GEOLOGICAL AND GEOCHEMICAL PROGRAM

OVERPROOF, OP 1 to 11 MINERAL CLAIMS

SECURITY INLET, B.C.

SKEENA MINING DIVISION

N.T.S. 103F/1E and 1W

53°03'N   132°15'W

Owner: Chevron Canada Limited

Operator: Chevron Standard Limited

Authors: D. Arscott
S. McAllister

October 28, 1981

M486

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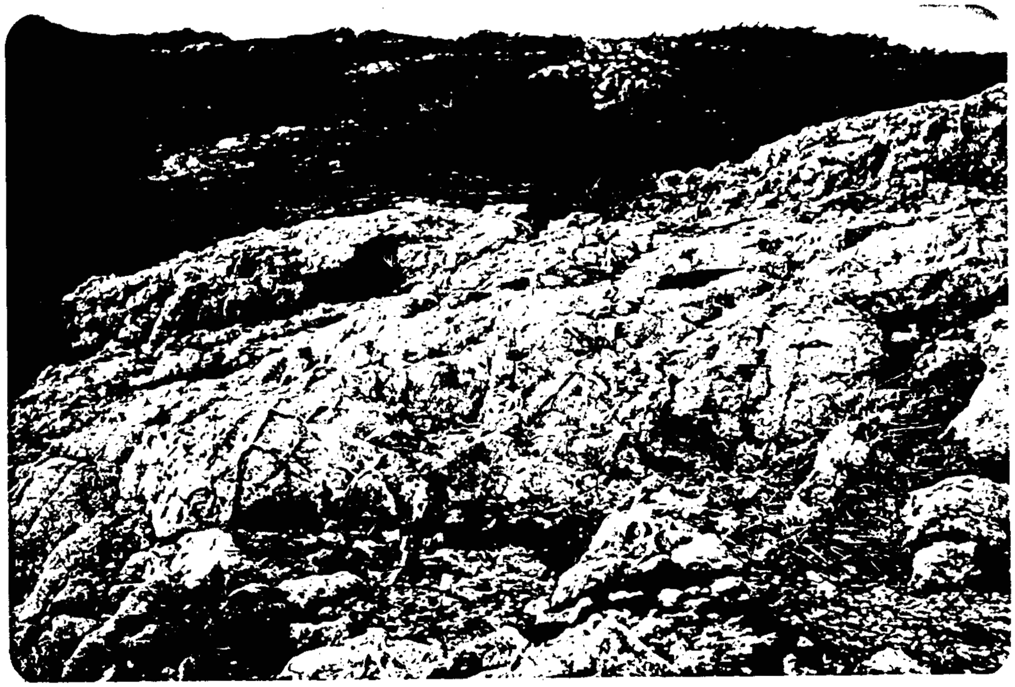


Security Property:
Intense quartz veining in Karmutsen

SUMMARY AND CONCLUSIONS

A fairly extensive surface exploration program on the Security Inlet property during 1981 has delineated exceptionally well developed alteration zones with accompaning Au - As and Cu mineralization.

The setting includes a suite of rocks from Triassic to probable Tertiary, dominated by Triassic Karmutsen basalts, in a strongly block-faulted regime, with some localized folding.

The alteration patterns show a clear broad zoning from carbonate-hematite low in the stratigraphy and strong at the west end of the property to epidote-sericite, silicification, and finally tourmalinization higher up to the east. Locally, broad but intense "hot spots" of silicification carry geochemically anomalous Au and As, suggestive of both low-grade disseminated mineralization and possible high-grade Au, the latter within major quartz vein systems. Cu mineralization is also present in one not yet well defined area. Seven main mineralized zones have been outlined, the most significant of which (zone AI - BI) shows moderate to strong silicification over an area of 500 m by 1300 m, and incorporating a 1 to 7 metre wide quartz vein at least 550 m long. This vein displays rock geochemistry peaking at 680 ppb Au.

A thorough data compilation has included similar 1980 surface work and is plotted on 1:5000 scale maps as well as summarized on 1:50,000 scale maps.

The program is considered successful in narrowing our search for Au on this property, and fairly major recommendations are made for future work.

INTRODUCTION

Reconnaissance geological and 3-media geochemistry carried out in the Security Inlet - Inskip Channel area in 1978 and 1979 by JMT Services Corp. led to the recognition of this area as having a prime potential for the discovery of disseminated gold deposits.

The early work, ranging from shore-line traverses to loosely controlled grid sampling, generally outlined at least three areas of potential, geochemically anomalous in gold and arsenic. These were found to be associated with a number of geological factors such as intense silica-carbonate-tourmaline alteration, quartz veining, strong fault structures, and a variety of potential host rocks.

In July 1978 a large block of claims was staked to cover this area and the property optioned to Chevron Canada Limited. Further claims were staked in May 1979. In 1980 the three known zones were mapped and sampled on a 1:5000 scale.

Between the 30th of May and the 1st of July 1981 a good portion of the remaining areas of the property, except for those areas that remain essentially inaccessible, were subjected to more detailed and tightly controlled geological and geochemical study, as described in this report.

There is no known history of "old" exploration in this immediate area. It is worth noting, however, that the claim block lies only 8 km NW of Mitchell Inlet, the site of the first lode gold mine in British Columbia. The production from this mine is believed to have been 304 oz of gold and 30 oz of silver, mined from a frayed quartz-calcite stringer system in Triassic Karmutsen (pillow lava facies) volcanics. Wall rock alteration included minor silica, chlorite and pumpellyite.

LOCATION AND ACCESS (Figures 1 and 2a)

The property lies 740 km NW of Vancouver, B. C. and 35 km SW of the airport at Sandspit in the Queen Charlotte Islands. It is accessible only by float plane, helicopter or boat from Sandspit to the well protected waters of the aptly named Security Inlet. Access to higher elevations on the property is best by helicopter, as is that to the less protected Inskip Channel side (at low tide).

CLAIMS (Fig. 2b)

The following comprise the entire property at time of writing and all are registered in the name of Chevron Canada Limited.

Name	No. of Units	Record No.	Record Date
Overproof	4	677	28 July 1978
1	2	673	"
2	12	674	"
3	12	675	"
4	6	676	"
5	15	678	"
6	15	679	"
7	18	1305	29 May 1979
8	20	1306	"
9	20	1307	"
10	20	1308	"
11	4	1309	"

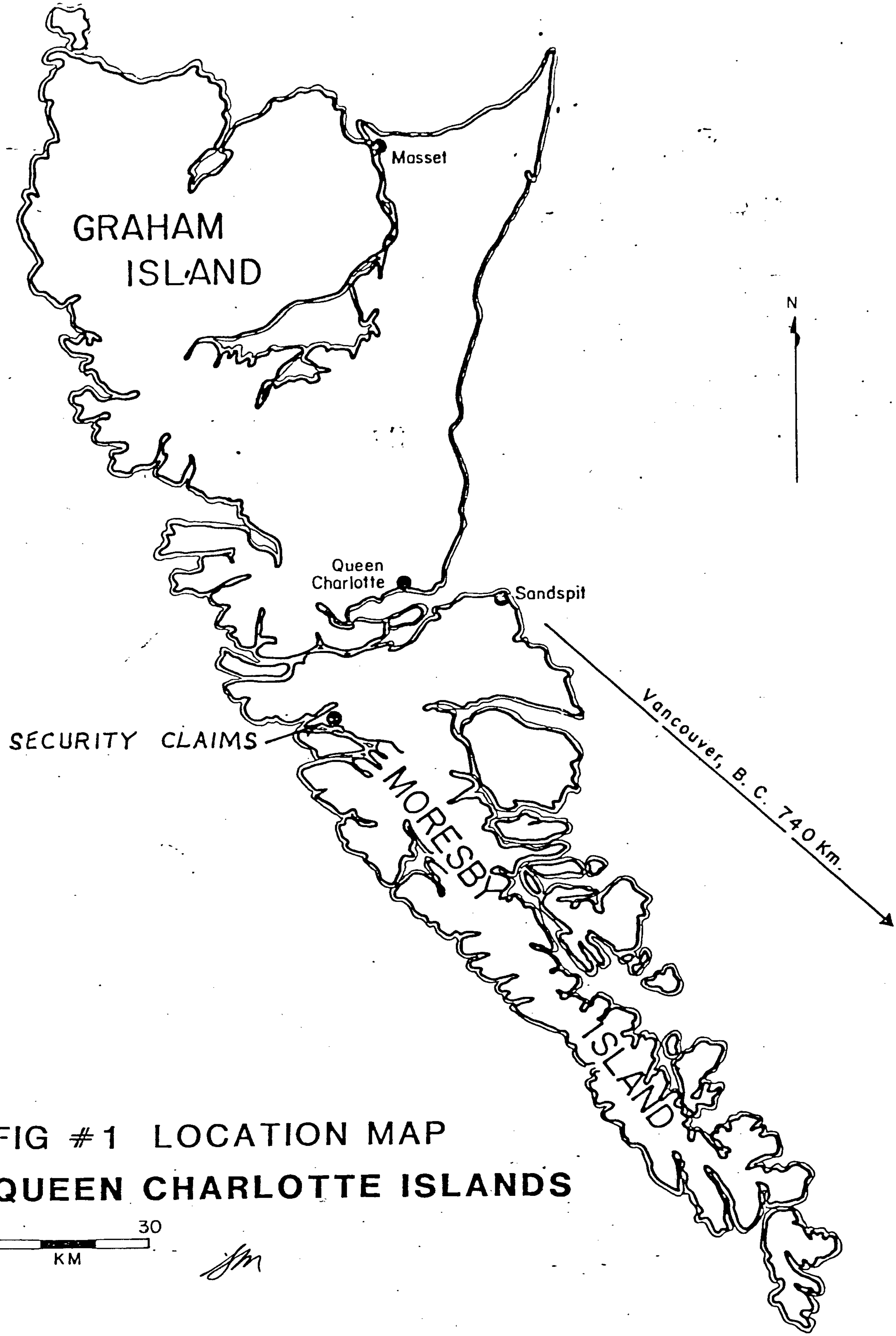


FIG #1 LOCATION MAP

QUEEN CHARLOTTE ISLANDS

0 30
KM

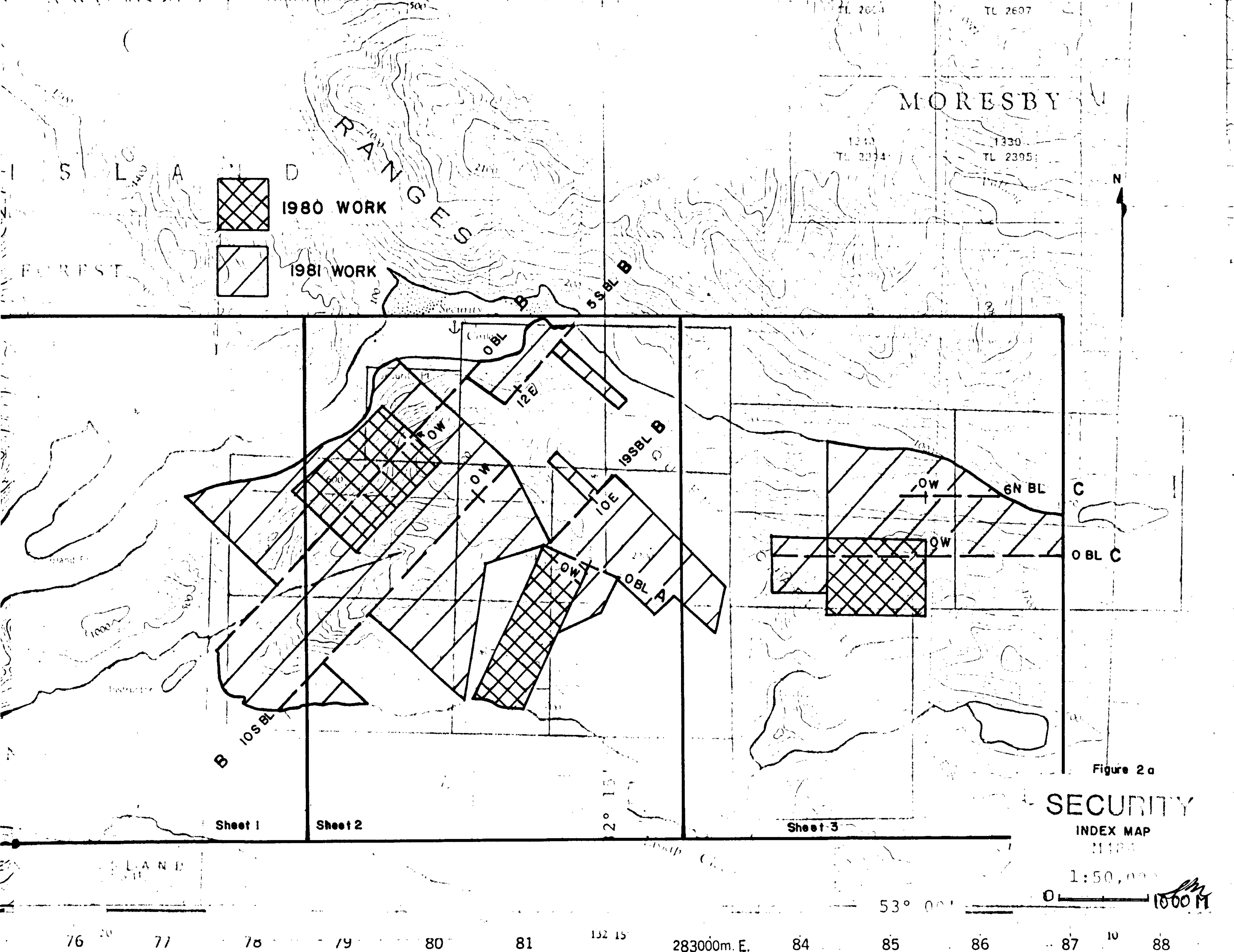


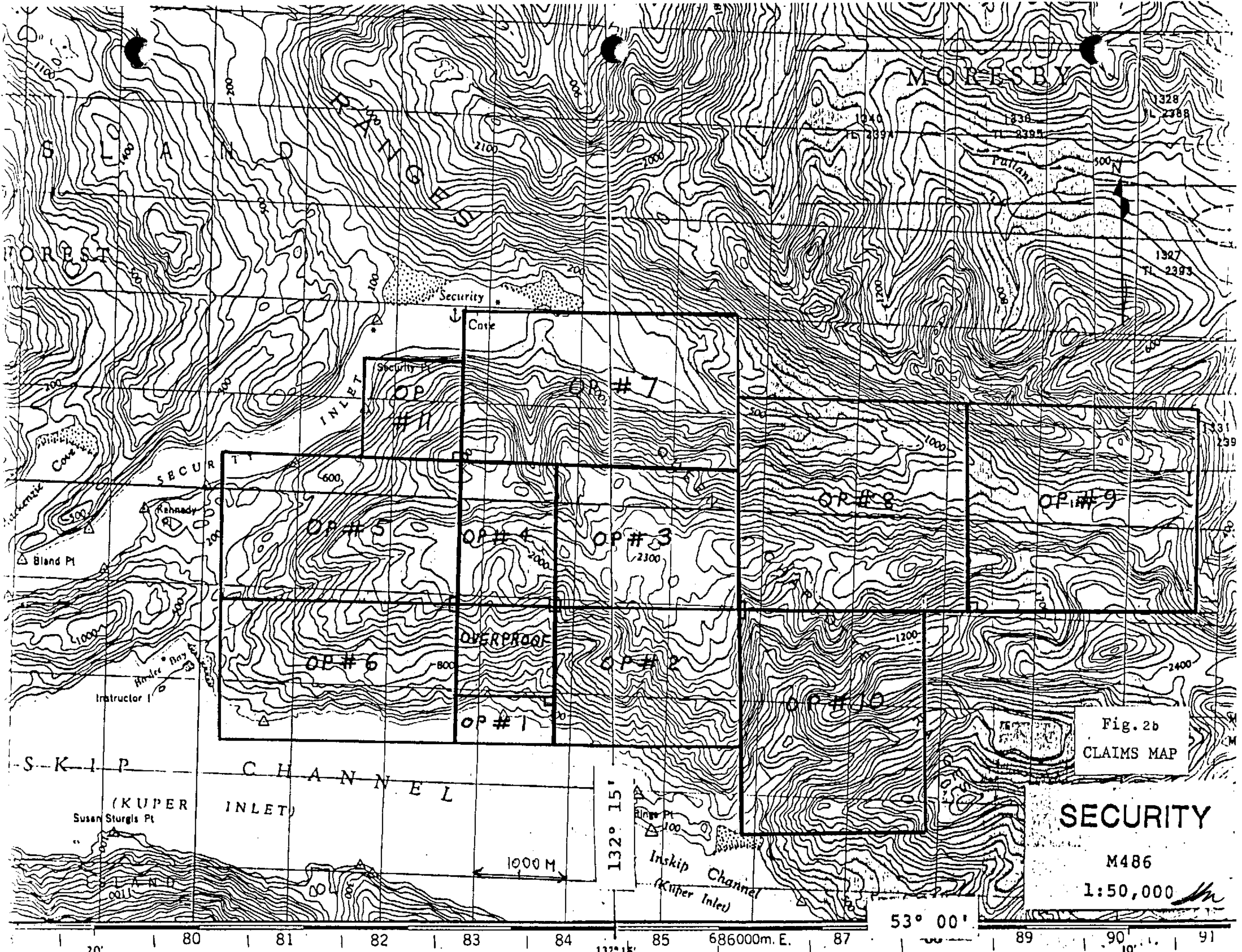
Figure 2a

SECURITY

INDEX MAP

1:50,0

0 1000 M



MORESBY
ISLAND RANGES
FOREST
Security
Cove
Security Pt
INLET
SECURITY
Cove
Kennedy Pt
Bland Pt
Instructor I
OP #7
OP #11
OP #5
OP #4
OP #3
OP #8
OP #9
OP #6
OVERPROOF
OP #2
OP #10
OP #1
SKIP CHANNEL
(KUPER INLET)
Susan Sturgis Pt
Ringe Pt
Inskip Channel
(Kuper Inlet)
1000 M
132° 15'
53° 00'
Fig. 2b
CLAIMS MAP
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1:50,000
80
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85
686000m. E.
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91

GEOGRAPHY (Fig. 2a)

Essentially the claims cover a rough, narrow, and nearly treeless scrub spruce plateau some 6 km long, and the adjacent heavily forested 40° slopes. Terrain negotiability on foot below the plateau, cannot be considered easy. The overall relief is 890 m.

