

GEOLOGICAL AND GEOCHEMICAL REPORT

on the

MISTY I CLAIM

Owned by C.C.H. Minerals Ltd. A-105, 355 Burrard Street Vancouver, B.C. V6C 2G6

SKEENA MINING DIVISION
Lat. 54^o50'N Long. 128^o54'W
NTS 103I/10, 15

Work Carried Out By:

Neil B. Jorgensen, P.Eng. October, 1981.

Campbell Resources Inc. A-105, 355 Burrard Street Vancouver, B. C. V6C 2G6

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INTRODUCTION:

Location and Access

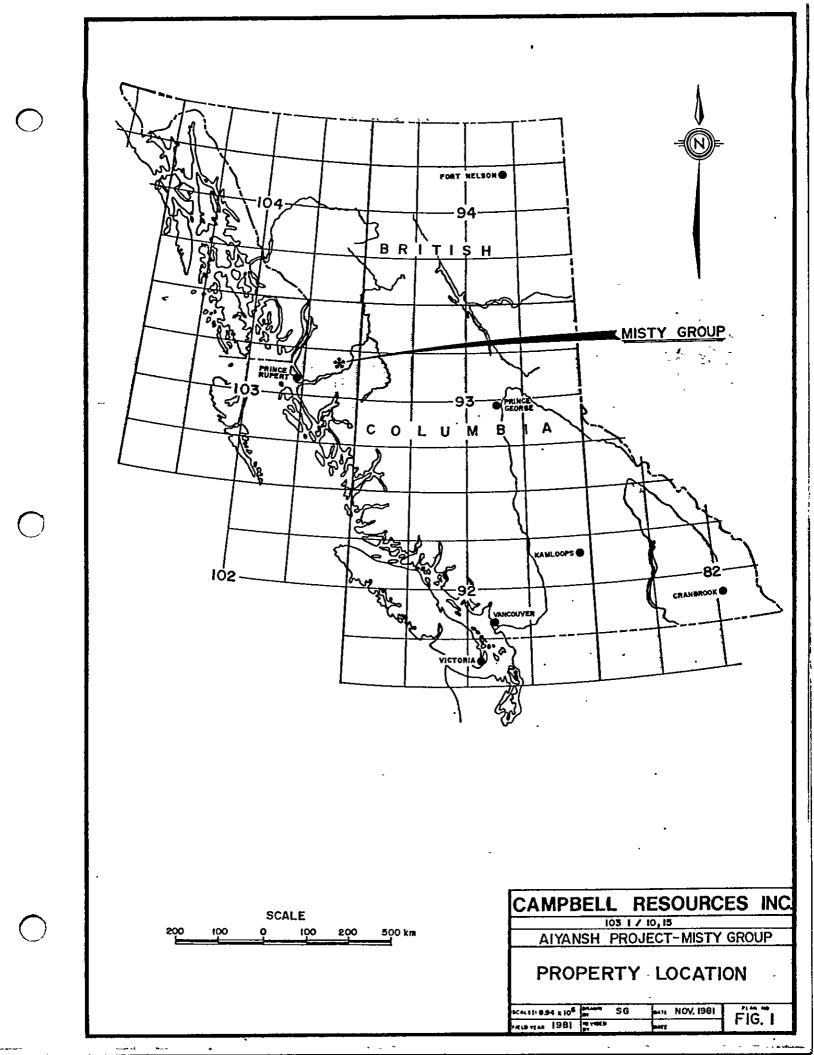
The Misty Property is situated on the south slope of Mt. Allard, about 32 km northeast of Terrace, B.C. The claim block is at Latitude 54°50'N and Longitude 128°54'W. An overgrown and impassable logging road, which runs along the north side of the Nelson River, crosses the southernmost part of the claims.

Access is by helicopter from Terrace. Landing sites exist on gravel bars in the river, above treeline on the claims and at a temporary pad constructed in a creek canyon at elevation 700m, close to the grid-area.

Physical Setting

Misty Property lies on a mountain side just north of Nelson River. The southern claim boundary is a few hundred m north of the river and the northern border is on a subsidiary ridge of Mt. Allard. Elevations on the claim block range from about 300m to 1525m. Total local relief is in the order of 1400m.

Mt. Allard is in the Kitimat Ranges section of the Coast Mountains, physiographic subdivision. The region is characterized by steep valleys and rugged, glacially carved peaks. Lower slopes are timbered by mature stands of Hemlock and Douglas Fir, with the exception of numerous avalanche tracks which are choked with slide alder. Higher elevations generally are above treeline and are vegetated with blueberry and bilberry bushes, as well as mountain heather and heath.



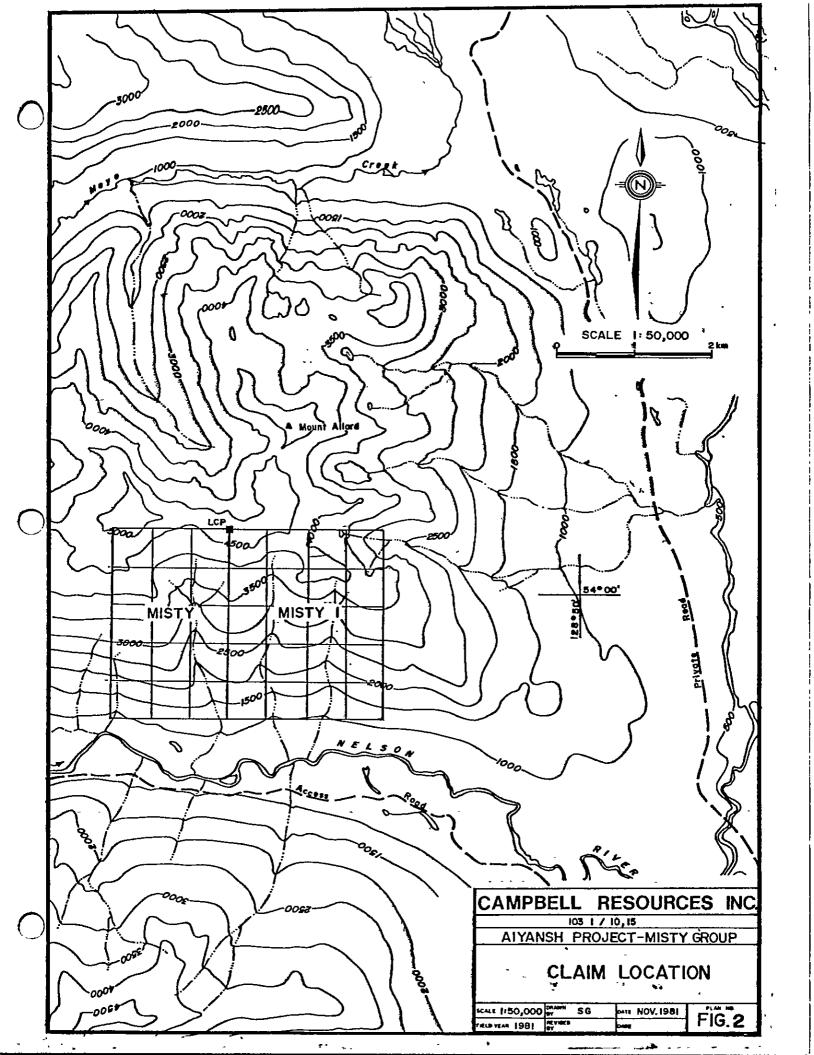
On the property itself, slopes average 25-35⁰. About 1/2 to 2/3 of the area is below treeline. Outcrop is quite common in the upper part of the claims, but rare at lower elevations. Numerous cliffs are present along ridges and in creek canyons throughout the region.

