85-1156-14358
12/86

GEOLOGICAL/GEOPHYSICAL REPORT

ON THE

BOOTLEG CLAIM GROUP

ST. MARY LAKE AREA, FORT STEELE M.D., BRITISH COLUMBIA

49° 39' North Latitude - 116° 08' West Longitude

N.T.S. 82F/9E

FOR

OWNER/OPERATOR: AMSTAR VENTURE CORP.
#526 - 736 Granville Street
Vancouver, B.C., V6Z 1G3

BY

Guy A. Royer, B.Sc.
Trans-Arctic Explorations Ltd.
#815 - 850 West Hastings Street
Vancouver, B.C., V6C 1E2

November 27, 1985

14358

PROPERTY

Claim Name	Claim Group	No. of Units	Record No.	Expiry Date
Alki 1	Bootleg 1	20	2108	Feb. 21, 1986
Bootleg 1	Bootleg 1	10	2103	Feb. 21, 1986
Bootleg 2	Bootleg 1	20	2105	Feb. 21, 1986
Bootleg 4	Bootleg 1	20	2107	Feb. 21, 1986
Denver 6	Bootleg 1	12	2102	Feb. 21, 1986
Ledge	Bootleg 1	18	2117	Feb. 21, 1986
Ace	Bootleg 2	20	2114	Feb. 21, 1986
Bulldog	Bootleg 2	1	2460	Sept. 19, 1986
Denver 4	Bootleg 2	20	2089	Feb. 21, 1986
Denver 5	Bootleg 2	8	2090	Feb. 21, 1986
Deuce	Bootleg 2	4	2120	Feb. 21, 1986
Knave	Bootleg 2	20	2098	Feb. 21, 1986
Mathew 1	Bootleg 2	20	2091	Feb. 21, 1986
Bootleg 3	Bootleg 3	5	2106	Feb. 21, 1986
Denver 1	Bootleg 3	20	2118	Feb. 21, 1986
Denver 2	Bootleg 3	9	2087	Feb. 21, 1986
Denver 3	Bootleg 3	20	2088	Feb. 21, 1986
High Peak	Bootleg 3	20	2353	Jan. 28, 1986
King	Bootleg 3	20	2115	Feb. 21, 1986
		287		

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

SUMMARY

The area under discussion is owned by Amstar Venture Corp. and consists of 287 units on the north side of St. Mary River in southeastern British Columbia. The claim group lies only 6 km southwest of Cominco's Sullivan Mine which has been in continuous production for 75 years. Pre-Cambrian sediments of the Purcell Group outcrop over most of the claim group, which are intruded by 2 different igneous rocks of different ages. Diorites of the Moyie intrusions are widespread on the property forming long parallel bands that roughly trend north-northeast. These rocks are quite variable both in grain size and colour index with some phases being quite mafic while others are quartz-rich and grade into tonalites. Some of the diorites are somewhat metamorphosed with attendant changes in texture and mineralogy and many of the sediments are metamorphosed to mica schists. These schists probably arose from metasomatic reactions between the sediments and pegmatite intrusions which are found on the east-central area of the claims. The suite of sediments include argillites and quartzites with many variations.

Two old mineral occurrences were located and intensely prospected. The High Peak showing is located at 2,200 metres elevation about 1 km southeast of Bootleg Mountain. The only physical evidence of any workings is an extensive ore dump where traces of copper were spotted. The Bulldog showing is located 8 km east of the High Peak, is adjacent to a logging road and is at an elevation of 1,600 metres. There is much physical evidence of workings here including a buried adit, shafts and trenches.

INTRODUCTION

On behalf of Amstar Venture Corp. the writer mapped over half of the surface outcrops on the Bootleg claim group. He was engaged during July and August being contracted by Trans-Arctic Explorations. The mapping scale used was 1:10,000. He was supervised by E. Dodd and was assisted by D. Dodd, F. Myberg and D. Jones.

PROPERTY AND OWNERSHIP

The property consists of 19 claims containing 287 units that have been grouped into three claim groups as described below:

Claim Name	Claim Group	No. of Units	Record No.	Expiry Date
Denver 1	Bootleg 3	20	2118	Feb. 21, 1986
Denver 2	Bootleg 3	9	2087	Feb. 21, 1986
Denver 3	Bootleg 3	20	2088	Feb. 21, 1986
Denver 4	Bootleg 2	20	2089	Feb. 21, 1986
Denver 5	Bootleg 2	8	2090	Feb. 21, 1986
Denver 6	Bootleg 1	12	2102	Feb. 21, 1986
Bootleg 1	Bootleg 1	10	2103	Feb. 21, 1986
Bootleg 2	Bootleg 1	20	2105	Feb. 21, 1986
Bootleg 3	Bootleg 3	5	2106	Feb. 21, 1986
Bootleg 4	Bootleg 1	20	2107	Feb. 21, 1986
Alki 1	Bootleg 1	20	2108	Feb. 21, 1986
Mathew 1	Bootleg 2	20	2091	Feb. 21, 1986
Knave	Bootleg 2	20	2098	Feb. 21, 1986
Ace	Bootleg 2	20	2114	Feb. 21, 1986
King	Bootleg 3	20	2115	Feb. 21, 1986
Deuce	Bootleg 2	4	2120	Feb. 21, 1986
Ledge	Bootleg 1	18	2117	Feb. 21, 1986
High Peak	Bootleg 3	20	2353	Jan. 28, 1986
Bulldog	Bootleg 2	1	2460	Sept. 19, 1986

The expiry dates shown do not take into account the work under

discussion as being accepted for assessment credits.

This property is owned by Amstar Venture Corp. of Vancouver, British Columbia.

LOCATION AND ACCESS

The northeast corner of the property is located 6.5 km due southwest of the town of Kimberley, B.C. and the southeast corner is 23 km at a bearing of 300° from the city of Cranbrook. The property is centered on Bootleg Mountain which is just north of St. Mary Lake and St. Mary River and is just west of Matthew Creek. The approximate geographical coordinates for the centre of the property are 49° 39' north latitude and 116° 08' west longitude.

Access to the claims is easily accomplished by travelling to St. Marysville on Highway 95A from Cranbrook, a distance of 23 km. One then travels westwards on the St. Mary River road for 7 km to attain the eastern boundary of the property. This road travels along the southern boundary and the Matthew Creek forestry road runs along the eastern boundary. The Bootleg Mountain road allows access to the eastern heart of the claims and has many branches reaching northwards and southwards. A four-wheel vehicle is recommended for most of the roads. Helicopter is required for the more remote and rugged parts of the property. Travel in winter would require a snowmobile.

PHYSIOGRAPHY

The property lies west of the Rocky Mountain trench within the Purcell Mountains which is a physiographic division of the Columbia Mountains. The terrain consists of moderate to steep slopes throughout most of the claim group, though the southeast corner is quite flat. The elevation varies from 920 metres above sea level on St. Mary River to 2,608 metres elevation on the summit of Bootleg Mountain yielding a relief of 1,688 metres.

The topography is northeasterly trending with many creeks flowing in this direction. St. Mary River would be a major water source and the main one in the heart of the claim group would be the easterly flowing tributary of Matthew Creek. Other water sources include Argyle, Resort, Denver and others, unnamed, which are all southerly flowing.

FLORA AND FAUNA

The forest cover is moderately dense, commonly forested with fir, spruce, hemlock and tamarack. On high elevations the vegetation is sparse since these areas are above the treeline. Common large wild animals include cougar, black bear, grizzly bear, moose, elk, mule deer and caribou. Wildlife is very abundant.

CLIMATE

The summers are hot and usually dry by coastal standards with low humidity. Winters are cold with moderate snow falls becoming very heavy at higher elevations. Much of the property is covered by snow six months of the year.

EXPLORATION LOGISTICS

The tributary of Matthew Creek, which flows northeasterly year-round through the centre of the claim group, would provide sufficient water for drilling purposes as would several other creeks. A good supply of timber is present on most of the claim group. Much of the equipment and supplies needed for exploration is easily obtainable from Kimberley or Cranbrook. Truck, rail and bus services are available in both centres with the Cranbrook airport being only 15 km away.

HISTORY OF PREVIOUS WORK

The St. Mary River area has received attention from miners and prospectors for over a century. In addition to the Sullivan Mine, the adjacent North Star mine was in production during the early years of this century. The Leader gold deposit is located 8 km south and is known to extend approximately 600 metres in strike length. It pinches and swells from a few cm to 2 metres with values up to 4 oz Au/ton. A high grade silver occurrence is re-

ported on the southwest boundary of the claim group. Bearcat Explorations is doing exploration work on a beryllium deposit 8 km distant from the western boundary of the claims.

On the Bootleg property, airborne magnetic and VLF-EM surveys were carried out during mid-February of 1985 and are reported on in a report by David Mark, geophysicist, dated April 4, 1985. Two ground VLF-EM surveys were conducted over selected areas of the High Peak and Bulldog showings this season. Approximately 250 soil samples were also collected this season. The report by David Mark, geophysicist, on the VLF-EM and soil geochemistry surveys are included as an addendum to this report.

REGIONAL GEOLOGY OF AREA

The general geological setting of the area is of the Proterozoic Lower Purcell Group which is divided into three formations. The basal Aldridge formation is the oldest one known to occur in the area. It is composed mainly of grey to brownish grey, rusty weathering argillite and argillaceous quartzite. The Creston formation is transitional from the Aldridge formation and generally consists of argillaceous quartzites, more pure quartzites and argillites whose beds average about 30 cm in thickness. Narrow beds, lenses and pods of calcareous rocks occur in the upper part of the formation. These are more numerous towards the top of the Creston formation, and as they become more abundant the strata are transitional to the overlying Kitchener formation. The Kitchener formation consists predominantly of impure magnesium limestone, argillite and calcareous quartzite. Limestone and calcareous rocks compose the bulk of this formation although the upper part is generally argillaceous. The formation is composed

of quite soft rocks, large sections of it having been metamorphosed to chlorite and talc-carbonate schists.

The diorites, metadiorites and metatonalites of the Moyie intrusions are also of Purcell age or perhaps younger. These rocks cover over 25% of the Bootleg claim group while the sediments underlie about two-thirds of this property. According to Leech these sediments mainly belong to the lower division of the Aldridge formation though the writer noted some sediments that may belong to the Creston formation. Acidic intrusives of late Cretaceous or early Tertiary age were occasionally encountered on the property. Numerous pegmatite outcrops occur on the east-central part of the Bootleg claim group and these may be of similar age to the beryllium pegmatites which occur a few miles southwest.

The Aldridge formation which underlies the bulk of the Bootleg claim group includes the lower division which is a very rusty weathering assemblage of quartzites, siltstones and argillites. The middle division is characterized by massive light-weathering grey quartzite beds with dark argillite partings. The upper division is charcterized by a rusty weathered, thinly laminated alteration of dark argillite and light siltstone sometimes with beds of grey quartzite.

GEOLOGY OF THE BOOTLEG CLAIM GROUP

The geology is shown on Map #3 at a scale of 1:10,000.

The sedimentary rocks on the Bootleg claim group can be described as either argillites or quartzites though transitions exist be-

tween these two rock types. In many outcrops mapped, adjacent strata are quite variable in composition.

Most outcrops mapped as quartzites contain significant amounts of argillaceous and micaceous material. The texture of the quartzites varies from aphanitic chert to fine-grained sandstone. The colour is usually grey to buff and sometimes a rusty red due to high iron content. Shades of purple and green are also present, usually when the quartzite has a very pure composition. Buff tints usually indicate an impure micaceous rock. Due to the differing compositions, the hardness of the quartzites is quite variable. Iron oxides are ubiquitous in some quartzite beds, which therefore vary in colour from rusty red through shades of yellow and green to black. Hematite is the most abundant oxide though much limonite, goethite, magnetite and others also occur. In certain spots these oxides compose about 10% of the quartzite. The micaceous material in the quartzites includes sericite, the most abundant impurity, and in places biotite, phlogopite and chlorite. The latter two minerals are of rather uncommon occurrence in this rock. These micas usually occur as tiny flecks, but sometimes as flakes 3 mm across. Where it does occur, the phlogopite is aligned to form very distinctive bands about 3-5 mm wide in the quartzite. A little carbonate is frequently in the vicinity of the phlogopite layering. Traces of sulphides are occasionally present in the quartzites and quartz veining is sometimes present.

The argillite is a very gradational rock which displays much variety both in mineralogy and texture. A slatey foliation is sometimes present which is extremely well developed with laminae less than 1 mm thick. Usually, though the bedding planes are a few mm thick. Some of the argillites also display colour banding which is unrelated to the stratification. Buff, reddish and greenish tints are very common with the dark grey argillites having the

best foliation. White micas are often clearly visible and chlorite is often very conspicuous imparting a green colour to the sediments. The rusty red colour is due to the high iron content, which in places exceeds fifteen percent. Greenish-yellow oxides are very abundant and all these play a vital role in the frequent banding of imperceptibility into quartzites while often adjacent to these, the rock is gradational to a metamorphosed schist with diopside and tremolite sometimes visible in hand specimens. Traces of sulphides and quartz veining are frequently present but no genetic relationship seems to exist between them. Some of the argillites are amygdaloidal, the amygdules being composed of yellowish to red iron oxides and zeolites.

Though no doubt many of the sediments have quite high calcareous contents, only one outcrop of 'pure' carbonate was encountered. This rock has a very distinctive appearance and is a very spongy, light grey rock with a low specific gravity. It is fairly fine grained with calcite being the dominant component and small amounts of actinolite, tremolite and diopside were identified. The carbonates were found in intimate contact with impure quartzites and were derived from it through metamorphism.

The mica schist is a metamorphosed rock, derived from the sediments. Not only is the composition a clue to its provenance but also many argillite outcrops are gradational to it. The mica schist probably arose from a metamorphic reaction between the sediments and the felsic igneous intrusions which are in quite close proximity to the schists. In places the mica schists are in contact with the pegmatites which, incidently, are very muscovite rich. Many of the schists possess excellemt schistose foliation with some layers, and indeed some outcrops being composed almost entirely of muscovite. The muscovite rich layers often alternate with siliceous layers but the latter are always in the minority. A little chlorite and diopside are frequently present with chlor-

ite sometimes composing up to 35% of rock. Calcite, magnetite(?), glauconite and biotite sometimes occur. Although schistose rock was noted in the north part of the claim group a few km away from the pegmatite intrusions, this schist is less micaceous and the foliation is less distinctive than that found southwards.

Two very distinct types of felsic intrusions were mapped on the claim group. These seem most abundant in the south-central parts of the claim group. The felsic intrusives can be differentiated by grain size and mineralogy, though they may ultimately be genetically related. The two varieties are typically fine- to medium-grained granite and pegmatitic granite.

