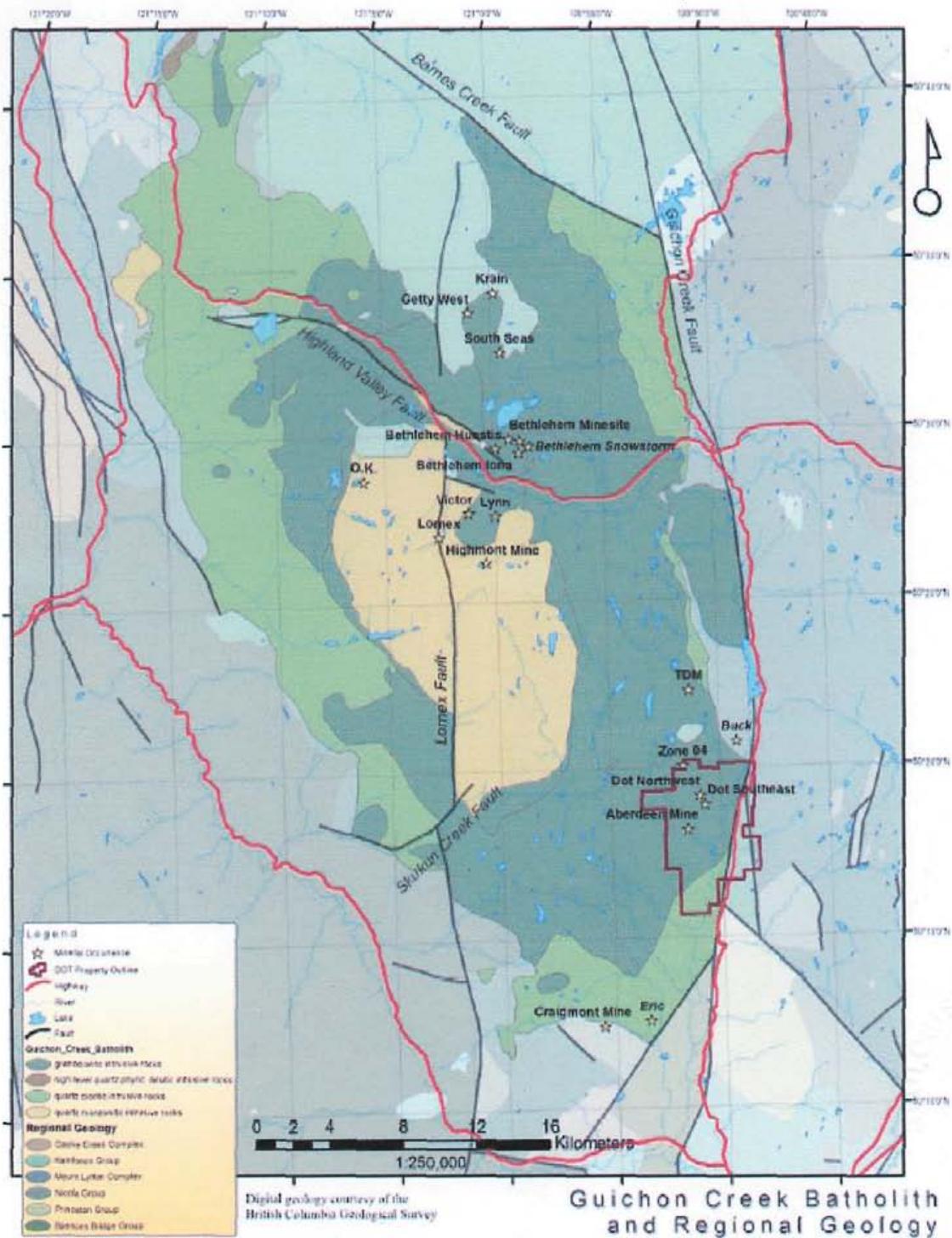
1. Triassic Nicola Group volcanic rock;
2. Lower/Middle Jurassic Ladner and Jurassic/Cretaceous Relay Mountain groups metasedimentary rocks;
3. Lower/Middle Cretaceous Jackass Mountain Group sedimentary rocks;
4. Middle/Upper Cretaceous Spences Bridge Group volcanic rocks.

Along the eastern contact of the batholith, the Nicola Group rocks are described as an eastern facing succession of calc-alkaline, mainly plagioclase-phyric andesitic flows and breccias, with lenticular interlayers of limestone and bedded volcanoclastic rocks. Local exposures of dacite and rhyolite flows, welded tuff and breccia, and intercalated intermediate to felsic heterolithic volcanoclastic rocks represent felsic centers (Moore and Pettipas, 1990). Volcanic (dominantly

intermediate, locally felsic and mafic), volcanoclastic (pyroclastic and sediments), and sedimentary (chert-grain sandstone, conglomerate, minor shale) rocks of the Middle and Lake Cretaceous Spences Bridge Group are exposed at the southwestern contact of the batholith (Minfile Map 092ISW, 1993).

Regional metamorphosed rocks include: Carboniferous to Jurassic Cache Creek Complex melanges, Permian to Lower Cretaceous Bridge River Complex and ultramafic rocks, and Upper Triassic Nicola Group metavolcanic rocks. Locally metamorphosed rocks adjacent to the batholith include hornblende plagioclase gneiss, schist, quartzite, and hornfels that occur in a metamorphic halo up to 500 meters in width (Norman, 1992).

FIGURE 3 - GUICHON CREEK BATHOLITH AND REGIONAL GEOLOGY



## 6.0 PROPERTY GEOLOGY AND MINERALIZATION

### 6.1 LITHOLOGIES

Lithologies of the Guichon Creek batholith range from diorite at the margin through quartz diorite, quartz monzodiorite, and granodiorite at the core. The Property is located near the southeastern margin of the Guichon Creek batholith and predominantly overlies Guichon Variety medium grained hornblende monzodiorite to granodiorite of the Highland Valley phase. This phase is intruded by coarser grained granodiorite and younger porphyry intrusive rocks, possibly of Chataway, Skeena, or Bethsaida affinity (Figure 4). Isolated occurrences of Tertiary volcanic rocks, correlative with the Kamloops Group, unconformably overlie intrusive rocks at the northern end of the Property. This unit is a dark green to dark brown vesicular basalt that shows distinctive rusting on weathered surfaces.

Aplite dykes are observed in drill core from the Northwest and Southeast zones. The dykes are fine grained, leucogranitic in composition, and shows weak alteration. This unit is described in outcrop north of the Property as a series of small dykes and stringers of random orientation that intrude most lithologies. They are documented to have no spatial relationship to mineralization though they can be weakly mineralized where observed to the north (Meyer, 1968). On the Property these dykes are spatially associated with copper mineralization.

Granodiorite and quartz monzonite underlie the western and northwestern portion of the Property. This phase is a generally fine to medium grained, locally porphyritic, hornblende-bearing granodiorite that shows gradational contacts with adjacent Chataway Variety granodiorite. It may be correlative with the Skeena or Bethlehem phases mapped further to the north (Meyer, 1968). This unit is distinguished from the more mafic Border phase by a lighter colour and coarser texture. The contact of the Border phase and the Guichon Variety granodiorite is mapped southeast and east of the Northwest and Southeast Zones.

### 6.2 STRUCTURE

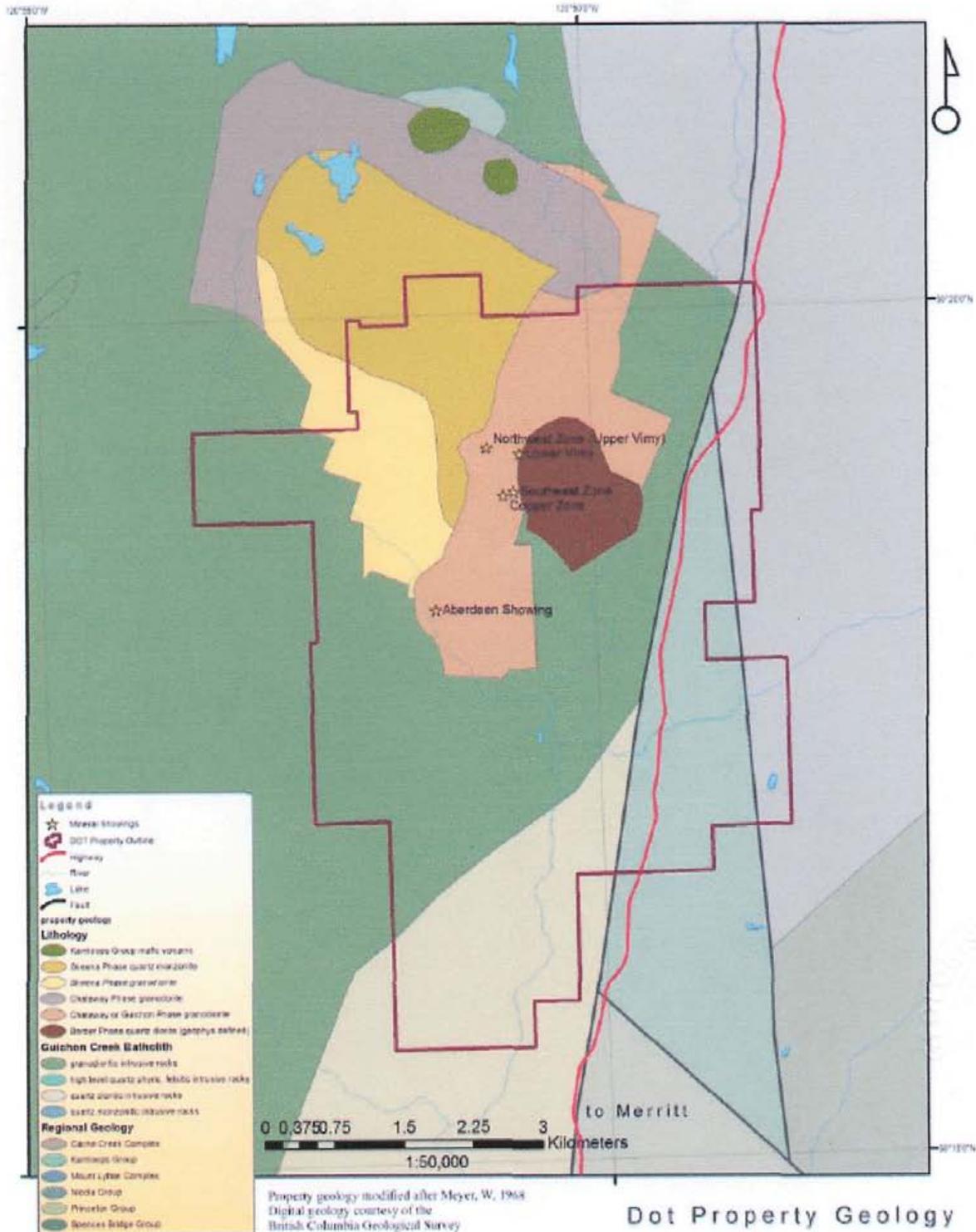
At a regional scale, a framework of north and northwest striking structural zones host the copper mineralization. This trend is evident on the Property as the Northwest zone, the Southeast zone, the Lower Vimy Zone and the Copper Zone as well as a number of other copper occurrences are concentrated along structural zones which trend north-northwest. These mineralized zones are interpreted to be locally offset by crosscutting northeast trending structural breaks, which on the Property, show dextral offset. Many of the fault and shear zones that host mineralization are interpreted to be older than mineralization and therefore acted as conduits for mineralized fluids during at least two generations of reactivation as supported by crosscutting relationships in mineralized fractures. Reactivation of these faults can be caused by subsequent intrusive phases of the batholith.

### 6.3 MINERALIZATION

The mineralized northwest-trending structures dip steeply to the northeast in the Northwest Zone and steeply to the southwest in the Southeast Zone. These zones dip from 65 degrees to

subvertical. The fault and shear zones show evidence for multiple generations of crosscutting fracture networks, displacement surfaces and breccia. Many of these crosscutting features are mineralized.

FIGURE 4 - DOT PROPERTY GEOLOGY



## **7.0 2006 GROUND GEOPHYSICAL PROGRAM**

### **7.1 INTRODUCTION**

During the period October 17th, 2006 to November 24th, 2006, Alhambra Resources Limited contracted Aurora Geosciences Ltd. to complete geophysical surveys comprising time domain induced polarization and DC resistivity (IP), total magnetic field (mag), and very low frequency electromagnetic (VLF-EM) on the Property. The surveys were designed to locate copper-bearing mineralization, as well as map geological structures.

The geophysical surveys were carried out on brushed survey lines spaced 100 to 200 metres apart, bearing 60° (Figure 5). Station spacing was kept constant (as opposed to slope-corrected) to accommodate the fixed length of the IP receiver cables. Station locations were sited and recorded using a Garmin 76 non-differential global positioning satellite (GPS) receiver as NAD 83, UTM zone 10 coordinates. End of line coordinates are presented in Table-2, Survey Grid Coordinates.

The IP survey employed a dipole-dipole electrode array with a dipole spacing of twenty five metres extending to six separations ( $n=1, 6$ ). The expected depth of investigation for this configuration would be approximately 75 metres. The data, as measurements of apparent chargeability and resistivity were plotted in a pseudo-section format. Total magnetic field and VLF-EM measurements were collected at 12.5 metre intervals and plotted on the IP pseudo-sections as profiles, and are also presented as colour contoured plan maps.

### **7.2 INDUCED POLARIZATION SURVEY**

The induced polarization (IP) survey was conducted over the Property on survey lines bearing 60° (Figure 5). The IP equipment consisted of a GDD TX II digital IP transmitter, one Iris Instruments Elrec-6 IP receiver, and a 5.5 kilowatt Honda Generator. A dipole-dipole array was utilized for the entire survey. The electrode arrangement is illustrated on the pseudo-sections accompanying this report. The survey was carried out using a dipole spacing of twenty five metres ( $a=25$ ) and six separations ( $n = 1, 6$ ), with an expected depth of investigation to be in the order of 75 metres. A total of 21.0 line kilometres was completed. The apparent resistivity and apparent chargeability data are presented in pseudo-section format at a scale of 1:2,000 and as 1:5000 scale colour contoured plan maps (ALH0601BC-023, ALH0601BC-022; Appendix II).

### **7.3 TOTAL MAGNETIC FIELD SURVEY**

Total magnetic field measurements were collected over the Property with a GEM GSM v6.0 digital proton precession magnetometer manufactured by GEM Systems of Canada. Diurnal or other erratic variations in the Earth's magnetic field were corrected for with the use of a GEM GSM Overhauser magnetometer base station recording the total magnetic field every five seconds. The instrument operator made sure to divest them self of as many objects containing iron as possible before proceeding to survey. Measurements of the total magnetic field were taken every 12.5 metres for a total of 21.0 line kilometres. The corrected magnetic data are

presented as profiles on the IP pseudo-sections and as a 1:5000 scale colour contoured plan map (ALH0601BC-024, Appendix II).

#### 7.4 VLF – ELECTROMAGNETIC SURVEY

The VLF-EM survey was conducted with a pair of EM-16 receivers manufactured by Geonics Limited, utilizing the Jim Creek, Washington State transmitter (NLK, 24.8 kHz) station. The apparent station azimuth was approximately  $190^{\circ}$  and the operators faced  $100^{\circ}$  (south east) for all VLF readings. In phase and quadrature components, recorded as percent slope, were measured at a station spacing of 12.5 metres for a total of 21.0 line kilometres. The VLF data were collected so that a normal cross-over, indicating a conductor beneath, consists of a positive to negative deflection moving from grid west to east. Both in-phase and quadrature components are presented as profiles on the IP pseudo-sections and as a 1:5000 scale Fraser Filter contoured plan map (ALH0601BC-025, Appendix II).