The climate is typical of West Coast rain forest, with a yearly precipitation, (mainly September to May), of possibly 500 cm. Despite the amount of rainfall, water is not always abundant at higher elevations which drain quickly during dry spells. There are several small lakes, however, which do not show on the 1:50,000 topographic map.

GEOLOGY

General

In the 1981 field season 120 person-days were spent mapping much of the property that had not previously been studied. The general stratigraphy of the property is as follows:

Tertiary	Masset Formation (?):	rhyolite flows, (quartz) feldspar porphyry, rhyolite porphyry, gabbro intrusions and dacite porphyry plug.
Jurassic	Yakoun Formation:	andesite tuff and possibly agglomerate.
Triassic	Kunga Formation (?):	black argillite, thinly bedded black to massive grey limestone.
	Karmutsen Formation:	andesitic basalt lavas, pillow and amygdaloidal facies present, and interflow sediments.

Karmutsen Formation

The Triassic basalts of the Karmutsen Formation, the oldest rocks present on the Queen Charlotte Islands, are the most widely distributed rocks on the property.

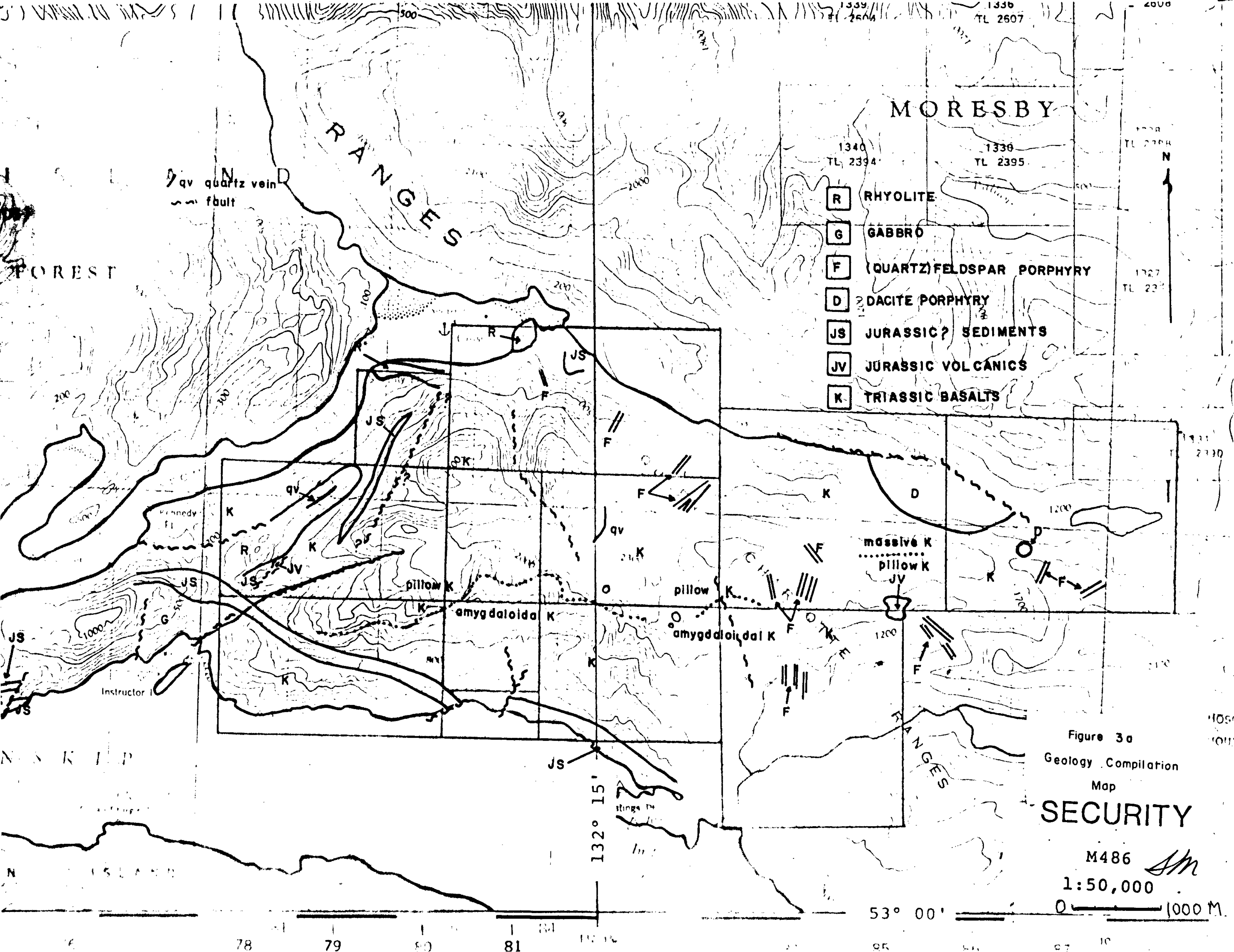

Figure 3a
Geology Compilation Map
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1:50,000

The Karmutsen Formation is composed of andesitic basalts with a subordinate amount of interflow sedimentary rock. Massive, amygdaloidal and pillow basalts have been seen on the property.

The distribution of pillow basalts is mainly at high levels in the topography (and stratigraphy?) on the plateau on "C" grid, as well as from "B" grid plateau to the north. These basalts are fine grained, generally grey-green to black, with disseminated pyrite and are often weakly porphyritic. The pillows are often rimmed by quartz and epidote and the interpillow interstices filled with quartz, epidote, chlorite and minor pyrite (thin section S-DI-6). These interstices are referred to as quartz 'bulls' or pods.

Intra-pillow breccias also known as "squigglyite" were observed in a few locations on "B" grid, although their distribution is possibly more widespread. Highly altered fragments mainly of volcanic glass, chlorite and quartz occur within a matrix of quartz, plagioclase and zeolite, probably laumontite (thin section S-DI-22 and S-01-3a).

The amygdaloidal and massive basalts occur on the steeper slopes, topographically and probably also stratigraphically lower than the pillow basalts. The upper contact of the massive to amygdaloidal basalts appears as stunted vegetation on benches on the aerial photographs.

The massive basalts range from grey-green to dark green in colour, and fine grained, weakly porphyritic and contain a moderate amount of disseminated pyrite. The porphyritic nature of these rocks, was noticed mainly in thin section. Irregularly shaped blebs of chlorite, and sericite were found to be almost completely replacing plagioclase phenocrysts (thin section S-SM-22, 26, 212, 219, 285; S-DI-SAC and SB-BP-6a).

The amygdaloidal basalts are maroon to grey-green, fine grained, contain disseminated pyrite, and locally chalcopyrite. The vesicles are filled with quartz, calcite and are often lined with chlorite (thin section S-SM-38).

The Karmutsen basalts have been silicified in places (see "Alteration"). Cherty and argillaceous interflow sedimentary rocks are also part of the Karmutsen Formation. These outcrop along the northern end of "B" grid. Unlike the limestones and argillites on the north shore of Inskip Channel, there does not appear to be any ambiguity with their age and relative position within the stratigraphy.

These cherty and argillaceous sediments represent deposition during a quiescence in Triassic volcanic activity in the Triassic.

Sedimentary Rocks (Kunga Formation?)

Sedimentary rocks outcrop predominantly along the northern shore of Inskip Channel, in a band defined by a vegetation anomaly through the southwest end of "B" grid and at the western end of the peninsula.

The sediments range from thinly bedded black argillites and limestones to massive grey limestones that are often quite rusty, contain disseminated pyrite, and are cut by quartz and carbonate (ankerite?) veins. The age of the limestones and argillites is uncertain. They may be Triassic and/or Jurassic (see "Structure").

Jurassic Volcanic Rocks

Adjacent to the rhyolite bench on "B" grid (and at the south eastern end of "C" grid) andesite tuffs of the Yakoun Formation outcrop.

The andesitic tuffs are medium to fine grained, dark green, typical of the Yakoun Formation and contain disseminated pyrite. Their areal distribution is not clearly outlined, a consequence of the difficulty of distinguishing them in the field from the Karmutsen basalts.

Rhyolite

Rhyolites occur as intrusive dykes and (probably extrusive) flow-banded sheets. The former will be discussed in the section on (quartz) feldspar porphyries. Flow-banded rhyolites occur at the north end of "B" grid on the shore west of the head of Security Inlet, as well as on the lower plateau. The rhyolite is a very fine grained, white to pale grey, homogeneous, distinctly foliated rock. Disseminated sulphides, mainly pyrite, commonly are found within the rhyolite. The rhyolite is thought to be Tertiary in age, part of the Masset Formation. The flow-banded nature of these rhyolites is quite similar to Masset rhyolites elsewhere and its proximity to the gabbro, a possible feeder for Tertiary basalts, also suggests that the rhyolite may be part of the Masset Formation. The flow banded rhyolites are certainly among the youngest rocks on the property. They are cut only by the (quartz) feldspar porphyries, quartz veins, and possibly by the gabbros.

(Quartz) Feldspar Porphyry (and Rhyolite Porphyry)

The (quartz) feldspar and rhyolite porphyry intrusions of probably Tertiary age occur mainly as dykes of various dimensions and orientations. The most abundant exposure of these dyke rocks is on the plateau of "C" grid where the network of dykes begins to resemble a broad scale stockwork. Rhyolite and (quartz) feldspar porphyry dykes are also common on the north east end of "B" grid along the steep valley wall. These felsic dykes cut all facies of the Karmutsen basalt as well as other rock types.

The rhyolite and (quartz) feldspar porphyries are fine grained, white to pale grey rocks lacking sulphides and containing plagioclase and often quartz phenocrysts that are usually subhedral and anhedral, respectively. These porphyries are usually quartz-veined to some degree with (quartz) feldspar porphyry breccias forming in areas of intense silicification, as on "C" grid. The close spatial relation of silicification to the dykes is quite striking. These rhyolitic porphyries may be feeders for now eroded felsic Masset volcanics.

Dacite Porphyry

A small dacite porphyry plug perhaps genetically related to the (quartz) feldspar porphyry dykes discussed above, occurs on the north eastern end of "C" grid. A regional lineament study suggests a fault bounded northern contact that runs parallel to the stream bed. This dacite porphyry plug is thought to be Tertiary in age. The dacite porphyry is a pale green, moderately siliceous, fine grained rock with subhedral plagioclase phenocrysts. The rocks are often weakly fractured, weakly quartz veined and contain disseminated pyrite.

The dacite porphyry plug is perhaps a relict of a vent for the felsic Masset volcanics of Tertiary age.

Gabbro

Gabbro is seen mainly on the western end of "B" grid along the shore east of Kennedy point, north of Baylee Bay and forms the outerwall for part of the rhyolite bench.

The gabbro is a dark coloured, fairly fresh, homogeneous and medium to coarse grained rock containing disseminated pyrite (thin section S-SM-216). It is locally more dioritic then gabbroic. It could represent feeder material for a now eroded Tertiary basalt.

Alteration

Despite the fact that 5 relatively inexperienced mappers shared the geological mapping a fair degree of consistency of notation was achieved. The interspersing of lines mapped by the individuals, and daily cross-checking with the most senior, yielded a reasonably good reliability in outlining the extensive alteration zones.

Data was collected on the presence, physical form and degree of silica, tourmaline, chlorite, apparent epidote, carbonate, hematite, sulphides, and rust. The degree was specified by a subjective reference to local, weak, moderate, or intense for each mineral with different range for each mineral.

The silicification (Fig. 6a) proved to be by far the most useful and interesting mode of alteration. One could wax eloquently and extensively on the unusual degree of development and variety of form of the siliceous alteration on this property. A third of the rather large area mapped provided silicification in one form or another. For brevity the forms can be listed as follows:

Major quartz veins (attaining 7 m by 550 m)

Quartz stockworks

Quartz breccia zones

Minor quartz veins, both open or vuggy and tightly sealed

Quartz filled microfractures

Pervasive silicification, with or without accompanying veining

Quartz pods and lenses

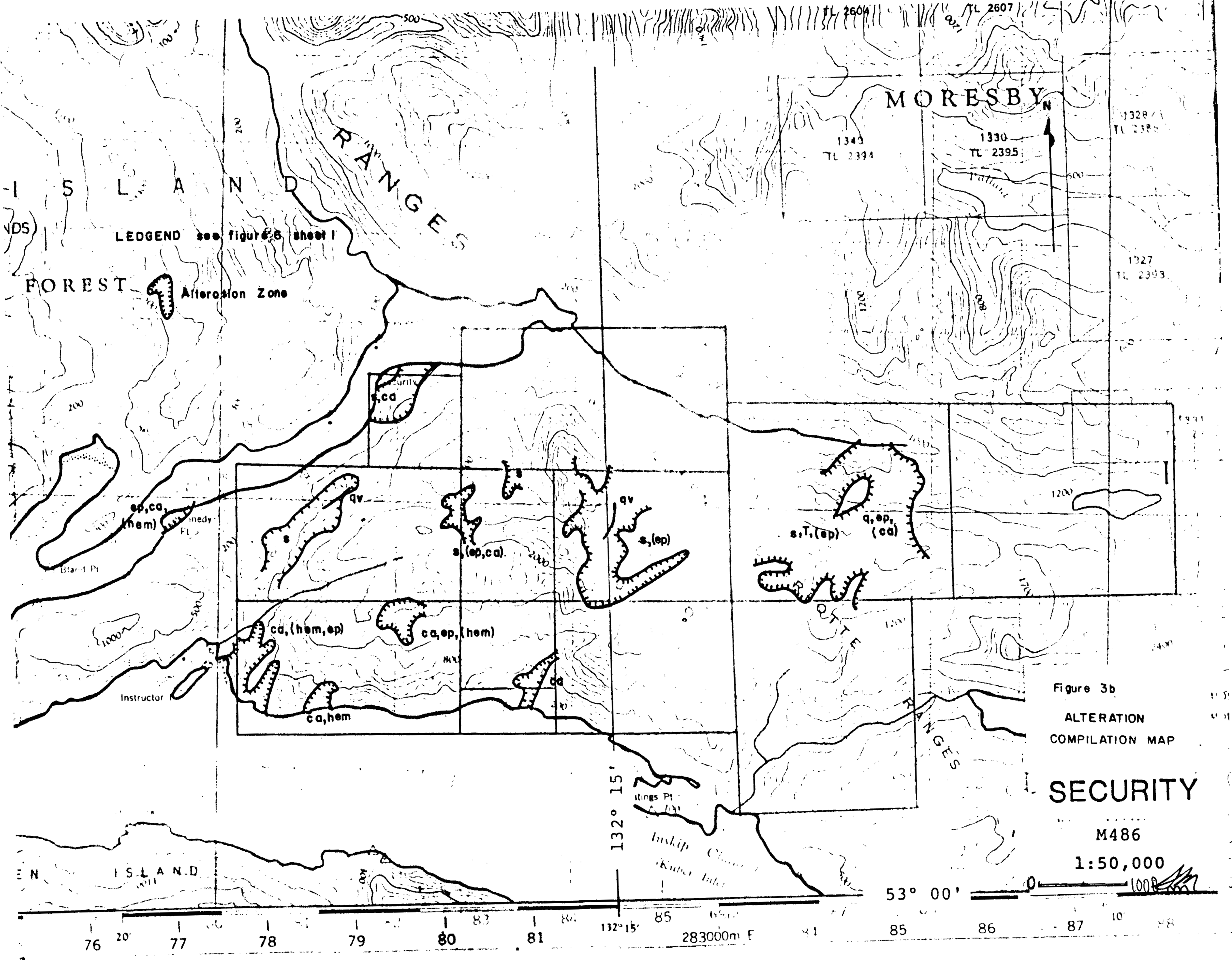

Figure 3b

ALTERATION COMPILATION MAP

SECURITY

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In general, the major zones show an outward progression from their centre more or less in the order (from the top down) of the above list.