The fine-grained granite has an average colour index of approximately 25, so it technically may be a granodiorite, particularly considering the grey colour of most of the feldspars. The quartz content is about 25% and biotite is the dominant mafic comprising about 20%. A little hornblende is present and sometimes muscovite as well. Much of the rock is iron-stained externally and traces of sulphides such as pyrrhotite are occasionally present. In one rock, sulphides composed up to 3%. The grain size of the granite varies from 3-5 mm, though some outcrops are quite fine-grained with crystals measuring 1 to 2 mm. The granites are quite distinctive from the diorites but they are sometimes found in close proximity to each other, implying a genetic relationship between the two. The granite outcrops are much less extensive than the diorites being no more than 100 metres across and relatively rare.

The pegmatitic granite grades into coarse-grained granite, and is found only in a relatively small area in the south-central part of the claim group, where it is very abundant. Most of the crystals are one to five cm long but in a few outcrops they attain lengths of eight cm or more. These are all simple pegmatites with

only microcline quartz, muscovite and a little tourmaline present. Traces of biotite, horneblende, cordierite and epidote were noted in one outcrop and a trace of beryllium was found in a boulder. These latter minerals in addition to the tourmaline occur in grains no longer than 1 cm in contrast to the felsic components. Some of the muscovite is green tinged. The microcline is occasionally iron stained but usually is uniformly white coloured. The average composition is; microline - 60%, quartz - 20%, muscovite - 15%, tourmaline - 3% and accessories - 1%. The muscovite forms large distinctive plates in the rock. The only type of tourmaline noted was schorl, the black variety. There has obviously been a metasomatic reaction between the pegmatites and surrounding sediments judging by the prodigious amounts of muscovite schist in the vicinity of the pegmatites. No zoning was noted in the pegmatites though the abundance of muscovite varied somewhat in different outcrops, sometimes approaching 35%. The pegmatites formed large, rounded, high and conspicuous outcrops. No sulphides were noted.

Diorite is by far the most abundant igneous rock present on the Bootleg claim group and is almost ubiquitous in the map area. It is quite variable in colour index and very gradational in texture. The majority of it is medium-grained though some is very coarse with a considerable fine-grained component. All these phases are frequently found adjacent to each other. The colour index is also variable over a short lateral distance but averages roughly 45. In some places the colour index is so high, i.e. 70, that the rock has a composition of an amphibolite. Another indication that some metamorphism has occurred is the presence of actinolite, epidote and occasionally diopside and wollastonite. A schistose texture is sometimes apparent also, but most of the diorites can be definitely classified as igneous rocks.

Diorites are technically defined by the content of their plagio-

clase and by the virtual absence of quartz which, if it comprises over 10% of the rock, then it is considered a tonalite. Since quartz is often prominent in many outcrops, tonalite may be a more correct description of the rock. Rocks with sub-equal amounts of felsic and mafic minerals, with horneblende as the dominant mafic, can usually be safely described as diorites. In addition to amphiboles some biotite is often present and occasionally muscovite as well. In places the diorite is quite light coloured with a colour index as low as 30. In these rocks especially, the quartz content often exceeds 15%. Plagioclase is the most dominant felsic and composes usually about 40% of the rock. It is white or grey and is sometimes iron-stained. Quartz veining is often present in the diorites though it is less prominant than in the sediments.

The grain size of the diorites is quite variable. It is 1 to 3 mm in the finer grained outcrops but ranges up to 5-7 mm in the coarser grained ones. The average would appear to be 3-5 mm. Usually the largest phenocrysts are hornblende, but generally speaking, this rock is equigranular and neither porphyritic nor volcanic. Traces of sulphides are frequently present, as these usually occur in minute specks. Identification is difficult but they seem to be mainly pyrite. A little copper staining was noted approximately 500 metres north of the High Peak showing.

Diabase dykes are found in the north part of the Bootleg claim group. These are obviously closely allied to the diorites and are fine- to medium-grained. They are only a few metres wide and no more than 15 metres long. Some may actually be sills as they seem conformable to the adjacent sediments. Their colour index is about 60 and thus they are quite mafic.

STRUCTURAL GEOLOGY

(a) Regional

The map is on the crest of the Purcell geanitcline that underlies the Purcell mountains and plunges gently northward. In this region the geanticline is cut by three major faults; - the Moyie, the St. Mary and the Hall Lake. These faults repeat the structure successively northward and between them the segments plunge northward more steeply than does the geanticline as a whole.

The St. Mary fault which is steep and marked by breccia where exposed seems to represent dominantly vertical adjustment between tilting blocks but it has many characteristics of a strike-slip fault. The Hall Lake fault is steep and is the focus of intense shearing. It is probably a thrust fault on which the west block moved relatively upward and northward.

(b) Bootleg Claim Group

The three above-named faults together with lithological variations divide the map-area into three blocks with contrasting structures. The largest fault block is north of the St. Mary fault and east of the Hall Lake fault.

The Bootleg claim group is located on this large fault block. The block is chiefly underlain by competent Aldridge strata injected by the Moyie intrusions and is characterized by open north-trending folds. In the assymmetrical anticlines which are usually the smaller ones, the east limbs are usually steeper.

The two largest individual faults within the St. Mary block are the Alki, a southwest-dipping thrust fault, and the Kimberley,

which is a north-dipping normal fault. The Kimberley's history involved an increasing eastward hinge movement and a later strike-slip movement, possibly with the north side displaced relatively eastward and upward.

Near Matthew Creek there are north-striking and northeast-striking faults whose movements apparently overlapped each other as well as those of the Kimberley fault. The St. Mary block contains numerous north-striking, steeply dipping faults with most being quite small. It was noted that the west side of the faults had dropped down lower than the east side during their movement. Many of these smaller faults are the youngest in the area.

On the Bootleg claim group the bedding usually strikes north to northwesterly randomly dipping either to the east or west at a shallow angle such as 20° while in places the dip is as steep as 60° or 70° with the dip direction being sometimes easterly. The thickness of the argillite beds varies from less than 1 mm up to 10 cm. The thickness of the quartzites varies from 5 cm to 30 cm though individual beds are often very difficult to ascertain. Many of the diorites on the claim group are jointed. The mica schist often displays well developed mullions.

HISTORICAL GEOLOGY

A two-fold division of the Purcell series can be made in that the older part of the section, comprising the Aldridge and Creston formations, are chiefly quartzitic, whereas the younger formations are predominantly argillitic with much dolomite. This may imply that during the time these sediments were being deposited the topography of the adjacent area was worn down from a mount-

ainous terrain to a flat plain. The exact age of these Pre-Cambrian sediments has never been determined but they are probably of mid-Proterozoic age, i.e. approximately 1.5 billion years old. In order of deposits the Purcell series include:

1. Aldridge formation, which is comprised of four divisions.
2. Creston formation.
3. Kitchener-Siyeh formation.
4. Dutch Creek formation.

The Moyie diorite intrusions are of indeterminate age. They might be of Purcell age or younger but they are almost definitely Pre-Cambrian. The Cranbrook and Eager formations were deposited during the Cambrian period. In the Cretacous and/or early Tertiary there were intrusions of the granodiorite, quartz monzonite and pegmatite.

The entire area was glaciated during the Quaternary and the St. Mary River valley was carved out by valley glaciers. During this time, much till, comprised of gravel, sand and silt were deposited.

The origin of the Rocky Mountain trench is still a controversial matter, although, modern plate tectonic theory suggests that it may be the junction of two tectonic plates. One theory contends that the Rocky Mountains arose from the collision of these two postulated continental plates. The Rocky Mountain trench may be the site of an old rift valley.

ECONOMIC POTENTIAL

Two mineral occurences are located on the Bootleg claim group. They are relatively far apart and would seem to be unrelated. The Bulldog showing is about 1,600 metres high and readily accessible by a good logging road while the High Peak is 2,200 metres in elevation and about 3 km from the nearest accessible trail. The High Peak showing lies 3 km west of the Bulldog showing. A single isolated trench is found about 700 metres northwest of the Bulldog. Two old uninhabited cabins, one adjacent to each showing were discovered. The two workings are about 70 or 80 years old.

The only physical evidence of the High Peak showing (082FNE066) is the presence of an ore dump on a steep hillside. The adit and any other possible workings have been sloughed in. At least 10 tonnes of material are estimated to be in the dump. It contains large amounts of fractured quartz veining and traces of copper staining, i.e., malachite and azurite, with little chalcopyrite. Physical evidence of smelting also occurs. No trace of copper minerals occur adjacent to the showing but some malachite was found approximately 500 metres to the northeast. The adit is located in diorite but its contact with sedimentary rocks is only about 200 metres west.

Despite the sparse evidence of visible mineralization in the area investigated, there are two good reasons why this area has potential: firstly, the presence of large amounts of gossan, and secondly, the junction of two coincidental VLF-EM anomalies (see Addendum report by D. Mark). The gossan and anomalies are located on top of steep cliffs above and to the west of the High Peak showing and are almost inaccessible from below. The writer was unable to traverse this area this season but many shear zones, perhaps containing mineralization, may occur here. The reddish

brown gossan covers most of the hills that are visible from below and thus this part of the claim may have much potential. The area east of the High Peak showing has only traces of sulphides but the occurrence of shear zones and multiplying of lithological contacts imply much potential for this area also.

The Bulldog showing is shown on Map #4 at a scale of 1:500. Parts of the showing lie only 20 metres from a logging road. The workings located here cover a large area and are centered on thick, long and laterally extensive quartz veining which are a distinctive bluish-grey colour. These quartz veins are mainly hosted by slatey argillites and mica schists. On the north part of the showings are a set of contiguous trenches and shafts. One of the latter is approximately 30 metres deep. The strike of these trenches, i.e. 130°, is approximately perpendicular to the strike of the quartz veins which attain a thickness of 12 metres. The trenches are about three metres wide, 2 metres deep and have a combined length of 25 metres.

Despite the abundance of quartz vein material, there were no traces of sulphides noted adjacent to these trenches. It is possible, however, that large amounts were removed in the past from this site. The intensive shearing of the quartz veins and their bluish colour indicate possible mineralization at depth.

A second area of shafts, pits and trenches is located approximately 70 metres southeast of the aforementioned trenches. These are hosted in a mica schist with very little quartz vein material in evidence. The little quartz which was present had a pinkish and greenish tinge. A third group of trenches is located approximately 120 metres west of these. In both this latter area of trenching and the previous set, the pits are quite shallow, no more than two metres deep, and most of the trenches are of small dimensions, usually five metres long and two metres wide. The

longest trench located is about 20 metres long and straddles a contact of grey quartzite and mica schist. No sulphides are visible adjacent to these trenches but pyrolusite, a manganese mineral, is quite common. Some of the rocks in the trench's vicinity have perfect slatey foliation. Most of these trenches trend about 030°.

About 75 metres southwest of the third set of trenches, an extensive ore dump is present. The mouth of the adit is caved in but judging by the size of the ore dump it probably extended quite far into the hillside with a strike of about 020°. This is roughly parallel to the strike of the quartz veins. The adit was open as recently as twenty-five years ago. Quartz vein material compose only a small percentage of the ore dump but contain traces of visible sulphides, perhaps molybdenite, with some tourmaline and graphite present. The adit is located in mica schist and the presence of tourmaline suggests that a reaction between the pegmatites and the sediments occurred. This metasomatic reaction may have led to the deposition of some interesting metals in the subsurface. A mafic fine-grained metadiorite, heavily iron-stained, also occurs frequently in the Bulldog ore dump, but barren yellowish mica schist was the most prolific rock noted.

Despite the probable paucity of visible sulphides in most of these workings some sulphides were definitely located in a small trench approximately 700 metres northwest of the bulk of the workings. It is only 4 metres long, 2 metres wide and 2 metres deep. It contains galena, chalcopyrite, covellite and bornite as well as pyrite in an exposed quartz vein hosted by mica-rich argillite. Depite an exhaustive search no other workings were located in the vicinity of this trench. Neither were any large quartz veins located in any adjacent outcrops.

CONCLUSIONS

The Bootleg property holds good potential for economic mineralization for the following reasons:

1. Visible sulphides and numerous quartz veins are quite ubiquitous on the Bootleg claim group.

2. There are a great many contacts between igneous and sedimentary rocks. The intrusive rocks could be a source of economic mineralization since there was obviously much interaction between the sediments and intruding igneous rocks particularly in the vicinity of the pegmatites.

3. A large area of the claim group was not mapped this year due to a number of logistical and practical reasons.

4. Other remaining prime exploration territories on the claim group are areas of difficult terrain which have probably been neglected by prospecting and exploration in the past and therefore may hold great potential.

This property should therefore continue to be geologically mapped and intensely prospected in the next field season.

Respectfully submitted,
TRANS-ARCTIC EXPLORATIONS LTD.

Guy A. Royer, B.Sc.
Geologist

BIBLIOGRAPHY

Leech, G.B., Geological Map of St. Mary Lake, British Columbia, Sheet 82F/9, G.S.C. Map 15 - 1957, 1957.

Mark, David, G., Geophysical Report on Airborne Magnetic and VLF-EM Surveys over the St. Mary Lake Property, Vancouver, B.C., April, 1985

Sookochoff, L.,P. Eng., Geological Evaluation Report for Tunstall Resources and Geotech Resources Inc. on the Well Claim Group, Vancouver, B.C., September, 1985.

CERTIFICATE

I, Guy A. Royer am a consulting geologist for Trans-Arctic Explorations Ltd. of Vancouver, British Columbia.