FIGURE 5 - GEOPHYSICAL SURVEY GRID LOCATION

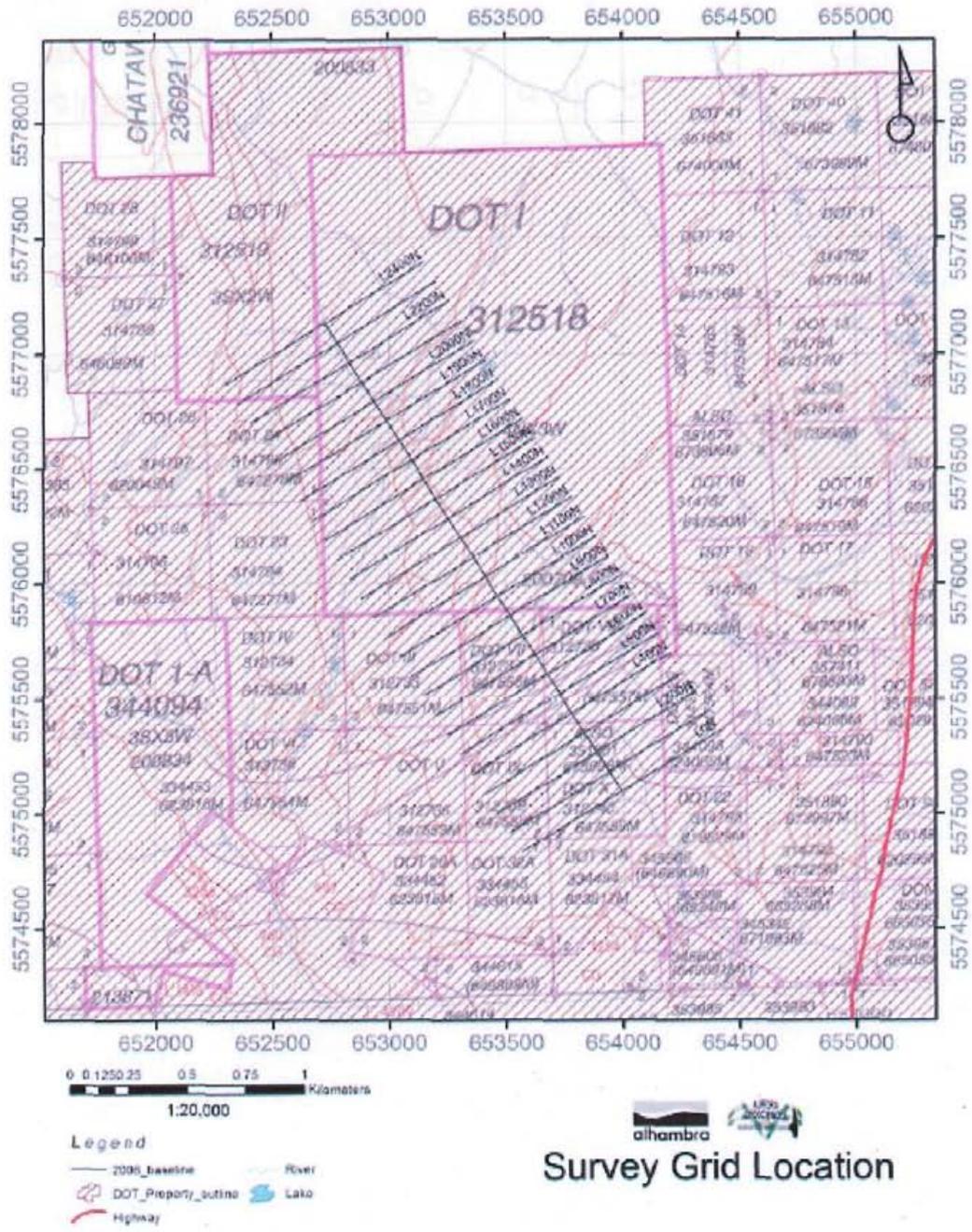


TABLE - 2 2006 GEOPHYSICAL SURVEY GRID COORDINATES

GRID COORDINATES			
LINE	STATION	EASTING	NORTHING
0 N	0 E	653570	5574828
0 N	1000 E	654403	5575326
200 N	0 E	653465	5575008
200 N	1000 E	654308	5575530
400 N	0 E	653364	5575181
400 N	1000 E	654203	5575696
500 N	0 E	653308	5575262
500 N	1000 E	654145	5575784
600 N	0 E	653258	5575348
600 N	1000 E	654095	5575867
700 N	0 E	653200	5575428
700 N	1000 E	654040	5575955
800 N	0 E	653148	5575516
800 N	1000 E	653998	5576041
900 N	0 E	653090	5575594
900 N	1000 E	653911	5576135
1000 N	0 E	653043	5575690
1000 N	1000 E	653985	5576209
1100 N	0 E	652988	5575768
1100 N	1000 E	653946	5576314
1200 N	0 E	652941	5575843
1200 N	1000 E	653770	5576373
1300 N	0 E	652877	5575940
1300 N	1000 E	653713	5576464
1400 N	0 E	652833	5576027
1400 N	1000 E	653673	5576549
1500 N	0 E	652779	5576110
1500 N	1000 E	653623	5576638
1600 N	0 E	652723	5576196
1600 N	1000 E	653570	5576718
1700 N	0 E	652667	5576270
1700 N	1000 E	653518	5576806
1800 N	0 E	652620	5576367
1800 N	1000 E	653465	5576889
1900 N	0 E	652559	5576444
1900 N	1000 E	653416	5576977
2000 N	0 E	652513	5576530
2000 N	1000 E	653363	5577060
2200 N	0 E	652415	5576702
2200 N	1000 E	653242	5577225
2400 N	0 E	652303	5576875
2400 N	1000 E	653148	5577394

UTM COORDINATES (NAD 83 zone 10)

## 8.0 SUMMARY OF RESULTS

All induced polarization pseudo sections with total magnetic field and VLF-EM profiles drawing are presented in Appendix I.

An examination of the chargeability pseudo sections show values ranging from 0 to 14 mV/V with a mean value of 3.6 mV/V. Chargeability values of 6.0 mV/V or higher, forming a 'pantleg' shape on the pseudo section, are considered anomalous. The surface projections of these anomalous zones are shown in Table-3. They are also indicated by solid bars, on drawing ALH0601BC-026 (Appendix II), Geophysical Compilation.

TABLE - 3 IP PRIMARY CHARGEABILITY ANOMALIES

Anomaly	Line	Station
1	1700 N	375 E to 500 E
2	1600 N	400 E to 550 E
3	1500 N	450 E to 550 E
4	1500 N	825 E to beyond 1000E
5	1400 N	800 E to 875 E
6	1200 N	425 E to 700 E
7	1100 N	325 E to 625 E
8	1000 N	400 E to 600 E
9	900 N	450 E to 575 E
10	800 N	425 E to 575 E
11	700 N	400 E to 500 E
12	0 N	750 E to 850 E
13	1000 N	250 E to 325 E

IP surveys cannot differentiate between economic and non-economic metallic mineralization, however portions of anomalies 1, 2 and 3 correlate with known copper mineralization in the Northwest Zone, while portions of anomalies 6 through 11 correlate with known copper mineralization in the South East zone. A chargeability plan map of the N=4 separation (drawing ALH0601BC-022, Appendix II) showing polarizable zones less than 50 metres below the ground surface, demonstrates the relationship. Weaker or poorly defined chargeability anomalies are noticed at the following locations referring to grid coordinates and are indicated by dashed bars, on drawing ALH0601BC-026 (Appendix II), Geophysical Compilation.

Areas of moderate increases in chargeability, extending only to the n=3 separation and forming a keel like shape, are observed on survey lines over the southern half of the survey grid (Table-4). The author believes these are overburden effects and not an indication of economic copper mineralization.

TABLE - 4 IP SECONDARY CHARGEABILITY ANOMALIES

Line	Station
0 N	225 E to 275 E
200 N	725 E to 825 E
400 N	825 E to 925 E
500 N	300 E to 450 E
600 N	325 E to 425 E
1100 N	850 E to 900 E
1200 N	775 E to 825 E
1400 N	125 E, open to the west
1600 N	100 E to 200 E and 850 E to 950 E
1700 N	200 E to 250 E
1800 N	350 E to 450 E
1900 N	650 E to 700 E and 800 E to 900 E

Apparent resistivity values range from 5 to 3500 ohm-metres with a mean value of 200 ohm-metres. Apparent resistivity values of less than 100 ohm-metres, forming a well defined 'pantleg' shape are noticed at the following locations (Table-5).

TABLE - 5 APPARENT RESISTIVITY ANOMALIES

Line	Station
200 N	450 E to 525 E
400 N	525 E to 650 E
500 N	675 E to 850 E
600 N	100 E to 150 E and 725 E to 900 E
700 N	75 E to 125 E and 800 E to 900E
800 N	125 E to 250 E
900 N	175 E to 375 E
1000 N	225 E to 325 E
1200 N	150 E to 200 E
1300 N	625 E to 700 E
1400 N	175 E to 225 E and 775 E to 850 E
1500 N	150 E to 200 E and 775 E to 825 E
1600 N	225 E to 300 E
1700 N	325 E to 375 E
1800 N	250 E to 325 E
1900 N	425 E to 625 E and 725 E to 800 E
2000N	350 E to 475 E , 575 E to 625 E
2200 N	450 E to 800 E

The broader apparent resistivity anomalies would suggest greater thicknesses of overburden, or sediment filled graben structures. These are outlined on drawing ALH0601BC-026 (Appendix II), Geophysical compilation. The narrow anomalies could indicate geological structures such as faults or fracture zones provided there is sufficient fault gouge development and water saturation.

Total magnetic field measurements range through 1500 nT over the survey area described in this report. The broad magnetic high observed along the eastern portions of the survey grid is more than likely mapping a mafic phase of intrusive rocks. The highest magnetic values recorded over the northern most survey line suggest the same causative source. Series of magnetic lows, forming north northeast lineaments can be traced across the survey area, and are interpreted to be zones of mafic destructive alteration. These in turn are dextrally offset, possibly by younger crosscutting faults.

Fraser filtering is a standard method for dealing with VLF-EM data as it allows the data to be contoured and presented as a plan map while it also rejects noisy data and amplifies the less noisy signal. After the positive values of the Fraser filter output are contoured, conductors can be identified and conductor axes assigned.

The interpretation of Fraser filter plots is qualitative. Broad low amplitude responses striking north south over the northern half of the survey area seen, most likely caused by deep geological structure, rather than metallic mineralization. The conductor axes are plotted on drawing ALH0601BC-026 (Appendix II), Geophysical Compilation.

## 9.0 CONCLUSIONS AND RECOMMENDATIONS

During the period October 17th, 2007 to November 24th, 2006, Alhambra Resources Ltd. contracted Aurora Geosciences Ltd. to complete time domain induced polarization, total magnetic field, and VLF-EM surveys on the Property. The purpose was to explore for copper mineralization and geological structures favorable to host copper mineralization.

The results of the IP, Magnetic, and VLF-EM surveys lead to the following conclusions:

- a. Chargeability anomalies obtained outline known areas of copper mineralization, however there remains anomalies yet untested by core drilling.
- b. Broad areas of low apparent resistivity may be outlining sediment filled graben structures.
- c. The total magnetic field survey results can be used to map different phases of intrusive rocks, as well as alteration.
- d. VLF-EM conductors, interpreted to be deep geological structures, exist on the property.

The conclusions support the following recommendations. It should be noted that resistivity, chargeability, magnetic and conductive features can result from a number of causes and that there may be sources within surrounding / overlying formations which can generate resistivity, chargeability, magnetic and conductive anomalies which may appear to be of economic interest.

- a. The definite chargeability anomalies, not associated with known mineralization should be tested for economic mineralization. Before doing so, Aurora recommended inverse modeling of the data should be completed to best guide the drill hole collar location.
- b. Continue IP, mag and VLF surveys to the east and south of the survey area covered in this report.

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**Wells, R.A.**, 1981, Assessment Report for the Tye #1, 2, 3 Mineral Claims in the Nicola Mining Division, Percussion Drilling and Geochemical Survey Report for Lawrence Mining Corporation, 20 pages, Minfile 09287.

## 11.0 STATEMENT OF COSTS

Activity	Units	\$Cost/Unit	Total Cost (\$CDN)
Induced Polarization Survey	37 man days including travel and standl (due to weather)	2,600/day	\$ 96,200.00
Magnetometer Survey	6 man days	750/day	\$ 4,500.00
VLF-EM Survey	11 mandays	475/day	\$ 5,225.00
General Field Labor	2 days	280/day	\$ 560.00
Geophysical Supplies	total cost	9.38	\$ 9.38
<b>Professional Services</b>			
Project management	68 hours	90/hour	\$ 6,120.00
Project preparation	one time fee	3,100	\$ 3,100.00
<b>Equipment Rental</b>			
Trucks	44 days	100/day	\$ 4,400.00
Computers & Office Eqpt.	44 days	80/day	\$ 3,520.00
Vehicle Milage Charge	4,384 kilometres Whitehorse, Yukon to Meritt, BC and return to Whitehorse	0.40	\$ 1,753.60
<b>Accomodations</b>			
Rooms	total cost	8,071.99	\$ 8,071.99
Food	total cost	2,058.92	\$ 2,058.92
Fuel	total cost	1,315.73	\$ 1,315.73
Commercial Transportation		1,791.01	\$ 1,791.01
Communications	Sat Phone air time	19.90	\$ 19.90
Cargo & Handling	total cost	59.45	\$ 59.45
Administration Fee		2,045.72	\$ 2,045.72
<b>Total Cost of Geophysical Program</b>			<b>\$ 140,750.70</b>

*El B. Stewart*

## 12.0 STATEMENT OF QUALIFICATIONS

I Elmer B. Stewart; resides at 13 Rockyspring Point NW, Calgary, Alberta hereby certify that:

- a) I am a professional geologist having practiced my profession for the past 32 years.
- b) I am a graduate of Acadia University, Wolfville Nova Scotia having graduated with a Masters of Science in Geology in 1978.
- c) I have been a member in good standing of the Association of Professional Engineers Geologists and Geophysicist of Alberta (Member Number M34563) since 1983.
- d) I have personally supervised the field work completed on the Property in 2006 for Alhambra Resources Ltd. from October 17<sup>th</sup> and November 24<sup>th</sup>, 2006.
- e) This assessment report is based on the interpreted results of the geophysical survey data collected by Aurora Geoscience Limited during the period October 17<sup>th</sup>, to November 24<sup>th</sup>, 2006.

I have visited this project on numerous occasions during and was involved in the exploration of the Property.

**Signed and Dated at Calgary, Alberta May 24<sup>th</sup>, 2007.**

*Elmer B. Stewart*

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**Elmer B. Stewart MSc. P. Geol**

**APPENDIX I**

Induced Polarization Pseudo Sections with Total Magnetic Field and VLF-EM Profiles

<b>LINE</b>	<b>SCALE</b>	<b>DRAWING NUMBER</b>
0N	1 : 2000	ALH0601BC - 001
200N	1 : 2000	ALH0601BC - 002
400N	1 : 2000	ALH0601BC - 003
500N	1 : 2000	ALH0601BC - 004
600N	1 : 2000	ALH0601BC - 005
700N	1 : 2000	ALH0601BC - 006
800N	1 : 2000	ALH0601BC - 007
900N	1 : 2000	ALH0601BC - 008
1000N	1 : 2000	ALH0601BC - 009
1100N	1 : 2000	ALH0601BC - 010
1200N	1 : 2000	ALH0601BC - 011
1300N	1 : 2000	ALH0601BC - 012
1400N	1 : 2000	ALH0601BC - 013
1500N	1 : 2000	ALH0601BC - 014
1600N	1 : 2000	ALH0601BC - 015
1700N	1 : 2000	ALH0601BC - 016
1800N	1 : 2000	ALH0601BC - 017
1900N	1 : 2000	ALH0601BC - 018
2000N	1 : 2000	ALH0601BC - 019
2200N	1 : 2000	ALH0601BC - 020
2400N	1 : 2000	ALH0601BC - 021

**APPENDIX II**

<b>PLAN MAPS</b>	<b>SCALE</b>	<b>DRAWING NUMBER</b>
N=4 Chargeability	1 : 5000	ALH0601BC-022
N=4 Apparent Resistivity	1 : 5000	ALH0601BC-023
Total Magnetic Field	1 : 5000	ALH0601BC-024
Fraser Filter In Phase	1 : 5000	ALH0601BC-025
Geophysical Compilation	1 : 5000	ALH0601BC-026

## **APPENDIX III**

2006 Geophysical Survey Technical Specifications including:

The Time Domain Induced Polarization Survey

Instrument Specifications – GDD TX II IP TRANSMITTER

Instrument Specifications – IRIS ELREC – 6 IP RECEIVER

Instrument Specifications – GEM PROTON MAGNETOMETER

Instrument Specifications – GEONICS EM 16 VLF RECEIVER

### **THE TIME DOMAIN INDUCED POLARIZATION SURVEY**

The time domain induced polarization system employed for this survey uses a digital six channel receiver, built by Iris Instruments of France, a 3.6 Kilowatt (Kw) digital IP transmitter, built by Instrumentation GDD Inc. of Canada and is powered by a 5 Kw Honda motor generator. A 2 second current on, 2 second current off pulse is sent into the earth via the IP transmitter and two stainless steel electrodes, C and C2.