The siliceous zones are widely distributed throughout the property but seem to show some tendency to favour the higher topographic and/or lithologic levels. There is also, in at least some cases, a spatial relation to NE trending major fault zones.

No particular rock type seems to be favoured as a host, although the form of silicification varies. Tight quartz veining in the amygdaloidal and massive basalts, for instance, changes to tight veining, open veining, and "podding", in the overlying pillow basalts. The pods form at the pillow boundaries and occasionally entire pillows are rimmed with quartz.

One possible ambiguity should be pointed out. In a few areas, such as near the "A" grid baseline, what is mapped as silicified basalt could possibly be dacite. Although dacites are not uncommon in the Karmutsen Formation, it seems likely, from the general extent of the silicification that these areas are indeed basalt.

Almost all geochemical evidence for the presence of Au is from silicified zones. Probably silica-rich solutions transported the Au to its present sites. However, the silica could be protecting, by encapsulation, Au from erosion within the silicified zones.

Tourmaline (Fig. 6a) is abundant within one specific area ("C" grid) and is the only mineral with a strong positive correlation to silica. Radiating clusters of tourmaline crystals (thin section SM-47) almost completely replace plagioclase phenocrysts within silicified rhyolitic feldspar porphyries, and to a lesser degree the plagioclase phenocrysts in the dacite porphory stock. In addition, abundant black veining and black breccia matrices and black irregular disseminations in the same area almost certainly represent a very high degree of tourmaline alteration.

Chlorite is ubiquitious throughout the basalts, and for this reason is only shown on the alteration map (Fig. 6b) where unusually intense. It almost certainly represents a primary, diagenetic, or regional alteration facies of little use to our exploration effort. A subspecies of bluish-tinted chlorite has been observed in a few localities, but not systematically mapped. Similar material has been observed in the vicinity of the old Blue Mule Au mine at Kootenay Inlet, 18 km to the south of the Security property. It is possible that this subspecies could be usefully mapped in further work.

Epidote, as mapped (Fig. 6b) may not in fact be epidote, at least not entirely. Thin section study on same rock sections has revealed apparent epidote to be a subequal chlorite-sericite mix. It is interesting that some of the mapped epidote zones are peripheral to silicification. Anomalous zones AI-BI, BII, and BIV provide good examples of this. Thus sericitization (argillitic alteration) may be zoned peripherally to silicification in the classic style, and as is now known to be the case at the Cinola Au deposit, 60 km to the north of Security.

The "epidote" is present in the basalts in close association with quartz on pillow rims, as minor veining, as irregular patches, and as replacements of plagioclase phenocrysts. It appears to be restricted to the basalts. Sericite is also seen in thin sections (S-SM-9 and 67) replacing plagioclase in phenocrysts in the feldspar porphyries.

Carbonate (Fig. 6b) alteration shows a distinct regional zoning. Calcite veins are common at lower topographic and stratigraphic levels, and are peripheral to, or distant from, the zones of silicification. The west end of the property and the shorelines are particularly favoured. These are also the sites of the more abundant Cu, and are generally distant from significant Au or As. Locally a clear inverse relationship to epidote is noted.

Calcite is also commonly present as vesicle fillings in the basalts.

Of special interest are several reported occurrences of ankerite at the west end of the peninsula. Inasmuch as this is difficult to identify in the field, it could be much more widespread than is apparent.

Hematite (Fig. 6b) also occurs more widely towards the west end of the property and at lower stratigraphic and/or topographic levels. It is often close to, and parallel in trend to, carbonate alteration, but some areas show overlap. It could, as elsewhere in the Queen Charlotte Islands, correlate with major faults, but there is limited evidence for that in this case.

Sulphides in the form of pyrite and pyrrhotite are extremely common in finely disseminated form, but only rarely as fracture fillings, and in no case at levels of more than a few percent. At the risk of some ambiguity both obviously sulphide-bearing outcrops and rusty outcrops have been emphasized on Fig. 6b. The ambiguity is that some of the rust could represent, for example, ankerite.

Chalcopyrite is fairly common on the Inskip channel shoreline. The better occurrences will be discussed under "Mineralization". Geochemically anomalous levels of Cu show an interesting proximity to, but clear inverse relationship with "epidote" alteration. However, like the "epidote" they tend to be marginal to the strongest of the silicification.

Other sulphides are not common, restricted to minor amounts of arsenopyrite and even rarer galena, and sphalerite.

Squigglyite was also noted, in two locations, by one mapper. For those not familiar with this term, it represents an apparently silicified basalt, the hand specimen from which shows an incredibly intricate swirling, erratic texture. Thin section study revealed this to be in fact an intrapillow breccia, otherwise known as dallasite (see "Karmutsen Formation").

An attempt to summarize the relationships between the various types of alteration follows in Table #4.

Mineralization

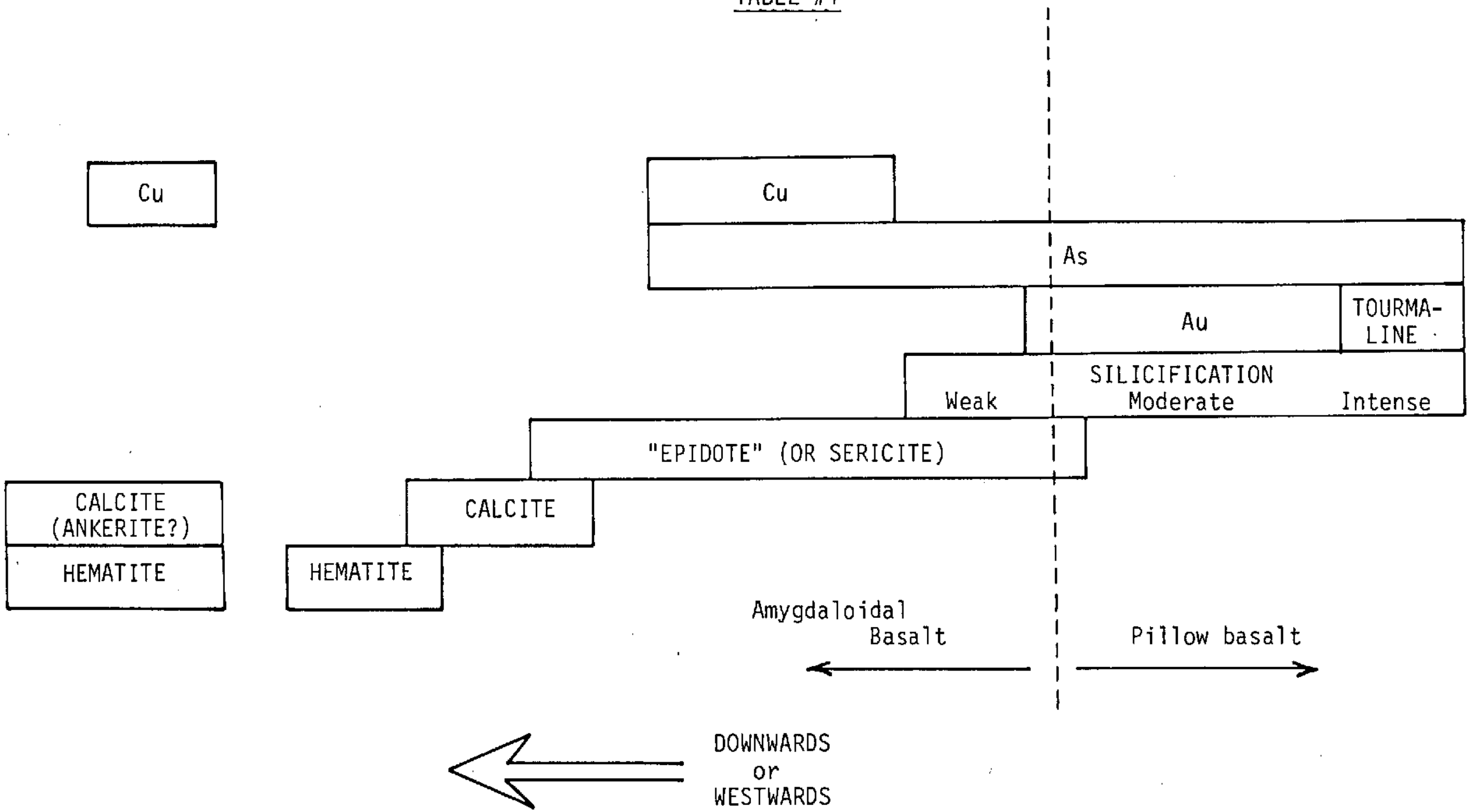
The mode of gold mineralization is not yet clearly understood. Two possible samples of visible gold were found this season within quartz veins of the highly silicified and brecciated (quartz) feldspar porphyry high on "C" grid. The visible gold was very fine grained and occurred within a weakly open quartz vein associated with a small amount of rust.

The best gold value to date is from a 1978 JMT sample H1270 on the "A" grid that assayed 1.3 oz Au per ton. This was of a quartz vein cutting massive grey limestone.

The gold is strongly associated with quartz veining, and, on a broader scale, with silicification.

The copper mineralization is strongly associated with carbonate (ankerite?) veining and lenses. Chalcopyrite and malachite occur within these veins that are cutting moderatley hematitized amygdaloidal basalts.

TABLE #4



Approx. 1 km.

Note: These relationships not applicable in northern area underlain by rhyolite.

ALTERATION ZONING
SECURITY PROPERTY
September 1981

The copper and gold mineralization appear to be independent, with Au occurring mainly in the high topographical and stratigraphical levels of pillow basalts as well as the flow banded rhyolite. The Cu occurs at a lower level within amygdaloidal basalts. In both cases Au and Cu are associated strongly to veining of a hydrothermal nature.

Structure

Block-faulting seem to be a major feature of the geological environment on the Security property. The rhyolites on "B" grid almost certainly represent a down-dropped Tertiary block of considerable displacement along the Security Inlet shoreline. In addition a major discordance of bedding strikes is evident across a NNE trending line 600 m in from this shoreline. A major fault, with tilting, is implied.

Block-faulting is common elsewhere in the Queen Charlotte Islands, and may relate to basin formation early in the Jurassic. It is probable, for example, at Buck point, 20 km to the NW.

Such faulting could in part explain the presence of sedimentary rocks, lithologically identical to the Kunga, along the Inskip Channel shoreline.

Lineaments are well defined and abundant. The trends of the more prominent ones fall into 3 main groups, N10 to 30°E, N55 to 60°E, and N60 to 70°W. Field evidence for faulting was found at the site of many of these lineaments.

Fracturing. On an outcrop scale some of the fractures are infilled with quartz and these are often offset and/or cut by fractures. This would indicate a minimum of two generations of fracturing, one pre-dating and one post-dating the silicification event.

Folding, which could well have occurred concurrently with block-faulting, is evident locally in thin bedded sediments on the Inskip Channel shoreline, and a possible synform has been outlined by mapping in this area. In general, however, folding is probably a broad and open warping, with only localized tighter folding near faults.

Interflow sedimentation. In some areas of the "A" and "B" grids there are argillaceous and limy or cherty sediments that are in clear conformable relation to Triassic basalts both above and below. Despite their similarity to Kunga rocks they are almost indisputably interflow sediments. In other words both highly displaced Kunga rocks and earlier but similar interflow sediments probably coexist.

GEOCHEMISTRY

General

A total of 1197 samples were collected in June and August of 1981 and analyzed for Au, As and Cu, of these (868) samples were also analyzed for Ag. The sample distribution is as follows:

Sample type	Number of samples
Soil or silt	838
Rock	359

The soils were collected predominantly on 200 m x 100 m and 100 m x 50 m grids with 50 m x 50 m follow-up in some areas of interest and 400 m x 100 m sampling on the western end of "C" grid. Soils were also collected on regional property type traverses. The soils were sampled mainly from the "B" horizon at an average depth of 15 cm to 20 cm using prospecting picks and high wet-strength paper

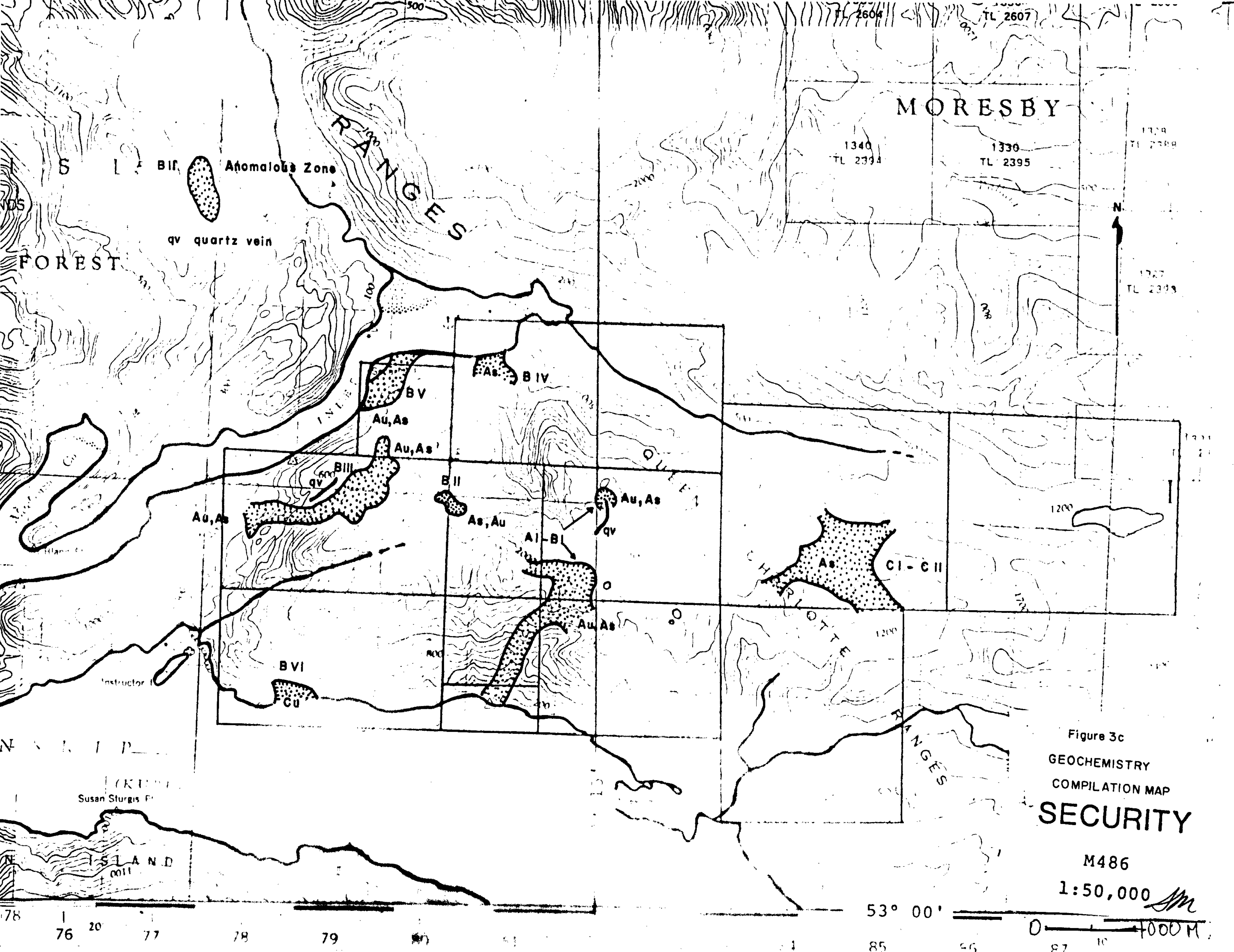


Figure 3c

GEOCHEMISTRY

COMPILATION MAP

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sample bags. The samples were analyzed by Vangeochem Lab Ltd. in North Vancouver.

The rocks sampled were also analyzed by Vangeochem Lab Ltd. and, in addition, a suite of 73 rocks was sent to Bondar-Clegg Co. Ltd. in North Vancouver for Au analysis by the combined Fire Assay plus Atomic Absorption method. An excellent match can be made between the results of two methods. The analytical techniques are outlined in the Appendix.

Rock Anomalies

A description of the rock samples collected that contain strongly anomalous values of gold (+100 ppb Au) are listed in Table #1. It was found that rocks with anomalous gold values were either heavily silicified or quartz veined. The presence of silica in the form of quartz veins and/or overall silicification in these anomalous rocks would suggest a relationship between the gold content of the rock and late stage influx of silica. In general, these rocks also contained disseminated sulphide-pyrite or pyrrhotite. The latter are, however, of almost property-wide distribution.

A listed description of rock samples that contain highly anomalous copper (500 ppm Cu) follows in Table #2.

Rocks with strongly anomalous gold (+100 ppb Au) occur generally in 3 zones. The largest zone is within silicified pillow basalts at the southeast end of the "B" grid. Another zone is on the lower "plateau" in flow banded rhyolites at the north end of the "B" grid. A small zone defined by one highly anomalous sample is located on the southern end of the "C" grid.