Weather in the area is typical of the Coastal Mountains, with heavy rain in summer and heavy snow in winter. Fog and low cloud occur throughout the year, and are a severe impediment to air supported work. Generally the best flying weather is during the summer months.

History

The Misty claim was staked by C.C.H. Resources
Ltd. on June 22, 1979 in response to a British Columbia
Department of Mines regional geochemical Open File release.
A preliminary prospecting program was carried out in August
of that year, and a reconnaissance soil sampling and geological
mapping project was done on the claim and adjacent ground
during the summer of 1980. As the results of this work were
reasonably encouraging, it was decided to stake an additional
claim and to do more detailed surveys in 1981.

In August, 1980, Misty claim was sold to C.C.H.
Resources' parent company, Campbell Chibougamau Mines Ltd.
Campbell Chibougamau subsequently underwent a reorganization and name change to Campbell Resources Inc. The claim was sold to another wholely owned subsidiary, C.C.H. Minerals Ltd. on April 6, 1981. C.C.H. Minerals Ltd. now owns both Misty and the newly staked Misty I claims, and Campbell Resources is the current operator.



Claims

The property comprises the following two claims:

Claim #	Date Staked	Date Recorded	Record No.	No. of Units	Assessment Due Date
Misty	June 22/79	June 27/79	1684(6)	15	June 27/83
Misty I	Sept.2-17/81	Sept.22/81	3235	20	Sept.22/82

All of the work described below was carried out on the central portion of Misty I claim, in the period of September 18th to September 25th, 1981.

Economic Potential

Some economic potential may be present.

1981 Program

The program commenced on September 2, 1981 when the staking of Misty I claim was started. Unfortunately, owing to inclement weather and personnel problems, the staking was not finished until September 17th. The exploration surveys began the following day.

Physical Work

A helicopter pad was constructed, using hand tools, at about 700m elevation on the side of the westernmost creek canyon on Misty I claim. The job involved clearing an area of about 15m x 15m in slide alder and using logs to provide a level landing surface about 3m x 2m.

Grid Establishment

A total of 8,250m of compass and chain grid was established in an area about $700m \times 600m$.

The lines nominally are at 50m spacings and range in length from 325-775m. Stations are at 25m intervals. All distances are horizontal measurement. The grid was started at station 107N, 100E, which is located by the edge of the western creek on Misty I claim, at elevation 1021m.

Geological Mapping

Approximately 300,000 square metres within the grid area were geologically mapped at a scale of 1:5000. The geology subsequently was replotted at a scale of 1:2500 for clarity of presentation.

Geochemical Survey

303 soil samples and 6 rock samples were taken at grid stations.

SUMMARY:

Misty Property straddles the contact between a diorite stock belonging to the Cretaceous Coast Crystalline Complex and fine to coarse grained sedimentary rocks of the Upper Jurassic to Lower Cretaceous Bowser Group. Within the area mapped in detail, the most common rocks are argillites and black shales, with a few interbeds of sandstone. The sediments are cut by a stock of hornblende diorite, to the northeast, as well as a number of granodiorite and porphyritic quartz diorite dykes. Several feldspar andesite porphyry dykes occur in both the sedimentary rocks and the stock. A single massive quartz vein was found in the southeast corner of the map-area.

Traces of pyrite are widespread in most rock types on the property. In addition, some exposures of shale and argillite have up to 2% pyrite on fractures. Another iron sulphide, marcasite, is present in the hornblende diorite in places. Finally, about 1% fine grained tetrahedrite was observed in the quartz vein. It is interesting to note that this was the only mineralized rock located that has significant gold content; all other samples taken ran 10 p.p.b. Au or less.

The soil geochemical survey outlined two main features: a large "V" shaped gold anomaly at the eastern edge of the map-area, and a distinct northeasterly fabric indicated by the positions of a number of smaller anomalies. Since no explanation for these features was found during this year's program, additional detailed mapping and rock and soil sampling in the area of "V" anomaly is recommended for the summer of 1982.

REGIONAL GEOLOGY

The coast mountains are composed of Jurassic and older sediments and volcanics, which have been intruded by the Cretaceous Coast Crystalline Complex. This belt of granitic rocks stretches from Vancouver into the Yukon. It comprises chiefly granodiorite, quartz diorite and diorite.

The region around Misty property is underlain primarily by Upper Jurassic to Lower Cretaceous Bowser Group greywacke, conglomerate, argillite and tuff. A number of small to large bodies of granodiorite to diorite cut the older rocks, particularly to the south and southeast. One such stock, about 2.5 x 6.5 km in size, occurs on Mt. Allard. The claims overlap part of the southern contact between this intrusive and the surrounding sediments.

LOCAL GEOLOGY (see Geology Map - Figure 5)

Geological mapping was carried out in conjunction with the soil sampling. The purpose of this work was to increase our understanding of the property and to help us interpret the results of this and previous years' geochemical surveys.

Rock Types

Seven rock units were identified during the course of the mapping. The area is underlain primarily by argillites and shales of the Bowser Group, which are cut by diorites and granodiorites belonging to the Coast Intrusions. A number of sandstone layers occur in the finer grained sediments. A few andesite dykes and one large guartz vein are also present within the grid boundaries. The units are discussed under the appropriate headings below.

