Redfern

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TULSEQUAH CHIEF PROJECT
NORTHWESTERN B.C.

1993 PROPERTY GEOLOGY AND GEOPHYSICS

NTS 104K/12E

Latitude: 58°40'N, Longitude: 133°35'W

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1 OF 2

TULSEQUAH PROJECT

Property Geology - Perspective View

1:1 VERTICAL/HORIZONTAL SCALE

LEGEND

Permian
- Limestone/Chert

Mississipian
- Agglomerates
- Tuffaceous Shales

Early Mississipian
- Limestone
- Gabbro
- Massive Sulphide Horizon
- Felsic Volcanics
- Quartz-Sericite Pyrite Alteration
- Mafic Volcanics (Not a Single Stratigraphic Level)
- Syncline
- Anticline

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SUMMARY

The Tulsequah Chief Project, located in northwestern British Columbia, comprises an area of approximately 120 km^2 containing two polymetallic volcanogenic massive sulphide deposits (Tulsequah Chief and Big Bull) and includes an extensive belt of prospective felsic volcanic rocks over the 9 km between these two deposits.

In 1993 approximately 76 km of grid was established in three separate areas to cover known dacite volcanic horizons between the Tulsequah Chief and Big Bull deposits. Geophysical surveys including Gradient Array Induced Polarization and ground Magnetometer were completed over most grid areas. This report details the revised property geology and the detailed geology and geophysics of two of the grid areas established in 1993.

Significant revisions to the regional geology of the Tulsequah area by the B.C. Geological Survey Branch (Mihalnyuk et al, 1994) suggest that large areas to the south (Sittakanay Block) and to the west (Mount Strong Block) of the property contain possible correlatives to the Paleozoic strata hosting the Tulsequah Chief and Big Bull deposits.

In 1993 a preliminary stratigraphic assemblage was produced by the B.C.G.S (Mihalnyuk et al, 1994) for the Mount Eaton series volcanics, host to both massive sulphide deposits on the property. Based on this stratigraphy, and age dating of felsic volcanics by the Mineral Deposit Research Unit of the University of British Columbia, the Tulsequah Chief and Big Bull Deposits are now interpreted to be hosted by Devono-Mississippian volcanics within the lowermost stratigraphic division of the Mount Eaton series. Sulphide deposition occurs near the contact of two stratigraphic units dominated by mafic and felsic volcanics respectively. Collectively these units underlie over 50% of the current property area.

Several areas, favourable for volcanogenic massive sulphide deposition, were identified by detailed grid mapping and geophysics during the 1993 program. Areas containing mineralization, prospective stratigraphy, geophysical anomalies and geochemical anomalies across the entire 20 km strike of the property are detailed in this report.

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LIST OF FIGURES

1.0 INTRODUCTION

This report summarizes geological and geophysical data collected on the Tulsequah Chief Project from June to October 1993. The report is intended as a regional overview of the property geology and geophysics programs outside of the Tulsequah Chief Deposit and Big Bull Mine areas which are detailed in separate reports (Chandler and Dawson, 1994 and Carmichael and Curtis, 1994).

During 1993 a total of 76 line kilometers of I.P standard survey grid was established on the property roughly covering prospective felsic volcanic stratigraphy situated between the Tulsequah Chief and Big Bull Deposits. Geological mapping at 1:2000 scale was completed over the grids by Redfern personnel. Geophysical surveys, conducted by Delta Geoscience Ltd., included Gradient Array Induced Polarization, over most areas, ground Magnetics over all grids and VLF-EM over minor areas. The entire program was helicopter supported.

Upon completion of the field program all geological data from the 1993 and 1992 mapping programs was compiled and digitized into a series of eight 1:2000 scale map sheets. A property scale compilation of all geological databases including regional initiatives by Payne (1987) and Mihalnyuk (et al, 1994) was also completed.

This report details the revised property geology and the detailed geology and geophysics of two of the grid areas (Southeast and Banker) established in 1993.

1.1 Location, Access and Physiography

The Tulsequah Chief Project is located approximately 110 km southwest of Atlin, B.C., and 64 km northeast of Juneau, Alaska (Fig. 1.1). It is centered on latitude 58°43N and longitude 133° 35'W (NTS 104K/12). The property roughly covers the area directly north east of the confluence of the Tulsequah and Taku Rivers, two major drainages in northwestern B.C. Topographic elevations on the property range from 50m at river level to over 1800m at Mount Eaton - a prominent peak on the property.

Access is by way of fixed wing aircraft from Atlin or Juneau to a 1000m gravel airstrip located in the Tulsequah Valley, and then by helicopter to the property. River boat access is also possible from Juneau.

The property covers all biogeoclimatic zones from wet, dense coastal forest at the lower elevations to sub-alpine scrub at the higher elevations. Two major icefields; Mount Eaton and Manville, are covered by some of the eastern claims and comprise approximately 15% of the present property area.

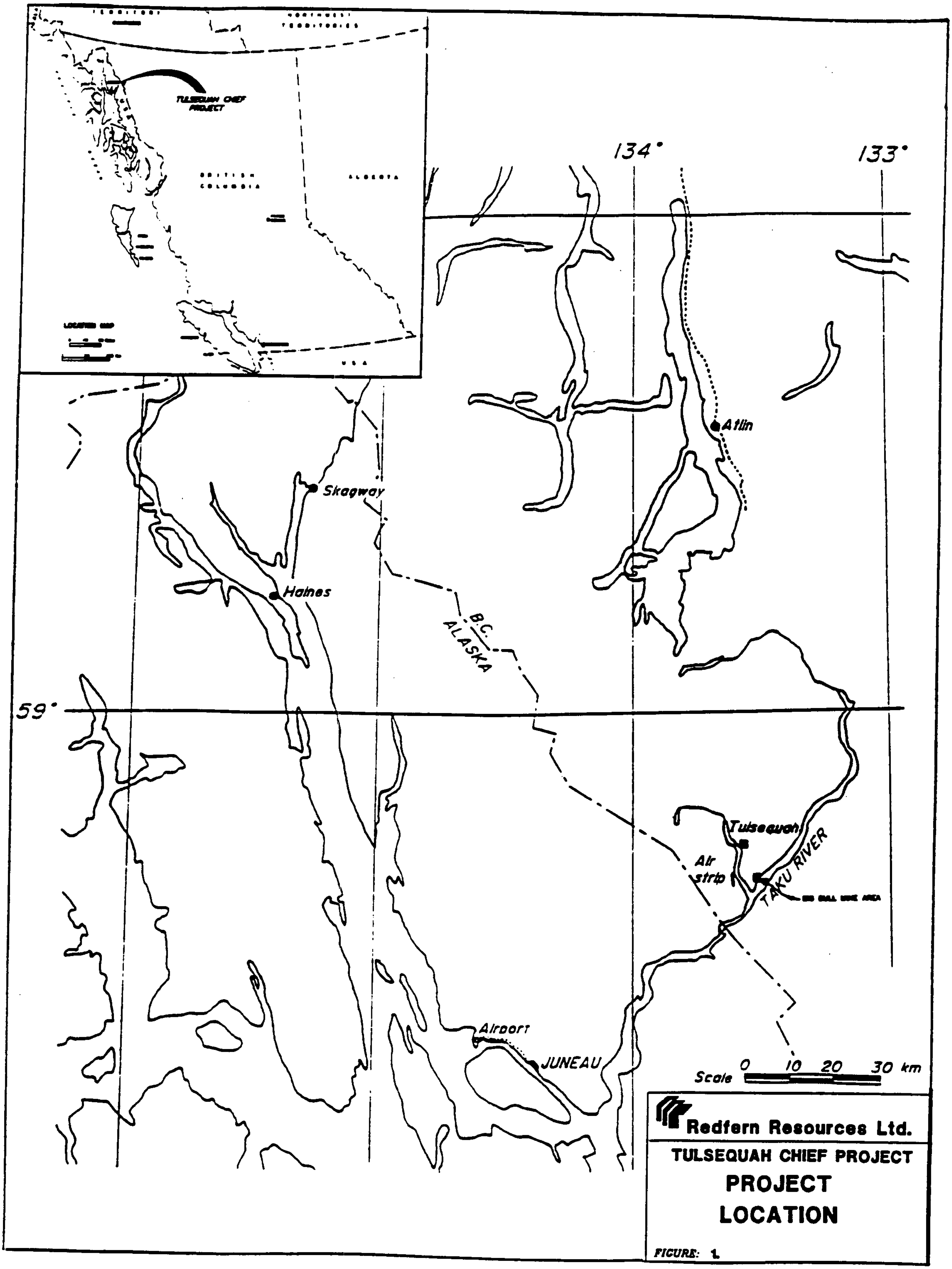
The Tulsequah and Taku River valleys are glacial in origin with broad flat floodplains, each several kilometers wide, and moderate to steep valley walls. The Taku River contains many anastomosing channels indicative of a more mature fluvial system. The Tulsequah River originates at the Tulsequah Glacier, located some 15 km north of the property, and produces a valley comprised of glacio-fluvial debris with little vegetative cover.

Approximately 60 percent of the property is comprised of dense, mature coastal forest with thick undergrowth consisting of devils club and various thoms. Rock exposure in these areas ranges from minimal to moderate and is commonly covered with thick moss or lichen.

1.2 Property History

Exploration in the Tulsequah area dates back to at least 1923 with the discovery of the Tulsequah Chief deposit by W. Kirkam of Juneau. The original showing was found outcropping in a gully above the present day 6500 level portal. Development of the Tulsequah Chief during 1923-29 attracted about 40 prospectors to the area. In 1929, V. Manville discovered the Big Bull massive sulphide deposit located some 9 kilometers to the southeast of Tulsequah Chief. Other discoveries that year included the Sparling, Banker and Polaris-Taku vein deposits.

Cominco Ltd. acquired the Tulsequah Chief and Big Bull deposits in 1946. Production at both sites started in 1953 and lasted until 1957 when low metal prices closed both



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TULSEQUAH CHIEF PROJECT

PROJECT LOCATION

FIGURE: 1

operations. Total production was 1,029,089 tons with 625,781 tons from the Tulsequah Chief Mine and 403,308 tons from the Big Bull Mine. The reader is referred to separate reports for detailed accounts of historical production at both deposits (Chandler and Dawson, 1994; Carmichael and Curtis, 1994).

The Tulsequah Chief and Big Bull deposits lay dormant until 1971. At this time the deposits were interpreted as volcanogenic massive sulphides, rather than hydrothermal veins as originally described. Geological mapping (1:2500) over the Tulsequah Chief and Big Bull deposits was completed in 1981. The property was flown by Dighem and Input EM/Mag in 1982, however, these surveys failed to define any significant conductors. A joint venture between Cominco Ltd. and Redfern Resources Ltd. led to extensive exploration programs from 1987 to 1991.

The 1987 Exploration Program (Casselman, 1988) was funded by Redfern Resources Ltd. (100%). Surface mapping was completed over the property and five surface diamond drill holes (3524m) tested the down dip extension of the Tulsequah Chief deposit. The mineralized horizon was intersected on approximately 90m spacings, 450 to 600m below surface, and 40-240m below previous drilling.

The 1988 Exploration Program (Casselman, 1989) was funded by Redfern Resources Ltd. (100%). Outside the Tulsequah Chief Mine area, mapping, prospecting, and soil sampling were completed over areas of felsic volcanic units. Inside the mine area, 900 metres of underground workings were rehabilitated on the 5400 Level and 3530m of underground and surface diamond drilling were completed. Nine drill holes tested areas below the old workings, of which eight holes intersected significant base and precious metal mineralization. Four holes tested other targets on the property.

The 1989 Exploration Program (Casselman, 1990) was jointly funded by Redfern Resources Ltd. (40%) and Cominco Ltd. (60%). The program consisted of re-ballasting track, 175m of drifting in the 5400 Level crosscut, and 4890m of underground drilling. Ten drill holes from the extended 5400 Level crosscut tested the down dip extension of the A, B, C, E, and G sulphide bodies. Eight holes intersected significant base and precious metals. Specific gravity measurements were made on all 1987, 1988, and 1989 mineralized drill intersections. Redfern calculated a possible resource including previous reserves above the 5200 Level of 5.8 million tons grading 1.6 % Cu, 1.3% Pb, 7.0% Zn, 0.08 oz/t Au, and 2.9 oz/t Ag.

The 1990 Exploration Program (Aulis, 1991) jointly funded by Redfern Resources Ltd.(40%) and Cominco Ltd. (60%) consisted of underground rehabilitation, 180m of drifting, slashing two drill stations on the 5400 Level and 5,908m of underground drilling. Seven drill holes tested the down-dip extension of the H-AB sulphide bodies. An eighth drill hole was abandoned due to ground problems. A resource estimate by Cominco Ltd. totalled 6.9 million tons grading 1.58% Cu, 1.33% Pb, 7.59% Zn, 0.08 oz/t Au, and 3.35 oz/t Ag; this figure included the 1957 reserve. Redfern prepared their own estimate; it totalled 8.0 million tons grading 1.55% Cu, 1.23% Pb, 6.81% Zn, 0.08 oz/t Au, and 3.19 oz/t Ag.

The 1991 Exploration Program was operated and funded by Redfern Resources Ltd. (100%). The program was restricted by agreement with Cominco to infill drilling on the H and AB lenses between the 3400 and 4900 Levels. Six drill holes (3090m) were collared from the 5400 Level crosscut. All holes intersected the targeted massive sulphide horizon. Cambria Data Services Ltd. (M^cGuigan et al., 1991 and 1992) prepared a probable and possible reserve estimate of 8,363,718 tons grading 1.62% copper, 1.19% lead, 6.51% zinc, 0.084 oz/t Au and 3.4 oz/t Ag; this figure includes Cominco's 1957 reserve.

Redfern Resources Ltd. purchased Cominco's interest (60%) in the Tulsequah Chief property in June, 1992. Consequently, Redfern Resources is now 100% owner of the Tulsequah Chief and Big Bull deposits and adjacent ground.

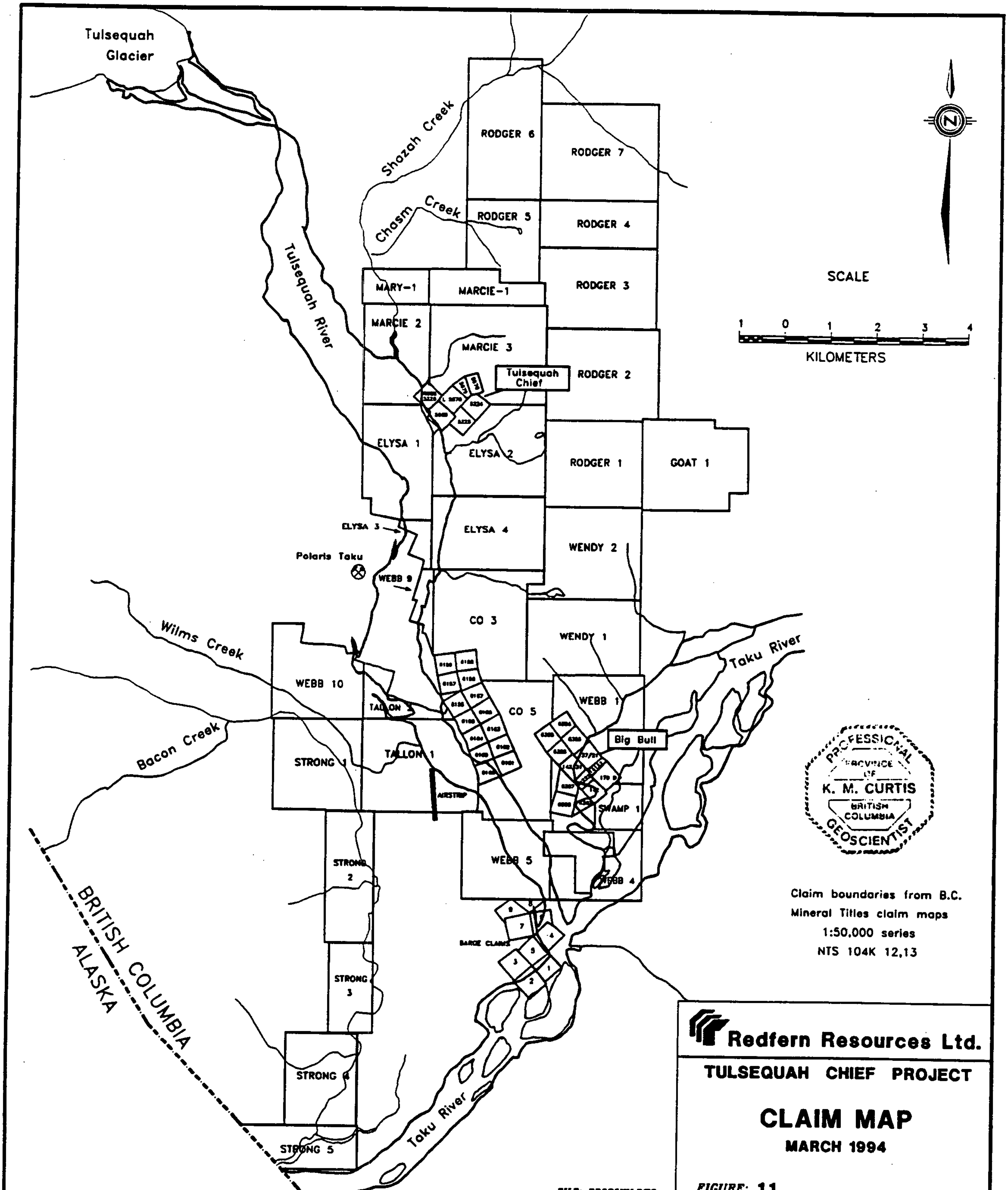
The 1992 Exploration Program (M^cGuigan et al., 1993) consisted of surface and underground geological mapping, core re-logging (1987-1991) and underground diamond drilling (4579 in 13 holes). Cambria Geological Ltd. prepared a reserve estimate (all horizons and classes) of 8,500,592 tonnes (9,350,000 tons) grading 1.48% copper, 1.17% lead, 6.85% zinc, 2.56 grams/tonne gold and 103.42 grams/tonne silver. Tonto Mining Ltd. completed a Pre-Feasibility study which outlined a fully diluted mineable reserve (at 1993 metal prices) of 6.93 million tonnes (7.62 million tons) grading 1.40% copper, 1.07% lead, 6.42% zinc, 2.40 grams/tonne gold and 93.37 grams/tonne silver (M^cLatchy, 1993).

1.3 Claim Status

The Tulsequah Chief property consists of 54 located and reverted crown granted mineral claims and 25 modified grid mineral claims for a total of 14,363.69 ha (143km^2). All claims are contiguous and encompass the Tulsequah Chief deposit, the Big Bull deposit and intervening areas. A list of claim names, tenure numbers and expiry dates is attached as Appendix I.

1.4 1993 Property Work Program

A total of 76 km of I.P. standard survey grid in three separate grid areas (Southeast, Banker, and Big Bull Extension) was established on the property during 1993 (Figure 1.3). Detailed descriptions of geological and geophysical surveys over the Southeast and



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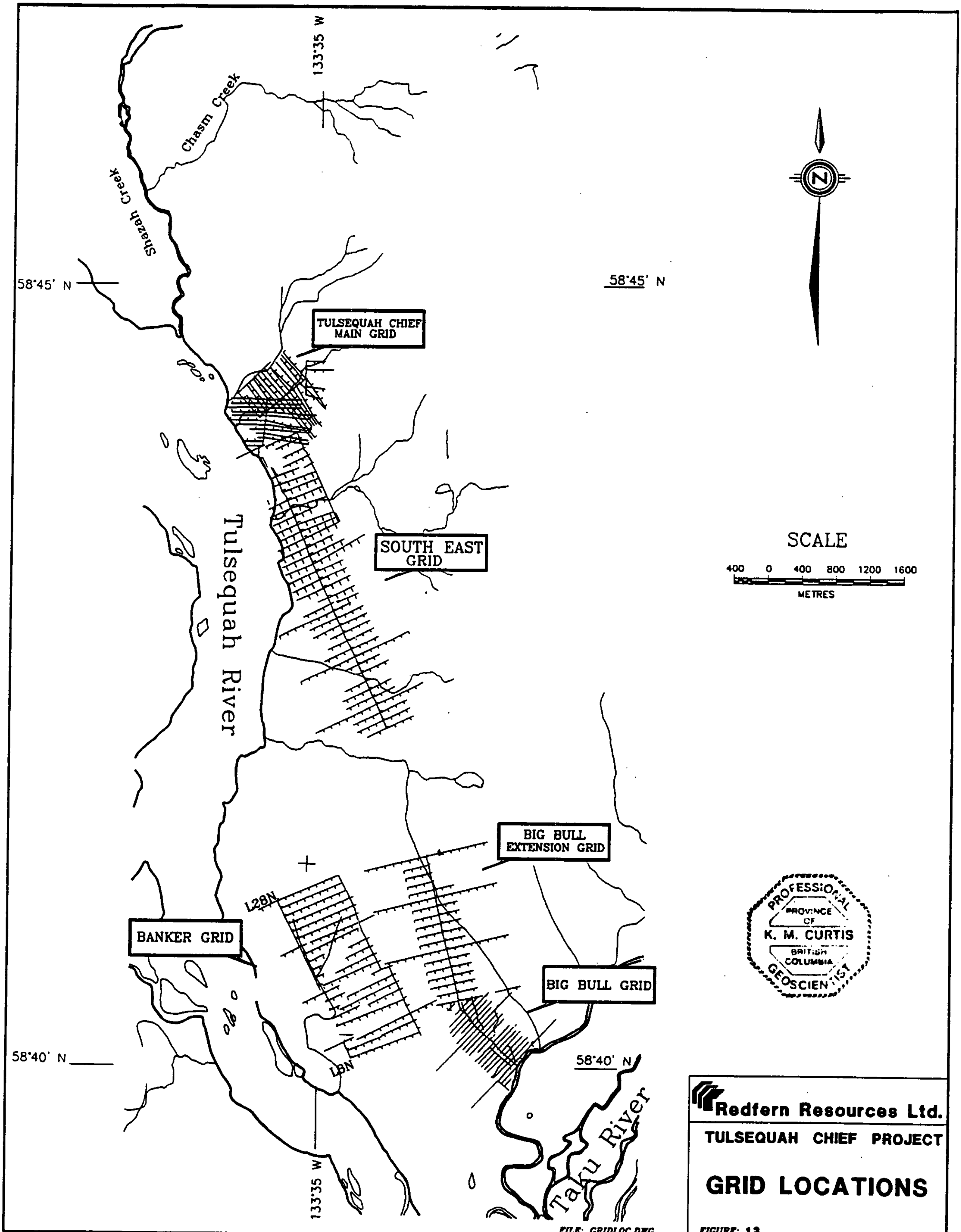
CLAIM MAP

MARCH 1994

FIGURE: **1.1**



133°35 W
Chasm Creek
Shazah Creek
58°45' N
58°45' N
TULSEQUAH CHIEF MAIN GRID
SOUTH EAST GRID
Tulsequah River
SCALE
400 0 400 800 1200 1600
METRES
BIG BULL EXTENSION GRID
L28N
BANKER GRID
BIG BULL GRID
PROFESSIONAL
PROVINCE OF
K. M. CURTIS
BRITISH COLUMBIA
GEOSCIENTIST
58°40' N
58°40' N
L8N
Taku River
133°35 W
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GRID LOCATIONS
FILE: GRIDLOC.DWG
FIGURE: 1.3
KVC

Banker grids are provided in this report. For details of the Big Bull Extension grid the reader is referred to Carmichael and Curtis (1994).

Linecutting was contracted to Courier de Bois Linecutting Ltd. of Whitehorse and was completed from late May to mid-July 1993. Chained and topographically corrected crosslines were cut at 100 m spacings along a surveyed baseline in each case. Stations on crosslines were established at 20m spacings. All grids were designed to cover prospective felsic stratigraphy outlined by previous mapping (Payne and Sisson, 1987).

Geological mapping at 1:2000 scale over all grids (Figure 1.4) was completed by Redfern personnel from June to September of 1993.

Various geophysical surveys by Delta Geoscience Ltd. of Vancouver B.C. were completed over all grid areas over a two month period of July and August. Ground Magnetometer and Gradient Array I.P. surveys were completed over the Southeast and Banker grids. Details of instrumentation and geophysical data presentation are presented in APPENDIX II-**Report on Geophysical Surveys at the Tulsequah Project, Northwest B.C.** by Hendrickson, G.A (1994)

The entire surface grid program was supported by Discovery Helicopters Ltd. of Atlin, B.C.

2.0 REGIONAL GEOLOGY (Figure 2.0)

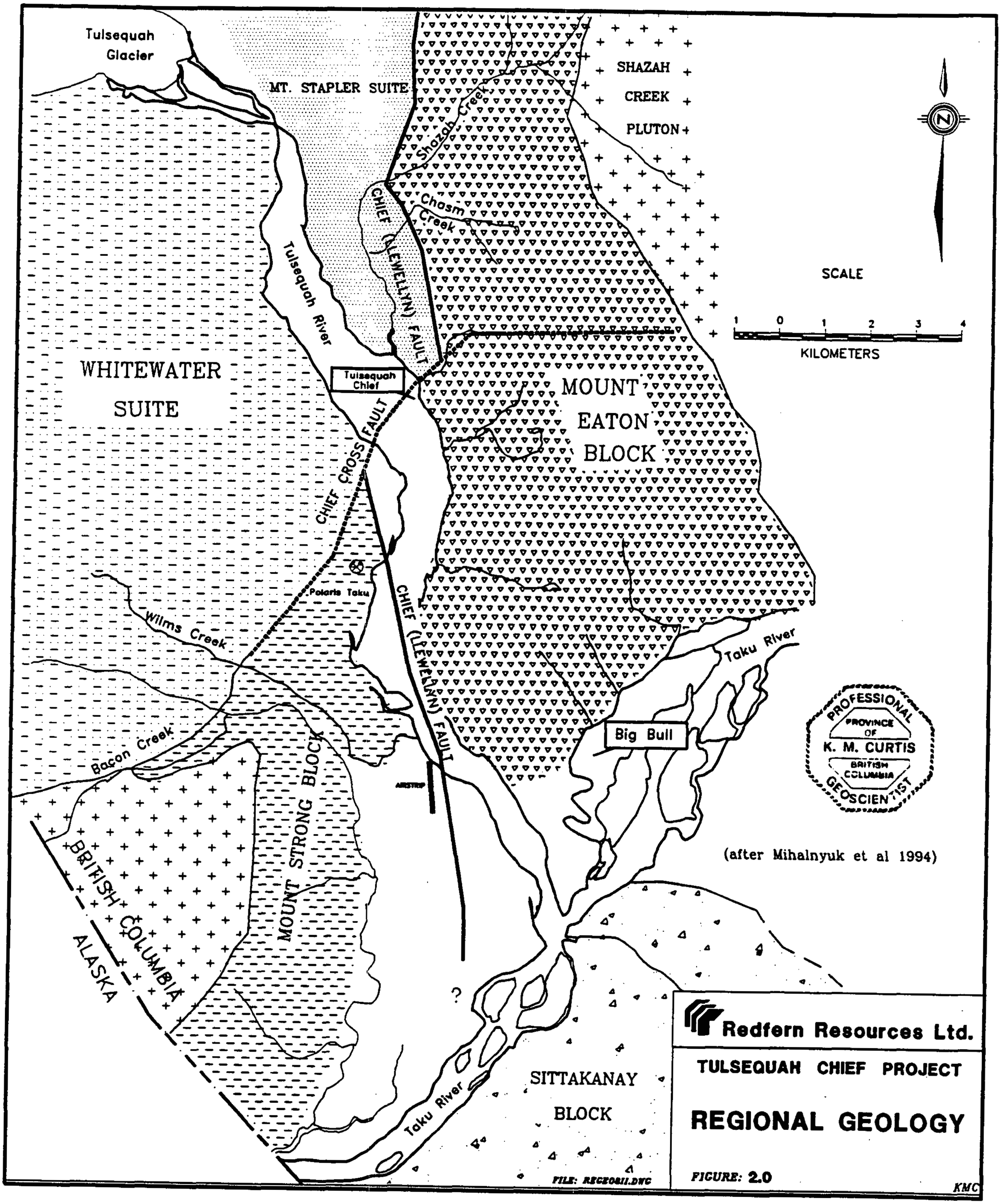
In 1993 regional mapping initiatives by the B.C. Geological Survey Branch (Mihalnyuk, 1994) significantly revised the general geologic and tectonic placing of the rocks both within and surrounding the Tulsequah region.

The Tulsequah region is one of extreme geological diversity and structural complexity resulting from the juxtaposition and deformation of several Mesozoic to Paleozoic and older tectonostratigraphic terranes. Subsequent intrusion by Cretaceous-Tertiary Coast plutons and burial by Tertiary volcanic rocks complicates investigations into the nature of terranes and their plate tectonic contexts (Mihalnyuk et al, 1994).

The dominant structural feature of the region is the **Llewellyn Fault** (known locally as the **Chief Fault**) which divides higher grade metamorphic rocks of Paleozoic and older ages on the west and weakly metamorphosed Paleozoic and Mesozoic rocks on the east. West of the fault three suites of rocks are recognized; the **Whitewater suite** which refers to an amphibolite grade sedimentary sequence; the **Boundary Ranges suite** (not shown), consisting of schists of volcanic and sedimentary origin; and the **Mount Stapler suite**, a low-grade package which shares characteristics of both the Whitewater and Boundary Range suites and may be gradational to both (Mihalnyuk et al, 1994).

2.0.1 Stikine Assemblage

East of the Llewellyn Fault, Paleozoic rocks are assigned to the **Stikine assemblage.** These include the low grade, island-arc, volcanic rocks known to host the Tulsequah Chief, Big Bull and other volcanogenic massive sulphide deposits in the area. In the region Stikine assemblage rocks are further divided into three structural-stratigraphic blocks which are separated by known or suspected faults but share important lithological characteristics. The **Mount Eaton block** lithologies are clearly correlative to bona fide Stikine assemblage and are host to both the Tulsequah Chief and Big Bull massive sulphide deposits. Strata of the **Sittakanay block**, located south of the Taku river, are more deformed but clearly lithologically equivalent to the Mount Eaton block. Rocks of the **Mount Strong block**, host to vein deposits of the Polaris Taku Mine (2.852 MT grading 0.425 Au oz/ton; Canadian Mines Handbook 1993-1994), are dominantly sedimentary in origin but tentatively interpreted to be a distal equivalent of the other Stikine assemblage blocks (Mihalnyuk et al, 1994).



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REGIONAL GEOLOGY

FIGURE: 2.0

2.1 Regional Deformation and Metamorphism

All rocks in the Tulsequah area (except Tertiary Sloko series intrusives) have been affected by post-Jurassic, north to northwest-trending, polyphase folding, faulting and metamorphism. A general progression from east to west into higher grade metamorphism and deformation is regionally evident (Mihalnyuk et al, 1994).

Reactivation of early north trending faults during the Tertiary is evident by invading Sloko series felsic dykes, particularly within the area proximal to the Tulsequah Chief deposit.

2.1.1 Stikine Assemblage

Rocks of the **Mount Eaton, Sittakanay, and Mount Strong blocks** are characterized by a single dominant phase of folding, weak to strong penetrative foliation and sub-greenschist to middle-greenschist grade metamorphism. A second phase of folding is locally evident and produces non-pervasive east-west trending folds with wavelengths in the order of 1 kilometre. First phase folds range from isoclinal to open style and are seen to plunge both to the north and south possibly reflecting interference patterns generated by second phase overprinting (Mihalnyuk et al., 1994).