TABLE #1

SECURITY - M486

ROCK SAMPLES

(Au rich)

Sample No.	Area	Field Description	Au (ppb)	As (ppm)	Cu (ppm)
S-SM-28	B	0.5 m wide quartz vein with heavy disseminated pyrite cutting highly fractured moderately chloritized, weakly saussuritized basalt with moderate disseminated pyrite.	1600	>1000	20
SB-DH-114	B	Flow banded rhyolite, moderately chloritized with moderate disseminated pyrite.	1100	>1000	1
S-TS-18	B	Rhyolite with moderate pyrite and weak quartz veining	900	15	4
SB-DH-104	B	Massive quartz vein with moderate pyrite, brecciated at contact with basalt.	680	>1000	51
SB-QVI-6	B	Heavy open and closed quartz veining and quartz breccia within basalt.	570	1000	16
S-DI-33	B	Major quartz vein.	435	80	3
S-DI-31a	B	Silicified andesite with local intense quartz veining.	425	60	6
S-SM-67	B	Quartz vein to intense quartz stockwork (90 m in length).	380	500	28
S-SM-73	B	Quartz vein to intense quartz breccia (57 m in length).	360	1000	49
SB-DH-103	B	Moderately saussuritized, heavy chloritized basalt with fracture controlled pyrite, cut by 3-10 cm thick quartz veins.	320	800	16
S-SM-201	B	Moderately chloritized basalt with intense quartz veining to quartz breccia.	270	>1000	35

TABLE #1

SECURITY - M486

ROCK SAMPLES

(Au rich)

Sample No.	Area	Field Description	Au (ppb)	As (ppm)	Cu (ppm)
S-SM-66	B	Moderately altered basalt wall rock in contact with quartz quartz vein, moderately quartz veined.	220	500	260
SB-BP-3-4	B	Highly silicified basalt, with intense open quartz veining. Fractures are healed with quartz and pyrite, also there is abundant disseminated pyrite.	180	150	5
SB-BP-3-5	B	25 cm widequartz vein cutting silicified basalt.	180	40	19
S-DI-316	B	Quartz breccia with moderate rust.	175	100	101
S-DI-34	B	Silicified basalt with intense open quartz veining.	140	150	12
S-PF-24	B	Quartz vein to stockwork 4 m wide cutting moderately chloritized basalt with pyrite.	110	20	13
S-SM-74	B	Moderately silicified basalt with weak to moderate quartz veining, wall rock in contact with major quartz vein.	105	600	127
S-SM-70	B	Massive quartz vein - locally quartz breccia to stockwork - over length of 70 m.	100	300	18
SB-BP-3-2	B	Highly silicified, fractured basalt with intense quartz veining. Fractures are healed with quartz and pyrite. Abundant disseminated pyrite within the basalt.	100	200	2

TABLE #II

SECURITY - M486

ROCK SAMPLES

(Cu rich)

Sample No.	Area	Field Description	% Cu	Cu (ppm)	As (ppm)	Au (ppb)
S-SM-65	B	15 cm wide carbonate (ankerite?) vein with associated malachite, chalcopyrite and pyrite cutting amygdaloidal basalt that contains sulphides in vesicles adjacent to calcite vein.	12.30	>10,000	20	nd
S-SM-64	B	4 cm thick zone of hematite and malachite cutting through moderately hematitic amygdaloidal basalt.	3.53	>10,000	10	nd
S-SM-80	B	Amygdaloidal basalt with weak disseminated arsenopyrite, moderate pyrite, moderate carbonate veins and malachite filling fractures locally.	1.69	>10,000	60	nd
S-SM-38	B	Weakly hematitic amygdaloidal basalt with calcite, quartz, chlorite and locally malachite filling vesicles, contains chalcopyrite as disseminated blebs (float).	1.22	>10,000	2	nd
S-SM-76	B	1 - 8 mm wide carbonate (ankerite?) veins containing malachite and chalcopyrite, cutting gabbro (vein sample).	.37	3,580	10	10
S-DI-36	B	Moderately to intensely fractured basalt, with chalcopyrite.		3,350	2	nd
S-SM-36	B	Hematitic amygdaloidal basalt with calcite and chlorite filling vesicles, with moderate disseminated pyrite.		3.200	4	nd
S-SM-29	B	Intense open quartz veining and quartz breccia within pillowed basalts.		2,460	80	60
S-BC-7	C	Highly silicified basalt with small veinlets of pyrite.		1,560	35	nd

TABLE #II

SECURITY - M486

ROCK SAMPLES

(Cu rich)

Sample No.	Area	Field Description	% Cu	Cu (ppm)	As (ppm)	Au (ppb)
S-SM-75	B	Medium to coarse grained basalt that is cut by carbonate veins (S-SM-76: see above).		970	4	10
S-BC-22	B	Contact zone between rhyolite and basalt, both containing moderate amounts of pyrite.		610	30	nd
S-PF-12	B	Moderately rusty basalt.		520	2	nd

Rocks with anomalous arsenic are found in the areas that correspond with the gold zones described above.

A highly anomalous copper zone has been defined to the east of Baylee Bay in the vicinity of Mussel Beach on the south western end of "B" grid. The high copper values are found within moderately hematitized amygdaloidal basalts. A smaller copper zone is located at the eastern extent of the center of "B" grid within pillow basalts. There are a few scattered moderate copper values very loosely associated with the gold and arsenic zone on "C" grid.

There appears to be a strong positive correlation between the Au and As content of the rock. The areas of anomalous As values are somewhat more broadly defined than the Au zones but there is a definite overlap of these two zones. The correlation between Cu and either Au or As in this set of rock samples appears to be negative. A few scattered copper values (~200 ppm Cu) occur peripherally to the Au-As zone on "C" grid but these values do not define a coherent zone. Table 3 gives a summary of the main anomalous zones.

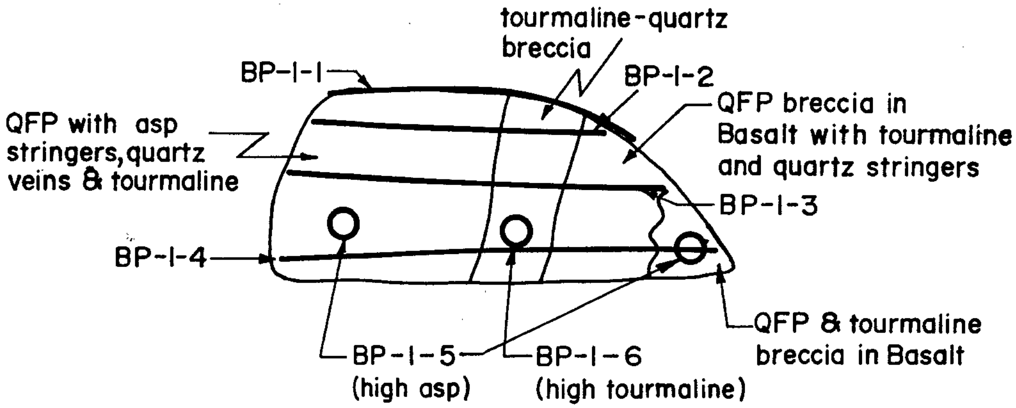
Blast Pits

Eleven pits were blasted on the Security grid to test the effects of leaching. Of these eleven pits, eight are illustrated in Figure 4.

The average dimensions of the blast pits are 1.5 m deep by 4.3 m in length. The pits were blasted in variety of different rocks in order to examine the effects of leaching in distinct environments. The pits are in the following rock types; basalts; both silicified and quartz-veined as well as unsilicified, quartz-veined and tourmalinized quartz feldspar porphyry dykes, highly altered diorite, rhyolite and quartz-veined andesite.

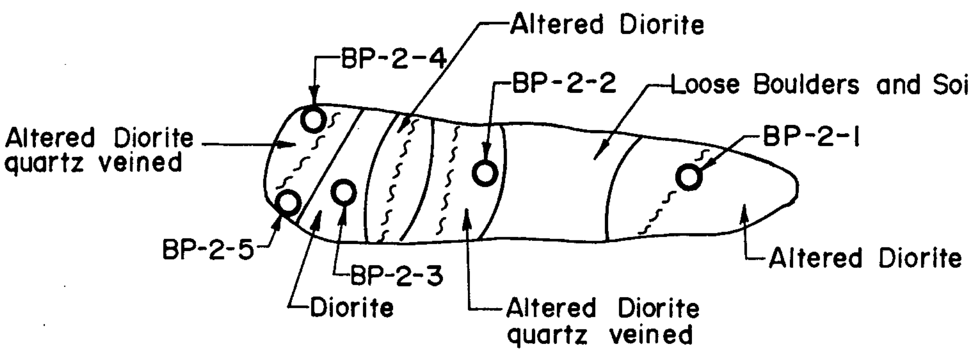
BLAST PIT GEOLOGY & GEOCHEMISTRY

SC–BP–1 C zone 12 W 2+50S
pit orientation 065°



	Cu (ppm)	As (ppm)	Au (ppb)	Ag (ppm)
BP-1-1	4	300	nd	nd
BP-1-2	19	800	10	0.2
BP-1-3	8	>1000	nd	0.1
BP-1-4	11	600	nd	nd
BP-1-5	14	>1000	10	0.8
BP-1-6	20	800	10	0.2

SC–BP–2 C zone 11+90 W 1 S
pit orientation 180°



	Cu (ppm)	As (ppm)	Au (ppb)	Ag (ppm)
BP-2-1	24	40	nd	0.2
BP-2-2	48	150	nd	0.2
BP-2-3	63	200	10	nd
BP-3-4	21	10	nd	nd
BP-3-5	20	30	nd	0.1

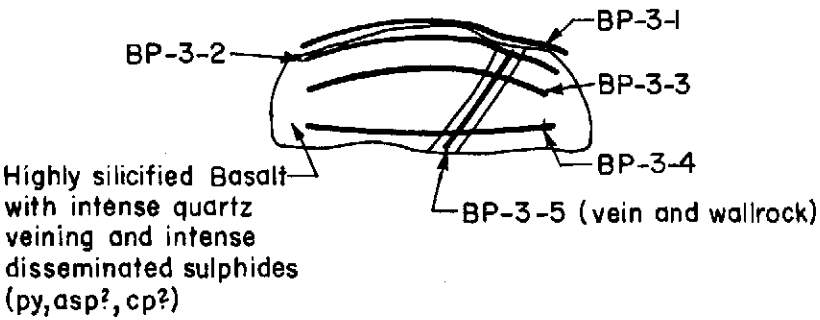
Note: Blast pit is located near JMT soil sample with 1184 ppb Au.

0 — 1M
SCALE 1:100

FIGURE 4

BLAST PIT GEOLOGY & GEOCHEMISTRY

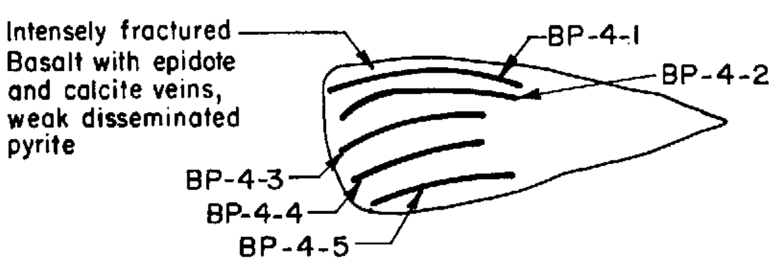
SB-BP-3 B zone 10 W 3+50 N
pit orientation 050°



	Cu (ppm)	As (ppm)	Au (ppb)	Ag (ppm)
BP-3-1	1	150	80	nd
BP-3-2	2	200	100	nd
BP-3-3	2	80	60	nd
BP-3-4	5	150	180	0.1
BP-3-5	19	40	180	0.3

NOTE: Blast pit located near JMT sample C786 with 545 ppb Au.

SB-BP-4 B zone 5E 6+60S
pit orientation



	Cu (ppm)	As (ppm)	Au (ppb)	Ag (ppm)
BP-4-1	200	10	20	nd
BP-4-2	182	30	30	0.1
BP-4-3	224	25	10	0.3
BP-4-4	226	15	10	0.1
BP-4-5	236	10	nd	nd

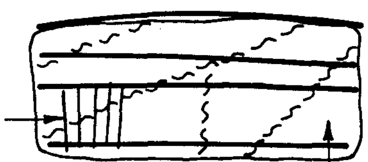
0 — 1M

SCALE 1:100

FIGURE 4

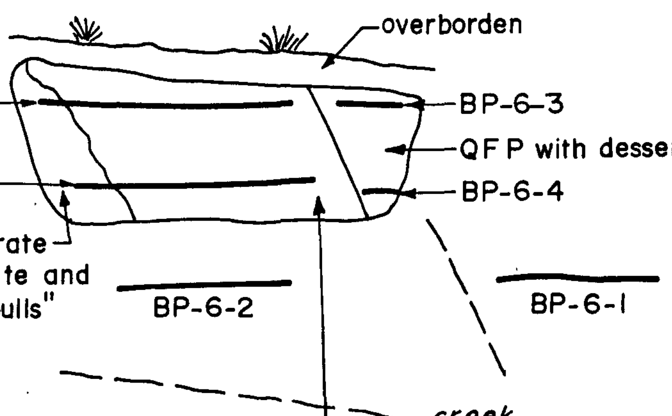
BLAST PIT GEOLOGY & GEOCHEMISTRY

SC–BP–5 B zone 4+70E 25+70S
pit orientation 050°



	Cu (ppm)	As (ppm)	Au (ppb)	Ag (ppm)
BP-5-1	181	10	nd	nd
BP-5-2	187	10	10	nd
BP-5-3	186	10	nd	0.1
BP-5-4	191	10	nd	nd

SB–BP–6 B zone 11E 23+05 S
pit orientation 152°



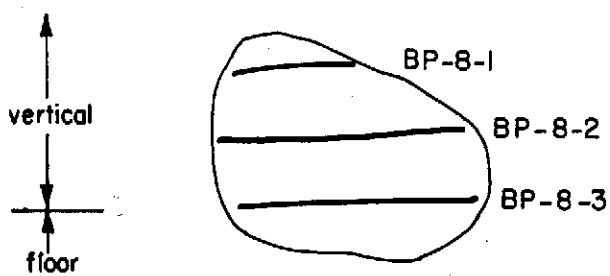
	Cu (ppm)	As (ppm)	Au (ppb)	Ag (ppm)
BP-6-1	20	30	nd	nd
BP-6-2	151	60	20	nd
BP-6-3	12	35	nd	nd
BP-6-4	24	35	10	0.1
BP-6-5	147	35	10	nd
BP-6-6	170	80	nd	nd

0 — 1M
SCALE 1:100

FIGURE 4

BLAST PIT GEOLOGY & GEOCHEMISTRY

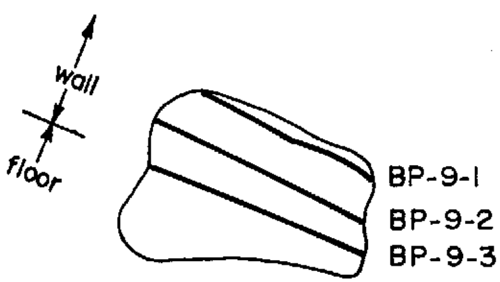
SB-BP-8 B zone 16+15W 3+85N
pit orientation 045°



grey-green Rhyolite
moderate quartz veins and pods and moderate disseminated and stringer pyrite

	Cu (ppm)	As (ppm)	Au (ppb)
BP-8-1	24	40	40
BP-8-2	21	30	10
BP-8-3	13	2	10

SB-BP-9 B zone 16W 2+40N
pit orientation 075°



massive Yakoun-Andesite
moderate open quartz veining with minor pyrite, chalcopyrite and galena

	Cu (ppm)	As (ppm)	Au (ppb)
BP-9-1	108	50	60
BP-9-2	113	50	60
BP-9-3	89	40	340

0 —— 1M

SCALE 1:100 FIGURE 4

There does not appear to be a clear relationship between the Au, Cu and As content of the rock and the sample depth within the blast pit. However, the maximum perpendicular distance from a weathered surface to sample site is not greater than 2.2 m.

Soil Anomalies

On the property seven main anomalous zones have been delineated on the basis of soil and rock geochemistry. These are summarized in Table 3. The soil geochemistry outlines four distinct As - Au anomalous zones, one As and one Cu zone.

On the property there is a strong correlation between the Cu values of rocks and soils. Copper within soils occurs quite independently of either As or Au and is found in anomalous amounts mainly in BVI zone.

Ag is generally lacking but where present often correlates with both Cu and As - Au anomalies.

In zones BIV and BII there is a poor correlation if any between As in soils and rocks. A silicified zone cuts across the head of the basin of zone BII, and perhaps there is a risk of a transported soil anomaly here. This would explain a lack of correlation between rock and soil As values. The As anomalies in BIII and CI - CII zones are defined on a much broader scale by As in soils than by As in rocks, although anomalous values are present in both rocks and soils.