Sandstone (Map - Unit 1)

Several outcrops of sandstone occur in the southern part of the map-area. In some cases, where the two units occur together it is clear that sandstone makes up small interbeds in argillite and shale. It is assumed that all exposures of the coarser grained rock fit this model.

Two varieties of sandstone were identified. The first, sub-unit 10, is a medium fine grained (<1 mm), well sorted quartz arenite with a few lithic fragments. Poorly defined layering is present in some places, as are traces of fine grained disseminated pyrite. The rock is pale grey on fresh surfaces, but weathered specimens are orange tinted, owing to limonite in the matrix.

The second type, sub-unit 16, is a dark grey, fine grained quartz feldspar wacke. Weathered samples are pale green.

Fine Grained Sedimentary Rocks (Map - Unit 2)

Black to grey, fine grained sedimentary rocks occur throughout the map-area. The exposures range from small rubbly outcrops to impressive cliffs. Although commonly quite massive and plain, the rocks locally are phyllitic and/or graphitic. Four subdivisions of this unit are described below.

The bulk of the outcrops in the area are composed of argillite and argillic sediments (sub-unit 2a). The rocks commonly have traces of finely divided pyrite and, rarely up to 2% pyrite on fractures.

Clay and silica alteration are present in a few exposures. Limonite occurs on fractures in mineralized areas.

The second most common rock type is shale, with associated shaly sediments (sub-unit 2b). Traces of pyrite occur in places.

Sub-unit 2c comprises a pale brown, fine grained, conchoidally fracturing sediment, which may be a contact metamorphosed argillite. It was found in only two outcrops, both of them close to dykes.

A single exposure of soft, white, fine grained rock with about 10% quartz and limonite on fractures makes up sub-unit 2d. It may be an altered arkosic sandstone, or, possibly, a felsic tuff.

The sedimentary rocks as a group are considered to be the oldest rocks on the property.

Hornblende Diorite (Map - Unit 3)

A stock of medium grained subporphyritic to porphyritic hornblende diorite occurs in the northeast corner of the grid-area. The rock is composed of 25-30% hornblende, in euhedral phenocrysts up to 1 cm long and interstitial grains, and 70-75% subhedral plagioclase in 1-3mm grains. It ranges in color from pale grey in porphyritic phases to medium grey in varieties with less distinctive texture. Traces of pyrite are present in places.

A dark grey rock with blurred grain boundaries and little or no visible hornblende was mapped as sub-unit 30. This rock has up to 1% marcasite in disseminated blebs and generally shows limonite on fractures.

Unit 3 rocks also occur in isolated outcrops outside of the main stock. These exposures may represent small intrusions or may be outliers from a larger diorite body to the east.

Porphyritic Quartz Diorite (Map - Unit 4)

In the northwest part of the map-area, two large dyke form intrusions of medium grained porphyritic quartz diorite cut the argillites. The diorite comprises 2-3%, generally chloritized mafics, 10% quartz eyes from 5-10mm in diameter and 90% anhedral, weakly sericitized, 1-3mm plagioclase crystals. Traces of disseminated pyrite occur in places.

Contacts between the intrusive and sedimentary rocks are sharp. Generally the argillite is slightly baked near its boundaries with the diorite.

Fine Grained Granodiorite (Map - Unit 5)

Fine grained, pale grey granodiorite outcrops in a number of places in the eastern part of the grid-area. The rock is composed of about 10% quartz, 5% chloritized biotite and hornblende, 85% feldspar and traces disseminated pyrite. In weathered exposures the mafics are replaced by limonite and the feldspars are kaolinized, giving the intrusive an orange speckled appearance.

The granodiorite occurs in isolated outcrops.

However, in one area, the exposure looks like a dyke. In addition, several other showings line up on the general trend of other intrusive structures on the property. Therefore, all outcrops of this rock type are presumed to be parts of dykes.

The granitic rocks clearly are younger than the sediments. The diorite, since it occurs in a stock and not as dykes, seems to be oldest of the intrusives. The relative ages of the granodiorite and quartz diorite are unknown.

Feldspar Andesite Porphyry Dykes (Map - Unit 6)

A number of feldspar andesite porphyry dykes cut both the sediments and the diorite. The andesite is a grey, fine grained rock with 10-20%, 1-3mm feldspar phenocrysts. Traces of pyrite are present in places.

Since these dykes occur within the stock, it is obvious that they are younger than the diorite. However, it is impossible at this time to determine how they relate to the small granitic intrusions.

Quartz Veins (Map - Unit 7)

A massive quartz vein outcrops in the southeastern corner of the map-area. It comprises white quartz, a few inclusions of well altered rock, traces of fine grained disseminated pyrite and about 1% fine grained tetrahedrite in blebs lamellae and microstringers. The vein appears to be about 1m thick. The limited size of the exposure, however, precludes any possibility of determining its trend.

Since similar veins have been observed cutting argillites and shales elsewhere on the property, it is safe to assume that the structure is younger than the sedimentary rocks. We have no data about its relationship to the intrusives.

Structure, Alteration and Mineralization

The general trend of dykes is 50-60°. This is similar to the trace of outcrops in the southeast part of the grid-area.

Attitudes of bedding range from $130^{\circ}/42^{\circ}$ NE to $120^{\circ}/26^{\circ}$ SW. At one locality, incipient schistosity in phyllite strikes 72° and dips 70° W. No signs of faulting were seen.

The rocks within the grid boundaries show little alteration. Mineralization is confined to pyrite in sediments and intrusives, marcasite in diorite and tetrahedrite in quartz veins, as previously described.

GEOCHEMISTRY

The geochemical survey was undertaken in an effort to fully define the anomaly indicated by previous years' reconnaissance work. Samples of B horizon soils were taken from holes dug by geopick and trowels, at depths ranging from 4-40 cm (average 10-20 cm). The locations were plotted in the field on 1:5000 scale grid maps and replotted at a scale of 1:2500 for presentation purposes. All samples were sent to Bondar-Clegg & Company Ltd. to be analyzed for Au, Ag and As. A summary of their techniques and copies of the lab report sheets are given in Appendix I.

The results of the analyses are plotted on plan maps presented as figures 6,7 and 8 in this report. These maps are contoured according to threshold and anomalous values determined by standard statistical techniques.