The value of the current (I) is measured in amperes. The voltage (Vp) produced by the 'current on' portion of the pulse is measured between a set of potential electrodes P1 and P2 by the receiver and is recorded in millivolts. During the 'current off' portion of the pulse, the voltage between P1 and P2 decays according to the material present. Chargeability is defined as the integral of the decay curve over time. The decay curve is sampled at semi – logarithmic intervals starting 80 milliseconds after the current shut off, using ten time windows of 80, 80, 80, 80, 160, 160, 320, 320 and 320 milliseconds respectively. The weighted average value of these individual chargeabilities is then computed, resulting in an apparent chargeability (Ma) in millivolts per volt. The apparent resistivity (Ra) in ohm metres is obtained by combining the ratio of the primary voltage (Vp) and the current (I) with a coefficient that is determined by the electrode configuration being used, which for this survey is the pole – dipole electrode arrangement.

This type of array is well suited for surveying in rugged terrain as it requires fewer electrodes to be moved and in the case when poor contact resistance due to rocky ground is encountered, allows reliable chargeability measurements when the transmitted current is low. The arrangement is illustrated on the pseudo sections accompanying this report. Depth of investigation and sensitivity to the size of the target are controlled by adjusting the dipole spacing (a) and the separation (n) from the transmitting pole, which are determined in part by the expected width and depth of the mineralization. Considering this, the survey was carried out using a dipole spacing of twenty five metres and six separations (n = 1, 6).

### **INSTRUMENT SPECIFICATIONS - THE GDD TX II IP TRANSMITTER**

The GDD TX II IP transmitter is designed and manufactured by Instrumentation GDD Inc.

Features Protection against short circuits even at zero (0) ohms

Output voltage range: 150 V to 2200 V

Power source: 120 V / 60 Hz - Optional: 220 V / 50 Hz

Operates from a light backpackable standard 120 V generator

### Specifications

Size 21 x 34 x 39 cm

Weight approx 20 kg

Operating temperature -40°C to 65°C

Duty cycle 2 sec. current ON 2 sec. current OFF

Output current range 0.005 to 10 A

Output voltage range 150 to 2200 V

Power source any standard motor/generator 120V / 60Hz

Output current LCD reads to  $\pm 0,001$  A

Very cold weather standard LCD heater

Protection Total protection against short circuits even at zero (0) ohms

Indicator lamps High voltage ON-OFF

Output overcurrent

Generator over or undervoltage

Overheating

Logic failure

Open loop protection

### **INSTRUMENT SPECIFICATIONS -THE IRIS ELREC – 6 DIGITAL SIX CHANNEL IP RECEIVER**

(Reprinted from the Iris Instruments ELREC – 6 Operating manual v9.4)

#### MEASURED PARAMETERS

- Measurement and display of the voltage, the Self Potential, the IP chargeability (10 fully programmable or preset IP windows), the standard deviation and display of the intensity of current if previously keyed in.
- Continuous stacking of measurements (for noise reduction), display of the number of stacks.
- Computation and display of the apparent resistivities and chargeabilities for main electrode arrays, dipole-dipole, pole-dipole, pole-pole, gradient, Schlumberger, Wenner for six dipoles simultaneously.
- Test of internal power supply, test of ground resistance of electrodes 1, 3, 4, 5, 6, 7 with respect to 2 (value given between 0.1 kohm and 467 kohm). This test can be manual: RS CHECK function and this test is also automatic at the beginning of each measurement.
- Test of noise level before the measurements (MONITOR function)
- Storage data in the internal memory (up to 2505 readings). The data which are stored for each reading are.
- Station and line numbers, type of electrode array, lengths of lines, voltage, intensity, self potential, time parameters, 10 chargeability values, standard deviation, the date and time of measurement.

#### SPECIFICATIONS

- 6 input channels
- Input impedance: 10 Mohm.

- Input overvoltage protection up to 1000 Volts
- Input voltage range - each dipole : 10V maximum sum of voltages dipoles 2 to 6 : 15V maximum
- Automatic stacking, automatic SP bucking (-10V to +10 V)
- 50 to 60 Hz power line rejection
- Common mode rejection: 100dB (for  $R_s = 0$ )
- Primary voltage - resolution:  $1\mu\text{V}$  after stacking accuracy typ. 0.3% ; max 1 over the whole temperature range
- Battery test: manual and automatic before each measurement.
- Grounding resistance measurement from 0.1 to 467 kohm
- Memory capacity: 2505 measurements.
- Transfer rates: 300 to 19200 bauds
- Serial link for data transfer to a printer or a micro computer.
- Remote control of the unit through the serial link (speed : 19200 bauds)
- Up to 10 chargeability windows
- Signal waveform: symmetrical time domain (ON +, OFF, ON -, OFF) with a pulse duration (ON TIME) of 0.5, 1, 2, 4 and 8 s.
- Four available IP curve sampling choices, three of them are preset times and the fourth one has 10 fully programmable windows.
- Automatic stacking, automatic SP bucking (-10V to +10V) with linear drift correction up to 1 mV/s.
- Sampling rate: 10 ms.
- Accuracy in synchronization : 10 ms.
- Minimum voltage for synchronization windows :  $40\mu\text{V}$
- Chargeability - resolution: 0.1 mV/V Accuracy typical: 0.6%, max 2% of reading  $\pm 1$  mV for  $V_p > 10$  mV
- Each dipole measurement is stored individually in one memory location

## GENERAL SPECIFICATIONS

- Weather proof case.
- Dimensions: length 310 mm, width 210 mm, height 210 mm (12.2 x 8.3 x 8.3 inch).
- Weight: 5.2 kg (11.5 pounds) without drycells 6 kg (13.2 pounds) with drycells 7.8 kg (17.6 pounds) with the 6 V internal rechargeable batteries.
- Operating temperature :  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  ( $-40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  with an optional screen heater)
- Storage temperature:  $40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  with an optional screen heater.
- Power supply: either six 1.5 V D size alkaline dry cells or one 12 V external battery or two 6 V internal rechargeable batteries connected in series (= 12V) or one 12 V external battery (the autonomy is 100 hours of operation at  $20^{\circ}\text{C}$  with a set of new alkaline dry cells and 50 hours of operation at  $20^{\circ}\text{C}$  with the two charged internal 6 V batteries).

## GSM PROTON MAGNETOMETER

The GSM magnetometer system is designed and manufactured by GEM Systems Inc. The GSMT system is a portable microprocessor based magnetometer system that is capable of

measuring changes or contrasts in the earth's magnetic field. The data is both sensitive and highly repeatable.

The GSM is a multi-purpose instrument designed to operate as either:

1. Total field magnetometer
2. Total field base station magnetometer
4. Gradiometer

The GSM has a 0.2nT resolution, and a 1nT absolute accuracy over its full temperature range (-40°C to +60°C). The magnetic field measuring process consists of the following steps:

- a) Polarization: A strong DC current is passed through the sensor creating polarization of a proton rich fluid in the sensor.
- b) Pause: The pause allows the electrical transients to die off, leaving a slowly decaying proton precession signal above the noise level.
- c) Counting: The proton precession frequency is measured and converted into magnetic field units.
- d) Storage: The results are stored in memory together with date, time and coordinates of measurement. In base station mode, only the time and total field are stored.

Synchronized operation between hand held and base station units is possible, and the corrections for diurnal variations of magnetic field are done automatically. The results of measurement are made available in serial form (RS-232-C interface) for collection by data acquisition systems, terminals or computers. Both on-line and post-operation transfer is possible. The stored corrected data with grid lines and coordinate labels, and is then plotted as profiles or contours on the appropriate grid maps.

## INSTRUMENT SPECIFICATIONS

Resolution: 0.01nT (gamma), magnetic field and gradient;

Accuracy: 0.2nT over operating range;

Range: 20,000 to 120,000nT;

Gradient Tolerance: Over 10,000nT/m;

Operating Interval: 3 seconds minimum, faster optional, readings initiated from keyboard, external trigger, or carriage return via RS-232C;

Input/Output: 6 pin weatherproof connector, RS-232C, and (optional) analog output;

Power Requirements: 12V, 200mA peak (during polarization), 30mA standby, 300mA peak in gradiometer mode;

Power Source: Internal 12V, 2.6Ah sealed lead-acid battery standard, others optional;

An External 12V power source can also be used;

Battery Charger: Input: 110 VAC, 60Hz. Optional 11/220VAC, 50/60 Hz;

Output: dual level charging;

Operating Ranges: Temperature: -40°C to +60°C;

Battery Voltage: 10.0V minimum to 15V maximum;

Humidity: up to 90% relative, non condensing;  
Storage Temperature:  $-50^{\circ}\text{C}$  to  $+65^{\circ}\text{C}$ ;  
Display: LCD: 240 x 64 pixels, OR 8 x 30 characters, built in heater for operation below  $-20^{\circ}\text{C}$ ;  
Dimensions: Console: 223 x 69 x 240mm;  
Sensor Staff: 4 x 450 mm sections;  
Sensor: 170 x 71mm dia;  
Weight: console 2.1kg, Staff 0.9 kg, Sensors 1.1kg each.

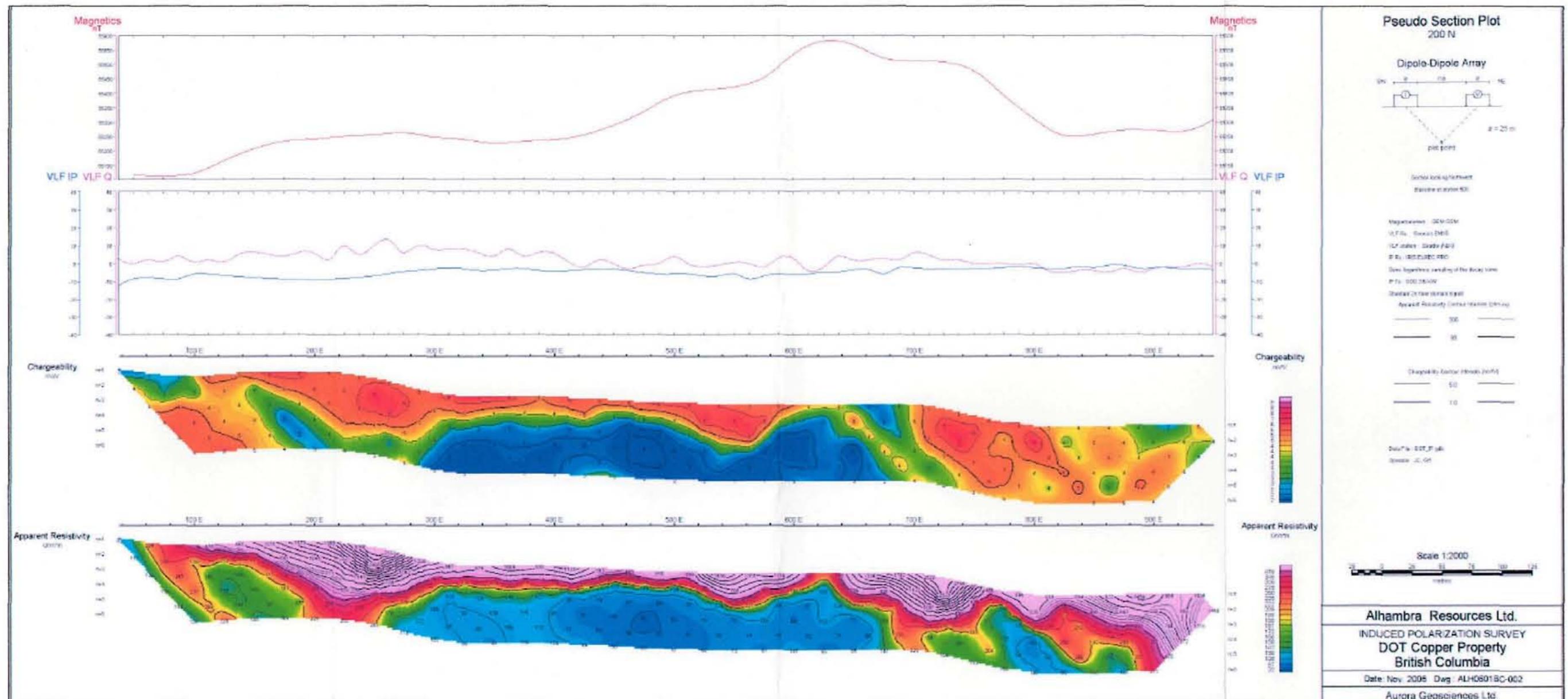
### **GEONICS EM 16 VLF RECEIVER**

The EM16 VLF Receiver is the most widely used electromagnetic geophysical instrument of all time. Local tilt and ellipticity of VLF broadcasts are measured and resolved into inphase and quadrature components of VLF response. The EM16 has discovered several base and precious-metal ore bodies and many waterbearing fractures and faults.

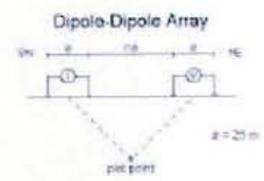
Measured quantities: in phase and quadrature components of the secondary VLF field, as percentages of the primary field;  
Primary Field Source: ferrite-core coil;  
Operating frequency: 15 to 25 KHz;  
Measuring Ranges: in phase  $\pm 150\%$ ;  
Quadrature:  $\pm 40\%$ ;  
Dimensions: 53 X 30 X 22 cm 1.8 kg.