TABLE #3

SECURITY

SUMMARY OF ANOMALOUS ZONES

Designation	Location (approx. ¢)	Size (Silicification)	General Character	Maximum Values
AI-BI	7E 22S B grid	500m x 1300m, NE-SW	Moderate to intense quartz-veining and silicification in pillow basalts, with erratic Au and As values. Local and somewhat peripheral carbonate and "epidote" alteration. The zone is part of a major alteration-system extending over a distance of at least 2800 m. A major feature is a NE trending quartz vein up to 7 m wide and exceeding 550 m in length.	Zone: Au 1600 ppb (rock) 1840 ppb (soil) As >1000 ppm (rock & soil) Main vein: Au 680 ppb
BIII	14W 3N B grid	300m x 1600m, NE-SW	Moderate to intense silicification in rhyolite flows, and amygdaloidal basalt, as well as localized sediments and andesite. Other alteration types either lacking or (as in the case of carbonate) in peripheral relation to the silicification. The zone is part of larger geochemically active area at least 2300 m long and up to 600 m wide. A central feature is a major quartz stockwork-vein system, several metres wide and discontinuously outcropping over at least 800 m (NE-SW).	Au 1100 ppb (rock) 110 ppb (soil) As >1000 ppm (rock) 1000 ppm (soil)
BII	2W 9S B grid	400m x 400m,	Small well-defined Au - As zone 150 m x 400 m with accompanying moderate silicification, weak carbonate alteration, and weak adjacent "epidote" alteration. Underlain by pillow basalts.	Au 85 ppb (rock) 200 ppb (soil) As 15 ppm (rock) 300 ppm (soil)

TABLE #3

SECURITY

SUMMARY OF ANOMALOUS ZONES

Designation	Location (approx. ¢)	Size (Silicification)	General Character	Maximum Values
CI - CII	12W 1N C grid	1500m x 1500m	Widespread and intense but erratic quartz-veining and silicification is associated with abundant NNE trending rhyolitic dykes within basalts. A notable feature is 600 m diameter zone of strong tourmalinization.	Au 30 ppb (rock) 1140 ppb (soil) As >1000 ppm (rock) 1200 ppm (soil)
BVI	30W 10S B grid	-	A diffuse grouping of analyses and assays, principally along the Inskip Channel shoreline, could be indicative of a large Cu zone. It is in amydaloidal basalts accompanied by carbonate and hematite alteration.	Cu 12.3% (rock) Ag 21.6 ppm
BIV	12E 3S B grid	200m x 800m?	Mainly a soil As anomaly with moderate silicification, with adjacent carbonate and "epidote" alteration. Underlain by basalt as well as possible rhyolite flows and andesite.	Au 40 ppb (rock) As 300 ppm (soil) Cu 610 ppm (rock)
BV	5E 5N B grid	300m x 800m?	Moderate to intense quartz-veining and silicification with some carbonate alteration. Underlain by basalt and also rhyolite flows. Soil Au and As lie only to the south on the end of BIII zone. Hence BV could be a continuation of BIII.	Au 110 ppb (rock)

An interesting pattern is seen in the AI - BI zone where there is Au in rocks but not much in the soil over the major quartz vein area, while 800 m further south there is Au in the soil, but not much in the rocks. This pattern also applies to As in this zone. This could represent a difference in soils and/or weathering processes on the alpine ground versus the forested slopes. It is also interesting that the upper edge of the lower anomaly of AI - BI is sharp and lies parallel to both topographic contours and presumed lithological contact, very close to the top of the amygdaloidal basalt.

The correlation between Au in rocks and soils in zones BIII and CI - CII is good. In zones BII and BIV the anomaly defined by Au in soils does not generally contain anomalous rocks. This could be due in part to a less systematic sampling of outcrops than of soils.

The inter-metal correlation for soil is generally the same as that for rocks. There is a strong correlation between As and Au of the soil with almost a complete overlap of these two anomalies in zone BII and BIII. An exception is the general lack of and a displacement of Au westward in relation to As in the CI - CII zone.

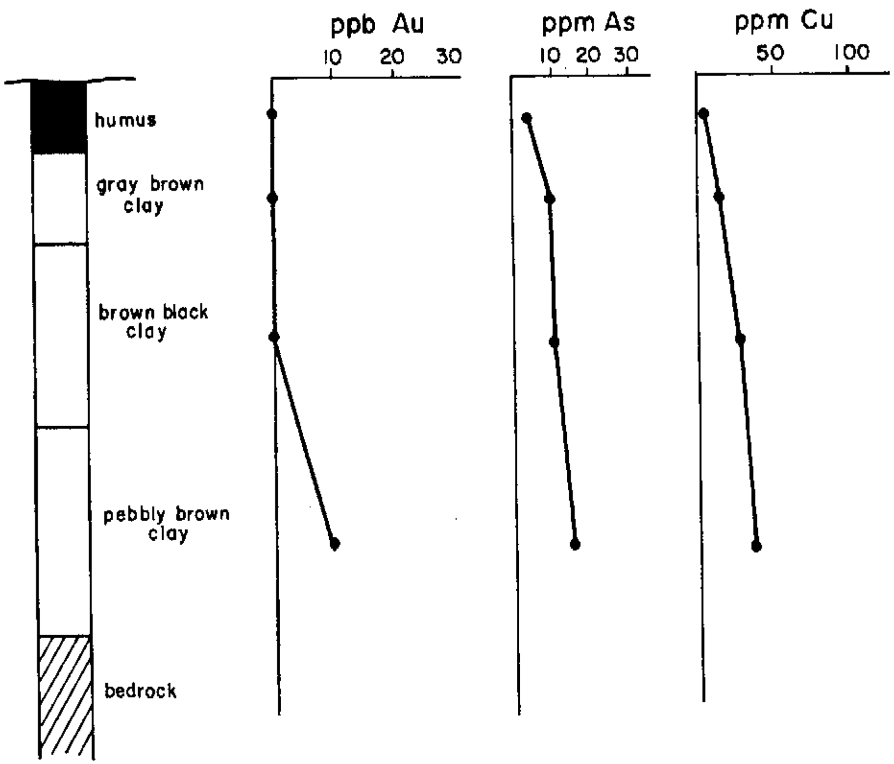
As with the rocks Cu occurs independently of As and Au.

Soil Profiles

Soil pits were dug in seven locations on the Security grid to examine the geochemical response of each soil horizon and any change in this response with depth. These pits were located, based on previous years' work, in areas of high geochemical response. Soil profiles are illustrated in Figure 5.

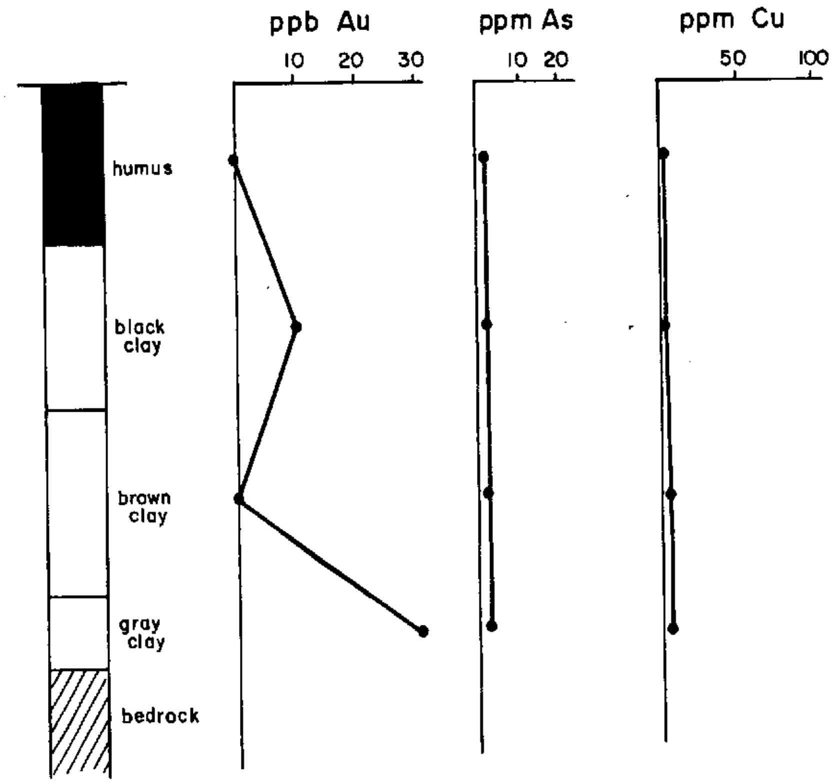
SOIL PIT PROFILES AND GEOCHEMISTRY

SP-1 B zone 13W 3N



NOTE: Soil pit is located near JMT sample C 805 with 110 ppb Au and 1100 ppm As.

SP-2 B zone 7W 1N

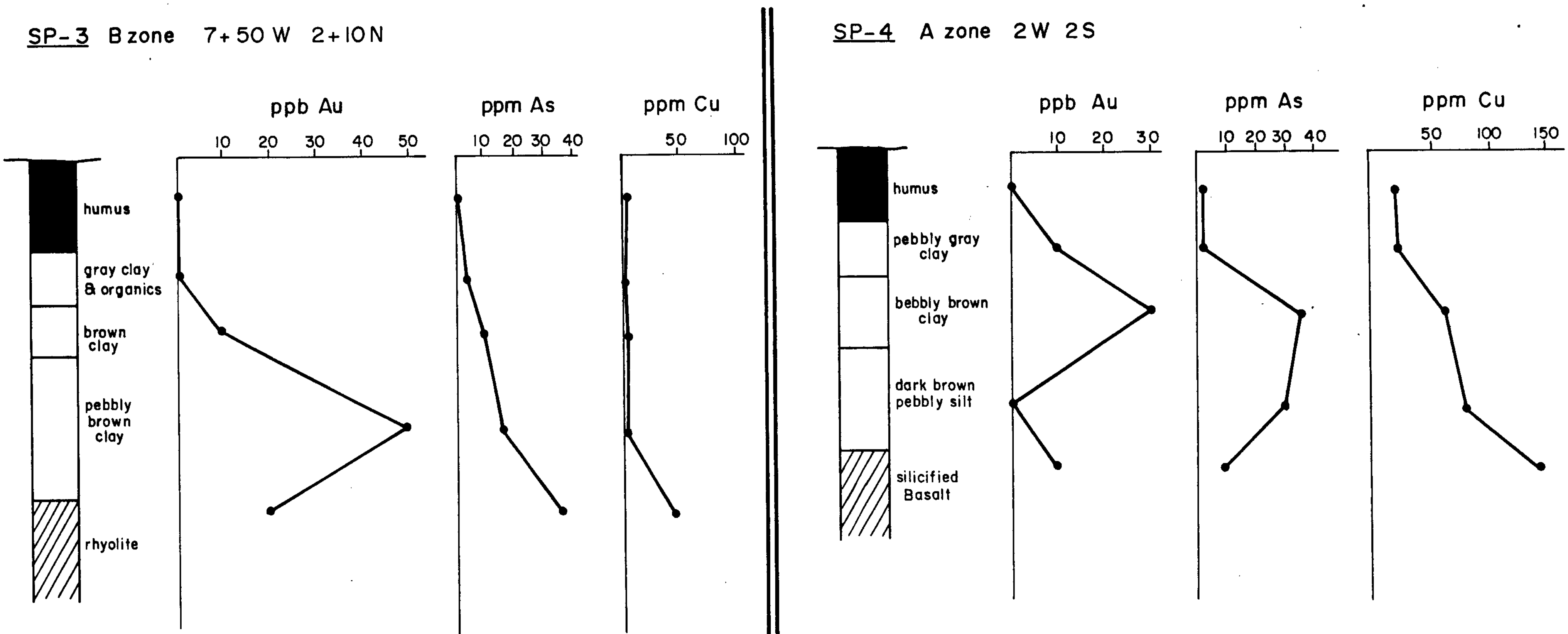


NOTE: Soil pit is located near JMT sample C 753 with 40 ppb Au and 300 ppm As.

0 — 10 cm

FIGURE 5
SCALE 1:10

SOIL PIT PROFILES AND GEOCHEMISTRY



NOTE: Soil pit is located near 1979 JMT soil sample C 737 with 130 ppm As and 220 ppb Au.

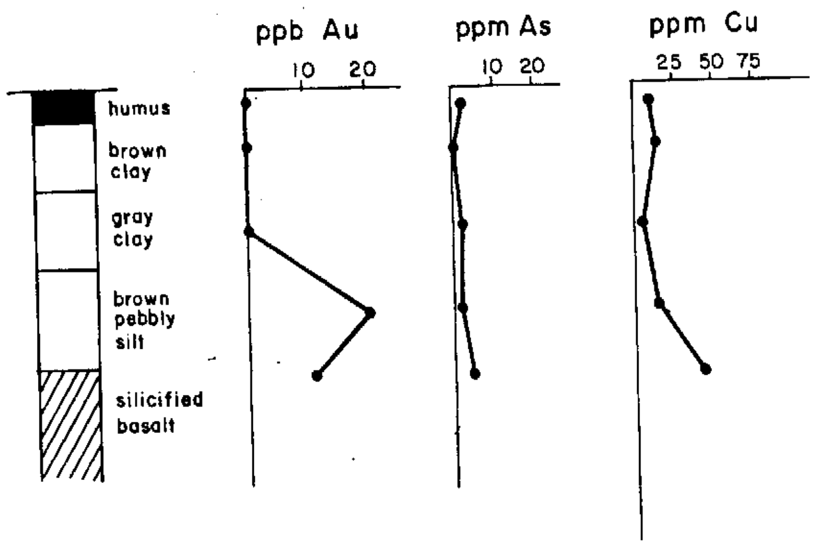
NOTE: Soil pit is located near 1980 soil sample with 1840 ppb Au.

0 ▬ 10 cm

FIGURE 5
SCALE 1:10

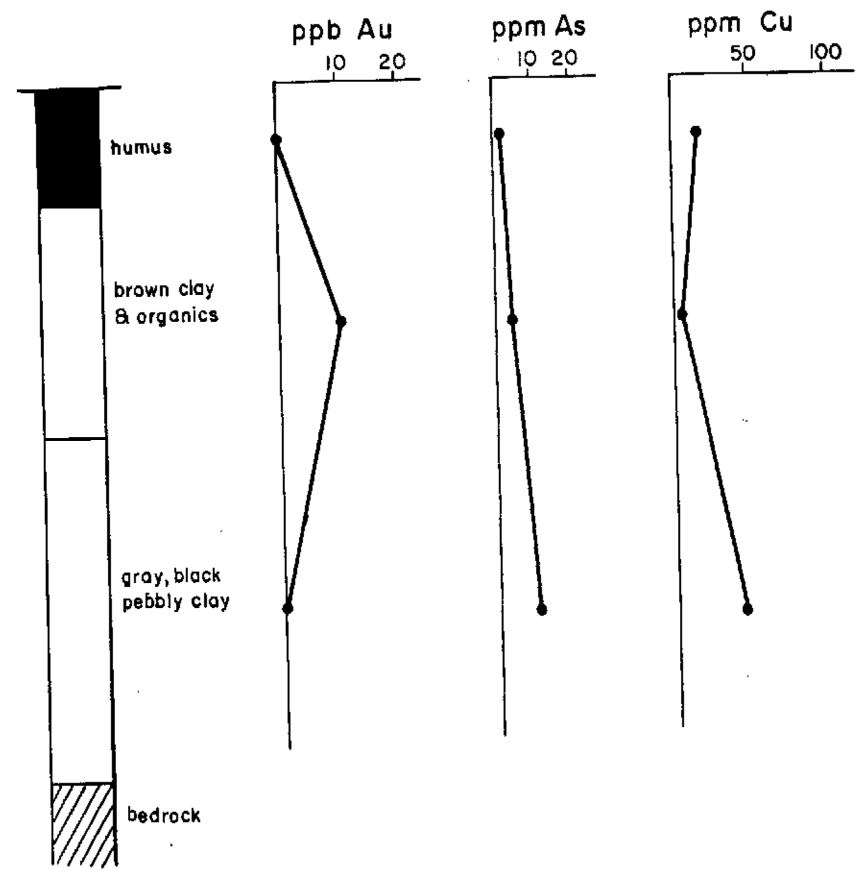
SOIL PIT PROFILES AND GEOCHEMISTRY

SP-5 A zone 1E 4+50S



NOTE: Soil pit is located near soil sample that yielded 1200 ppm As and 190 ppb Au.

