Geological, Geophysical and Geochemical Report

-- on the --

SUMMERS CREEK PROJECT

Axe Claims, Similkameen Mining Division
British Columbia

-- for --

Causeway Mining Corp.
2955 West 38th Avenue
Vancouver, B.C. V6N 1V6

Located:
- 49 39N: 120 32W
- 92H/9W and 10E
- 18 km north of Princeton, B.C.

Prepared By:

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Vancouver, B.C. V6C 1V5

December 4, 1998

SUMMARY

Late in 1997, Causeway Mining Corp. concluded an option agreement to purchase the Summers Creek Project (Axe claims) over a four year exploration and development period. The property consists of 22 staked claims (160 claim units), located in the Similkameen Mining Division, 20 km north of Princeton, British Columbia. Good road access is possible to all areas of the property from Princeton.

The property is a known geological resource of porphyry copper style mineralization, initially explored in the late 1960s by Amax Exploration Inc. and Adonis Mines Ltd. Most recently, the property was explored by Cominco Ltd. in the 1980s and 1990s. In total, 185 holes, totalling some 14,000 meters have been completed. Estimated value of the work is $1.5 - 2.0 million. The resource area of the property has been continuously held under title since 1967. The original claims of Adonis were abandoned and relocated by Cominco in 1980, who felt the new claim package offered a more efficient land holding, with the possibility of no fractional ground occurring in the area of the known resources. Cominco sold the claims to the Predator Syndicate in 1994, who are the optionees of the current agreement.

The property is located in the the Intermontane belt of Triassic volcanic rocks in central British Columbia. In the southern areas of the province, the dominant rock types are volcanic rocks of the Nicola Group. These rocks are the principal rocks of the Axe claims, and consist of intermediate to basic flows, felsic to intermediate tuffaceous sediments and crystal tuffs, breccias, with minor sandstone siltstone and limestone. Intruding the Nicola Group are late Triassic diorite, granodiorite, and monzonite plutons, stocks, sills and dikes. The structural setting of the property is a very complex set of faults, the principal structure being the northerly trending Summers Creek fault. There are many offsetting splays of this fault, many exhibiting horsetail features. Late cross-faulting is apparent in all directions. The tectonic history of the property is yet to be resolved.

The known zones of mineralization all are associated with faults and occur in highly altered, sheared and brecciated rocks of both the volcanics and intrusives. In the area of economic mineralization, strong alteration patterns of typical porphyry deposits have been identified. The propyllitic, phyllic, argillic, and potassic alteration mineral suites have all been identified, however have not been related to illustrate possible concentric porphyry alteration patterns. Sulphide minerals are present, and their relative abundance appears to identify the mineral deposits of potential economic worth. Sulphide minerals identified are pyrite, chalcopyrite, with lesser contents of chalcocite, sphalerite, galena, and molybdenite. Secondary oxide minerals such as malachite, azurite, and native copper have also been identified.

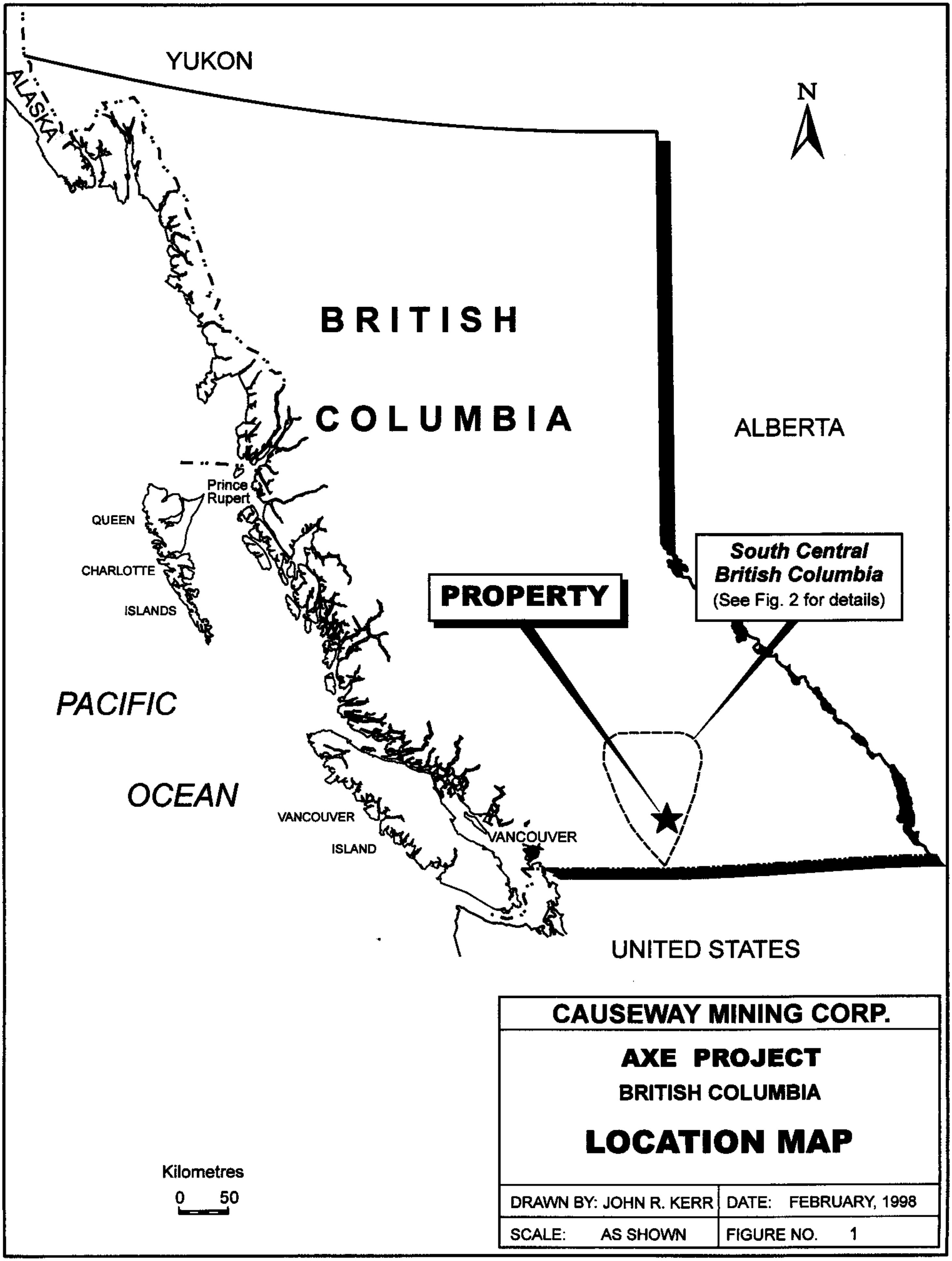
Economic mineralization has clustered into four distinct zones referred to as the South, West, Adit, and Mid zones. In total, 39,100,000 tonnes grading 0.39% copper is drill indicated at a cut-off of 0.25% copper. The total resource includes an additional 32,000,000 tonnes geologically inferred, however not as yet drilled, at a potentially similar grade. At a cut-off of 0.35%, the resource quantity reduces to 12,600,000 tonnes grading 0.52% copper. Over 50% of this resource comes from the Adit and Mid zones. Both of these zones are very near surface, and indicate the potential of high oxide copper content that may be amenable to heap leach, SX-electrowinning recovery processes. Drill indicated resource of potential 80% copper oxide content (or greater) is calculated at 8.7 million tonnes grading 0.54% copper. An equal amount of an inferred resource has also been identified, possibly at similar grades.

In 1982, Cominco established a gold relationship to the mineralization of the West Zone. Subsequent soil sampling has resulted in the interpretation of gold soil anomalies in excess of 40ppb.

The 1998 program commenced early in the year as a compilation of all historical data, summarized in a report by the author in March, 1998. This report recommended first phase exploration expenditures totalling $130,000. The field program was completed during the period May - October, 1998, consisting of claim location, geological and geochemical orientation studies, construction of a 20 kilometer control grid, and eight kilometers of induced polarisation (IP) surveys. The IP work crossed all known mineralized zones to establish a chargeability signature of the known resources. Also incorporated into the IP presentation was a data manipulation process to display chargeability data on "real" or corrected sections. This allows for the superimposing of existing drill-hole data, mineralized zones, faults, and geology. Total costs of compilation, exploration and claimstaking (including all recording fees) is $113,897 of which $72,350 qualifies as assessment work.

The 1998 exploration has developed the model of a very large circular porphyry sulphide system, having dimensions similar to the Mount Milligan porphyry system. The known resource areas are all associated with the periphery of this system, the high sulphide core area deemed mainly due to pyrite. Only a very small portion of this system has been drill tested to date. Each of the four known zones of copper enrichment occurs within the western periphery of the large system and has its unique chargeability signature. Potential oxide copper resource areas superimpose on areas of chargeability lows. The Adit zone forms a concentric semi-circle draped over a chargeability high. Other similar IP targets exist that are considered prime areas for the discovery and location of additional oxide resource areas.

A first phase exploration program is recommended, consisting of two stages of exploration. The first stage is continued detailed IP surveys to better define drill targets, and a three-hole diamond drill program, twinning existing holes in the Adit Zone, to establish the depth and nature of the oxide copper resource. The initial stage is anticipated to cost $140,000. The second stage is exploration reverse circulation drilling on targets defined by IP interpretation, airborne geophysics, soil geochemistry, and resource calculations, anticipated to cost $330,000. A budget of $470,000 is therefore established for the first phase of exploration.


YUKON
ALASKA
N
BRITISH
COLUMBIA
ALBERTA
Prince Rupert
QUEEN
CHARLOTTE
ISLANDS
South Central British Columbia (See Fig. 2 for details)
PROPERTY
PACIFIC
OCEAN
VANCOUVER
ISLAND
VANCOUVER
UNITED STATES
Kilometres
0 50
CAUSEWAY MINING CORP.
AXE PROJECT
BRITISH COLUMBIA
LOCATION MAP
DRAWN BY: JOHN R. KERR
DATE: FEBRUARY, 1998
SCALE: AS SHOWN
FIGURE NO. 1

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INTRODUCTION

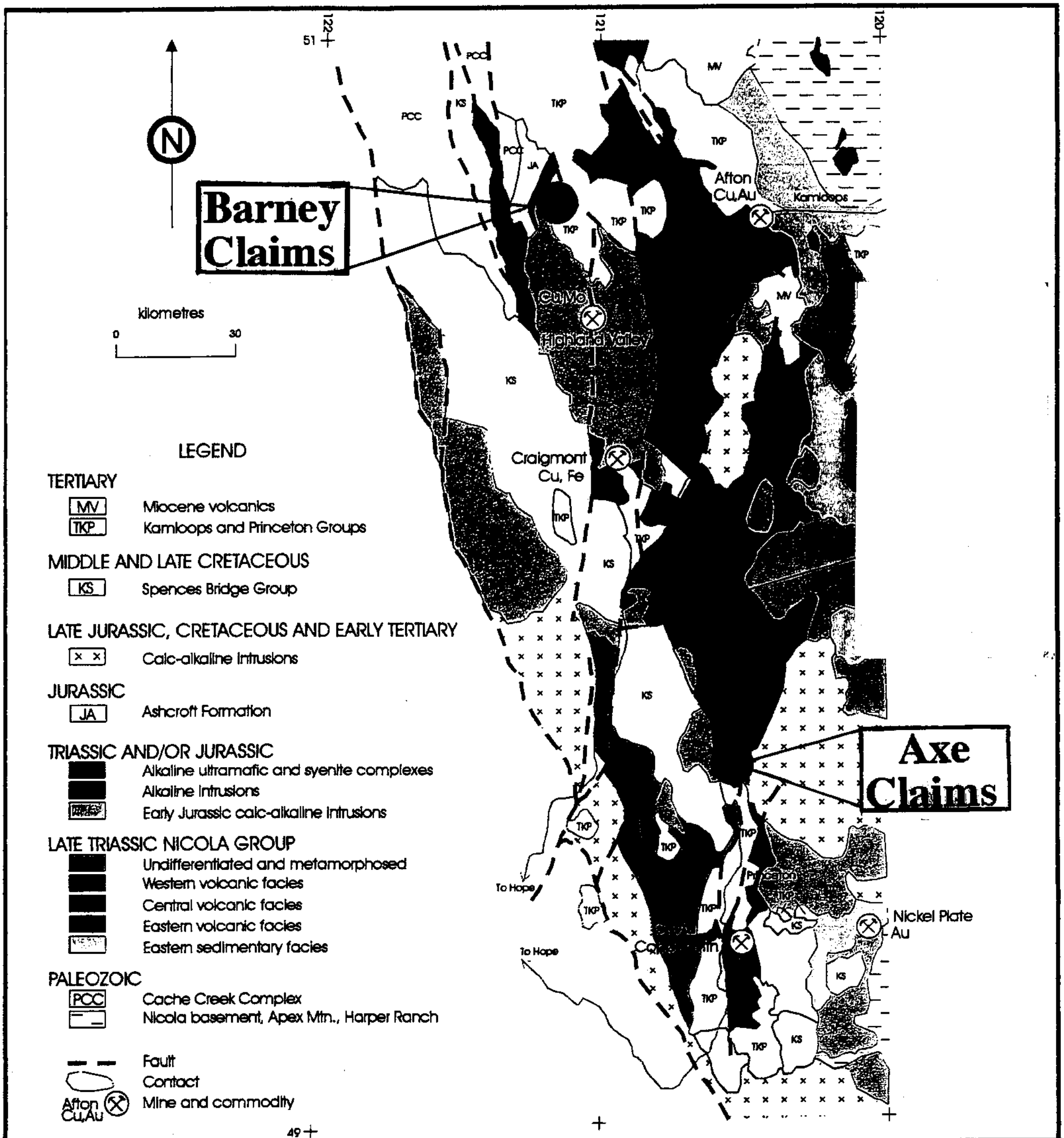
General Statement

The porphyry copper (gold, molybdenum) deposits of central British Columbia have been the main base/precious metal mining operations of the province for the past four decades. Exploration for these types of deposits were at a peak in the late 1960s and early 1970s, however by 1980 much of the interest in porphyry deposits had ended, as emphasis was placed on exploration for epithermal and other styles of precious metal deposits. Therefore much of the exploration glamour of central British Columbia had shifted to other areas of Canada and the rest of the world. With recent technical advances in exploration, such as airborne geophysical systems, induced polarisation techniques, geochemistry, and drill capabilities, it is now time to revisit the porphyry deposits in British Columbia. Major changes to mining and recovery methods of processing ore from such deposits, has vastly improved the efficiency of large scale open-pit mining operations. Coupled with a better geological understanding of the nature of porpyry deposits, the opportunity now exists to focus on this style of mineralization, applying new and advanced techniques of exploration, mining, and recovery of the metals.

South-central British Columbia is considered the copper mining center of Canada. In total, some 2.7 billion tonnes of ore grading 0.45% copper and up to 0.8 gram per tonne gold have been identified in porphyry deposits (See Figure 2). Approximately 160,000 tonnes of copper are produced annually from the Highland Valley.

The Summers Creek Project was originally identified in the mid 1960s, with the initial work programs having been completed by Quintana Minerals Ltd., Adonis Mines Ltd. and Amax Exploration Inc. The property has been held continuously since the early 1960s, the most recent work having been completed by Cominco during the period 1980 - 1992. Available data indicates that 185 drill holes have been completed on the property totalling some 14,000 meters. It is estimated that approximately $1.5 million were spent on the property from 1967 - 1991. The value of this work at today's standards is in excess of $2.0 million.

Cominco sold their interest outright to the Predator Syndicate in 1994, who have maintained the principle through 1997. Late in 1997, Causeway Mining Corp. entered into an option-to-purchase agreement to acquire a 100% interest in the property over a four year option period.



John R. Kerr & Associates Ltd.			**Causeway Mining Corp.**		
Location Map **Barney and Axe Claims, British Columbia**			REGIONAL GEOLOGY AND MAJOR MINES		
February, 1998	Project: 579	Scale: as shown	N.T.S. Quesnel Trough	Mining Div. Nicola	Figure: 2

Early in 1998, Causeway had obtained all available historical data from Cominco and the Predator Syndicate, and assimilated this into a report by the writer in March, which recommended an initial phase $130,000 exploration program. Causeway initiated this work program in May, which was concluded in October, 1998. This report summarizes the results.

Location and Access

The property is located in south-central British Columbia, 20 km north of the town of Princeton. The geographic coordinates of the property are 120 32 west; 49 39 north (NTS map sheet 92H/10). The property is accessed along well-maintained roads from Princeton via Highway 5 and the Summers Creek road, an overall distance of 24 km to the central portion of the property. Several logging roads built in the late 1980s, exit the Summers Creek road, and provide good road access to all areas of the claims.

The principle mineral zones are accessed from the Summers Creek road, a distance of 4 km north of Highway #4, heading north a distance of 15 km. Alternative road access is possible from the north end of Dry Lake on Highway #5, heading eastward a distance of 10 km to the principle mineral zones.

Most of the old exploration and drill access roads are in bad repair, and require clearing and upgrading for any future use as drill access roads.

Topography and Vegetation

The property is located in the semi-arid interior plateau area of the province. The Summers Creek valley provides a deep incision in the plateau in the eastern portion of the property providing local steep and bluffy terrain. The western portion of the claims is very flat, with little exposed outcrop. Overall relief on the property is 600 meters, ranging 900 -1500meters (asl).

Vegetation is typical interior light forest cover of fir, hemlock, balsam, and pine. Farms occupy the lower elevations along Summers Creek, where vegetation is limited. The plateau areas are generally deep overburden, 15 - 50 meters, and are somewhat swampy in nature.. Portions of the claims have been selectively logged.

Claims

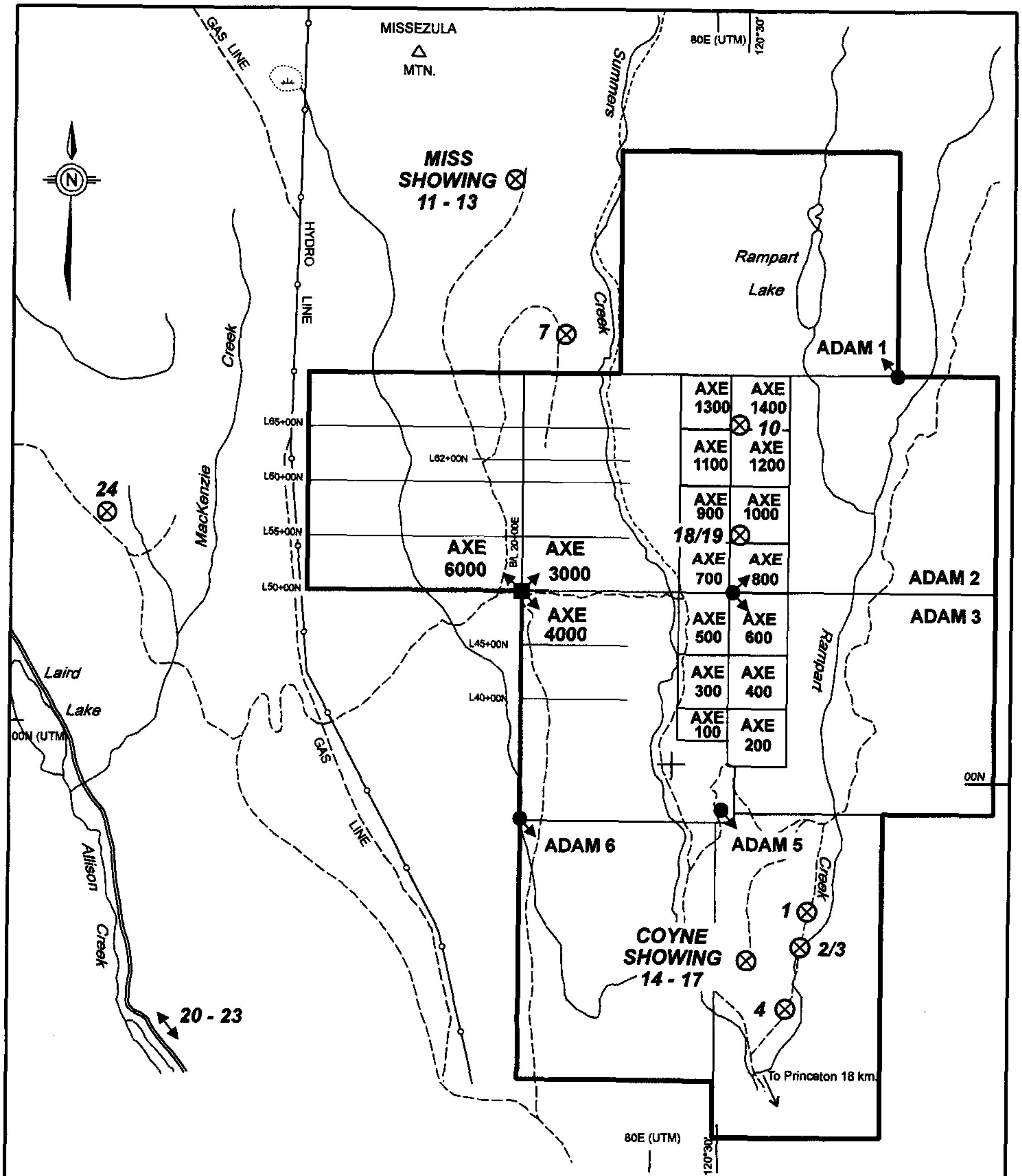
The Summers Creek Project consists of eight modified grid (MGS) claims (146 units) and 14 two-post claims for a total of 160 claim units. The three MGS Axe claims were located by Cominco in the early 1980s as the results of abandonment and relocation of the original Axe claims (1960s). The two-post claims were located by the Predator Syndicate as the result of neighbouring claims expiring to the east. The five Adam claims were located for Causeway Mining Corp. in May, 1998. In August, 1998 the Adam 6 claim was located on the old Adam 4 claim because of a potential fraction, and the Adam 4 claim was included within the Adam 6 claim. Subsequently, there is no Adam 4 claim on record.