3.0 1993 PROPERTY GEOLOGY (Figures 3.1 and 3.3)

The Tulsequah Chief Property is underlain by rocks of the Mount Eaton suite; a Devono-Mississippian to Permian arc succession of the Stikine assemblage (Mihalnyuk et al, 1994). The Mount Eaton suite is restricted to the east side of the Chief Fault and therefore the east side of the Tulsequah River (Figure 3.1). To the west of the Tulsequah River-and the Chief Fault- higher grade metamorphic rocks of the Whitewater/Polaris and Mount Stapler blocks occur in an, as yet, undetermined tectonic affinity. Cretaceous and Tertiary (Sloko series) intrusions locally intrude these rocks.

The Mount Eaton series forms a northerly trending low-grade (greenschist) metamorphic sequence which is bounded on the east by Cretaceous quartz monzonitic intrusions and on the west by the Chief Fault.

Volcanogenic massive sulphide deposits are associated with deformed Early Mississippian felsic volcanic sequences located close to the base of the known Mount Eaton series stratigraphy.

In 1993 regional mapping, geochronology and biochronology by the B.C. Geological Survey Branch and the Mineral Deposit Research Unit of the University of British Columbia has led to significant revisions to the age of mineralization, structure and stratigraphy of the Mount Eaton series volcanics.

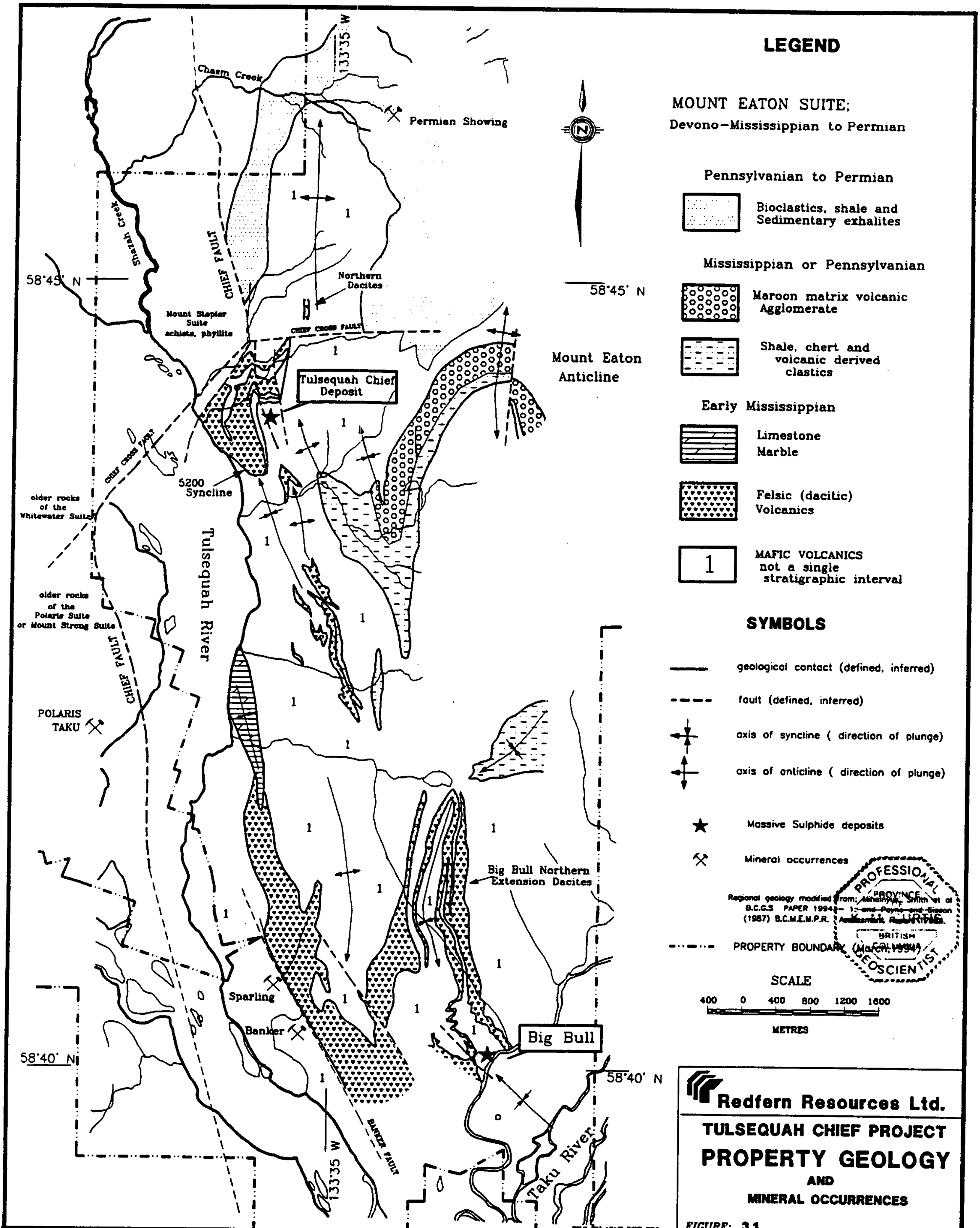
3.1 Mount Eaton Series Stratigraphy (Figures 3.2 and 3.3)

The stratigraphy within the Mount Eaton series has been subdivided by Mihalnyuk et al (1994) into three physiographic divisions with preliminary correlations within and between them. Ongoing biochronology, expected to be published in 1994, will enable further correlations between these divisions.

3.1.1 Lower Division

The **Lower division** contains the Late Devonian to Early Mississippian volcano-sedimentary stratigraphy hosting the Tulsequah Chief deposit. Rocks hosting the Big Bull deposit are placed within this block based, primarily, on lithologic and chemical similarities to the Tulsequah Chief. Stratigraphic and structural placements are still preliminary within the Big Bull area and will be enhanced by forthcoming geochronology.

The Lower division of the Mount Eaton Series is dominated by bimodal submarine volcanics and near the Tulsequah Chief deposit has been informally divided into the Mine Series (Figure 3.2).


LEGEND
MOUNT EATON SUITE;
Devono–Mississippian to Permian
Pennsylvanian to Permian
Bioclastics, shale and Sedimentary exhalites
Mississippian or Pennsylvanian
Maroon matrix volcanic Agglomerate
Shale, chert and volcanic derived clastics
Early Mississippian
Limestone Marble
Felsic (dacitic) Volcanics
1
MAFIC VOLCANICS not a single stratigraphic interval
SYMBOLS
geological contact (defined, inferred)
fault (defined, inferred)
axis of syncline (direction of plunge)
axis of anticline (direction of plunge)
Massive Sulphide deposits
Mineral occurrences
PROPERTY BOUNDARY
SCALE
400 0 400 800 1200 1600
METRES
PROFESSIONAL
GEOSCIENTIST
BRITISH COLUMBIA
Chasm Creek
Permian Showing
133°35' W
Shazah Creek
CHIEF FAULT
Northern Dacites
58°45' N
Mount Stapler Suite schists, phyllite
CHIEF CROSS FAULT
Tulsequah Chief Deposit
Mount Eaton Anticline
5200 Syncline
older rocks of the Whitewater Suite
Tulsequah River
older rocks of the Polaris Suite or Mount Strong Suite
POLARIS TAKU
Big Bull Northern Extension Dacites
Sparling
Banker
BANKER FAULT
Big Bull
58°40' N
Taku River
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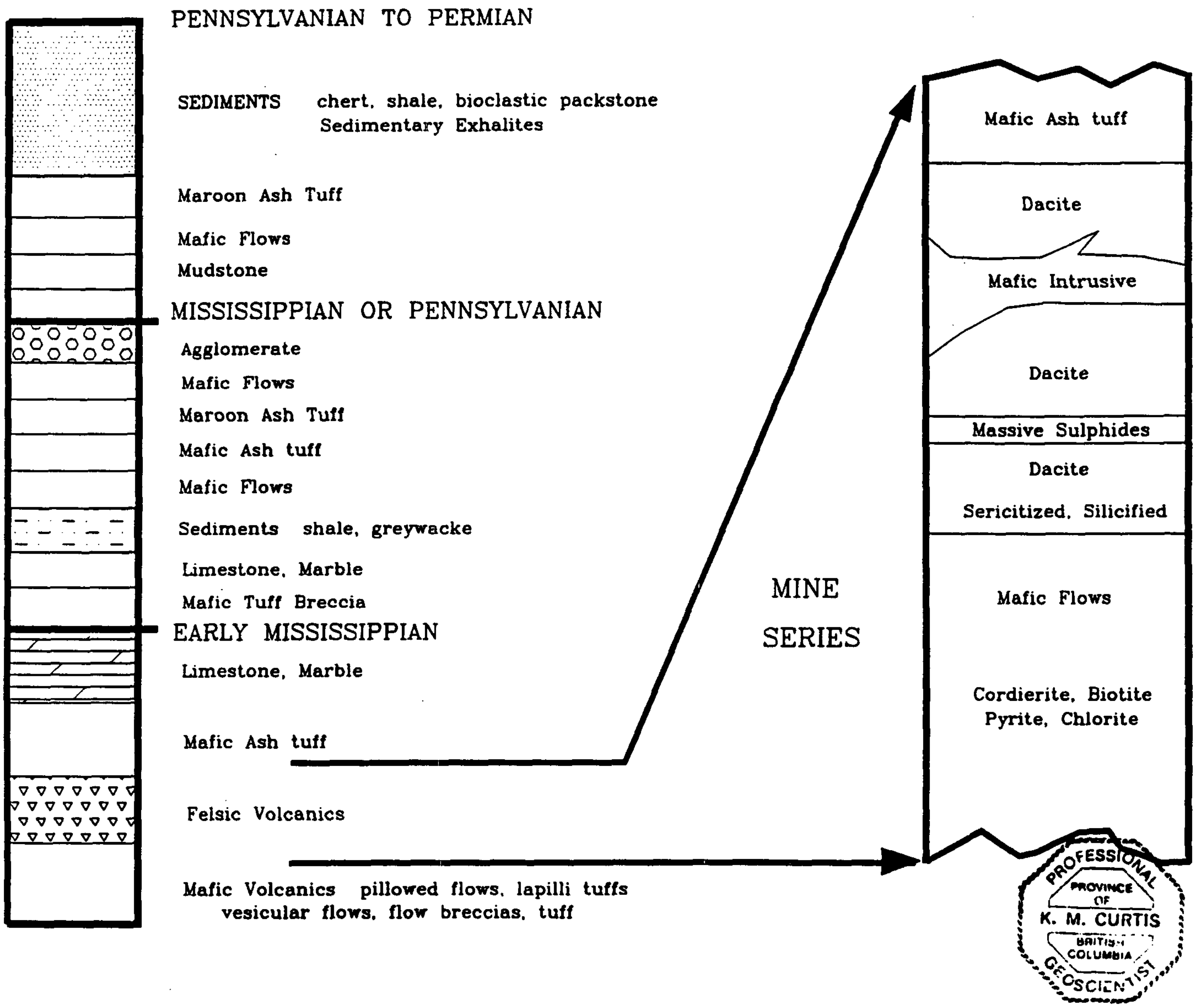
PROPERTY GEOLOGY
AND
MINERAL OCCURRENCES
FIGURE: 3.1

MOUNT EATON SUITE; Arc succession of the STIKINE ASSEMBLAGE
(modified after Mihalynuk et al, BCGS PAPER 1994 - 1)



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TULSEQUAH CHIEF PROJECT

PROPERTY STRATIGRAPHY
1993

FILE: C:\ACAD\DWG\TCSTRAT.DWG

FIGURE: 3.2

KMC

Details of the following discussion are presented on Figure 3.3 (1993 Property Compilation at 1:1000 scale).

Mafic Volcanics (units eMeb, eMev)

The lowest stratigraphic and structural unit (**eMeb**) recognized within the Mount Eaton series is comprised of augite-phyric, quartz amygdaloidal basalt breccia and lesser flows. This sequence forms the footwall to the Tulsequah Chief deposit. However, outside of this location lithologic uncertainties prevent stratigraphic control and therefore unit **eMev** is presented as a lithologic unit. Lithogeochemistry by the M.D.R.U in 1993 suggests unit eMeb has a distinct chemical signature (T. Barrett, personal communication). Accordingly, reconnaissance style lithogeochemistry is recommended to distinguish this unit from other lithologically similar units across the property.

Grid mapping by Redfern during 1993 has further defined this unit into flow dominated sequence and tuffaceous dominated sequences (divisions 1a, and 1b)

Felsic Volcanics (units eMed, eMer)

Felsic volcanic strata (unit **eMed**) consisting primarily of quartz-phyric flows, flow breccias, lapilli tuffs and tuffs appear to conformably overly mafic volcanics (**eMeb**) with massive sulphide deposits occurring at, or near, this contact. Recent dating of felsic volcanic stratigraphy within the Tulsequah Chief deposit (Sherlock et al, 1994) returned U-Pb zircon date of 353 MYA (+15,-6 MYA) which straddles the Devono-Mississippian boundary. Eastward and southwards, away from the Tulsequah Chief deposit, this unit appears to grade into finer grained tuffaceous sequences with minor spherulitic flows. In the Big Bull area the unit consists of bedded dacite ash and lesser lapilli tuffs.

Grid mapping at 1:2000 scale by Redfern during 1993 has further divided this sequence into four subdivisions (2a-2d) based on differing textural, lithologic or alteration components.

A Felsic intrusive/volcanic unit (**eMer**) located approximately 4.0 km southeast of the Tulsequah Chief deposit has been tentatively placed within this division. While displaying deformational characteristics common to Mount Eaton series it appears to be lithologically unique and further study will be necessary to establish its placement.

Massive Limestone (eMem)

A massive limestone unit (**eMem**), seen in fault contact to the west of the Tulsequah Chief deposit and south along the Tulsequah River, is tentatively placed within the upper stratigraphy of the Lower Block.

Mafic Tuffs and Sediments (unit eMevt)

Fine grained mafic tuffs and sediments (unit **eMevt**) seen hangingwall to the Tulsequah Chief deposit mark a diffuse contact between the Lower division and the Middle division (Mihalnyuk et al., 1994).

Gabbro and Diabase Intrusions (eMedi)

During 1993, recognition of a series of fine grained mafic sills internal to the Mine series at the Tulsequah Chief has revised and simplified stratigraphy in that area. Within the Mine series, unit eMedi bisects felsic stratigraphy (eMer) in a sill-like orientation and is folded conformably with the rest of the stratigraphy. This unit was formerly interpreted as mafic flows.

Lithogeochemistry by the M.D.R.U in 1993 suggests these bodies have similar chemistry and possibly a coeval relationship to mafic extrusives (eMevt) seen in the hangingwall to the "Chief" deposit.

Similarly, at the Big Bull deposit a fine grained "diabase" is also seen internal to host stratigraphy. This intrusive displays a pervasive foliation suggestive of an early emplacement.

In both deposit areas these intrusives are absent of contact hornfelsing, suggesting syn-volcanic, cold emplacement.

Other early mafic intrusions on the property occur immediately to the south of Wendy Lake and 1 km to the north of the Big Bull deposit.

3.1.2 Middle Division

The Mississippian or Pennsylvanian Middle division is dominated by pyroxene+/-feldspar phyric mafic volcanic breccia and agglomerate (units **MPevb** and **MPeva** respectively). Locally, sedimentary units and waterlain ash tuffs (units **MPest, MPestm**) are seen to intercalate and dominate this division. Overlying polymictic debris flows and conglomerate mark the transition into the Upper division (Mihalnyuk et al, 1994).

3.1.3 Upper Division

The Upper division of the Mount Eaton series contains Pennsylvanian to Permian aged sediments and lesser volcanics. These units are structurally the highest and the youngest dated rocks on the property. This division is distinguished by the presence of brown-weathering bioclastic rudite debris flows (unit **Pesd**). Locally, shale (unit **Pest**), chert (unit **Pesc**), tuffs (unit **Pevt**) and rare pillow basalt (**Pevb**) are seen to dominate the section (Mihalnyuk et al, 1994).

In 1993 a large gossanous area visible from the air was investigated and subsequently staked. The area, called the Permian showing (Figures 3.1 and 3.3), is located at the headwaters of Chasm Creek about 4 km northeast of the Tulsequah Chief deposit. Mapping by the B.C.G.S. in 1993 describes the extensive sericite-pyrite alteration and places the host strata within unit **Pesc**. Local malachite was also noted by Redfern.

3.2 **Deformation** (Figure 3.3)

Folding within the Mount Eaton series has significant exploration implications due to the apparent relationship of ore at the Tulsequah Chief deposit with regional (F_1) plunging fold series. While it is premature to identify the Tulsequah Chief deposit as a bona fide structurally controlled deposit (with minimal remobilization) it is certain that the deposit is hosted by a synclinal fold structure with apparent thickening of ore in the hinge. These recognized features of the deposit including the possible structural repetition of ore horizons caused by folding have remained as important guidelines for property scale initiatives.

Rocks of the Mount Eaton series are generally absent of penetrative axial planar foliation except in the cores of appressed folds where intense deformation produces a phyllitic fabric (Mihalnyuk et al, 1994). These zones produce marked strain gradients across the property.

The dominant structural feature of the property is the Mount Eaton anticline - a north plunging, steeply west-dipping feature which produces the highest known structural levels and is used to outline the first phase (F_1) folding across the property (Figures 3.1 and 3.3). The axis of this anticline is located close to the eastern property boundary. To date, observed structural vergence suggests that the remainder of the property (west-to the Tulsequah River) is hosted within a series of subsidiary folds comprising the western limb of this anticline.

The best delineated (three dimensional) fold structure on the property consists of the H-AB syncline which hosts most of the known reserves at the Tulsequah Chief deposit (Figure 3.3). Revised interpretations of deformation both within and proximal to the deposit indicates the series of east-verging, north plunging (60°), steeply west dipping

(78^0) open folds (F_1) (including the H-AB syncline) within the Mine Area are consistent with property scale structural trends. The H-AB syncline, has been defined by diamond drilling to over 700 m down plunge from surface exposures (see Chandler and Dawson, 1994). A second subsidiary syncline located to the immediate west of the H-AB syncline and F-anticline has been interpreted during 1993. This area, called the 5200 syncline (Figure 3.3), contains laterally extensive altered felsic stratigraphy presumed to be correlative to the Mine series felsics and will be a major target for geological definition during 1994.

On the Southeast grid, located to the southeast of the Tulsequah Chief deposit, felsic stratigraphy, presumed to be a distal equivalent to the Mine series, is folded into a gently north plunging, open syncline. It is presently unclear if this syncline is an extension of subsidiary folds outlined within the Tulsequah Chief deposit. Limited geological data infers that this fold may be the southward extension of the 5200 syncline. For a detailed description of this area see section 4.1.

Across the southern area (Figure 3.3) of the property (north and west of the Big Bull deposit) north-south trending minor folds are observed to plunge to the south inferring a property scale doubly-plunging fold (F_1) series. These relationships are also seen some 2.4 km north of the Big Bull deposit, near Wendy Lake (Figure 3.3) within the extension of the Big Bull stratigraphy.

Detailed structural analysis of the host rocks at the Big Bull deposit by Barclay (1993) has identified first phase (F_1) folds with shallow north-northwest plunging (26^0 -->325^0) axes. Parasitic folds are consistent with the regional east directed vergence seen elsewhere on the property. Detailed mapping by Redfern in 1993 indicates a subsidiary synclinal structure immediately to the west of the Big Bull deposit and therefore a possibility for structural repetition of host stratigraphy to the west of the deposit.

To the immediate north of the Big Bull deposit a series of orthogonal second phase folds (F_2) have been outlined. This weak phase of folding produces a local axial planar (?) crenulation cleavage (S_2) which trends east-west and dips steeply to the north. This second phase of folding does not significantly re-orientate F_1 in the immediate area of the Big Bull deposit but may become more important as stratigraphy to the north is explored.

3.3 Faults (Figure 2.3)

North to northwest trending high-angle faults with complex movement histories are common across the property area. The most defined faults of this attitude include; the Chief Fault, the 4400 and 5200 faults at the Tulsequah Chief deposit; and the Big Bull fault. Excepting the Chief Fault, all these structures appear to have limited displacements at least at the property scale. At the Tulsequah Chief deposit, and perhaps the Big Bull deposit, these structures appear to parallel hinge zones of subsidiary folds. At the property scale these faults are now recognized as discreet, regional topographic linears (Mount Eaton and 4400 linears) and are considered potential indicators of fold closures (see Figure 3.3).

Mapping by the B.C.G.S. (Mihalnyuk et al, 1994) in 1993 revised the placement of the Chief Fault to the centre of the Tulsequah River (Figure 3.1, 3.3). Formerly this fault was interpreted to skirt the eastern bank of the river, immediately to the west of the Banker Grid. This revision implies that areas formerly thought to contain older metamorphic rocks, such as between the immediate east of the Banker Grid and the east bank of the Tulsequah River, now contain Mount Eaton series strata. Appropriate reconnaissance will be initiated during 1994.

East to northeast trending faults have been recognized in the region outside the Tulsequah Chief property. Faults with offsets significant on a 1:50000 scale are spaced every few kilometers and may even be more common (Smith and Mihalnyuk, 1992). Mapping by the B.C.G.S. (Mihalnyuk et al, 1994) indicates a similar fault, called the Chief Cross Fault and located immediately to the north of the Tulsequah Chief deposit, dextrally offsets the Chief Fault by about 2 kms (Figures 3.1, 3.3). This fault is not known to effect stratigraphy internal to the "Chief" deposit and therefore is presumed to dip moderately to the north. A small area of dacite tuff (eMed) located on the north side of this fault, 700 m northeast of the "Chief" deposit, may reflect the offset northern extension of the Mine series stratigraphy. Accordingly, reconnaissance is planned for 1994.

4.0 1993 MAPPING PROGRAM (Figure 4.0)

Geological mapping at 1:2000 scale (Figure 4.0) was completed over all established grids in 1993 with the goal of refining previously identified felsic horizons between the Tulsequah Chief and Big Bull deposits. Detailed descriptions of geological and geophysical surveys over the Southeast and Banker grids are provided in this report. For details of the Big Bull Extension grid the reader is referred to Carmichael and Curtis (1994).

4.1 Southeast Grid (Figure 4.1 to 4.9)

The Southeast Grid is continuous with the cut survey grid over the Tulsequah Chief deposit and extends for some 3.2 km southeast of the deposit (Figure 4.1). The grid was established to cover a series of felsic volcanics identified during reconnaissance mapping by Cominco in 1987. The baseline to the grid was established at 325^0 with perpendicular crosslines spaced at 100 m and slope corrected stations at 20m spacings.

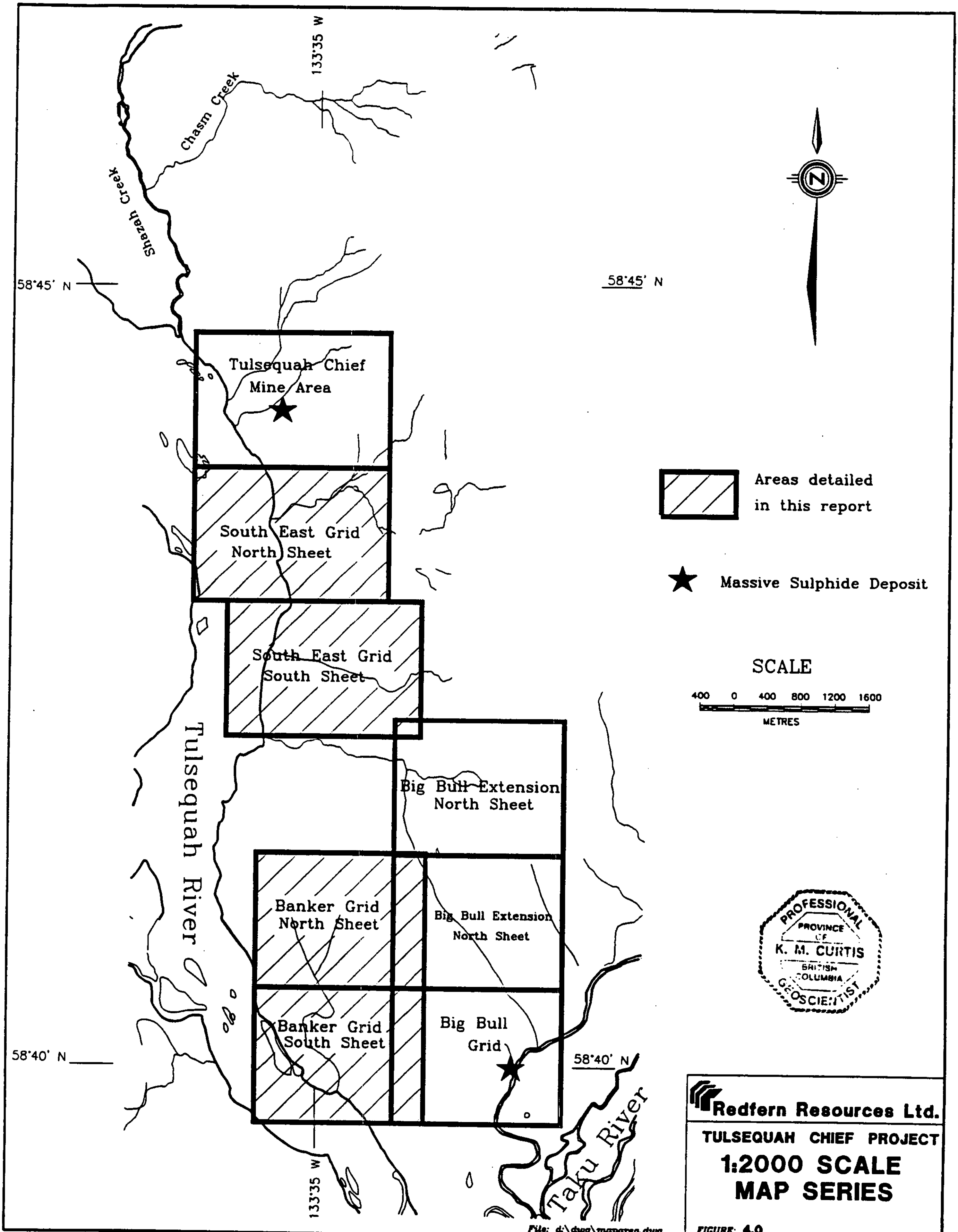
To date several areas of interest have been outlined on the grid which are recommended for follow-up work in 1994 (Figure 4.1).

4.1.1 Geology (Figures 4.2 and 4.6)

Generalized stratigraphy on the Southeast grid consists of extensive mafic flows (eMeb or eMev) overlain by tuffaceous shales, dacitic flows and tuffs of stratigraphic unit eMed. An augite-phyric mafic flow of uncertain stratigraphic affinity occurs in the structural hangingwall to this series. Figures 4.2 and 4.6 present geology and detailed stratigraphy of the grid.

Based on dip reversals and outcrop patterns, the entire volcano-sedimentary sequence on the grid is interpreted to form a northwest trending, shallow north-plunging, open syncline (see Figure 3.3) which verges to the east. This syncline may reflect the southeast extension of the 5200 syncline located immediately to the west of the "Chief" deposit. An extensive dioritic intrusive, correlated with the Eocene Sloko series, is mapped across the grid and appears to be emplaced along the axial plane of the fold.

A zone of sericite-quartz-pyrite alteration located on lines 8+00S and 9+00S at the extreme northern area of the grid (Figures 4.1 and 4.2) mark the most favourable area for potential VMS mineralization on the grid. This alteration is hosted within dacitic volcanics correlated to those hosting mineralization at the Tulsequah Chief Deposit. Areas to the immediate west of this area contain altered dacites forming the proposed keel to the 5200 syncline (see: Chandler and Dawson, 1994). Both these areas warrant detailed mapping, geochemistry and diamond drilling during 1994.



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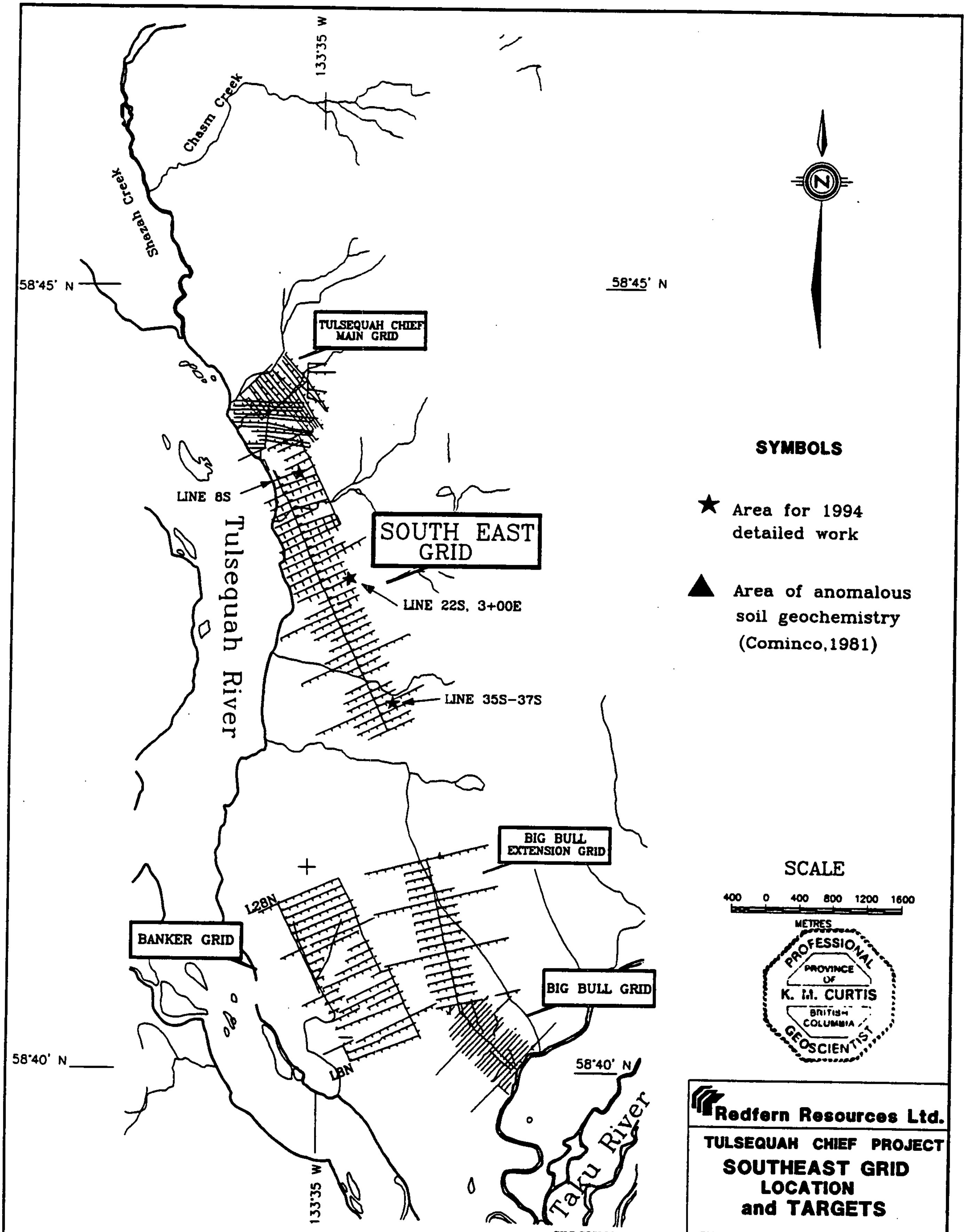
TULSEQUAH CHIEF PROJECT

1:2000 SCALE MAP SERIES

FIGURE: 4.0



133°35' W
Chasm Creek
Shezah Creek
58°45' N
58°45' N
TULSEQUAH CHIEF MAIN GRID
LINE 8S
Tulsequah River
SOUTH EAST GRID
LINE 22S, 3+00E
LINE 35S-37S
SYMBOLS
Area for 1994 detailed work
Area of anomalous soil geochemistry (Cominco,1981)
BIG BULL EXTENSION GRID
L28N
BANKER GRID
BIG BULL GRID
L8N
58°40' N
58°40' N
Taku River
133°35' W
SCALE
400 0 400 800 1200 1600
METRES
PROFESSIONAL
PROVINCE OF
K. M. CURTIS
BRITISH COLUMBIA
GEOSCIENTIST
Redfern Resources Ltd.
TULSEQUAH CHIEF PROJECT
SOUTHEAST GRID
LOCATION
and TARGETS
FILE:SEGLOC.DWG
FIGURE: 4.1

Also at the north end of the grid (L10S, 4+50E) a tuffaceous dacite horizon mapped internal to the footwall mafics (Unit 1) of the Tulsequah Chief Mine series indicates a possibility of more than one discrete felsic horizon within the deposit area. Correlation of dacitic horizons on the Southeast grid to the Tulsequah Chief dacites is therefore problematic.