**APPENDIX - I  
PSEUDO SECTION - ALH0601BC - 002**



**Pseudo Section Plot  
200 N**



Control look up for magnet  
Baseline at station 800

- Magnetometer: GEM-008
- VLF Rx: Geoscan EM6
- VLF Station: Geoscan P40
- IP Rx: Geoscan IPIC 1000
- Data Acquisition: Geoscan GEM-008
- IP Rx: 1000 1000V
- Station: 20 m (Station 100)
- Apparent Resistivity: Geoscan GEM-008

Chargeability  
mV

Chargeability Contour Interval (mV)

50

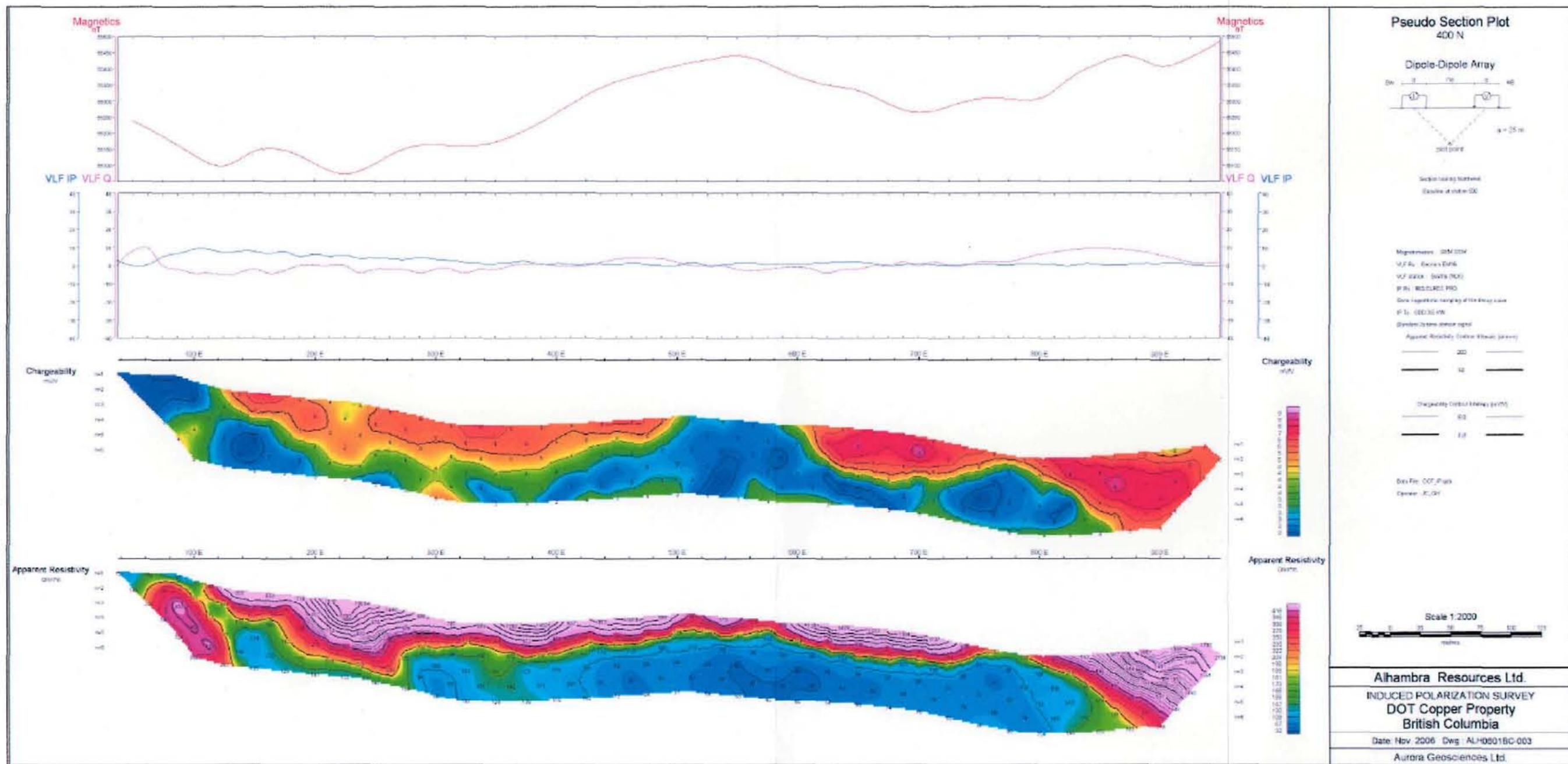
10

Data File: 002\_01.gdb  
Operator: J.C. Giff

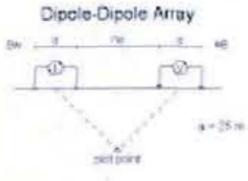
Scale 1:2000

**Alhambra Resources Ltd.**  
INDUCED POLARIZATION SURVEY  
**DOT Copper Property**  
British Columbia  
Date: Nov. 2005 Dwg: ALH0601BC-002  
Aurora Geosciences Ltd.

**APPENDIX - I**  
**PSEUDO SECTION - ALH0601BC - 003**



**Pseudo Section Plot**  
400 N



Magnetics: 10M DDA  
 VLF Q: Geonics EM38  
 VLF IP: Geonics IP10  
 IP: RESURC IP10  
 Scale: 1:2000

Chargeability (mV)

0 20 40 60 80 100

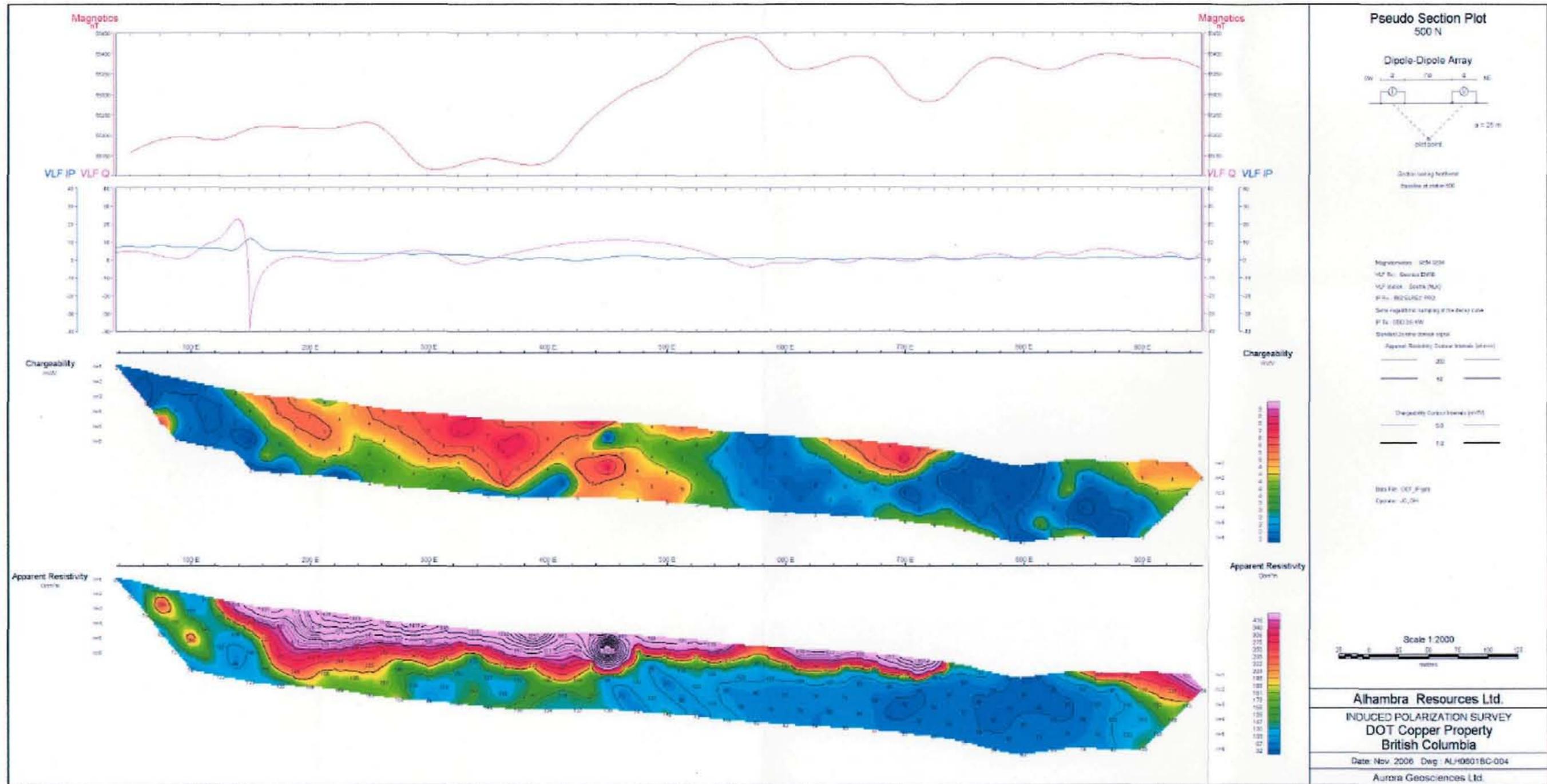
Scale 1:2000

0 10 20 30 40 50 60 70 80 90 100

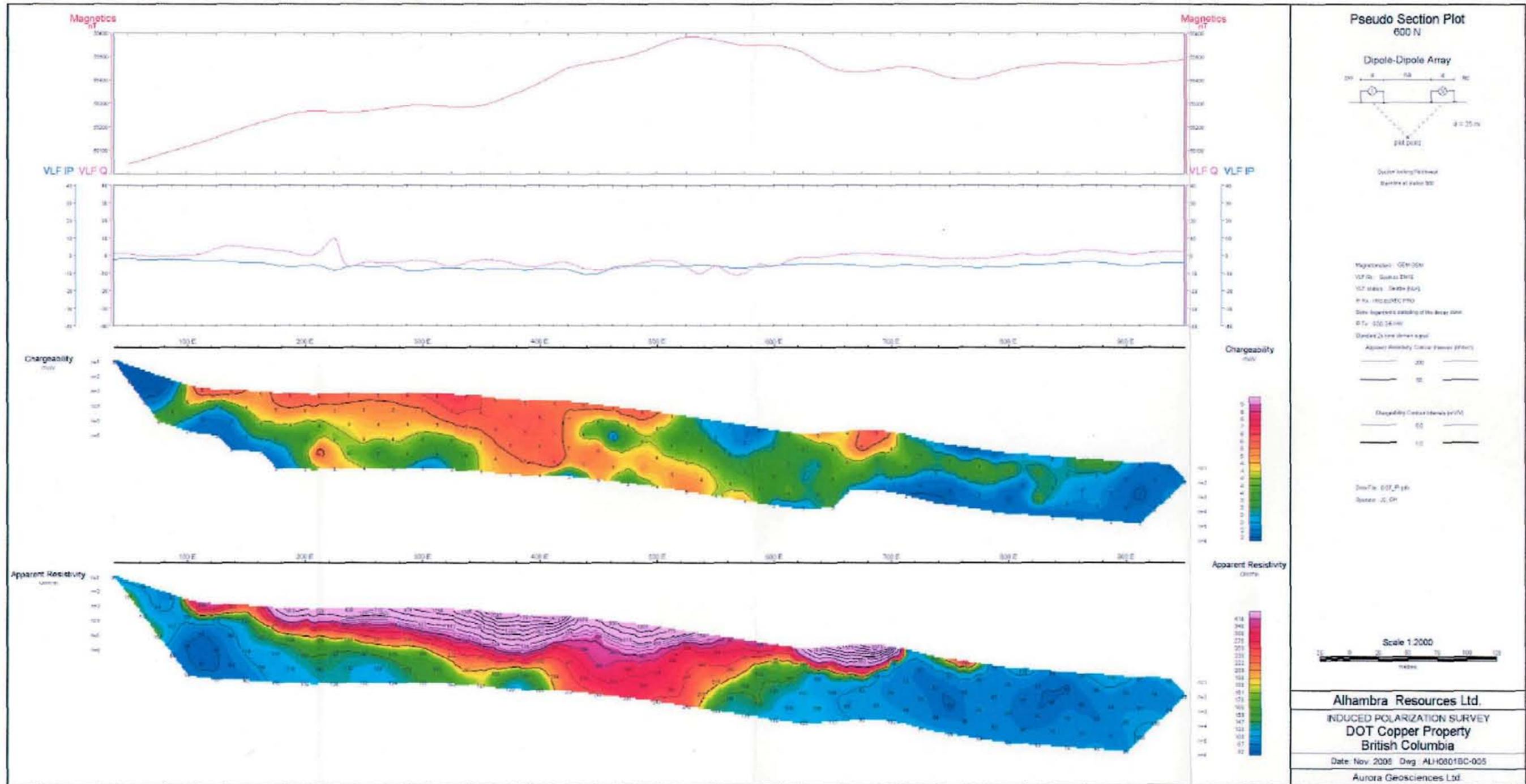
meters

**Alhambra Resources Ltd.**  
 INDUCED POLARIZATION SURVEY  
 DOT Copper Property  
 British Columbia  
 Date: Nov 2006 Dwg: ALH0601BC-003  
 Aurora Geosciences Ltd.

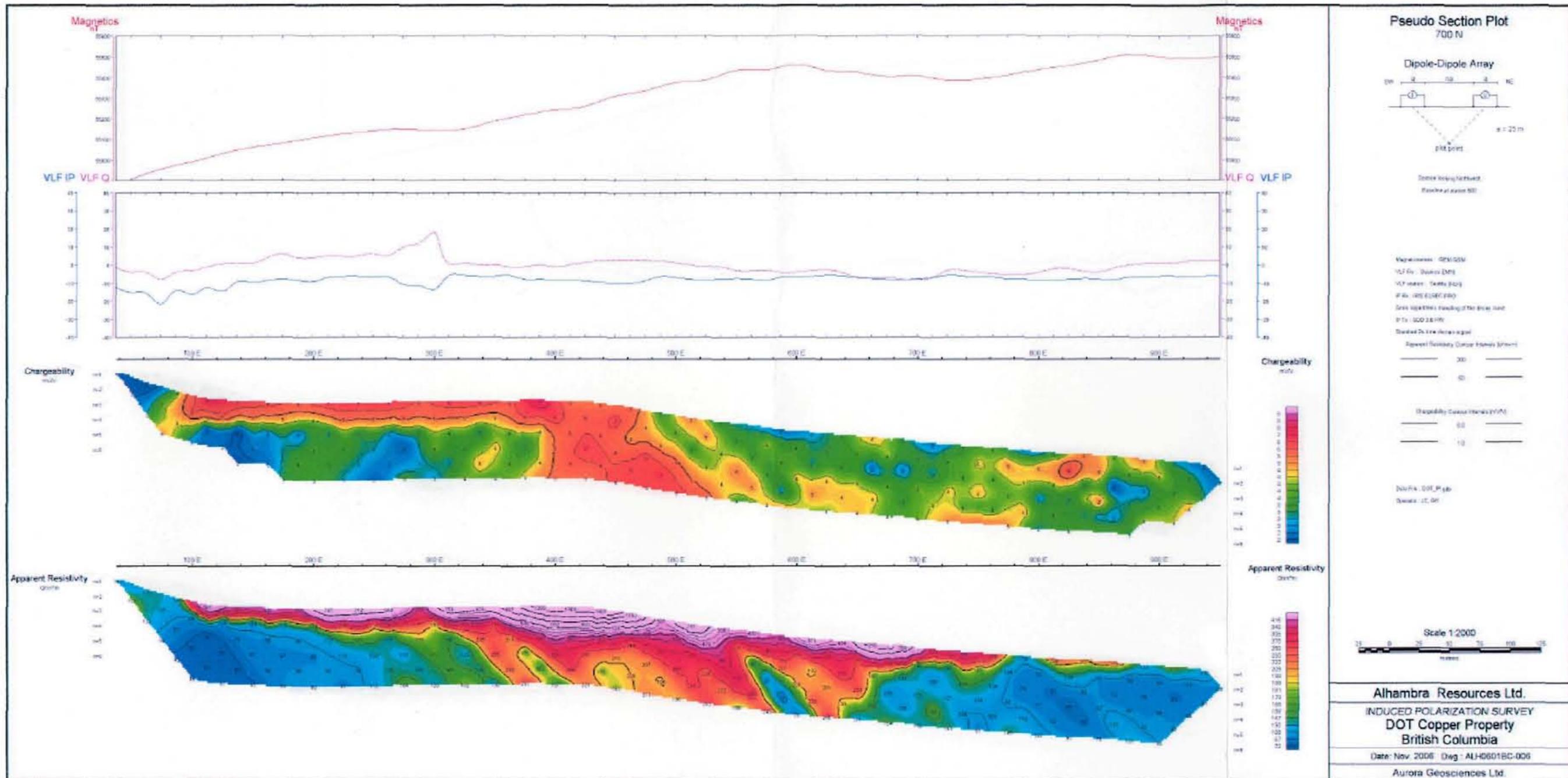
**APPENDIX - I  
PSEUDO SECTION - ALH0601BC - 004**