A summary of the claims are as follows:

Claim Name	Type of Claim	No. Units	Tenure Number	Expiry Date*
Axe 3000	MGS	16	248850	December 11, 1999
Axe 4000	MGS	16	248851	December 11, 1999
Axe 6000	MGS	16	248853	December 11, 1999
Adam 1	MGS	20	363194	May 27, 1999
Adam 2	MGS	20	363195	May 25, 1999
Adam 3	MGS	20	363196	June 1, 1999
Adam 5	MGS	18	363198	June 5, 1999
Adam 6	MGS	20	365421	August 29, 1999
Axe 100	Two-post	1	357470	June 26, 1999
Axe 200	Two-post	1	357471	June 26, 1999
Axe 300	Two-post	1	357472	June 26, 1999
Axe 400	Two-post	1	357473	June 26, 1999
Axe 500	Two-post	1	357474	June 26, 1999
Axe 600	Two-post	1	357475	June 26. 1999
Axe 700	Two-post	1	357476	June 26, 1999
Axe 800	Two-post	1	357477	June 26, 1999
Axe 900	Two-post	1	357478	June 26, 1999
Axe 1000	Two-post	1	357479	June 26, 1999
Axe 1100	Two-post	1	357480	June 26, 1999
Axe 1200	Two-post	1	357481	June 26, 1999
Axe 1300	Two-post	1	357482	June 26, 1999
Axe 1400	Two-post	1	357483	June 26, 1999

* Expiry dates as currently on record. Sufficient assessment work has been completed to provide additional credit to all claims.

All claims are located in the Similkameen Mining Division, the Axe claims recorded in the name of Kenneth L. Daughtry, and the Adam claims recorded in the name of Causeway Mining Corp. Mr. Daughtry holds the claims for the Predator Syndicate.



4 ⊗ Rock-Chip Sample Locations

To accompany a report by John R. Kerr, P. Eng.

METRES

0 500 1000 1500 2000

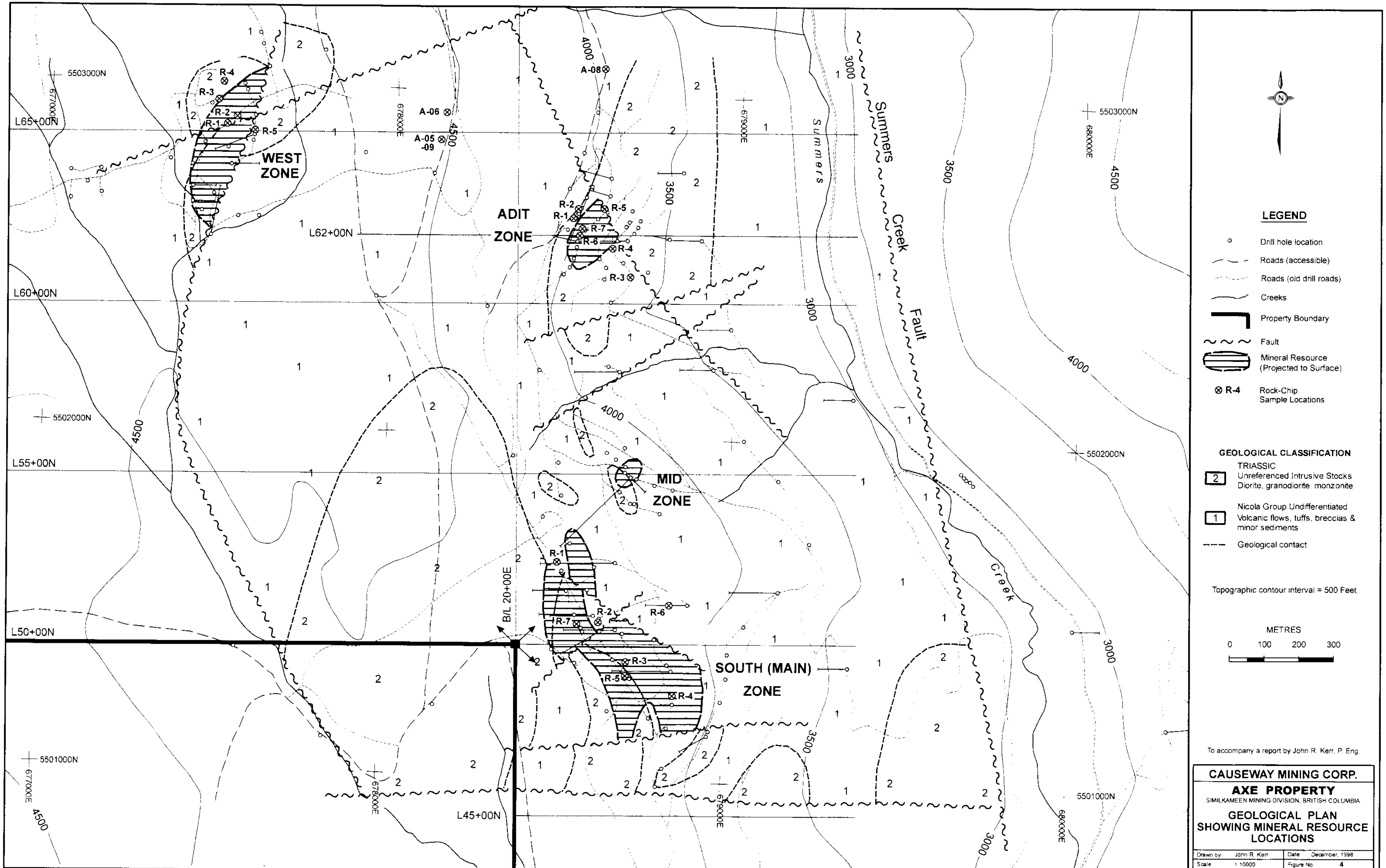
CAUSEWAY MINING CORP.

AXE PROPERTY

SIMILKAMEEN MINING DIVISION, B. C.

CLAIM LOCATION MAP

Drawn by: John R. Kerr	Date: December, 1998
Scale: 1:50000	Figure No.: 3


WEST ZONE
ADIT ZONE
MID ZONE
SOUTH (MAIN) ZONE
Summers Creek Fault
Summers Creek
L65+00N
L62+00N
L60+00N
L55+00N
L50+00N
L45+00N
B/L 20+00E
5503000N
5502000N
5501000N
677000E
678000E
679000E
680000E
LEGEND
Drill hole location
Roads (accessible)
Roads (old drill roads)
Creeks
Property Boundary
Fault
Mineral Resource (Projected to Surface)
R-4 Rock-Chip Sample Locations
GEOLOGICAL CLASSIFICATION
2 TRIASSIC Unreferenced Intrusive Stocks Diorite, granodiorite, monzonite
1 Nicola Group Undifferentiated Volcanic flows, tuffs, breccias & minor sediments
Geological contact
Topographic contour interval = 500 Feet
METRES
0 100 200 300
To accompany a report by John R. Kerr, P. Eng.
CAUSEWAY MINING CORP.
AXE PROPERTY
SIMILKAMEEN MINING DIVISION, BRITISH COLUMBIA
GEOLOGICAL PLAN SHOWING MINERAL RESOURCE LOCATIONS
Drawn by: John R. Kerr
Date: December, 1998
Scale: 1:10000
Figure No. 4

Causeway entered into an agreement with the Predator Syndicate to earn 100% interest in the claims, subject to a NSR interest. The agreement requires Causeway to spend a total of $600,000 on exploration and pay a total of $750,000 over a 4 year period. The initial year committed expenditure is $100,000, and this report serves to document these expenditures.

History

Some of the early mining history in the area was development and mining of coal deposits at Merritt, Princeton, and Tulameen in the late 1800s and early 1900s. Placer mining of both gold and platinum in the Tulameen and Similkameen Rivers is documented in the mid 1800s.

Copper was identified as a valuable metal in the late 1800s, and mining commenced at a small scale in the early nineteenth century at Copper Mountain, south of Princeton. Prospecting and early stage exploration programs resulted in mineral discoveries in many areas of the Similkameen/Tulameen valleys and areas between Princeton and Merritt. It was not known when the various copper occurrences were recognized on the Axe claims, however a short 30 meter adit located on the Adit Zone is evidence of work of 1920 vintage. Work from 1920 - 1965 is not documented.

The existing property was staked by J. A. Stinson in 1967, who formed Adonis Mines Ltd., the original owner of the property. The property resided in the name of Adonis Mines Ltd. (name change to Global Energy Ltd.) until the property was sold to Cominco in 1980. During the period 1967 - 1973, most of the historical work was completed, as follows:

1967: Meridian Mines Ltd. optioned the property completing surface geology, geochemistry, geophysics, trenching and four diamond drill holes totalling 642 meters.

1968: Quintana Minerals Ltd. continued further trenching and 4 rotary drill holes (1000 meters).

1969 - 1971: Amax Exploration Inc. optioned the property and completed geochemistry, geological mapping, induced polarisation surveys, fourteen diamond drill holes totalling 2600 meters, and 50 percussion holes totalling 3200 meters. The Amax program provided the first mineral inventory of 45 million tonnes grading 0.37% copper with a waste to ore ratio of 2:1 in the West and South Zones. The West Zone was a discovery by Amax in 1970 as the result of drilling an IP anomaly.

1972/73: Adonis Mines Ltd. completed 22 diamond drill holes (3185 meters), and 74 percussion drill holes (2775 meters), attempting to refine the Amax mineral inventory estimates.

1978/9: The BC Ministry of Energy, Mines and Petroleum Resources under V. A. Preto, PhD, completed a review of the Axe property, summarized in Bulletin 69 (1979). A mineral inventory is referenced in this text as 57.3 million tonnes grading 0.50% copper. The source of these estimates is apparently a News Release issued by Adonis in September, 1973.

1980 - 1993: Cominco earned a controlling interest in the claims by completing work programs during the period 1980 - 1983. During this period, they compiled all historical data, abandoned all original claims and restaked, completed magnetometer, VLF electromagnetic surveys, rock and soil geochemistry, and drilled six diamond drill holes totalling 765 meters. In 1991, Cominco drilled eleven percussion holes totalling 375 meters in an area of gold soil anomalies. This program was unsuccessful for the most part in penetrating deep overburden. 1991 was the last reported work on the property.

1994: Cominco sold the claims to the Predator for an undisclosed amount, who have maintained the claims to their current status.

1998 FIELD PROGRAM

The scope of 1998 exploration was to acquire initially all available exploration data pertaining to the Axe claims, and to synthesize this data into a report that would update the current resource and exploration potential of the property. In summary, this report concludes that 39 million tonnes of porphyry copper mineralization is drill indicated grading 0.39% copper at a cut-off of 0.25%. Included in this resource is an indicated resource of 8.4 million tonnes of oxide copper grading 0.54%, which may be amenable to heap leach and SX-electrowinning recovery processes. The potential exists to expand this oxide copper resource considerably by testing extensions of the known zone. It was further concluded that most of the work on the property was completed 25 - 30 years ago, and the need of returning to grass-roots exploration utilizing updated exploration techniques is apparent.

The 1998 field program therefore was oriented at commencing grass-roots exploration, and consisted of claim staking, data accumulation, grid control, tying in new and old roads, trenches and drill sites (where located), reconnaissance geological mapping and assessment of the entire claims and surrounding area, baseline rock-chip geochemistry, and baseline induced polarisation studies. The total costs of 1998 exploration are $ 113,897 as follows, of which $72,350 are documented as valid assessment work expenditures (see Appendix A for details).

Assessment work expenditures (see Appendix A)	$ 72,350
Data accumulation, synthesizing, and initial report	13,950
Claim location costs and recording fees	17,243
10% overhead	10,354
Total 1998 exploration expenditures	**$ 113,897**

Grid Control, Ground Orientation and Baseline Surveys

In May, 1998 while completing initial orientation surveys on the property, it was discovered that a new network of logging roads had been established on the property that had overprinted the historical drill-roads. In addition, clear-cut logging had destroyed some of the earlier drill sites. It was deemed mandatory to establish the location of as many of the old roads, trenches, drill sites, and claim posts, as could be found with respect to the new logging roads.

During the period June 24 - 28, 1998, a geological mapping program was initiated, which included locating and identifying claim posts, old drill roads, trenches and drill sites and providing an inventory of all the available drill core located on site. All new logging roads were plotted on a 1:5,000 scale property map, this map identifying all the historical landmarks that could be located.

In summary, approximately 20% of the old drill core exists on the property, however only a very few intersections of valuable mineralization were found to exist. Most of the old drill roads and trenches were identified, approximately 30% of the drill sites were identified, however only two of the drill-hole collars could be located. The legal corner post of the Axe 3000, 4000, and 6000 could not be found, and is assumed to have been lost to logging. Only one corner post was located with tags, however several untagged and unidentified claim posts were located. There was no sign or evidence of early grids.

During the period August 16 - 28, 1998, grid control was re-established on the property. Sabre Explorations of Penticton, B.C. was retained to establish 20 km of grid and base lines at a contract rate of $500 per line kilometer. The lines were established by chain and compass methods, the chainage corrected to allow for slope. All lines were cleared out to induced polarisation survey standards. An arbitrary grid coordinate was established at the assumed location of the legal corner post of the Axe 3000, 4000, and 6000 claims and identified as BL20+00E @ 50+00N. Cross lines were established from 40+00N to 65+00N from 0+00 to 30+00E (see Figure 4 for detail). All new and old roads, and many of the old drill sites were tied into this grid.

Geological Review and Assessment

During the periods May 19/20, June 24 - 28, and August 17 - 20, all the known showing areas within the claims and surrounding area were examined. Details regarding these showings were obtained from the Cominco data package and old historical assessment reports researched at the Mining Recorder's office. The purpose of the showing examinations was to assess and prioritize areas for future work programs. The review was completed in conjunction with locating and mapping of roads, drill sites, claim posts, and trenches.

Ability to examine the showing areas in the detail of original geological mapping was hampered by sloughing of overburden in trench areas and along old road cuts, especially along the steeper slopes in the Summers Creek valley. The geological assessment was especially hampered in locating and identifying earlier mapped fault zones, as they are now covered with sloughed overburden. To verify locations, strike and dips, and nature of previously identified fault zones is deemed impossible.

To assist with the assessment and prioritizing objectives on the Summers Creek Project, Causeway retained the services of Richard H. Sillitoe, PhD to spend sufficient time examining all mineralized resource zones and showing areas on the property and reviewing all available data during the period September 20 - 24, 1998. Dr. Sillitoe has prepared a summary report, included as Appendix B.

Baseline Rock-Chip Geochemistry

During the geological review and assessment, rock exposures of all known showing areas within the claims and surrounding areas were sampled. The rock sampling and analysis was considered a valuable tool for this assessment.

A total of 46 rock chips were collected at all documented showing areas on the property. 43 of the samples were sent to the laboratories of Bondar-Clegg (ITS) in North Vancouver, B.C. for gold plus 34 element ICP analysis. In addition, three samples were specifically collected from the Adit Zone for testing of soluble copper content, one sample analyzed at Bondar-Clegg, and the remaining two at the laboratories of International Plasma Laboratory Ltd. in Vancouver.

Location of the samples are indicated on Figures #3 and 4. Rock-chip descriptions are listed in Appendix D, and analytical methods and results are copied as Appendix E.

Induced Polarisation Survey

Pacific Geophysical Ltd. of Vancouver was retained to complete an eight kilometer baseline induced polarisation survey on selected cut lines on the property. It was originally intended to survey ten km, however due to excessively steep terrain, only eight km could be completed within the budget guidelines. The survey was completed during the period October 6 - 13, 1998 by a five man crew, on lines 50+00N, 55+00N, 60+00N, 62+00N, and 65+00N.

Paul Cartwright, P. Geo., President of Pacific Geophysical details the equipment, survey procedures, and results in Appendix C. In summary, a pole-dipole array of electrodes was utilized, with "a" spacing at 50 meters, and depth penetration to n=6. Typical pseudosection plots were produced daily, and are included as part of the appended report.

The purpose of the survey was to run at least one line of survey across each of the identified mineralized resource areas to study the chargeability and resistivity responses over known zones of mineralization. In compliance with recommendations provided in the Sillitoe report, interpretation of chargeability response along a "real" section profile reflecting the steep topography, which may have some bearing on the deep oxidation levels of the Adit Zone. To reveal this chargeability signature, it would be much easier to interpret if plotted on a profile that displays ground slope.

Selection of the geophysical contractor therefore incorporated the ability to express normally collected pole-dipole array data, and displaying it on corrected sections. The University of British Columbia has developed what they refer to as an inversion program of manipulating normally collected data removing the pantleg effect, as well as displaying on a slope corrected section. Cartwright discusses this process in the text of his report, and the corrected IP profiles are shown as Figures 5 - 9 of this report.

GEOLOGY

Regional Geology

The project area lies within the Intermontane belt of Mesozoic rocks between Princeton and Merritt. This belt of rocks carries south to the US border and north into the Yukon Territory. The distinguishing and oldest rock group of the Intermontane belt in southern British Columbia is the Triassic Nicola group of dominantly intermediate volcanic rocks. Preto (Bulletin 69) has subdivided this group into the western, central, and eastern facies. The eastern facies is dominantly intermediate purple/grey/green flows, breccias, tuffs, lahar breccias, with minor sandstones and siltstones. The central facies is intermediate to basic flows, breccias and tuffs, with more dominant limestone, siltstone, argillite and conglomerates. The western facies and possibly the youngest, is acidic to intermediate flows, breccias and tuffs, with minor limestone.

Intruding the Nicola volcanics are numerous stocks, sills, small plutons, batholiths, and dikes of various ages and of a varied composition. The more common intrusive rocks are referred to as the Pennask Batholith (mid Jurassic), the Allison Lake pluton (lower Jurassic), and the Summers Creek stocks (Cretaceous). The intrusive rocks range from acidic to basic, however most are alkalic in composition. The most dominant rock descriptions are diorite, monzonite and granodiorite.

The Lower Cretaceous Kingsvale Group of dominantly volcanic rocks unconformably overly the Nicola Group and earlier intrusions. These rocks are mainly intermediate - felsic flows, tuffs, ash flows, and lahar breccias. The Summers Creek stocks intrude rocks of the Kingsvale group. Overlying all rocks are Tertiary basalts and andesite flows of the Princeton Group, and sedimentary rocks of the Coldwater Beds.

Property Geology

The property is underlain by volcanic and sedimentary rocks of the central facies of the Triassic Nicola Group, and stocks and small batholiths of Upper Triassic diorites, and monzonites. A small outlier of the Cretaceous Kingsvale group lies just to the north of the property.

Amax Exploration Inc. has completed the most thorough and comprehensive mapping on the property during its exploration history. Most of the outcrop areas are along the deeply incised Summers Creek valley, where outcrop exposures are 20 - 25%. The following geological discussion is a summary of the Amax work.

Amax has classified the Nicola Group of rocks into three basic subdivisions of flows, pyroclastics and sediments. The flows are the most abundant rock unit and are described as purple/green amygdaloidal augite andesite with interbedded trachyandesite feldspar porphyry. The pyroclastic units are massive to finely bedded crystallithic andesite tuffs with interbedded siltstone and light grey/green dacite tuffaceous horizons. Graded bedding is locally identified, with occasional diagnostic lapilli sized fragments, common to explosive breccias and lahar features. The sediments are dominantly interbedded greywacke, siltstone, and minor conglomerate and massive beds of grey to light brown limestone. All Nicola Group volcanic and sedimentary rocks are hornfelsic in nature near the contact of intrusive rocks. Some of the sedimentary horizons have developed slaty and/or schistose cleavages.

The intrusive rocks identified on the property have been classified as late Triassic diorite, quartz diorite and micromonzonite porphyry. They are all related to one specific intrusive event, probably the earliest event of the Princeton/Merritt area. They form masses of irregular size and shape, and are located in all areas of the property. Structural events have played a major role in positioning the existing bodies. One large pluton-sized body is interpreted from very sparse outcrop mapping over an area of some 80 sq km just to the west of the South Zone, located in the southeast corner of the Axe 3000 claim. This mass indicates concentric zoning patterns.

Late felsic and porphyritic dike swarms are found in all areas of the property. The age of the dikes are unknown however are probably related to late phase activities of the Allison Lake or Summers Creek intrusions. Very late andesite to basalt dikes appear to be the latest rock types on the property and are possibly related to the Tertiary volcanic events of the Princeton Group. These dikes are post mineralization.

A simplified interpretation of the property geology is presented on Figure 4.

Structural Geology

The structural events on the Axe claims and surrounding area are extremely complex. The earliest event appears to be the main Summers Creek fault that transects the eastern portion of the claims and approximates the trend of Summers Creek. Throughout the length of this fault (40 km), the fault is shown to splay into several fault lineaments, giving rise to a horsetail effect. Such a horsetail is noted just to the north of the claims along a western splay of the Summers Creek fault.

In the vicinity of the South Zone, strong cross-faulting has been identified, that has caused both offsetting and downdropping of major rock units. Most of these cross faults appear to be post-mineralization, therefore offsetting of the mineralized zones is interpreted.

The West Zone is located at the south end of the horsetailed western splay of the Summers Creek fault, and the extreme shearing associated with this fault may have given rise to the rock preparation for introduction of mineralizing fluids. Later displacement along the fault suggests that only a portion of the West Zone has been located to date.

Interpretation of the Adit Zone indicates the eastern boundary to be a northwesterly trending fault zone. It appears that the eastern portion of this zone has been displaced and has not been discovered to date.

Amax (1971) has presented the model of a northerly trending anticline, the axis intersecting both the South and Adit Zones. The interpretation presented by Amax concludes that some boundaries of the South Zone are related to this anticlinal feature, and remain a plausible interpretation today (see Section A-A′, Figure 7). A similar interpretation is presented for the Adit Zone (see Section B-B′, Figure 8).

Alteration and Mineralization

All the alteration patterns and zones of classic porphyry deposits are recognized on the Axe property. Epidote, calcite and actinolite, with abundant chlorite is common to the peripheral propyllitic zones. Associated with this alteration are vein and shear fillings of semi-massive pyrite and minor chalcopyrite. This nature of mineralization is most common on the east side of Summers Creek. The widespread and disseminated sulphides with abundant chlorite, sericite, actinolite and clays are common to the phyllic and argillic alteration zones. This style of mineralization and alteration is most common to the principle resource areas. K-feldspar, secondary biotite, and molybdenum filled fractures and veins are present in various locations on the property, however its relationship to the known resource areas is unclear.

There is not a good understanding of the relationship of the various types of alteration occurring on the property. A better understanding of this alteration would be an invaluable tool for future programs to adapt to assist in predicting undiscovered areas of mineralization.

Principal economic minerals identified on the property are dominantly chalcopyrite, malachite, and to a lesser degree chalcocite. Copper also occurs in minor contents as azurite, bornite, and native copper. Molybdenite, sphalerite and galena are also identified in drill logs. Secondary oxidation has been identified to depths of 90 meters.

RESULTS OF 1998 EXPLORATION

Geological Work

The geological work completed on the property has provided the project with very little new data, however has provided the exploration crew with a first-hand understanding of the complex geology of the property. This understanding should provide ongoing exploration programs with generative ideas for location and discovery of additional mineral resource.