A zone of weak pyrite-sericite alteration is located within the sedimentary (Unit 2, Figure 4.6) sequence near grid coordinates L22S, 3+00E (Figure 4.6). Geology is described as interbedded shale and chert and includes a magnetite bed approximately 25 cm thick. Bedded magnetite is a common distal indicator of VMS stratigraphy and has been extensively mapped in the hangingwall of the Big Bull deposit.

Further southeast, centered at approximately L36S (Figure 4.6), a large felsic intrusive/volcanic unit body has been outlined. Tentatively placed within unit eMer (see Figure 3.3) age dating is required to determine if this body is a volcanic source or centre to surrounding dacitic flows and tuffs. If so, the area, including surrounding dacite flows, tuffs and shales, represents prospective stratigraphy for VMS mineralization. Further prospecting and soil geochemistry is recommended in 1994.

4.1.2 **Geophysics** (Figures 4.3 to 4.5 and 4.7 to 4.9)

The 1993 geophysical surveys at the Tulsequah Chief Project are the subject of a separate report by G. Hendrickson of Delta Geoscience, and results are only summarized here.

Magnetometer and Gradient Array IP surveys were carried out over the Southeast grid by Delta Geoscience Ltd. Sections of Hendrickson's report pertaining to Southeast grid are included in Appendix II along with page sized color plots. Geophysical maps at 1 : 2000 scale are included in this report.

A laterally continuous I.P chargeability high (25-30ms) trending at 325° across the eastern and central portion of the grid appears to follow shale horizons of Unit 2. In some locations these sediments are seen as weakly pyritic-sericitic and rarely weakly graphitic. A corresponding resistivity low appears coincident to the sediments. I.P. chargeability and resistivity responses across the grid appear to confirm the overall synclinal form of the underlying geology. Highly resistive mafic volcanics form the east and west limb of the fold while high chargeability dacitic tuffs and shales form the core to the fold.

An intense chargeability high (27 ms) flanked by a resistivity low (3500 ohm-m) over an area 300m wide and centered on L36S correlates to an area of felsic intrusives/flows outlined in the previous section (Section 3.2.1).

4.2 **Banker Grid** (Figure 4.10)

The Banker Grid is located approximately 7 km to the south of the Tulsequah Chief deposit near the convergence of the Tulsequah and Taku Rivers (Figure 4.10). The grid was established to cover a series of dacitic volcanics outlined during a 1987 reconnaissance mapping program funded by Cominco. Several areas of interest are outlined from the 1993 program by Redfern. The Banker and Sparling (Au, Ag, As, Pb, Zn) showings, which lie to the immediate west of the grid, were not investigated during 1993.

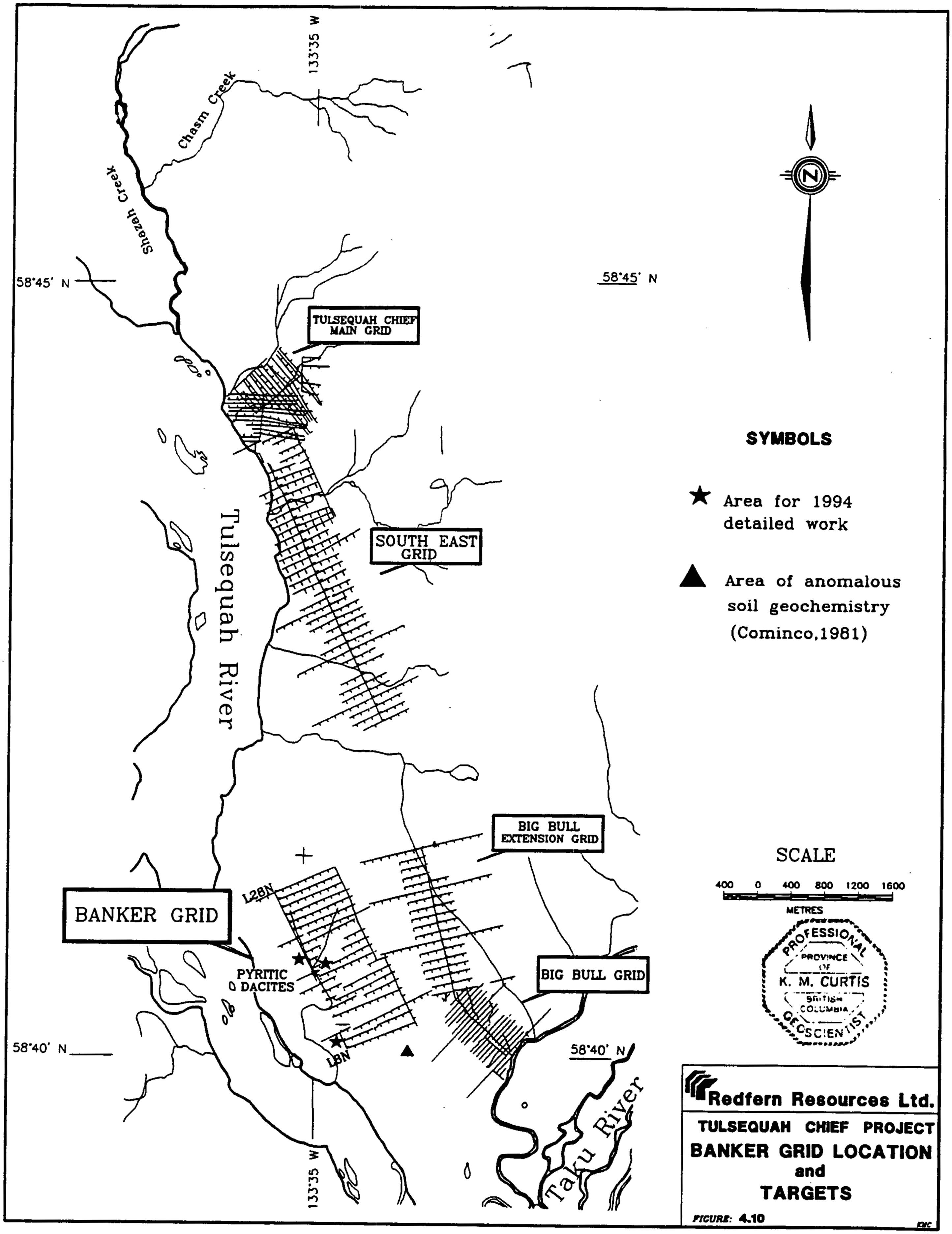
The Banker Grid extends 2000m from L 28N to L 8N. The baseline to the grid was established at 325^0 with perpendicular crosslines spaced at 100 m and slope corrected stations at 20m spacings.

4.2.1 **Geology** (Figures 4.2 and 4.3)

Mapping on the Banker Grid identified an extensive bimodal volcanic sequence including dacite flows and lapilli tuffs (**Unit 2**-Figures 4.11, 4.12) and quartz-amygdaloidal (feldspar-pyroxene phyric) mafic flows (**Unit 1**-Figures 4.11, 4.12) of the Lower division of the Mount Eaton suite. A diorite-gabbro (**Unit 7**-Figures 4.11, 4.12) is mapped on the northeast sector of the grid and is interpreted to be syn-volcanic to the enclosing volcanics. Feldspar-phyric dacite flows, occurring across the extreme eastern sector of the grid are tentatively correlated to similar dacite flows seen on the western areas of the Big Bull Extension grid, approximately 1.5 km to the west.

The base line marking the western boundary of the grid has been mapped as the Banker Fault which juxtaposes mafic volcanics and lesser carbonates of uncertain stratigraphic position against dacite volcanics (Unit 2). Previous to 1993 this fault was called the Chief Fault and was thought to separate rocks of the Mount Eaton suite from older more deformed Paleozoic rocks. In 1993 mapping by the B.C.G.S (Mihalnyuk et al, 1994) re-interpreted these rocks to belong to the Mount Eaton suite. The Chief Fault has been re-located to the west of the Banker Grid (approximately 1 km) and is inferred to lie beneath the Tulsequah River. The intervening area, between the Banker grid baseline and the eastern bank of the Tulsequah River, is now recognized as prospective Mount Eaton series volcanics.

In the west centre of the grid (approximately L18N) an area of pyritized dacite flows occurs, some of these were observed as rusty cliff faces in an area of dacite and rhyodacite by Cominco (Termuende, 1987). The pyrite occurs as disseminations and pyrite-quartz stringers less than 1 cm in width. Cominco (Termuende, 1987) collected 59 soil samples on the contours at 200 meter and 300 meter elevations and analyzed them



133°35 W
Chasm Creek
Shazah Creek
58°45' N
58°45' N
TULSEQUAH CHIEF MAIN GRID
SOUTH EAST GRID
Tulsequah River
BIG BULL EXTENSION GRID
L28N
BANKER GRID
PYRITIC DACITES
BIG BULL GRID
L8N
58°40' N
58°40' N
133°35 W
Taku River
N
SYMBOLS
Area for 1994 detailed work
Area of anomalous soil geochemistry (Cominco,1981)
SCALE
400 0 400 800 1200 1600
METRES
PROFESSIONAL
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TULSEQUAH CHIEF PROJECT
BANKER GRID LOCATION
and
TARGETS
FIGURE: 4.10

for Au, Ag and Sb. The data shows that the package is generally barren of auriferous material except for an anomalous zone near an Andesite/ dacite flow contact located along the 300 m contour. This area represents an area of potential for discovery of VMS mineralization.

Contour soil samples were collected about 150 meters south of the southeast corner of the Banker grid by Cominco in 1981. Four samples, at 50 m spacings show highly anomalous lead values, one of them carrying 80 ppb gold. Additional sampling and reconnaissance is planned in 1994.

4.2.2 Geophysics (Figures 4.13 to 4.15)

The 1993 geophysical surveys across the Banker Grid are the subject of a separate report by G. Hendrickson of Delta Geoscience (see APPENDIX II), and results are only summarized here.

Magnetometer and Gradient Array IP surveys were carried out over the Southeast grid by Delta Geoscience Ltd. Sections of Hendrickson's report pertaining to Southeast grid are included in Appendix II along with page sized color plots. Geophysical maps at 1 : 2000 scale are included in this report.

Interpretation of I.P. data collected over the Banker Grid in 1993 is complicated by the lack of survey coverage over portions of the grid. Due to extreme topography, Gradient Array I.P surveys (Figures 4.13, 4.14) were only completed over the southern half of the grid. Ground Magnetometer (Figure 4.15) surveys were completed over most of the grid, except for steep cliff areas.

Ground magnetic highs appear to reflect underlying mafic volcanic units which commonly contain magnetite. Dacitic volcanic units produce corresponding magnetic low signatures across the grid. Diorite-Gabbro intrusives on the northeastern sector of the grid produce an intense magnetic high reflective of increased magnetite component common in this rock type.

The most interesting geophysical feature of this grid is a chargeability anomaly (35 ms) extending from L19N to L15N. This area is coincident with the pyritic dacites mapped in 1993. To the southeast a pronounced chargeability low/resistivity high may be coincident with a distal component of the hangingwall dacitic tuffs seen to the west of the Big Bull Deposit.

4.2.3 Banker and Sparling Showings (Figure 3.1)

The Banker and Sparling showings received only cursory examinations during 1993 and are recommended for detailed evaluation in 1994.

The **Banker** (Ag-Pb) showing, located to the west of the Banker Fault, is hosted within bedded limestones and associated sedimentary rocks of the Lower division of the Mount Eaton Suite. Significant gold, silver, lead and zinc values are reported. The eight crown granted mineral claims surrounding the showing were staked in 1929. Reported work from the same era includes a 50 foot tunnel, a 20 foot shaft and several hand trenches.

Mineralization is reported to be related to quartz-flooded shatter zones within bedded limestone of uncertain stratigraphic placement within the Mount Eaton Suite. Mineralization consists of galena, sphalerite, arsenopyrite, pyrite, chalcopyrite and bornite and is restricted to the limestone unit which occupies the nose and/or crest of a fold structure. The best historical assays were 87.02 oz/t Ag over 2.5 meters and 64.42 oz/t over 1.25 meters (Cominco 1983). Drill programs during 1957 and 1964 intersected mineralization located some 30 m down-dip of high-grade, although erratic, surface mineralization.

During 1987 detailed soil geochemical sampling was carried out by Cominco resulting in the definition of areas anomalous in gold, silver, lead and zinc coinciding to the Banker and Sparling showing locations.

The **Sparling** (Au) Showing lies 600 meters northeast of the Banker Showing. Mineralization is reported to be confined to a north-south trending shear zone 25 meters wide which fingers out into smaller individual shears over 200 meters to the south. The zone is thought to be related to a splay of the Banker Fault. Mineralization is hosted in massive andesite and/or gabbro intrusive. Pyrite, arsenopyrite, galena, sphalerite and gold-silver mineralization occurs within a sericitic, foliated, quartz vein (20-50 cm wide) in the shear zone. Mineralization is reported to occur in bands, from 1-3cm wide, with corresponding grab sampling yielding values of 222 ppb Au and 24.5 ppm Ag with anomalous lead, zinc and copper values. Cominco drilled three holes beneath the Sparling trenches in 1987. Although the holes intersected alteration zones significant sulphide mineralization was absent. The mineralization is supposed to be of the Polaris-Taku type. Redfern plans to extend the grids to cover the Banker and Sparling showings and map these areas in 1994.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Significant revisions to the regional geology of the Tulsequah area by the B.C. Geological Survey Branch (Mihalnyuk et al, 1994) suggests that large areas to the south (Sittakanay Block) and to the west (Mount Strong Block) of the property contain possible corellatives to the Paleozoic strata hosting the Tulsequah Chief and Big Bull deposits.

In 1993 a preliminary stratigraphic assemblage was produced by the B.C.G.S (Mihalnyuk et al, 1994) for the Mount Eaton series volcanics, host to both massive sulphide deposits on the property. Based on this stratigraphy, and age dating of felsic volcanics by the Mineral Deposit Research Unit of the University of British Columbia, the Tulsequah Chief and Big Bull Deposits are now interpreted to be hosted by Devono-Mississippian volcanics within the lowermost stratigraphic division (unit eMed) of the Mount Eaton series. Sulphide deposition occured near the contact of two stratigraphic units dominated by mafic (eMeb/v) and felsic volcanics (eMed) respectively. Collectively these units underlie over 50% of the current property area.

Based on the current regional, property and deposit scale evidence the Tulsequah Chief and Big Bull deposits represent both proximal and distal (respectively) massive sulphide deposits related to an extensive period of relatively shallow water Devono-Mississippian felsic volcanism (Figure 5.0).

Several areas of interest were identified by detailed grid mapping and geophysics during the 1993 program. Areas containing mineralization, prospective stratigraphy, geophysical anomalies and geochemical anomalies across the entire 20 km strike of the property are recommended for further work in 1994 as follows:

1) Regional Targets

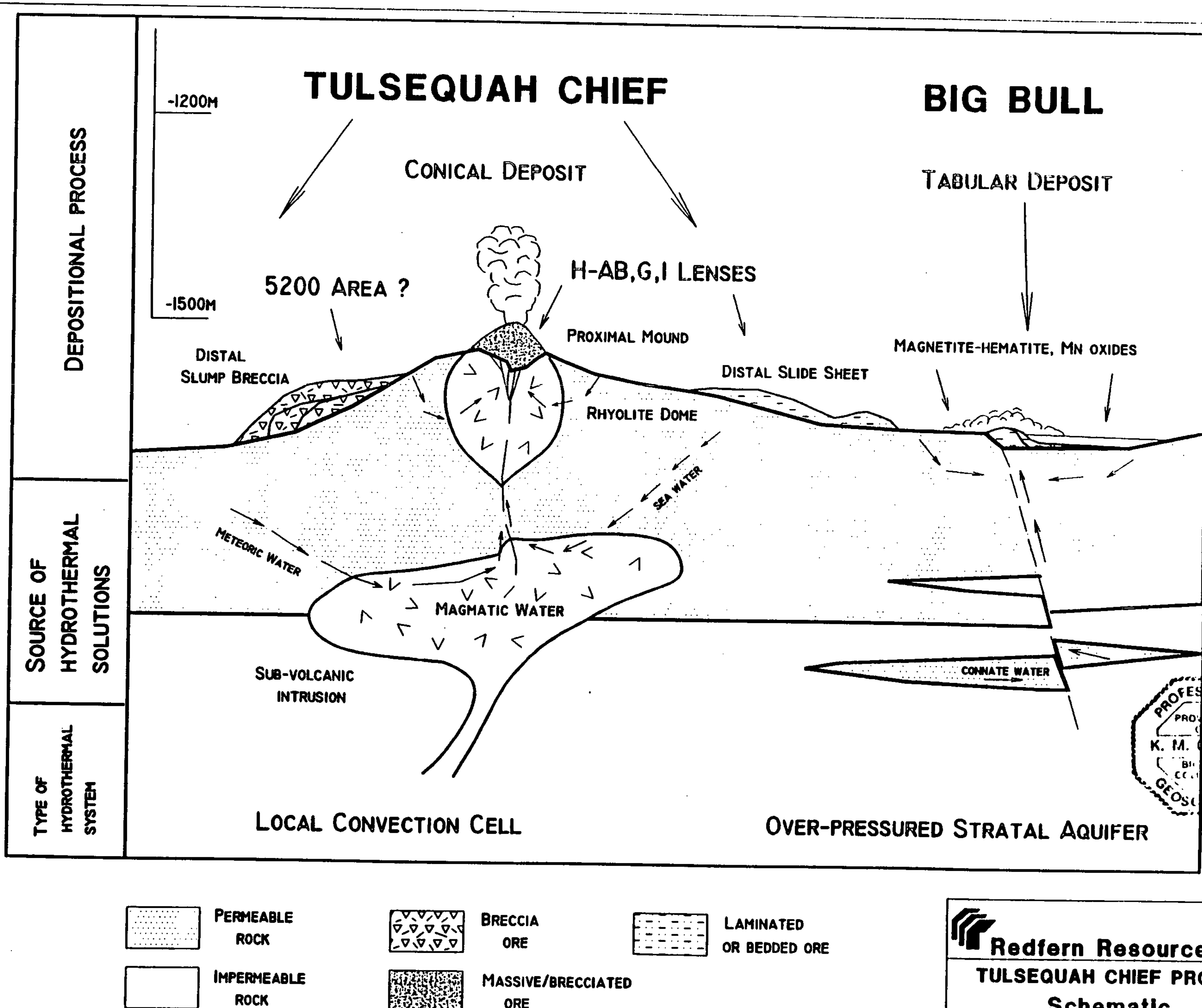
Reconnaissance geology and geochemistry within both the Sittakanay and Mount Strong Blocks and evaluation of known mineral occurrences within these areas (ie. Highland Boy)

2) Property Targets (Figure 3.1)

a) Permian Showing - detailed mapping and rock sampling with follow-up geophysics and contingent drilling if warranted.

b) Northern Dacites - detailed mapping and rock sampling with follow-up geophysics and contingent drilling if warranted.

c) Banker and Sparling Showings - extension of the existing Banker grid to cover these prospects. Follow-up mapping, geochemistry and geophysics if warranted.



(modified after Lydon, J.W; Geoscience Canada, V.15, NUMBER 1, March 1988)

Redfern Resources Ltd.

TULSEQUAH CHIEF PROJECT

Schematic Paleo-setting

FIGURE: 5.0

KMC

2) Property Targets (continued)

d) Area of anomalous geochemistry located south of the Banker Grid-preliminary reconnaissance and extension of the Banker Grid to the south. Follow-up mapping, soil geochemistry and I.P./Mag if warranted.

e) Reconnaissance mapping of all areas hosting dacitic volcanics (eMed) mapped by the B.C.G.S in 1993 and not covered by the Redfern 1993 program (ie. northeast of Wendy Lake)

3) Grid Areas

a) Southeast Grid- detailed mapping and lithogeochemistry in the extreme northwestern sector area across sericite-pyrite-quartz altered dacites, in conjunction with efforts at the 5200 syncline area of the Tulsequah Chief Mine area. Drilling of stratigraphic or geochemical targets, if warranted.

Detailed mapping, soil and rock geochemistry within areas surrounding prospective geology/geophysical anomalies located on L10S, L22S and L36S.

4) Banker Grid - detailed lithogeochemistry across pyrite altered dacites centered on L18N.

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STATEMENT OF QUALIFICATIONS

KERRY M. CURTIS, P.Geo.

I, KERRY M. CURTIS, of 202-2110 W. 5th Avenue, Vancouver, in the Province of British Columbia, HEREBY CERTIFY THAT:

1. I obtained a Bachelor of Science degree in Geology from the University of British Columbia in 1989;

2. I am registered as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia;

3. I have worked in the mineral exploration industry since graduation, and previously held positions with Minnova Inc. and Kennecott Canada Inc.;

4. I have been employed by Redfern Resources Ltd. as a Project Geologist since June of 1993.

DATED at Vancouver, B.C., this 25TH day of MAY, 1994

PROFESSIONAL
PROVINCE OF
K. M. CURTIS
BRITISH COLUMBIA
GEOSCIENTIST

Kerry M. Curtis

Kerry M. Curtis, P.Geo.

APPENDIX I
LIST OF CLAIMS

TABLE 1. TULSEQUAH CHIEF PROPERTY - CLAIM STATUS

PROPERTY AREA	CLAIM NAME	RECORD NO.	TITLE NO.	UNITS	AREA (ha.)	EXPIRY DATE
Tulsequah Chief	Birds	5224	203794	1	25.00	May 30, 2003
	Pat	5225	203794	1	25.00	May 30, 2003
	Ross	5226	203795	1	25.00	May 30, 2003
	Mary 1	4289	203385	20	500.00	Aug 5, 2003
	Marcie 1	4290	203386	20	500.00	Aug 5, 2003
	Marcie 2	4291	203387	20	500.00	Aug 5, 2003
	Marcie 3	4292	203388	20	500.00	Aug 5, 2003
	Elysa 1	4293	203389	20	500.00	Aug 5, 2003
	Elysa 2	4294	203390	20	500.00	Aug 5, 2003
	Elysa 3	4295	203391	6	150.00	Aug 3, 2003
	Elysa 4	4296	203392	20	500.00	Aug 5, 2003
	Barge 1		318941	1	25.00	Jun 25, 1994
	Barge 2		318942	1	25.00	Jun 25, 1994
	Barge 3		318943	1	25.00	Jun 25, 1994
	Barge 4		318944	1	25.00	Jun 25, 1994
	Barge 5		318945	1	25.00	Jun 25, 1994
	Barge 6		318946	1	25.00	Jun 25, 1994
	Barge 7		318947	1	25.00	Jun 25, 1994
	Barge 8		318948	1	25.00	Jun 25, 1994
	Barge 9		318949	1	25.00	Jun 25, 1994
	Wendy 1		320163	20	500.00	Jul 31, 1994
	Wendy 2		320164	20	500.00	Aug 1, 1994
	Strong 1		320339	16	400.00	Aug 17, 1994
	Strong 2		320340	12	300.00	Aug 18, 1994
	Strong 3		320341	8	200.00	Aug 18, 1994
	Strong 4		320342	12	300.00	Aug 19, 1994
	Strong 5		320343	10	250.00	Aug 19, 1994
	Rodger 1		322046	20	500.00	Oct 21, 1994
	Rodger 2		322053	20	500.00	Oct 21, 1994
	Rodger 3		322054	20	500.00	Oct 21, 1994
	Rodger 4		322055	10	250.00	Oct 21, 1994
	Rodger 5		322056	12	300.00	Oct 21, 1994
	Rodger 6		322057	18	450.00	Oct 21, 1994
	Rodger 7		322058	20	500.00	Oct 21, 1994
	<u>Crown Grants:</u>					
	River Fr.	5669			7.99	Jul 2, 1994 [1]
	Tulsequah Bonanza	5668			20.90	Jul 2, 1994 [1]
	Tulsequah Bald Eagle	5676			14.16	Jul 2, 1994 [1]
	Tulsequah Chief	5670			20.90	Jul 2, 1994 [1]
	Tulsequah Elva Fr.	5679			9.70	Jul 2, 1994 [1]
			Tulsequah Chief claims area		9,473.65	
Big Bull	Big Bull Extension	37/21	203965	1	25.00	Jun 18, 2003
	Bruce Fr.	303	203781			Aug 17, 2003
	Bull 2	141/32	203966	1	25.00	Jul 19, 2003
	Bull 3	142/32	203967	1	25.00	Jul 19, 2003
	Bull 4	143/32	203968	1	25.00	Jul 19, 2003
	Bull 8	142	203779	1	25.00	Jul 16, 2003
	Bull 9	179	203780	1	25.00	Apr 25, 2003
	CO 3	997	201802	20	500.00	Mar 4, 2003
	CO 5	998	201803	18	450.00	Mar 4, 2003
	Goat 1	1707	201925	16	400.00	Jul 23, 1994
	Swamp 1	1708	201926	4	100.00	Jul 23, 2003
	Swamp 2	1709	201927	1	25.00	Jul 23, 2003
	Swamp 3	1710	201928	1	25.00	Jul 23, 2003
	Webb 1	2766	202279	20	500.00	Nov 27, 2000
	Webb 4	2769	202282	20	500.00	Nov 27, 2000
	Webb 5	2770	202283	20	500.00	Nov 27, 2000
	Webb 9	2774	202284	10	250.00	Nov 27, 2000
	Webb 10	2775	202285	16	400.00	Nov 27, 2000
	<u>Crown Grants:</u>					
	Big Bull	6303			20.65	Jul 2, 1994 [1]
	Bull No. 1	6304			16.95	Jul 2, 1994 [1]
	Bull No. 5	6306			14.57	Jul 2, 1994 [1]
	Bull No. 6	6305			17.22	Jul 2, 1994 [1]
	Hugh	6308			20.71	Jul 2, 1994 [1]
	Jean	6307			17.02	Jul 2, 1994 [1]
			Big Bull claims area		3,907.12	

Banker	Tallon No. 1	1979	202030	20	500.00	Aug 2, 2003
	Tallon No. 2	1980	202031	9	225.00	Aug 2, 2003
	<u>Crown Grants:</u>					
	Vega No. 1	6155		1	20.90	Jul 2, 1994 [1]
	Vega No. 2	6156		1	17.62	Jul 2, 1994 [1]
	Vega No. 3	6157		1	18.97	Jul 2, 1994 [1]
	Vega No. 4	6158		1	19.85	Jul 2, 1994 [1]
	Vega No. 5	6159		1	14.94	Jul 2, 1994 [1]
	Janet W. No. 1	6160		1	18.95	Jul 2, 1994 [1]
	Janet W. No. 2	6161		1	18.75	Jul 2, 1994 [1]
	Janet W. No. 3	6162		1	16.60	Jul 2, 1994 [1]
	Janet W. No. 4	6163		1	20.76	Jul 2, 1994 [1]
	Janet W. No. 5	6164		1	18.20	Jul 2, 1994 [1]
	Janet W. No. 6	6165		1	19.02	Jul 2, 1994 [1]
	Janet W. No. 7	6166		1	18.78	Jul 2, 1994 [1]
	Janet W. No. 8	6167		1	17.98	Jul 2, 1994 [1]
	Joker	6169		1	16.60	Jul 2, 1994 [1]
			Banker claims area		982.92	
			TOTAL PROPERTY CLAIMS AREA		14,363.69	

[1] Maintained through annual tax payments due July 2 of each year.

APPENDIX II
SELECTIONS FROM GEOPHYSICAL REPORT

G. HENDRICKSON, DELTA GEOSCIENCE LTD.

REPORT ON

GEOPHYSICAL SURVEYS

AT THE

TULSEQUAH PROJECT, NORTHWEST B.C.

NTS 104K

FOR

REDFERN RESOURCES LTD.

BY

DELTA GEOSCIENCE LTD.

APRIL 13, 1994. GRANT A. HENDRICKSON, P.GEO.

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Detail Grid:

INTRODUCTION

At the request of Redfern Resources Ltd., Delta Geoscience has conducted a program of ground geophysical surveys in the Tulsequah area of northwestern British Columbia. The survey area is approximately 70 kilometres northwest of the city of Juneau, Alaska, the nearest major population centre. The survey area is known to host at least two (cretaceous age?) volcanogenic massive sulphide deposits. These two deposits, the Tulsequah Chief and the Big Bull deposit, are both past producers (1950's) and lie approximately 7 km apart.

The prime focus of this geophysical exploration program was the direct detection of additional reserves of polymetallic volcanogenic massive and/or disseminated sulphide mineralization. This type of deposit is commonly referred to as the Kuroko type.