SP-7 B zone 7+20E 17+50S



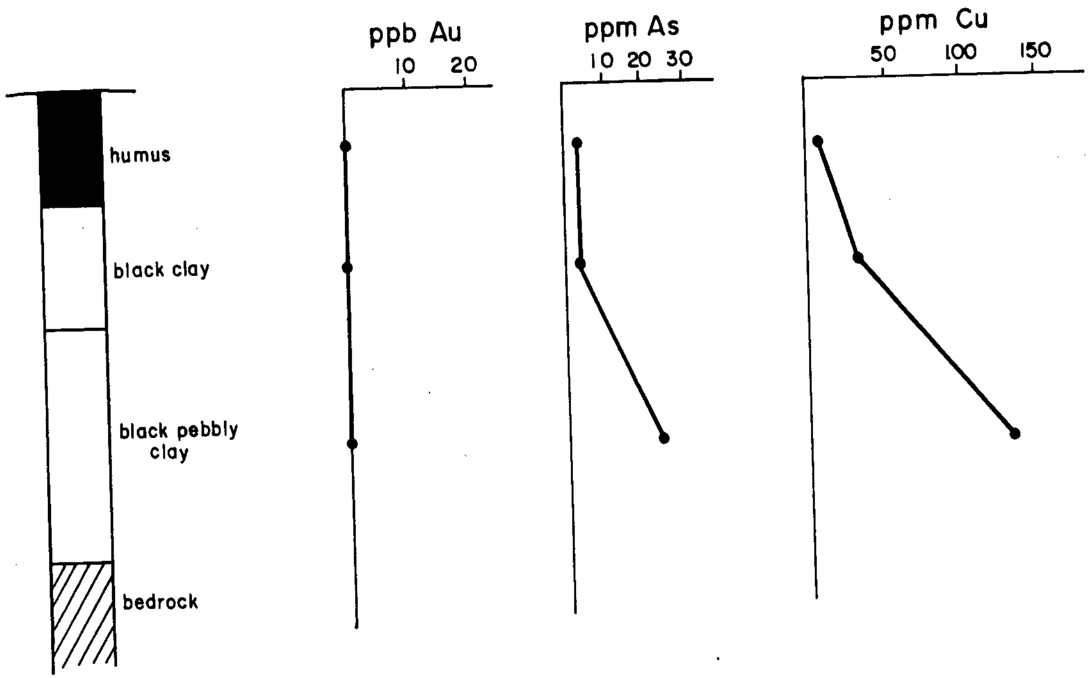
NOTE: Soil pit is located near JMT sample H 1036 2545 ppb Au.

0 —— 10 cm

FIGURE 5
SCALE 1:10

SOIL PIT PROFILES AND GEOCHEMISTRY

SP-8 B zone 23 S 11 E



NOTE: Soil pit is located near JMT sample P 378

0 —— 10 cm

FIGURE 5
SCALE 1:10

An increase in Cu content of the soil with depth is apparent which suggests that Cu may be leached out of the upper horizons. As also tends to show an increased concentration with depth, but to a lesser extent.

The gold distribution, in contrast, is somewhat erratic with no consistent trend within soil pits. It would appear that no correlation exists between Au content of the soil and depth.

The sparsity of anomalous soil values from pits dug in areas of known geochemical highs suggests very localized anomalies and very erratic gold distribution in the soil.

Data Treatment

Threshold values for the metals were selected partly on the basis of cumulative logarithmic probability plots (not included in this report) and partly from experience.

Au. Regional exploration, in particular, has indicated, by way of a vast proportion of Au values of 10 ppb or less, that the valid threshold for this metal may be extremely low. A 1980 graph covering 565 soil samples from the Security property suggested a threshold value of 30 ppb. This year a value of 25 ppb was chosen for both rocks and soils.

As. The As distribution is remarkable in that for soils (and to a lesser extent for rocks) the distribution is almost perfectly log normal over a range from 10 to +300 ppm. The implication is of a single dispersion mechanism. Perhaps the As is present in only one chemical compound in the soil and only one (arsenopyrite?) in the rock. Despite this simple distribution, many of the samples are obviously strongly anomalous. Arbitrary thresholds were chosen at 100 ppm in rock and 200 ppm in soil. Approximately 10% of the rocks and 10% of the soils yielded values greater than the above values.

Cu. The graph showing the distribution of Cu in rock has major breaks at 40 ppm and 120 ppm, above which lie 58% and 32% (respectively) of the samples. Inasmuch as even the former possible threshold (120 ppm) represents too wide a distribution, and because Karmutsen rocks (underlying much of the property) are typically high background, a threshold of 200 ppm was selected. 11% of all collected rocks exceed this value. The soil Cu graph has 2 similar breaks. The higher one, bordering the upper 10% of the samples, is near 100 ppm and this value was therefore chosen for soils.

Ag. A partial suite of Ag analyses from broadly distributed samples on the property, yielded very low values for both soils and rocks. A value of 1.0 ppm was arbitrarily selected as threshold.

The above chosen values were used for the principal contours for the soil maps (Figs. 7a and b) and for designating anomalous rocks in Fig. 7c.

The soil contours on C grid are somewhat misleading in that this grid was oriented for ease of access, not sampling utility. The dominant trend for the anomalies should almost certainly be NNE, parallel to the majority of the dykes and veins.

RECOMMENDATIONS

I. Detail Work (1:1000 scale)

The major quartz veins should be subject to detailed mapping with emphasis on wall-rock alteration, quartz content, and structure (flexures, width variations, etc.). Accurate surveying is a necessary adjunct to this mapping, as is detailed rock chip sampling where not already done. Fluid inclusion studies should be considered.

II. Other Surface Work

Routine mapping and sampling can be continued in some remaining promising areas, e.g.:

1. South of CI - CII zone.
2. SW of and within BII zone.
3. S. edge of AI - BI zone
4. In BIV, BV and BVI areas.
5. Around other isolated, undesignated anomalies.
6. In areas for which our coverage is extremly sparse, or in areas having as yet uninvestigated good 1978 and 1979 reconnaissance results.

Some of the above will be hampered by difficult terrain access, and detail planning will have to be done in the field.

It would be useful in future mapping to attempt to distinguish sericite-chlorite from epidote alteration. This may entail a fair amount of thin section work.

III. Diamond Drilling

Although drilling should theoretically supercede I. above, good general drill targets have already been identified. It should be kept in mind that:

a) Surface Au geochemistry is erratic, and excessive prior surface detailing could give a misleading impression of the validity of any given target.

b) Subsurface information is desperately needed to clarify the question of surface leaching of Au, as no clear answer was forthcoming from the blast-pitting.

c) Because of the extensiveness of the major quartz vein structures, the possibility of localized high grade Au ore is not to be overlooked.

A moderate sized first-phase drilling program (1500 m total, B core or larger) is recommended, to run concurrently with the surface work.

David Arscott

D. Arscott

S. McAllister

S. McAllister

SECURITY INLET CLAIMS
(OVERPROOF, OP #1 to #11)

COST STATEMENT

PROGRAM: May 30 - July 1, 1981

LABOUR COSTS:

Name	Function	Field	Office	Travel	Total
D. Arscott	Supervisor	4	4	4	12
S. McAllister	Geologist	26	2	2	30
T. Sandberg	Assistant	27	2	2	31
R. Watson	"	20		2	22
P. Fagerlund	"	26		2	28
D. Hodge	"	27	1	2	30
J. Mill	"	26		2	28
C. Bradley	"	28		2	30
B Coates	"	27	1	2	30
S. Monger	Cook	28		2	30
		239	10	22	271

Total labour cost (Ave. $90/person day) $24,390.00

EXPENSES:

Analyses 631 soil and silt samples for Au, As, Hg. ($9.65)	6,089.15
277 rock samples for Au, As, Hg ($11.30)	3,130.10
Helicopter* 37.7 hrs. @$415.	15,645.50
Fixed wing $960.00	960.00
Hotels - approx. $300.	300.00
Airfares (pro-rated) 30% x $220.30 x 10	660.90
Food 271 days @$15.	4,065.00
Freight - approx. $300.	300.00
Camp - 271 days @$10.	2,710.00
Field supplies - 211 days @$11.	2,321.00
Trucks - approx. $100.	100.00
Total Expenses	$36,281.65

TOTAL (MINIMUM) PROGRAM COST $60,671.65

*High cost necessary for almost daily access to large, steep area.

D. Arscott

D. ARSCOTT, P.Eng.

CERTIFICATE

I, David Philip Arscott am a Professional Engineer, registered in British Columbia with office address at 901 - 355 Burrard Street, Vancouver, B. C. V6C 2G8.

I have practiced Mineral Exploration almost continuously since 1961, and hold degrees in Mining Engineering (1963) and Mineral Exploration (1966).

The 1981 program on the Security property was carried out under my direction.

David Arscott

DAVID ARSCOTT, P.Eng.
September 1981

STATEMENT OF QUALIFICATIONS

I, Sandra Gael McAllister, am a professional geologist with office at 901 - 355 Burrard St., Vancouver, B. C. V6C 2G8.

I am a graduate of Queen's University (B.Sc.(Hon) 1981) and have worked in mineral exploration, mainly seasonally, since 1978.

S.G. McAllister

SANDRA GAEL McALLISTER
October, 1981

VANGEOCHEM LAB LTD. 1521 PEMBERTON AVE., NORTH VANCOUVER, B.C., CANADA 604-986-5211
V7P 2S3

To: Chevron Standard Ltd.
Mineral Staff
#901 - 355 Burrard St.
Vancouve, B.C. V6L 2G8

From: Vangeochem Lab Ltd.
1521 Pemberton Avenue
North Vancouver, B.C. V7P 2S3

Subject: Analytical procedure used to determine Aqua Regia soluble <u>gold</u> in geochemical samples.

1. Method of Sample Preparation

(a) Geochemical soil, silt or rock samples were received in the labroatory in wet-strength 4 x 6 Kraft paper bags or rock samples sometimes in 8" x 12" plastic bags.

(b) The dried soil and silt samples were sifted by hands using a 8" diameter 80-mesh stainless steel sieve. The plus 80-mesh fraction was rejected and the minus 80-mesh fraction was transferred into a new bag for analysis later.

(c) The dried rock samples were crushed by using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for later analysis.

2. Method of Digestion

(a) 5.00 grams of the minus 80-mesh samples were used. Samples were weighed out by using a top-loading balance into beakers.

(b) 20 ml of Aqua Regia (3:1 $HCl:HNO_3$) were used to digest the samples over a hot plate vigorously.

(c) The digested samples were filtered and the washed pulps were discarded and the filtrate was reduced to about 5 ml.

(d) The Au comples ions were extracted into diisobutyl ketone and thiourea medium. (Anion exchange liquids "Aliquot 336").

.....2

(e) Separate Funnels were used to separate the organic layer.

3. Method of Detection

The gold analyses were detected by using a Techtron model AA5 Atomic Absorption Spectrophotometer with a gold hollow cathode Lamp. The results were read out on a strip chart recorder. A hydrogen lamp was used to correct any background interferences. The gold values in parts per billion were calculated by comparing them with a set of gold standards.

4. The analyses were supervised or determined by Mr. Conway Chun or Mr. Eddie Tang and his laboratory staff.

for Eddie Tang
VANGEOCHEM LAB LTD.

ET: jl

VGC

986-5211

VANGEOCHEM LAB LTD. 1521 PEMBERTON AVE., NORTH VANCOUVER, B.C., CANADA 604-988-2172
V7P 2S3

TO: Chevron Standard Ltd.
Mineral Staff
#901 - 355 Burrard St.
Vancouver, B.C. V6L 2G8

FROM: Vangeochem Lab Ltd.
1521 Pemberton Ave.
North Vancouver, B.C. V7P 2S3

SUBJECT: Analytical procedure used to determine hot acid soluble arsenic in geochemical silt, soil, lake sediments and rock samples.

1. Sample Preparation

(a) Geochemical soil, silt, lake sediments or rock samples were received in the laboratory in wet-strength 3½ x 6½ Kraft paper bags and rock samples in 4" x 6" Kraft paper bags.

(b) The wet samples were dried in a ventilated oven.

(c) The dried soil and silt samples were sifted by hands using a 8" diameter 80-mesh stainless steel sieves. The plus 80-mesh fraction was rejected and the minus 80-mesh fraction was transferred into a nwq bag for analysis later.

(d) The dried rock samples were crushed by using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for later analysis.

2. Method of Digestion

(a) 0.25 gram of the minus 80-mesh sample was used. Samples were weighed out by using a top-loading balance.

(b) Samples were heated in a sand bath with concentrated perchloric acid (70 - 72% $HClO_4$ by weight) at a medium heat for four hours.

(c) The digested samples were diluted with demineralized water.

...2

3. Method of Analysis

(a) Potassium iodide and stannous chloride in HCL were added to the digested samples.

(b) Zinc metal was introduced and the arsenic in solution was gassed off as arsene through a glass wool scrubber plug saturated with lead acetate and into a solution of silver diethyldithiocarbamate in chloroform with 1-ephedrine, forming a red complex with the silver diethyldithiocarbamate.

(c) The concentration of the arsenic was determined colorimetrically by comparing the intensity of the color of the red complex with a set of known standards prepared in a similar fashion as the samples.

4. The analyses were supervised or determined by Mr. Eddie Tang or Mr. Conway Chun and their laboratory staff.

for [signature] Eddie Tang
VANGEOCHEM LAB LTD.

VANGEOCHEM LAB LTD. 1521 PEMBERTON AVE., NORTH VANCOUVER, B.C., CANADA V7P 2S3
986-5211
604-XXXXXXXX

October 16, 1981

To: Chevron Standard Ltd.
901 Marine Building
355 Burrard Street
Vancouver, B.C. V6C 2G8

From: Vangeochem Lab Ltd.
1521 Pemberton Avenue
North Vancouver, B.C. V7P 2S3

Subject: Analytical procedure used to determine hot acid soluble Cu & Ag in geochemical silt, soil, and rock samples.

1. <u>Sample Preparation</u>

(a) Geochemical rock, silt, and soil samples were shipped to the lab by the above client. The rock samples were either stored in 8" x 13" plastic bags or in 4" x 9" cotton mailing bags. The silt and soil samples were stored in the wet-strength 3½" x 6½" Kraft paper bags.

(b) The wet samples were dried in a ventilated oven over-night.

(c) The dried soil or silt samples were sifted by hands, using a 8" diameter 80-mesh stainless steel sieve. The plus 80-mesh fraction materials were rejected and the minus 80-mesh fraction materials were transferred into coin envelopes for analyses later.

(d) The dried rock samples were crushed by a jaw crusher and pulverized by using a disc mill to minus 100-mesh. The pulverized samples were stored in the 4" x 6" paper bags for later analysis.

.....2

2. Method of Digestion

(a) 0.50 gram of the minus 80-mesh samples was used. Samples were weighed out by using a top-loading balance.

(b) Samples were heated in a sand bath with nitric and perchloric acids (15% to 85% by volume of the concentrated acids respectively.)

(c) The digested samples were diluted with demineralized water to a fixed volume and shaken.

3. Method of Analysis

Cu & Ag analyses were determined by using a Techtron Atomic Absorption Spectrophotometer Model AA4 with their respective hollow cathode lamps. The digested samples were aspirated directly into an air and acetylene mixture flame. The results, in parts per million, were calculated by camparing a set of standards to calibrate the atomic absorption units.

4. Back Ground Correction

A Hydrogen continuum lamp is used to correct the Silver background interferences.

5. Analysts

The analyses were supervised or determined by Mr. Conway Chun or Mr. Eddie Tang and the laboratory staff.

Eddie Tang
VANGEOCHEM LAB LTD.

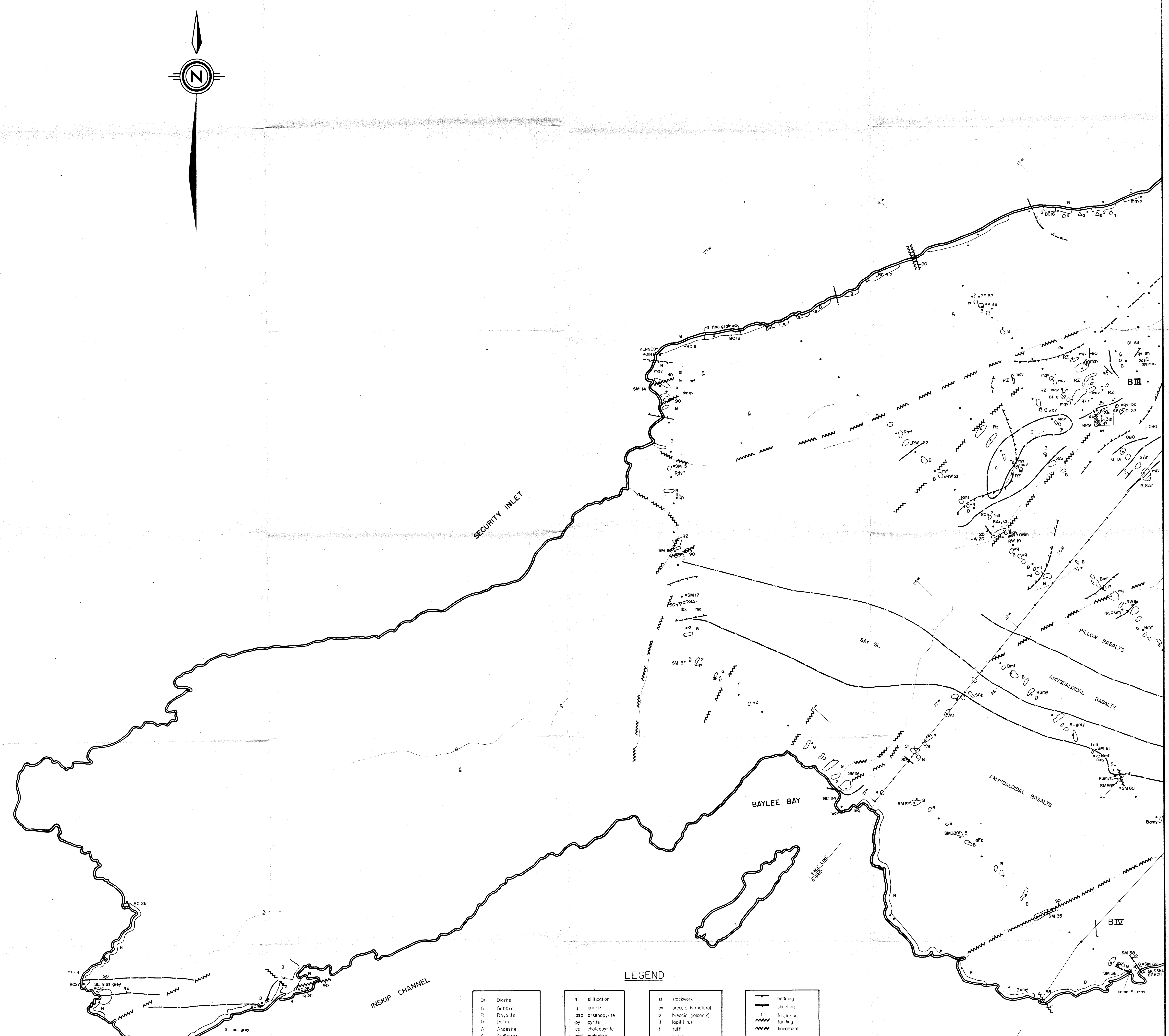
ET:jl

GRID CONTROL

All grid control was by variably spaced slope chained and compassed lines with 50 to 100 m station intervals. The stations were marked by double orange and blue flagging (pink and blue for fill-in work), and inter-station lines with single orange flagging. Pickets were used on the "C" grid base line in addition to the flagging.