The review and critique of Richard (Dick) Sillitoe, PhD. is considered invaluable to ongoing work programs. The mandates for economic mineral deposits on the Axe claims are primarily oxide copper potential, and secondarily the gold association that is noted with the West Zone. The comments of Dick Sillitoe regarding the deep oxidation of the Adit Zone being related to topography, as well as structures, have provided the exploration model to confine the search for additional oxide mineralization to the steep escarpment of the Summers Creek valley. This limits the search area for such deposits.

Rock-Chip Geochemistry

Rock chip sampling of the various mineral zones substantiated the copper grade ranges of the individual zones as calculated from old drill hole intercepts. The Adit Zone suite of samples has provided the most interesting range of trace elements of all the zones. Analysis of the seven samples from the Adit Zone indicates anomalous contents of zinc, lead, molybenum, silver, and arsenic, with elevated and erratic contents of gold, magnesium, potassium, and barium. The results suggest that the Adit Zone may have a more diverse chemistry than the other zones, and may be more associated with the potassic alteration zone of a porphyry deposit. It must be noted that a sample collected from an outcrop 500 meters north of the Adit Zone (AR-08) contained 798ppb gold (~.8g/t). Gold may have a spatial relationship to the mineralization of the Adit Zone, as it has with the West Zone.

Sampling of rock-chips from the West Zone substantiated the erratic association of gold established by Cominco. The .64 g/t analysis approximates the drill hole intersections of 0.3 and 1.0 g/t determined by Cominco.

Examination of various showing areas on the east side of Summers Creek did not reveal any zone of economic importance. The Coyne Showing has some broad dimensions (300 meters long by 50 meters wide), however rock-chip sampling did not verify any mineral content of economic significance. The showing was drilled by Cominco, and it is assumed that results were negative, as reflected in rock-chips.

Gold soil anomalies (>40ppb) have been delineated from previous programs on the east side of Summers Creek. Attempts to explain these anomalies from rock alteration is not obvious, however one showing area sampled (AR-18) revealed a 64ppb gold content, which may reflect the gold in soils in this area. Further detailed soil sampling is required to verify and refine these soil anomalies.

Rock-chip samples collected from gossanous areas along the Rampart Creek road (samples AR-02 and 03) indicated anomalous gold, copper, silver, lead, molybenum, and antimony. Weathered out stibnite was recognized in one of the hand samples from this area. Further soil sampling in this area may be warranted.

Rock-chip samples collected from areas outside the claim block (north and west) revealed little of economic significance. Based on this, further claim acquisition in the general area is not warranted at this time.

Three samples of mineralized surface rock were collected from the Adit Zone to test the oxide copper nature. Two samples with appreciable copper (~2%) content were analyzed by IPL and reporting 86% and 90% of the copper to be oxide. A low grade specimen (.14% copper), completed by Bondar-Clegg reported a 65% of the copper to be oxide. This is very encouraging, as oxide copper is generally 75 - 80% of the total copper content for a successful oxide copper mining operation.

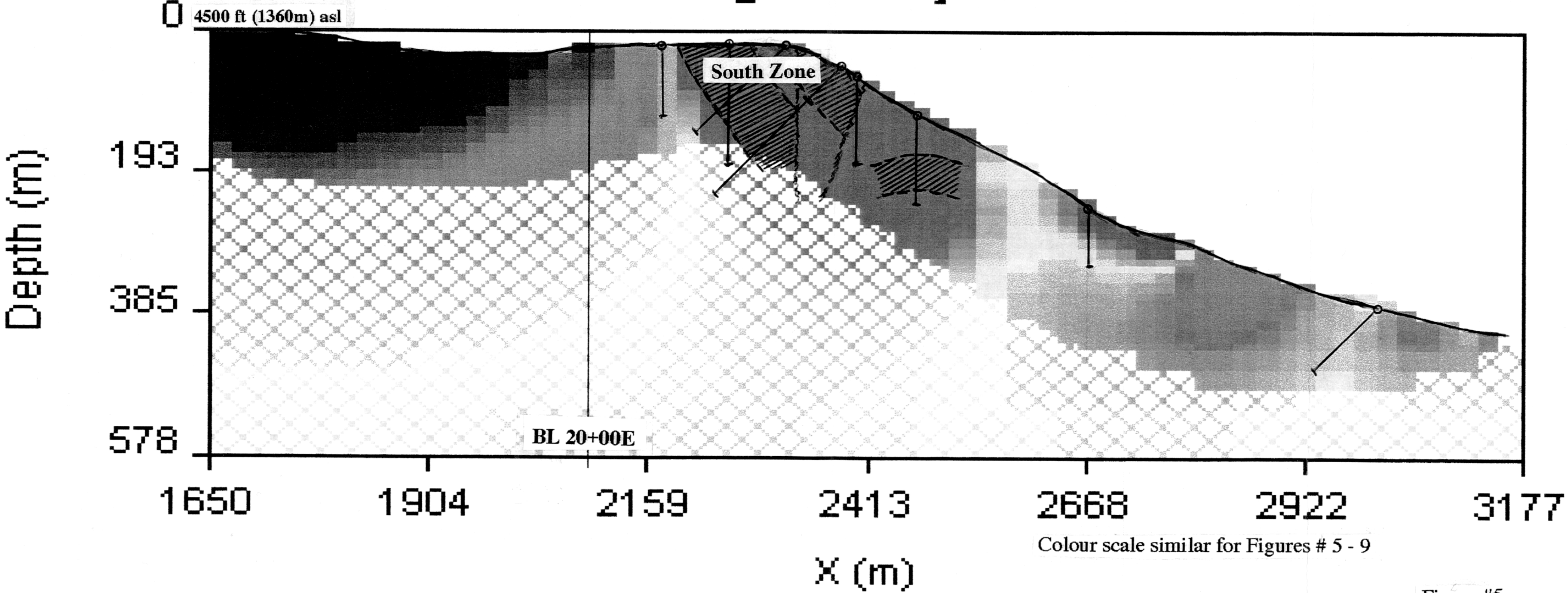
Induced Polarisation Survey

Results of the induced polarisation (IP) survey are documented in the Cartwright report (Appendix C), as they are defined in normal geophysical interpretations. The normal pseudosection profiles along the five surveyed lines are included with the Cartwright report. The "corrected" sections (results of the inversion), are included with this report as Figures 5 - 9. As the corrected sections provide topographic relief, it is possible to superimpose the traces of drill holes and interpretations of mineralized zones and structures, as shown on the profiles. Interpretation appears valid to depths of 150 - 175 meters.

In summary, all resource areas are clearly identified on the chargeability profiles. The South Zone (L50+00E) probably has the most relevant correlation of the resource area to areas of chargeability high.

The West Zone is identified by a chargeability high on L65+00N. The West Zone is interpreted as two tabular bodies layered on top of one another, as shown on the section. The top zone falls within a medial chargeability range, whereas the lower zone falls within a chargeability high. There is some evidence that the West Zone may have an oxidized capping, similar to the Adit Zone.

Chargeability Model

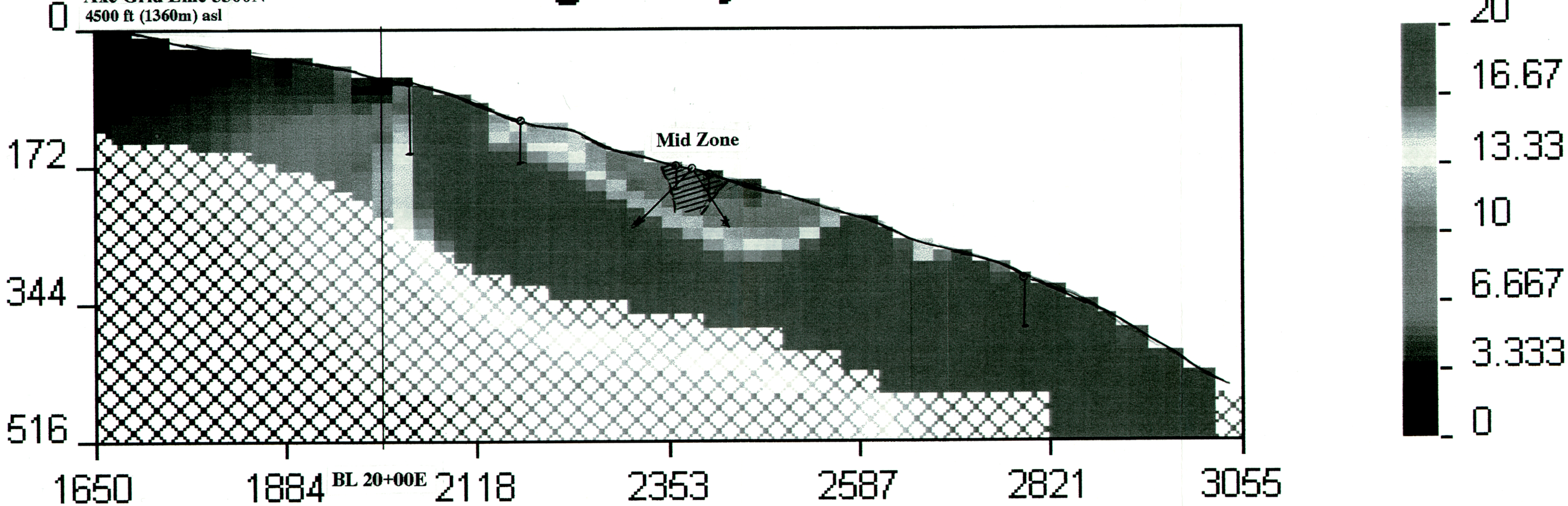


Colour scale similar for Figures # 5 - 9

Scale ~ 1:5,000

Figure #5

Chargeability Model



Scale ~ 1:5,000

Figure #6

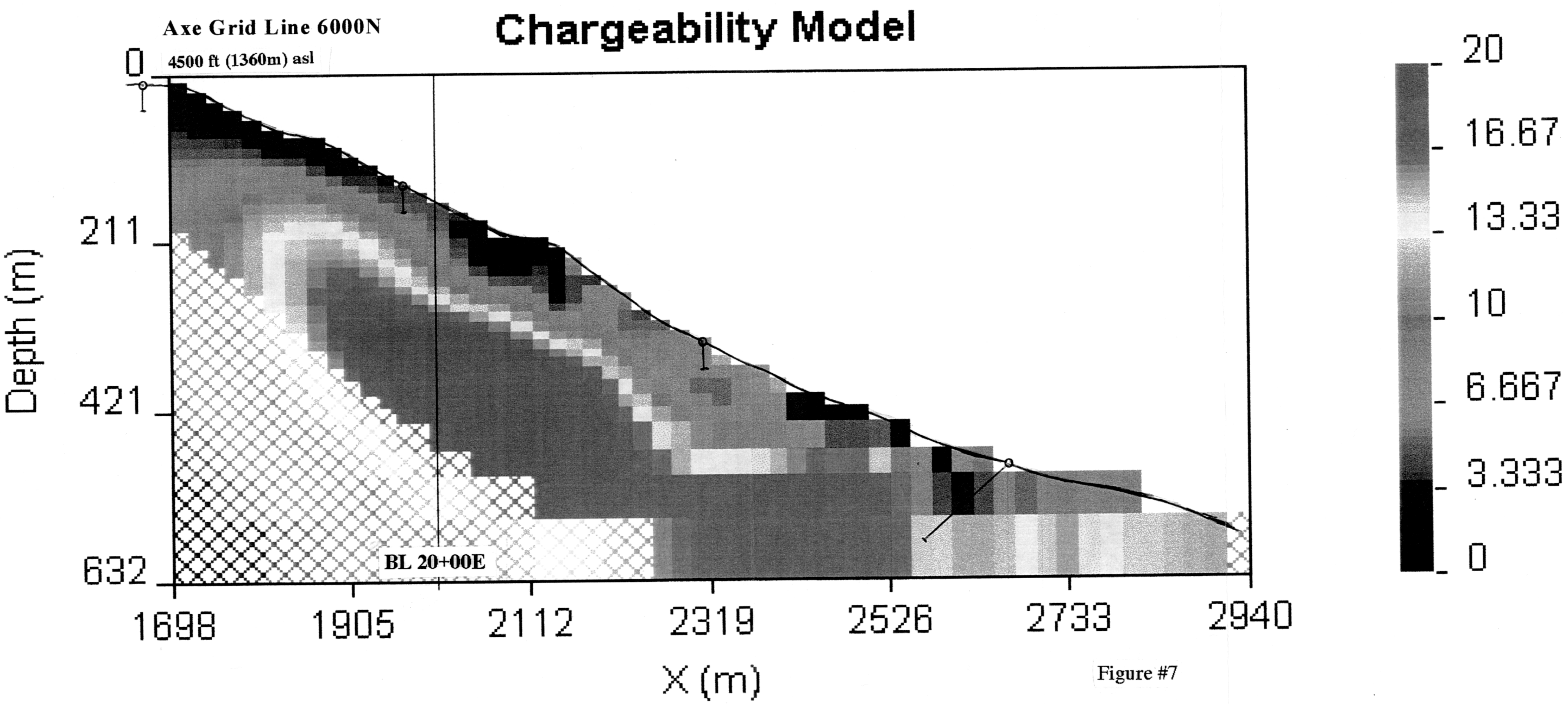
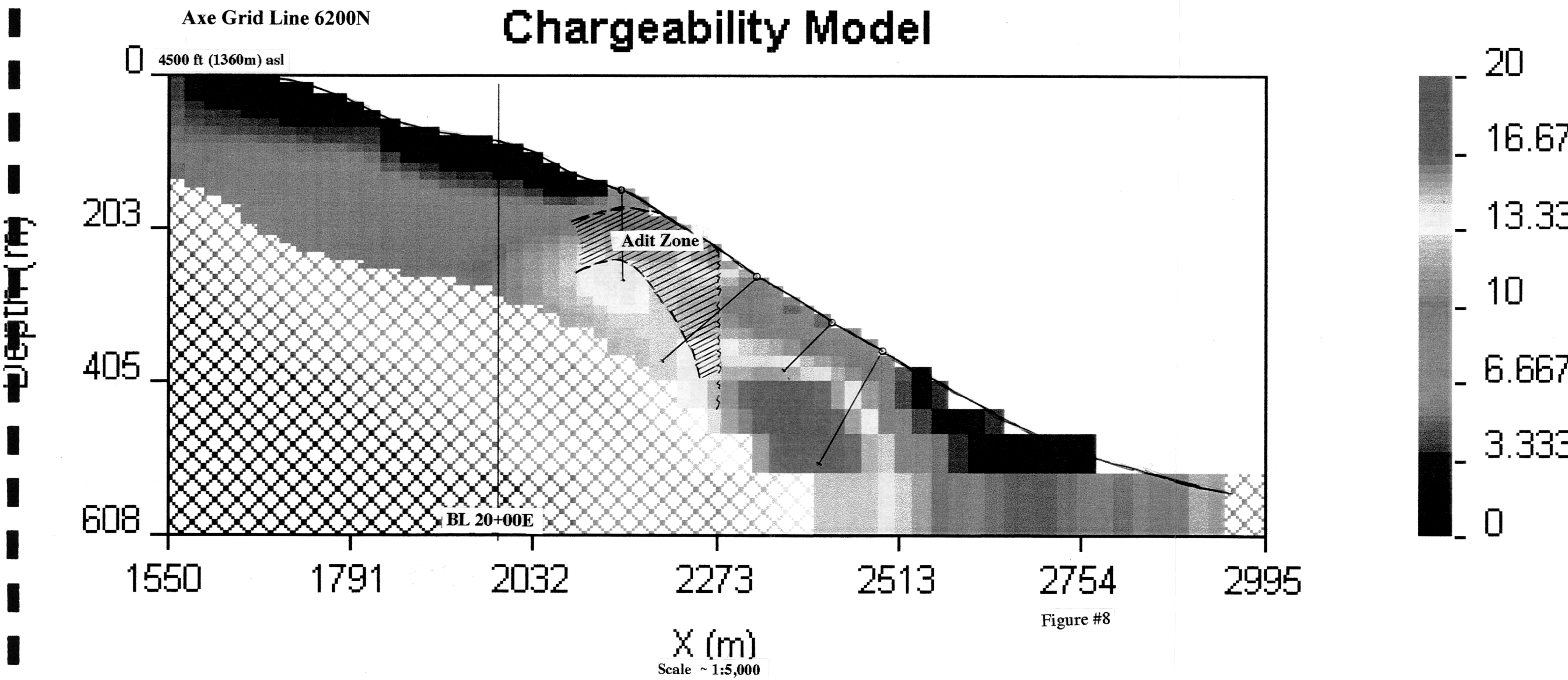


Figure #7

Scale ~ 1:5,000

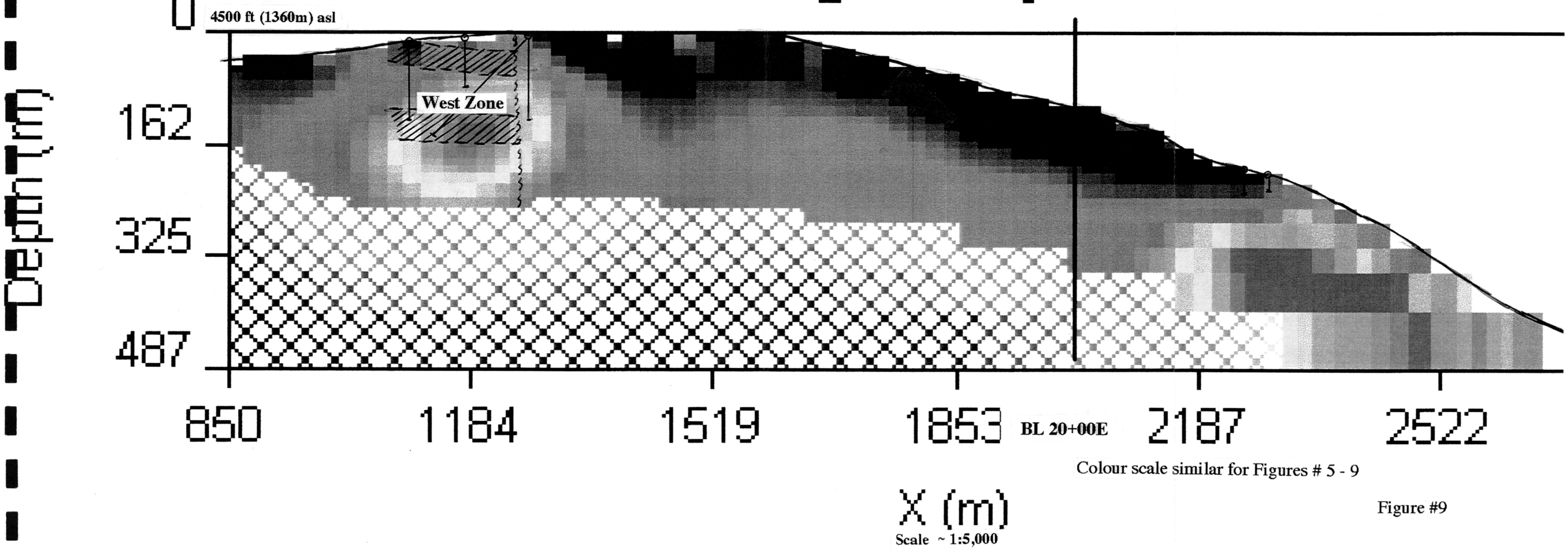


Axe Grid Line 6200N
Chargeability Model
4500 ft (1360m) asl
0
203
405
608
Depth (m)
Adit Zone
BL 20+00E
1550
1791
2032
2273
2513
2754
2995
X (m)
Scale ~ 1:5,000
20
16.67
13.33
10
6.667
3.333
0

Figure #8

Axe Grid Line 6500N

Chargeability Model



Colour scale similar for Figures # 5 - 9

Figure #9

The most interesting relationship of mineralized zones to chargeability patterns are the Adit and Mid Zones indicated on Lines 62+00N and 55+00N, respectively. Both zones are located in zones of weak to moderate chargeability sitting on top of chargeability "highs". The Adit Zone, where interpretation is well defined, indicates the zone to be draped over the chargeability high reflecting both the anticlinal nature of the zone as well as the near surface oxidation of sulphide minerals. The Mid Zone is clearly in a zone of weak chargeability possibly representing an oxide zone, with little relationship to deeper chargeability "highs".

At the 500 meter separation of lines surveyed in 1998, providing an interpretation from line to line is very speculative, however Cartwright has attempted to provide an interpretation plan map at the n=1 level. Several features appear to have relevance to interpretation of mineralized zones from this plan as well as interpretation of "corrected" sections from section to section.

1) A portion of a very large porphyry sulphide system has been detected by the results of the induced polarisation survey. This interpretation links together the mineralization of three of the zones (the South, Mid and Adit), and possibly the West zone. From the coverage and line density, a circular body in plan view is evident with a diameter of 2 - 3 km. The body appears to be tabular in nature with a thickness of 0.5 - 1 km. The body dips to the northeast at ~ 20 degrees, and may be faulted off by the north-south trending Summers Creek fault. The South, Mid and Adit Zones are all along the western periphery of the interpreted body.

2) The anticlinal feature, first identified by Amax in 1970, striking through the South and Adit Zones appears valid from IP interpretation. Further interpretation concludes that this anticline rakes to the north with a 100 meter drop in 500 meters of length (~ 10 degrees).

3) From the above, it is concluded that the strong chargeability high on L55+00N is in fact due to a high pyrite core of the porphyry sulphide system. The copper mineralization forming the South Zone is beneath the pyrite core, which in this area has been eroded away. The Mid Zone is possibly due to oxidation, and was originally a small pocket of copper enrichment in the high sulphide core.

4) L60+00N reflects the top of the pyrite core, with no copper resource having been identified to date. Drilling into the steep chargeability gradient may reveal extensions or similar zones to the Adit Zone.

5) L62+00N indicates that the defined resource of the Adit Zone is draped over the chargeability high. Similar chargeability features are indicated further to the east along this line and on L65+00N which have not been drill tested.

5) Interpretation of L65+00N indicates a possible linkage of the West Zone to the large porphyry system, as the West Zone may be an uplifted portion of the same porphyry system at depth.

6) Faults play a major role in the geometry of zones on the Axe claims. Many of the faults identified in drill holes and on surface are identified on the IP profiles. For example the faults bounding the eastern contact of the West Zone and Adit Zone are clearly identified. Faults of the South Zone are masked by the intense chargeability "high", however the eastern contact fault shows some correlation. An east-west fault is interpreted from the IP results between L60+00 and 62+00N.