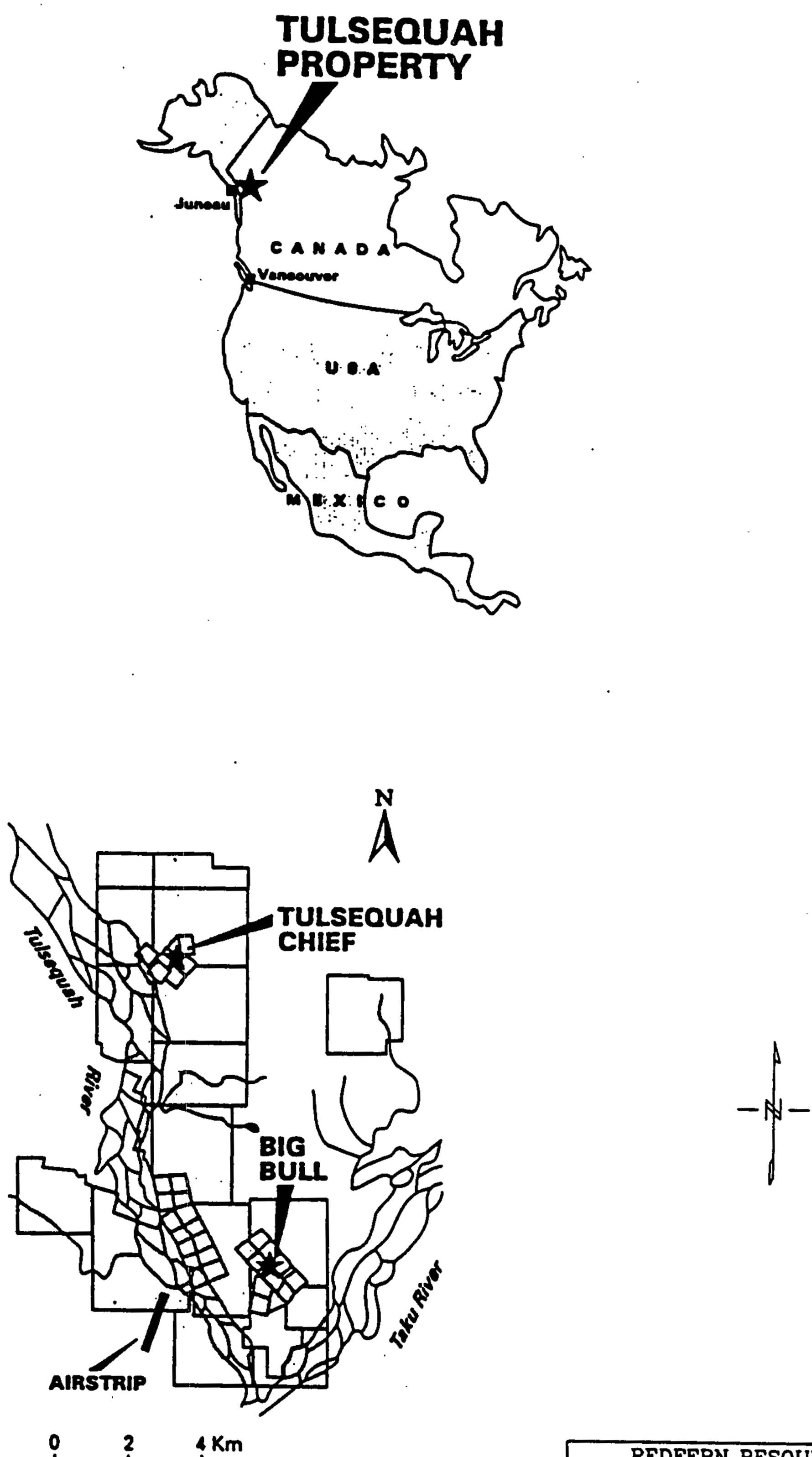
The geophysical surveys were also expected to assist in the mapping of the stratigraphy, in particular the exhalative horizons that are known to host Kuroko type deposits.

Grids were established at five sites within the large land holding that Redfern presently owns in the Tulsequah area. These grids are referred to as: Big Bull, Big Bull Extension, Banker, Southeast and Tulsequah Chief.

The survey area is heavily forested mountainous terrain with several very steep slopes which at times created access and operational problems for the survey crew.

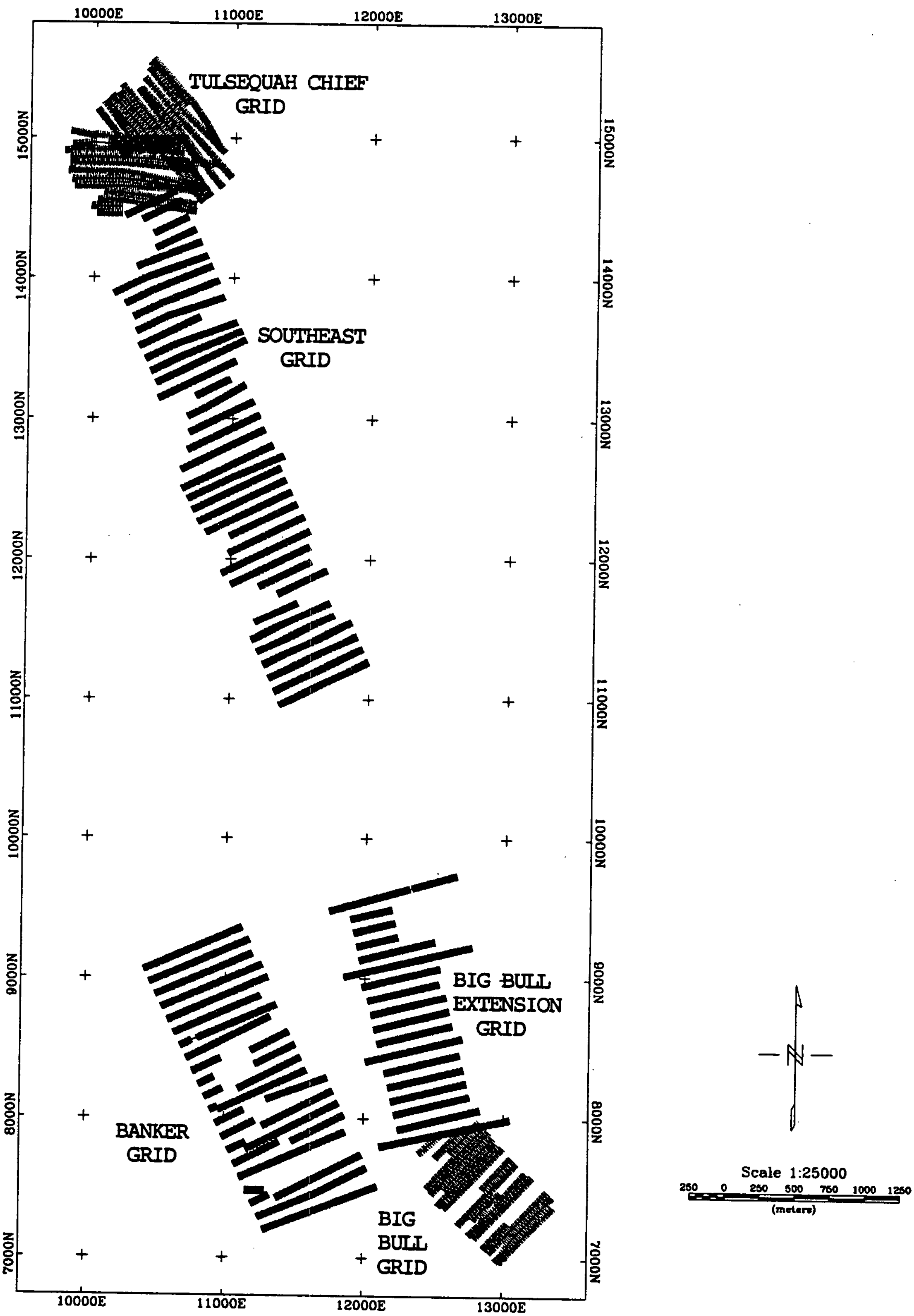
Several discussions were held with Redfern's Vice President of Exploration, Terry Chandler, prior to the survey. These discussions assisted the initial survey design and minimized the operational problems presented by the terrain. The geophysical surveys included the following techniques, although some were only small test surveys. The bulk of the work was Induced Polarization, Resistivity and Magnetics. Concern over the possible poor conductivity of the known ore zones prompted the test EM surveys. Electromagnetic techniques generally work well in massive sulphide exploration. Unfortunately western Canada VMS deposits frequently exhibit poor conductivity, thus can be difficult targets to detect with surface electromagnetic surveys.

(a)	Induced Polarization/Resistivity:	65 kms.
(b)	Magnetics:	87 kms.
(c)	Melis E.M. (C.S.A.M.T):	2 kms.
(d)	H.L.E.M. (Maxmin):	1.5 kms.
(e)	Protem 37D:	1.5 kms.
(f)	VLF-EM	6 kms.



REDFERN RESOURCES LTD
TULSEQUAH PROJECT, NORTHWEST BC
PROPERTY LOCATION
NORTHWESTERN BRITISH COLUMBIA
DELTA GEOSCIENCE LTD

Fig. #1.



REDFERN RESOURCES LTD

TULSEQUAH PROJECT, NORTHWEST BC
GRID LOCATION MAP
BIG BULL,BANKER,SOUTHEAST,CHIEF GRIDS

NORTHWESTERN BRITISH COLUMBIA
CANADA
1993 Geophysics
July-August-Sept survey

DELTA GEOSCIENCE LTD Fig. #2

PERSONNEL

Tom Peregoodoff - Geophysicist - Crew Chief.
Roger March - Geologist.
Dan Mayes - Student (undergraduate).
Brian McGrath - Geologist.
Grant Hendrickson - Senior Geophysicist/Supervisor.

EQUIPMENT

2 - B.R.G.M. IP-6 Receivers.
1 - Huntec 7.5 kva I.P. Transmitter System.
1 - B.R.G.M. Melis EM System - a two channel frequency EM receiver (frequency range 0.12 Hz to 7600Hz) connected to coils for the Hz and Hr EM field components.
1 - B.R.G.M. TX1000 Variable Frequency EM Transmitter.
1 - Geonics EM 37D (3 component Digital EM System).
2 - Scintrex I.G.S. VLF-EM/MAG/Gradiometer Receivers.
1 - Scintrex MPS Base Station Magnetometer.
1 - Apex Parametrics Maxmin 1-9-MMC EM System.
1 - Toshiba T3100SX Field Computer.
1 - Fujitsu DL2600 Printer/Plotter.
8 - Km. I.P. Wire.
4 - Km. Melis and Protem EM Loop Wire.
6 - King VHF Radios.

DATA PRESENTATION

Maps of all the geophysical data were produced in the field during the course of the survey. Report quality maps of the Induced Polarization/Resistivity and Magnetics response over each grid were later provided to Redfern, with the data converted to the Mine Grid co-ordinate system. These maps were colour contour plans, all at a scale of 1:2000. Contour plans do give a good spatial view of the data's intensity and continuity, although one has to be careful not to introduce a contouring bias. Knowledge of the regional geologic strike helps minimize this potential problem.

Within this report, reduced scale (1:10,000) colour plots of the maps mentioned above are provided. These page size maps facilitate the quick viewing of the data. For detail information however, one should refer to the large 1:2000 scale maps. A Metal Factor map has also been produced.

In addition, 1:50,000 and 1:25,000 scale maps of the combined grids are presented. These maps give a quick overview of all the data and clearly show the relationship between the grids.

Metal Factor is defined as the I.P. response divided by the resistivity response, with the result multiplied by a factor of 1000. Note that there is no physical basis for the metal factor, other than an assumption that metallic sulphide mineralization should reduce the resistivity response in conjunction with an increase in the I.P. response. Pyritic graphitic sediments and/or thick overburden conditions can also trigger a metal factor response, thus this type of data display must be used with caution. Used properly, the metal factor map can help focus on the most likely areas for semi to massive sulphide mineralization, particularly any relatively shallow mineralization.

A nine point Hanning filter (smoother) was applied to all the grid files prior to producing the contour plans.

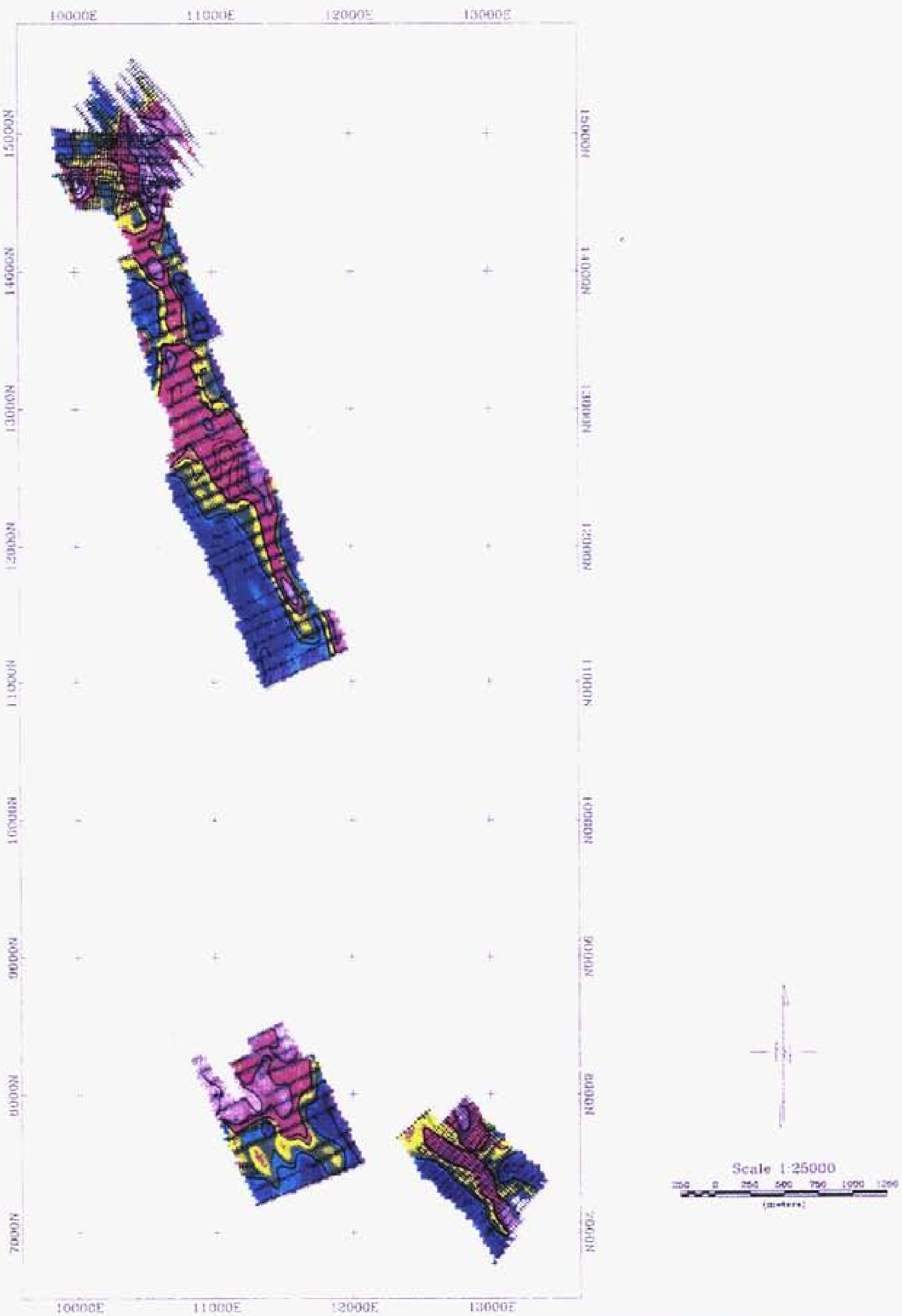
A resistivity and chargeability section for a portion of Line 3+00N of the Tulsequah Chief grid has been produced. This section was constructed by surveying the line with four different size gradient arrays, each focused at a different depth. The section is displayed with the topography, i.e. the vertical scale shown is the approximate height above sea level. The results from each different sized array were assigned an average depth of investigation. The depth of investigation of an array can be approximately determined from the simultaneous inversion (Fig. #9) of chargeability and resistivity depth sounding data, in conjunction with geologic knowledge of the stratigraphy from boreholes and surface outcrops. Borehole physical property data, although rarely available, would help in the evaluation of the depth of investigation.

The surface Melis E.M. data for a portion of Line 3+00N, Tulsequah Chief grid, is presented as a resistivity section. Selected portions of this data are also displayed as electromagnetic soundings, i.e. apparent resistivity versus 1/sqrt(F). An E.M. sounding can be interpreted by the Fremis program to provide a layered earth solution (Figs. #7 and 8). This solution is presented at the bottom of the sounding curve.

Small test surveys were done with the Maxmin horizontal loop system and the Geonics EM 37D system. Field evaluation of the results were not encouraging, thus these two techniques were dropped from the program and will only be briefly discussed in this report. With more time, this data should be re-evaluated in conjunction with the detail geologic information.

The VLF-EM data was Fraser filtered to produce a conductor plan map. Details of this filtering procedure and other filtering procedures used to reduce topographic effects and interpret VLF-EM data are referenced at the back of this report.

Note that all the plan maps have been converted to the mine grid co-ordinate system to facilitate correlation of different data sets. Individual lines however will be referred to by their original field designation i.e. 3+00N, T.C. Grid.



Reduced to 1:50,000.

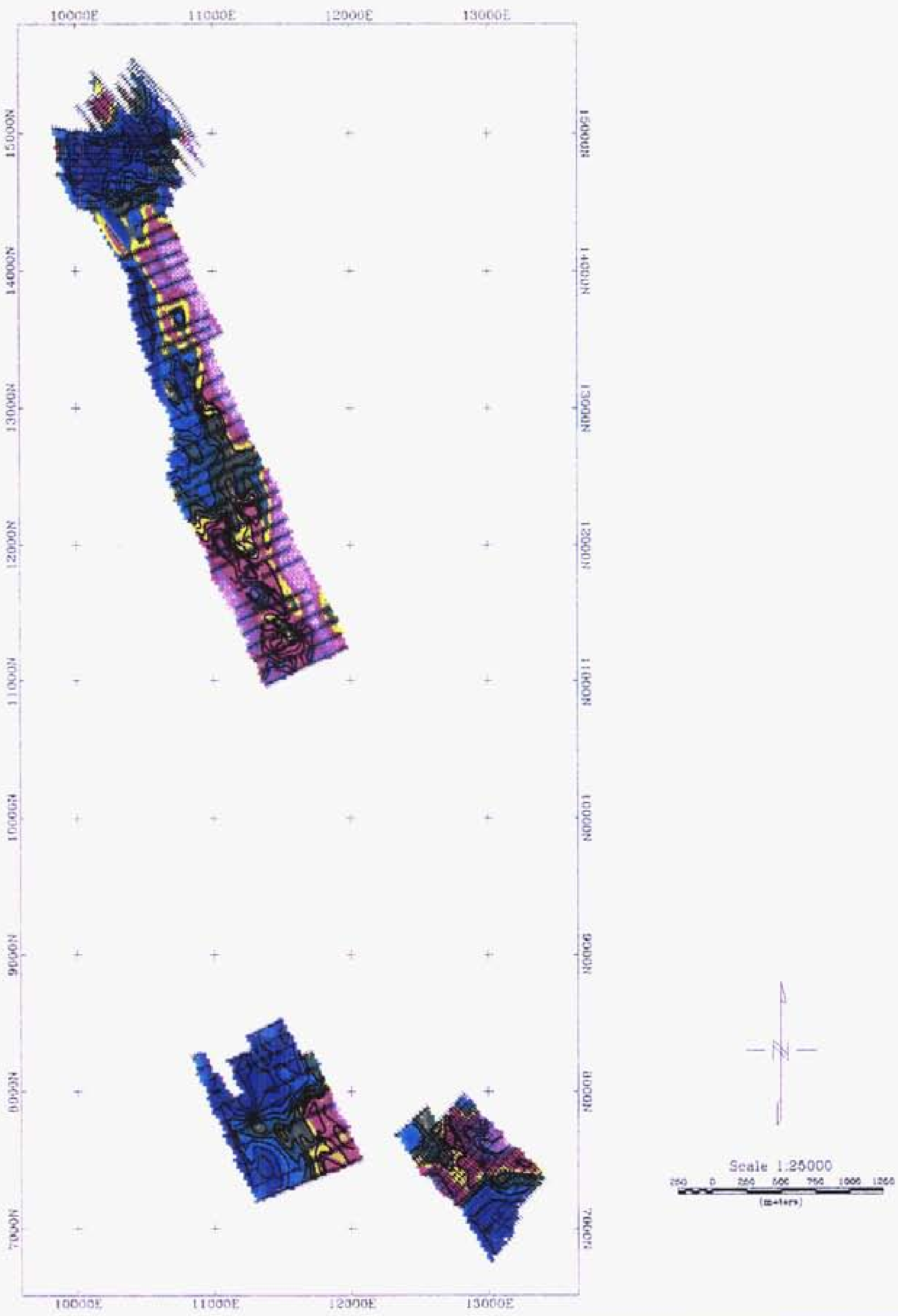
REDFERN RESOURCES LTD

TULSEQUAH PROJECT, NORTHWEST BC
ALL GRIDS
CHARGEABILITY PLAN

Contour interval 1 mV/V
Gradient array, AB = 1400m, MN = 50m
IRIS instruments
July–August survey, 1993

DELTA GEOSCIENCE LTD

FIG. 3



Reduced to 1:50,000.

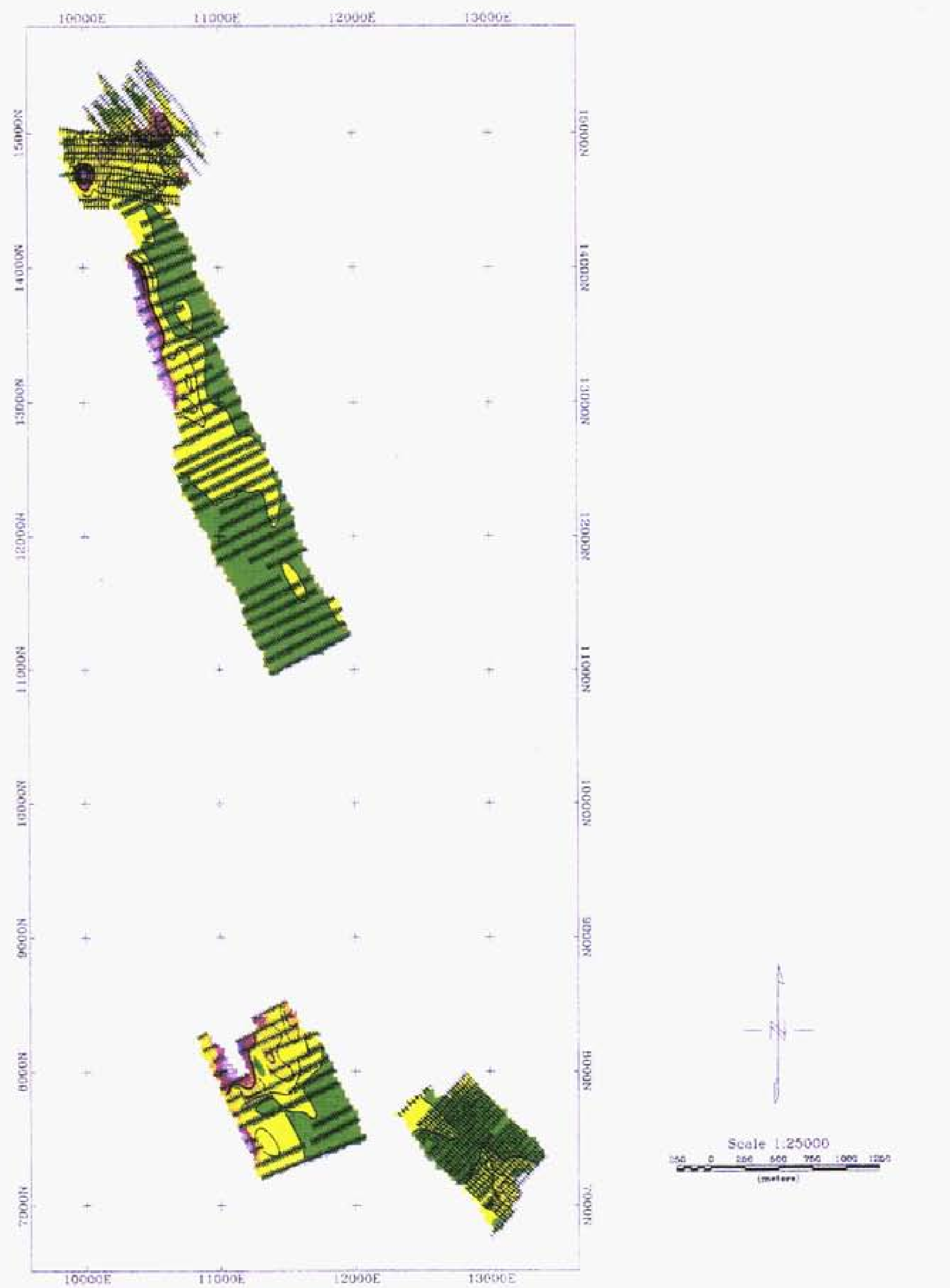
REDFERN RESOURCES LTD

TULSEQUAH PROJECT, NORTHWEST BC
ALL GRIDS
RESISTIVITY PLAN

Contour interval 200 ohm-m
Gradient array, AB = 1400m, MN = 50m
IRIS instruments
July-August survey, 1993

DELTA GEOSCIENCE LTD

FIG. 4



Reduced to 1:50,000.

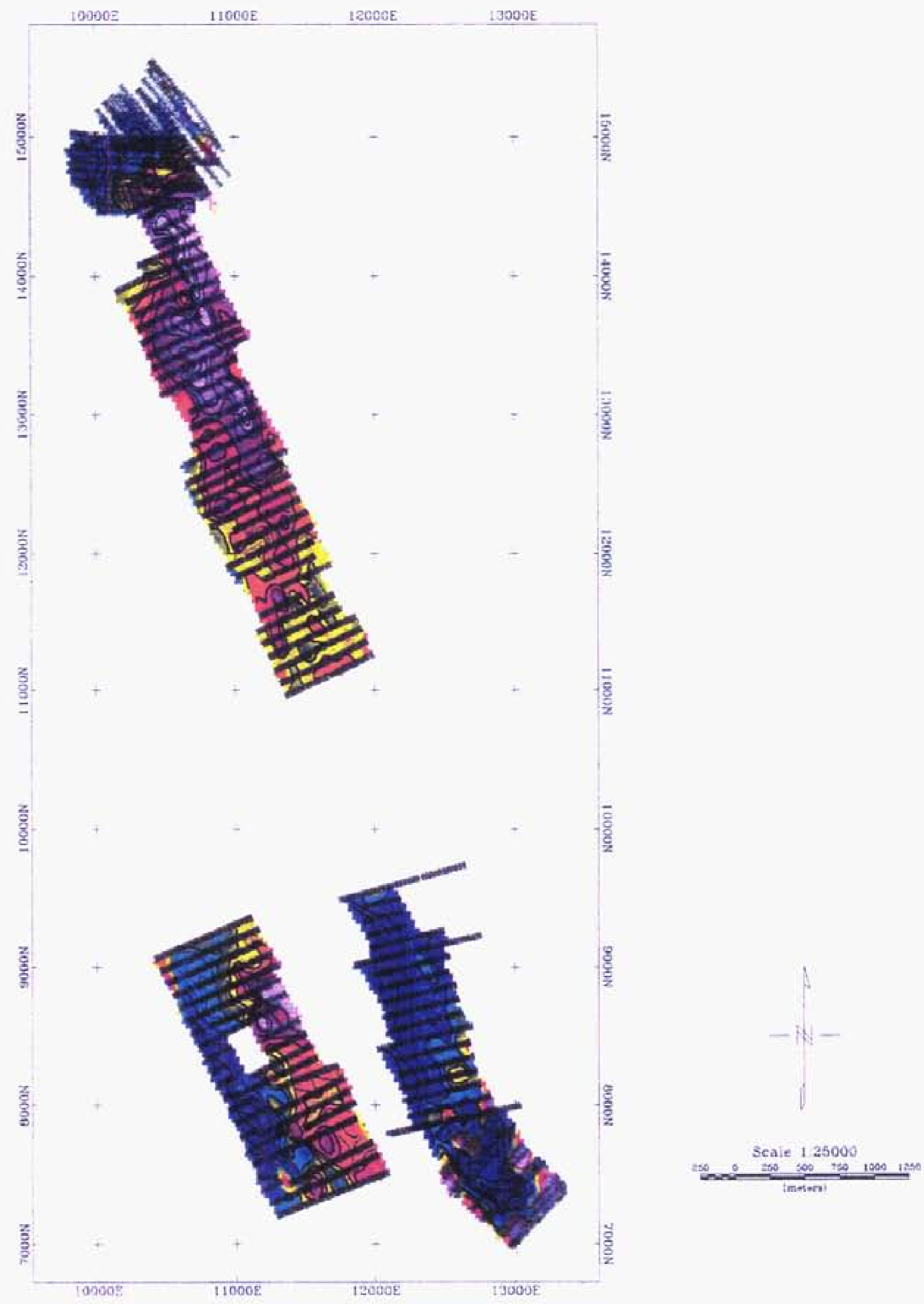
REDFERN RESOURCES LTD

TULSEQUAH PROJECT, NORTHWEST BC
METAL FACTOR PLAN
ALL GRIDS

NORTHWESTERN BRITISH COLUMBIA
Gradient array, AB = 1400m, MN = 50m
Contour interval 5
July-August-Sept 1995 survey

DELTA GEOSCIENCE LTD

FIG. 5



Reduced to 1:50,000.

REDFERN RESOURCES LTD

TULSEQUAH PROJECT, NORTHWEST BC
ALL GRIDS
MAGNETIC FIELD STRENGTH

Contour interval 25 nt
Total field data
Scintrex instruments
July-August survey, 1993

DELTA GEOSCIENCE LTD

FIG. 6

SURVEY PROCEDURE

Redfern personnel ensured the preparation of the grid lines, spaced 100 meters apart, was well underway prior to the arrival of the Delta Geoscience crew. Survey stations were slope corrected to 25 meter horizontal intervals.

For the Induced Polarization work, two array configurations were used, the Gradient and the Schlumberger arrays. The bulk of the work was done with the gradient array.

The standard survey gradient array coverage was carried out with a current electrode separation (AB) of 1400m and a potential electrode separation (MN) of 50m. This array is focused at the approximate 160 meter depth, however the focal plane of the array is large (50-200 meters). Very shallow mineralization with very poor depth extent (less than 50 meters) would not respond well to this array.

Note the convention that "AB" denotes the current electrode separation, and "MN" denotes the potential electrode separation. It is preferable to keep the "MN" distance as small as signal levels will permit. The slight D.C. data shift often present when comparing adjacent gradient array blocks, was determined by overlapping the blocks and was subsequently corrected, if necessary, by adjusting the data to one level. The chargeability data generally repeated very well, whereas the resistivity data varied moderately.

Overlap on each reading was 50%, i.e. 25 meters between reading points to maximize the horizontal resolution of the shallower features.

A small area of interest in the Tulsequah Chief grid also received lateral detail work utilizing a smaller AB spacing (950m). This area is referred to as the" T.C. Detail Block".

The gradient array provides for good horizontal resolution of anomalies and a deep depth of investigation. The wavelength and asymmetry of gradient array responses often provides the first indication of the target depth and dip. By varying the current electrode separation, one can also find the focus depth of an anomaly and subsequently produce a chargeability and resistivity section that illustrates the depth and shape of the target. This type of data illustration is relatively free of the geometric distortions seen in dipole-dipole and pole-dipole work. Gradient arrays also minimize operational problems in rough difficult terrain like Tulsequah - a feature which ultimately leads to cost savings.

To produce the chargeability and resistivity section of L.3+00N, T.C. grid, a series of gradient and Schlumberger array traverses were necessary to dramatically vary the depth of investigation. The AB separations used for these arrays are as follows:

AB = 1400m, AB = 950m, AB = 500m, AB = 200m.

The smaller two AB spacings utilized the moving Schlumberger array, an array very similar to the gradient array.

The Melis EM system is based on the frequency domain electromagnetic sounding technique and is essentially a controlled source E.M. system that measures the magnetic field amplitude produced by a horizontal two turn loop (generally 200m by 200m). In addition to conventional amplitude measurements, the instrument measures phase in the frequency range (0.1Hz to 8Khz). Relative phase measurements enable a more accurate interpretation, especially in areas of rough topography where geometrical effects can be a significant problem at low frequencies. An apparent resistivity is defined from the quadrature component of the complex ratio Hr/Hz.

The Melis EM system is well suited to the exploration and delineation of deeply buried conductive bodies and in particular is more capable of detecting weakly conductive zones at depth than the corresponding time domain EM systems.