The following is a tabulation of the lithology of the rock samples taken this year:

Sample No.	Rock Type
1 MS 500 R	porphyritic hornblende diorite
1 MS 501 R	hornblende diorite
1 MS 502 R	graphitic shale
1 MS 503 R	quartz vein
1 MS 504 R	shale
1 MS 505 R	argillite

Gold

The primary feature of interest at Misty is a "V" shaped gold anomaly which occurs in the eastern part of the map-area. This zone is open to the east and is about 200m wide. The individual branches are about 100m across. All of the samples within the area have more than 70 p.p.b. Au and several ran from 500 to 2500 p.p.b.

Several smaller anomalies occur in the central and southwestern parts of the grid area. They are more or less in line with the northern leg of the "V" and indicate a northeasterly trend in high gold values. This trend is subparallel to that of most of the dykes on the property.

An additional zone of high gold content in soils occurs in the southeast corner of the map-area, close to the outcrop of quartz vein. It is interesting to note that the maximum value in soil here is less than the maximum in the main anomaly, whereas the quartz vein carries 1180 p.p.b. Au and shales in the area of "V" have a maximum of 10 p.p.b. Au.

Arsenic

While arsenic anomalies generally are smaller than the gold zones, they occur in the same areas and outline the same general picture. Two zones of arsenic enrichment (one 25m by 50m and the other 50m by 200m) overlap the two branches of the gold "V". A 50m by 250m north to northeast trending anomaly is present in the centre of the map-area and another occupies its southwestern corner. These zones overlap the smaller gold anomalies in this region. Finally, high arsenic and gold occur together in the vicinity of the quartz vein.

Silver

The main point of interest about the silver distribution is the presence of three elongate to rounded anomalies which delineate an arcuate zone stretching from the eastern end of the southern limb of gold "V", across the centre of the map-area to within 50m of the western limit of sampling. A similar, smaller feature runs from the quartz vein to the south central part of the grid. The silver anomalies probably have little economic significance. However, they do help to confirm the pattern evident in the gold distribution.

DISCUSSION:

The geochemical survey outlined a prime area of interest, the gold "V", and confirmed the presence of the northeasterly trend indicated by the geological mapping. What causes this trend has not yet been determined. doubt it is a reflection of some subtle lithological or structural feature which was not identified during the course of the mapping. Similarly, no source was found for most of the gold anomalies. The small one around the vein outcrop can be attributed to the presence of mineralization in the quartz. However, the origin of the gold in the "V" zone cannot be directly related to the sampled rocks in the area. Perhaps it came from a specific bed in the sedimentary sequence, or from undiscovered quartz veins. The former possibility seems more likely; relatively few rock samples were taken in the region and several untested strata may be present. Conversely, the presence of extensive outcrop in the western part of the grid area makes it improbable that resistive quartz veins would have been missed during the mapping.

The main thrust of future work at Misty should be to identify gold bearing rocks in the "V" zone, and to assess their economic potential. This could be accomplished by more detailed rock sampling and mapping in the area of interest, and, of course, to the east of the open end of the anomaly. Investigation of the other areas of gold enrichment would be a lower priority. In any event, data gathered in the main zone would no doubt help to explain the smaller anomalies as well.

CONCLUSIONS AND RECOMMENDATIONS:

Misty property is underlain by a series of argillites, shales and minor sandstones which are cut by a diorite stock and a number of granodiorite, quartz diorite and andesite dykes. Several overlapping gold, silver and arsenic anomalies occur throughout the map-area. One of these, a "V" shaped gold anomaly, open to the east, warrants further work. A program of geological mapping, along with rock and soil sampling is recommended, to evaluate this feature.

The current grid of 50m lines with 25m stations should be extended 200m to the east, and rock and soil samples should be taken at each station. Furthermore, all existing grid stations in the area of interest should be revisited and have rock samples taken at them. Concurrent with this work, detailed geological mapping of the entire area, including the creek bed should be carried out and all interesting features sampled.

Rock samples should consist of both hand specimens and a series of chips. Where more than one lithology can be identified at a given station, separate samples should be taken from each rock type. The chips should be assayed and the hand specimens used for positive identification of auriferous rocks. This program likely will locate the source of the gold and give a good idea of the property's economic potential.

The proposed project could be carried out most efficiently by a geologist and an assistant, who would live in a camp on the property. A suitable campsite could be prepared at the headwaters of the western creek on Misty I claim. It is anticipated that the program will take about one month.

N.B. Jorgensen, P.Eng.

STATEMENT OF QUALIFICATIONS

I, Neil B. Jorgensen, do hereby certify that:

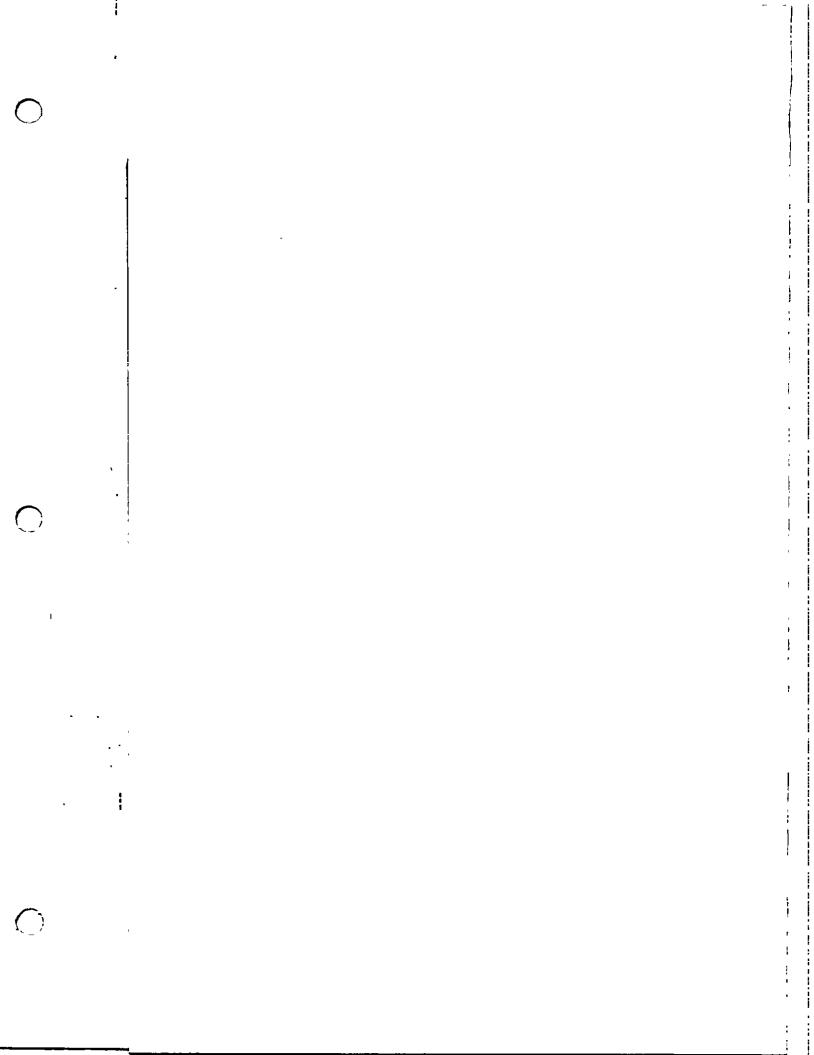
- 1) I am a registered Professional Engineer in British Columbia and have been since 1975.
- 2) I graduated from the University of British Columbia in 1972 with a degree of Bachelor of Applied Science in Geological Engineering.
- 3) I practiced my profession in mineral exploration from 1969 to 1974 on a project basis.
- 4) I have practiced my profession in mineral exploration continuously since 1974.