In summary, induced polarisation survey completed in 1998 appears to have been a very worthwhile venture, and continued surveys providing greater detail will assist in detailing drill targets. As the criteria of development on the property should focus on oxide copper potential, it would seem logical to continue providing this detail along the steep escarpment of Summers Creek. The necessity of reducing the detail to at least 100 meter line spacing is illustrated by the difference in nature of chargeability between Lines 60+00N and 62+00N. Prior to selecting drill sites, nineteen additional lines (a total of ~ 30km) of continues IP surveys are recommended.

In addition, continued reconnaissance IP surveys are recommended at a future stage of exploration, to reveal a better understanding of the large sulphide porphyry system as developed in the geophysical report by Paul Cartwright, P. Geo.

CONCLUSIONS AND RECOMMENDATIONS

Historical drilling on the property has indicated a resource of 39 million tonnes grading 0.39% copper in the four zones. An additional resource of 32 million tonnes is inferred, however has yet to be drill tested. Oxide copper potential of the Adit and Mid Zones is indicated to be 8.4 million tonnes grading 0.54% copper to depths of 70 - 100 meters, however detailed assay data of the oxide copper content is not provided with all historical drill results. An additional 7 - 8 million tonnes is inferred.

It is estimated that an oxide copper mining operation would be feasible with the presence of some 25 million tonnes of a similar grade or better. Preliminary interpretation of the induced polarisation survey have enhanced this expectation considerably. From the induced polarisation surveys completed in 1998, it can be concluded that drill targets have definitely been established to explore for additional oxide copper mineralization, however further detailed surveys are necessary to refine these targets, and establish priorities for drilling. 30 km of induced polarisation surveys are recommended to provide required detail.

Continued soil geochemistry and other geophysical surveys are not warranted in the resource areas of the property at the present time. The existing geochemical data provides adequate detail for geochemical interpretation of the known resource areas. Downhill dispersion of copper values in soil has affected the ability to correlate soil values to the specific mineralized zones. Further soil geochemistry is warranted, however, in the eastern portion of the property to refine the gold soil anomalies along the eastern side of Summers Creek, and trace potential zones of mineralization noted in the Rampart Creek valley.

The work completed in 1998 has greatly enhanced the resource potential on the Summers Creek Project, and strengthens the argument that continued exploration and development must focus on a return to grass-roots exploration methods, involving techniques that have been upgraded substantially since work commenced in the late 1960s. A model of a very large sulphide porphyry system, of a similar magnitude of the Mount Milligan porphyry system, is indicated from the results of the 1998 induced polarisation survey. Continued exploration should incorporate airborne geophysical surveys, emphasizing the potassium radiometric, satellite tape interpretations, continued IP surveys, and advanced drilling techniques.

Two drill programs are required to study the nature of mineralization. Initially, large diameter diamond drilling (HQ) is required in the Adit Zone to test the nature and depth of oxidation and the oxide copper potential of this zone. A minimum of three holes are required to depths of 100 meters each (total - 300 meters). The drilling can be completed simultaneously with continued induced polarisation surveys to the north and south of the Adit Zone.

Exploration drilling on targets delineated from the IP survey could is recommended by reverse circulation drilling, employing face-bit sampling techniques. Track-mount rigs are suggested to reduce road building costs and environmental impact. At least 16 holes to depths of 150 meters each are recommended. An airborne geophysical survey and satellite tape interpretation is recommended as part of this stage of exploration.

From the above conclusions, a first phase, two-stage exploration program is recommended at the following costs:

Stage 1	Grid preparation - 30km @ 500/km	$ 15,000	
	30 km of induced polarisation survey @2000/km	60,000	
	Diamond drilling 300 meters @ 150/meter	45,000	
	Road upgrading	5,000	
	Contingency (~12%)	15,000	
	Total Stage 1		$ 140,000
Stage 2	Reverse circulation drilling		
	- 2400 meters @ 75/meter (all inclusive)	$ 180,000	
	Roadbuilding	25,000	
	Permitting and bonding	15,000	
	Grid geochemistry (east portion of claims)	20,000	
	Airborne geophysical survey (250 km)	30,000	
	Satellite tape interpretation	10,000	
	Resource calculations, compilation and reporting	15,000	
	Contingency (~12)	35,000	
	Total Stage 2		$ 330,000
Total Phase I Exploration			**$ 470,000**

Phase II exploration would be contingent on results of Phase I, however would likely be continued drilling to establish reserves and continued ground geophysical surveys.

Submitted by:

John R. Kerr, P. Eng.
December 4, 1998

Appendix A - Cost Statement

COST STATEMENT
1998 Field Expenditures Axe Claims
May 19 - December 1, 1998

Project Supervision and Labour:		
John R. Kerr, P. Eng. 31.5 days @ 425 per day	$ 13,387.50	
Warner Gruenwald, P. Geo 5 days @ 375 per day	1,875.00	
		$15,262.50
Geological Contracting Services:		
Richard H. Sillitoe PhD.		
5.5 days @ 1,000(US) per day ($5,500US)		8,525.00
Induced Polarisation Survey - Pacific Geophysical Ltd.		18,025.00
Linecutting -Sabre Exploration Services		10,000.00
Travel, Room and Board		8,482.20
Truck Rentals		3,349.60
Analytical Costs		973.80
Miscellaneous Supplies, Equipment Rentals, and Communications		1,772.44
Compilation and Report Preparation:		
John R. Kerr, P. Eng.	$ 2,975.00	
Paul Cartwright, P. Geo.	1,600.00	
Drafting and Map Production	950.00	
Copying and Binding	434.60	
		$ 5,959.60
TOTAL COSTS (for assessment work)		**$ 72,350.14**

Appendix B
Exploration Potential and Recommendations
Axe Prospect and Barney Claims
Richard H. Sillitoe
September, 1998

A report prepared for Causeway Mining Corporation

EXPLORATION POTENTIAL AND RECOMMENDATIONS, AXE PROSPECT AND BARNEY CLAIMS, BRITISH COLUMBIA

Richard H. Sillitoe

September 1998

CONTENTS

EXECUTIVE SUMMARY

The **Axe prospect** is of porphyry copper type and has many of the geological characteristics of other zones of porphyry-type mineralization associated with alkaline intrusions in British Columbia. The most promising of the three main zones of copper mineralization at the Axe prospect is the Adit, where sulphide oxidation is developed more deeply because the mineralized body is overlain by the steep western side of the Summers Creek valley. The Adit zone also possesses a higher copper content than the other zones. The top-priority exploration objective is considered to be additional oxide copper mineralization along the western side of Summers Creek, from the South zone northwards to the property boundary. An induced-polarization survey, conducted before the end of the 1998 field season, should prove to be an effective means of detecting any additional sulphide-bearing zones that, potentially, would be capped by oxide copper mineralization amenable to SX-EW extraction. Any resulting chargeability anomalies that are interpretable as copper-bearing zones could then be drill tested early in the 1999 season, at the same time as at least three well-mineralized holes in the Adit zone are twinned with HQ core holes. The twinning is considered necessary in order to determine the depth of oxidation, to validate the existing copper grades, bearing in mind the poor core recoveries achieved previously, and to determine what percentage of the total copper content is acid soluble. It is also recommended that the copper-in-soil anomalies along the eastern side of the Axe prospect are reconfirmed as soon as possible, although preliminary checking of their plotted positions during this inspection suggests that they do not denote gold mineralization of economic interest.

The **Barney claims** overlie the northern end of the porphyry copper-rich Guichon batholith. An extensive, poorly exposed area mapped as Kamloops volcanics of post-mineralization age may include unrecognized windows of mineralized batholithic rocks as well as overlie mineralization. Any porphyry copper mineralization near or beneath the Kamloops volcanics may be capped by fossilized zones of oxide copper and/or chalcocite enrichment developed in the early Tertiary before accumulation of the volcanics, as observed at the nearby Getty North porphyry copper deposit. Systematic soil geochemical and induced-polarization surveys are confirmed as the best means of localizing any such mineralized zones. The strong geochemical and chargeability anomalies defined previously over an unaltered dacite porphyry intrusion in the westernmost part of the Barney claims are not thought to indicate the presence of copper mineralization and, hence, may be excluded from further work programmes.

INTRODUCTION

At the request of Brian Mountford, the writer spent five days (20-25th September 1998) in British Columbia in order to examine the Axe copper prospect near Princeton and the Barney claims just north of the Highland Valley on behalf of Causeway Mining Corporation.

The aim of the visits was to provide comments on property potential and recommendations regarding further exploration work. These topics are addressed in this summary report.

The field visits were made with Brian Mountford, Morris Beattie and John Kerr, who are thanked for instruction and discussions.

AXE PROSPECT

Geological comments

The Axe is a porphyry copper prospect related to alkaline intrusive rocks of the Intermontane belt. Like nearby deposits of this type, such as Afton and Copper Mountain, the copper mineralization occurs as a cluster of apparently irregular zones rather than as one well-defined body centred on a single porphyry stock. The largest of these is the South zone, much of it hosted by Nicola basaltic volcanics, followed in size by the West, Adit and Mid zones in fine-grained monzonite porphyry intrusions. The South, Mid and Adit zones constitute a northerly alignment that may prove to be structurally controlled.

Well-defined hydrothermal alteration zonation appears to be absent from all of the zones at the Axe which, as at many of the alkaline porphyry copper deposits, are characterized by patchily developed alteration. Surface observations made during this visit suggest that intermediate argillic alteration, defined on the basis of illite after feldspars and chlorite after mafics, is the dominant alteration type in the West and Adit zones. At both localities, it probably developed at the expense of earlier K-, Na- and Ca-silicate alteration, which is evidenced by the widespread occurrence of magnetite, partially replaced by hematite, and the local presence of K-feldspar, biotite, albite and epidote. In contrast, the South zone in outcrop appears to be dominated by Ca-silicate alteration comprising actinolite, epidote, chlorite and magnetite.

The South, West and Adit zones all contain prominent but erratically distributed chalcopyrite, generally accompanied by relatively minor amounts of pyrite (py/cp≤1). The sulphides are present mainly in disseminated form and, as in most of the alkaline porphyry copper deposits, sulphide-bearing veinlets are only sparsely developed. There is evidence for an increase in pyrite at the expense of chalcopyrite on the margins of the zones, which also tend to be characterized by greater total sulphide contents (up to 5 volume %). In the Adit zone, steep, tabular, north-northwest-striking zones of sericitic alteration containing >5 volume % pyrite and no chalcopyrite overprinted the chalcopyrite-bearing intermediate argillic assemblage.

The five +40 ppb gold-in-soil anomalies along the eastern side of the Axe prospect may be treated as a partial halo to the copper zones. Field inspection of the plotted positions of the two smallest anomalies, just east of Summers Creek, revealed only unaltered Nicola basalt. However, the southeasternmost anomaly overlies a zone of actinolite-epidote-chlorite-magnetite alteration in which quartz-epidote-chlorite veins containing minor amounts of chalcopyrite and pyrite were observed. If these veins prove to contain gold, they could account for the anomaly as well as confirming the halo hypothesis. However, such veins would not constitute a gold target of exploration interest.

Previous geological interpretations of the Axe prospect have favoured partial truncation of the South, West and Adit zones by post-mineralization faults following northwesterly and northeasterly directions. Surface evidence in support of these faults was not forthcoming during this inspection, but they may well exist. Geophysical surveys may help to define their positions, but careful logging of core to be recovered during future exploration campaigns will be required to confirm their true effects.

Supergene sulphide oxidation as a result of post-glacial weathering seems to have had a greater impact on the Adit zone than on the South and West zones. John Kerr's synthesis of previous work at the Axe emphasizes oxidation effects to depths of 50-90 m in the Adit zone, with as much as 80 % of the copper being present in acid-soluble form. However, this writer doubts that appreciable oxidation extends as deeply as this. In contrast, sulphide oxidation in the South and West zones is only superficial, as shown by the widespread presence of chalcopyrite besides malachite in outcrop.

The oxide copper mineralogy of the Adit zone at surface is dominated by malachite, although pitch limonite (copper-bearing goethite) and neotocite (copper-manganese-iron silicate) were also observed. Neotocite is commonly not easily acid soluble. The oxidation process did not proceed to completion, however, as shown by the local presence of only partially oxidized chalcopyrite and pyrite at surface. These remnant sulphides occur in the more massive, less permeable rock, rather than in the shattered and faulted material, and are thought likely to become progressively more abundant with depth. The overprinted pyritic bodies in the Adit zone are characterized by jarosite (rather than goethite) and a total absence of oxide copper minerals; they are also kaolinized because of the acidic solutions generated as a result of the pyrite oxidation. These bodies constitute waste within the oxide copper resource.

The deeper and better-developed oxidation profile over the Adit zone is related to the relative proximity of the steeply inclined body of copper mineralization and the steep side of the Summers Creek valley. Hence, the oxidizing solutions entered the mineralized body from its eastern side as well as from above. In contrast, lateral oxidation was precluded in the South and West zones because both of them crop out in relatively flat terrain.

Exploration potential

This writer concurs with the currently perceived exploration potential of the Axe prospect. The prime target is one or more economically mineable bodies of oxide copper mineralization amenable to SX-EW extraction. Such a resource would include the uppermost few tens of metres or so of the Adit zone, and any extensions that it might possess, plus additional yet-to-be-discovered oxide copper mineralization elsewhere on the property. The principal target area for additional oxide copper mineralization is considered to be the steep east-facing flank of the Summers Creek valley where oxidation effects are more likely to have penetrated deeply. As stressed by John Kerr, the total copper contents of the Adit and other zones may have been underestimated by previous explorers as a result of unacceptably low core recoveries and the small diameter of the percussion holes. The amount of remnant chalcopyrite in the known oxidized copper mineralization also needs to be carefully determined because of its important bearing on acid-soluble copper recoveries.

The second-priority target at the Axe is one or more additional bodies of sulphide mineralization with a higher gold content than those of the known zones. Elevated gold contents typify most alkaline porphyry copper deposits in the Intermontane belt of British Columbia and would be required at the Axe if sulphide mineralization is to have a reasonable chance of attaining economic status. Any such gold-rich bodies could occur anywhere on the Axe prospect, perhaps most probably beneath thin glacial cover on the flat plateau area.

Exploration recommendations

Exploration priorities at the Axe are considered to be the search for additional oxide copper resources and confirmation of the overall depth, grade and acid-soluble copper content of oxidized material at the Adit zone.

John Kerr's proposal to conduct a state-of-the-art induced-polarization survey to further explore the Axe prospect may be adapted to the search for additional oxide copper resources. The proposed survey would focus on the steep western side of the Summers Creek valley, with east-west lines spaced ideally at 200-m intervals. Lines should pass through the South, Mid and Adit zones in order to define their chargeability responses. The survey would explore the partly talus-covered areas between the South and Adit zones and the Adit zone and the northern property boundary for additional or off-faulted oxide copper zones. Several of the necessary east-west lines are believed to have been cut, and it should be possible to undertake this work before the end of the 1998 field season. Care must be exercised during interpretation of the survey results to take account of the likely higher sulphide, mainly pyrite, contents beyond the copper zones. Therefore chargeability highs are unlikely to correlate directly with the best copper values.

Time should also be sufficient this season to confirm the gold-in-soil anomalies near and east of Summers Creek by means of recollection of soil samples in and around the plotted positions of the anomalous zones. Any available bedrock outcrop should also be sampled in order to improve understanding of the source of the anomalism.

The top priority for the 1999 season is considered to be drill testing of any chargeability anomalies detected by the proposed induced-polarization survey as well as the twinning of at least three selected well-mineralized holes drilled previously in the Adit zone. The drilling, with recovery of HQ core, should be designed to maximize recoveries in view of the unsatisfactory results achieved in previous campaigns. All split core should be assayed for total and acid-soluble copper and, once logged in detail, sampled representatively for leach tests.

Future work at the Axe prospect, beyond that proposed for early 1999, would depend on the results obtained, but might comprise the grass-roots reappraisal proposed by John Kerr. This would commence with an airborne magnetic and radiometric survey followed by geological remapping of the entire claim block.

BARNEY CLAIMS

Geological comments

The Barney claims cover the northern tip of the Guichon Creek batholith, which hosts the Highland Valley porphyry copper-molybdenum deposits associated with late-stage intrusive phases and hydrothermal breccia bodies. However, much of the prospective batholithic terrain is concealed by the Kamloops Formation volcanics of Eocene age which, in turn, are partly covered by relatively thin veneers of glacial debris. In view of this glacial cover, parts of the mapped extent of the Kamloops volcanics may include windows of batholithic rocks and, with luck, associated copper mineralization.

Based on the results of the 1997 airborne geophysical survey, John Kerr proposes that areas mapped as Kamloops volcanics that are characterized by radiometric potassium anomalies and/or relatively high resistivities are likely to be windows of batholithic rocks. One of these possible windows (near anomaly 6) lies on the interpreted trace of the northwest-striking Barnes Creek fault which, judging by the presence of pyritization on the Copper Keg claims just to the north, could have acted as a control of porphyry copper emplacement on the Barney claims.

Any porphyry copper mineralization beneath or in close proximity to the Kamloops volcanics could be capped by a fossilized and at least partially preserved early Tertiary (pre-40 Ma) supergene profile. This, depending upon the original pyrite/chalcopyrite ratio, could include oxide copper and/or chalcocite enrichment zones. A good example of such a fossilized profile is provided by the Getty North (Krain) deposit to the south, which reportedly includes a 100-m thick oxide copper zone. Surface inspection of the Getty North deposit revealed a sulphide-free oxide copper assemblage dominated by chrysocolla in association with pitch limonite and minor amounts of neotocite. The absence of outcropping sulphides emphasizes the greater maturity of the fossilized Getty North supergene profile as compared to the post-glacial one at the Axe prospect.

Four of the six main copper anomalies defined on the Barney claims during the 1997 programme and work conducted by previous explorers were inspected during this visit. Numbers 3 and 6 appear to be essentially single-point anomalies, the former in an area of outcropping batholith comprising completely unaltered quartz diorite and the latter in a covered area near the radiometric anomaly referred to above. Anomaly 2 is located alongside a magnetic high beneath Barnes Lake and may be attributed to the dispersed chalcopyrite found during this inspection in Nicola volcanic float. The float, also containing pyrite and abundant magnetite, shows signs of having been hornfelsed, presumably by the Guichon batholith that is mapped nearby.

Geochemical anomaly 1, the strongest of all, overlaps the western part of a prominent chargeability anomaly defined during the 1997 work programme and by a previous explorer. Both anomalies overlie a prominent dacite porphyry intrusion that is mapped as being coeval with the Kamloops volcanics. The porphyry, thought to be a steep-sided body, is completely unaltered. The geochemical anomaly occurs as a strip alongside and upslope from the Logan Lake highway, which is observed to have been constructed with oxide copper-rich material (presumably from the Highland Valley dumps) as well as being transited regularly by concentrate trucks from the Highland Valley operation. Dust from one or both of these sources is thought likely to have produced the copper anomaly. No obvious source for the chargeability anomaly is evident. A source beneath the porphyry, assuming it to be a subhorizontal sill-like body and not a steep intrusion, can be ruled out because of its minimum 300-m thickness constrained by outcrop.

Exploration potential

The principal potential of the Barney claims, bearing in mind the several exploration programmes carried out over the years, is believed to be porphyry copper mineralization concealed beneath glacial cover. Any deposit located near the edge of the Kamloops volcanic outcrop, in windows through it or beneath it may be capped by a fossilized supergene profile containing zones of oxide copper and/or chalcocite enrichment. The interpreted position of the Barnes Creek fault may be a particularly favourable site for mineralization.

The westernmost part of the claims, occupied by the dacite porphyry intrusion and including anomaly 1, is considered to lack copper potential and may be excluded from future work programmes.

Exploration recommendations

Future systematic exploration of the Barney claims might employ a combination of soil geochemistry and induced-polarization geophysics. These methods should be applied to the entire area mapped as Kamloops volcanics as well as to other concealed or poorly exposed areas inferred to be underlain by the Guichon batholith. Soil geochemistry is intended to highlight any copper mineralization in subcrop, whereas the induced-polarization survey should detect sulphide mineralization in subcrop as well as beneath modest thicknesses of Kamloops volcanics, assuming that the oxidation profile is not too deep.

Vancouver, B.C.
26th September 1998

Richard H. Sillitoe

Appendix C - Geophysical Report
Summers Creek Project
Paul Cartwright, P. Geo.
Pacific Geophysical Ltd.

GEOPHYSICAL APPENDIX

Summers Creek Project

Similkameen Mining Division, British Columbia

by

Paul A. Cartwright, P.Geo.

November 24, 1998

Index

Appendix on the Summers Creek Project Induced Polarization and Resistivity Survey

This appendix is to accompany a report dated December 4, 1998, and titled "Geological, Geophysical, and Geochemical Report On The Summers Creek Project", By J.R. Kerr, P.Eng.

Introduction

An Induced Polarization (IP) and resistivity survey has been completed on five widely spaced survey lines over a portion of the Axe Claims, Summers Creek Project, Similkameen Mining Division, B.C. The objective of the present survey was to evaluate an area of known copper mineralization with state-of-the-art equipment and techniques, in order to define additional exploration targets.

Method and Equipment

An Iris Model ELREC-6 six channel time domain IP/resistivity receiver unit using "Mode 3 (Td=80ms, M1-M10=4x80ms, 3x160ms, 3x320ms)", together with a Huntec Model Mk-4 transmitter and 10 kva motor-generator, that produced a two second ON/two second OFF square wave signal of alternating polarity, were used to make all of the IP and resistivity measurements. IP effects are recorded as cumulative chargeability (M1-M10) in milliseconds, while apparent resistivity values are normalized in units of ohm-meters. Pole-dipole array was utilized to make all of the measurements, and used a basic electrode interval of 50 meters, recording 6 separations. The "infinite", non-moving current electrode was located approximately at 2500N, 2500E for the entire survey.

The induced polarization and resistivity data are shown as individual pseudo-sections for each survey line. Interpreted IP anomalies are indicated by bars in the manner shown on the pseudo-section legends. These bars represent the surface projections of the anomalous responses interpreted from the transmitter and receiver electrode locations when the anomalous values were measured, and should not be taken as representing the exact limits of the causative source(s).

Each IP/resistivity pseudo-section has been modeled using the University of British Columbia Geophysical Inversion Facility (UBC-GIF) computer software, as part of the interpretive process. The UBC-GIF routines allow a semi-automatic IP and resistivity data inversion that produces a "section" which, in most cases, is a much more realistic image of the true electrical properties underlying the survey line than is the case of pseudo-sections. The computer inversion results are shown and discussed further in the Axe Claims report by J.R.Kerr.