The relative amplitudes and phase differences of the radial Hr and vertical Hz magnetic field components were measured and used to define resistivities for the following sequence of frequencies: 5450Hz, 3620Hz, 1800Hz, 900Hz, 450Hz, 220Hz, 70 Hz, 27.5Hz and 11Hz. Survey stations were located every 50 meters along the Tulsequah Chief grid lines 350N, 300N and 250N. The transmitter loop was located at: 500W/300N - 700W/300N.
500W/100N - 700W/100N.

Melis resistivity data is interpreted through a computer program called Fremis. This program compiles a theoretical sounding corresponding to a layered earth model (1D geo-electrical section). The theoretical model is adjusted to find the best fit with the observed data.

It is readily apparent that the structural geology at Tulsequah is complex, therefore a 1D layered earth modelling program will at best only approximate the actual resistivity structure of the mountain. Rapid facies change, alteration and mineralization within the volcanic stratigraphy would combine to create a complex resistivity distribution with depth. Depth estimates from the modelling are used to approximate the frequency to depth conversion scale. This procedure should prove reasonably accurate. It is in the shape of attitude of a conductive body that significant differences from the model will occur.

Modelling of a 2D conductive structure has shown that the typical anomaly detailed in a Melis E.M. survey will generally be of bipolar type on a depth section of the apparent resistivity. A conductive pole tends to be well centered over the investigated conductive structure at the lowest frequencies and a resistive pole at higher frequencies. As an anomaly gets deeper, the bipolar nature of the response is not as obvious, however the conductive anomaly still appears as a distinct resistivity low.

For a vertical conductive structure at shallow depth, the boundary between the conductive and resistive poles will be subvertical on the resistivity section. This boundary tends to become horizontal as the structure deepens.

The horizontal co-planar loop EM survey (Maxmin) at Big Bull was done at a 150 meter coil separation and four frequencies, 220Hz, 440Hz, 1760Hz and 7040Hz. From this small test survey, the field crew determined that there were grid chaining errors and that the mineralized zone was not responsive to the horizontal loop (Maxmin) survey technique. Numerous cliffs made it difficult to move the interconnecting cable along the lines.

Note that the in-phase Maxmin data was further corrected for the coil separation (chaining) errors, by subtracting out the 220Hz in-phase response from the higher frequencies - a safe procedure when only weak to moderate strength conductors are expected.

The Protem EM 37D survey was carried out measuring simultaneously the vertical Hz and horizontal Hx component of the decaying electromagnetic field. The 300m by 450m transmitting loop was laid out as follows: 150S/500W - 300N/500W.
150S/200W - 300N/200W.

After reviewing the Protem results, the field crew felt the system was only picking up the steel underground rail tracks, thus terminated the survey. Ultimately, this data should be reviewed with the most detailed geology of the area.

The Magnetic survey was completed using a backpack mounted sensor approx. 2 meters above the ground. The data was corrected for any diurnal variation through the use of a base station magnetometer. VLF-EM data was recorded for the Big Bull grid using the Seattle station NLK transmitting at 24.8 khz. Unfortunately the VLF-EM survey was suspended after the Big Bull grid due to time constraints and concerns about the topographic effects in the data.

To summarize, the geophysical survey described in the preceding section was designed to help evaluate the property in a cost effective manner for:

a) the spatial position and strength of any buried disseminated or semi-massive sulphide mineralization.

b) the spatial position of structures and major alteration zones. The significant weathering of mineralization along porous fault structures is often reflected by lenticular shaped induced polarization lows coincident with magnetic lows.

c) the detection of the different lithologies to assist in geological mapping.

The Induced Polarization survey (chargeability) was expected to respond primarily to disseminated and/or massive sulphide mineralization. A moderately weak response was expected from unmineralized volcanics and metasediments, although metasediments that are pyritic and weakly graphitic will have a moderate I.P. response.

The Resistivity survey was expected to respond primarily to the lithology and alteration. Deep poorly conductive sulphide deposits would only produce a modest resistivity low. Hydrothermal alterations along structural breaks often result in silicification (high resistivity) and minor sulphide mineralization (moderate I.P. response). Areas where there is a direct correlation of high chargeability with low resistivity can signify massive sulphide mineralization, particularly when the host geology is supportive. Metasediments generally have a moderately low resistivity often similar to tuffs, whereas volcanic flows and intrusives tend to have a much higher resistivity. Felsic flows and intrusives tend to have a very high resistivity.

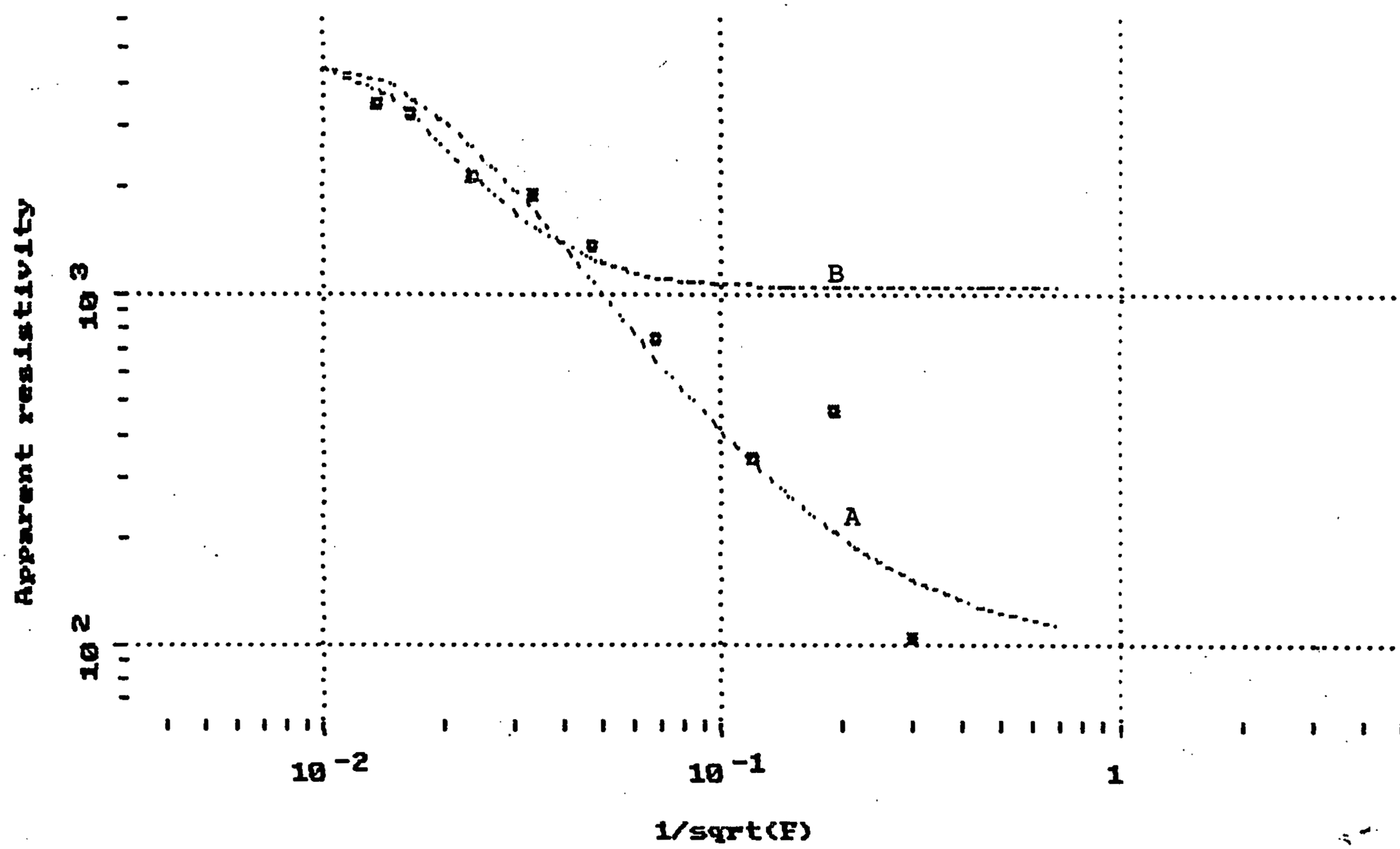
Disseminated sulphide mineralization generally has to be quite concentrated (>10%), in order to substantially reduce the bulk resistivity of the host rock, although there are some important exceptions to this generalization.

The Magnetic survey was expected to respond strongly to changes in lithology, due to significant changes in the magnetic susceptibility of the underlying bedrock. Mafic rocks and their related dikes and sills normally have a strong magnetic response. The magnetic response depends largely on the amount of disseminated magnetite mineralization present - a feature which can vary considerably even in the same rock type. Metasediments and felsic volcanics generally have a low magnetic response, thus the magnetic data can help differentiate between mafic and felsic volcanics. Unfortunately, the metasediments will generally have the same magnetic response as the felsic rocks.

Intense hydrothermal alteration along structures can alter magnetic mineralization to non-magnetic limonite, thus a very localized magnetic low can be a significant exploration lead.

MELIS

ELECTROMAGNETIC SOUNDING



TULSEQUAH CHIEF GRID

Line 3+00N, Station 1+50W.

Model (Dashed Line)
(Curve A)

▫Field Data

0 - Surface.

3800 ohm-m.

360m depth.

20 ohm-m

374m.

1000 ohm-m.

420m.

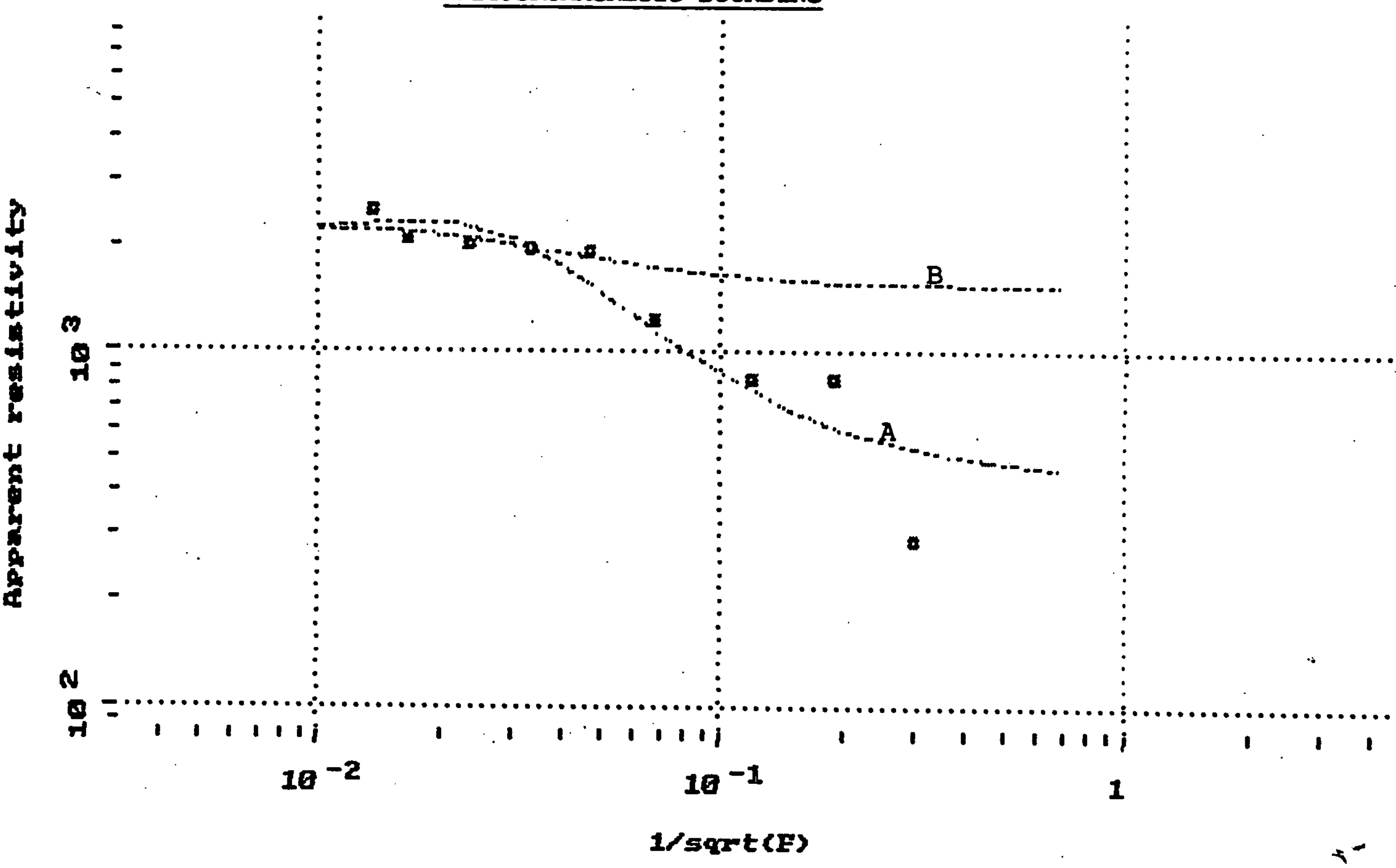
20 ohm-m.

NOTE: Curve B uses the same model with the absence of the deep conductor at 420m.

Fig.#7.

MELIS

ELECTROMAGNETIC SOUNDING



TULSEQUAH CHIEF GRID

Line 3+00N, Station 2+00E.

Model (Dashed Line)
(Curve A)

¤ Field Data

0 - Surface

2200 ohm-m.

420 meter depth.

275 ohm-m.

430 m.

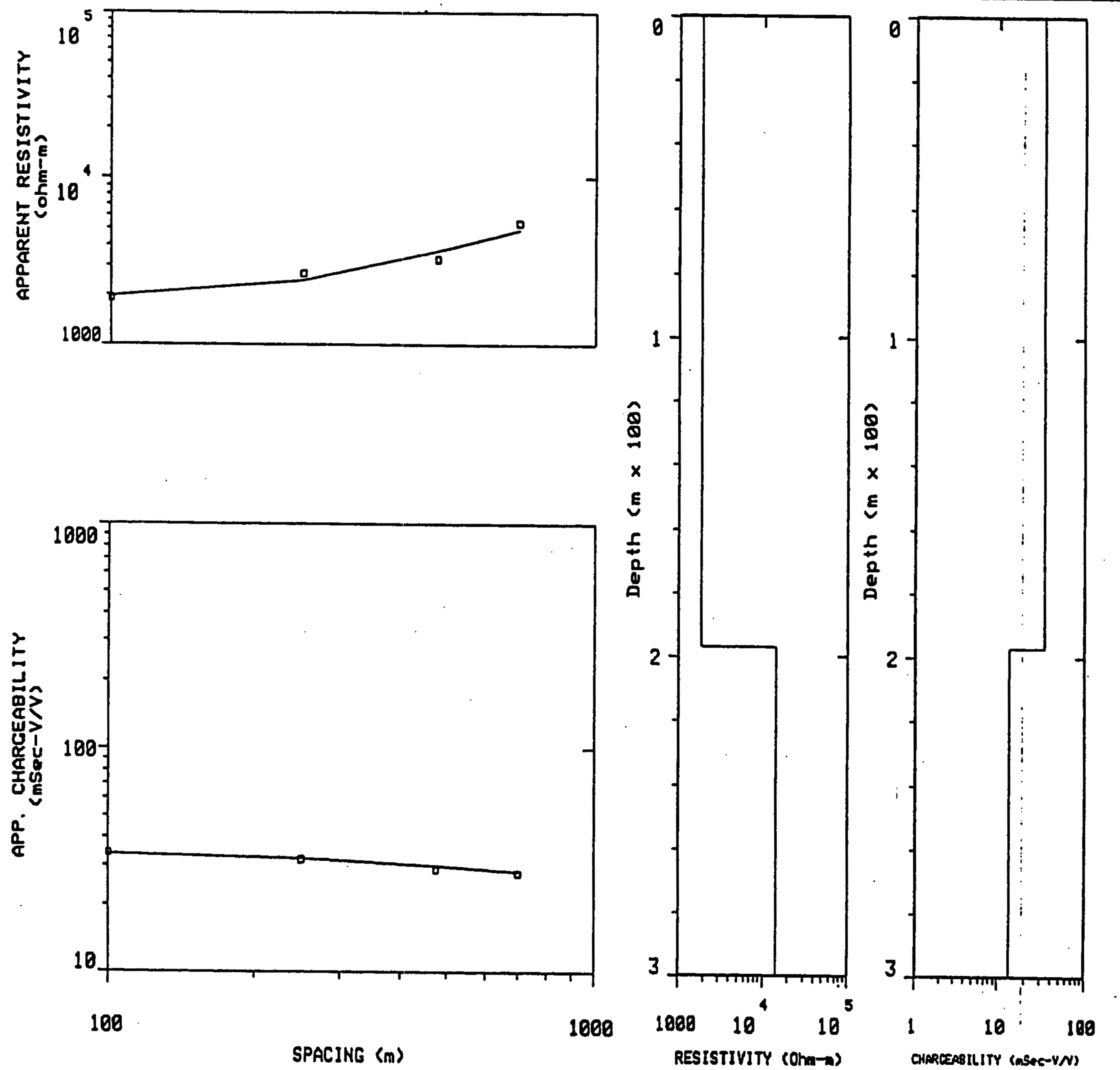
1000 ohm-m.

520m.

125 ohm-m.

NOTE: Curve B uses the same model with the absence of the deep conductor at 520m.

Fig. #8.



TULSEQUAH CHIEF GRID

Electrical sounding located at 10650E on Line 3+00N. (2 layer solution).

Plate: 9

for: REDFERN RESOURCES LTD		Resistivity/IP Sounding
by: Delta Geoscience Limited		TULSEQUAH BRITISH COLUMBIA
Data Set: TC	Date: 11-APR-94	
Equipment: BRGM	Sounding: 001	Azimuth: 135

Fig. #9.

DISCUSSION OF THE DATA

BIG BULL GRID:

The Induced Polarization survey has outlined five anomalous areas of apparent sulphide mineralization:

Area 1: Centered at 13125E, 7120N.
A strong narrow response from a shallow southwest dipping body that has good downdip extent. This response is probably directly related to the Big Bull Deposit.

Area 2: Centered at 12900E, 7040N.
A possible deep satellite deposit or fault repetition of the Big Bull Deposit.
An interesting area that requires more deep looking I.P. work, as it lies on the flank of the existing geophysical coverage.

Area 3: Centered at 12890E, 7480N.
A long narrow southwest dipping anomaly of good depth extent that appears to be getting deeper and steepening to the northwest. Depth to the top of this body is estimated to be 50 meters.

Area 4: Centered at 12800E, 7820N.
A broad anomaly with an apparent moderate dip to the east. Depth to the top of this good depth extent anomaly is estimated to be 75 meters.

Area 5: Centered at 13280E, 7300N.
A narrow weak response to the northeast of the Big Bull Deposit.
This shallow response may be due to cultural noise (wires, pipes, etc.) from past mining activity. Should be field checked before ignoring.

In general, the I.P. anomalies recorded on the Big Bull grid are occurring in the lower resistivity and low magnetic field strength rocks. The I.P. anomalies appear closely related to the very high resistivity rocks that flank them. These high resistivity rocks may represent felsic domes, although there also appears to be a magnetic phase to some of the high resistivity areas, possibly mafic volcanic flows and/or mafic intrusive bodies.

The correlation of low magnetic field strength (magnetic susceptibility) with the I.P. anomalies, suggests a felsic host rock, however could also signify metasediments - the possible lateral distal equivalent to the felsic rocks.

The relatively low resistivity area (approx. 2,000 ohm-m) in the southwest corner of the grid does not appear to fit well with the mapped surface geology. This may be due to a rapid change of the geology with depth - a feature suggested by the I.P. response. A shift in the resistivity response as the gradient survey block electrodes were moved to the northwest is obvious, however the magnitude of this shift could only be caused by a sequence of lower resistivity rocks to the southwest.

<u>BIG BULL EXTENSION GRID</u>:

- Only magnetic field strength surveying was completed on this grid.
- This data will help in extending the Big Bull geology to the north and also suggests the grid lines should extend further to the east.
- At some point in the future, this grid should receive induced polarization/resistivity coverage.

<u>BANKER GRID</u>:

There is a very interesting correlation of the high chargeability response with lower resistivity and low magnetic field strength. The complex contour patterns to the numerous I.P. anomalies suggest an area of intercalated volcanics (pyritic felsic tuffs?) and metasediments with perhaps the sedimentary component increasing to the west. In any event, sulphide mineralization appears to occur over a thick sequence of the stratigraphy.

Note that only the southern portion of the Banker Grid received induced polarization/resistivity surveying.

The very abrupt rise of the I.P. response at approx. 7700N suggests an east-west oriented fault, however this location for a fault is not supported in the magnetic data. A facies change to more sulphidic horizons along strike to the north is a more likely scenario. At this time, the I.P. anomalies do not appear to have a formational nature, although more I.P. surveying to the north and west should be undertaken. The blank (no data) areas within the grid were omitted because of severe topography.

The high resistivity, low chargeability and moderate magnetic field strength area in the southeast corner of the grid may be related to felsic volcanic flows. The strong relatively small magnetic responses occurring within this area may be related to mafic intrusions. A much larger possible mafic intrusion exists to the north at 8800N on the east side of the grid.

The present geophysical information suggests that the 8200N area of the Banker Grid could be a centre of past volcanic exhalative activity. Detail geochemical and geologic data is essential to the evaluation of these relatively shallow I.P. anomalies as possible drill targets.

SOUTHEAST GRID:

South Sheet:

The large moderately strong southwest dipping (approx. 50 deg) I.P. anomaly centered at 11300E, 12600N appears to be the focus to most of the I.P. anomalies detected within this grid. It's interesting to note that this very interesting I.P. anomaly is occurring where the resistivity data suggests a folding or doming of the high resistivity horizon (possibly felsic flow rocks) that flank the eastern side of the grid. It is also interesting to note that large relatively strong magnetic responses start to appear to the northwest of this area. The stratiform appearance to these magnetic anomalies suggests mafic flows. Pyritic mafic volcanics intercalated with metasediments may be causing some of the smaller I.P. anomalies to the north. Offsets in the contour patterns and the juxtaposition of the I.P. anomalies suggest the northern part of the grid has been disturbed by north-south trending faults.

The smaller I.P. anomaly centered at 11560E, 11650N may be a distal equivalent to the larger anomaly mentioned above. Note that this I.P. anomaly correlates directly with a modest resistivity low. This shallow steeply dipping anomaly should be studied further in conjunction with the I.P. anomaly occurring in the extreme southeast corner of the grid. These anomalies lie on opposite flanks of a high resistivity horizon (felsic flow?) that separates them.

Expansion of this grid is warranted in certain areas, since the data has been recorded over a relatively small envelope of the prospective geology.

SOUTHEAST GRID:

North Sheet:

For much of this grid, there is a good correlation between a high chargeability response and relatively low resistivity, in conjunction with relatively high magnetic response. This latter correlation suggests steeply west dipping mafic volcanics intercalated with minor pyritic metasediments, however one cannot rule out narrow interbedded mineralized felsic units. The stronger I.P. anomalies centered at (a) 10700E, 13350N, (b) 10500E, 14000N, and (c) 10550E, 14450N, appear to be very steeply east dipping with good depth extent, although responses from closely spaced chargeable horizons are more difficult to interpret.

Anomaly (b) mentioned above may lie at the contact between mafic and felsic volcanics, thus deserves more attention. The isolated short strike length high resistivity response flanking anomaly (b) is non-magnetic and may represent a felsic flow.

The low resistivities and reduced magnetic response centered at 10500E, 13600N are likely due to a broad area of metasediments. There is a hint of an I.P. response further to the west of this area, however the grid would have to be expanded to confirm this. Note the low resistivities have triggered a strong metal factor response along the west flank of the grid, which must be treated with caution.

The moderately strong I.P. anomaly centered at 10650E and 13000N correlates with the southern extension of the broad low resistivity, low magnetic field strength horizon mentioned above. Although pyritic metasediments is the likely source of the anomaly, the area deserves further attention. The metal factor response over this area is certainly more justified. The apparent stacking of I.P. anomalies across the grid at this location may indicate a volcanic center with intercalated felsic, mafic and metasediment horizons.

TULSEQUAH CHIEF GRID:

The induced polarization survey appears to have defined the known mineralization quite well and detected satellite anomalies particularly to the south and west that will ultimately require drill testing.

The resistivity results show a modest resistivity low correlating with the I.P. response from known mineralization. The low resistivity response broadens to the west, possibly reflecting extensive hydrothermal alteration of the volcanics and/or an increased metasediment component. The metal factor map may be skewed by the lower resistivities to the west. Relatively high resistivity rock, coincident with a strong magnetic response (probably mafic volcanics), surround the main I.P. response, except for an area to the southwest.

The Detail block (Figs. #29-31) and the chargeability, resistivity and metal factor depth section of L.3+00N (Figs. #34-39) provide more definition of an eastern extension (bulge) to the main Tulsequah Chief I.P. anomaly. The sections in particular should help in the drill testing of the area. The simultaneous inversion of the chargeability and resistivity data (Fig. #9) provided a guide to the depth of investigation of the various I.P. surveys.

The Melis E.M. data from L.3+00N over the Tulsequah Chief deposit is complex. Two weakly conductive steeply northwest dipping anomalies of good depth extent are indicated at 0+40W and 1+00E. These two anomalies appear to reach their apex at approx. 75 meter deep below the surface (240 meter elevation). A third more deeply buried weakly conductive anomaly appears to be located below station 2+50E, at a depth of 420 meters. At depth there appears to be broad areas of relatively low resistivity (250 ohm-m) that could be related to highly altered pyritic rocks. Lines 2+50W and 3+50N were also read with the Melis E.M. system. The results from these closely spaced lines were virtually identical, thus only L.3+00N was interpreted (Figs. #7 and #8) and included in this report. The drill hole geology from the holes that pass below L.3+00N should be plotted on the Melis section as a further check on the interpretation of the Melis E.M. data.

CONCLUSION AND RECOMMENDATIONS

The gradient array induced polarization survey has been very cost effective in detecting the known VMS mineralization at Big Bull and Tulsequah Chief. The shape and magnitude of the geophysical responses from the known ore zones provide the best guide to the exploration significance of the very interesting I.P. anomalies found in the intervening ground between the two deposits. Interfacing the geology and geochemistry with the geophysical data should establish the drill target priority. Weakly graphitic and pyritic metasediments are very likely the source for many of the I.P. anomalies.

Differentiating the source of the I.P. anomalies from (1) exhalative sulphide mineralization associated with felsic volcanics and (2) pyritic metasediments, remains a difficult exploration problem. Large VMS deposits are often associated with an increased component of metasedimentary rocks, in conjunction with the normal felsic volcanics.

The resistivity and magnetic field strength data has provided very useful information on the geology of each grid. This data should be used to accurately extend the geologic mapping through overburden covered areas.

The geophysical sections (Melis and I.P/Resistivity) of line 3+00N on the Tulsequah Chief grid should be evaluated for drill targets in conjunction with the geologic sections derived from the extensive drilling of the area.

In many areas of the grid, it's clear that a very narrow envelope of the prospective geology has been surveyed with geophysics. An improved geologic map of the area should encourage an expansion of the present grids. In addition, more chargeability and resistivity depth sections should be undertaken to further define anomalies of interest.

A drilling program is warranted to not only test the better geophysical anomalies, but to also evaluate the geophysical approach to the exploration problem. Borehole electromagnetic surveys should be seriously considered, since they provide a much more complete evaluation of the area (100m) surrounding each hole.

G. Hendrickson

Grant A. Hendrickson, P.Geo.

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STATEMENT OF QUALIFICATIONS

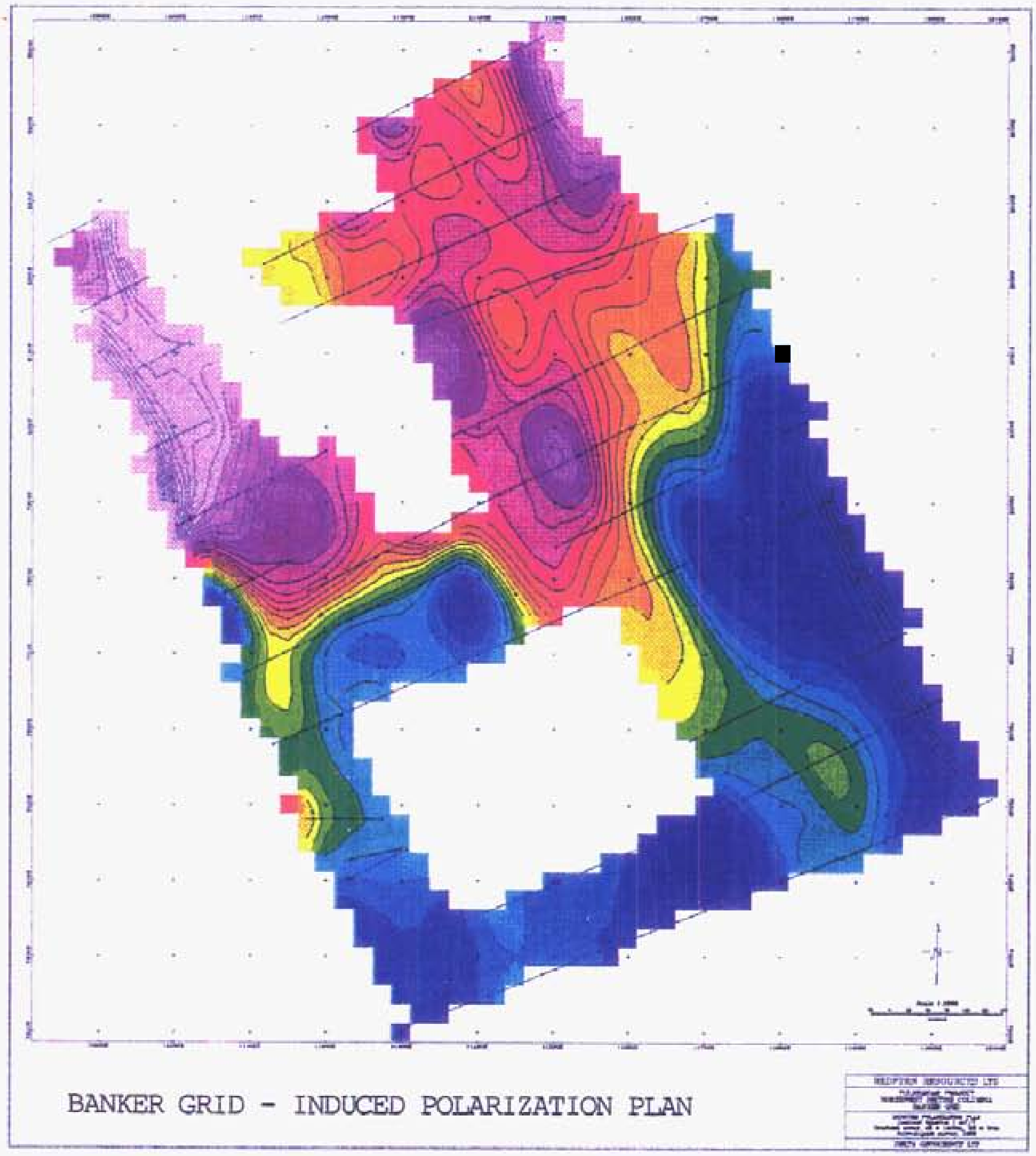
Grant A. Hendrickson.

- B.Science, University of British Columbia, Canada, 1971. Geophysics option.
- For the past 23 years, I have been actively involved in mineral exploration projects throughout Canada, the United States, Europe and Central and South America.
- Registered as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of the Province of British Columbia, Canada.
- Registered as a Professional Geophysicist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta, Canada.
- Active member of the Society of Exploration Geophysicists, European Association of Exploration Geophysicists and the British Columbia Geophysical Society.