The base maps were then fitted to contoured 1:5,000 scale orthophotos. A reasonably good fit with close topographic control was obtained.

9830



LEGEND

Di	Diorite
G	Gabbro
R	Rhyolite
D	Dacite
A	Andesite
S	Sediment
SAr	arillaceous
SCh	cherty
SS	sandy
SI	silty
SL	limy
SCo	conglomerate
B	Basalts

s	silification
q	quartz
asp	arsenopyrite
py	pyrite
cp	chalcopyrite
mal	malachite
stib	stibnite
T	tourmaline
h	hematite
cl	chlorite
ca	calcite
ank	ankerite
ep	epidote
ser	sericite
(r)	rust
alt	altered
F	fieldspar

st	stockwork
bx	breccia (structural)
b	breccia (volcanic)
lt	lapilli tuff
t	tuff
p	porphyry
Z	flowbanded
k	fragmental
ag	agglomeratic
dy	dyke
u	flow
am	amygdaloidal
pil	pillowed

	bedding
	sheeting
f	fracturing
	faulting
	lineament
w	weak
m	moderate
i	strong
l	local
mas	massive
PF-30	Rock sample
BP⊗	Blast pit

0 100 200 300 m.

GENERAL LEGEND

Soil sample	•	Peak	▲
Rock sample	•	Ridge	
Silt sample	×	Creek	
Float	△		
Blast pit	⊙		

S McAllister

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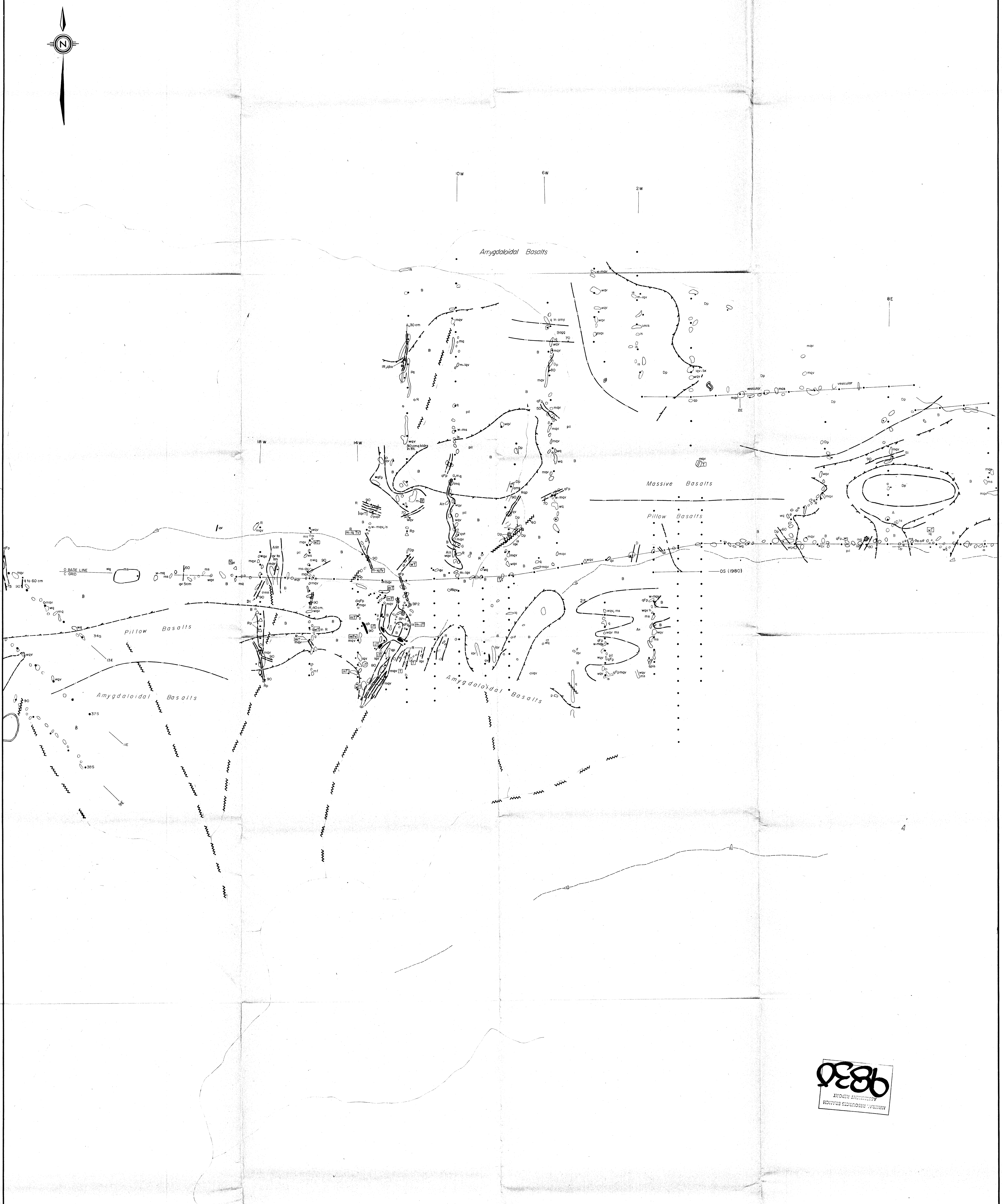
SECURITY PROJECT Q.C.I.

GEOLOGY; LITHOLOGY, STRUCTURE, SILICA & TOURMALINE

FIGURE No **Sheet 1, Fig. 6a**		PROJECT No **M486**	
DATE **Sept., 1981**	REVISIONS		SCALE
NTS No			FILE No
COMPILED BY			

BCIL-6751 AO-C.C.



FOR LEGEND REFER TO SHEET 1

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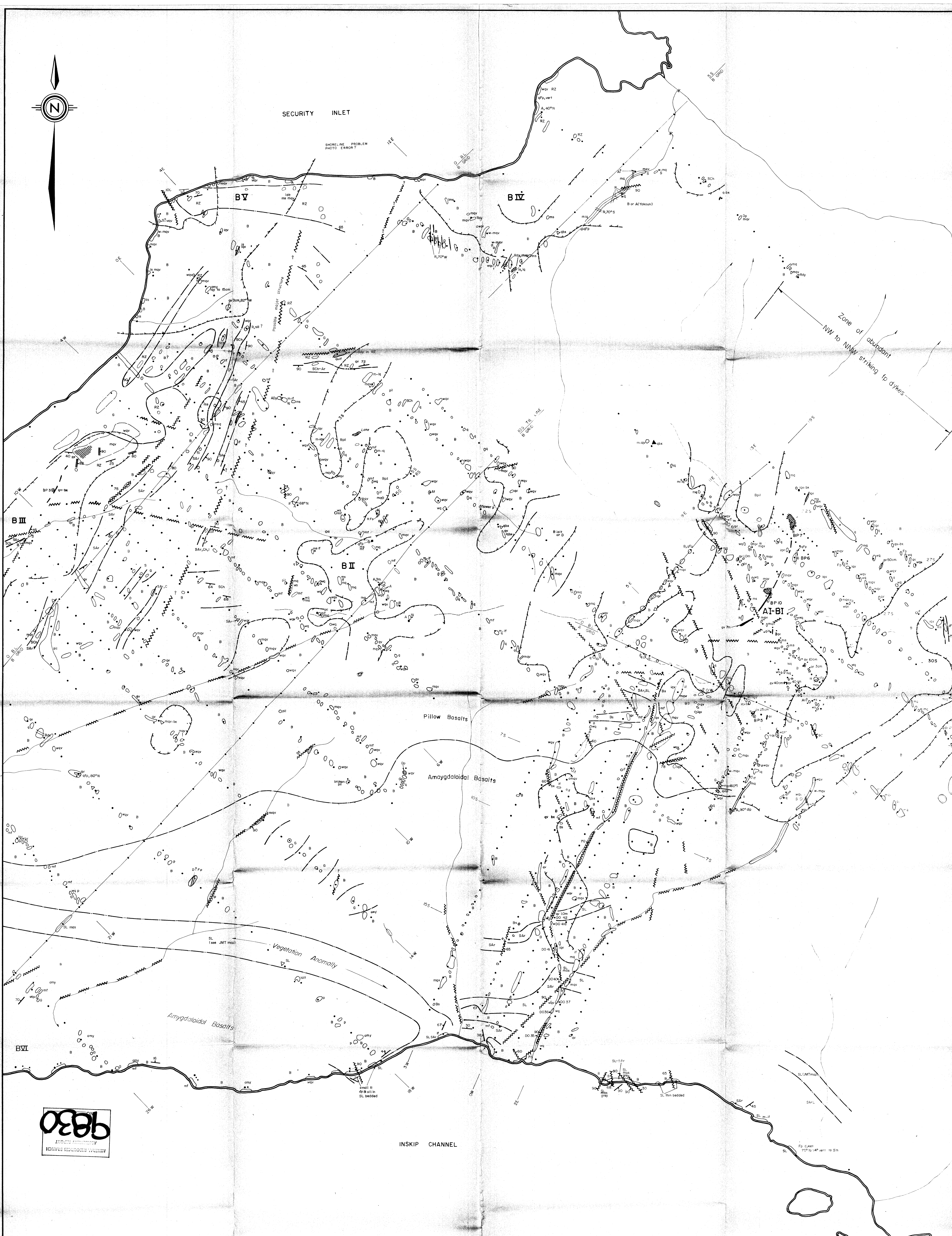
SECURITY PROJECT Q.C.I.

GEOLOGY: LITHOLOGY, STRUCTURE, SILICA, & TOURMALINE

0 100 200 300 m

FIGURE No. 6a	SHEET 3	PROJECT No. M486	
DATE SEPT 1981	REVISIONS		SCALE 1:5000
NTS No.			FILE No.
COMPILED BY D.A.			



9830

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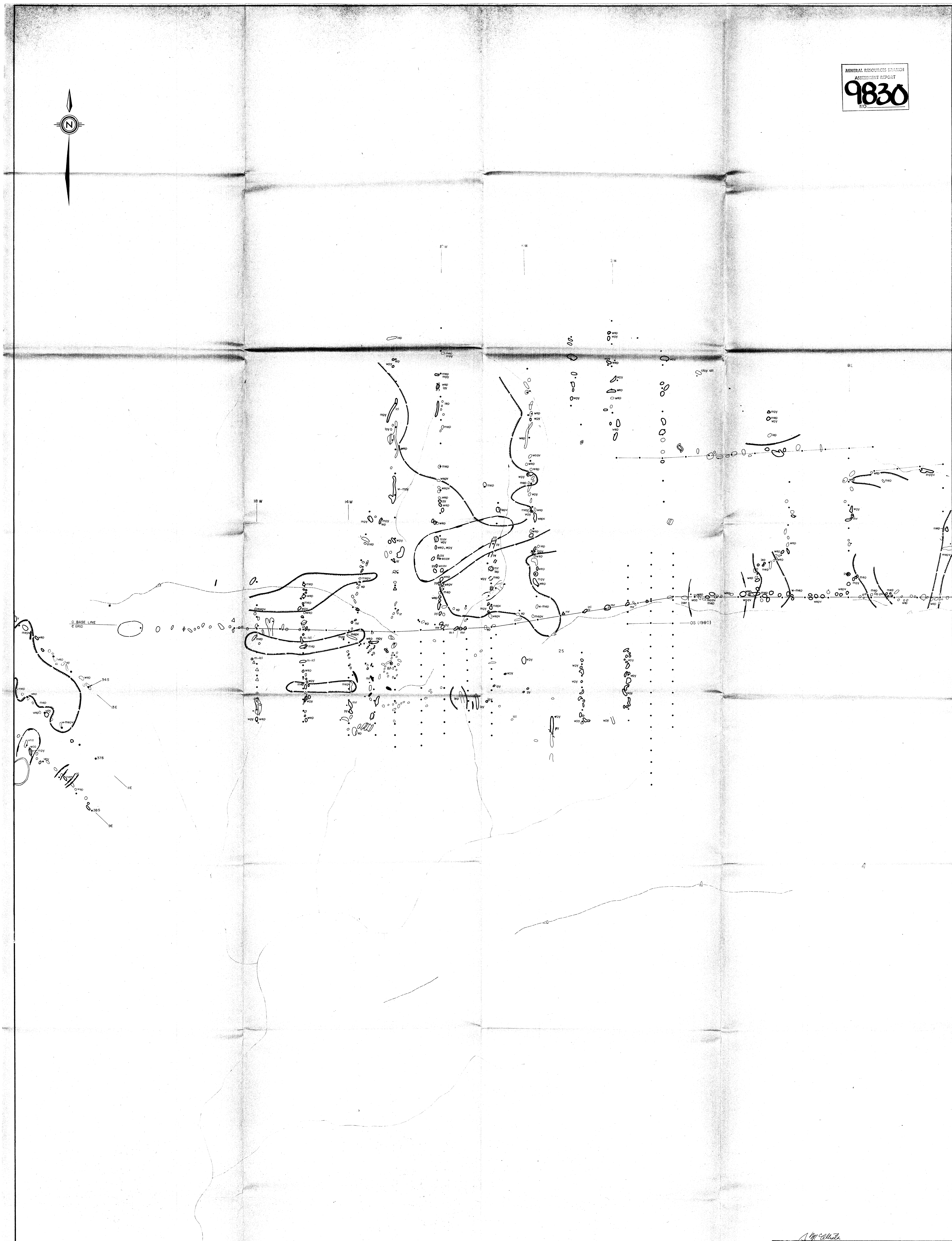
SECURITY PROJECT Q.C.I.
GEOLOGY: LITHOLOGY, STRUCTURE, SILICA & TOURMALINE

0 100 200 300

FIGURE No. 6a	SHEET 2	PROJECT No. M486	
DATE SEPT. 1981	REVISIONS		SCALE 1: 5000
NTS No.			FILE No.
COMPILED BY D.A.			