Neil B. Jorgensen, P. Eng.

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APPENDIX I

Laboratory Data and Geochemical Results



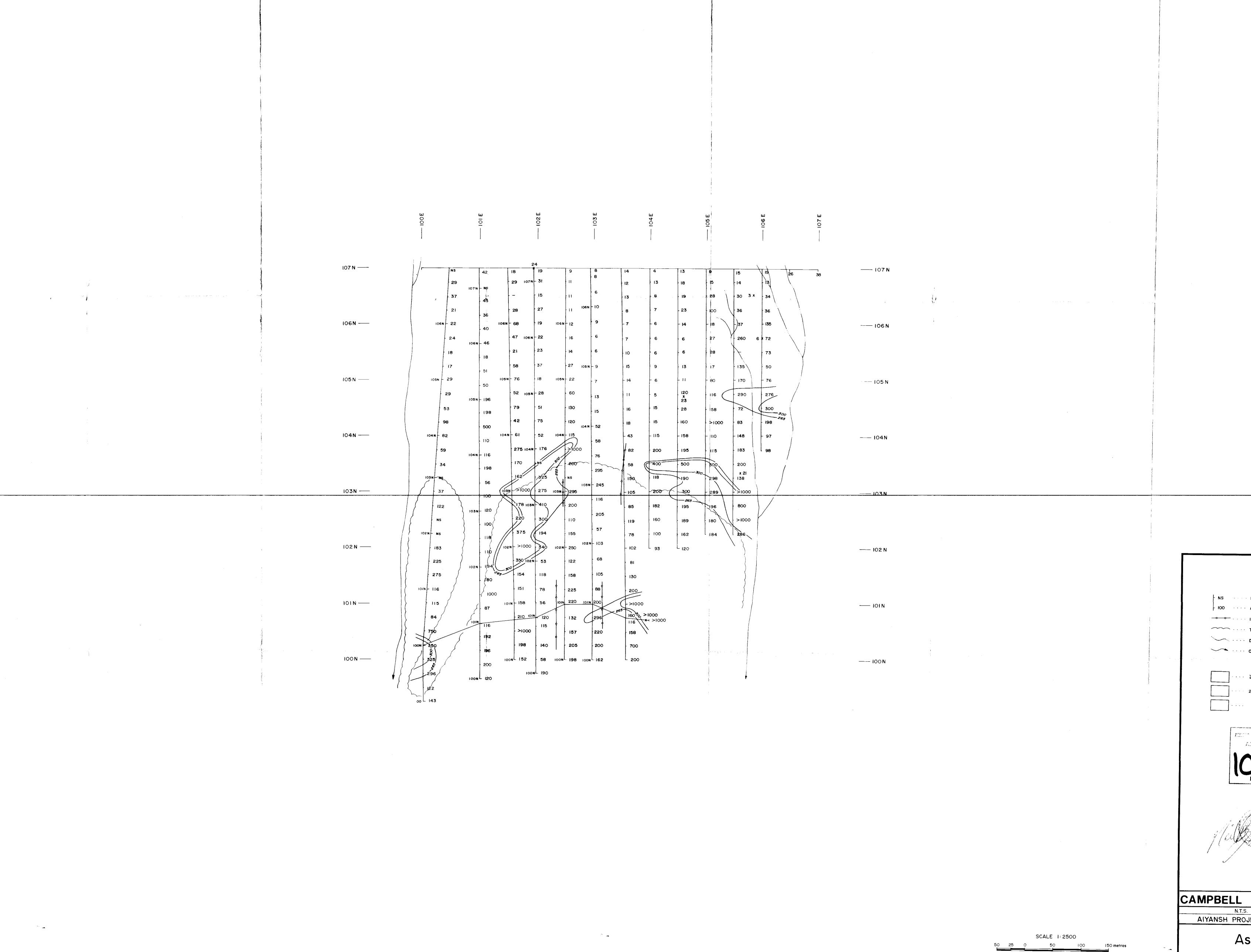
APPENDIX II

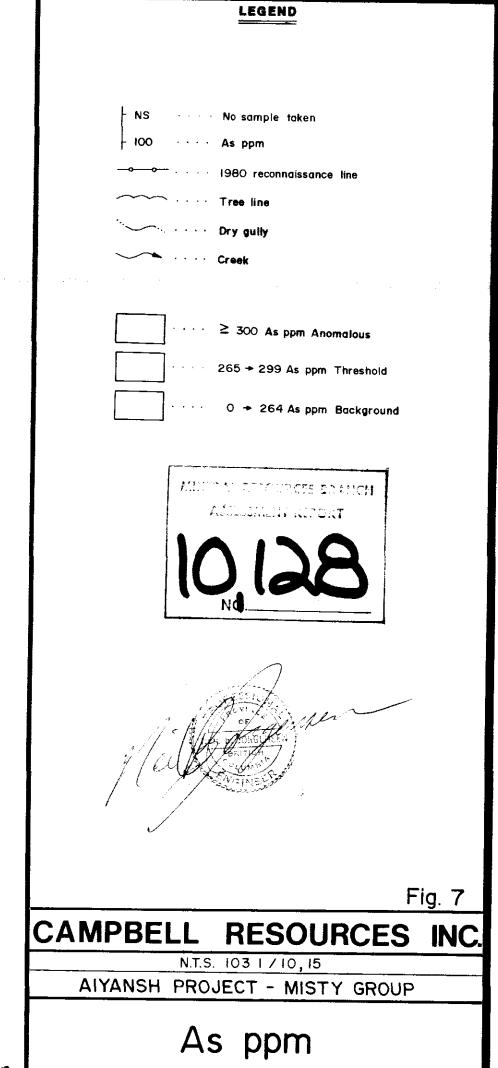
Itemized Cost Statement

APPENDIX II ITEMIZED COST STATEMENT

Wages:

Travel Time - September 16,26, 1981	
1 Geologist, 2 days @ \$155./day	\$310.00
3 Assistants, 2 days @ \$425./day	850.00
Operations - September 18-25, 1981	
l Geologist, 8 days @ \$155./day	1240.00
3 Assistants, 8 days @ \$425./day	3400.00
Food and Accommodation:	
Accommodation September 18-26, 1981	
4 people, 8 nights @\$20.75/night/person	664.03
Meals, September 18-26, 1981	
4 people, 9 days @\$20.00/day/person	720.00
Transportation:	
Air Fare, Terrace-Vancouver, September 16,26,	1,981
4 people, 2 flights @\$117.70/person/flight	941.60
Helicopter Charter, September 18-25, 1981	
9.1 hours @\$473.44/hour	4308.32
Car Rental, September 18-26, 1981	
9 days @\$45.26/day	407.34
Freight	62.82
Report Preparation and Drafting	1200.00





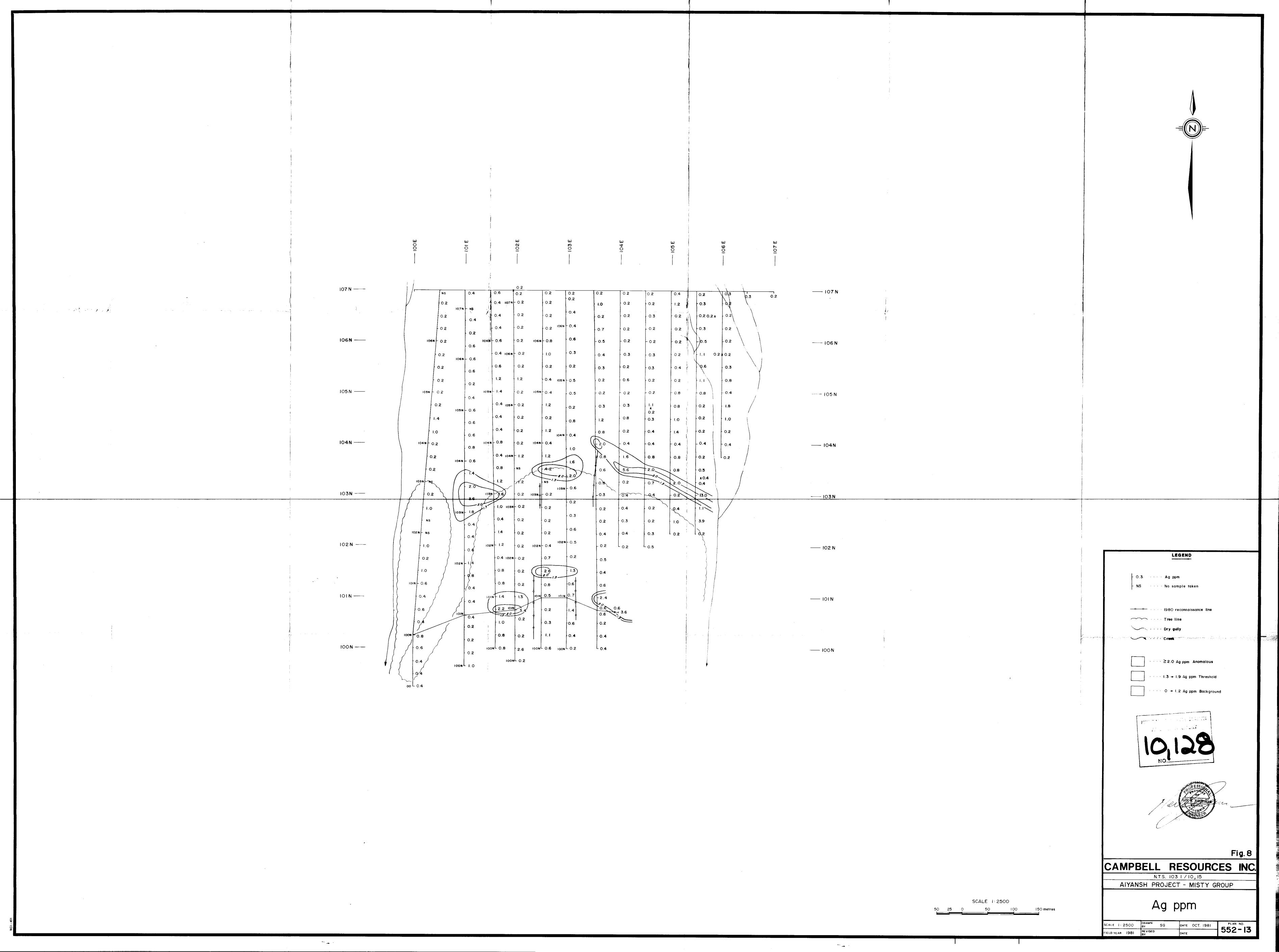
SCALE 1: 2500 DRAWN SG DATE OCT. 1981 PLAN NO.