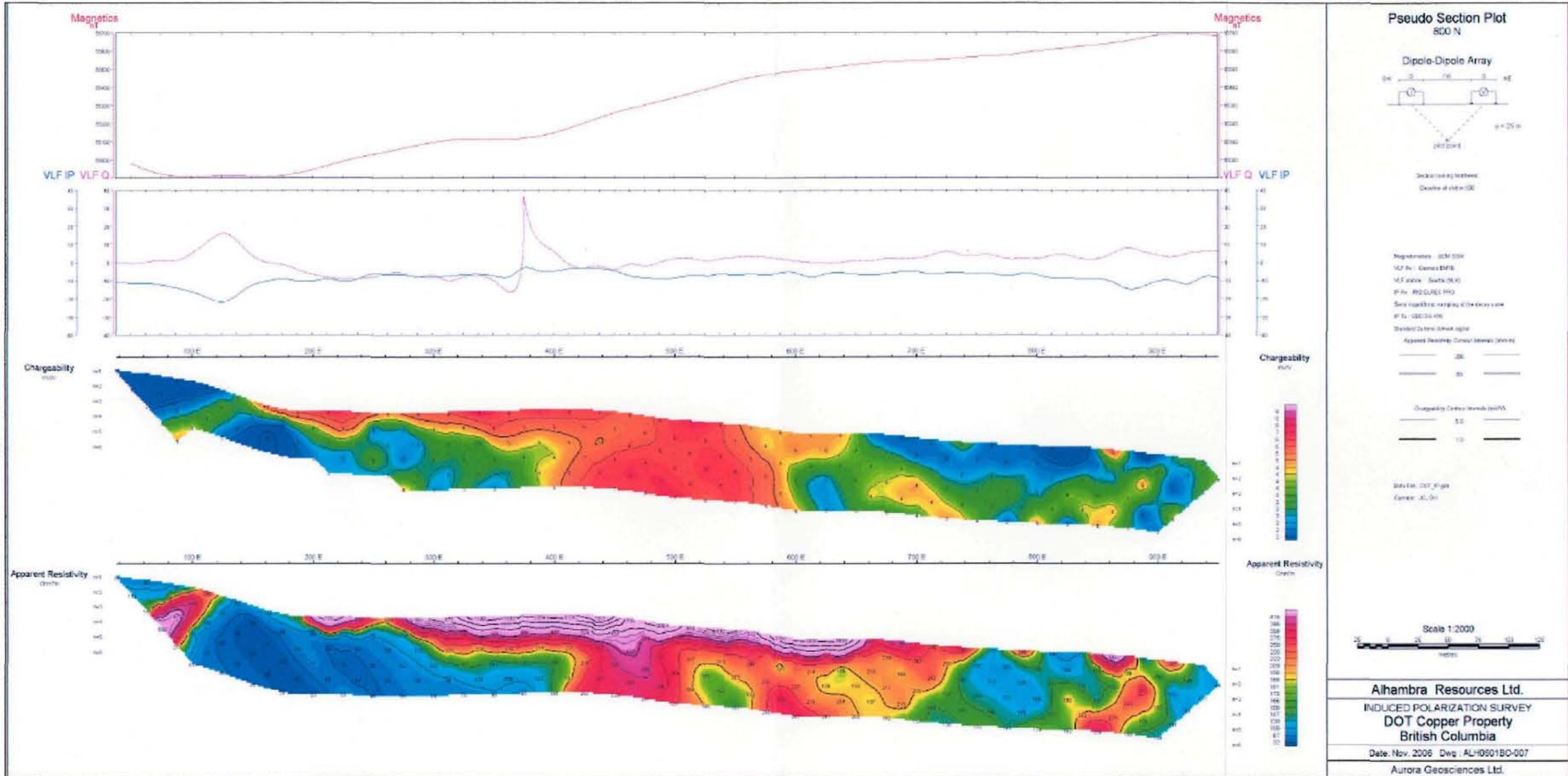
**APPENDIX - I  
PSEUDO SECTION - ALH0601BC - 005**



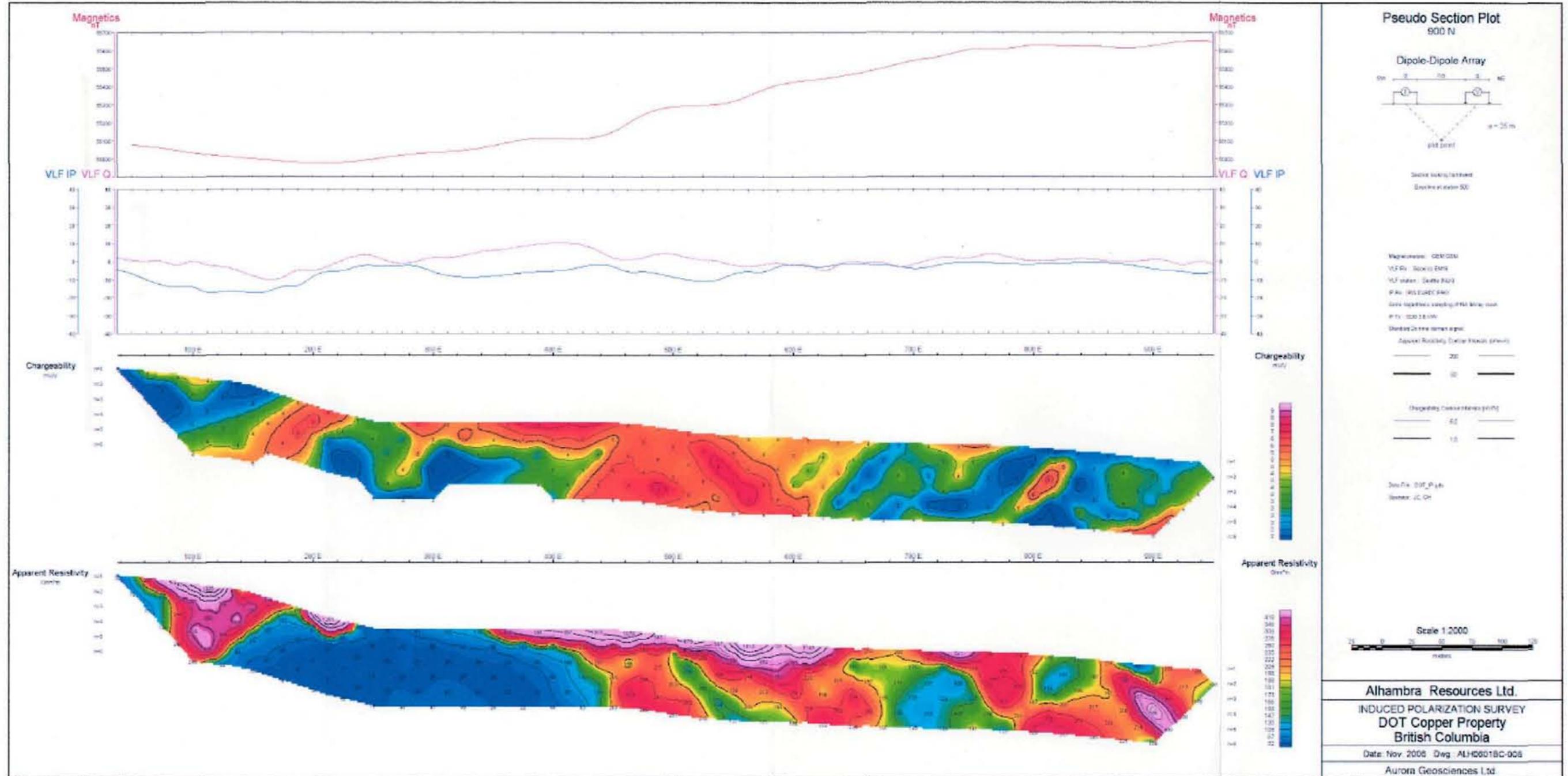
**APPENDIX - I**  
**PSEUDO SECTION - ALH0601BC - 006**



**APPENDIX - I  
PSEUDO SECTION - ALH0601BC - 007**

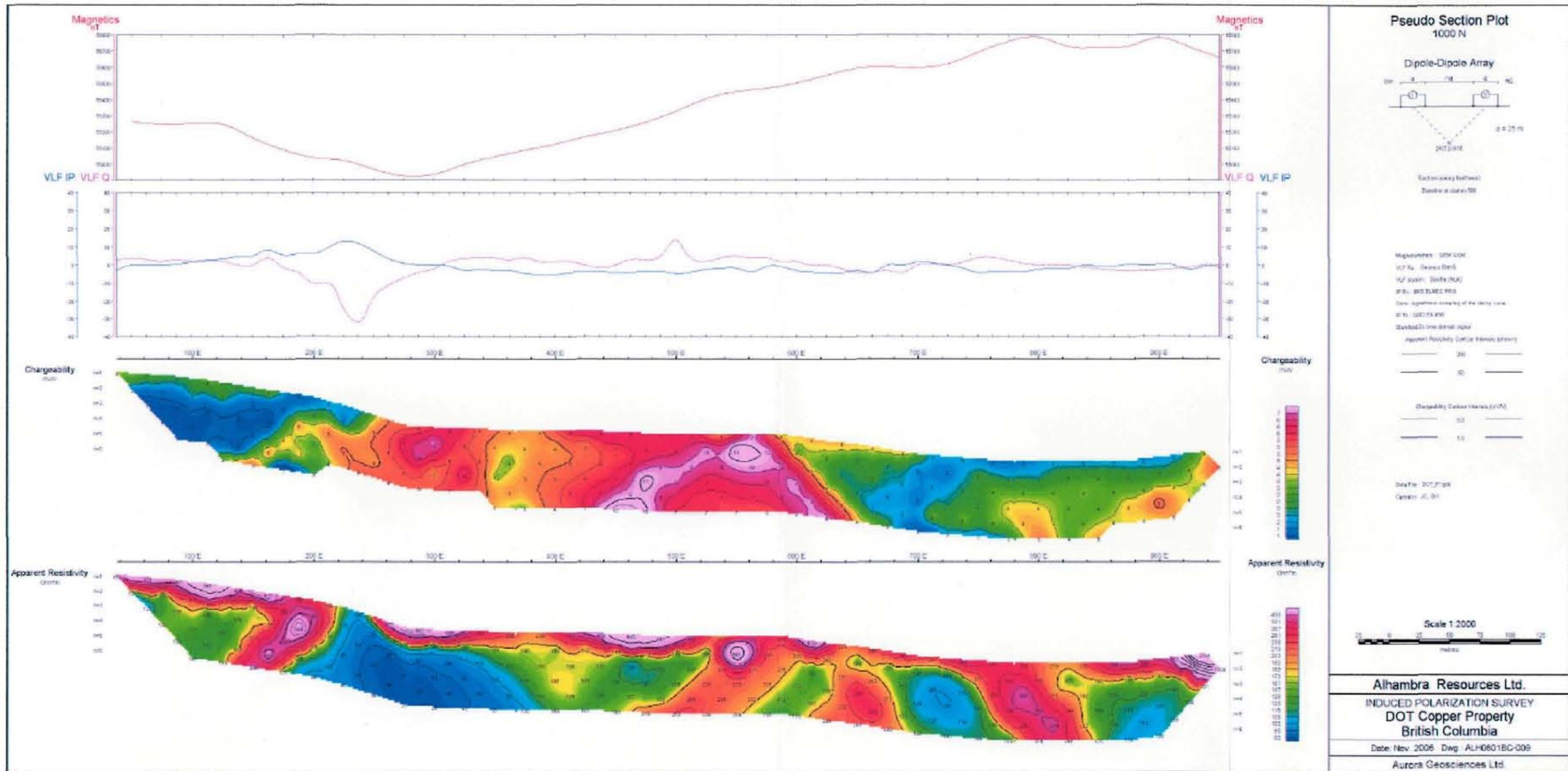


**APPENDIX - I**  
**PSEUDO SECTION - ALH0601BC - 008**

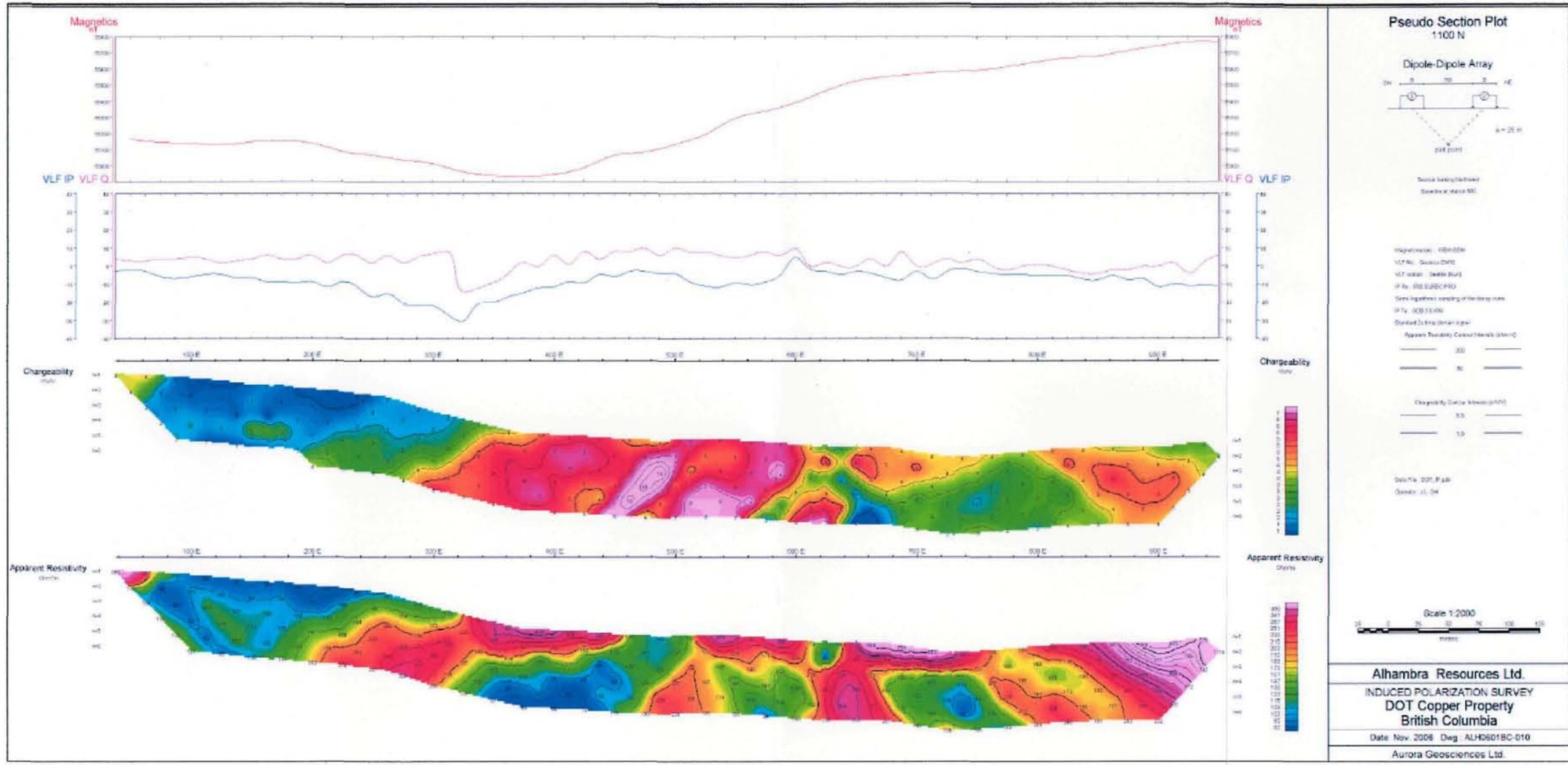


**Alhambra Resources Ltd.**  
**INDUCED POLARIZATION SURVEY**  
**DOT Copper Property**  
**British Columbia**  
 Date: Nov. 2005 Dwg: ALH0601BC-008  
 Aurora Geosciences Ltd.