Included with this report is Dwg. IP-1, a 1:10000 scale plan map of contoured N=1 chargeability values, which illustrates the interpreted IP results that are discussed in the following sections.

Discussion of Results

The most prominent feature evident in the induced polarization and resistivity data measured on the Axe Claims is the region of high magnitude IP effects that occupies much of the central and eastern part of the geophysical survey grid. A quite abrupt, semi-circular contact is seen dividing these very anomalous chargeabilities from the much lower magnitude IP values indicated further to the west. Although these highly anomalous IP effects cover at least half of the existing geophysical grid, they appear to be outlining only one segment of a much larger, possibly circular body, that is almost certainly composed of metallic sulphide mineralization. It is the author's understanding that all of the known mineralizated occurances, with the exception of the West Zone, are contained within this anomalous eastern IP region, near it's western contact. A series of roughly concentric rings of enhanced chargeability are interpreted to be present within the confines of the eastern IP region as well. These features are generally caused by relatively near-surface sources, although depths to the top of the sources can be quite variable. These structures are also thought to be bisected, and somewhat offset, by an approximately east-west trending fault in the vicinity of Line 6000E.

The only other area of significant IP response is observed near the isolated western end of Line 6500N, where moderate magnitude IP readings are noted. The source of these effects extends to within 50 meters of the surface, and is at least 100 meters across. It is the author's understanding that the previously discovered West Zone mineralization is being detected here. At this time, it is unclear what the relationship is between the West Zone and the very large area of sulphide mineralization outlined towards the east. Data recorded at deeper separations suggests that the two may be connected at a depth that sometimes exceeds the current IP survey's effective penetration range.

Summary of Results

A portion of a very large sulphide system appears to have been detected underlying the central and eastern parts of the Axe Claims geophysical grid, as evidenced by the presence of a widespread region of high magnitude IP effects. As this region also contains most of the previously discovered sulphide and oxide copper mineralization, it is strongly recommended that further IP and resistivity work be carried out to ascertain the full extent of the mineralized system. Judging from the approximately circular shape of the IP contact seen to date, the sulphide system could be 2 to 3 kilometers in diameter, with only 25 % being outlined at present.

The previously discovered West Zone mineralization gives rise to moderately anomalous IP readings that are located well away from the large eastern anomalous IP region. There is the possibility that the two may be related at some relatively large depth below the surface.

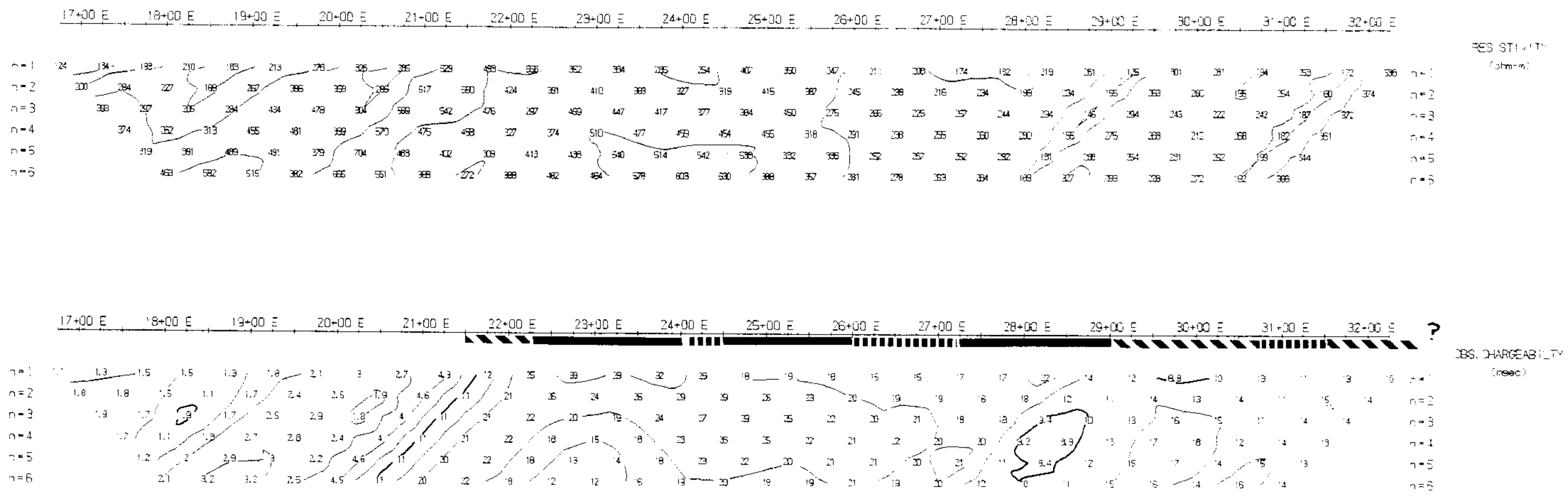
Therefore, it is recommended that the present reconnaissance IP and resistivity grid be expanded to determine the northern, southern, and eastern limits of mineralization. Additional work should be planned using larger array spacings to investigate the possibility of the sources of the West Zone and the eastern sulphide region being connected at depth.

On a more local scale, all available geological and geochemical information should be correlated to arrive at prospective target areas worthy of more detailed investigation. For example, while zones of higher than normal IP effect would be expected to coincide with metallic sulphide mineralization, those areas of lesser IP values situated within the overall region of anomalous IP effect are more likely to host oxide minerals, particularly if accompanied by somewhat lower than normal resistivity determinations. More detailed IP and resistivity coverage should be used to further refine drill targets.

Pacific Geophysical Limited

Paul Cartwright, P.Geo., Geophysicist

November 24, 1998



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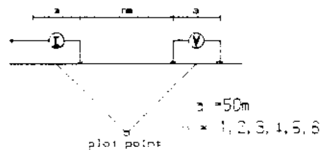
Pole-Dipole Array



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Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC/ J

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

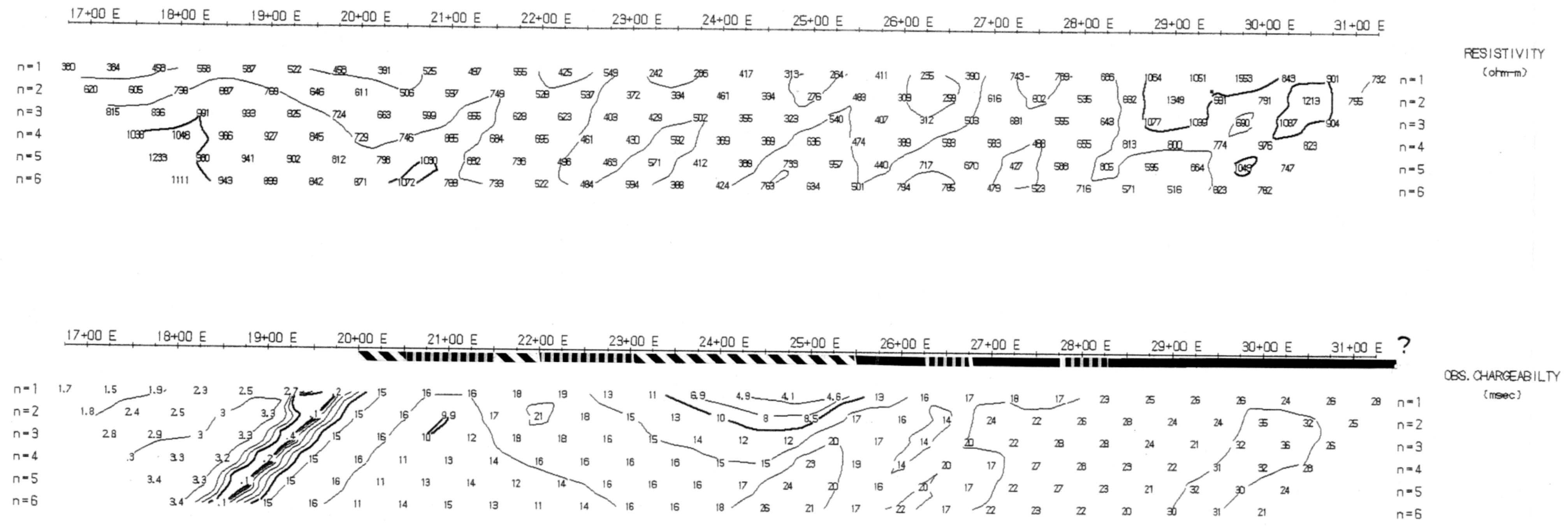
CAUSEWAY MINING CORP.

INDUCED POLARIZATION SURVEY
Line 5000 N
AXE Claims, Similkameen M.D., B.C.

Date: October 1998
Interpretation by:
Scale 1:6500

Pacific Geophysical

GEOSOFT (tm) Software for the Earth Sciences, Toronto, Canada



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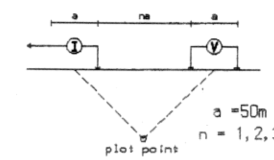
Pole-Dipole Array



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n = 1,2,3,4,5,6

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC/IJ

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

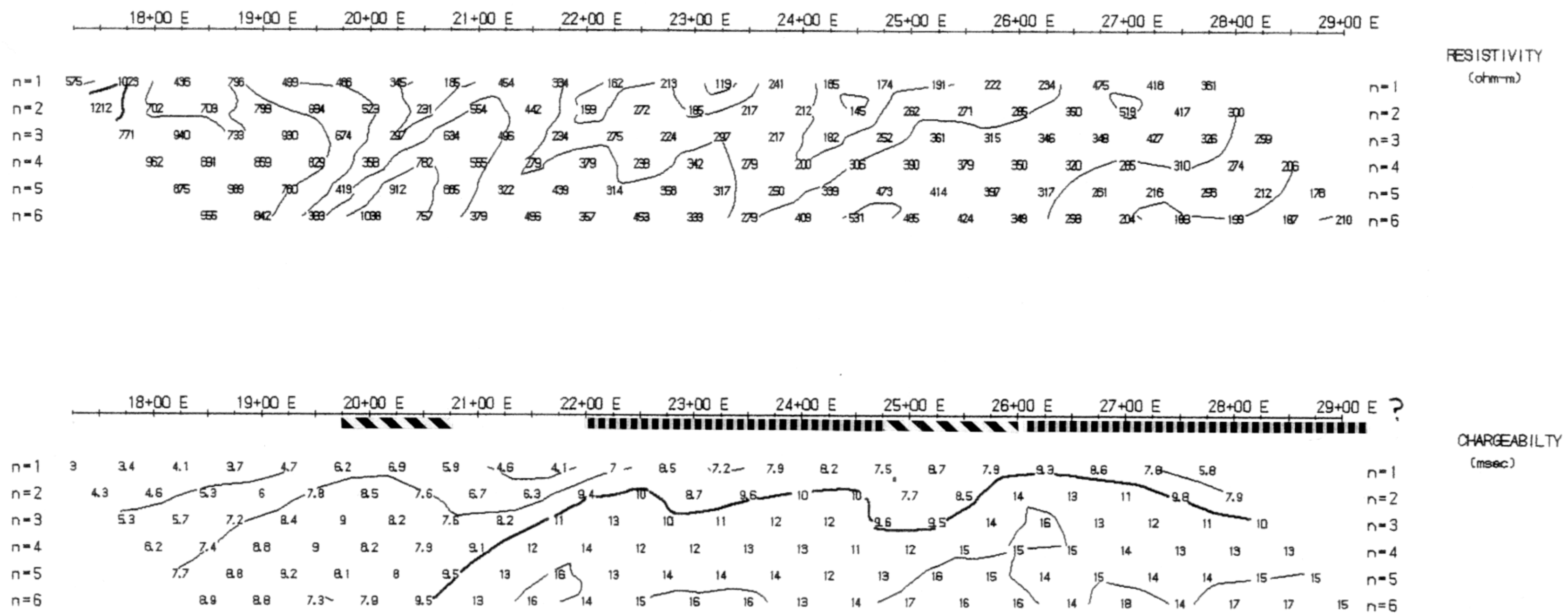
CAUSEWAY MINING CORP.

INDUCED POLARIZATION SURVEY
Line 5500 N
AXE Claims, Similkameen M.D., B.C.

Date: October 1998
Interpretation by:
Scale 1:6500

Pacific Geophysical

GEOSOFT (tm) Software for the Earth Sciences, Toronto, Canada



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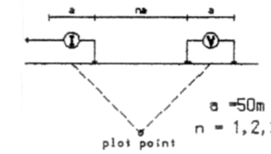
Pole-Dipole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC/IJ

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

CAUSEWAY MINING CORP.

INDUCED POLARIZATION SURVEY
Line 6000 N
AXE Claims, Similkameen M.D., B.C.

Date: October 1998
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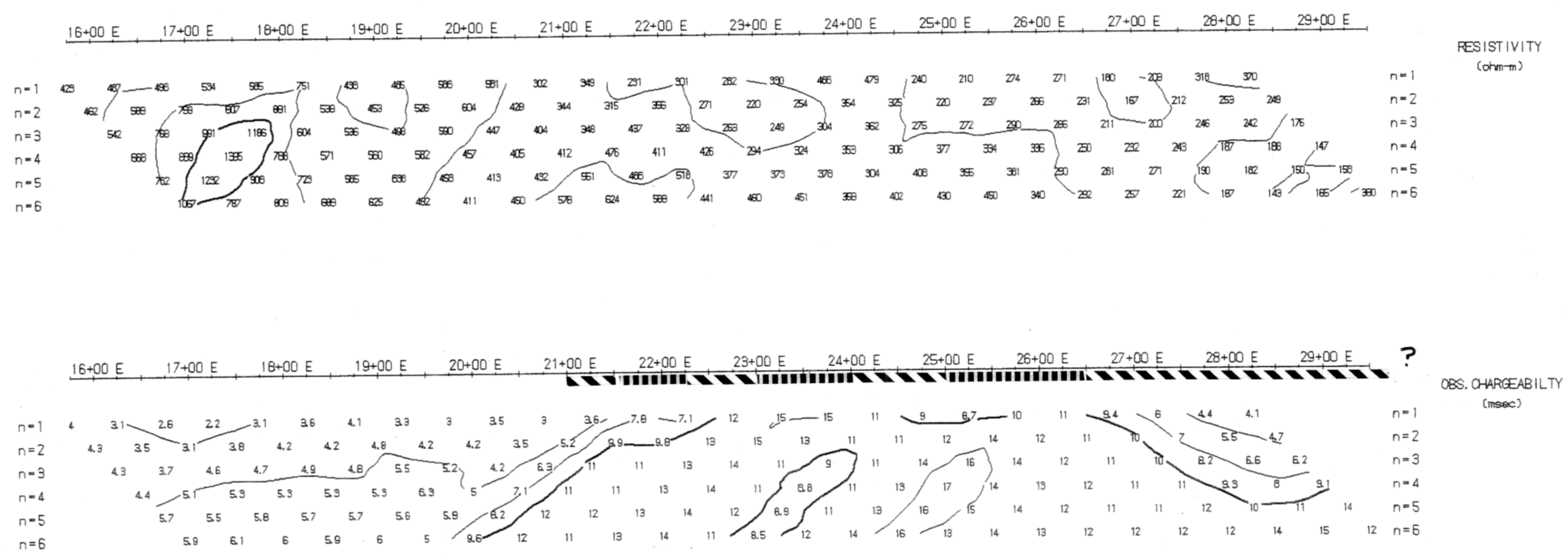
GEOSOFT (tm) Software For the Earth Sciences, Toronto, Canada



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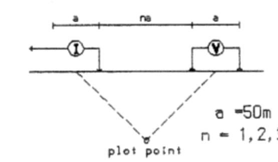
Pole-Dipole Array



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n = 1,2,3,4,5,6

Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC/IJ

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

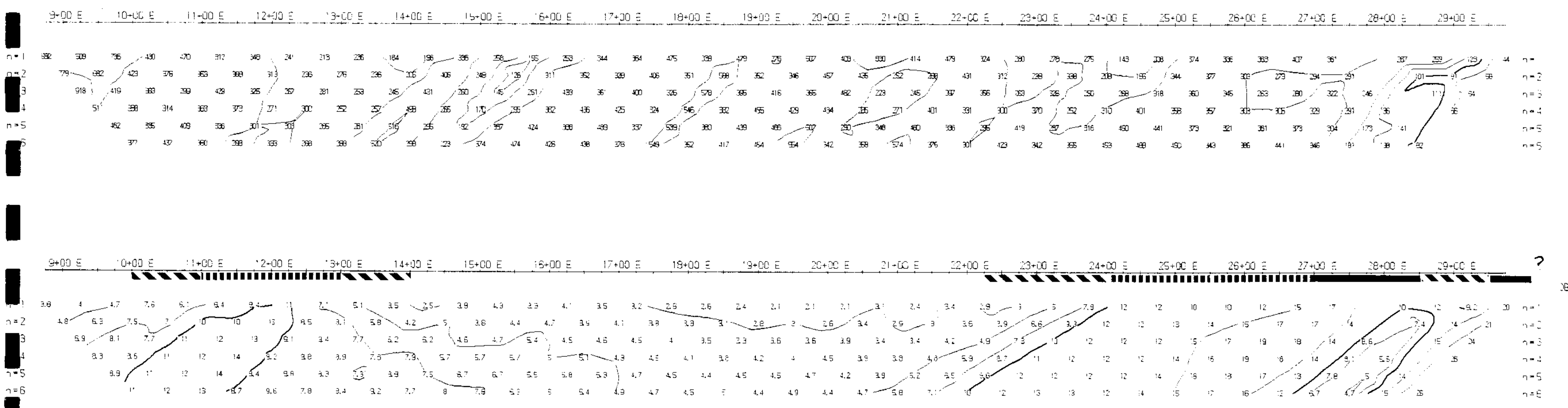
CAUSEWAY MINING CORP.

INDUCED POLARIZATION SURVEY
Line 6200 N
AXE Claims, Similkameen M.D., B.C.

Date: October 1998
Interpretation by:
Scale 1:6500

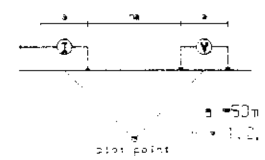
Pacific Geophysical

GEOSOFT (tm) Software for the Earth Sciences, Toronto, Canada



Line 6500 N

Pole-Dipole Array



Logarithmic Contours ..., 1.5, 2, 3, 5, 7.5, 10, ...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC/IL

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

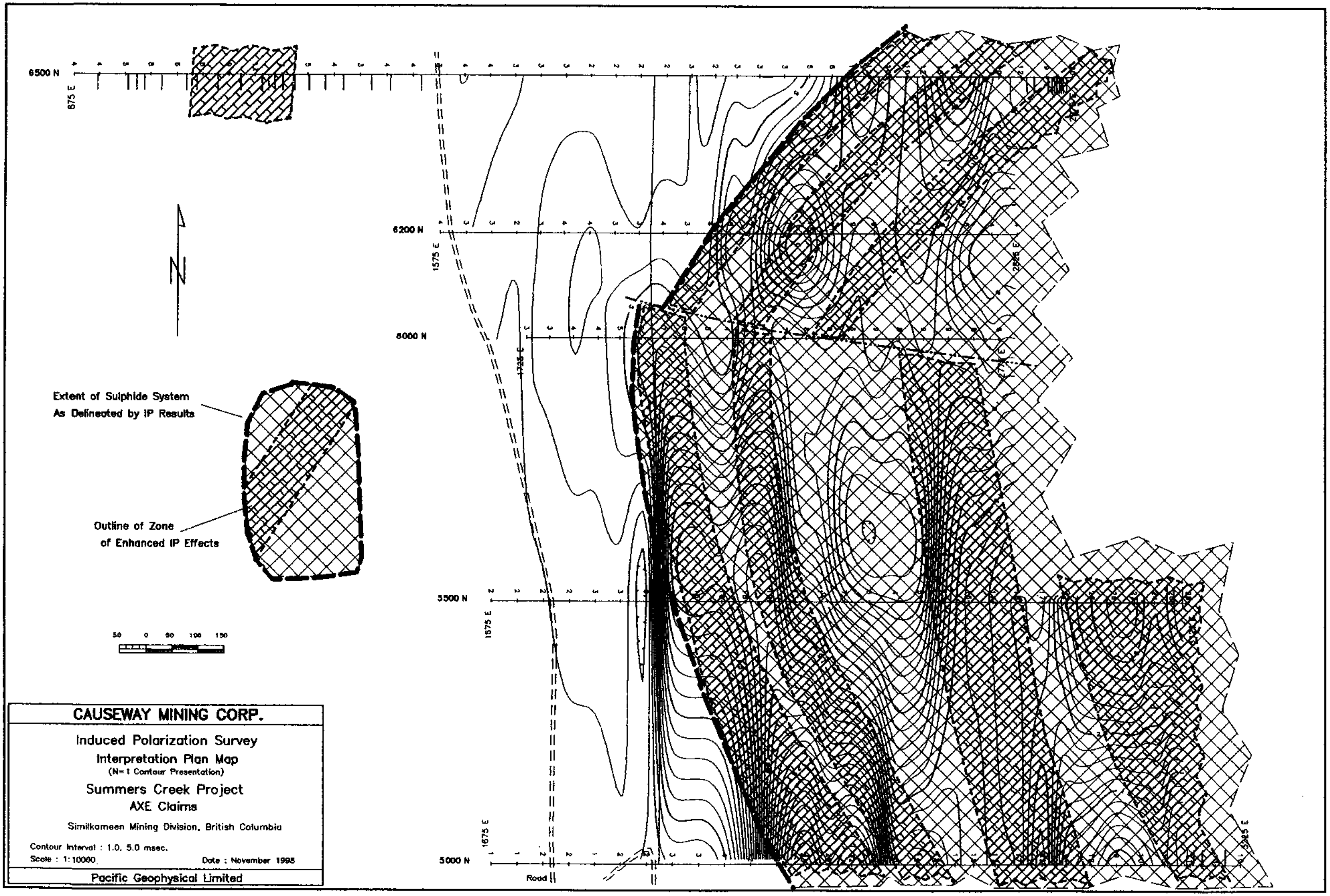
Weak increase in polarization

CAUSEWAY MINING CORP.

INDUCED POLARIZATION SURVEY
Line 6500 N
AXE Claims, Similkameen M.D., B.C.