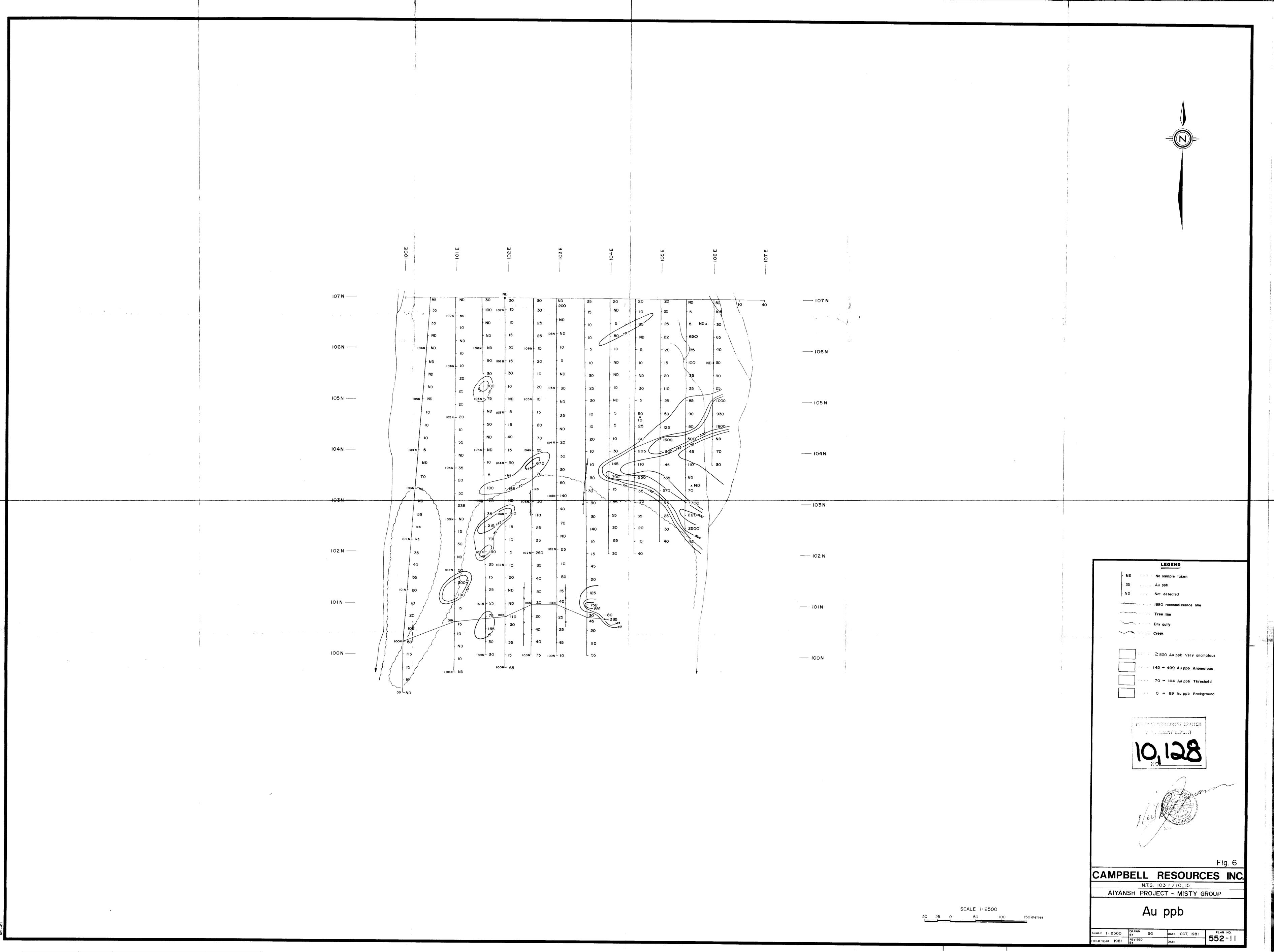
FIELD YEAR 1981 REVISED DATE

DATE

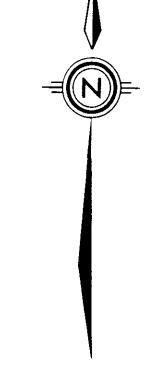
PLAN NO.

552 - 12









MINITAL BITTO MICES SPANCH

LEGEND

COAST INTRUSIVES

4 Medium grained porphyritic, quartz diorite

3 Medium grained, sub porphyritic hornblend diorite 3a. Dark gray, non porphyritic variety

BOWSER LAKE GROUP

2 Fine grained sedimentary rocks 2a. Argillite and argillaceous sediments 2c. Gray brown metasediments 2d. Soft, white arkosic sediments

la. Medium grained quartz arenite lb. Fine grained quartz-feldspar wacke

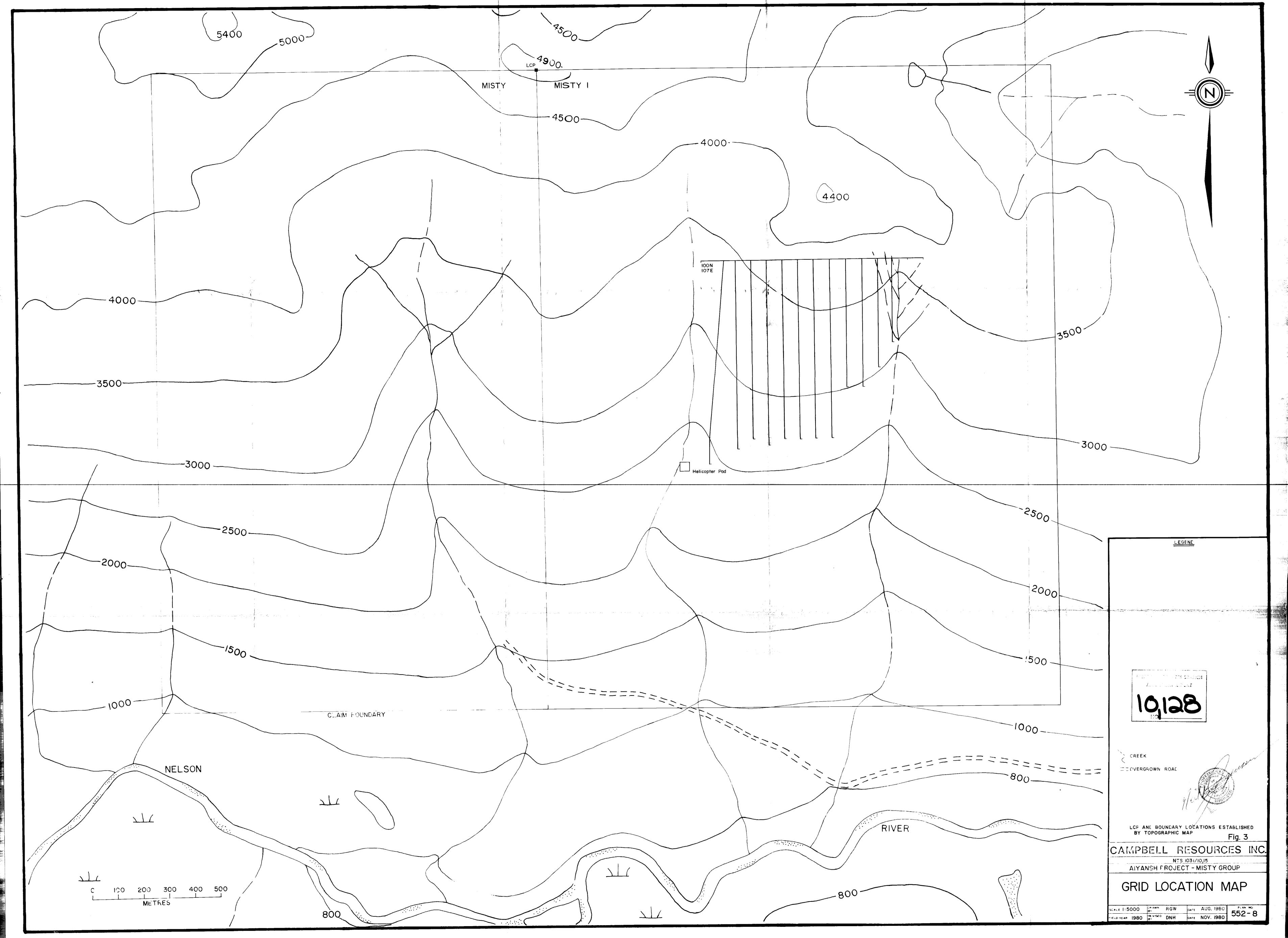
Fig. 5 CAMPBELL RESOURCES INC.