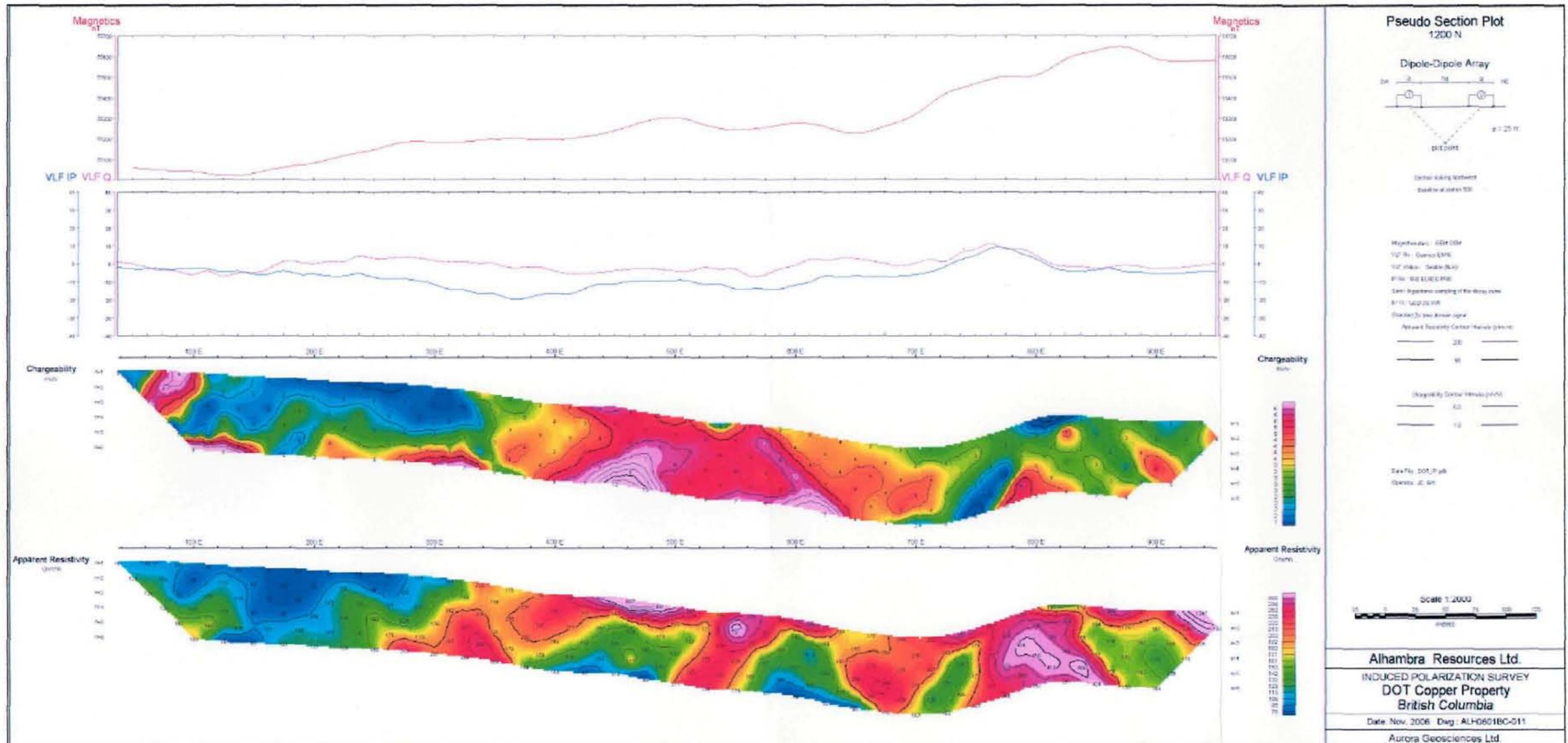
**APPENDIX - I  
PSEUDO SECTION - ALH0601BC - 009**



**APPENDIX - I  
PSEUDO SECTION - ALH0601BC - 010**

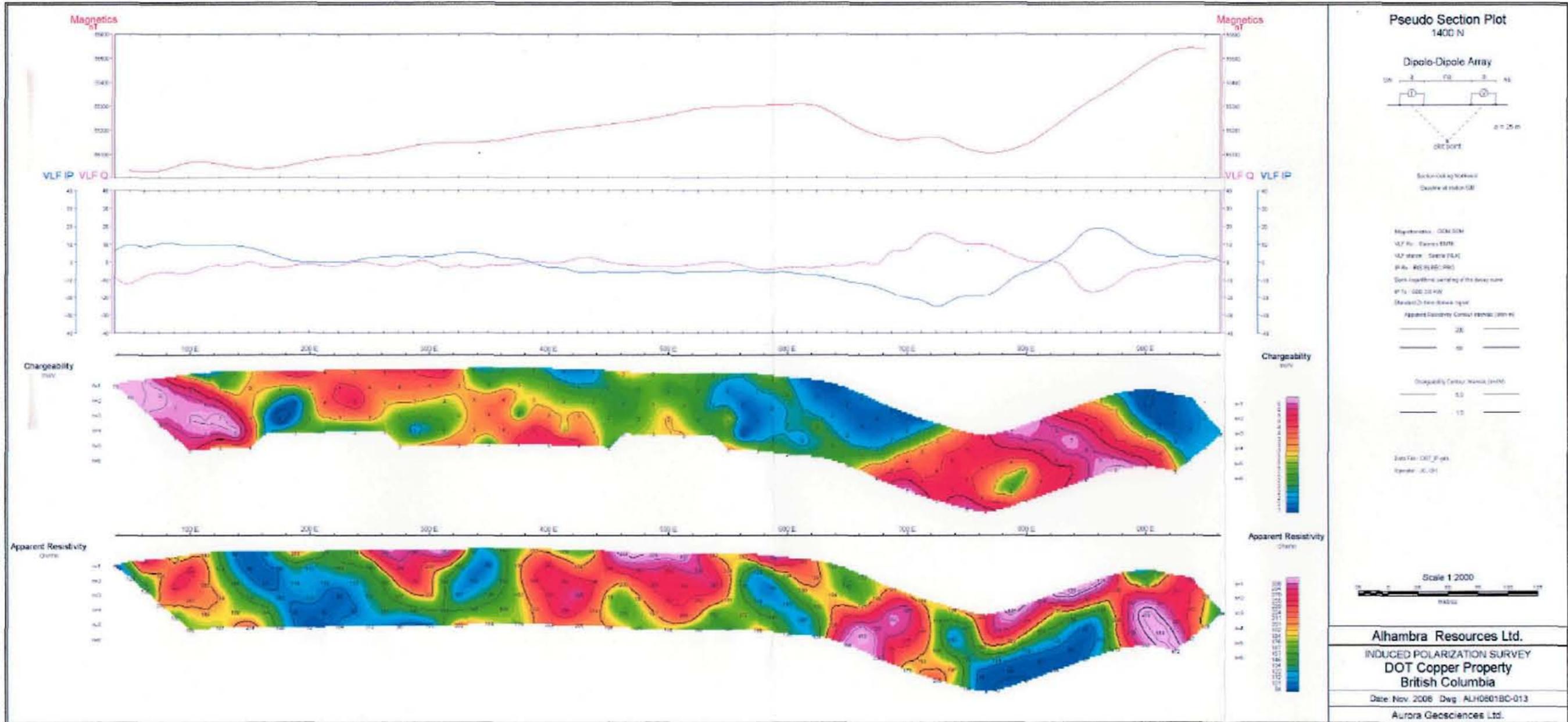


**APPENDIX - I  
PSEUDO SECTION - ALH0601BC - 011**

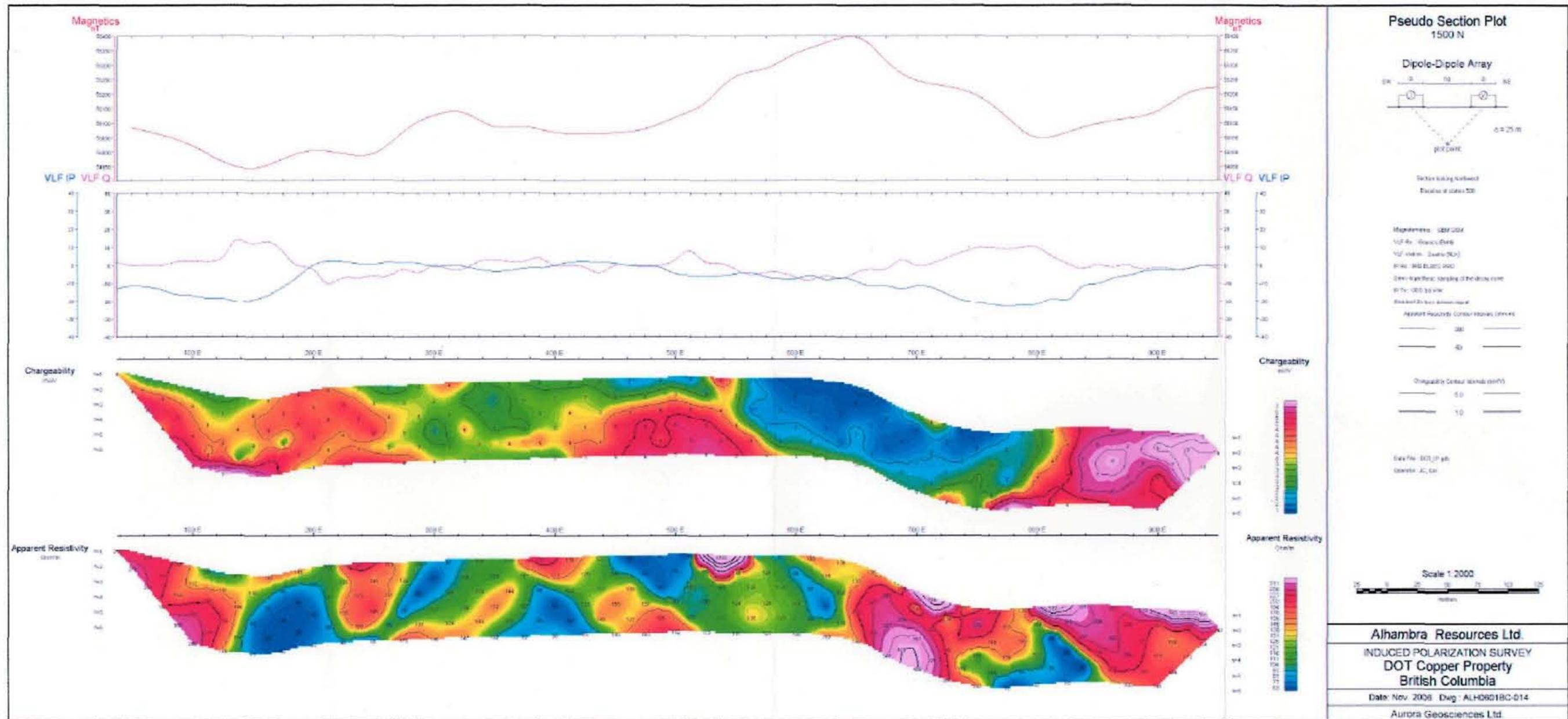




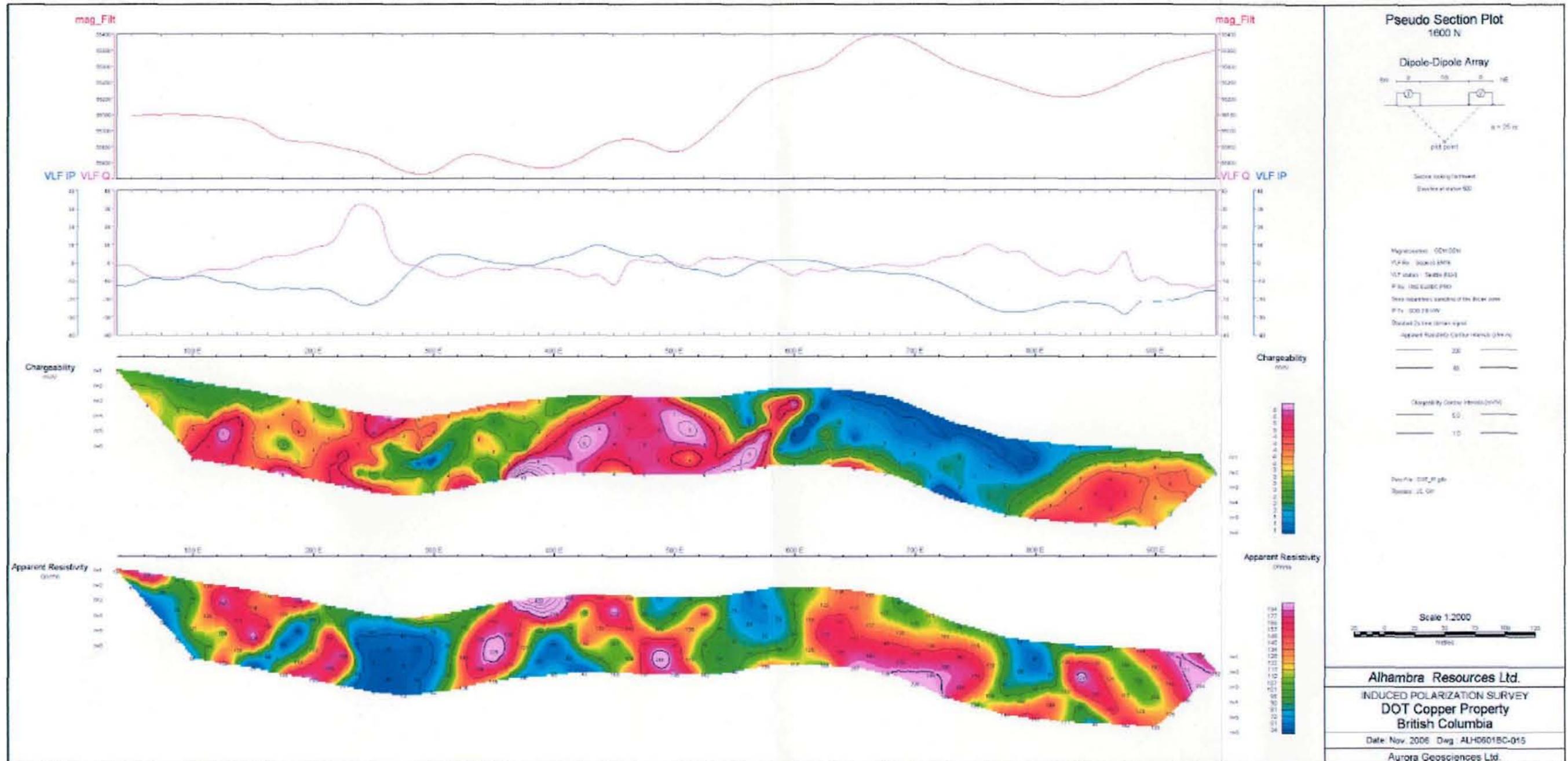
**APPENDIX - I  
PSEUDO SECTION - ALH0601BC - 013**



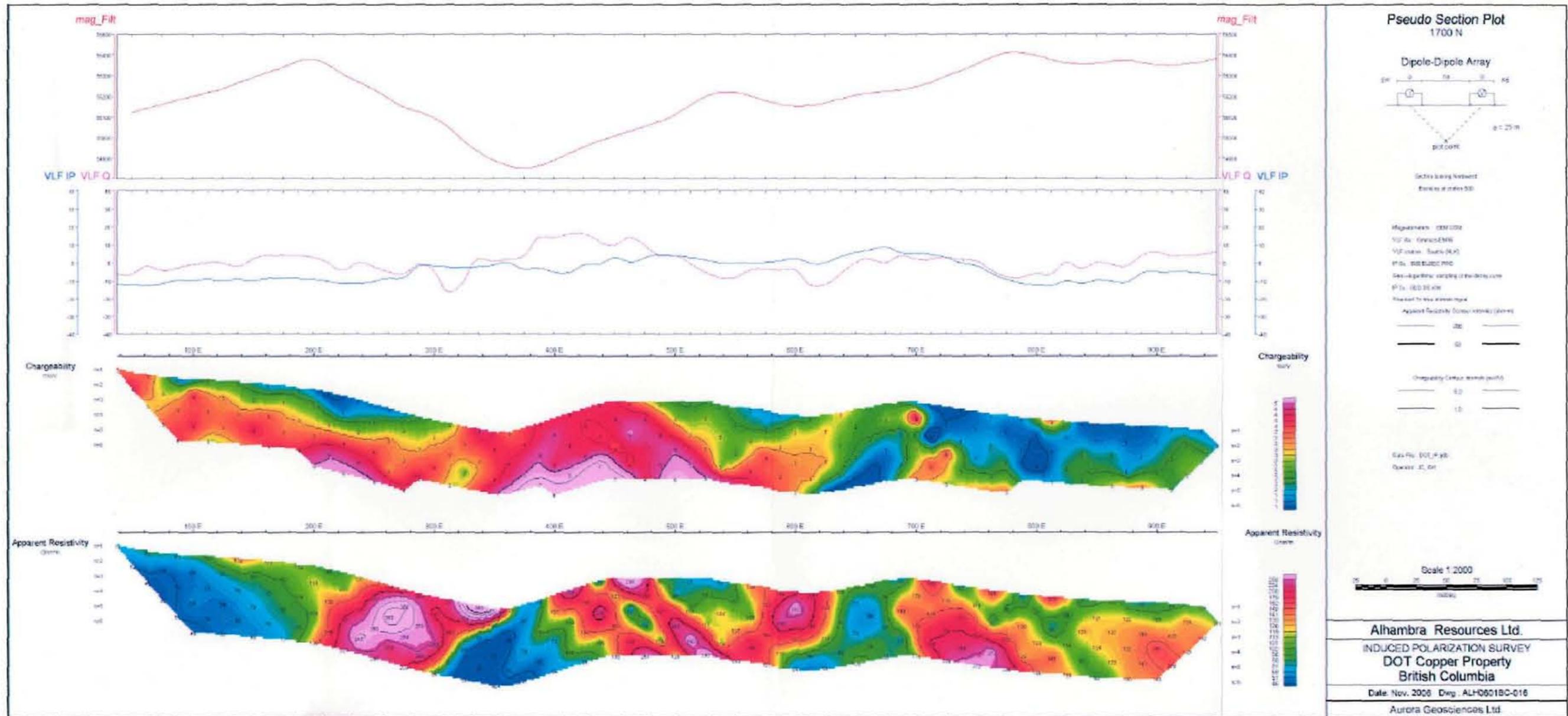
**APPENDIX - I  
PSEUDO SECTION - ALH0601BC - 014**