Dated at Delta, British Columbia, Canada, this 14 day of APRIL, 1994.

G. Hendrickson

Grant A. Hendrickson, P.Geo.



Scale Reduced to 1:10,000

Fig. #16.

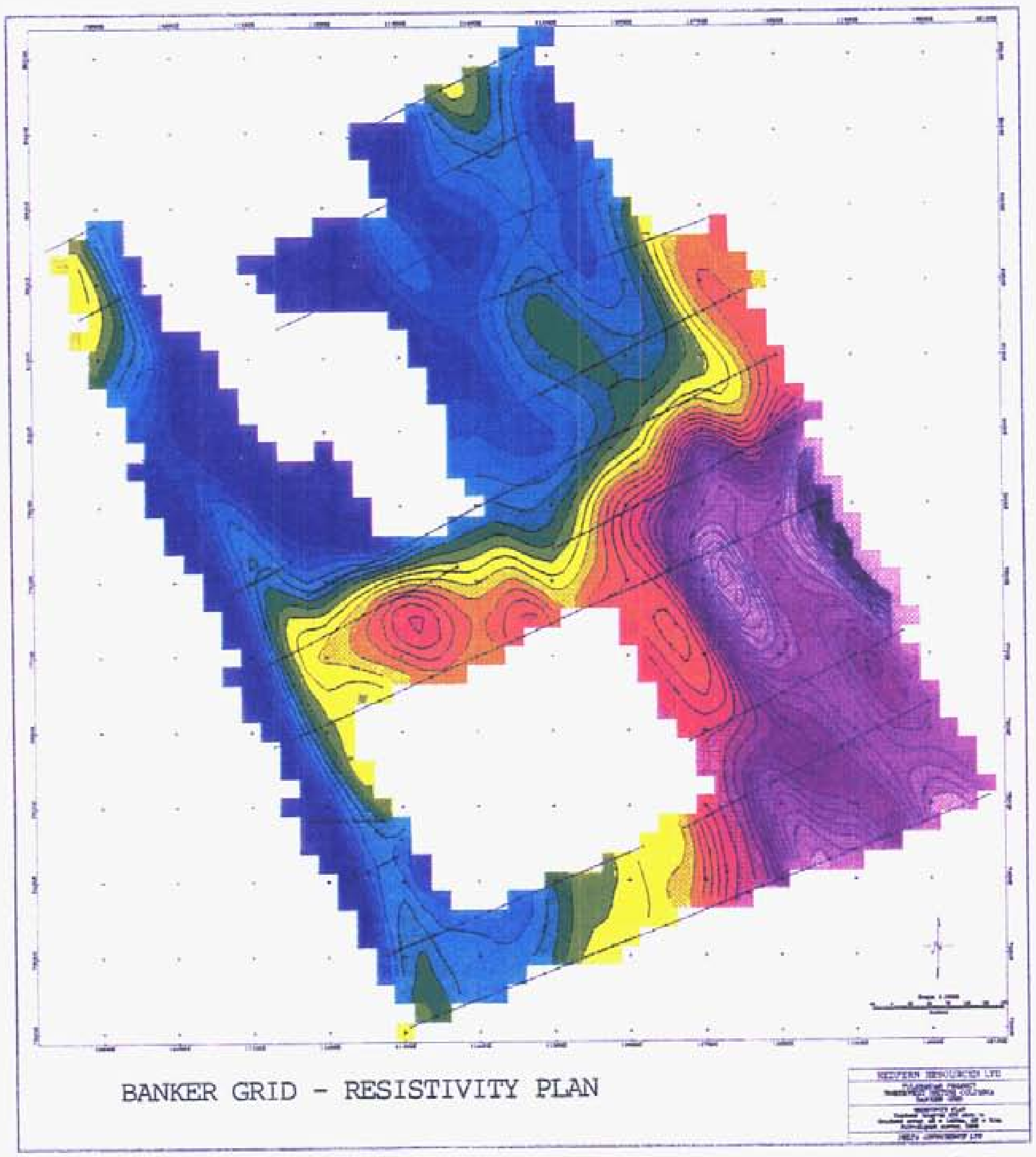


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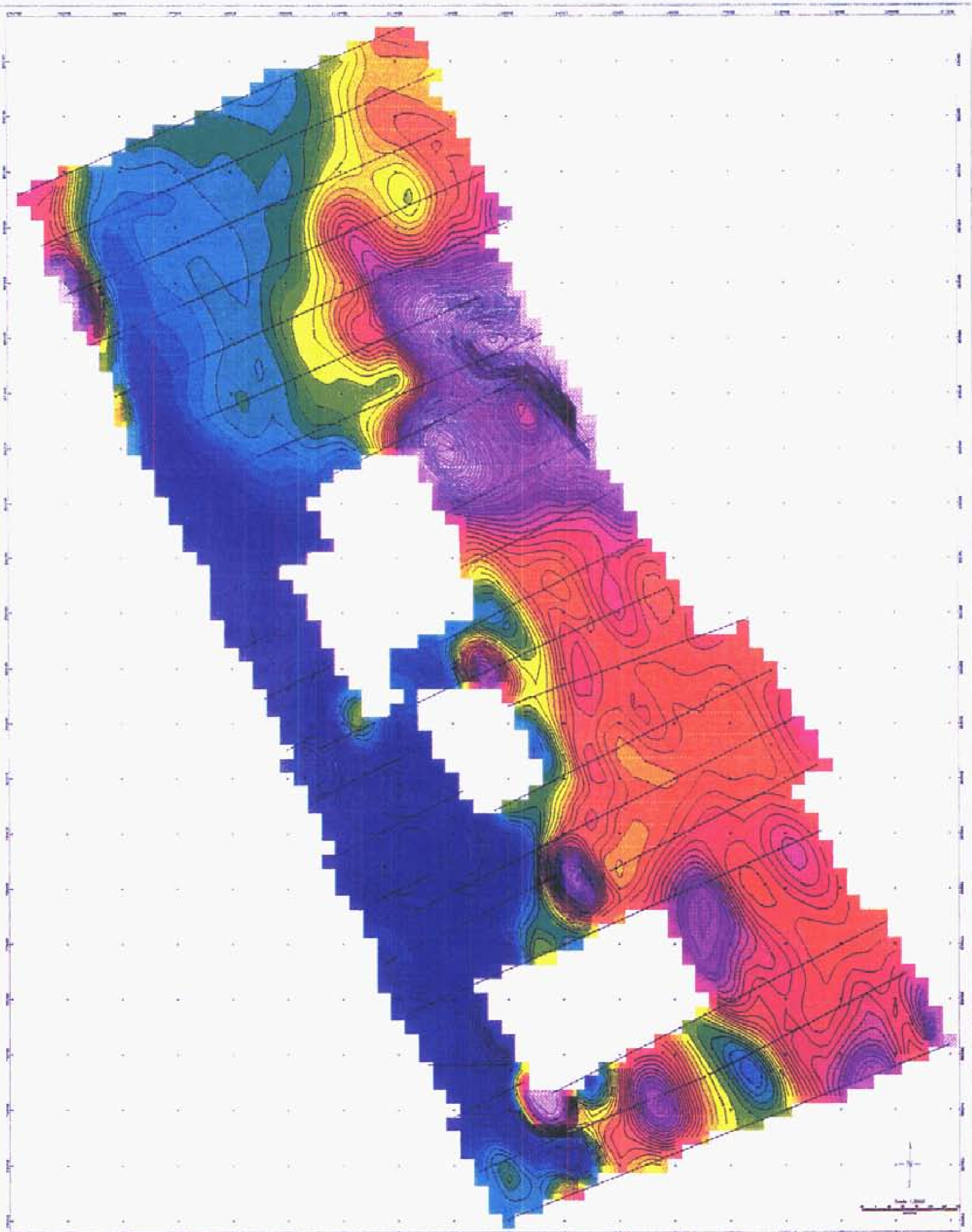
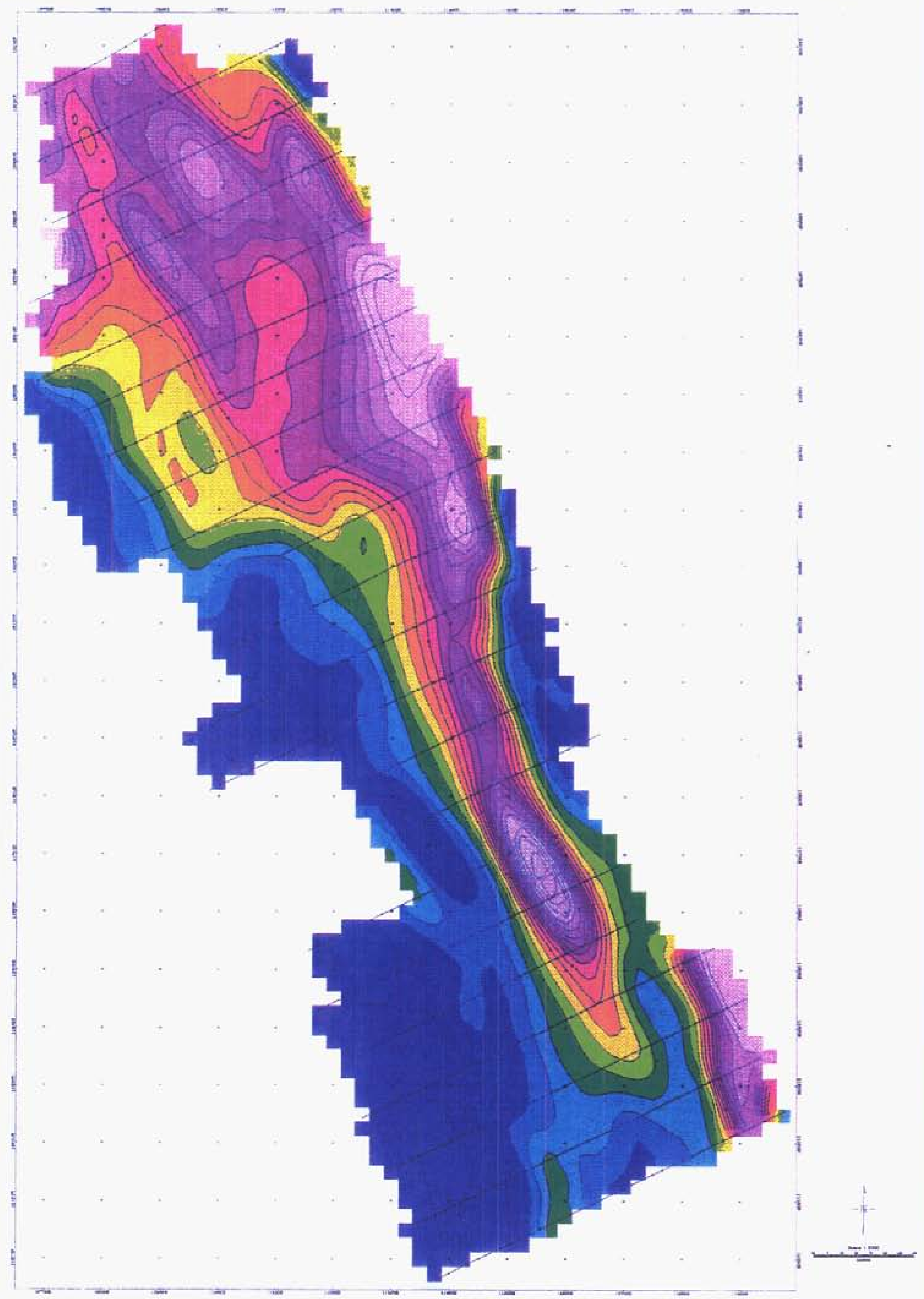
Fig. #17.



BANKER GRID - MAGNETIC FIELD STRENGTH PLAN

Scale Reduced to 1:10,000

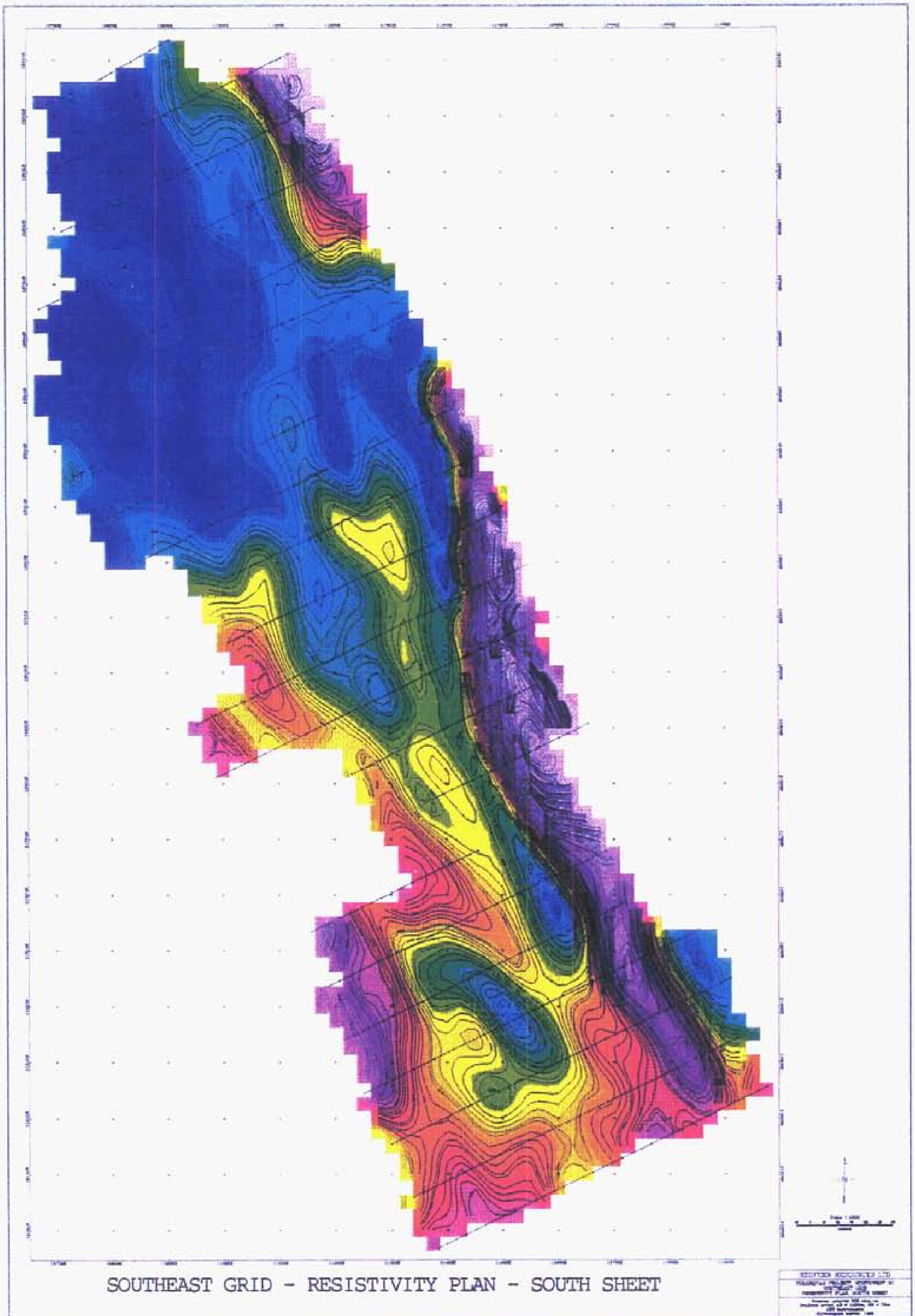
Fig. #18.



SOUTHEAST GRID - INDUCED POLARIZATION PLAN - SOUTH SHEET

Scale Reduced to 1:10,000.

Fig. #19.



Scale Reduced to 1:10,000.

Fig. #20.

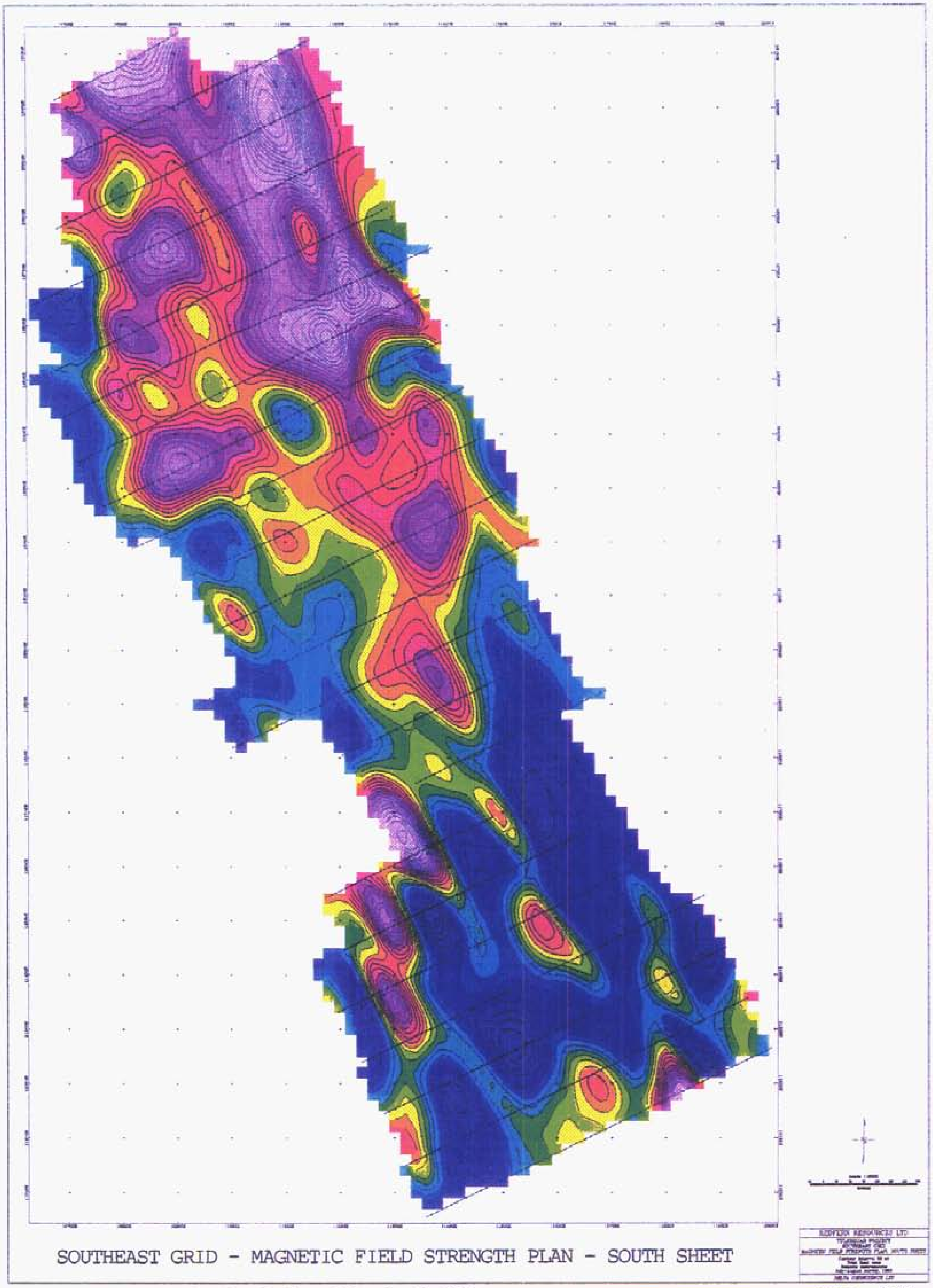


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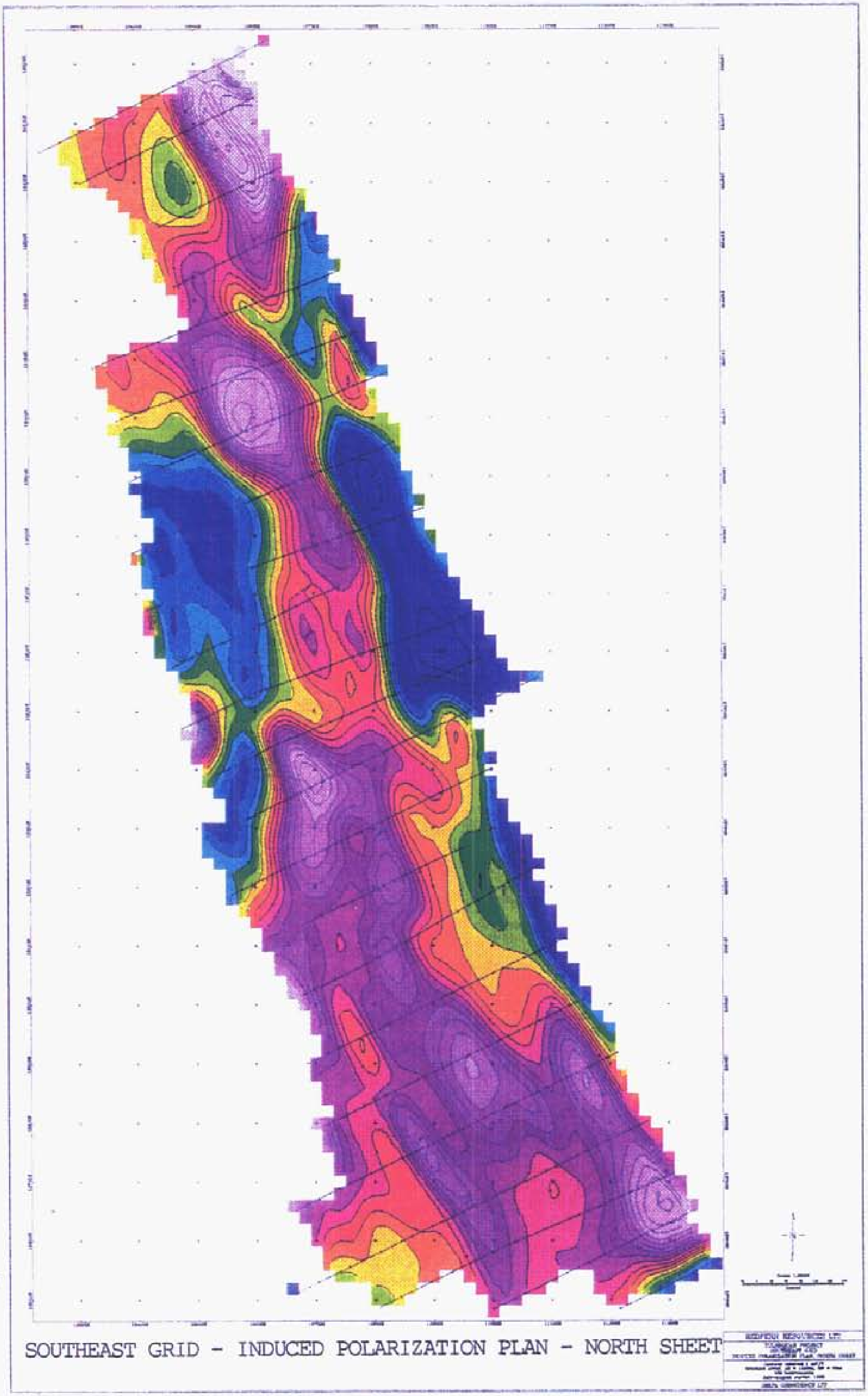
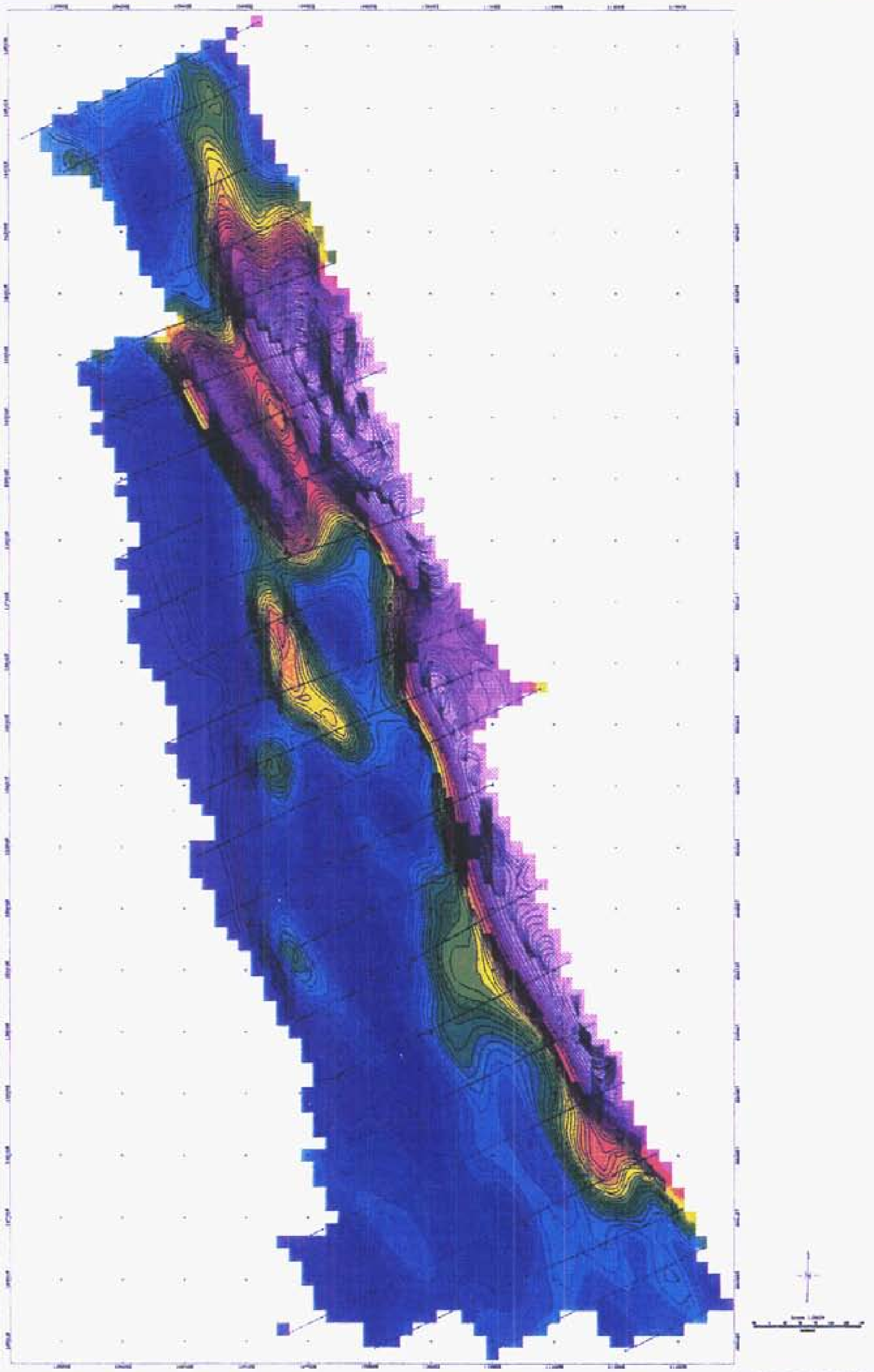
Fig. #21.



Scale Reduced to 1:10,000

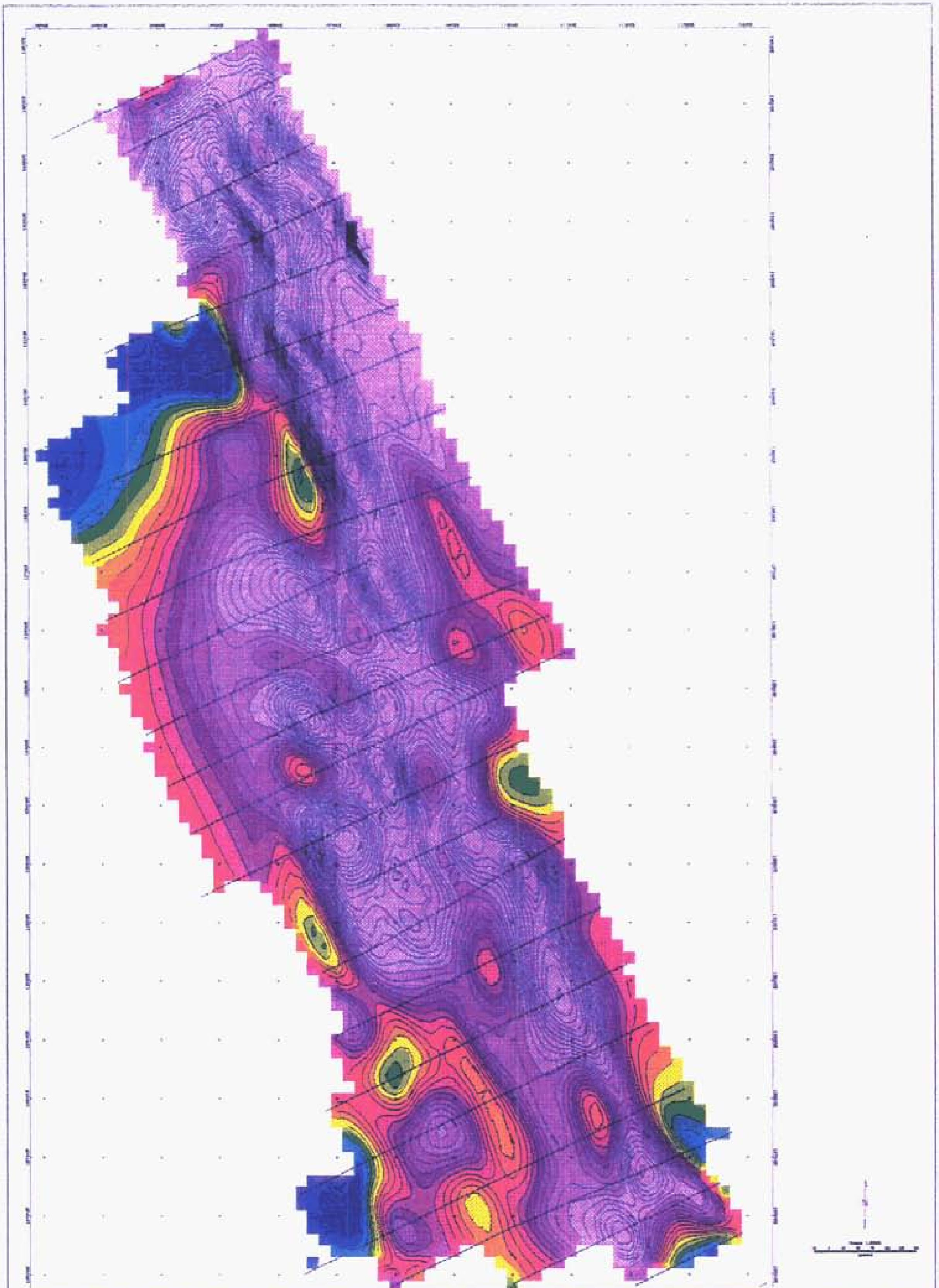
Fig. #22.



SOUTHEAST GRID - RESISTIVITY PLAN - NORTH SHEET

Scale Reduced to 1:10,000.

Fig. #23.



SOUTHEAST GRID - MAGNETIC FIELD STRENGTH PLAN - NORTH SHEET

Scale Reduced to 1:10,000.