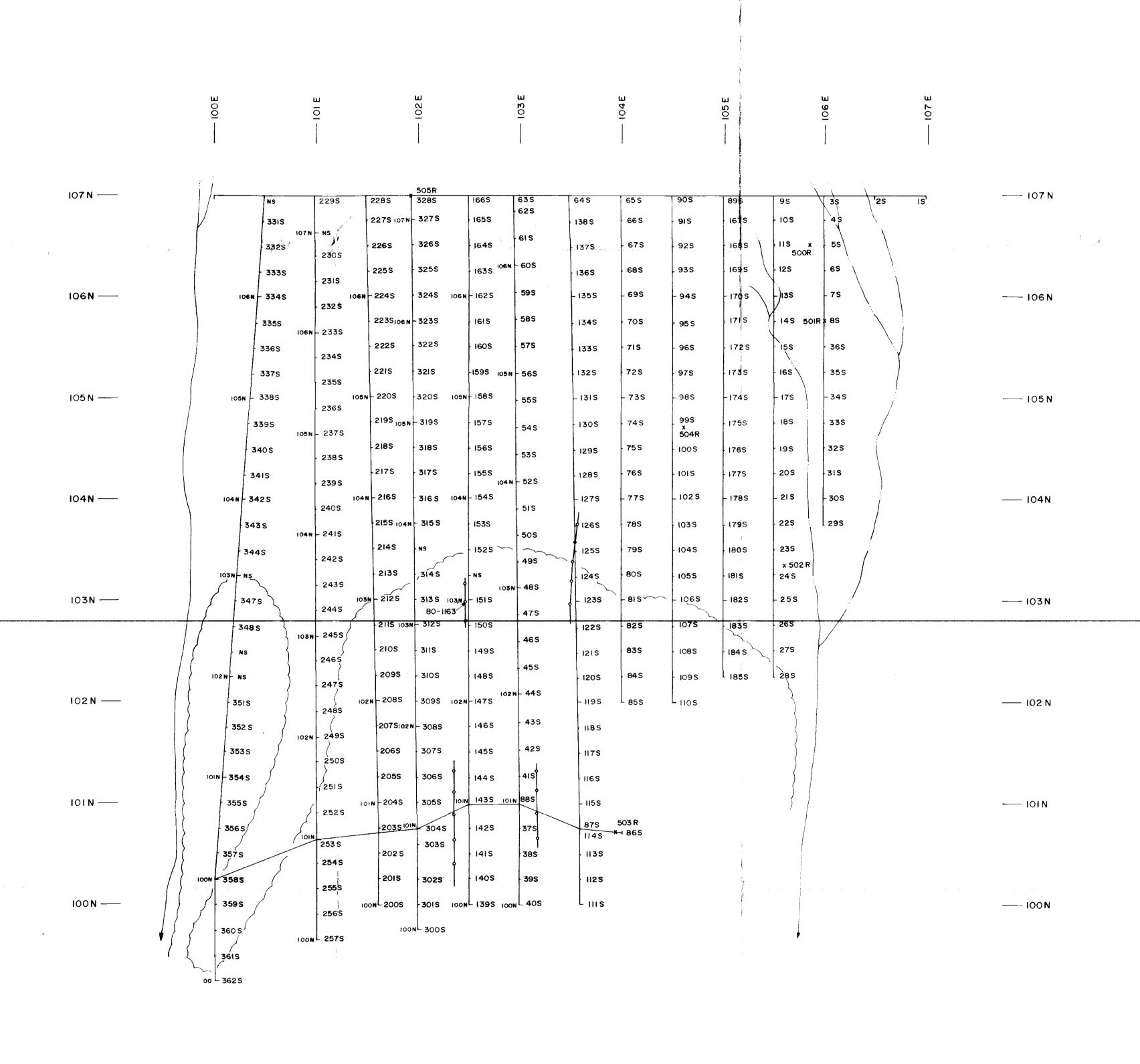
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AIYANSH PROJECT - MISTY GROUP

GEOLOGY

SCALE 1: 2500 | DRAWN | SG | DATE OCT. 1981 | 552 - 10





LEGEND

- 322S

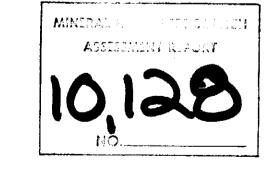
Soil sample location and number 321S

x 503 R · · · · Rock sample location and number

Tree line

Dry gully

All sample numbers prefixed by 1MS



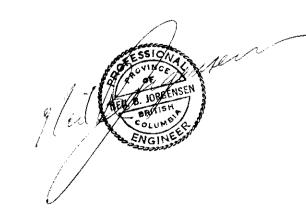


Fig. 4

CAMPBELL RESOURCES INC.

N.T.S. 103 1 / 10, 15

AIYANSH PROJECT - MISTY GROUP

SCALE 1: 2500

STATION & SAMPLE LOCATIONS

2500 DRAWN SG DATE OCT. 1981 552-9