I hereby certify that:

1. I graduated from the University of Saskatchewan with a B.Sc. degree in geology in April, 1980.

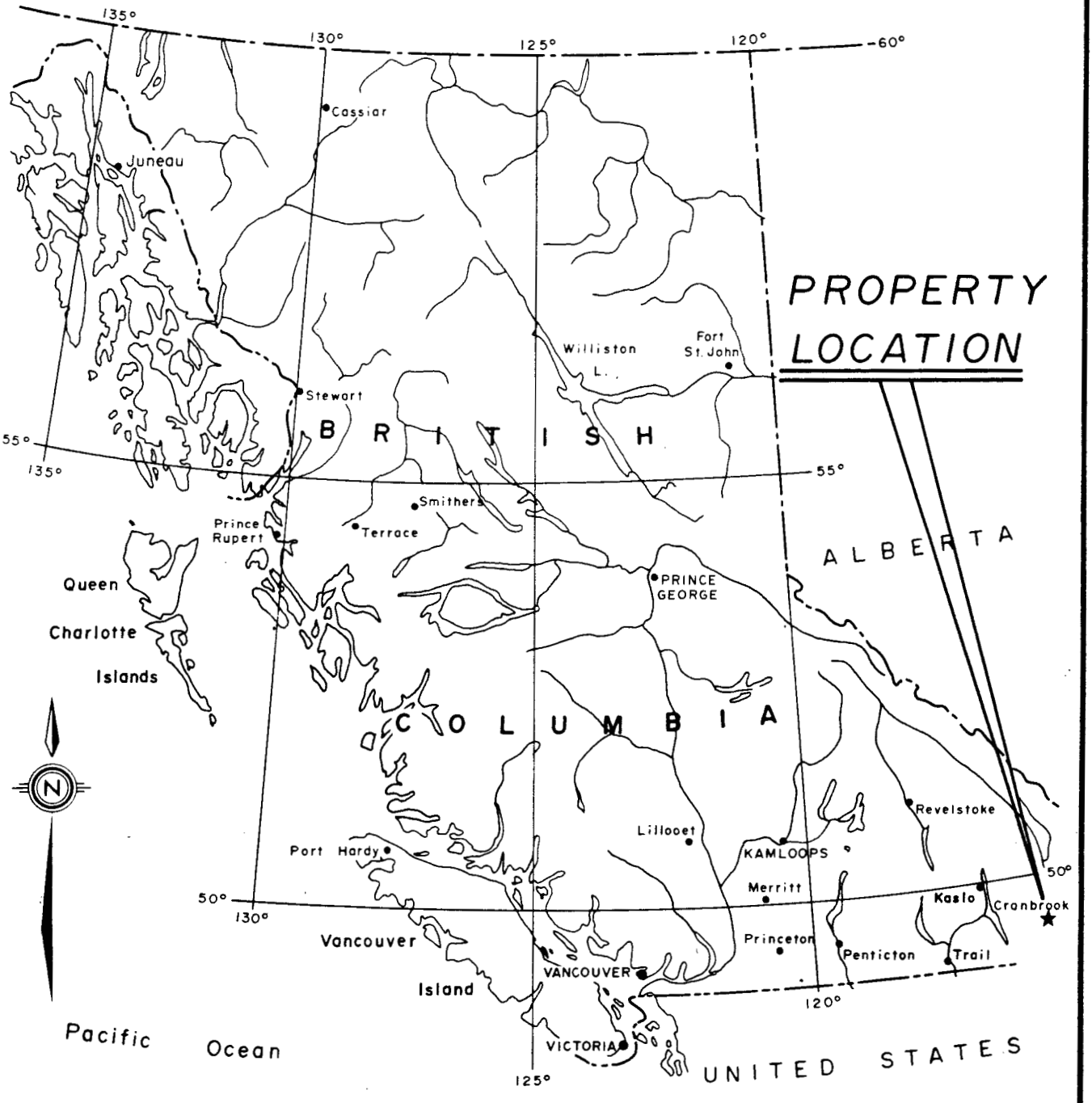
2. I have been practising my profession for five years.

3. I have no interest, beneficial or otherwise in the properties of Amstar Venture Corp.

4. I am the author of this report, which is primarily based upon my personal observations made while in the field.

Dated at Vancouver, B.C. this 27th day of November, 1985.

Guy A. Royer, B.Sc.

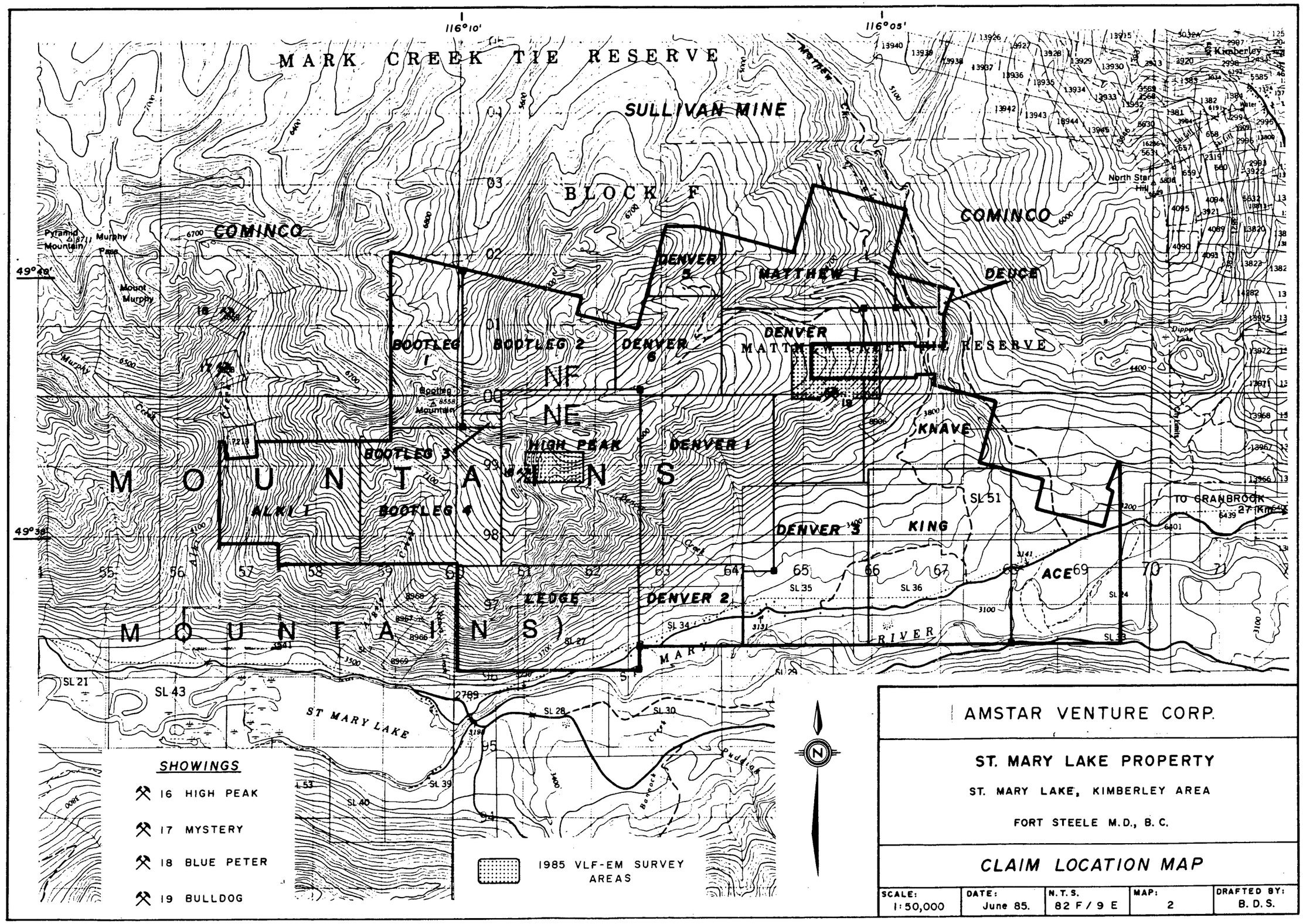


ST. MARY LAKE PROPERTY

100 0 100 200 300 400 Km.

100 0 100 200 Mi.

MAP 1 BRAD'S DRAFTING SERVICES



AMSTAR VENTURE CORP.

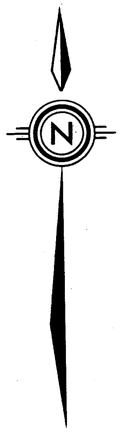
ST. MARY LAKE PROPERTY

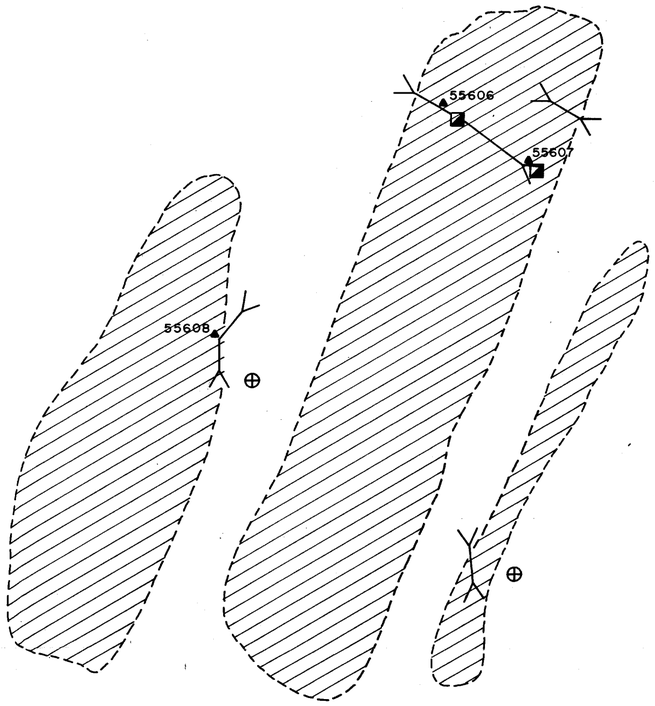
ST. MARY LAKE, KIMBERLEY AREA

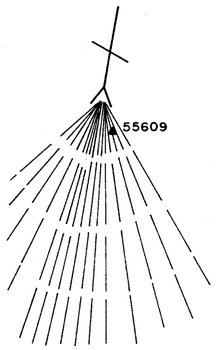
FORT STEELE M.D., B. C.

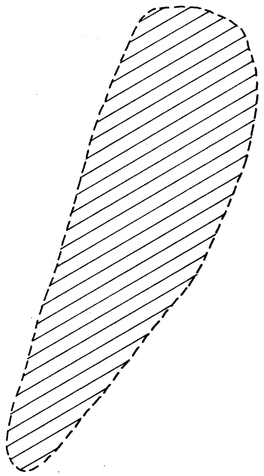
CLAIM LOCATION MAP

SCALE:	DATE:	N.T.S.	MAP:	DRAFTED BY:
1:50,000	June 85.	82 F / 9 E	2	B. D. S.









LEGEND

- ROCK SAMPLE
- TRENCH
- CAVED ADIT
- PIT
- ORE DUMP
- QUARTZ VEIN
- SHAFT

ASSAY RESULTS — *ROCK GEOCHEMISTRY*

SAMPLE No.	Cu %	Pb %	Zn %	Wo3 %	PT ppb	Ag oz/T	Au oz/T
55606	<0.01	<0.01	-	-	-	0.03	0.002
07	"	"	-	-	-	<0.01	<0.002
08	"	"	-	-	-	"	"
09	"	"	-	<0.001	-	"	"

20 0 50

METRES

To Accompany Report By: GUY A. ROYER, Geologist.

AMSTAR VENTURE CORP.

BOOTLEG CLAIM GROUP

ST. MARY RIVER, KIMBERLEY AREA

FORT STEELE M.D., B. C.

BULLDOG SHOWING

SCALE:	DATE:	N.T.S.	MAP:	DRAFTED BY:
1:500	DEC. 85.	82 F/9 E	4	B. D. S.

ADDENDUM

GEOPHYSICAL AND GEOCHEMICAL REPORT

ON

VLF-EM AND SOIL GEOCHEMISTRY SURVEYS

OVER THE

BOOTLEG CLAIM GROUP

ST. MARY LAKE, KIMBERLEY AREA

FORT STEELE MINING DIVISION

BRITISH COLUMBIA

PROPERTY	: 23 km N60°W of Cranbrook, B.C. and 6.5 km southwest of Kimberley, B.C. on Bootleg Mtn. : 49° 39' North Latitude 116° 08' West Longitude : N.T.S. 82F/9E
WRITTEN FOR *OWNER/OPERATOR*	: AMSTAR VENTURE CORP. #526-736 Granville Street Vancouver, B.C., V6Z 1G3
SURVEYED BY	: TRANS-ARCTIC EXPLORATIONS LTD. #815-850 West Hastings Street Vancouver, B.C., V6C 1E2
WRITTEN BY	: David G. Mark, Geophysicist GEOTRONICS SURVEYS LTD. #403-750 West Pender Street Vancouver, B.C., V6C 2T7
DATED	: January 17, 1986

GEOTRONICS SURVEYS LTD.
Engineering & Mining Geophysicists
VANCOUVER, CANADA

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

NOTE: Maps 1 to 4 are in Royer's Geological Report.

SUMMARY

VLF-EM and soil geochemistry surveys were carried out over a portion of Amstar Venture's Bootleg property during the fall of 1985. The purpose of the surveys was to locate probable zones of gold, silver and/or sulphide mineralization both directly and through mapping the structure.

The VLF-EM readings were taken in two areas: one to the immediate east of the High Peak showing and the other around and to the north of the Bulldog showing. The readings were taken every 50 meters on 50-meter separated east-west lines. The VLF-EM data was then reduced, plotted and contoured.

The soil samples were taken every 100 meters along roads around the Bulldog showing. The samples were subsequently tested for fourmetals including gold, statistically analyzed, plotted, and contoured.

CONCLUSIONS

1. The VLF-EM survey has revealed several conductors within both survey areas that predominantly strike in two directions, - northerly and northeasterly. This correlates with the mapped strikes of fault and contact zones within the Bootleg property and thus these are probably the causative sources.

2. The High Peak survey was not done around the showing and thus it can't be said whether the VLF-EM survey has extended the zone, or not.

3. The strongest VLF-EM anomaly (or conductor) occurs on the Bootleg survey and is associated with the Bulldog showing. It appears to strike northerly though it may actually strike northeasterly. The strongest part occurs 200 m southwest of the central part of the Bulldog showing.

4. The second strongest anomaly is to the north of the above-discussed anomaly and thus may be its northern extension.

5. A complex anomalous zone occurs within the northeastern part of the survey area where the main conductor strikes northeasterly but is crossed by northwesterly-striking conductors. The zone therefore is indicated to be caused by cross-structure which makes it a prime exploration area.

6. The soil geochemistry survey along the roads revealed a zone (labelled A) strongly anomalous in gold, lead and copper. It occurs 100- to 300-m west of the Bulldog showing. It could be an extension of the showing though it is more likely a parallel zone.

7. Two other zones were discovered that were comprised of low anomalous values. The causative sources likely occur nearby, but away from the road.

RECOMMENDATIONS

The work done to date, considering the property is so large, has been very preliminary covering only a small part of the property. However, what has been done has been quite encouraging. A program was recommended in the writer's previous report on the airborne geophysics (April 4, 1985) and it is felt this should be continued as follows:

1. The geological mapping/prospecting should be continued over the property as the mapping done to date has only been preliminary. Photogeological analysis is also recommended as it would be an aid to the mapping.

2. The soil sampling has also been very preliminary but has resulted in the discovery of three anomalies. Detailing should be carried out around all three with samples being picked up every 20 m to a distance of at least 100 m on every side. For anomaly B this will result in the detailing being done in a long, narrow belt.

3. To cover the rest of the property, take large soil samples every 50 m along contour lines preferably about 100 m apart in elevation. Silt, sand, and/or gravel along creeks and tributaries, including dry gullies, should also be sampled. In the lab, the total sample should be pulverized, and not screened at all in order to preclude the screening out of coarser gold. The anomalous samples should then be followed up by sampling on a tight grid, say, 20 m centers on a grid 200 m square.