Fig. #24.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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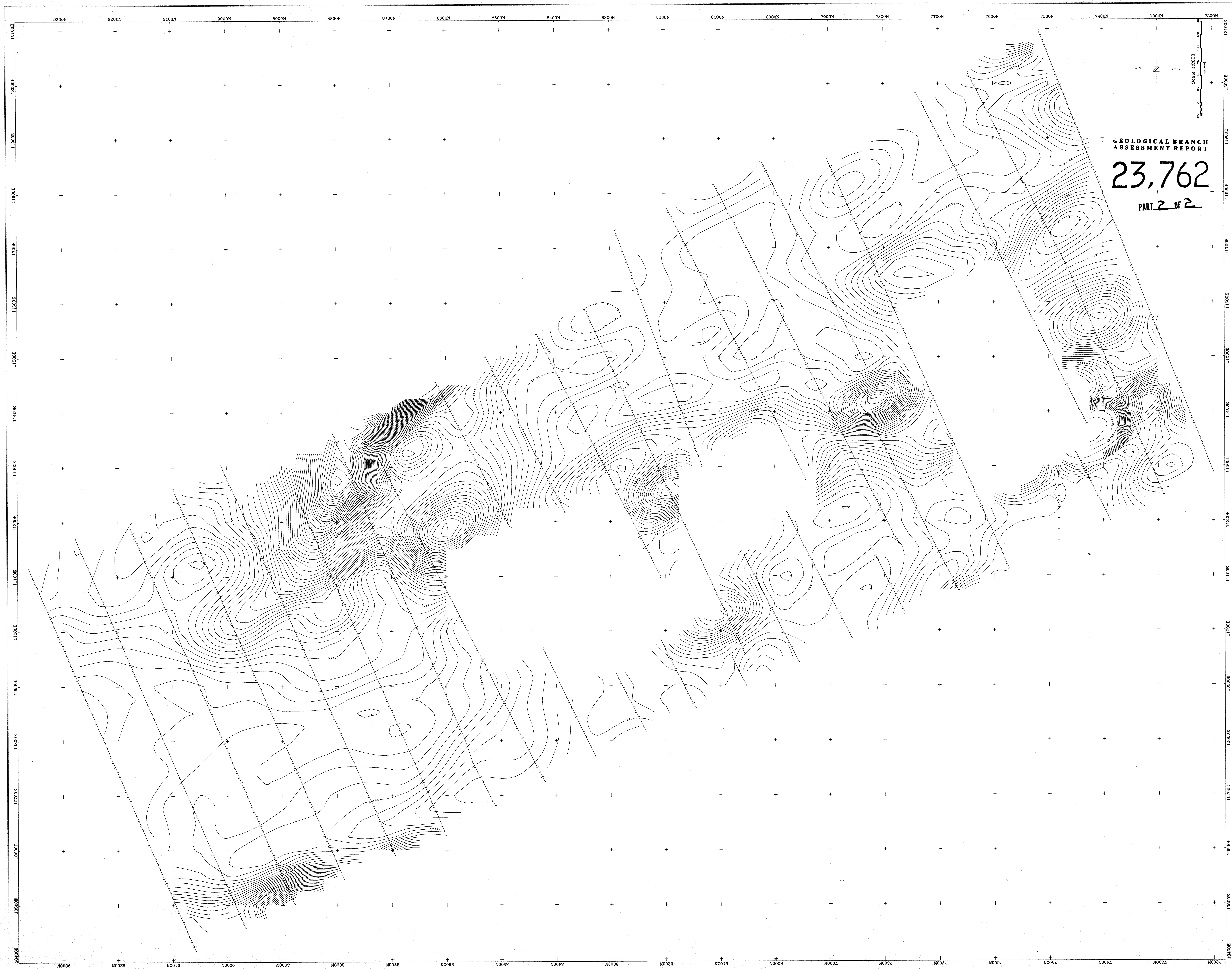
PART 2 OF 2



REDFERN RESOURCES LTD

TULSEQUAH PROJECT
NORTHWEST BRITISH COLUMBIA
BANKER GRID

MAGNETIC FIELD STRENGTH PLAN
Contour interval 25 nt
Scintrex instruments
July–August survey, 1993

DELTA GEOSCIENCE LTD

FIGURE ~~4.15~~ 18

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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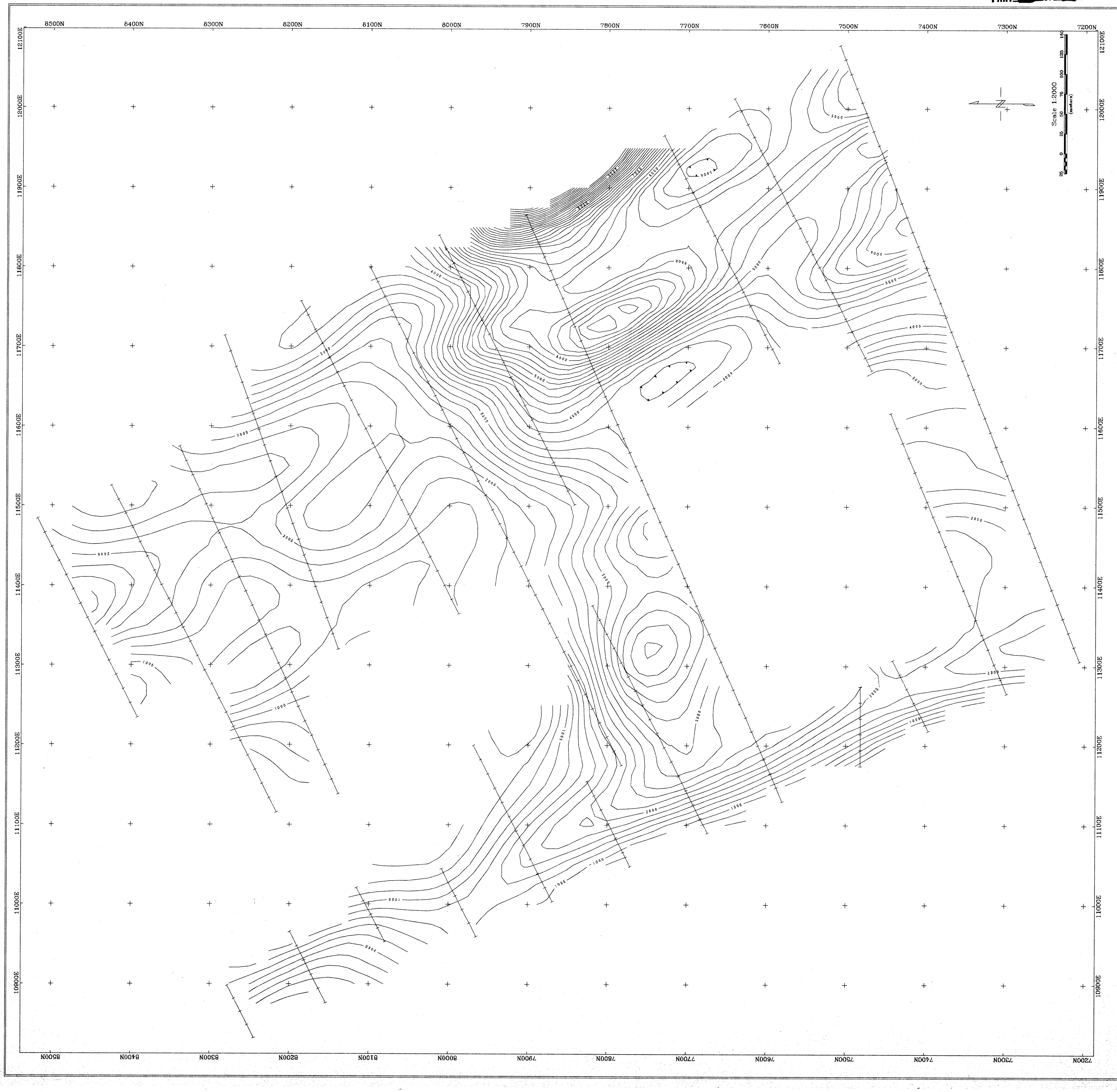
PART 2 OF 2



REDFERN RESOURCES LTD

TULSEQUAH PROJECT
NORTHWEST BRITISH COLUMBIA
BANKER GRID

RESISTIVITY PLAN
Contour interval 200 ohm-m
Gradient array, AB = 1400m, MN = 50m
July-August survey, 1993

DELTA GEOSCIENCE LTD

FIGURE 4.14

17

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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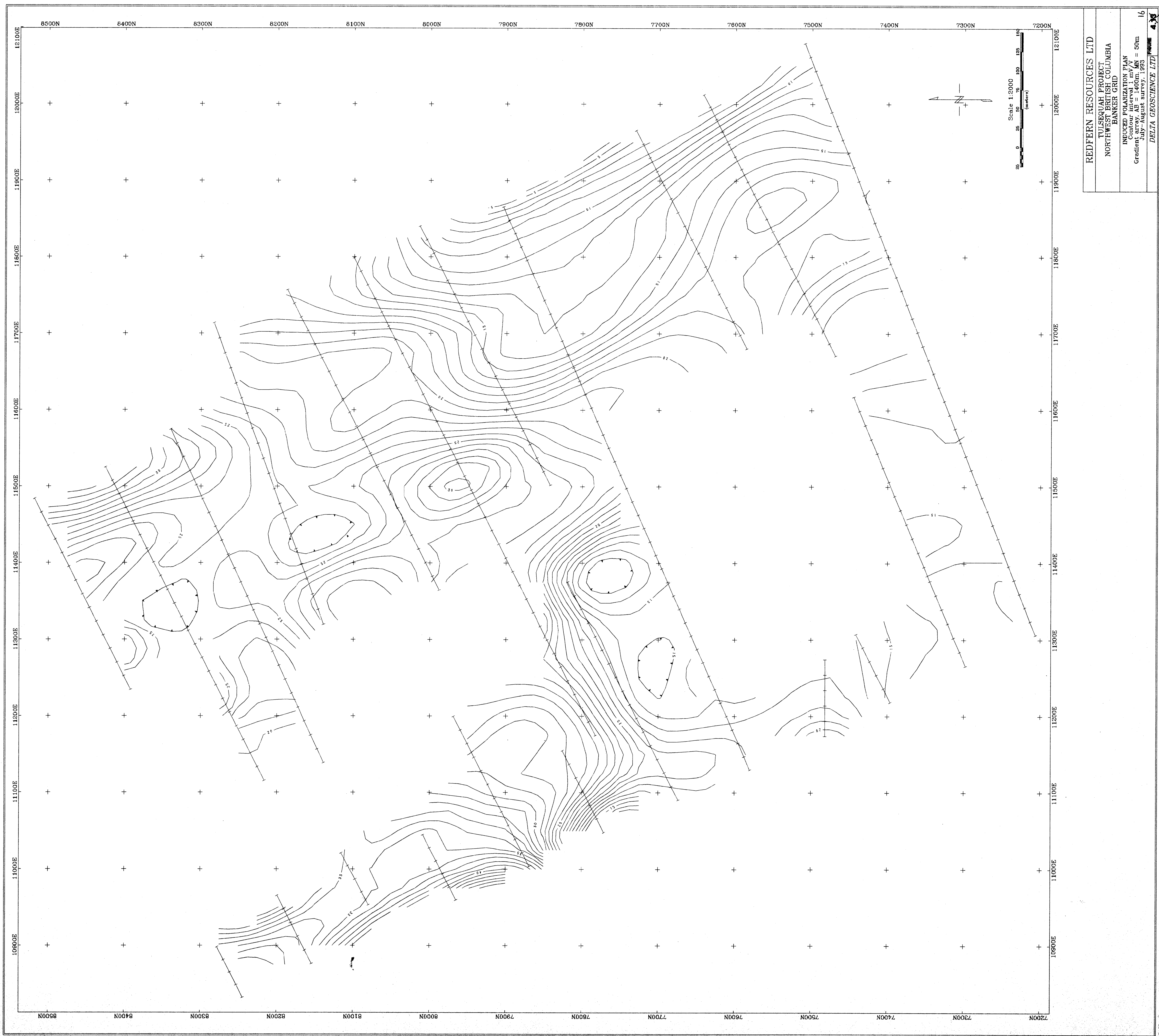
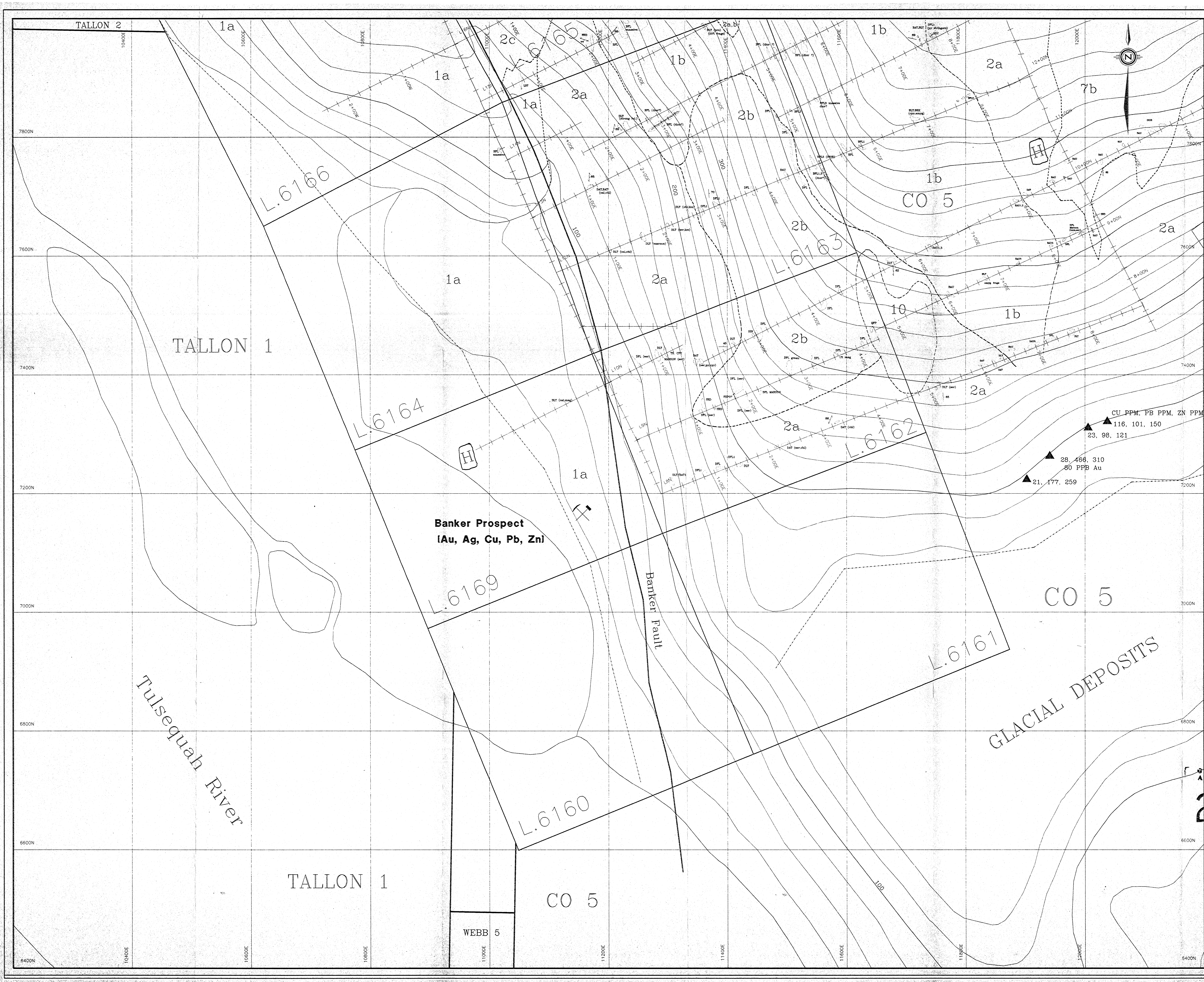




LEGEND

SLOKO INTRUSIONS – TERTIARY

11: Rhyolite dyke.

10: Quartz–feldspar porphyritic intrusive

MOUNT EATON SUITE – EARLY MISSISSIPPIAN TO PERMIAN

Early Mississippian

SYNVOLCANIC MAFIC INTRUSIVES

7c: Undifferentiated basalt intrusion.

7b: Feldspar +/– pyroxene phyric basalt intrusion; in part overprinted by metamorphic chlorite + amphibole (actinolite).

7a: Fine grained to aphanitic basalt intrusion (thin dykes and sills or chilled margins to 4b).

DACITIC VOLCANICS

2c: PYRITIC DACITE FLOWS: Weakly pyritic (1–2%) rusty weathering grey dacitic flows. Commonly feldspar phyric.

2b: Feldspar phyric dacite flow and flow breccia; in part hematite +/– sericite +/– albite altered.

2a: Feldspar phyric dacite ash and lapilli tuff; in part hematite +/– sericite +/– albite altered.

MAFIC VOLCANICS

1b: MAFIC FLOWS; Amygdaloidal, massive mafic flows. Pyroxene/feldpar phyric. Quartz amygdaloidal basalt flow, hyaloclastic breccia and minor tuff, commonly epidote altered

1a: UNDIFFERENTIATED MAFIC – ANDESITIC VOLCANICS
Volcanic rocks of varying composition and uncertain stratigraphic placing. May include thin interbeds of carbonates (limestone/marble). Generally reserved for lithologies located west of the Banker Fault

LITHOLOGY (CODE 1)

SYMBOLS

® Rock Sample (1993) = Cu PPM, Pb PPM, Zn PPM

▲ Contour Soil Sample (1981) = Cu PPM, Pb PPM, Zn PPM

Prospect (approximate location)

Limit of Glacio–fluvial overburden

GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,762

PART 2 OF 2

SCALE 1:2000

METRES

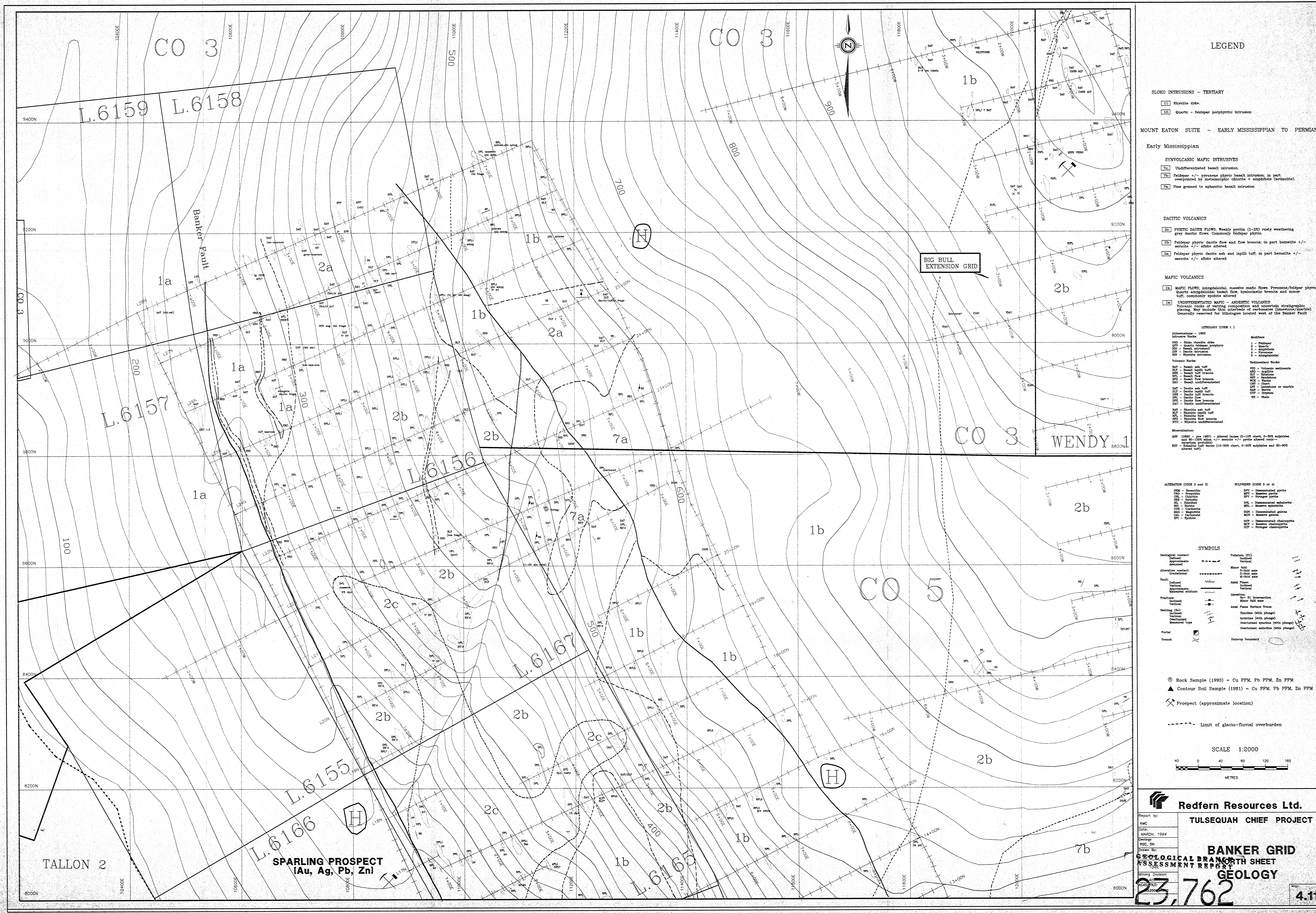
Redfern Resources Ltd.

Report by: KMC
Date: APRIL, 1994
Geology: RGC, DH
Drawn By: K.Curtis
NTS: 104K
Mining Division: Atlin
ACAD FILE: BA2000A.DWG

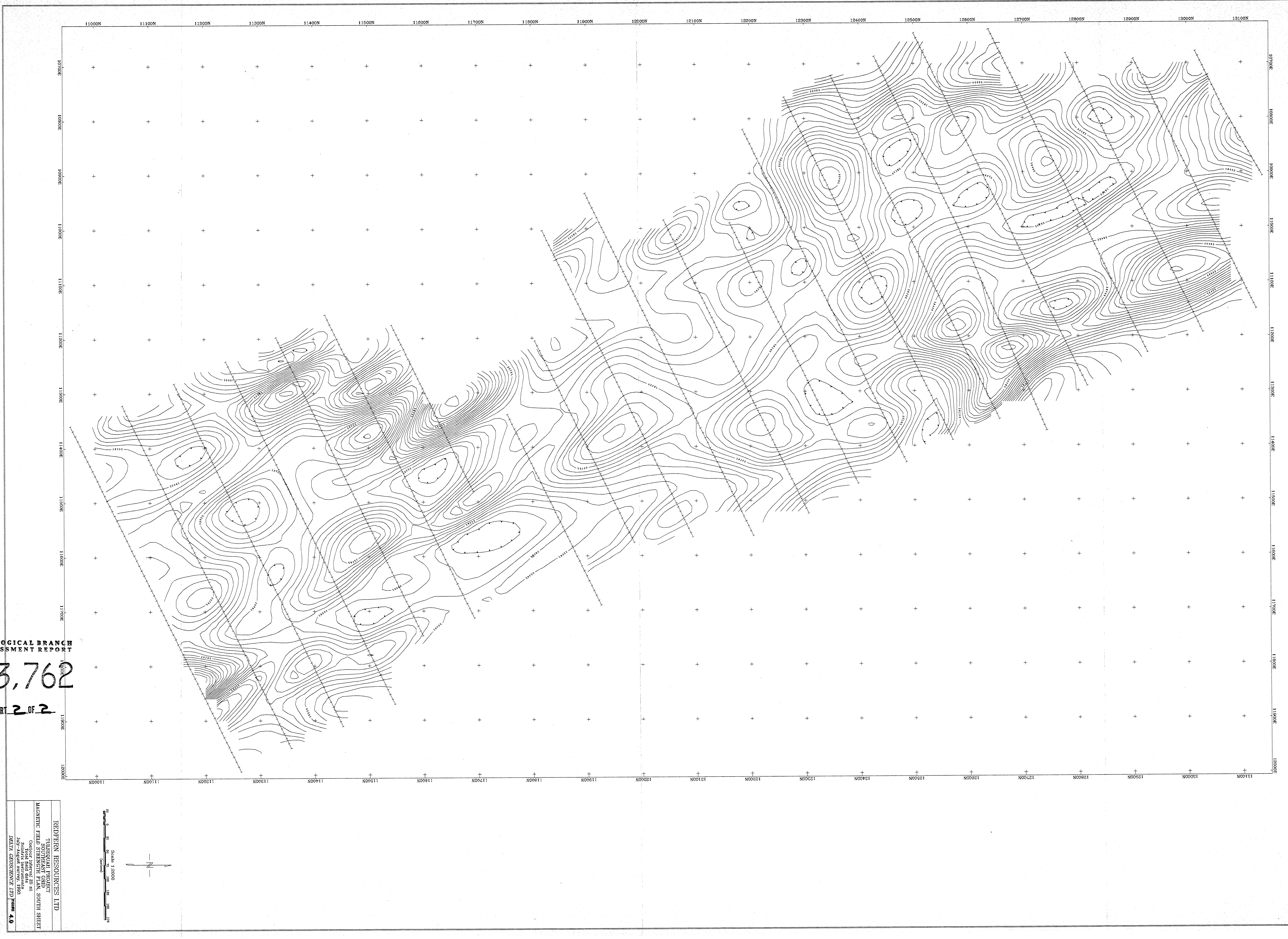
TULSEQUAH CHIEF PROJECT

BANKER GRID
SOUTH SHEET
GEOLOGY

Map: ~~4.12~~ 4.15



CO 3
L.6159
L.6158
L.6157
L.6156
L.6155
L.6166
L.6167
L.6165
CO 5
WENDY 1
TALLON 2
Banker Fault
BIG BULL EXTENSION GRID
SPARLING PROSPECT
(Au, Ag, Pb, Zn)
LEGEND
SLOKO INTRUSIONS - TERTIARY
11: Rhyolite dyke.
10: Quartz - feldspar porphyritic intrusion
MOUNT EATON SUITE - EARLY MISSISSIPPIAN TO PERMIAN
Early Mississippian
SYNVOLCANIC MAFIC INTRUSIVES
7c: Undifferentiated basalt intrusion.
7b: Feldspar +/- pyroxene phyric basalt intrusion; in part overprinted by metamorphic chlorite + amphibole (actinolite).
7a: Fine grained to aphanitic basalt intrusion
DACITIC VOLCANICS
2c: PYRITIC DACITE FLOWS: Weakly pyritic (1-2%) rusty weathering grey dacitic flows. Commonly feldspar phyric.
2b: Feldspar phyric dacite flow and flow breccia; in part hematite +/- sericite +/- albite altered.
2a: Feldspar phyric dacite ash and lapilli tuff; in part hematite +/- sericite +/- albite altered.
MAFIC VOLCANICS
1b: MAFIC FLOWS: Amygdaloidal, massive mafic flows. Pyroxene/feldpar phyric. Quartz amygdaloidal basalt flow, hyaloclastic breccia and minor tuff, commonly epidote altered
1a: UNDIFFERENTIATED MAFIC - ANDESITIC VOLCANICS Volcanic rocks of varying composition and uncertain stratigraphic placing. May include thin interbeds of carbonates (limestone/marble). Generally reserved for lithologies located west of the Banker Fault
LITHOLOGY (CODE 1)
Abbreviations - 1993
Intrusive Rocks:
SRD - Sloko rhyolite dyke
QFP - Quartz feldspar porphyry
BIN - Basalt intrusion3
DIN - Dacite intrusion
RIN - Rhyolite intrusion
Modifiers
1 - Feldspar
2 - Quartz
3 - Amphibole
4 - Pyroxene
5 - Amygdaloidal
Volcanic Rocks:
BAT - Basalt ash tuff
BLT - Basalt lapilli tuffl
BBX - Basalt tuff breccia
Sedimentary Rocks:
VSD - Volcanic sediments
ARG - Argillite
SLT - Siltstone
SYMBOLS
Portal
Trench
Outcrop boundary
Overturned syncline (with plunge)
Overturned anticline (with plunge)
Rock Sample (1993) = Cu PPM, Pb PPM, Zn PPM
Contour Soil Sample (1981) = Cu PPM, Pb PPM, Zn PPM
Prospect (approximate location)
Limit of glacio-fluvial overburden
SCALE 1:2000
40 0 40 80 120 160
METRES
Redfern Resources Ltd.
Report by: KMC
Date: MARCH, 1994
Geology RGC, DH
Drawn By:
NTS: 104K
Mining Division
ACAD FILE:
TULSEQUAH CHIEF PROJECT
BANKER GRID
NORTH SHEET
GEOLOGY
Map: 4.11
GEOLOGICAL BRANCH
ASSESSMENT REPORT
23,762
PART 2 OF 2


REDFERN RESOURCES LTD
TULSEQUAH PROJECT
SOUTHEAST GRID
MAGNETIC FIELD STRENGTH PLAN, SOUTH SHEET
Contour interval 25 nt
Total field data
Scintrix instruments
July-August survey, 1993
DELTA GEOSCIENCE LTD
FIGURE 4.9
Scale 1:2000
(meters)
25 0 25 50 75 100 125 150 175
11000N 11100N 11200N 11300N 11400N 11500N 11600N 11700N 11800N 11900N 12000N 12100N 12200N 12300N 12400N 12500N 12600N 12700N 12800N 12900N 13000N 13100N
10700E 10800E 10900E 11000E 11100E 11200E 11300E 11400E 11500E 11600E 11700E 11800E 11900E 12000E

REDFERN RESOURCES LTD

TULSEQUAH PROJECT, NORTHWEST BC
SOUTHEAST GRID
RESISTIVITY PLAN, SOUTH SHEET

Contour interval 200 ohm-m
Gradient array, AB = 1400m, MN = 50m
IRIS instruments
July-August survey, 1993

DELTA GEOSCIENCE LTD FIGURE 4.8

SERN Fri May 6 16:57:32 1994

LEGEND

SLOKO INTRUSIONS – TERTIARY

- 7b: Rhyolite dyke.
- 7a: DIORITE

MESOZOIC INTRUSIONS (?)

- 6 RHYOLITE INTRUSIONS; Quartz – feldspar phyric, moderately foliated with chloritic stringers (?).

MOUNT EATON SUITE – EARLY MISSISSIPPIAN TO PERMIAN

SYNVOLCANIC MAFIC INTRUSIVES

- 5c: Undifferentiated basalt intrusion.
- 5b: Feldspar +/– pyroxene phyric basalt intrusion; in part overprinted by metamorphic chlorite + amphibole (actinolite).
- 5a: Fine grained to aphanitic basalt intrusion (thin dykes and sills or chilled margins to 4b).

MAFIC VOLCANICS AND SEDIMENTS

- 4d: Pyroxene phyric massive mafic flows, lapilli tuffs and volcaniclastics.
- 4c: Basalt ash tuff, lapilli tuff and breccia.
- 4b: Laminated tuffaceous argillite and basalt tuff; in part silica +/– hematite altered.
- 4a: Undifferentiated Mafic Volcanics

DACITIC VOLCANICS

- 3e: Silica altered felsic tuff (ash to breccia, heterolithic), flows and intrusions (5200 Level alteration zone).
- 3d: ALTERED DACITE VOLCANICS: Quartz–sericite–pyrite altered tuffs.
- 3c: Feldspar +/– quartz phyric dacite intrusion; in part hematite +/– albite +/– sericite altered.
- 3b: Feldspar phyric dacite flow and flow breccia; in part hematite +/– sericite +/– albite altered.
- 3a: Feldspar phyric dacite ash and lapilli tuff; in part hematite +/– sericite +/– albite altered.