Date: October 1998
Interpretation by:
Scale 1:6500

Pacific Geophysical


6500 N
875 E
6200 N
1575 E
6000 N
1725 E
5500 N
1575 E
5000 N
1675 E
Road
Extent of Sulphide System
As Delineated by IP Results
Outline of Zone
of Enhanced IP Effects
50 0 50 100 150
CAUSEWAY MINING CORP.
Induced Polarization Survey
Interpretation Plan Map
(N=1 Contour Presentation)
Summers Creek Project
AXE Claims
Similkameen Mining Division, British Columbia
Contour Interval : 1.0, 5.0 msec.
Scale : 1:10000
Date : November 1998
Pacific Geophysical Limited

Dwg. IP—1

Appendix D - Rock Sample Descriptions and Analytical Results

AXE PROPERTY
ROCK SAMPLE DESCRIPTIONS

Sample No.	Description	Cu	Mo	Au	
WEST-R1	Grab sample from Trench WT-1A. Fine grained crystal tuff with abundant malachite/manganese on fractures.	3761			
WEST-R2 (cut specimen)	Grab sample from WT-1A trench 35 m east of West-R1 sample. Fine grained crystal tuff, chlorite alteration, weakly magnetic. Malachite/azurite on fractures.	2572			
WEST-R3 (cut specimen)	Grab sample from Trench WT-3. Pinkish, fine grained diorite with Kspar-epidote alteration, no carbonate, moderately magnetic. Disseminated and fracture controlled chalcopyrite (~2%).	1627			
WEST-R4 (cut specimen)	Grab sample from trench 45 m north of West-R3. Pale green, altered intrusive(?) with fracture fillings and massive clots of magnetite. Epidote-calcite fractures. Minor Kspar. Malachite/azurite on fractures. Possible chalcocite.	3187			
WEST-R5 (cut specimen)	Grab sample from trench between holes PA-45 and DDH 69-6. Greenish, fine grained crystal tuff(?). Strongly epidotized, no carbonate, moderately magnetic, low copper.	1164			
ADIT-R1 (cut specimen)	Gray-green, very fractured, manganese stained diorite, moderately magnetic, carbonate throughout, malachite on fractures. No chalcopyrite noted, possible chalcocite. Random chip across 1.5 metres.	6318			
ADIT-R2 (cut specimen)	Very limonitic, bleached, fine grained, altered (argillic) intrusive with 3-4% fine grained disseminated pyrite. No carbonate, non magnetic. No copper noted. Continuous chip across 0.75 metres.	139			
ADIT-R3	Yellowish, very fractured, highly altered diorite(?). Disseminated pyrite 2-3%. Non magnetic. No carbonate or copper noted. Continuous chip across 1.0 metre. To test for Kspar.	89			
ADIT-R4 (cut specimen)	Dark green, manganese stained, fine grained diorite. Chlorite alteration predominates. Very minor carbonate on fractures. Moderately magnetic. Disseminated pyrite/chalcopyrite 2%. Grab sample of coarse talus below road bank outcrop.	3193			
ADIT-R5 (cut specimen)	Green, fine grained diorite porphyry. Chlorite alteration. Moderate to strongly magnetic (2-3% magnetite). Minor carbonate alteration of feldspars. Pyrite/chalcopyrite 3-4%, malachite on fractures. Sample across 1.5 metres.	3135			
ADIT-R6	Limonitic, bleached zone (fault?). No copper. Random chip across 2 metres. Near holes PA-20, P27, DDH 72-1	358			
ADIT-R7 (cut specimen)	Green-brown, limonitic, fine grained crystal tuff(?). Strong malachite on fractures and in matrix. Disseminated chalcopyrite <1%. Noted one grain of ***native Cu***. Weakly magnetic, minor carbonate. Located 20 metres NNE of ADIT-R6. Grab across 1.5 metres.	2.9%			
SOUTH-R1	Grab sample of pale gray-green, medium grained monzonite-diorite. Kspar alteration in matrix and along fractures. Nil carbonate. Non magnetic. Mafics (20-25%) are chlorite altered. Disseminated pyrite/chalcopyrite 2%. Malachite on fractures and in matrix.	1482			
SOUTH-R2	Grab sample of dark green, fine to medium grained mafic porphyry. Disseminated sulphides (pyrite>chalcopyrite) 3-4%. Minor malachite on fractures. Moderately magnetic, nil carbonate. Slickensides common.	2568			
SOUTH-R3	Limonitic, fractured, dark green mafic porphyry(?). Similar to R2. Random grab over 1 x 1 metre.	3464			
SOUTH-R4	Grab sample of limonitic, very fractured volcanic (mafic phenocrysts noted). Occasional malachite on fractures. Sulphides ~1% (pyrite>>chalcopyrite).	361			
SOUTH-R5 (cut specimen)	Grab sample of green, medium grained mafic (hornblende) porphyry (gabbroic?). Chlorite alteration, nil carbonate. Weak to moderately magnetic. Disseminated clots of pyrite/chalcopyrite to 2 mm. Total sulphides ~5% (chalcopyrite 2%). Near holes M2, PA-70.	3174			
SOUTH-R6	Very limonitic, fractured volcanic, minor malachite. Random chip across 1.5 metres. To test for K content outside main zone.	1315			
SOUTH-R7 (cut specimen)	Grab sample of green, fine to medium grained intermediate intrusive (diorite?). Mafics are chlorite altered. Nil carbonate, moderately magnetic (3%+ magnetite). Local Kspar alteration. Occasional epidote ± Kspar±quartz fracture veinlets. Pyrite/chalcopyrite disseminated 1-2%. Near holes A1, PA-70.	2175			

Intertek Testing Services
Bondar Clegg

Geochemical Lab Report

REPORT: V98-01035.0 (COMPLETE)

REFERENCE:

CLIENT: MR. JOHN KERR & ASSOCIATES LTD.

PROJECT: NONE GIVEN

SUBMITTED BY: J. KERR

DATE RECEIVED: 02-JUL-98 DATE PRINTED: 10-JUL-98

DATE APPROVED		ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION	EXTRACTION	METHOD
980707	1 Au30	Gold	19	5 PPB	Fire Assay of 30g	30g Fire Assay - AA
980707	2 Ag	Silver	19	0.2 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	3 Cu	Copper	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	4 CuOL	Copper, semiquant	1	0.1 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	5 Pb	Lead	19	2 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	6 Zn	Zinc	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	7 Mo	Molybdenum	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	8 Ni	Nickel	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	9 Co	Cobalt	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	10 Cd	Cadmium	19	0.2 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	11 Bi	Bismuth	19	5 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	12 As	Arsenic	19	5 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	13 Sb	Antimony	19	5 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	14 Fe	Iron	19	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	15 Mn	Manganese	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	16 Te	Tellurium	19	10 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	17 Ba	Barium	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	18 Cr	Chromium	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	19 V	Vanadium	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	20 Sn	Tin	19	20 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	21 W	Tungsten	19	20 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	22 La	Lanthanum	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	23 Al	Aluminum	19	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	24 Mg	Magnesium	19	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	25 Ca	Calcium	19	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	26 Na	Sodium	19	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	27 K	Potassium	19	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	28 Sr	Strontium	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	29 Y	Yttrium	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	30 Ga	Gallium	19	2 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	31 Li	Lithium	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	32 Nb	Niobium	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	33 Sc	Scandium	19	5 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	34 Ta	Tantalum	19	10 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	35 Ti	Titanium	19	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980707	36 Zr	Zirconium	19	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK	19	2 -150	19	CRUSH/SPLIT & PULV.	19

REPORT COPIES TO: MR. JOHN R. KERR, P. ENG. INVOICE TO: MR. JOHN R. KERR, P. ENG.

Intertek Testing Services
Bondar Clegg

Geochemical Lab Report

CLIENT: MR. JOHN KERR & ASSOCIATES LTD. PROJECT: NONE GIVEN

REPORT: V98-01035.0 (COMPLETE) DATE RECEIVED: 02-JUL-98 DATE PRINTED: 10-JUL-98

SAMPLE NUMBER	ELEMENT UNITS	Au30 PPB	Ag PPM	Cu PPM	CuOL PCT	Pb PPM	Zn PPM	Mo PPM	Ni PPM	Co PPM	Cd PPM	Bi PPM	As PPM	Sb PPM	Fe PCT	Mn PPM	Te PPM	Ba PPM	Cr PPM	V PPM	Sn PPM	W PPM	La PPM	Al PCT	Mg PCT	Ca PCT	Na PCT	K PCT	Sr PPM	Y PPM	Ga PPM	Li PPM	Nb PPM	Sc PPM	Ta PPM	Ti PCT	Zr PPM
ADIT-R 1		27	1.5	6318		9	812	16	5	33	6.6	<5	31	<5	5.24	3458	<10	122	14	128	<20	<20	11	2.16	1.87	0.81	0.06	0.38	30	12	6	21	11	7	<10	0.02	9
ADIT-R 2		15	2.4	139		11	109	6	<1	<1	<.2	<5	64	<5	4.37	278	<10	176	21	57	<20	<20	7	1.34	0.60	0.02	0.05	0.74	19	1	4	14	5	<5	<10	<.01	9
ADIT-R 3		12	0.3	89		7	58	2	2	10	<.2	<5	25	<5	4.07	473	<10	55	22	50	<20	<20	10	1.08	0.51	0.94	0.05	0.54	48	6	3	5	4	<5	<10	0.01	5
ADIT-R 4		17	3.2	3193		4	416	25	2	28	0.5	<5	10	<5	6.53	2728	<10	48	7	116	<20	<20	9	2.88	2.43	1.25	0.04	0.43	32	8	8	27	10	<5	<10	0.06	8
ADIT-R 5		11	1.7	3135		7	1073	29	2	43	8.5	<5	35	<5	7.20	1904	<10	50	5	140	<20	<20	9	2.67	2.43	0.98	0.04	0.28	26	11	8	30	11	6	<10	0.01	10
ADIT-R 6		156	2.3	358		17	101	6	<1	<1	<.2	<5	60	<5	7.47	200	<10	154	13	133	<20	<20	8	1.33	0.47	0.10	0.10	0.74	48	2	6	8	11	<5	<10	0.02	8
ADIT-R 7		41	4.3	>10000	2.4	11	215	7	2	21	0.2	<5	8	<5	5.56	1902	<10	39	<1	148	<20	<20	14	2.30	2.02	0.58	0.06	0.22	23	14	8	22	14	8	<10	0.14	13
SOUTH-R 1		56	0.9	1482		10	33	5	8	16	<.2	<5	<5	<5	1.93	169	<10	46	27	104	<20	<20	6	1.27	0.91	1.13	0.08	0.20	68	9	5	13	9	<5	<10	0.18	3
SOUTH-R 2		112	1.5	2568		<2	41	40	15	18	0.7	<5	<5	<5	3.83	308	<10	31	53	140	<20	<20	4	1.53	1.17	1.88	0.11	0.18	159	7	4	9	11	6	<10	0.18	4
SOUTH-R 3		76	1.0	3464		2	45	9	13	23	1.7	<5	<5	<5	2.19	242	<10	5	45	96	<20	<20	5	1.39	0.99	2.23	0.08	0.17	120	8	5	11	8	6	<10	0.20	4
SOUTH-R 4		26	0.4	361		<2	44	6	7	17	<.2	<5	<5	<5	4.70	503	<10	83	24	116	<20	<20	5	2.72	1.27	1.64	0.30	0.28	130	8	7	12	9	6	<10	0.23	5
SOUTH-R 5		112	1.6	3174		<2	49	9	23	42	0.4	<5	<5	<5	6.27	363	<10	54	75	216	<20	<20	5	2.13	1.88	2.09	0.10	0.81	121	10	8	10	17	10	<10	0.27	4
SOUTH-R 6		45	4.8	1315		3	45	29	14	32	0.9	<5	<5	<5	5.03	480	<10	24	39	153	<20	<20	6	1.79	1.37	1.49	0.11	0.13	181	8	6	9	12	11	<10	0.21	6
SOUTH-R 7		33	1.1	2175		<2	59	8	20	24	0.9	<5	<5	<5	5.82	391	<10	27	67	198	<20	<20	6	1.80	1.35	2.09	0.11	0.25	81	8	7	10	15	10	<10	0.22	3
WEST-R 1		637	1.1	3761		<2	66	<1	9	16	<.2	<5	<5	<5	5.06	770	<10	51	21	134	<20	<20	4	2.66	2.05	1.05	0.04	0.18	101	9	6	9	11	6	<10	0.14	4
WEST-R 2		34	0.2	2572		<2	79	<1	5	14	<.2	<5	<5	<5	3.84	1620	<10	46	46	70	<20	<20	5	2.66	1.52	1.00	0.04	0.22	131	9	5	10	6	<5	<10	0.09	6
WEST-R 3		108	0.4	1627		<2	39	<1	5	11	<.2	<5	<5	<5	4.24	564	<10	246	11	160	<20	<20	6	1.89	1.32	2.91	0.06	0.22	89	8	6	5	12	6	<10	0.12	5
WEST-R 4		37	0.6	3187		<2	68	8	11	48	<.2	<5	7	<5	9.08	492	<10	25	27	199	<20	<20	11	2.19	1.71	1.50	0.09	0.07	148	14	7	4	16	10	<10	0.23	22
WEST-R 5		81	<.2	1164		<2	25	<1	7	9	<.2	<5	<5	<5	4.72	372	<10	36	27	135	<20	<20	5	2.04	1.47	1.22	0.06	0.15	101	9	6	5	11	6	<10	0.16	5

Rock Sample Descriptions
Summer Creek Project - Axe Claims

Sample No.	Description	Cu ppm
A-01	Rampart Creek road. Altered, rusty granodiorite. Chip sample/1.5 meters	7
A-02	Rampart Creek road. Altered, rusty, bleached granodiorite Chip sample/1 meter	62
A-03	Rampart Creek road. Altered, rusty Nicola volcanic rx Chip sample/ 2 meters. Weathered stibnite	192
A-04	Rampart Creek road. Rusty Nicola volcanic rock Chip sample/ 1 meter	10
A-05	Road to Adit Zone. Volcanics, relatively unaltered	4
A-06	Road to Adit Zone. Rusty gossan zone - volcanic rocks	6
A-07	Road to Adit Zone. k felds rich syenite, relatively unaltered	13
A-08	300 meters north of Adit Zone. Rusty altd. volcanic rocks Chip sample/1.6 meters	11 (798ppbAu)
A-09	Road to Adit Zone. Felsic Dike rock	4
AR-10	Axe 1400 claim. Qtz vein in Nicola volcanic rock.	10
AR-11	Miss Showings. Altered and bleached Nicola volcanic rx.	20
AR-12	Miss Showings. Altered granodiorite/qtz diorite -argillic altn. Chip sample/ 1.5meters	85
AR-13	Miss Showings. Highly altered (argillic) granodiorite. Much secondary clay. Very oxidized. Chip sample/1.2 meters	10
AR-14	Coyne Showing. Highly sheared and altered Nicola volcanic rx Malachite and minor cpy,pyr	1.2%
AR-15	Coyne Showing. Rusty, altered volcanic rx Chip/0.7 meter.	44
AR-16	Coyne Showing. Rusty, sheared volcanic rx. Chip/3 meters	466
AR-17	Coyne Showing. Rusty sheared volcanic rx. Chip/0.5 meter	109
AR-18	Axe 1000 claim. Showing area of altered volcanic rx. Minor malachite in fractures and veins. Chip/0.5 meter	187 (64ppbAu)
AR-19	Axe 1000 claim. Old exploration pit. Altered on fractures No noted mineralization. Chip/0.2 meter	54
AR-20	Highway #5. Summers creek turn-off. Rusty, altered volcanic rx	11
AR-21	Highway #5. Rusty, altered, bleached Nicola volcanic rx.	11
AR-22	Highway #5 - Allison Lake. Large gossan zone. Altered Nicola volcanic rx near contact Allison pluton	9
AR-23	Highway #5 - Allison Lake. Altered, rusty, pink Allison Lake syenite. Chip sample/3 meters.	11
AR-24	McKenzie Creek road. Allison Lake syenite - minor alteration	10

ITS Intertek Testing Services
Bondar Clegg

Geochemical Lab Report

REPORT: V98-01527.0 (COMPLETE)

REFERENCE:

CLIENT: MR. JOHN KERR & ASSOCIATES LTD.

PROJECT: AXE

SUBMITTED BY: J. KERR

DATE RECEIVED: 24-AUG-98 DATE PRINTED: 28-AUG-98

DATE APPROVED	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION	EXTRACTION	METHOD
980827	1 Au30	Gold	15	5 PPB	Fire Assay of 30g	30g Fire Assay - AA
980827	2 Ag	Silver	15	0.2 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	3 Cu	Copper	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	4 CuOL	Copper, semiquant	1	0.1 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	5 Pb	Lead	15	2 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	6 Zn	Zinc	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	7 Mo	Molybdenum	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	8 Ni	Nickel	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	9 Co	Cobalt	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	10 Cd	Cadmium	15	0.2 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	11 Bi	Bismuth	15	5 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	12 As	Arsenic	15	5 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	13 Sb	Antimony	15	5 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	14 Fe	Iron	15	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	15 Mn	Manganese	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	16 Te	Tellurium	15	10 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	17 Ba	Barium	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	18 Cr	Chromium	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	19 V	Vanadium	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	20 Sn	Tin	15	20 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	21 W	Tungsten	15	20 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	22 La	Lanthanum	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	23 Al	Aluminum	15	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	24 Mg	Magnesium	15	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	25 Ca	Calcium	15	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	26 Na	Sodium	15	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	27 K	Potassium	15	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	28 Sr	Strontium	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	29 Y	Yttrium	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	30 Ga	Gallium	15	2 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	31 Li	Lithium	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	32 Nb	Niobium	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	33 Sc	Scandium	15	5 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	34 Ta	Tantalum	15	10 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	35 Ti	Titanium	15	0.01 PCT	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
980827	36 Zr	Zirconium	15	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK	15	2 -150	15	CRUSH ONLY	15
				PULVERIZATION	15

REPORT COPIES TO: MR. JOHN R. KERR, P. ENG.

INVOICE TO: MR. JOHN R. KERR, P. ENG.

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Intertek Testing Services
Bondar Clegg

Geochemical Lab Report

CLIENT: MR. JOHN KERR & ASSOCIATES LTD. PROJECT: NONE GIVEN
REPORT: V98-00793.0 (COMPLETE) DATE RECEIVED: 28-MAY-98 DATE PRINTED: 12-JUN-98

SAMPLE NUMBER	ELEMENT UNITS	Au30 PPB	Ag PPM	Cu PPM	Pb PPM	Zn PPM	Mo PPM	As PPM	Sb PPM	Hg PPM	W PPM
A-01		7	<.2	6	5	48	7	1.4	0.3	<.010	<20
A-02		26	1.9	62	15	20	22	7.5	0.8	0.013	<20
A-03		116	2.8	192	22	31	4	10.4	2.9	0.012	<20
A-04		<5	<.2	10	6	37	1	5.9	0.6	<.010	<20
A-05		<5	<.2	4	5	50	<1	1.5	0.4	<.010	<20
A-06		<5	<.2	6	5	31	1	1.6	0.3	<.010	<20
A-07		<5	<.2	13	10	36	1	1.9	0.2	<.010	<20
A-08		798	0.3	11	6	54	2	2.8	0.6	<.010	<20
A-09		9	<.2	4	8	5	2	<1.0	<.2	<.010	<20

ITS

Intertek Testing Services
Bondar Clegg

Geochemical Lab Report

CLIENT: MR. JOHN KERR & ASSOCIATES LTD. PROJECT: AXE

REPORT: V98-01527.0 (COMPLETE) DATE RECEIVED: 24-AUG-98 DATE PRINTED: 28-AUG-98

SAMPLE NUMBER	Au30 PPB	Ag PPM	Cu PPM	CuOL PCT	Pb PPM	Zn PPM	Mo PPM	Ni PPM	Co PPM	Cd PPM	Bi PPM	As PPM	Sb PPM	Fe PCT	Mn PPM	Te PPM	Ba PPM	Cr PPM	V PPM	Sn PPM	W PPM	La PPM	Al PCT	Mg PCT	Ca PCT	Na PCT	K PCT	Sr PPM	Y PPM	Ga PPM	Li PPM	Nb PPM	Sc PPM	Ta PPM	Ti PCT	Zr PPM
AR10	<5	<.2	10		3	44	1	10	9	<.2	<5	<5	<5	1.77	729	<10	56	126	52	<20	<20	<1	1.15	1.08	2.63	0.03	0.30	53	3	<2	7	<1	<5	<10	0.07	<1
AR11	<5	<.2	20		<2	42	4	3	3	<.2	<5	<5	<5	1.86	76	<10	56	110	4	<20	<20	3	0.59	0.04	0.01	0.04	0.27	2	2	<2	<1	<1	<5	<10	<.01	1
AR12	9	0.4	85		8	56	9	3	2	<.2	<5	8	<5	>10.00	62	<10	85	139	145	<20	<20	5	0.86	0.15	<.01	<.01	0.12	3	<1	<2	1	1	<5	<10	<.01	<1
AR13	<5	<.2	10		2	20	3	2	<1	<.2	<5	<5	<5	2.05	28	<10	90	88	4	<20	<20	3	0.48	0.07	0.04	0.02	0.20	3	1	<2	<1	<1	<5	<10	<.01	4
AR14	85	7.7	>10000	1.2	10	102	25	2	9	0.8	<5	27	<5	3.61	437	<10	74	22	143	<20	<20	11	3.32	0.91	2.16	0.04	0.20	92	15	7	18	<1	5	<10	0.02	<1
AR15	<5	<.2	44		50	86	1	3	6	1.2	<5	11	<5	2.65	378	<10	69	20	114	<20	<20	7	2.30	0.62	1.56	0.05	0.13	122	12	7	11	<1	<5	<10	0.10	<1
AR16	126	1.6	466		15	40	5	5	4	<.2	<5	14	<5	6.55	341	<10	14	40	215	<20	<20	7	1.85	1.26	0.45	0.09	0.22	28	6	6	19	1	9	<10	0.06	<1
AR17	<5	0.2	109		8	45	3	6	8	<.2	<5	10	<5	5.74	460	<10	14	18	250	<20	<20	11	3.14	0.65	2.10	0.05	0.11	52	11	13	13	<1	9	<10	0.27	<1
AR18	64	0.3	187		7	64	5	15	19	<.2	<5	18	<5	6.31	796	<10	66	42	204	<20	<20	12	2.72	0.91	0.59	0.05	0.39	28	17	6	31	<1	10	<10	0.09	<1
AR19	<5	0.2	54		3	59	5	9	11	<.2	<5	12	<5	4.73	515	<10	41	37	159	<20	<20	3	1.54	1.16	1.57	0.15	0.25	63	11	2	14	<1	10	<10	0.25	<1
AR20	<5	<.2	11		3	26	3	3	3	<.2	<5	54	<5	1.55	103	<10	32	74	7	<20	<20	5	0.40	0.05	0.10	0.11	0.11	31	3	2	2	<1	<5	<10	0.10	10
AR21	<5	<.2	11		3	22	9	4	4	<.2	<5	<5	<5	2.13	118	<10	171	67	14	<20	<20	15	0.53	0.29	0.06	0.05	0.20	12	2	<2	1	<1	<5	<10	<.01	5
AR22	<5	<.2	9		2	29	3	3	3	<.2	<5	8	<5	1.68	273	<10	130	90	21	<20	<20	15	0.61	0.22	0.20	0.06	0.16	8	15	<2	2	<1	<5	<10	0.01	9
AR23	<5	<.2	11		4	36	4	2	12	<.2	<5	8	<5	4.78	206	<10	20	34	86	<20	<20	9	1.34	1.38	0.67	0.09	0.05	23	30	5	4	<1	12	<10	0.13	2
AR24	<5	<.2	10		<2	22	3	5	9	<.2	<5	5	<5	5.07	112	<10	11	87	136	<20	<20	1	1.51	1.67	1.34	0.04	0.12	18	3	6	7	1	14	<10	0.01	6

CERTIFICATE OF ANALYSIS
iPL 98I1042

INTERNATIONAL PLASMA LABORATORY LTD.
2036 Columbia Street
Vancouver, B.C.
Canada V5Y 3E1
Phone (604) 879-7878
Fax (604) 879-7898

Beattie Consulting Ltd.
Project : Summers Creek
Shipper : Dr.Morris J.V. Beattie
Shipment: PO#:
Analysis:
Cu(tot) Cu(sol)

Comment:

2 Samples Out: Oct 05, 1998 In: Sep 25, 1998 [104212:06:12:89100598]

CODE	AMOUNT	TYPE	PREPARATION DESCRIPTION	PULP	REJECT
B211	2	Rock	crush, split & pulverize	12M/Dis	03M/Dis

NS=No Sample Rep=Replicate M=Month Dis=Discard

Analytical Summary

##	Code	Method	Units	Description	Element	Limit Low	Limit High
01	0113	Assay	%	Cu Assay by multi-acid	Copper	0.01	100.00
02	0113	Assay	%	Acid Soluble Copper in % - H2SO4 leach	Acid Soluble Cu	0.01	100.00

Document Distribution

1 Beattie Consulting Ltd.
2955 W. 38th Avenue
Vancouver
B.C. V6N 2X2
Canada
Att: Dr. Morris J.V. Beattie

EN	RT	CC	IN	FX
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DL	3D	EM	BT	BL
0	1	0	0	0

Ph:604/263-0695
Fx:604/263-0695
Em:mbeattie@ibm.net

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BC Certified Assayer: David Chiu

iPL
INTERNATIONAL PLASMA LABORATORY LTD.