   If it is preferable to sample on a grid, then samples should be taken every 50 m on lines 150 or 200 m apart. Tighter sampling may be carried out over areas of greater geological interest.

4. If a grid is placed on the property, then it is recommended to carry out VLF-EM and magnetic surveys. These should aid in geological mapping.

5. The defined soil anomalies in gold should then be 'cat' trenched, if access and terrain permit.

6. Resistivity - IP mapping and/or MaxMin EM should then be considered in order to optimize drill targets.

7. Diamond drilling should then be carried out using a large diameter drill and a face discharge bit.

ADDENDUM

GEOPHYSICAL AND GEOCHEMICAL REPORT

ON

VLF-EM AND SOIL GEOCHEMISTRY SURVEYS

OVER THE

BOOTLEG CLAIM GROUP

ST. MARY LAKE, KIMBERLEY AREA

FORT STEELE MINING DIVISION

BRITISH COLUMBIA

INTRODUCTION AND GENERAL REMARKS

This report discusses the survey procedure, compilation of data and the interpretation of VLF-EM and soil geochemistry surveys carried out over portions of the Bootleg property during August and September of 1985.

The surveys were carried out by Trans-Arctic Exploratins Ltd. under the supervision of E.A. Dodd and the field supervision of Guy Royer, geologist. A total of 32.9 line km of VLF-EM survey were done and a total of 250 soil samples were picked up.

The primary purpose of the VLF-EM survey was to delineate geological structure as an aid in the exploration for gold/silver/

sulphide mineralization. That of the soil sampling was to locate the mineralization directly. Besides gold, the samples were tested for silver, lead and copper.

This report is written as an addendum to the geological report by Guy Royer, dated November 27th, 1985. Therefore no property description is given, including geology.

VLF-EM SURVEY

1. Instrumentation and Theory

A VLF-EM receiver, model 27, manufacture by Sabre Electronic Instruments Ltd. of Burnaby, B.C. was used for the VLF-EM survey. This instrument is designed to measure the electromagnetic component of the very low frequency field (VLF-EM), which for this survey is transmitted at 24.8 KHz from Seattle, Washington.

In all electromagnetic prospecting, a transmitter produces an alternating magnetic field (primary) by a strong alternating current usually through a coil of wire. If a conductive mass such as a sulphide body is within this magnetic field, a secondary alternating current is induced within it which in turn induces a secondary magnetic field that distorts the primary magnetic field. It is this distortion that the EM receiver measures. The VLF-EM uses a frequency range from 16 to 24 KHz, whereas most EM instruments use frequencies ranging from a few hundred to a few thousand Hz. Because of its relatively high frequency, the VLF-EM can pick up bodies of a much lower conductivity and therefore is more susceptible to clay beds, electrolyte-filling fault or shear zones and porous horizons, graphite, carbonaceous sediments, lithological contacts as well as sulphide bodies of too low a conductivity for other EM methods to pick up. Consequently the VLF-EM has additional uses in mapping

structure and in picking up sulphide bodies of too low a conductivity for conventional EM methods and too small for induced polarization. (In places it can be used instead of I.P.). However, its susceptibility to lower conductive bodies results in a number of anomalies, many of them difficult to explain and, thus, VLF-EM preferably should not be interpreted without a good geological knowledge of the property and/or other geophysical and geochemical surveys.

2. Field Procedure

VLF-EM readings were taken over two different areas: (1) an area comprised of 8 km of survey work to the immediate east of the High Peak showing, (2) an area comprised of 24.9 km of survey work around and to the north of the Bulldog showing.

For the High Peak survey, the baseline was placed 425 meters east of the showing in a direction of due north and for a distance of 550 m. For the Bulldog survey, the baseline was placed 350 m east of the showing in a direction of due south and for a distance of 1,000 m. For both surveys, the baseline was well flagged with florescent orange survey flagging. The cross lines were run perpendicular to the base line at a 50-m spacing with the instrument readings taken at 50 m intervals facing towards the transmitter at Seattle.

3. Compilation of Data

The VLF-EM field results were plotted on Maps 5 and 8 for the High Peak survey and the Bulldog survey, respectively, each at a scale of 1:5,000. They were then reduced by applying the Fraser-filter in both a north-south direction and an east-west direction. The filtered results were subsequently plotted on Maps 6 and 7 for the High Peak showing and on Maps 9 and 10 for

the Bulldog showing. The filtered data was plotted between actual reading stations. The positive dip-angle readings were then contoured at an interval of 4° beginning with 0°.

The Fraser-filter is essentially a 4-point difference operator, which transforms zero crossings into peaks, and a low pass smoothing operator which induces the inherent high frequency noise in the data. Therefore, the noisy, non-contourable data are transformed into less noisy, contourable data. Another advantage of this filter is that a conductor that does not show up as a crossover on the unfiltered data quite often shows up on the filtered data.

4. Discussion of Results

a) General

The major cause of VLF-EM anomalies, as a rule, are geologic structures such as fault, shear and breccia zones. It is therefore logical to interpret VLF-EM anomalies to likely be caused by these structural zones. Of course, sulphides may also be a causative source. But in the writer's experience, when VLF-EM anomalies correlate with sulphide mineralization, the anomalies are usually reflecting the structure associated with the mineralization rather than the mineralization itself.

There is some variation in intensity from one VLF-EM anomaly to the next. This is not only due to the conductivity of a causative source, but also the direction it strikes relative to the direction to the transmitter. In other words, those conductors lying closer to the same direction as the direction to the transmitter (S70W in this case), can be picked up easier than those that are lying at a greater angle. Depending upon its conductivity, a conductor may not be picked up at all if it is at too great an angle. However, on this particular survey are some

VLF-EM conductors that have strong intensity and yet are at a low optimum direction to Seattle. This is therefore an indication of the causative source being a strong conductor.

The survey has produced interesting results, particularly the VLF-EM highs. These highs are of greater economic interest since they may be reflecting sulphides, fracturing and/or alteration any of which could be associated with gold mineralization. The highs often are at points of intersection of two or three conductors striking in two or three different directions. If the conductors are in fact geological structures, then the points of intersection become amenable to mineralizing fluids.

b) High Peak Survey

The two strongest anomalies labelled a and b strike northerly. Royer noted northerly striking faults in his report, and thus, these anomalies could be reflecting faults. The two anomalies could also be reflecting contacts since it is known that intrusive-sedimentary contacts strike northerly in this area. It is difficult to determine for certain the strike direction of b since it occurs at the southeastern corner of the survey area, but it is likely northerly. It is also the strongest anomaly within the survey.

Anomalies c, d and e are northeasterly-striking and also may be reflecting fault systems, as Royer has noted northeasterly-striking faults within the Bootleg property.

Anomaly f is northwesterly-striking. The VLF-EM results do not indicate any extension to the High Peak showing. However, this is inconclusive since the survey area did not cover the showing.

c) Bulldog Survey

The anomalous results on this survey area are much more complex than on the High Peak survey indicating more complex structure. The dominant strike direction is northeasterly, though the two strongest anomalies strike northerly. As indicated above, this agrees with the mapped strike directions of faults and contacts within the Bootleg property.

Anomaly a is the strongest anomaly within both survey areas reaching a high of 36°. It appears to be related to the Bulldog showing and may indicate a connection between the main showing and a showing exposed by a trench 300 m to the southwest. The writer has indicated 'a' to strike northerly though, alternatively, it could be reflecting two parallel northeasterly-striking conductors.

Anomaly b is the second strongest anomaly and appears to be striking northerly as well. It could be the northerly extension of a.

Anomaly c is the strongest anomaly with the best length. This anomaly is also fairly complex and appears to be closely related to two parallel anomalies, d and e, as well as northwesterly-striking anomalies f, g and h. These anomalies indicate cross-structure and thus outline this area with greater potential for mineralization.

SOIL GEOCHEMISTRY

1. Survey Procedure

The samples were picked up at 100-meter centers along logging roads on and around the Bulldog showing. They were dug with a D-handled shovel at about a 15- to 20-cm depth. The horizon

sampled was B. Samples were placed in brown, wet-strength, paper bags (gussett bags) with the sample number marked thereon.

2. Testing Procedure

All samples were tested by Acme Analytical Laboratories Ltd. of Vancouver, B.C. The sample is first thoroughly dried and then pulverized in a ring pulverizer.

For the gold analysis, 10 grams of the sample was then fire-assayed with standard techniques. It was then leached with nitric acid and digested in aqua regia. It was next analyzed by the atomic absorption technique to a detection limit of 1 part per billion (ppb).

For the silver, lead and copper, a 0.5 gram of the sifted material was put into a test tube with subsequent measured additions of perchloric acid and nitric acid. The mixture was next heated for a certain length of time. The parts per million (ppm) metal was then measured by atomic absorption.

3. Treatment of Data

The values in ppm lead and copper were grouped into equal logarithmic intervals. The cumulative frequency for each interval was then calculated and then plotted against the correlating interval to obtain a logarithmic cumulative frequency graph.

The mean background value for each metal is taken at the 50% level. The sub-anomalous threshold value, (a term used by the writer to denote the minimum value that is not considered anomalous but still important as an indicator of mineralization) is taken at one standard deviation from the mean background value which is at the 16% level. The anomalous threshold value is two standard deviations away at the 2 1/2% level.

The gold and silver geochemistry data were not analyzed with a cumulative frequency graph due to the way the data were distributed. Rather, its statistical parameters were "eye-balled."

As a result of the above, the statistical parameters for each metal are shown in the following table with the sheet number that the geochemistry values for each of the metals were plotted on. The maps are drawn at a scale of 1:5,000.

Metal	Gold	Silver	Lead	Copper
Map number	11	12	13	14
Mean background value	<5	0.1	11	29
Sub-anomalous threshold value	8	0.2	16	38
Anomalous threshold value	12	0.3	22	50

The silver, lead and copper values are in ppm, and the gold, in ppb.

Each of the metals were contoured at a logarithmic interval of 1 standard deviation (for the gold and silver, this was estimated) beginning with the sub-anomalous contour which was dashed in. The anomalous contours were drawn in solid.

4. Discussion of Results

Three anomalous zones that are worthy of exploration interest have been revealed by the soil geochemistry survey. These have been labelled by the capital letters A to C on Maps 11 to 14.

The samples were picked up at an interval of 100 m. This can be a large interval, especially for gold. Therefore any anomalous results, even 1- sample highs, can be of interest.

The silver values were quite low throughout the survey area with no values being above 0.3 ppm. This can simply be a result of when the samples were taken. Silver, because of the water-solubility of some of its minerals, can be diluted very significantly after much rain. This was noted on a property nearby where the silver values were quite anomalous in certain areas, and yet when the anomalies were checked, there were no values greater than 0.1 ppm. The second sampling was done after much rain.

In comparing the gold map to the others, especially the lead and copper, the gold anomalies appear to be rather spotty. This is more normal than not due to the fact that gold is usually distributed mechanically rather than chemically and the fact that gold occurs in very small amounts.

Anomaly A occurs one to three hundred meters west of the Bulldog showing and is by far the strongest anomaly on the property. It could be reflecting an extension of the showing or a parallel zone. The former is less likely since the mineralization strikes northeasterly. Anomaly A consists of the highest gold, lead and copper values on the proeprty, which are 45 ppb, 110 ppm and 78 ppm, respectively.

Anomaly B is a widespread zone along the road that is anomalously low in gold, lead and copper with their being only one value in gold. There are no anomalous values in silver. Though the anomalous values are low, the anomaly is of strong interest, since it is a widespread zone and since the sampling may have only caught the edge of the anomaly. The causative source may actually occur nearby rather than on the road. It is also quite possible that there is more than one source to this anomalous zone.

Anomaly C is a smaller zone that is barely anomalous in lead and copper. Like B, the causative source could well occur nearby and therefore anomaly C is worthy of further checking.

Since the sampling was carried out along the roads, all anomalies are open in two directions.

It is difficult to correlate the VLF-EM conductors with the soil results, since the sampling was done along the roads and therefore covered only a small part of the VLF-EM survey area.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.

David G. Mark,
Geophysicist

January 17, 1986

SELECTED BIBLIOGRAPHY

Leech, G.B., Geology Map - St. Mary Lake, British Columbia, Sheet 82 F/9, G.S.C. Map 15-1957, 1957.

Leech, G.B., Geology Map - Fernie (West Half), Kootenay District, B.C., Geological Survey of Canada, Map 11-1960, 1960.

Leech, G.B., Fernie Map-area, West Half, British Columbia; Geological Survey of Canada, Paper 58-10, 1958.

Rice, H.M.A. - Nelson Map-Area, East Half, British Columbia, G.S.C. Memoir 228, p. 70-71, 1966.

Rice H.M.A., Cranbrook Map-area, British Columbua, Geological Survey of Canada, Memoir 207, 1937.

Schofield, S.J. Geology of Cranbrook Area, British Columbia, 1915.

GEOPHYSICIST'S CERTIFICATE

I, DAVID G. MARK, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices located at #403-750 West Pender Street, Vancouver, British Columbia.

I further certify:

1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc. degree in Geophysics.

2. I have been practising my profession for the past 18 years and have been active in the mining industry for the past 21 years.

3. I am an active member of the Society of Exploration Geophysicists and a member of the European Association for Exploration Geophysicists.

4. This report is compiled from data obtained from VLF-EM and soil geochemistry surveys carried out by Trans-Arctic Explorations Ltd., under the supervision of E.A. Dodd and under the field superivsion of Guy Royer, geologist, from August 10th to September 18th, 1985.

5. I am not a shareholder of Amstar Venture Corp. nor do I hold any interest in the Bootleg property, nor will I receive any interest as a result of writing this report.