SEDIMENTARY UNIT

- 2 : Tuffaceous Sediments; Interbedded black shales with minor argillite and chert. Also includes volcanic derived sediments and epiclastics and minor dacitic tuff intervals

MAFIC VOLCANICS

- 1d: Undifferentiated Mafic Volcanics/Intrusives
- 1c: MAFIC TUFF; Fine grained, commonly bedded mafic ash and lapilli tuff.
- 1b: MAFIC FLOWS; Pyroxene–feldspar phyric mafic flows and volcaniclastics Quartz amygdaloidal basalt flow, hyaloclastic breccia and minor tuff, commonly epidote altered
- 1a: Pillowed Mafic Flows; Distinctive pillowed flows and abundant quench textures. Amygdaloidal (qtz–cal) with minor tuff and hyaloclastite interbeds.

LITHOLOGY (CODE 1)

Abbreviations – 1993
Intrusive Rocks:

SRD – Sloko rhyolite dyke
QFP – Quartz feldspar porphyry
BIN – Basalt intrusion3
DIN – Dacite intrusion
RIN – Rhyolite intrusion

Modifiers

1 – Feldspar
2 – Quartz
3 – Amphibole
4 – Pyroxene
5 – Amygdaloidal

Volcanic Rocks:

Sedimentary Rocks:

SYMBOLS

Fault:
Defined
Vertical
Approximate
Measured attitude

Fracture:
Inclined
Vertical

Bedding (So):
Inclined
Vertical
Overturned
Measured tops

Axial Plane:
Inclined
Vertical

Lineation:
So– S1 Intersection
Minor fold axis

Axial Plane Surface Trace:
Syncline (with plunge)
Anticline (with plunge)
Overturned syncline (with plunge)
Overturned anticline (with plunge)

Trench

Outcrop boundary

GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,762

SCALE 1:2000 PART 2 OF 2

40 0 40 80 120 160

METRES

Redfern Resources Ltd.

Report by: KMC	**TULSEQUAH CHIEF PROJECT**
Date: MARCH, 1994	
Geology GLD,RGC,DH,KMC	**SOUTH EAST GRID**
Drawn By: K.Curtis	**NORTH SHEET**
NTS: 104K	**GEOLOGY**
Mining Division Atlin	
ACAD FILE: SE2000B.DWG	Map: 4.2

LEGEND

Geology compiled from; Redfern 1993 grid mapping,
1993 – B.C. Geological Survey (Mihalnyuk et al)
1987 – Payne and Sisson (for Cominco)

Stratigraphy
Modified after: Mihalnyuk, Smith et al; B.C.G.S. Paper 1994–1

EOCENE ROCKS

SLOKO SERIES; Intrusives

ESDI	Sloko series dioritic intrusives
ESQP	Sloko series quartz porphyritic intrusives and flow banded rhyolite dikes

PALEOZOIC ROCKS

MOUNT EATON SERIES; Devonian to Permian arc succesion of the Stikine Assemblage

Pennsylvanian to Permian

PESC	Grey–green chert with minor carbonates. Permian?
PESL	Brown bioclastic packstone, massive limestone. Minor shale, greywacke intercalations.
PEST	Tuffaceous shale to siltstone
PEVB	Dark green, vesicular, pillow basalt and breccias. Feldspar phyric.
PEVC	Volcanic conglomerate. Light green weathering. Crudely bedded with rare sand intervals.
PEST/M	Mudstone, greywacke, and bioclastic limestone interbeds. Distinctive white to pea green weathering. Thin to thick bedded, in part debris flows.

Mississippian or Pennsylvanian

MPEVA	Agglomerate. Pyroxene > feldspar–phyric, monomict Epidotized. Green weathering, maroon clasts.
MPEST	Tuffaceous shale–siltstone. Tan–dark grey weathering. Laminated to medium bedded.
MPESTM	Tuffaceous mudstone, greywacke. White to pea green weathering. Thin to thick bedded.
MPEVB	Dark green, vesicular, pillow basalt and breccias. Pyroxene phyric.

Early Mississippian

EMEDI	Diabase and Gabbro intrusions; synvolcanic
EMEM	Massive limestone or marble. Light grey to white.
EMEVT	Mafic volcanic tuffs and flows. Hangingwall to Mine Series
EMER	Rhyolite Breccia; minor flows and intrusives may include bleached quartz amygdaloidal basalt
EMED	Dacite breccia, flows and tuffs; light grey to mauve. Flows may be spherulitic. Includes undifferentiated Mine Series rocks.
2d	Dacite flows and pyroclastics.
2c	Quartz–sericite–pyrite altered dacites. (Inferred stratigraphy)
2b	Dacite lapilli tuffs and ash tuffs – minor shale
2a	Shales, siltstone with lesser dacitic tuffs
EMEV/B	Dark green, vesicular, pillow basalt and breccias. Pyroxene–phyric. Not a single stratigraphic interval.
1b	Mafic lapilli tuffs and ash tuffs.
1a	Mafic flows – pyroxene phyric.

SYMBOLS

B.C.G.S (1993), Payne et al (1987)
Geological contact; (known, approximate)

Redfern 1993
Geological contact; (known, approximate)

B.C.G.S (1993)
Major Fault; (approximate)
Major Fault; (assumed)

Fault: Defined, Vertical, Approximate, Measured attitude
Fracture: Inclined, Vertical
Bedding (So): Inclined, Vertical, Overturned, Measured tops
Foliation (S1): Inclined, Vertical
Foliation (S2): Inclined, Vertical
Minor fold: S-fold axis, Z-fold axis, m-fold axis
Axial Plane: Inclined, Vertical
Lineation: So- S1 Intersection, Minor fold axis
Axial Plane Surface Trace: Syncline (with plunge), Anticline (with plunge), Overturned syncline (with plunge), Overturned anticline (with plunge)

1993 Rock sample (Au ppb, Ag, Cu, Pb, Zn – ppm)

Contour soil sample (Cominco,1981) Cu,Pb,Zn – ppm

Topographic Linear

Property Boundary
(From B.C. Mineral Titles
1:50000 series claim maps)

Mine Grid

Overburden/ice limit

SCALE 1:10,000

400 0 400 800 1200

METRES

GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,762

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Redfern Resources Ltd.

Report by: K.Curtis	**TULSEQUAH CHIEF PROJECT**
Date: APRIL, 1994	
Geology: REDFERN,B.C.G.S,PAYNE	**1993 Property Compilation**
Drawn By: K.Curtis	
Compiled By: K.Curtis	
NTS: 104K	
Mining Division: Atlin	
ACAD FILE: TCCOMP94.DWG	Map: 3.3

GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,762

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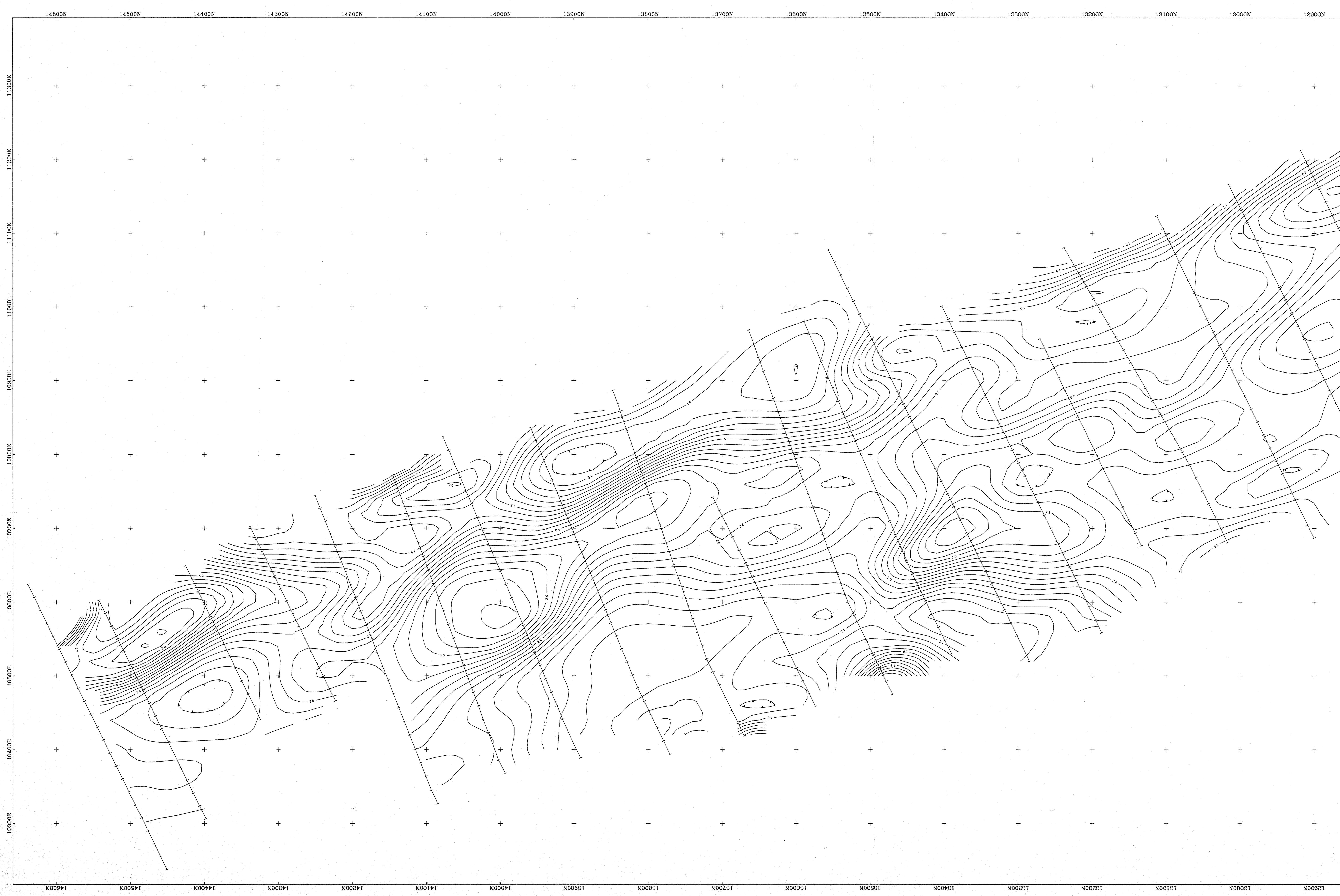
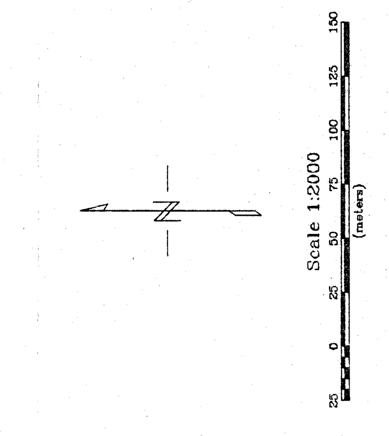




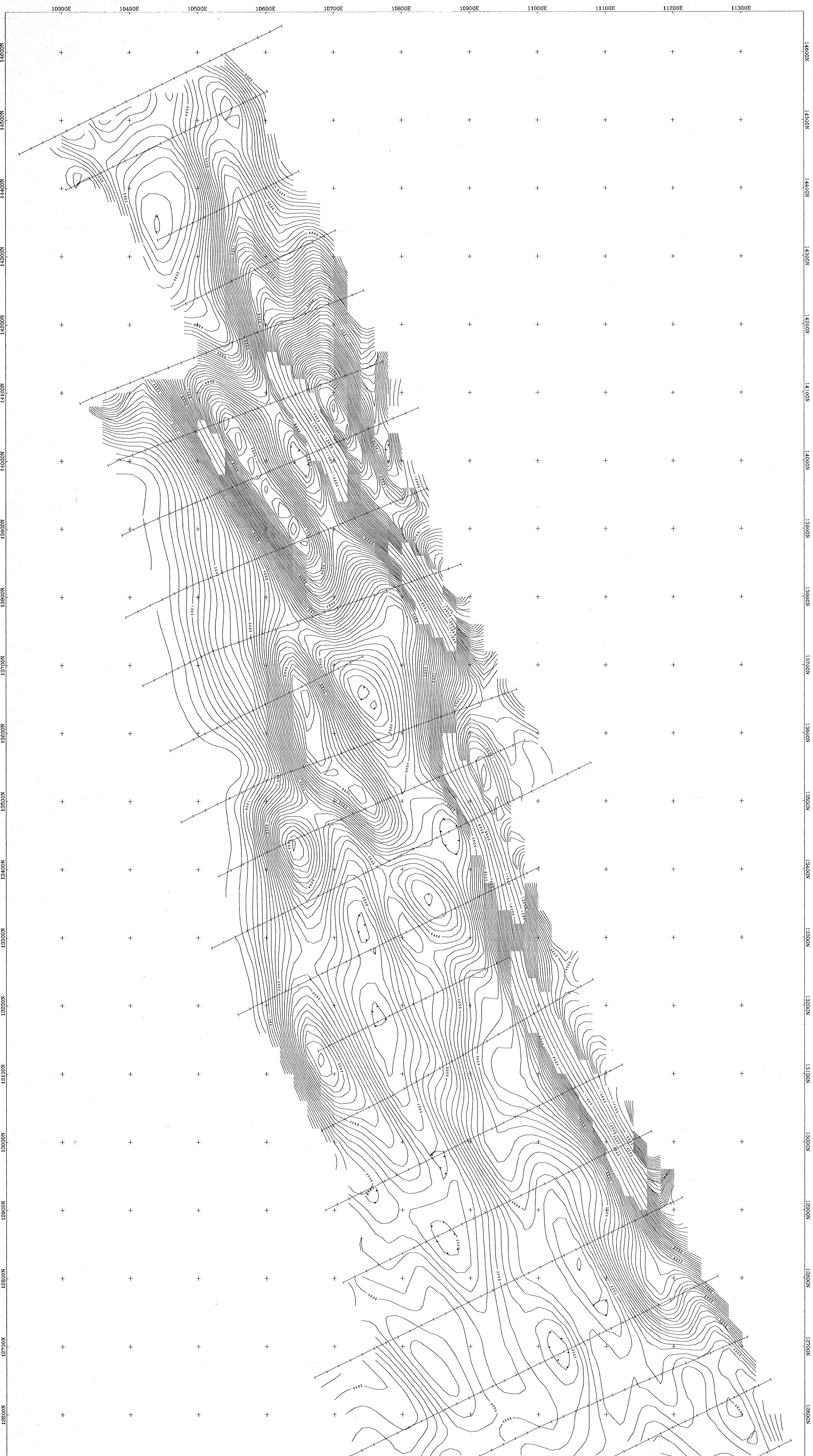
REDFERN RESOURCES LTD

TULSEQUAH PROJECT
SOUTHEAST GRID
INDUCED POLARIZATION PLAN, NORTH SHEET

Contour interval 1 mV/V
Gradient array, AB = 1400m, MN = 50m
Iris instruments
July–August survey, 1993

DELTA GEOSCIENCE LTD

FIGURE 4.3



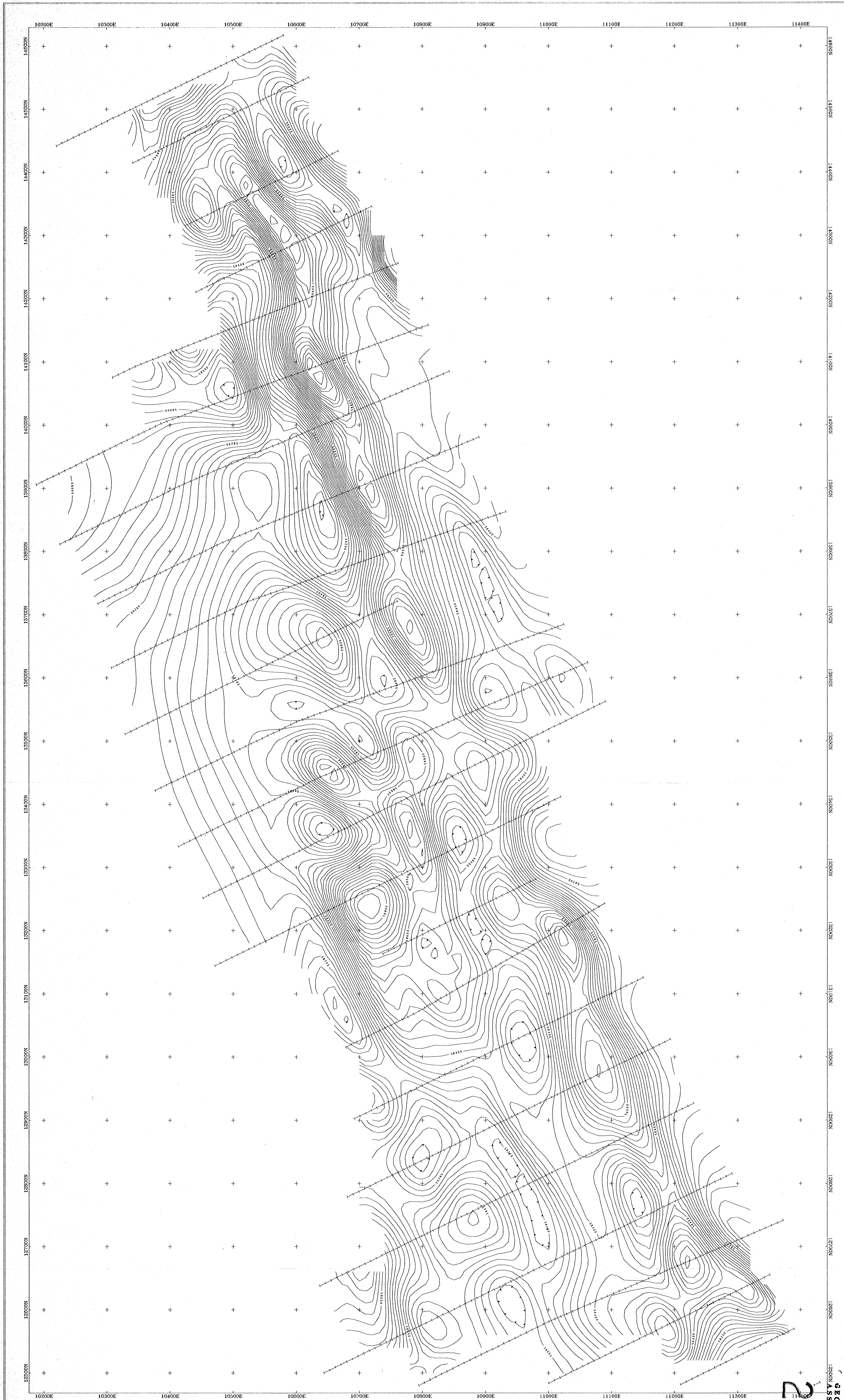
REDFERN RESOURCES LTD

TULSEQUAH PROJECT
SOUTHEAST GRID
RESISTIVITY PLAN, NORTH SHEET

Contour interval 200 ohm-m
Gradient array, AB = 1400m, MN = 50m
Iris instruments
July-August survey, 1993

DELTA GEOSCIENCE LTD | FIGURE 4.4

SEHN Fri May 6 18 33 32 1994



GEOLOGICAL BRANCH
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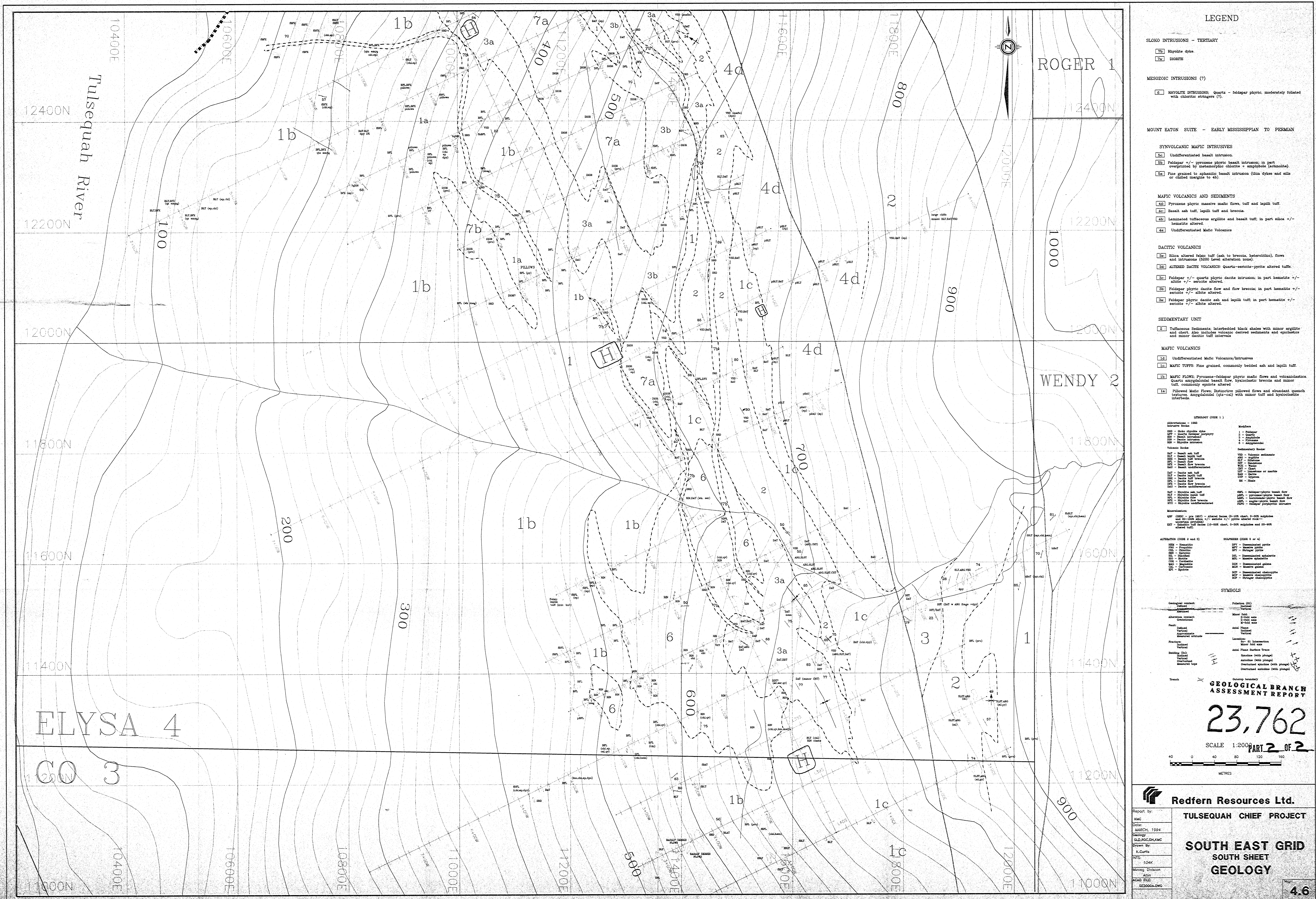
TULSEQUAH PROJECT
SOUTHEAST GRID
MAGNETIC FIELD STRENGTH PLAN, NORTH SHEET

Contour interval 25 nt
Total field data
Scintrix instruments
July-August survey, 1993

DELTA GEOSCIENCE LTD | FIGURE 4.5

SEMAGN Fri May 6 17:39:31 1994



LEGEND
SLOKO INTRUSIONS - TERTIARY
7b: Rhyolite dyke.
7a: DIORITE
MESOZOIC INTRUSIONS (?)
6 RHYOLITE INTRUSIONS; Quartz - feldspar phyric, moderately foliated with chloritic stringers (?).
MOUNT EATON SUITE - EARLY MISSISSIPPIAN TO PERMIAN
SYNVOLCANIC MAFIC INTRUSIVES
5c: Undifferentiated basalt intrusion.
5b: Feldspar +/- pyroxene phyric basalt intrusion; in part overprinted by metamorphic chlorite + amphibole (actinolite).
5a: Fine grained to aphanitic basalt intrusion (thin dykes and sills or chilled margins to 4b).
MAFIC VOLCANICS AND SEDIMENTS
4d: Pyroxene phyric massive mafic flows, tuff and lapilli tuff.
4c: Basalt ash tuff, lapilli tuff and breccia.
4b: Laminated tuffaceous argillite and basalt tuff; in part silica +/- hematite altered.
4a: Undifferentiated Mafic Volcanics
DACITIC VOLCANICS
3e: Silica altered felsic tuff (ash to breccia, heterolithic), flows and intrusions (5200 Level alteration zone).
3d: ALTERED DACITE VOLCANICS: Quartz-sericite-pyrite altered tuffs.
3c: Feldspar +/- quartz phyric dacite intrusion; in part hematite +/- albite +/- sericite altered.
3b: Feldspar phyric dacite flow and flow breccia; in part hematite +/- sericite +/- albite altered.
3a: Feldspar phyric dacite ash and lapilli tuff; in part hematite +/- sericite +/- albite altered.
SEDIMENTARY UNIT
2 : Tuffaceous Sediments; Interbedded black shales with minor argillite and chert. Also includes volcanic derived sediments and epiclastics and minor dacitic tuff intervals
MAFIC VOLCANICS
1d: Undifferentiated Mafic Volcanics/Intrusives
1c: MAFIC TUFFS: Fine grained, commonly bedded ash and lapilli tuff.
1b: MAFIC FLOWS; Pyroxene-feldspar phyric mafic flows and volcaniclastics. Quartz amygdaloidal basalt flow, hyaloclastic breccia and minor tuff, commonly epidote altered
1a: Pillowed Mafic Flows; Distinctive pillowed flows and abundant quench textures. Amygdaloidal (qtz-cal) with minor tuff and hyaloclastite interbeds.
LITHOLOGY (CODE 1)
Abbreviations - 1993
Intrusive Rocks:
SRD - Sloko rhyolite dyke
QFP - Quartz feldspar porphyry
BIN - Basalt intrusion3
DIN - Dacite intrusion
RIN - Rhyolite intrusion
Modifiers
1 - Feldspar
2 - Quartz
3 - Amphibole
4 - Pyroxene
5 - Amygdaloidal
Volcanic Rocks:
Sedimentary Rocks:
SYMBOLS
Fault:
Defined
Vertical
Approximate
Measured attitude
Fracture:
Inclined
Vertical
Bedding (So):
Inclined
Vertical
Overturned
Measured tops
Axial Plane:
Inclined
Vertical
Lineation:
So- S1 Intersection
Minor fold axis
Axial Plane Surface Trace:
Syncline (with plunge)
Anticline (with plunge)
Overturned syncline (with plunge)
Overturned anticline (with plunge)
Trench
Outcrop boundary
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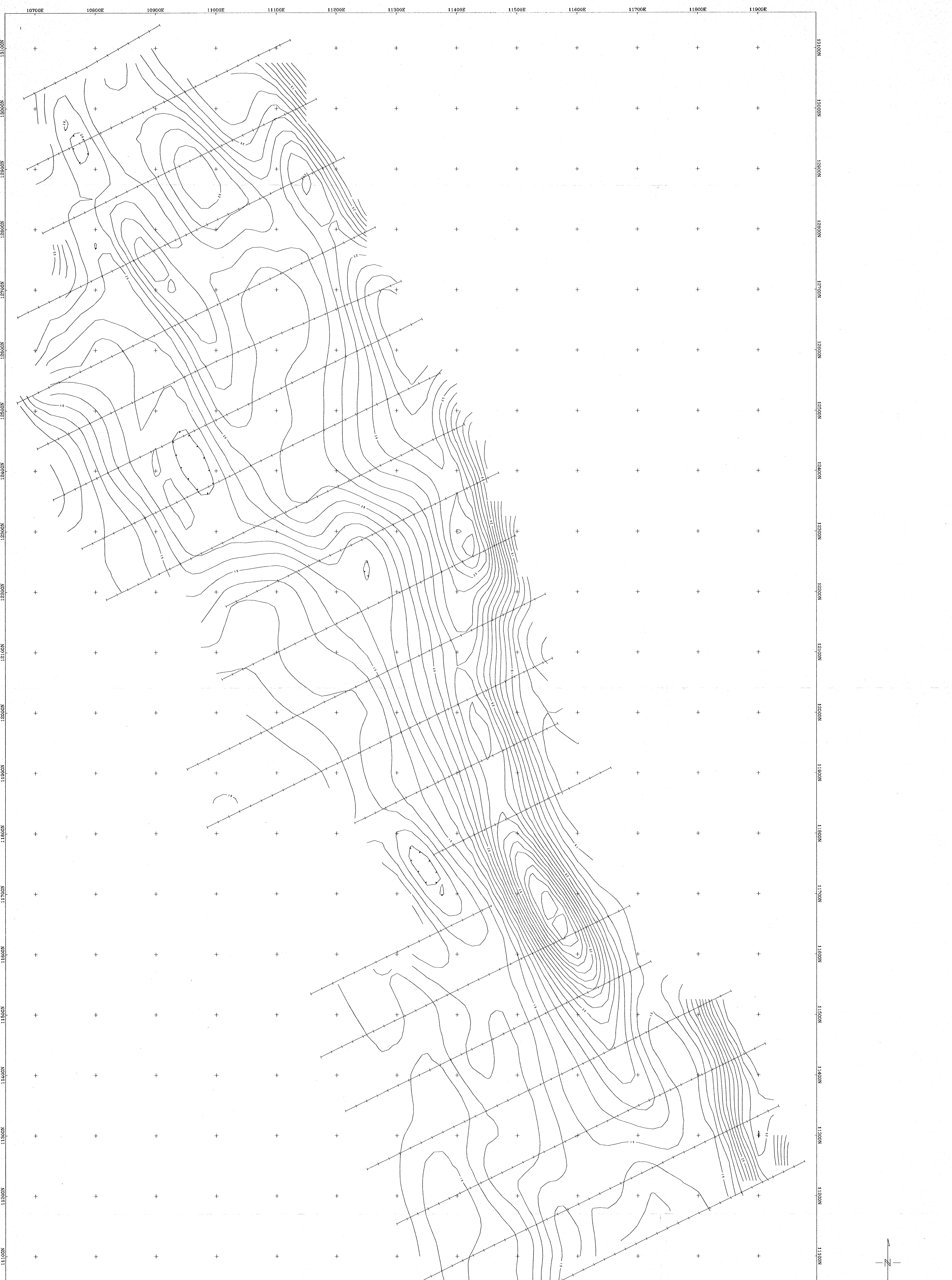
SCALE 1:2000 PART 2 OF 2
40 0 40 80 120 160
METRES
Tulsequah River
ROGER 1
WENDY 2
ELYSA 4
CO 3
12400N
12200N
12000N
11800N
11600N
11400N
11200N
11000N
10400E
10600E
10800E
11000E
11200E
11400E
11600E
11800E
12000E
100
200
300
400
500
600
700
800
900
1000
PILLOWS
Redfern Resources Ltd.
Report by: KMC
Date: MARCH, 1994
Geology GLD,RGC,DH,KMC
Drawn By: K.Curtis
NTS: 104K
Mining Division Atlin
ACAD FILE: SE2000A.DWG
TULSEQUAH CHIEF PROJECT
SOUTH EAST GRID
SOUTH SHEET
GEOLOGY
Map: 4.6



REDFERN RESOURCES LTD

TULSEQUAH PROJECT, NORTHWEST BC
SOUTHEAST GRID
INDUCED POLARIZATION PLAN, SOUTH SHEET

Contour interval 1 mV/V
Gradient array, AB = 1400m, MN = 50m
IRIS instruments
July–August survey, 1993

DELTA GEOSCIENCE LTD | FIGURE: 4.7

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SEIPN Fri May 6 16:47:54 1994