CERTIFICATE OF ANALYSIS
iPL 98I1042

2036 Columbia Street
Vancouver, B.C.
Canada V5Y 3E1
Phone (604) 879-7878
Fax (604) 879-7898

Client : Beattie Consulting Ltd.
Project: Summers Creek

2 Samples
2=Rock

[104212:06:12:89100598]

Out: Oct 05, 1998
In : Sep 25, 1998

Sample Name	Type	TtlCu %	Sol Cu %	
Summers Creek OK 100%	Rock	1.99	1.76	Adit Zone Chip/1 meter - 88% oxide
Summers Creek RS 80%	Rock	1.93	1.66	Adit Zone Grab - 86% Oxide
Minimum Detection		0.01	0.01	
Maximum Detection		100.00	100.00	
Method		Assay	Assay	

—=No Test Ins=Insufficient Sample Del=Delay Max=No Estimate Rec=ReCheck m=x1000 %=Estimate % NS=No Sample

ITS Intertek Testing Services
Bondar Clegg

Geochemical Lab Report

CLIENT: MR. JOHN KERR & ASSOCIATES LTD. PROJECT: AXE
REPORT: V98-01758.0 (COMPLETE) DATE RECEIVED: 26-SEP-98 DATE PRINTED: 4-OCT-98

SAMPLE NUMBER	ELEMENT UNITS	Au30 PPB	Cu PCT	CuHSL PCT	
R2 ADIT-01		24	0.14	0.089	65% oxide.

Bondar-Clegg & Company Ltd.
130 Pemberton Avenue, North Vancouver, B.C., V7P 2R5, Canada
Tel: (604) 985-0681, Fax: (604) 985-1071

Appendix E - Writer's Certificate

JOHN R. KERR, P. ENG.
Providing Services to the Mineral Exploration Industry

JOHN R. KERR & ASSOCIATES LTD.
Suite 1003 - 470 Granville Street, Vancouver, B.C. Canada V6C 1V5

Writer's Certificate

I, **John R. Kerr**, of the City of Vancouver, British Columbia, hereby certify that:

1) I have been a member of the Association of Professional Engineers of British Columbia since October, 1968 (membership # 6858).

2) I am a graduate of the University of British Columbia (1964), having acquired a Bachelor of Applied Science degree in Geological Engineering.

3) I have practised my profession continuously since graduation, my current office at #1003 - 470 Granville Street in the City of Vancouver, B.C.

4) I am the author of this report, which is based on the recommendations of an earlier report (March,1998) and the field program discussed in this report, which was completed during the period May - November, 1998, under my direct supervision.

5) I have no interest, direct or indirect, in the securities of Causeway Mining Corp., nor do I expect to receive any. I hold no interest, direct or indirect, in the claims or property discussed in this report.

I hereby consent to the use of this report by Causeway Mining Corp. for filing with the Vancouver Stock Exchange, British Columbia Securities Commission, Ministry of Energy and Mines, or other regulatory body in any jurisdiction.

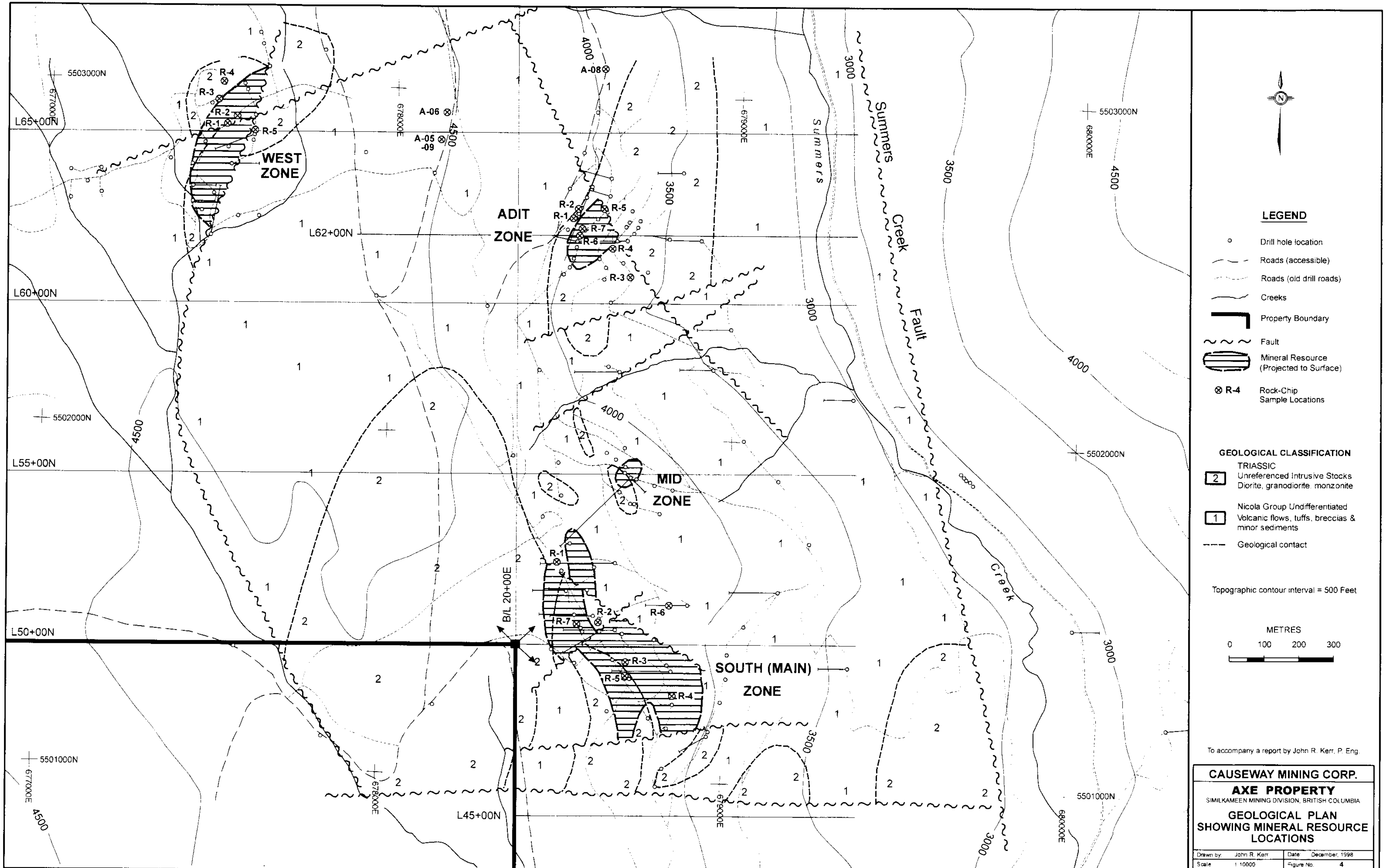
CERTIFIED CORRECT:

PROFESSIONAL
PROVINCE OF
JOHN R. KERR
BRITISH COLUMBIA
ENGINEER

John R. Kerr, P. Eng.

Date: December 4, 1998

OFFICE: (604) 681-2271 • FACSIMILE: (604) 681-3717 • RESIDENCE: (604) 683-3869



WEST ZONE
ADIT ZONE
MID ZONE
SOUTH (MAIN) ZONE
Summers Creek Fault
Summers Creek
L65+00N
L62+00N
L60+00N
L55+00N
L50+00N
L45+00N
B/L 20+00E
5503000N
5502000N
5501000N
677000E
678000E
679000E
680000E
A-08
A-06
A-05 -09
R-1
R-2
R-3
R-4
R-5
R-6
R-7
LEGEND
Drill hole location
Roads (accessible)
Roads (old drill roads)
Creeks
Property Boundary
Fault
Mineral Resource (Projected to Surface)
R-4 Rock-Chip Sample Locations
GEOLOGICAL CLASSIFICATION
2 TRIASSIC Unreferenced Intrusive Stocks Diorite, granodiorite, monzonite
1 Nicola Group Undifferentiated Volcanic flows, tuffs, breccias & minor sediments
Geological contact
Topographic contour interval = 500 Feet
METRES
0 100 200 300
To accompany a report by John R. Kerr, P. Eng.
CAUSEWAY MINING CORP.
AXE PROPERTY
SIMILKAMEEN MINING DIVISION, BRITISH COLUMBIA
GEOLOGICAL PLAN SHOWING MINERAL RESOURCE LOCATIONS
Drawn by: John R. Kerr
Date: December, 1998
Scale: 1:10000
Figure No. 4

Chargeability Model

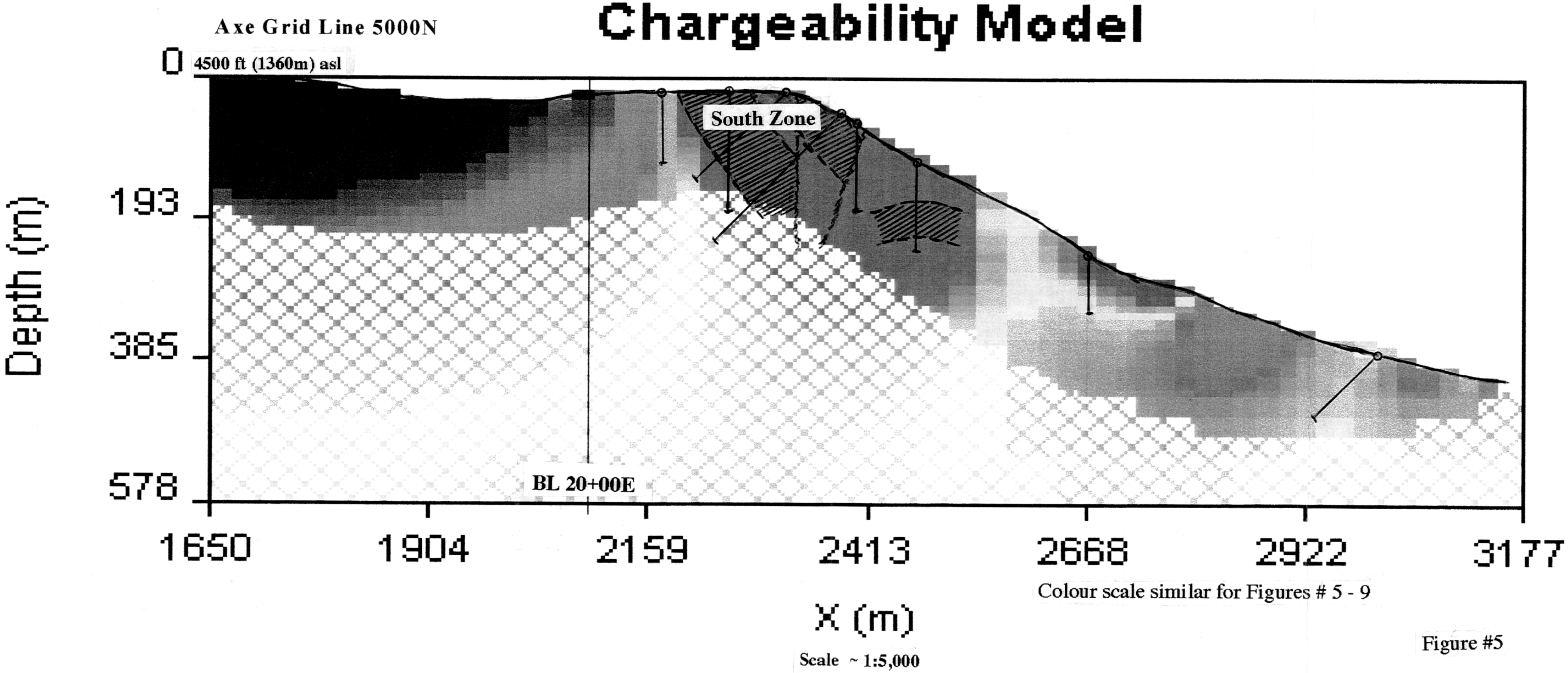
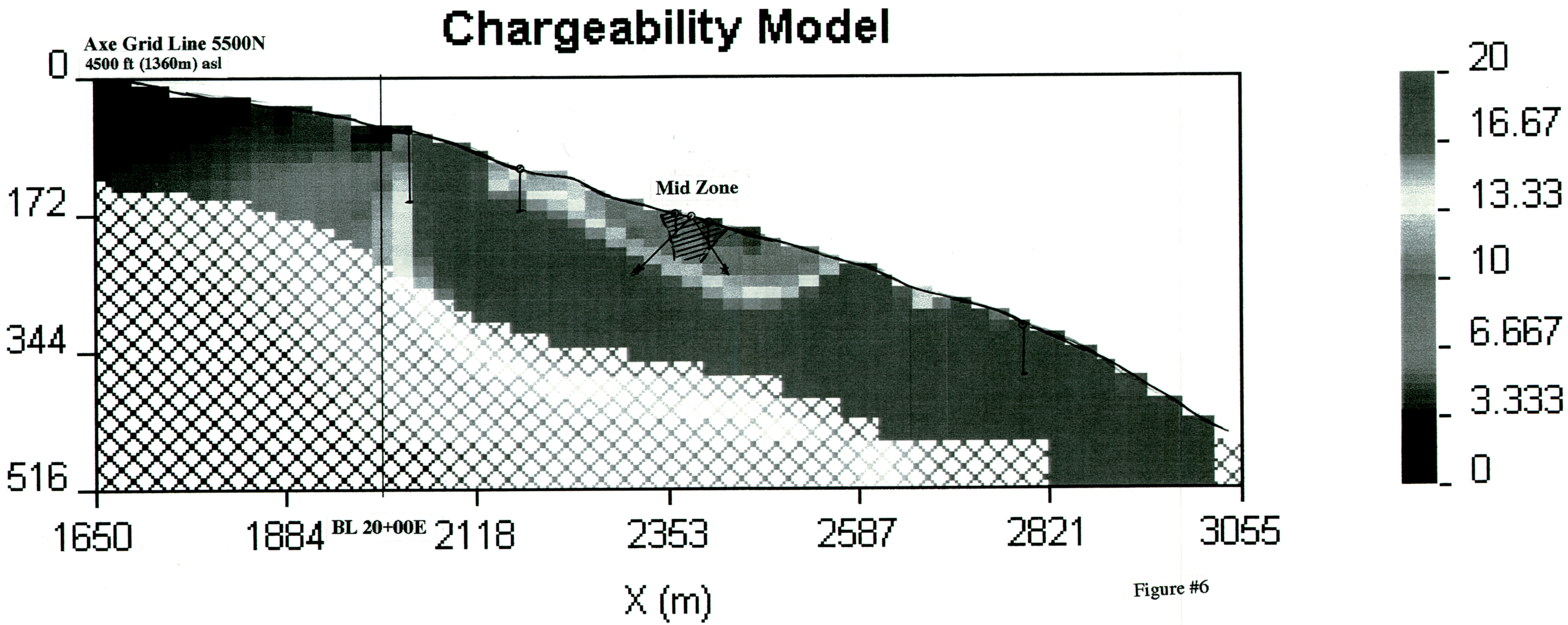


Figure #5



Scale ~ 1:5,000

Figure #6

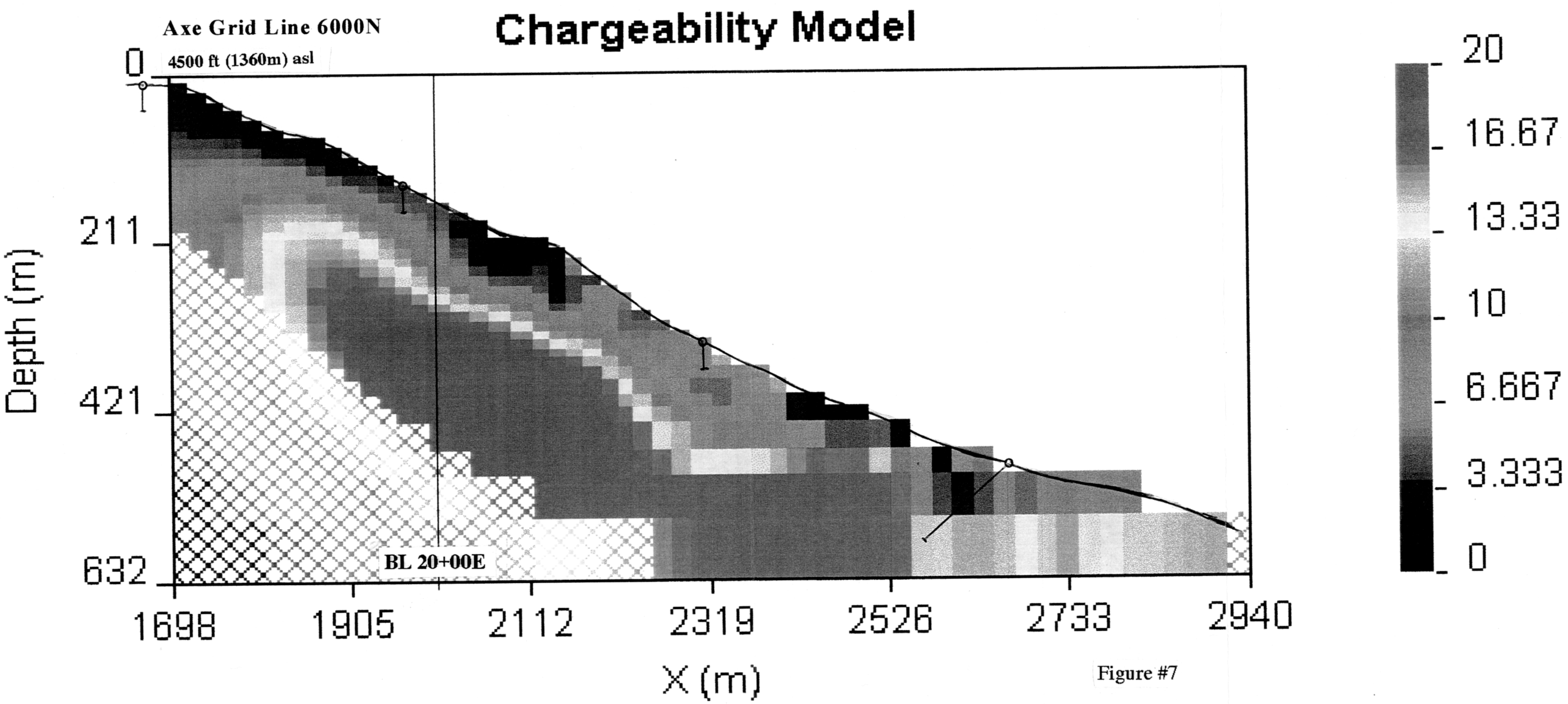
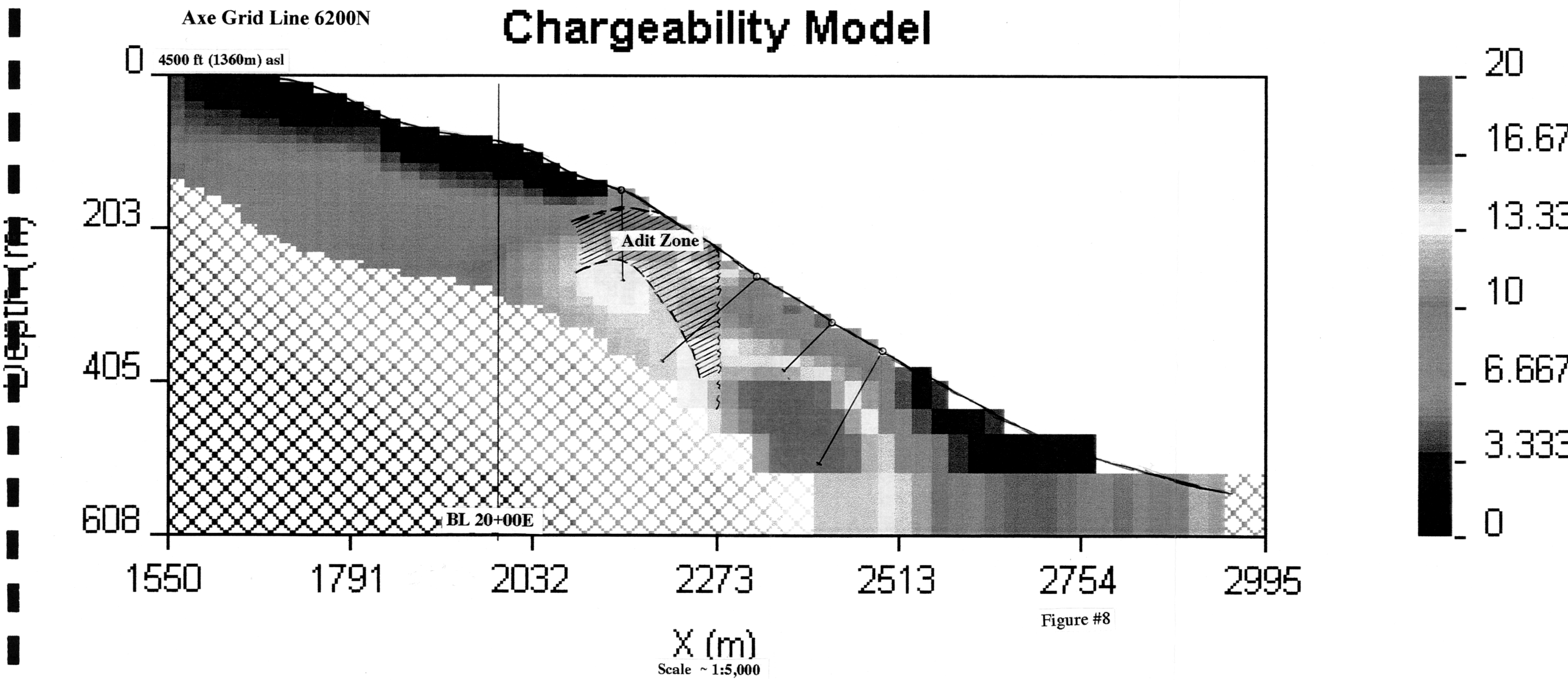