David G. Mark
Geophysicist

January 17, 1986

AFFIDAVIT OF EXPENSES

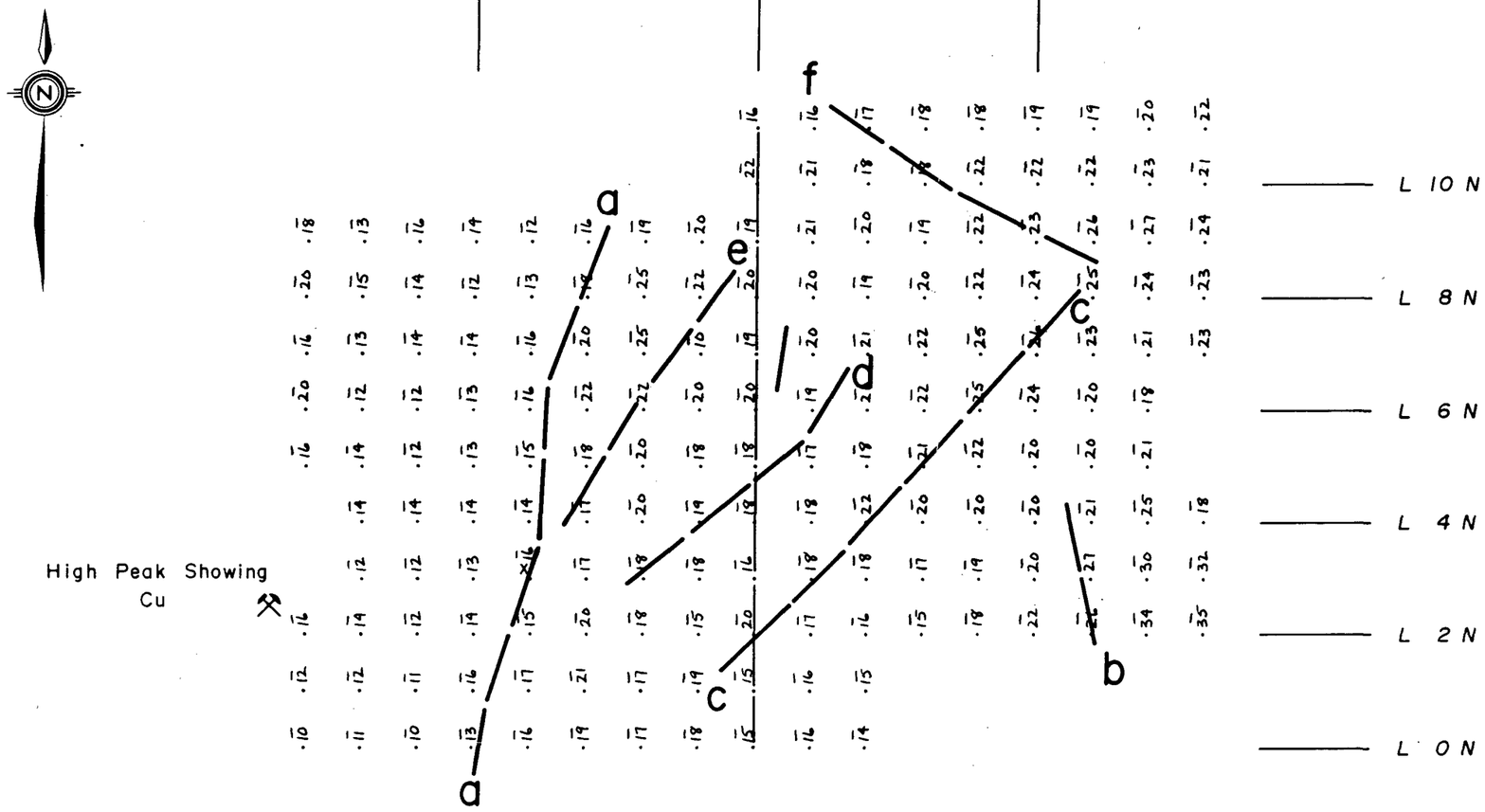
The VLF-EM and soil geochemistry surveys as well as the geological mapping were carried out from August 10 to September 18th, 1985 over the Bootleg 1, 2 and 3 claim groups, St. Mary Lake area, Fort Steele Mining Division, B.C. to the value of the following:

FIELD:	
Supervisor, 10 days at $200/day	$ 2,000.00
Geologist and assistant, 39 days at $375/day	14,625.00
Truck rental: two 4X4 3/4 ton trucks 1 for 10 days, and 1 for 39 days, both at $110/day (includes gas and oil)	5,390.00
Room and board, 2 men, 39 days at $100/day	3,900.00
Room and board, 1 man, 10 days at $50/day	500.00
Survey supplies	575.00
Instrument rental, VLF-EM, 39 days at $25/day	975.00
	$27,965.00
LABORATORY:	
Geochemistry testing of soil samples and assaying of rock samples	$ 3,379.00
OFFICE:	
Senior geophysicist, 23 hours @ $45/hr	$ 1,035.00
Junior geologist, 35 hours at $30/hour	1,050.00
Geophysical technician, 10 hours @ $25/hr	250.00
Drafting and printing	1,200.00
Typing and photocopying	150.00
	$ 3,685.00
GRAND TOTAL	$35,029.00

Approximately 1/3 was spent on each of the Bootleg 1 claim group, the Bootleg 2 claim group and the Bootleg 3 claim group, that is $11,676.00 for each group.

Respectfully submitted,
TRANS-ARCTIC EXPLORATIONS LTD.

Richard S. Simpson
General Manager



INSTRUMENT SABRE MODEL 27 VLF-EM UNIT

LEGEND

x OLD CABIN

• SURVEY STATION

VLF-EM CONDUCTOR AXIS

TRANSMITTER

SEATTLE 24.8 KHz.

100 0 250 metres

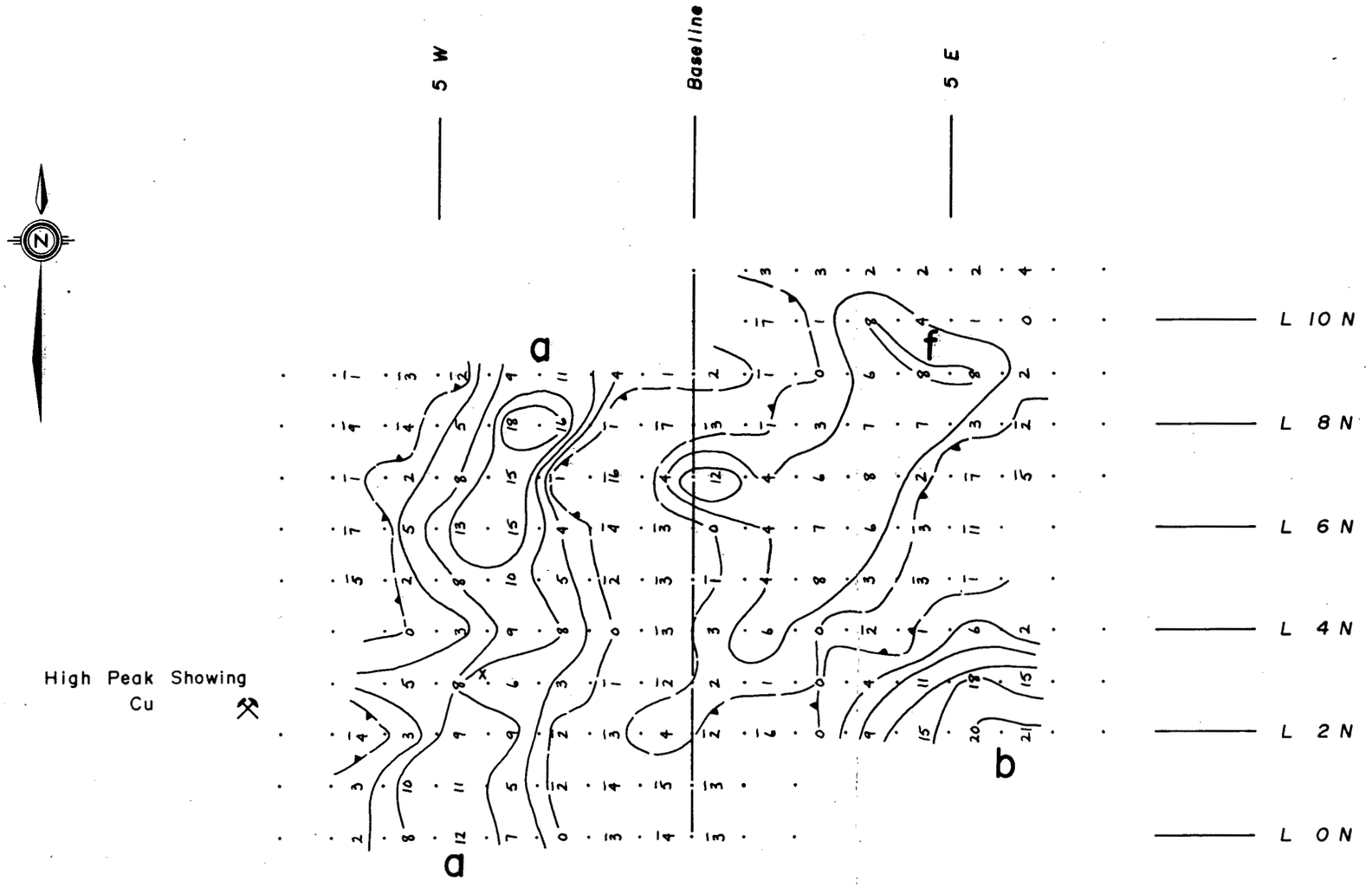
Field Work Carried Out By: TRANS-ARCTIC EXPLORATIONS LTD.

AMSTAR VENTURE CORP.

BOOTLEG CLAIM GROUP
HIGH PEAK SHOWING
DENVER CREEK, KIMBERLEY AREA
FORT STEELE M.D., B.C.

VLF-EM SURVEY
RAW DATA & CONDUCTORS

SCALE:	DATE:	N.T.S.	MAP:	DRAFTED BY:
1:5,000	DEC. 1985.	82 F/9 E	5	B. D. S.



CONTOUR INTERVAL

0 DEGREE

4 DEGREES AND HIGHER

CONTOUR LOW

INSTRUMENT SABRE MODEL 27 VLF-EM UNIT

LEGEND

x OLD CABIN

• SURVEY STATION

TRANSMITTER

SEATTLE 24.8 KHz.

100 0 250 metres

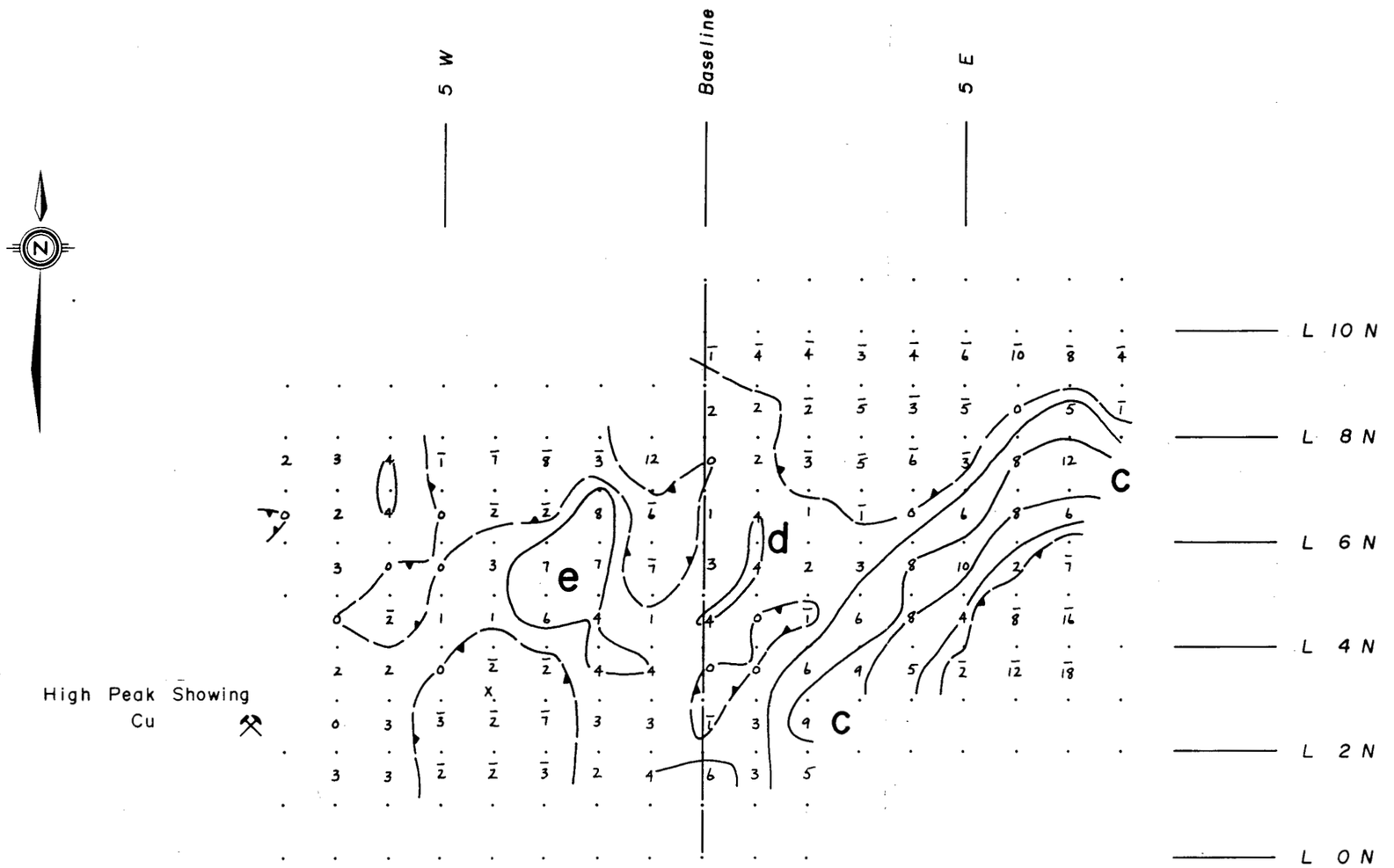
Field Work Carried Out By: TRANS-ARCTIC EXPLORATIONS LTD.

AMSTAR VENTURE CORP.

BOOTLEG CLAIM GROUP
HIGH PEAK SHOWING
DENVER CREEK, KIMBERLEY AREA
FORT STEELE M. D., B. C.

VLF-EM SURVEY
E-W FRASER FILTERED DATA & CONTOURS

SCALE:	DATE:	N.T.S.	MAP:	DRAFTED BY:
1:5,000	DEC. 1985.	82 F/9 E	6	B. D. S.



CONTOUR INTERVAL

0 DEGREES

4 DEGREES AND HIGHER

CONTOUR LOW

INSTRUMENT SABRE MODEL 27 VLF-EM UNIT

LEGEND

X OLD CABIN

· SURVEY STATION

TRANSMITTER

SEATTLE 24.8 KHz.