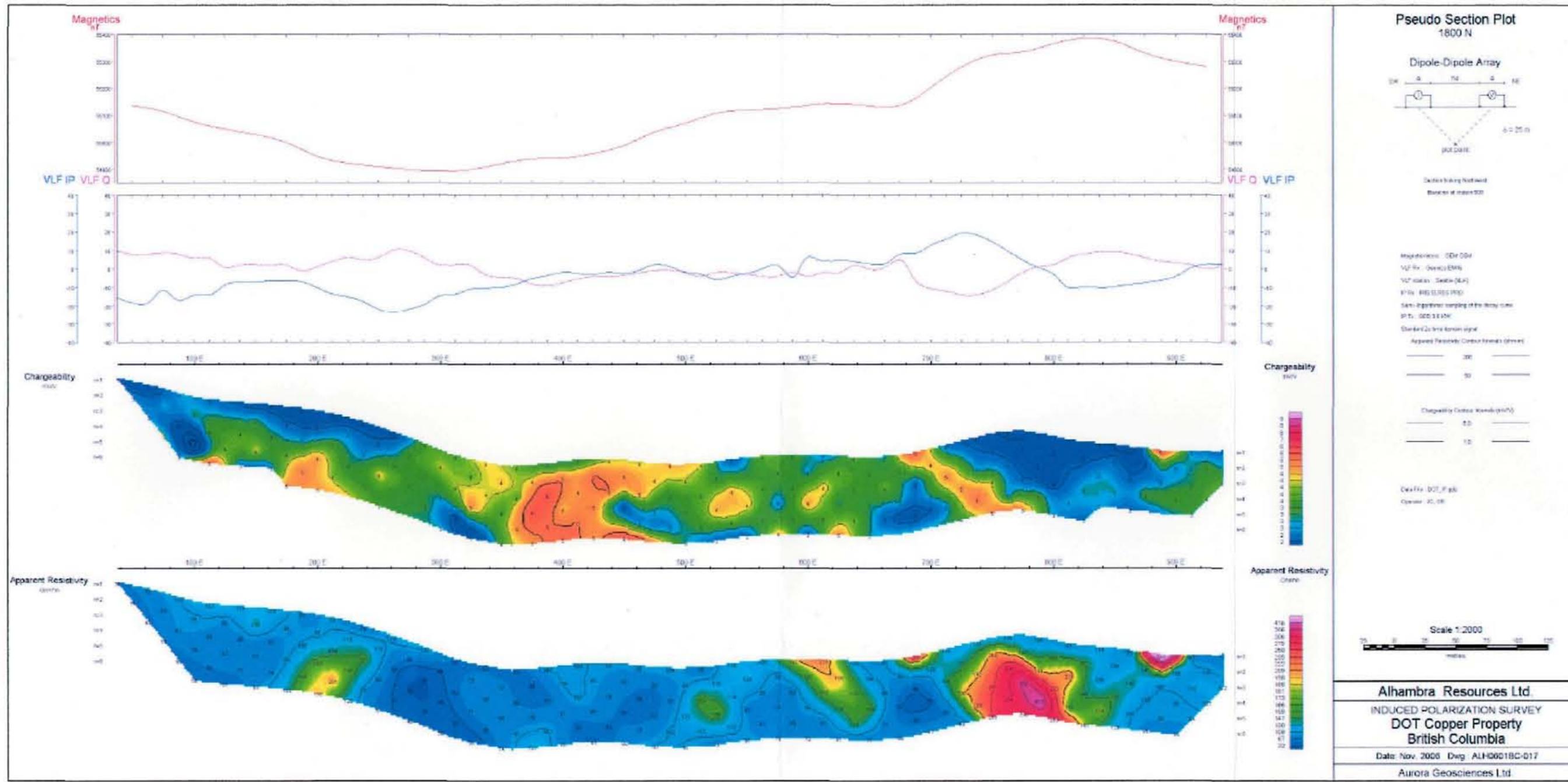
**APPENDIX - I**  
**PSEUDO SECTION - ALH0601BC - 015**



**APPENDIX - I**  
**PSEUDO SECTION - ALH0601BC - 016**

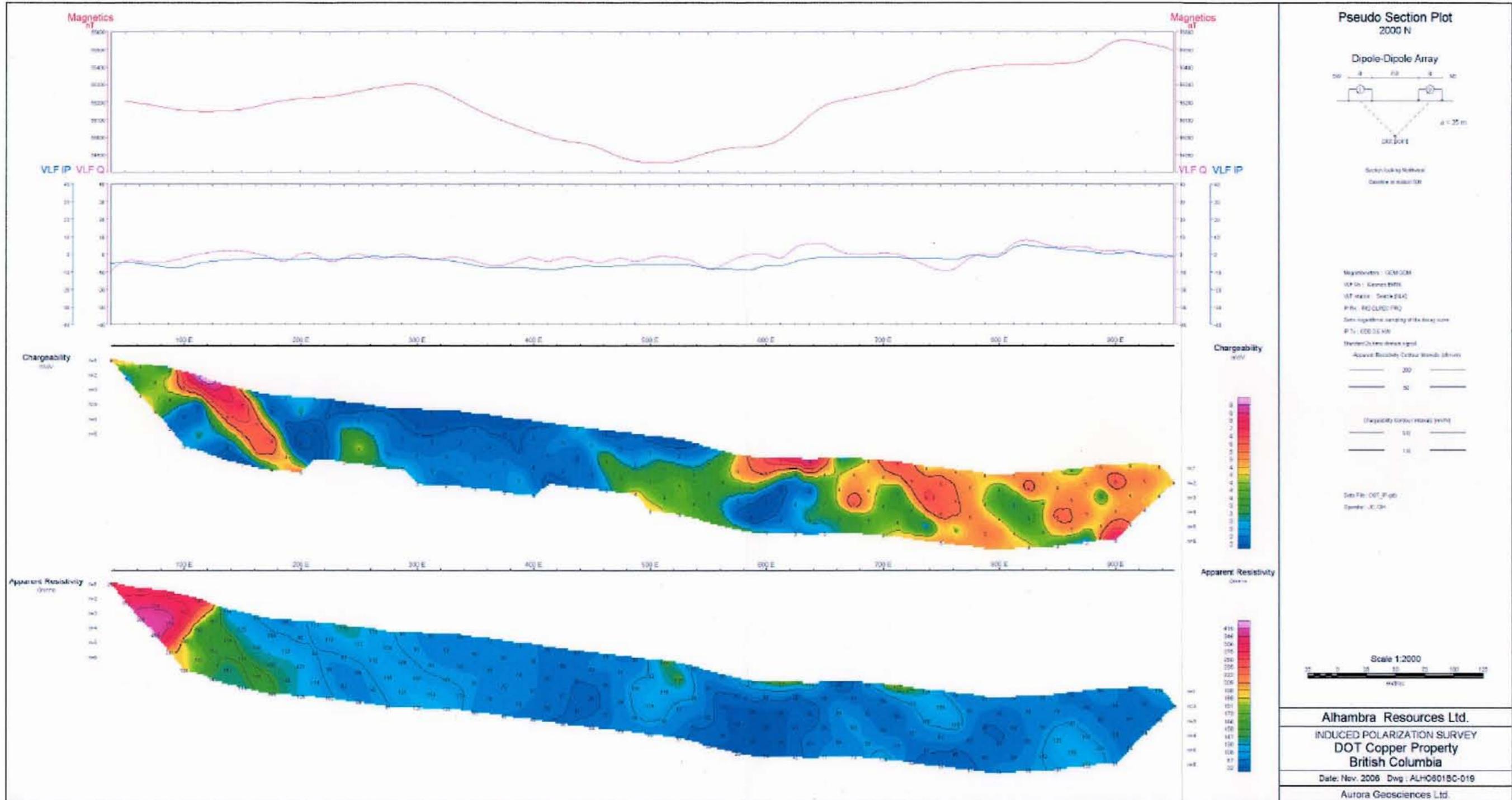


**APPENDIX - I  
PSEUDO SECTION - ALH0601BC - 017**

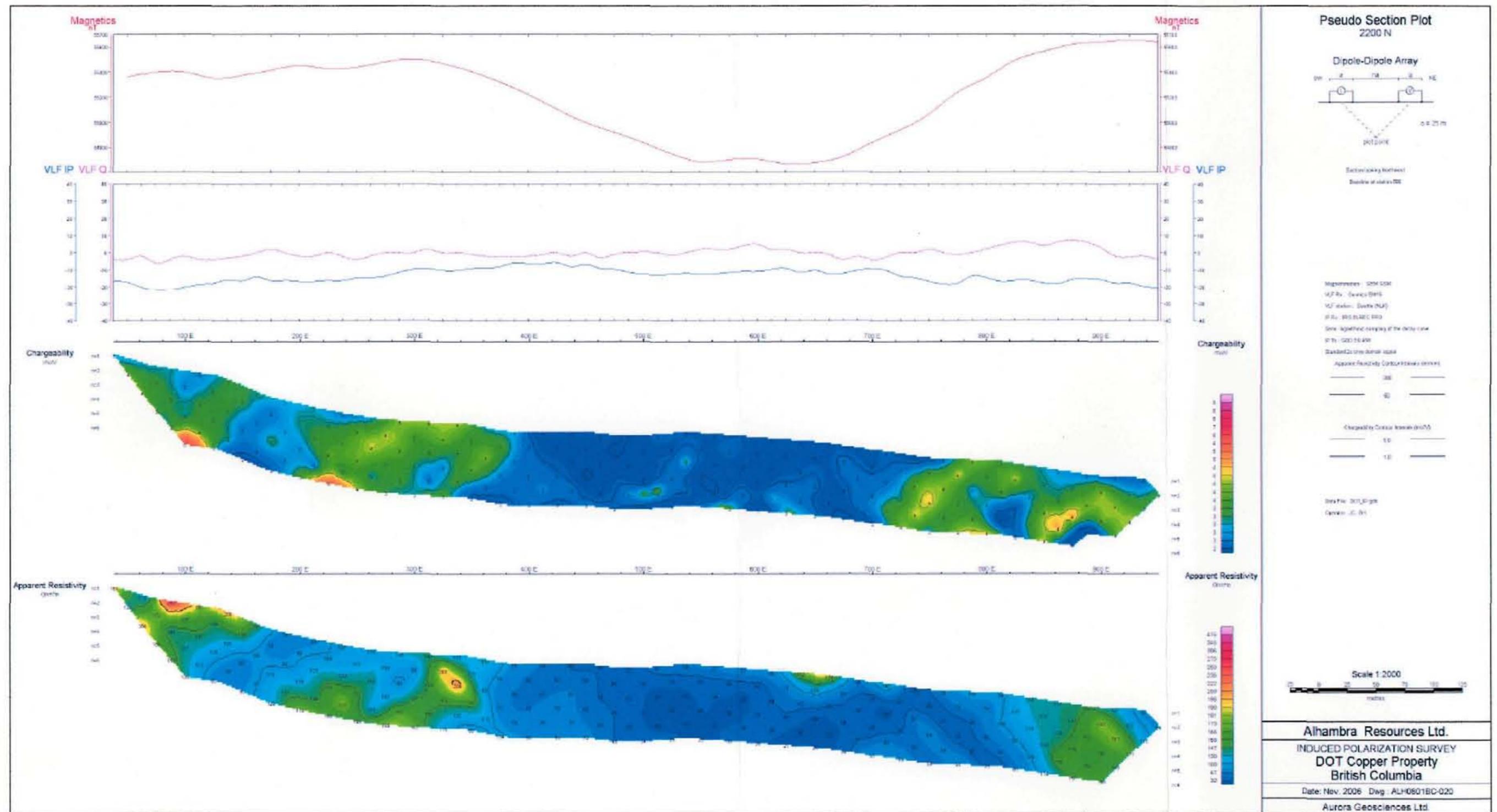




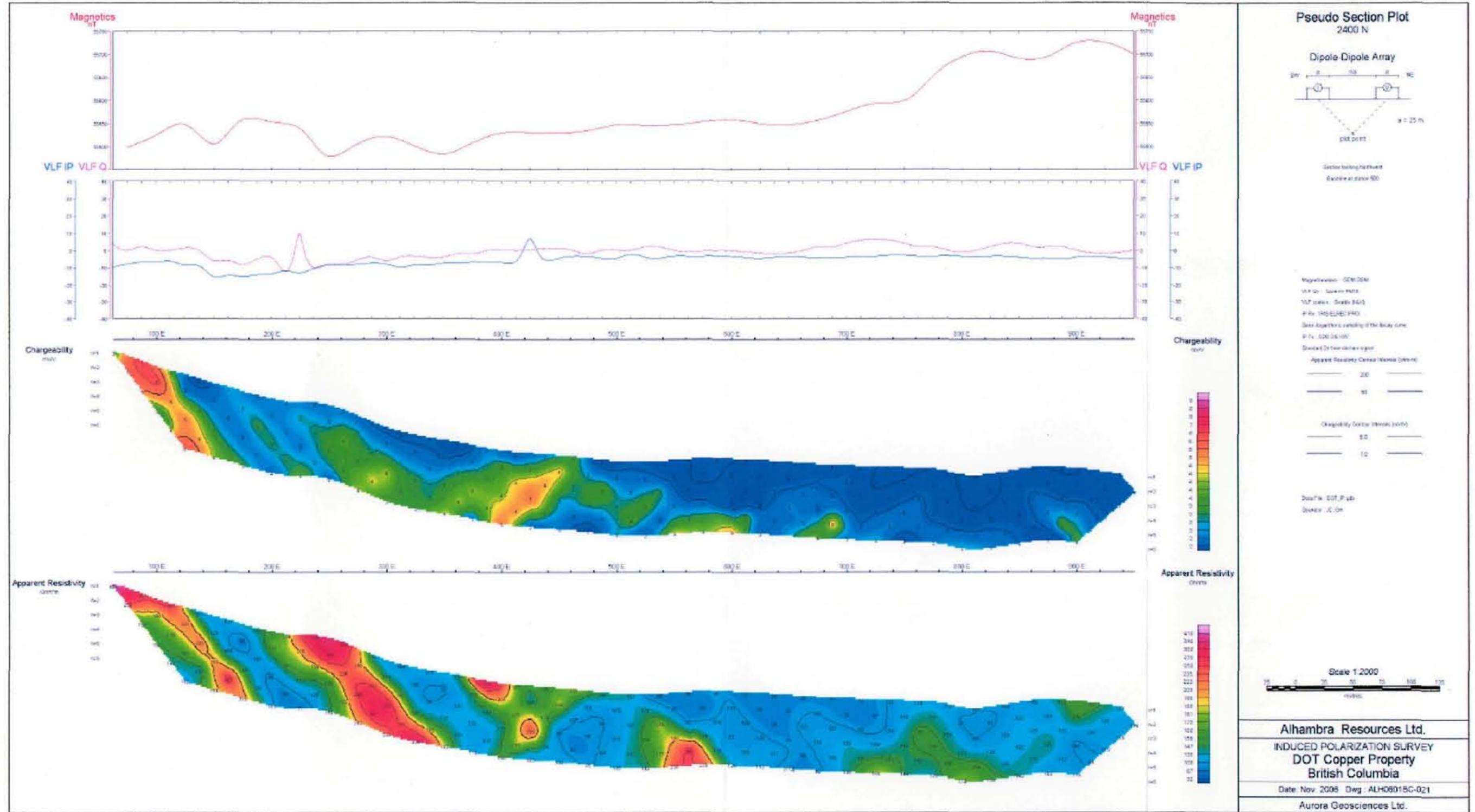
**APPENDIX – I  
PSEUDO SECTION - ALH0601BC – 019**