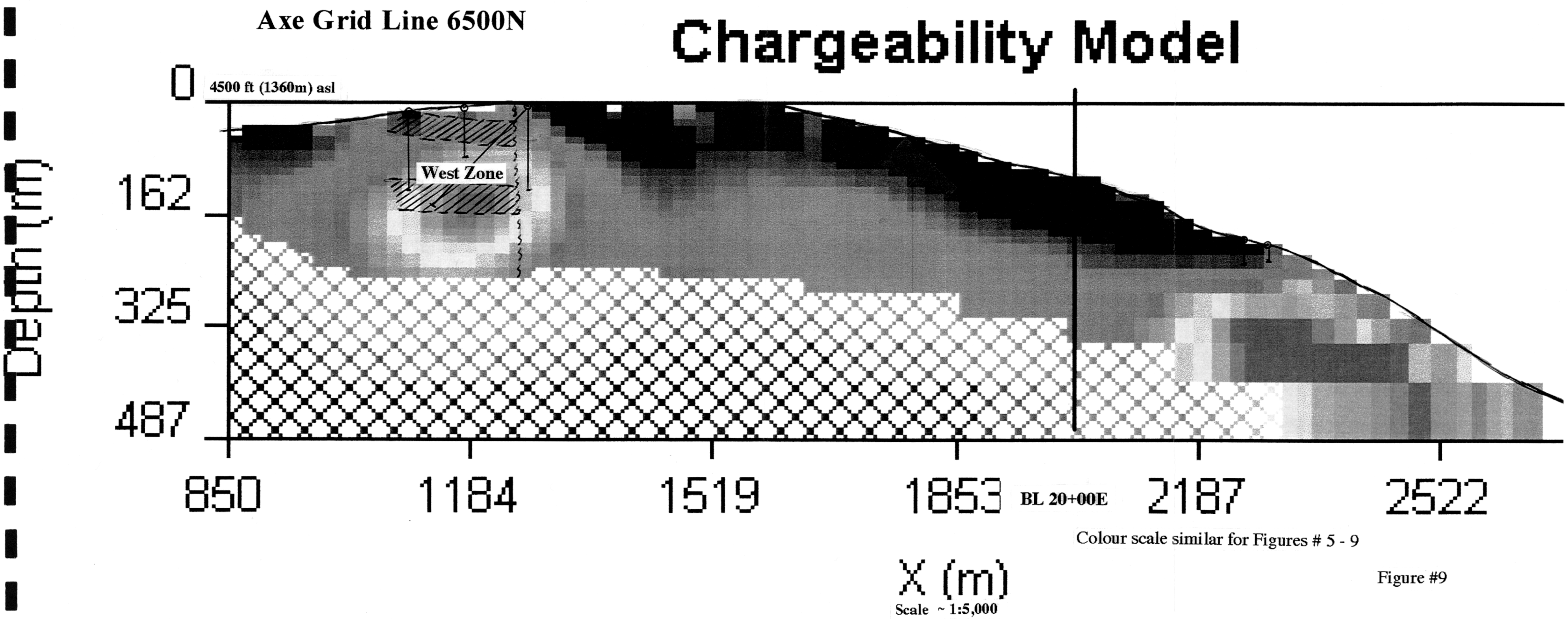
Figure #7

Scale ~ 1:5,000



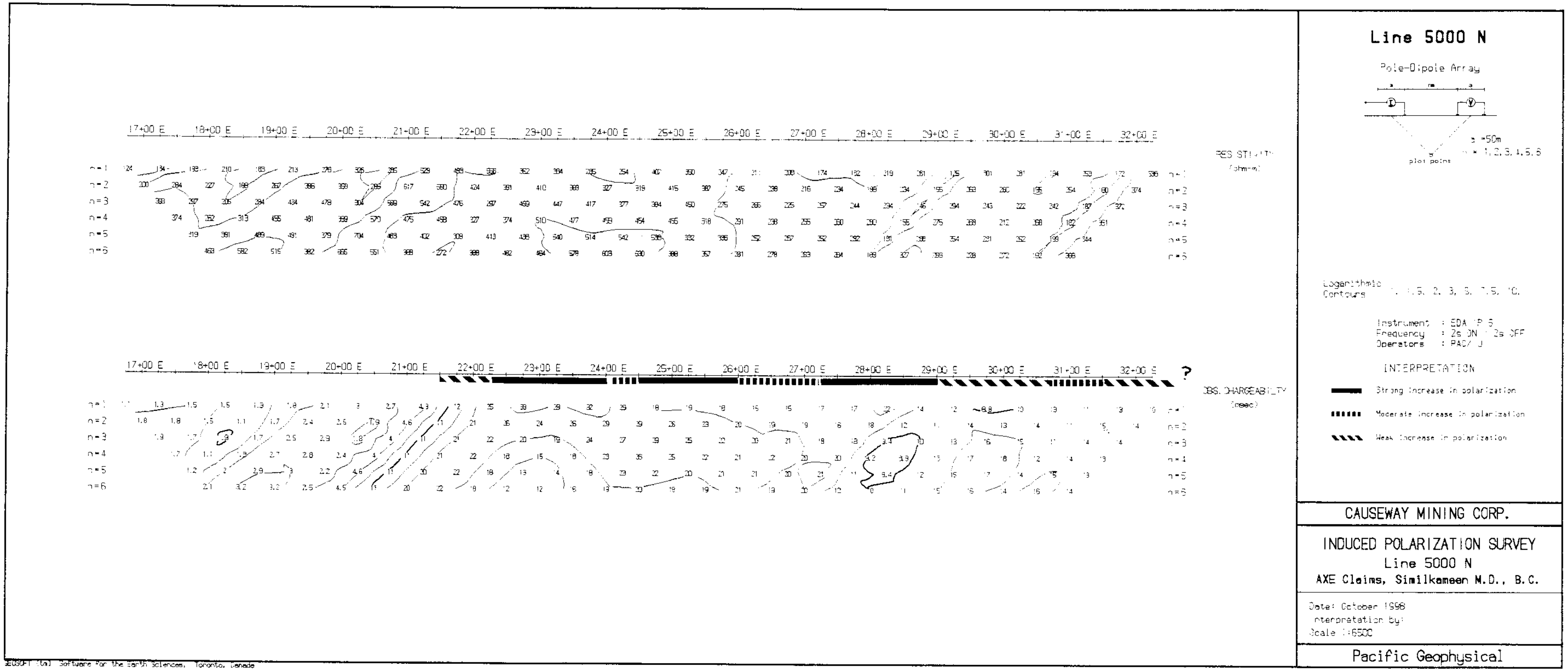
Axe Grid Line 6200N
Chargeability Model
4500 ft (1360m) asl
Adit Zone
BL 20+00E
Depth (m)
0
203
405
608
1550
1791
2032
2273
2513
2754
2995
X (m)
Scale ~ 1:5,000
20
16.67
13.33
10
6.667
3.333
0

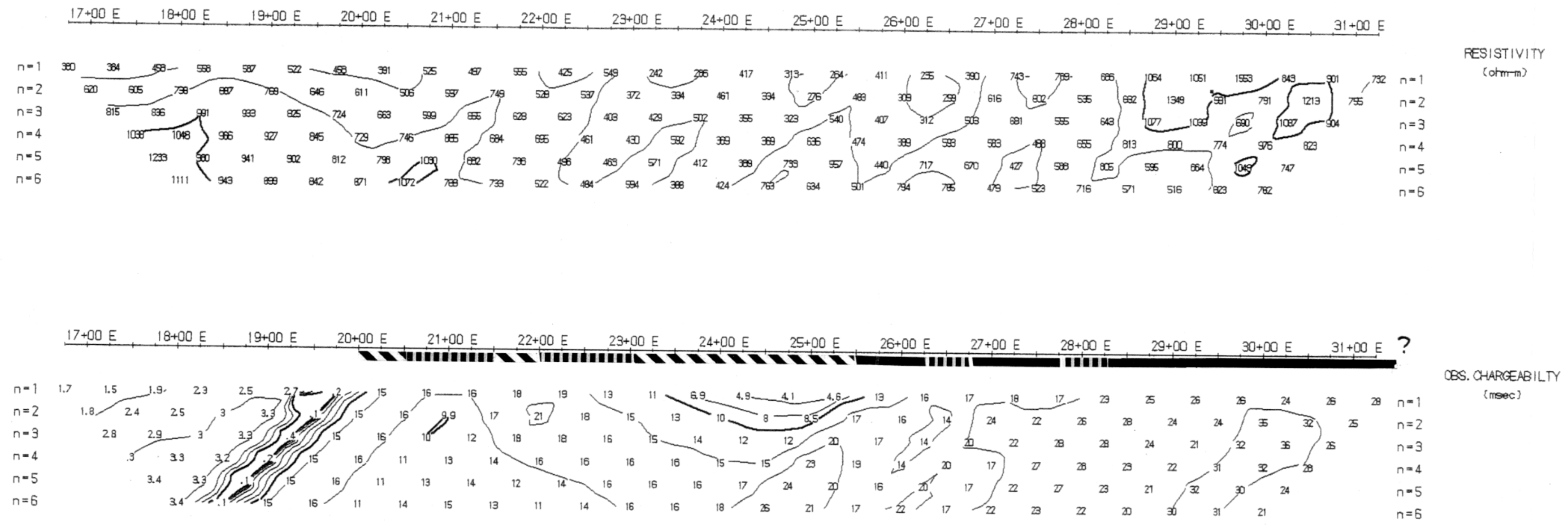
Figure #8



Axe Grid Line 6500N
Chargeability Model
4500 ft (1360m) asl
West Zone
Depth (m)
0
162
325
487
850
1184
1519
1853
BL 20+00E
2187
2522
Colour scale similar for Figures # 5 - 9
X (m)
Scale ~ 1:5,000

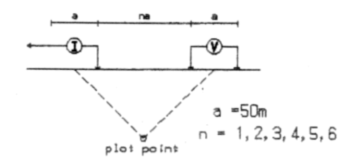
Figure #9


Line 5000 N
Pole-Dipole Array
a = 50m
n = 1, 2, 3, 4, 5, 6
plot point
RESISTIVITY (ohm-m)
OBS. CHARGEABILITY (msec)
Logarithmic Contours
Instrument : EDA IP-6
Frequency : 2s ON / 2s OFF
Operators : PAC / J
INTERPRETATION
Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization
CAUSEWAY MINING CORP.
INDUCED POLARIZATION SURVEY
Line 5000 N
AXE Claims, Similkameen M.D., B.C.
Date: October 1998
Interpretation by:
Scale 1:6500
Pacific Geophysical
GEOSOFT (tm) Software for the Earth Sciences, Toronto, Canada



Line 5500 N

Pole-Dipole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC/IJ

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

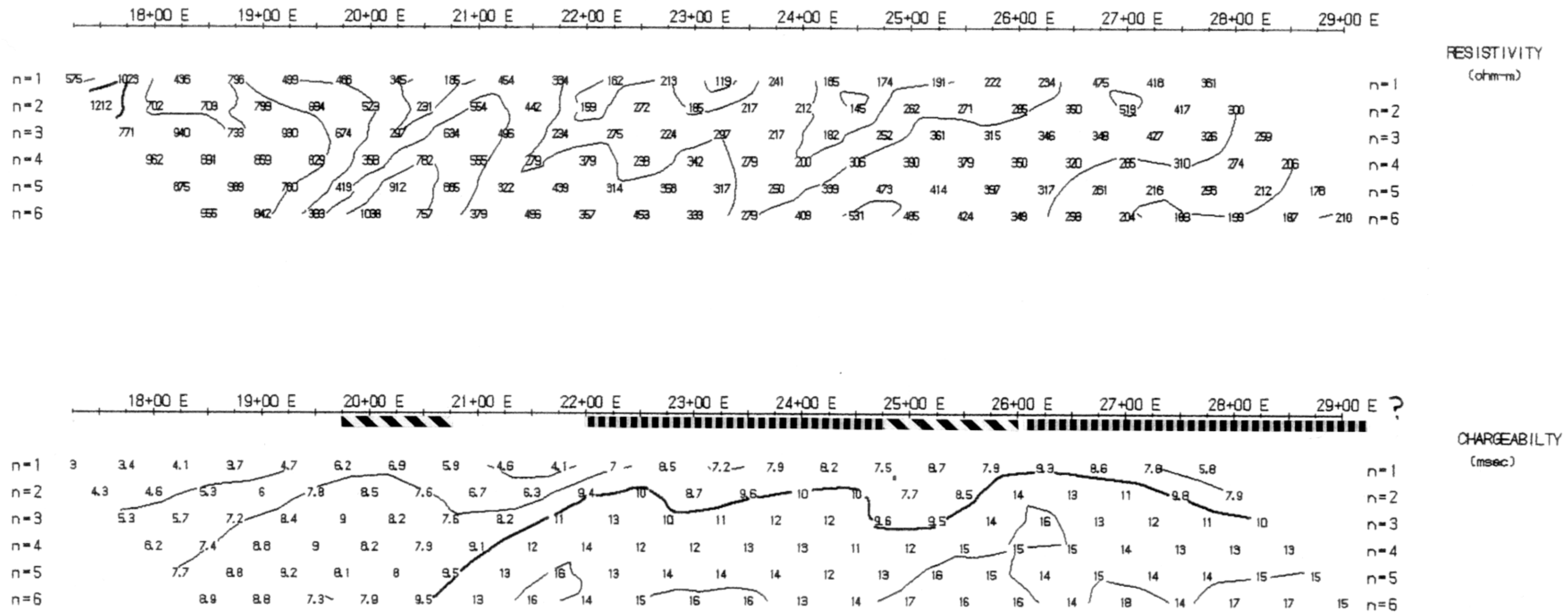
CAUSEWAY MINING CORP.

INDUCED POLARIZATION SURVEY
Line 5500 N
AXE Claims, Similkameen M.D., B.C.

Date: October 1998
Interpretation by:
Scale 1:6500

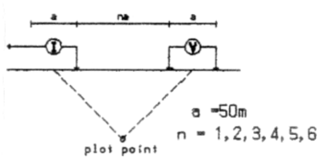
Pacific Geophysical

GEOSOFT (tm) Software for the Earth Sciences, Toronto, Canada



Line 6000 N

Pole-Dipole Array



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC/IJ

INTERPRETATION

Strong increase in polarization
Moderate increase in polarization
Weak increase in polarization

CAUSEWAY MINING CORP.

INDUCED POLARIZATION SURVEY
Line 6000 N
AXE Claims, Similkameen M.D., B.C.

Date: October 1998
Interpretation by:
Scale 1:6500

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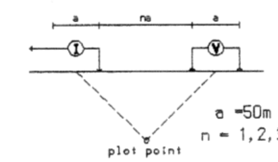
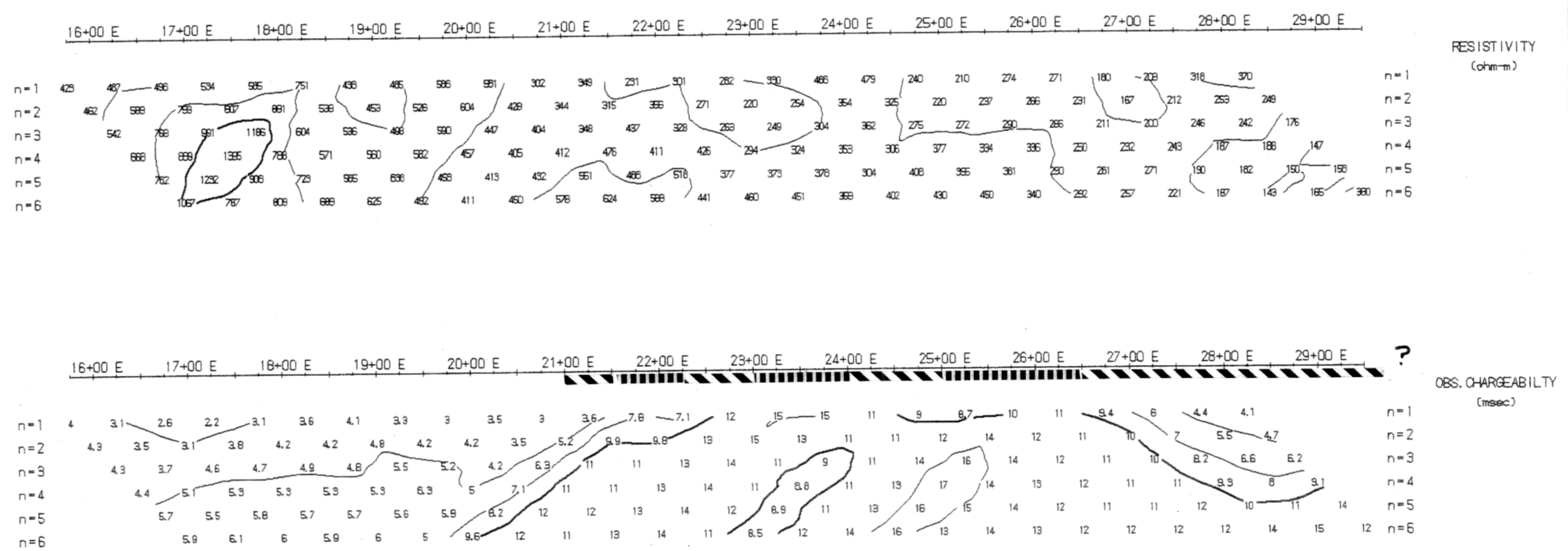
Line 6200 N

Pole-Dipole Array



a =50m
n = 1,2,3,4,5,6



Logarithmic Contours 1, 1.5, 2, 3, 5, 7.5, 10,...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC/IJ

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

CAUSEWAY MINING CORP.

INDUCED POLARIZATION SURVEY
Line 6200 N
AXE Claims, Similkameen M.D., B.C.

Date: October 1998
Interpretation by:
Scale 1:6500

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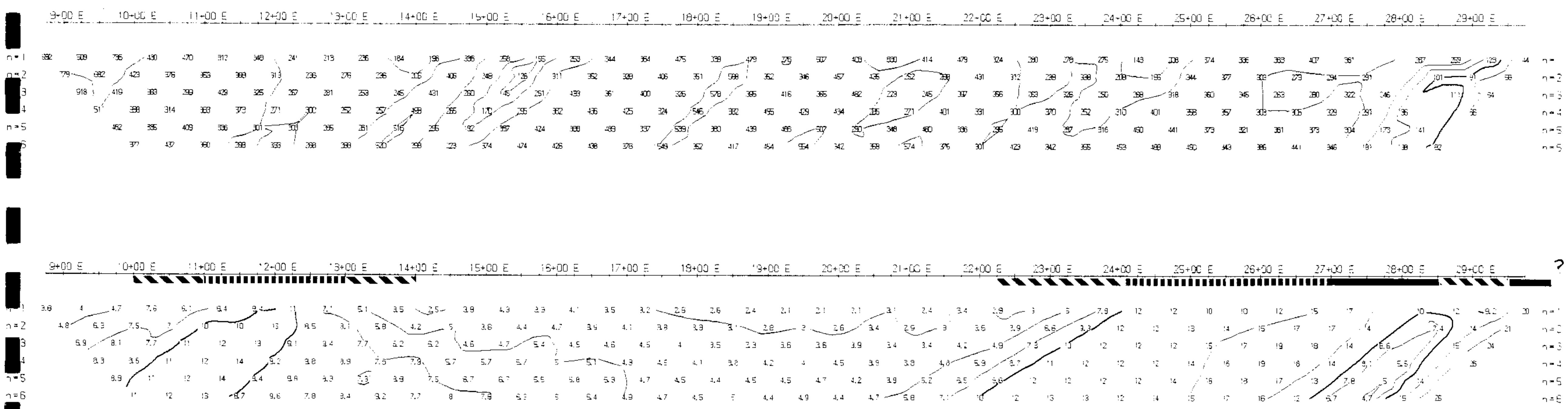

Line 6500 N

Pole-Dipole Array

a =50m
n = 1,2,3,4,5,6
plot point

Logarithmic Contours: 1, 1.5, 2, 3, 5, 7.5, 10, ...

Instrument : EDA IP 6
Frequency : 2s ON / 2s OFF
Operators : PAC/FL

INTERPRETATION

Strong increase in polarization

Moderate increase in polarization

Weak increase in polarization

CAUSEWAY MINING CORP.

INDUCED POLARIZATION SURVEY
Line 6500 N
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