100 0 250 metres

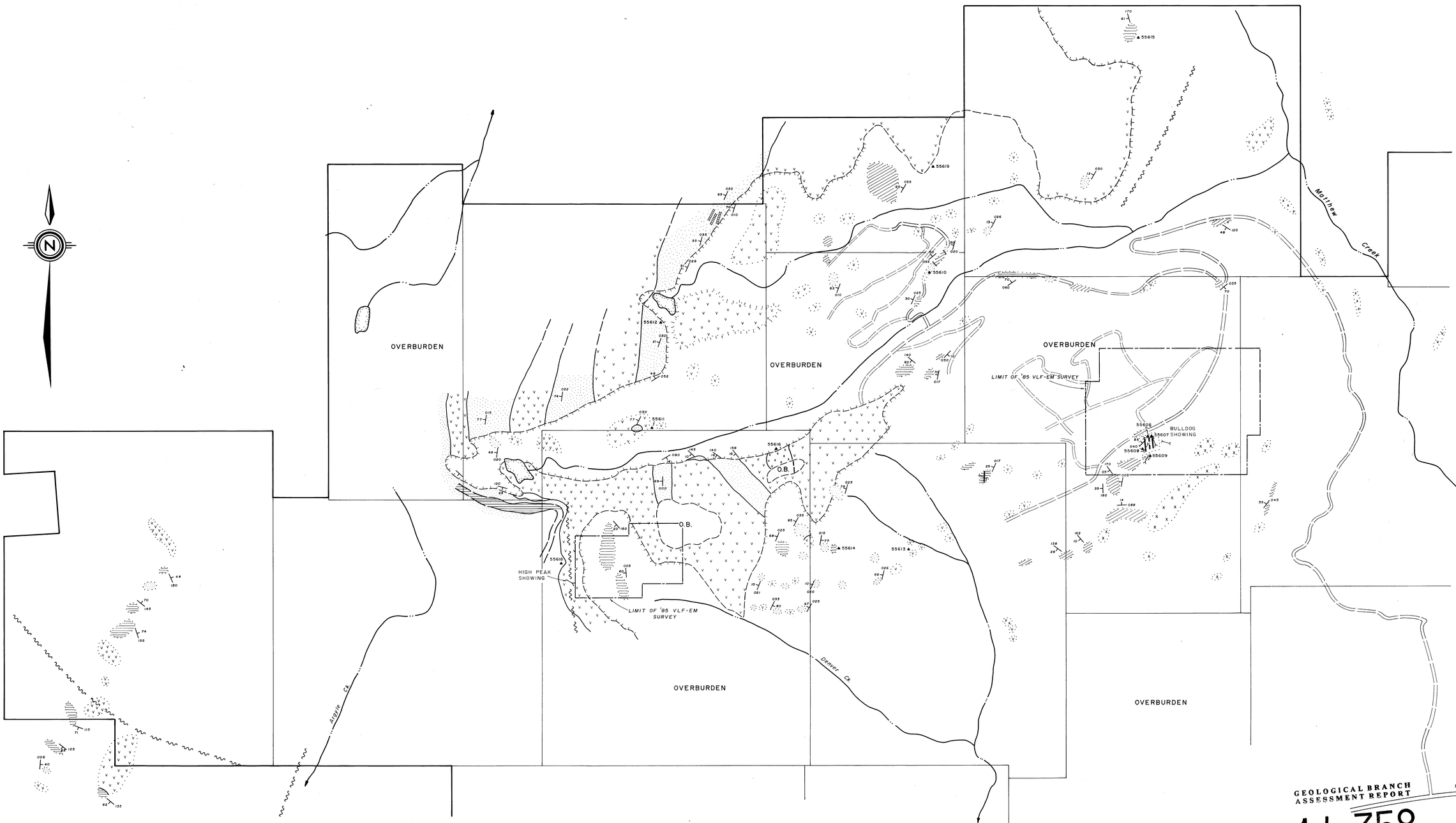
Field Work Carried Out By: TRANS-ARCTIC EXPLORATIONS LTD.

AMSTAR VENTURE CORP.

BOOTLEG CLAIM GROUP
HIGH PEAK SHOWING
DENVER CREEK, KIMBERLEY AREA
FORT STEELE M.D., B.C.

VLF-EM SURVEY
N-S FRASER FILTERED DATA & CONTOURS

SCALE:	DATE:	N.T.S.	MAP:	DRAFTED BY:
1:5,000	DEC. 1985.	82 F/9 E	7	B. D. S.



LEGEND

- MEDIUM GRAINED GRANITE
- MUSCOVITE – RICH COARSE GRAINED GRANITE TO PEGMATITE
- DIORITE, QUARTZ DIORITE, METADIORITE
- QUARTZITE, ARGILLACEOUS QUARTZITE
- ARGILLITE, SILICEOUS ARGILLITE, SLATY ARGILLITE
- MICA SCHIST
- DIABASE DYKE
- QUARTZ VEINING
- TRENCH
- ADIT
- LIMIT OF OUTCROP
- PROBABLE SHEAR ZONE
- STRIKE & DIP
- GEOLOGICAL CONTACT; DEFINED, ASSUMED
- LIMIT OF OVERBURDEN
- ROAD
- CREEK
- CLIFF
- ROCK SAMPLE

ASSAY RESULTS *ROCK GEOCHEMISTRY*

SAMPLE No.	Cu %	Pb %	Zn %	Wo3 %	PT ppb	Ag oz/T	Au oz/T
55606	<0.01	<0.01	-	-	-	0.03	0.002
07	"	"	-	-	-	<0.01	<0.002
08	"	"	-	-	-	"	"
09	"	"	-	<0.001	-	"	"
10	"	"	-	-	-	"	"
11	"	"	-	-	<35	"	"
12	"	"	-	-	-	"	"
13	"	"	<0.01	-	-	0.01	"
14	"	"	-	-	-	"	0.002
15	"	"	-	-	-	<0.01	<0.002
16	"	"	-	-	-	"	0.002
18	0.01	"	-	-	-	0.01	<0.002
55619	<0.01	<0.01	<0.01	-	-	<0.01	<0.002

500 m 0 1 Km

FIELD WORK CARRIED OUT BY: TRANS-ARCTIC EXPLORATIONS LTD.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

HIGHWAY TO KIMBERLEY 13 Km.

14,358

To Accompany Report By: GUY A. ROYER, Geologist.

AMSTAR VENTURE CORP.

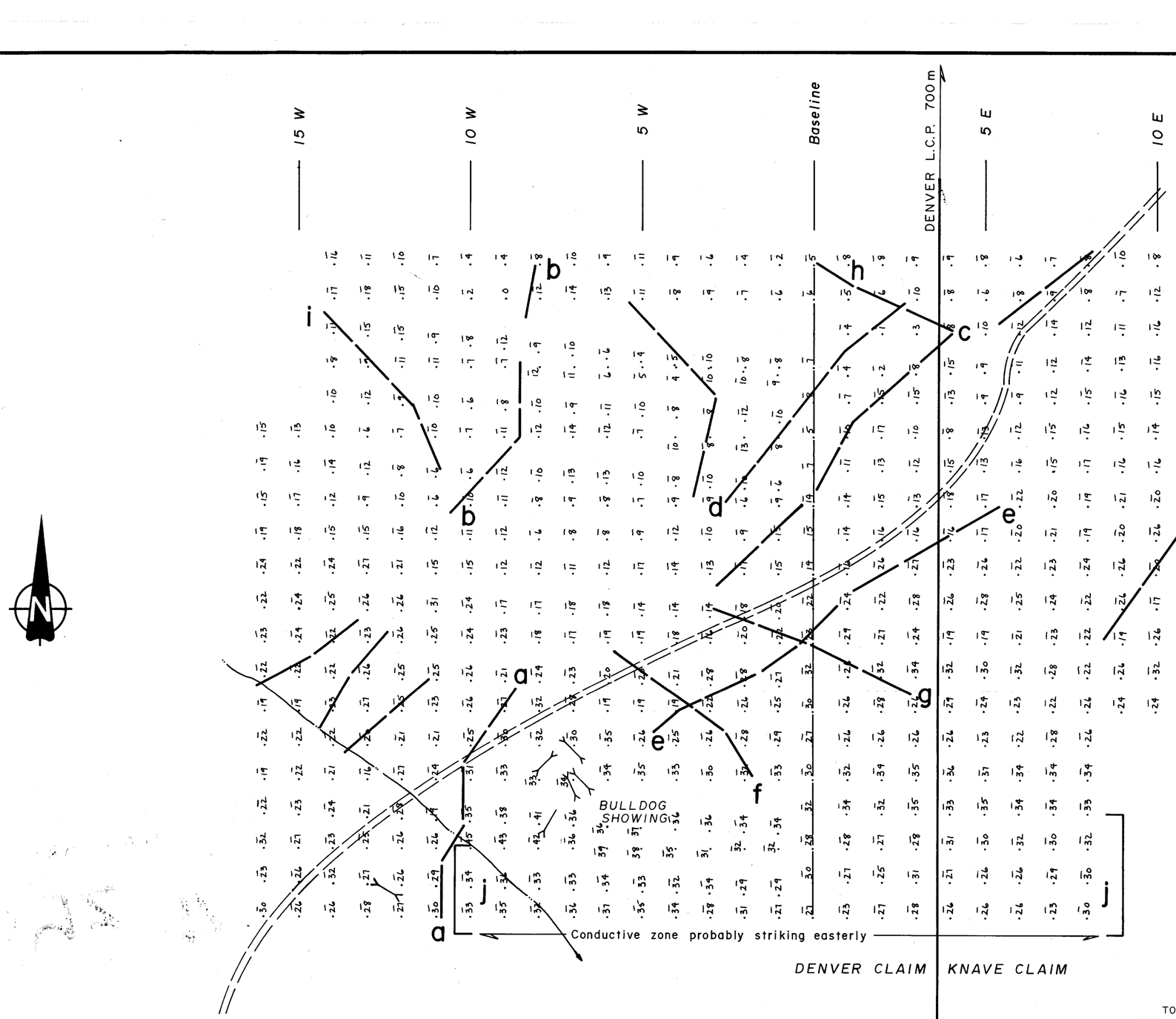
BOOTLEG CLAIM GROUP

ST. MARY RIVER, KIMBERLEY AREA

FORT STEELE M.D., B.C.

GEOLOGY MAP

SCALE:	DATE:	N.T.S.	MAP:	DRAFTED BY:
1:10,000	NOV. 85	82 F/9 E	3	B.D.S.



L 15 S

GEOLOGICAL BRANCH
ASSESSMENT REPORT

14,358

19 S

TO ACCOMPANY GEOPHYSICAL REPORT BY: DAVID G. MARK, GEOPHYSICIST

AMSTAR VENTURE CORP.

BOOTLEG CLAIM GROUP

BULLDOG SHOWING

MATHEW CREEK AREA, KIMBERLEY

FORT STEELE M. D., B. C.

VLF-EM SURVEY

RAW DATA & CONDUCTORS

SCALE:	DATE:	N.T.S.	MAP:	DRAFTED BY:
1:5,000	NOV. 85.	82 F/9 E	8	B. D. S.

LEGEND

- TRENCH
- ADIT
- SURVEY STATION
- ROAD
- CLAIM BOUNDARY
- CREEK

INSTRUMENT SABRE MODEL 27 VLF-EM UNIT

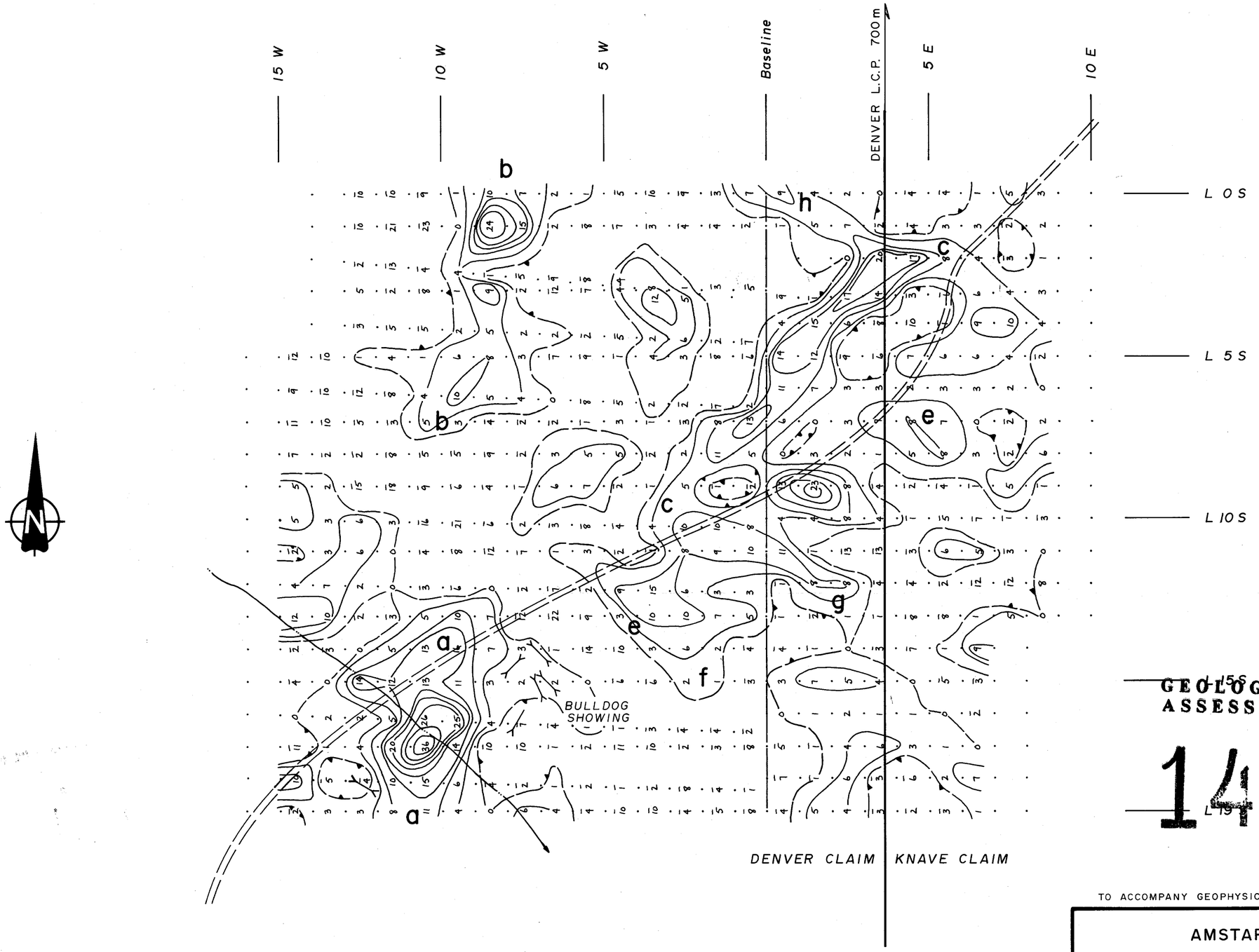
VLF-EM CONDUCTOR AXIS

TRANSMITTER DIRECTION

SEATTLE 24.8 KHz.

250 0 250 m

FIELD WORK CARRIED OUT BY: TRANS-ARCTIC EXPLORATIONS LTD.