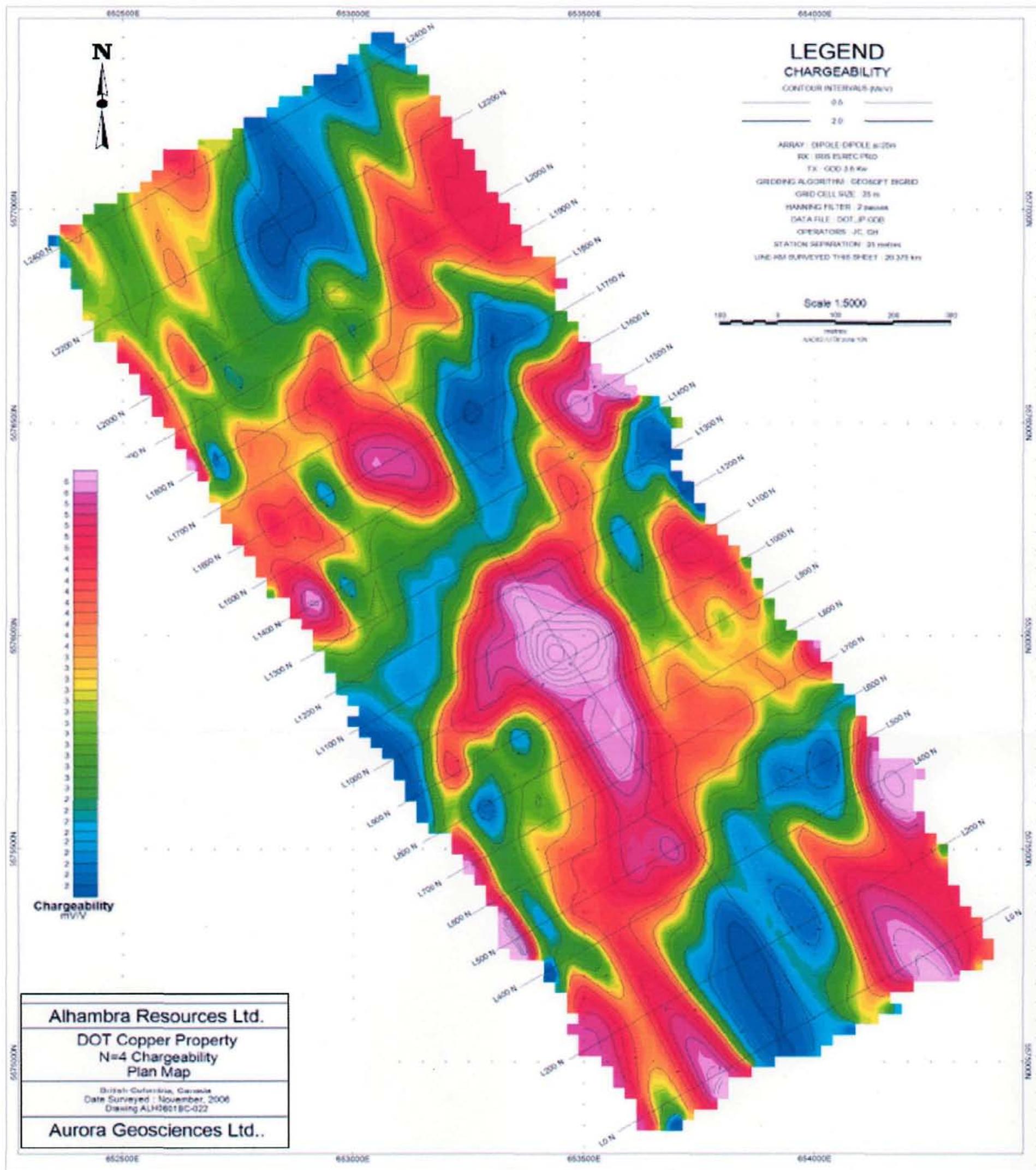
**APPENDIX - I  
PSEUDO SECTION - ALH0601BC - 020**



**APPENDIX - I**  
**PSEUDO SECTION - ALH0601BC - 021**



**APPENDIX – II**  
**N=4 CHARGEABILITY - ALH0601BC-022**

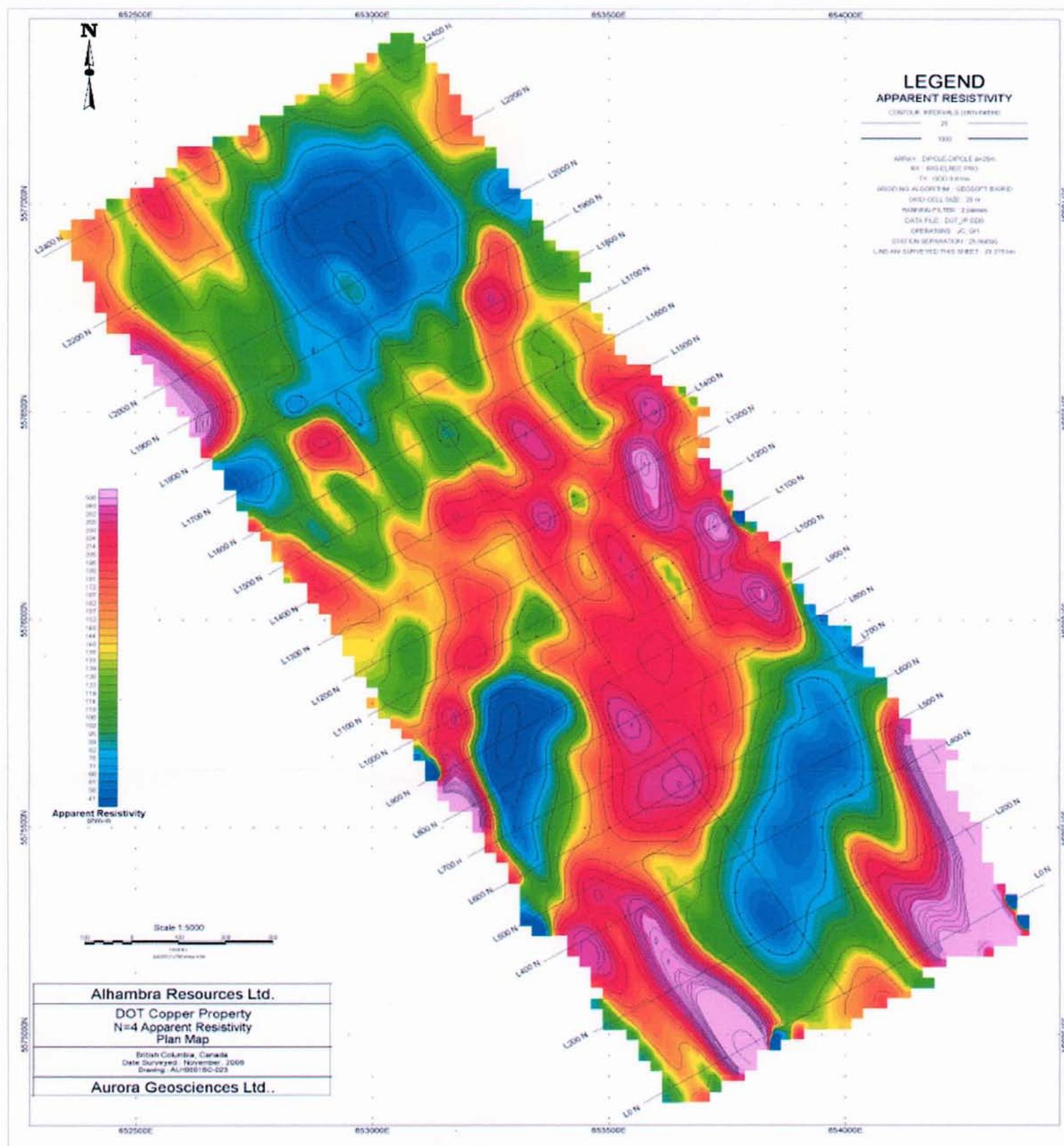


**Alhambra Resources Ltd.**  
**DOT Copper Property**  
**N=4 Chargeability**  
**Plan Map**

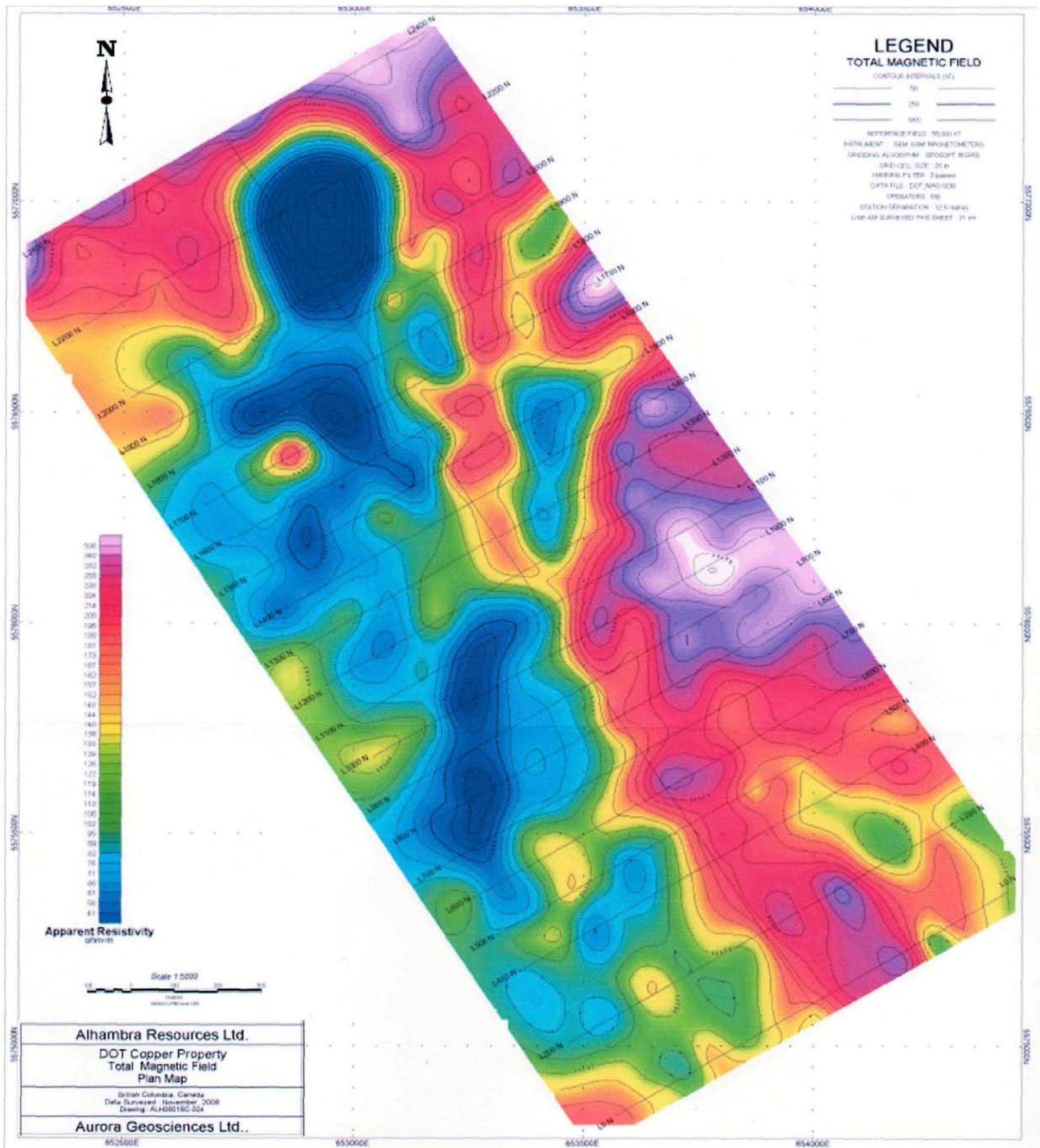
British Columbia, Canada  
 Date Surveyed: November, 2006  
 Drawing ALH0601BC-022

**Aurora Geosciences Ltd.,**

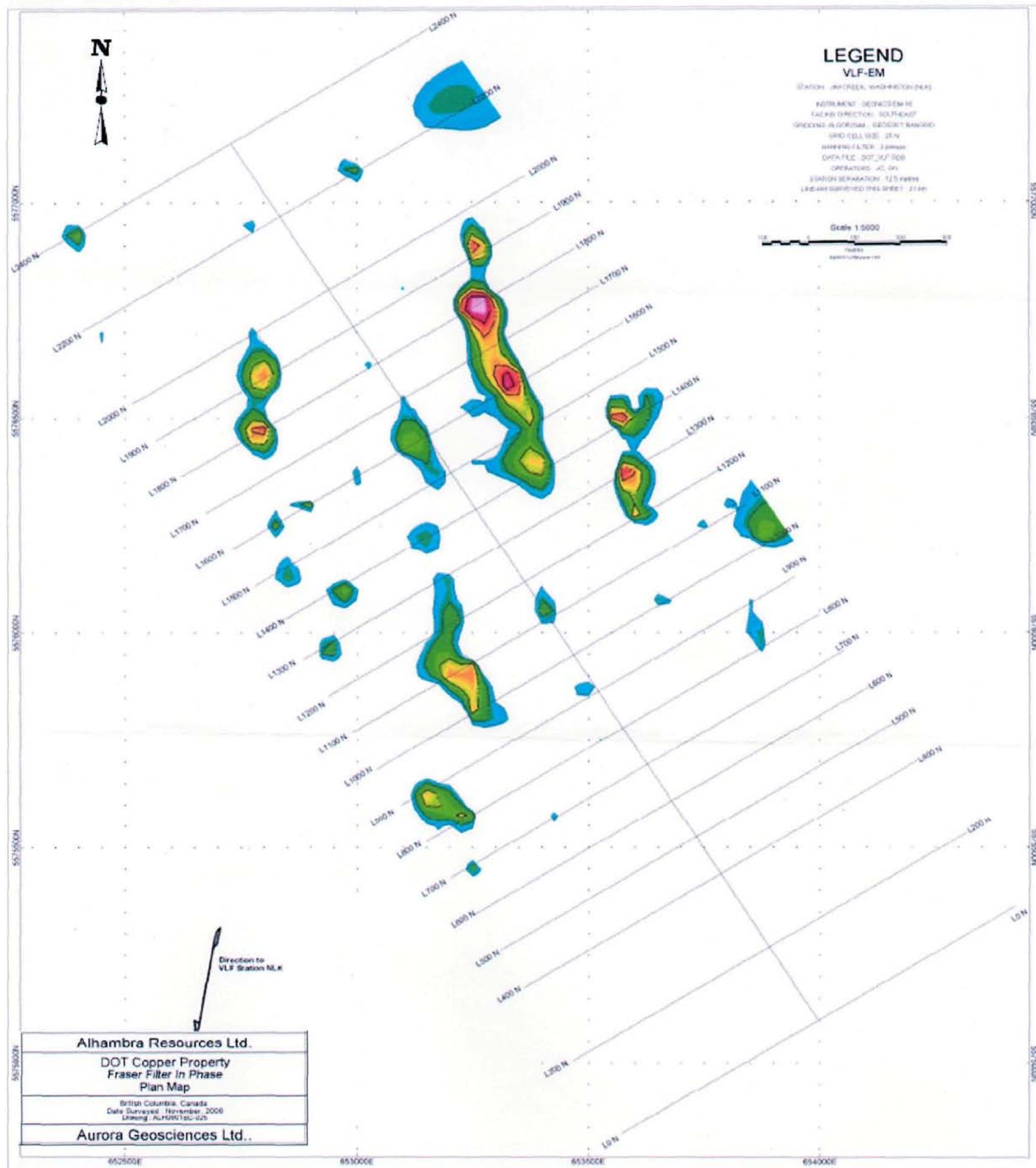
**APPENDIX – II**  
**N=4 APPARENT RESISTIVITY - ALH0601BC-023**



**APPENDIX – II**  
**TOTAL MAGNETIC FIELD - ALH0601BC-024**



**APPENDIX – II**  
**FRASER FILTER IN PHASE - ALH0601BC-025**



**APPENDIX – II**  
**GEOPHYSICAL COMPILATION - ALH0601BC-026**