TO ACCOMPANY GEOPHYSICAL REPORT BY: DAVID G. MARK, GEOPHYSICIST

LEGEND

- TRENCH
- ADIT
- SURVEY STATION
- ROAD
- CLAIM BOUNDARY
- CREEK

INSTRUMENT SABRE MODEL 27 VLF-EM UNIT

CONTOUR INTERVAL

- 0 DEGREE
- 4 DEGREES AND HIGHER
- CONTOUR LOW

TRANSMITTER DIRECTION

SEATTLE 24.8 KHz.

250 0 250 m

FIELD WORK CARRIED OUT BY: TRANS-ARCTIC EXPLORATIONS LTD.

AMSTAR VENTURE CORP.

BOOTLEG CLAIM GROUP

BULLDOG SHOWING

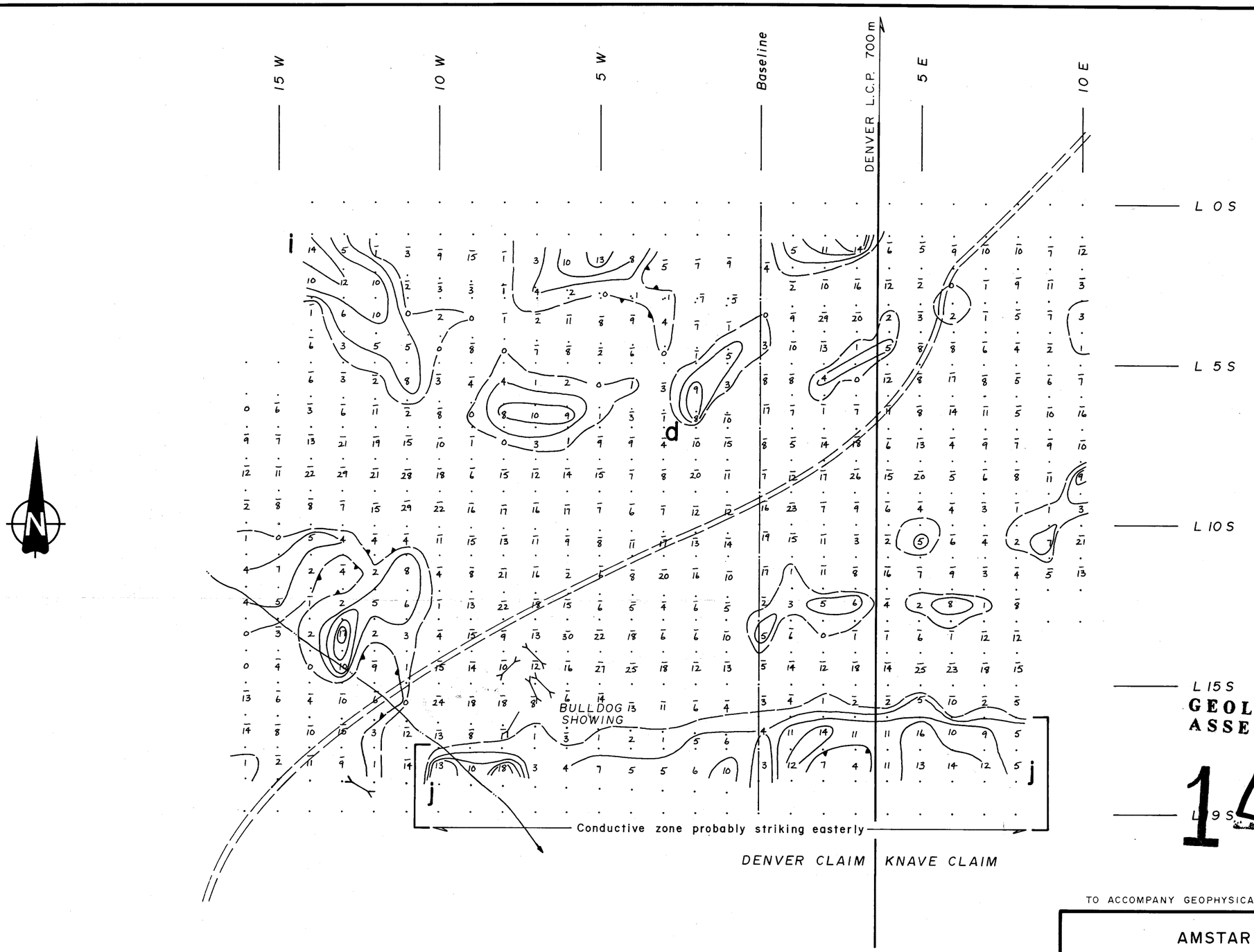
MATHEW CREEK AREA, KIMBERLEY

FORT STEELE M. D., B. C.

VLF-EM SURVEY

E-W FRASER FILTERED DATA & CONTOURS

SCALE:	DATE:	N.T.S.	MAP:	DRAFTED BY:
1:5,000	NOV. 85.	82 F/9 E	9	B. D. S.



LEGEND

- TRENCH
- ADIT
- SURVEY STATION
- ROAD
- CLAIM BOUNDARY
- CREEK

CONTOUR INTERVAL

- 0 DEGREES
- 4 DEGREES AND HIGHER
- CONTOUR LOW

TRANSMITTER DIRECTION

SEATTLE 24.8 KHz.

250 0 250 m

FIELD WORK CARRIED OUT BY: TRANS-ARCTIC EXPLORATIONS LTD.

GEOLOGICAL BRANCH ASSESSMENT REPORT

14,358

TO ACCOMPANY GEOPHYSICAL REPORT BY: DAVID G. MARK, GEOPHYSICIST

AMSTAR VENTURE CORP.

BOOTLEG CLAIM GROUP

BULLDOG SHOWING

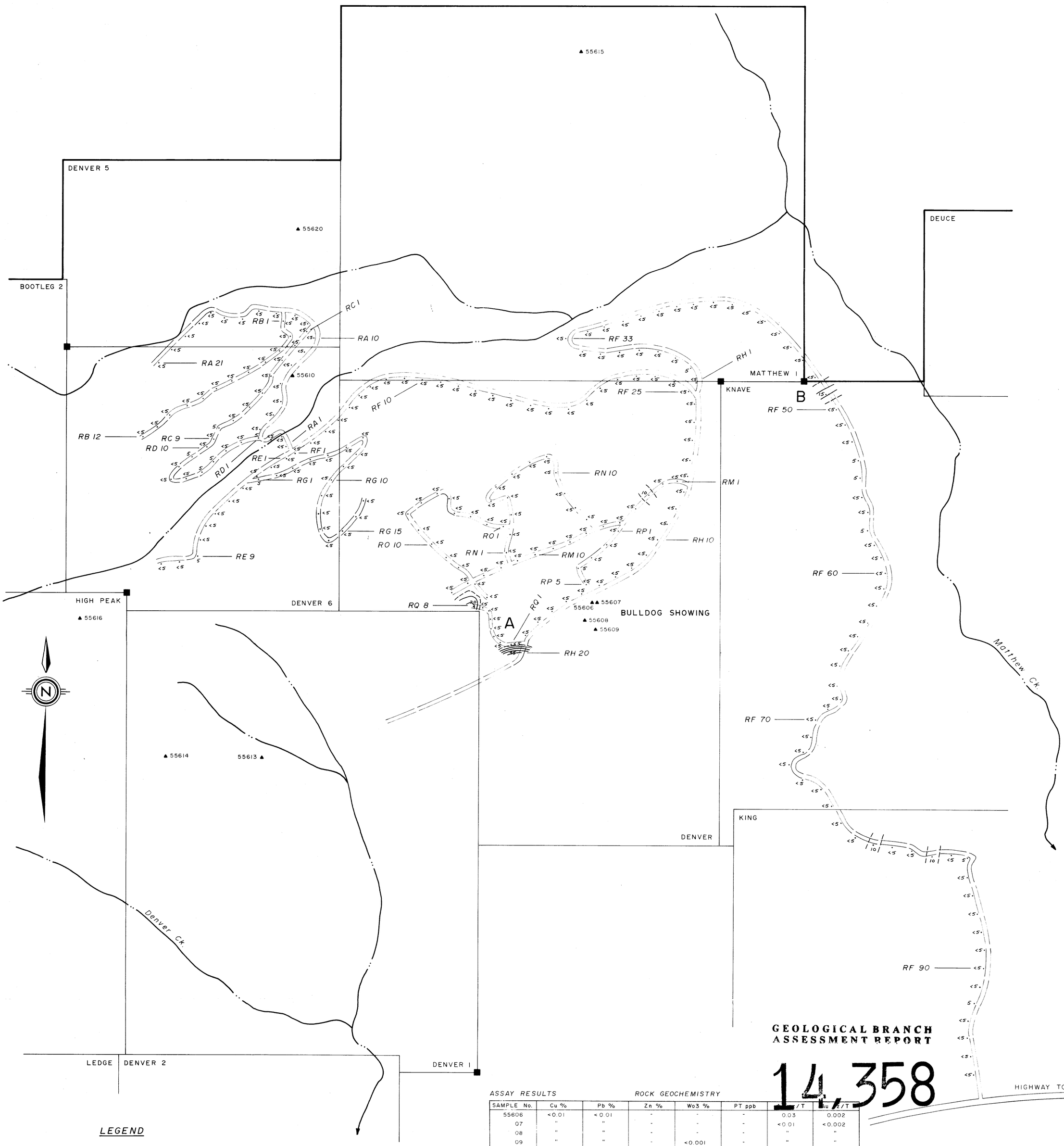
MATHEW CREEK AREA, KIMBERLEY

FORT STEELE M. D., B. C.

VLF-EM SURVEY

N-S FRASER FILTERED DATA & CONTOURS

SCALE:	DATE:	N.T.S.	MAP:	DRAFTED BY:
1:5,000	NOV. 85.	82 F/9 E	10	B. D. S.



ASSAY RESULTS *ROCK GEOCHEMISTRY*

SAMPLE No.	Cu %	Pb %	Zn %	Wo3 %	PT ppb	/T	Au /T
55606	<0.01	<0.01	-	-	-	0.03	0.002
07	"	"	-	-	-	<0.01	<0.002
08	"	"	-	-	-	"	"
09	"	"	-	<0.001	-	"	"
10	"	"	-	-	-	"	"
11	"	"	-	-	<35	"	"
12	"	"	-	-	-	"	"
13	"	"	<0.01	-	-	0.01	"
14	"	"	-	-	-	"	0.002
15	"	"	-	-	-	<0.01	<0.002
16	"	"	-	-	-	"	0.002
18	0.01	"	-	-	-	0.01	<0.002
55619	<0.01	<0.01	<0.01	-	-	<0.01	<0.002

500 m 0 1 Km

FIELD WORK CARRIED OUT BY: TRANS-ARCTIC EXPLORATIONS LTD.

LEGEND

ROAD
CREEK
PROPERTY BOUNDARY
CLAIM BOUNDARY
LEGAL CORNER POST
ROCK SAMPLE
SOIL SAMPLE

STATISTICAL PARAMETERS

<5 ppb MEAN BACKGROUND LEVEL
8 ppb SUB-ANOMALOUS THRESHOLD LEVEL
12 ppb ANOMALOUS THRESHOLD LEVEL

CONTOURS

CONTOUR INTERVAL – LOGARITHMIC
SUB-ANOMALOUS (8 ppb)
ANOMALOUS (12, 18, 27, 41 ppb)

GEOLOGICAL BRANCH
ASSESSMENT REPORT

14,358

To Accompany Report By: DAVID G. MARK, Geophysicist.

AMSTAR VENTURE CORP.

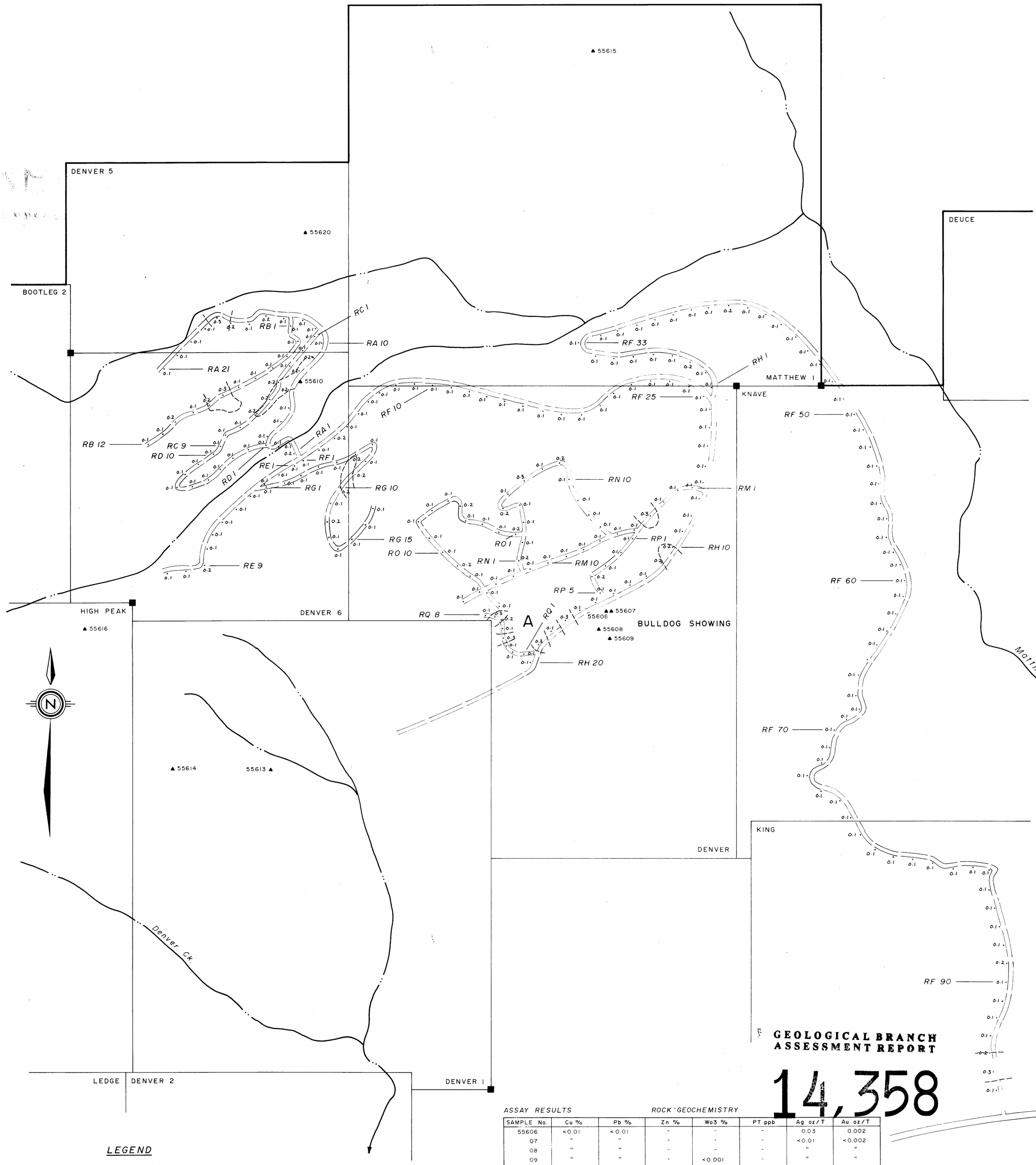
BOOTLEG CLAIM GROUP

ST. MARY RIVER, KIMBERLEY AREA

FORT STEELE M.D., B.C.

SOIL GEOCHEMISTRY
GOLD – ppb

SCALE:	DATE:	N.T.S.:	MAP:	DRAFTED BY:
1:10,000	NOV. 85	82 F/9 E	11	B.D.S.



ASSAY RESULTS *ROCK GEOCHEMISTRY*

SAMPLE No.	Cu %	Pb %	Zn %	Wo3 %	PT ppb	Ag oz/T	Au oz/T
55606	<0.01	<0.01	-	-	-	0.03	0.002
07	"	"	-	-	-	<0.01	<0.002
08	"	"	-	-	-	"	"
09	"	"	-	<0.001	-	"	"
10	"	"	-	-	-	"	"
11	"	"	-	-	<35	"	"
12	"	"	-	-	-	"	"
13	"	"	<0.01	-	-	0.01	"
14	"	"	-	-	-	"	0.002
15	"	"	-	-	-	<0.01	<0.002
16	"	"	-	-	-	"	0.002
18	0.01	"	-	-	-	0.01	<0.002
55619	<0.01	<0.01	<0.01	-	-	<0.01	<0.002

500 m 0 1 Km

LEGEND

ROAD
CREEK
PROPERTY BOUNDARY
CLAIM BOUNDARY
LEGAL CORNER POST
▲ ROCK SAMPLE
• SOIL SAMPLE

STATISTICAL PARAMETERS

0.1 ppm MEAN BACKGROUND LEVEL
0.2 ppm SUB-ANOMALOUS THRESHOLD LEVEL
0.3 ppm ANOMALOUS THRESHOLD LEVEL

CONTOURS

SUB-ANOMALOUS (0.2 ppm)
ANOMALOUS (0.3 ppm)

FIELD WORK CARRIED OUT BY: TRANS-ARCTIC EXPLORATIONS LTD.

GEOLOGICAL BRANCH ASSESSMENT REPORT

14,358

To Accompany Report By: DAVID G. MARK, Geophysicist.

AMSTAR VENTURE CORP.

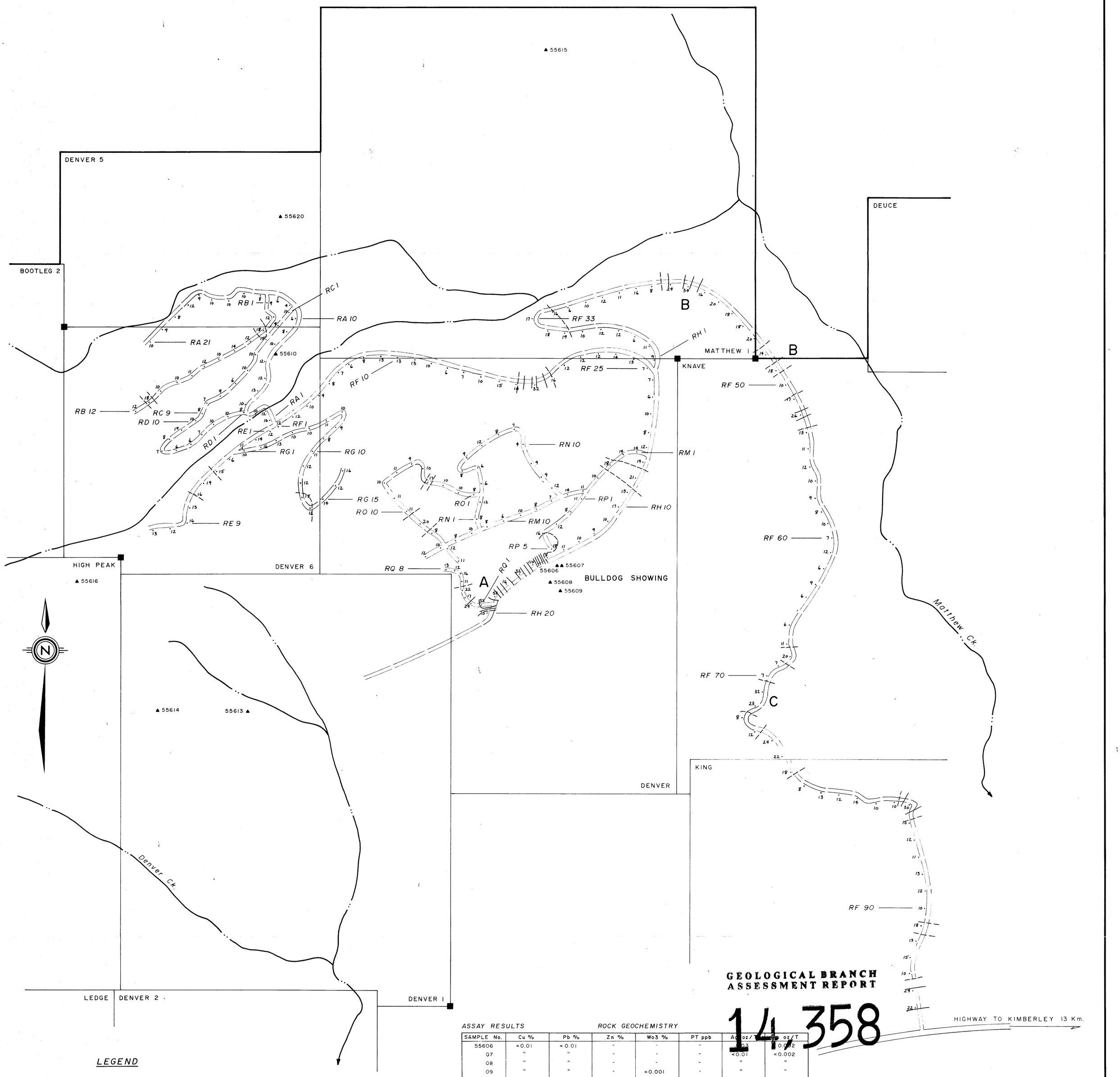
BOOTLEG CLAIM GROUP

ST. MARY RIVER, KIMBERLEY AREA

FORT STEELE M.D., B.C.

SOIL GEOCHEMISTRY
SILVER - ppm

SCALE:	DATE:	N.T.S.:	MAP:	DRAFTED BY:
1:10,000	NOV. 85	82 F/9 E	12	B.D.S.



LEGEND

- ROAD
- CREEK
- PROPERTY BOUNDARY
- CLAIM BOUNDARY
- ■ LEGAL CORNER POST
- ▲ ROCK SAMPLE
- · SOIL SAMPLE

STATISTICAL PARAMETERS

11 ppm	MEAN BACKGROUND LEVEL
16 ppm	SUB-ANOMALOUS THRESHOLD LEVEL
22 ppm	ANOMALOUS THRESHOLD LEVEL

CONTOURS

CONTOUR INTERVAL – 1 STANDARD DEVIATION

SUB-ANOMALOUS (16 ppm)

ANOMALOUS (22, 31, 42, 58, 80 ppm)

ASSAY RESULTS *ROCK GEOCHEMISTRY*

SAMPLE No.	Cu %	Pb %	Zn %	Wo3 %	PT ppb	Ag oz/T	Au oz/T
55606	<0.01	<0.01	-	-	-	[illegible]03	0.002
07	"	"	-	-	-	<0.01	<0.002
08	"	"	-	-	-	"	"
09	"	"	-	<0.001	-	"	"
10	"	"	-	-	-	"	"
11	"	"	-	-	<35	"	"
12	"	"	-	-	-	"	"
13	"	"	<0.01	-	-	0.01	"
14	"	"	-	-	-	"	0.002
15	"	"	-	-	-	<0.01	<0.002
16	"	"	-	-	-	"	0.002
18	0.01	"	-	-	-	0.01	<0.002
55619	<0.01	<0.01	<0.01	-	-	<0.01	<0.002

500 m 0 1 Km

FIELD WORK CARRIED OUT BY: TRANS-ARCTIC EXPLORATIONS LTD.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

14 358

To Accompany Report By: DAVID G. MARK, Geophysicist.

AMSTAR VENTURE CORP.

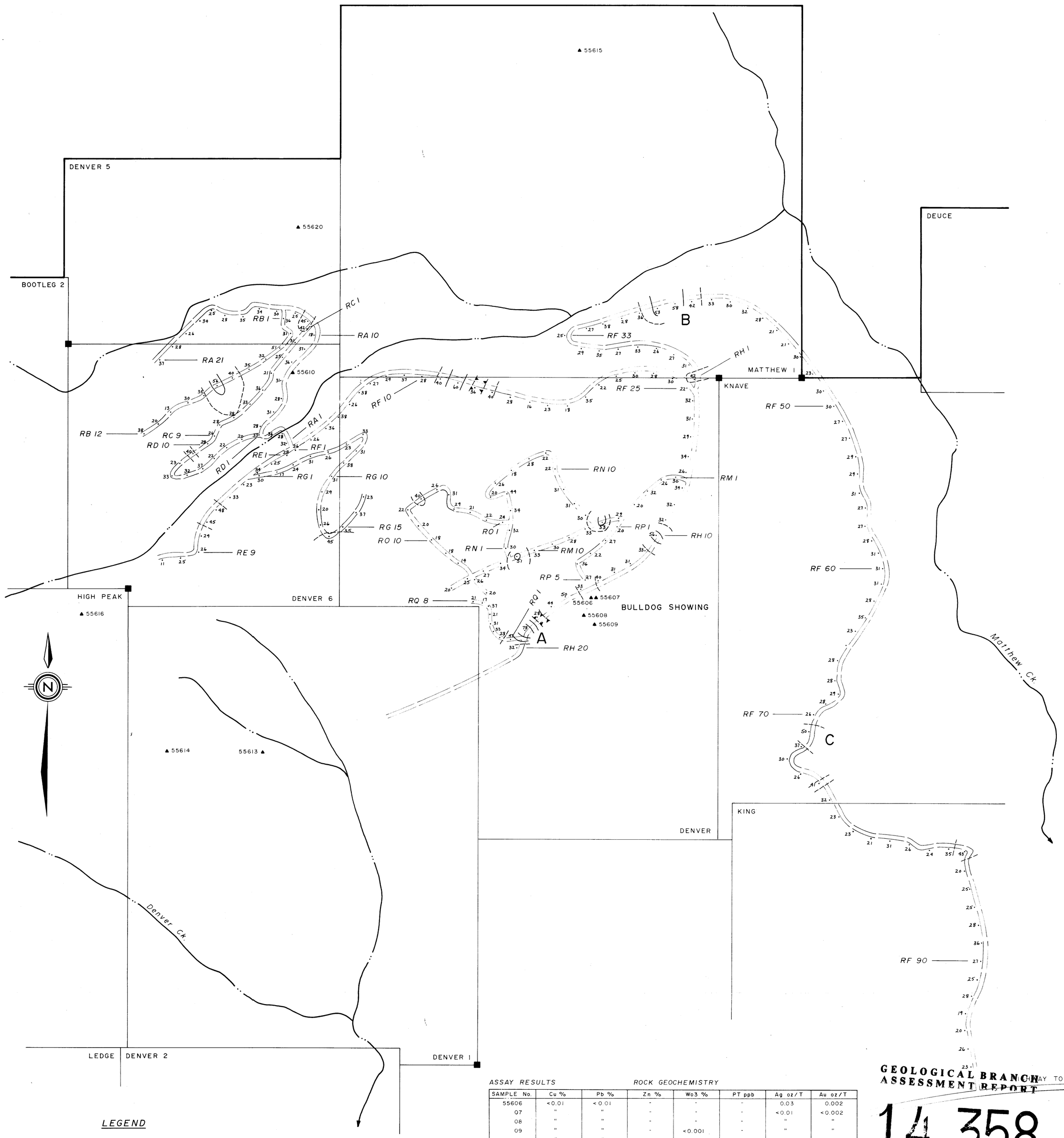
BOOTLEG CLAIM GROUP

ST. MARY RIVER, KIMBERLEY AREA

FORT STEELE M.D., B.C.

SOIL GEOCHEMISTRY
LEAD – ppm

SCALE:	DATE:	N.T.S.:	MAP:	DRAFTED BY:
1:10,000	NOV. 85	82 F/9 E	13	B.D.S.



LEGEND

- ROAD
- CREEK
- PROPERTY BOUNDARY
- CLAIM BOUNDARY
- LEGAL CORNER POST
- ▲ ROCK SAMPLE
- • SOIL SAMPLE

STATISTICAL PARAMETERS

29 ppm	MEAN BACKGROUND LEVEL
38 ppm	SUB-ANOMALOUS THRESHOLD LEVEL
50 ppm	ANOMALOUS THRESHOLD LEVEL

CONTOURS

CONTOUR INTERVAL – 1 STANDARD DEVIATION

- SUB-ANOMALOUS (38 ppm)
- ANOMALOUS (50, 64 ppm)

ASSAY RESULTS *ROCK GEOCHEMISTRY*

SAMPLE No.	Cu %	Pb %	Zn %	Wo3 %	PT ppb	Ag oz/T	Au oz/T
55606	<0.01	<0.01	-	-	-	0.03	0.002
07	"	"	-	-	-	<0.01	<0.002
08	"	"	-	-	-	"	"
09	"	"	-	<0.001	-	"	"
10	"	"	-	-	-	"	"
11	"	"	-	-	<35	"	"
12	"	"	-	-	-	"	"
13	"	"	<0.01	-	-	0.01	"
14	"	"	-	-	-	"	0.002
15	"	"	-	-	-	<0.01	<0.002
16	"	"	-	-	-	"	0.002
18	0.01	"	-	-	-	0.01	<0.002
55619	<0.01	<0.01	<0.01	-	-	<0.01	<0.002

500 m 0 1 Km

FIELD WORK CARRIED OUT BY: TRANS-ARCTIC EXPLORATIONS LTD.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

14,358

To Accompany Report By: DAVID G. MARK, Geophysicist

AMSTAR VENTURE CORP.

BOOTLEG CLAIM GROUP

ST. MARY RIVER, KIMBERLEY AREA

FORT STEELE M.D., B.C.

SOIL GEOCHEMISTRY
COPPER – ppm

SCALE:	DATE:	N.T.S.:	MAP:	DRAFTED BY:
1:10,000	NOV. 85	82F/9E	14	B.D.S.