FOR LEGEND REFER TO SHEET 1

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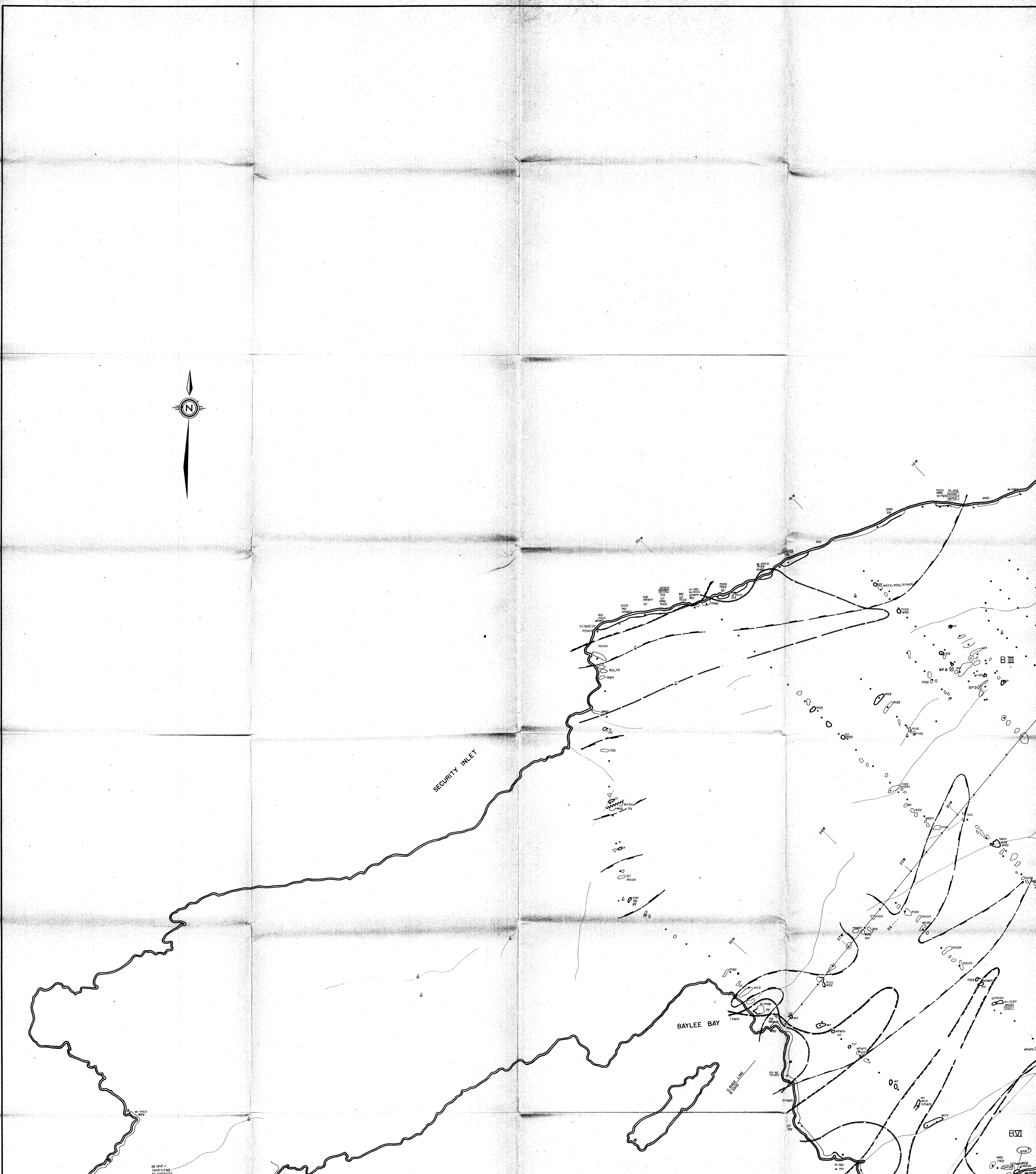
SECURITY PROJECT Q.C.I.

ALTERATION, EXCEPT SILICA & TOURMALINE

0 100 200 300 m

FIGURE No 6b SHEET 3		PROJECT No M486	
DATE SEPT 1981	REVISIONS		SCALE 1:5000
NTS No			FILE No
COMPILED BY D.A.			



LEGEND

Di	Diorite
G	Gabbro
R	Rhyolite
D	Dacite
A	Andesite
S	Sediment
SAr	arillaceous
SCh	cherty
SS	sandy
SI	silty
SL	limy
SCo	conglomerate
B	Basalts

s	silification
q	quartz
asp	arsenopyrite
py	pyrite
cp	chalcopyrite
mal	malachite
stib	stibnite
T	tourmaline
h	hematite
cl	chlorite
ca	calcite
ank	ankerite
ep	epidote
ser	sericite
(r)	rust
alt	altered
F	fieldspar

st	stockwork
bx	breccia (structural)
b	breccia (volcanic)
lt	lapilli tuff
t	tuff
p	porphyry
Z	flowbanded
k	fragmental
ag	agglomeratic
dy	dyke
u	flow
am	amygdaloidal
pil.	pillowed

	bedding
	sheeting
f	fracturing
	faulting
	lineament
w	weak
m	moderate
i	strong
l	local
mas	massive
PF-30	Rock sample
BP⊗	Blast pit

0 100 200 300m

GENERAL LEGEND

Soil sample	•
Rock sample	▪
Silt sample	x
Float	△
Blast pit	⊘
Peak	
Ridge	- - - -
Creek	———
Sulphides or rust in outcrop	
Carbonate, generalized main zones	
Epidote, generalized main zones	
Hematite, generalized main zones	

S. M. Elliott

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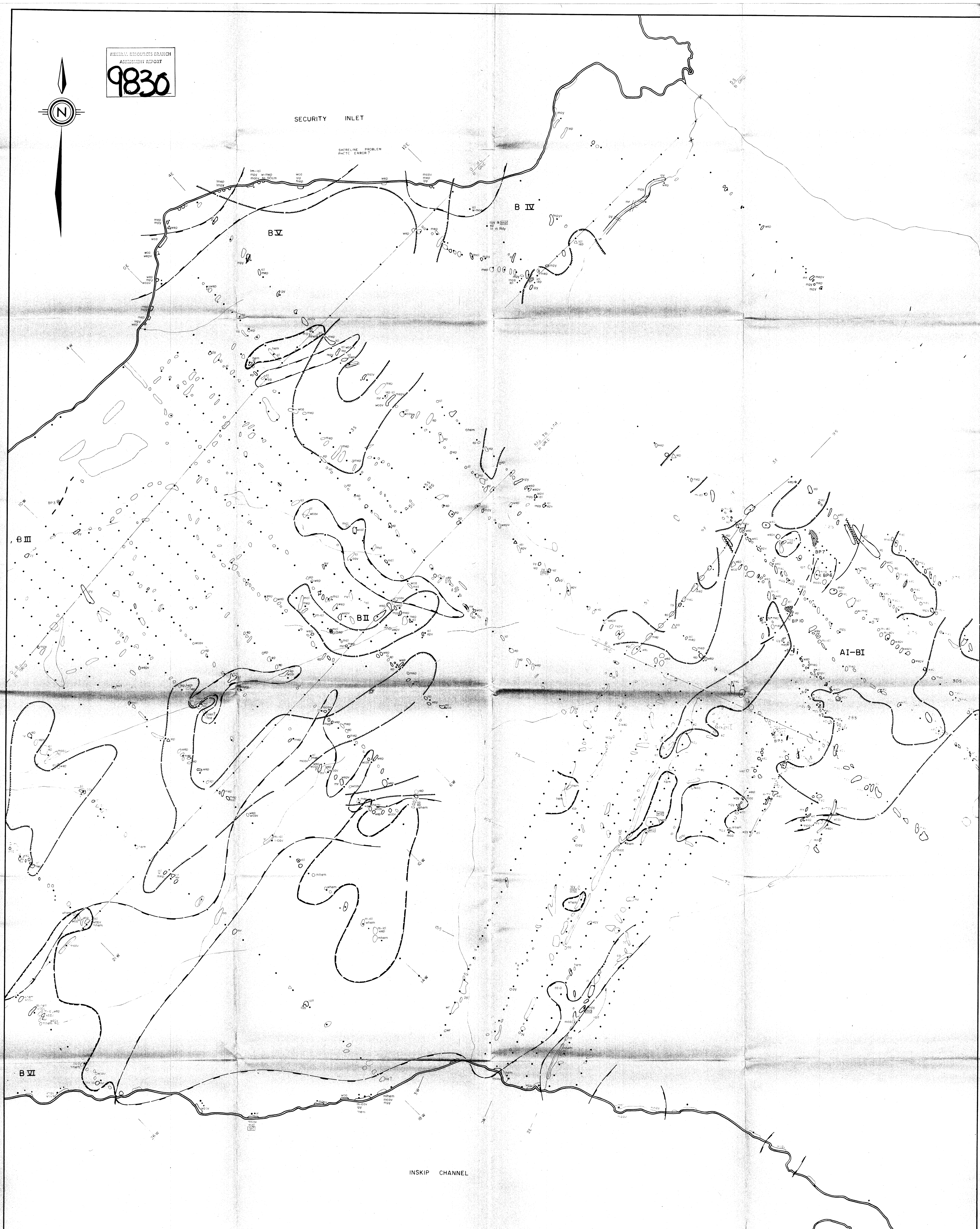
GEOLOGY: ALTERATION (EXCEPT SILICA AND TOURMALINE)

FIGURE No **Sheet 1 Fig. 6b**		PROJECT No **M486**	
DATE **Sept., 1981**	REVISIONS		SCALE
NTS No			FILE No



Chevron

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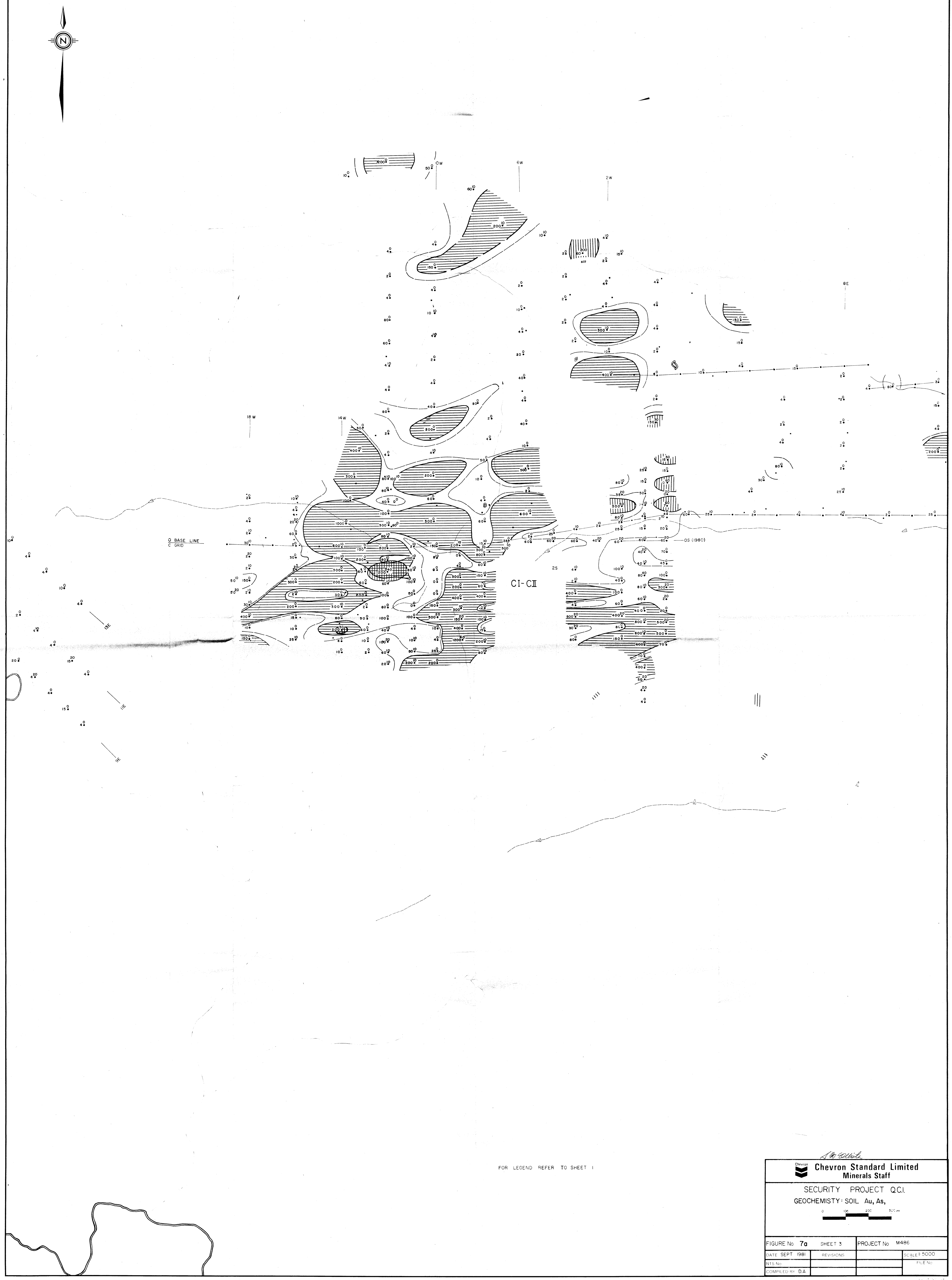
SECURITY PROJECT Q.C.I.
ALTERATION (EXCEPT SILICA & TOURMALINE)

FIGURE No 6b SHEET 2		PROJECT No. M 486	
DATE SEPT 1981	REVISIONS		SCALE 1: 5000
NTS No			FILE No
COMPILED BY D.A.			



FOR LEGEND REFER TO SHEET 1

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SECURITY PROJECT Q.C.I.

GEOCHEMISTY: SOIL Au, As,

0 100 200 300 m

FIGURE No. 7a SHEET 3		PROJECT No. M486	
DATE SEPT 1981	REVISIONS		SCALE 1:5000
NTS No.			FILE No.
COMPILED BY D.A.			

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GEOCHEMISTRY: SOIL Au. As.

FIGURE No 7a	SHEET 2	PROJECT No. M486
DATE SEPT 1981	REVISIONS	SCALE 1:5000
NTS No.		FILE No.
COMPILED BY D.A.		

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GENERAL LEGEND

Soil sample	•	Peak	
Rock sample	▪	Ridge	
Silt sample	×	Creek	
Float	△	Au contours 25ppb.	
Blast pit	⊗	As contours 100ppm.	
		50ppm	

As ppm • Au ppb.

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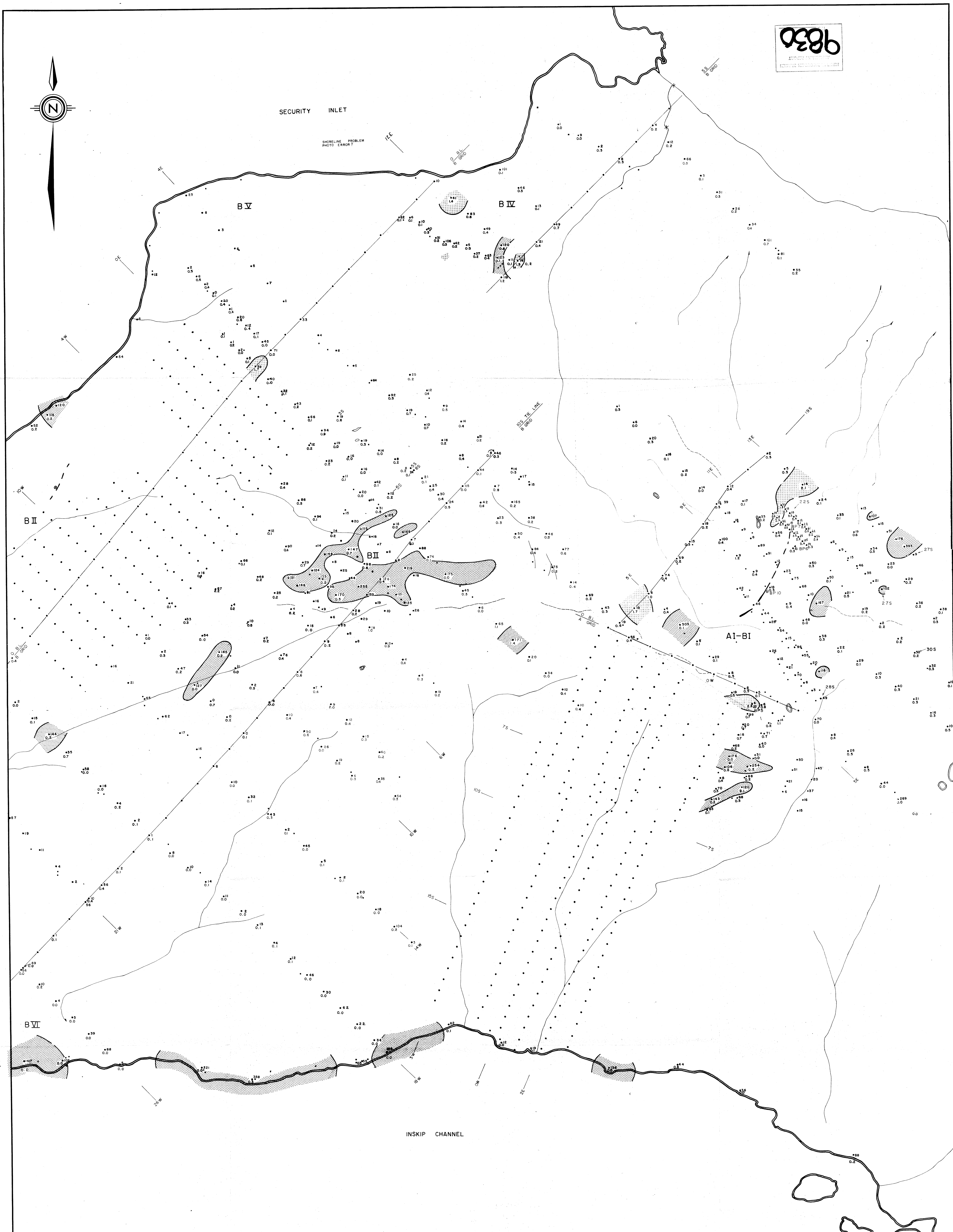
GEOCHEMISTRY: SOIL Au., As.

FIGURE No **Sheet 1 Fig 7a**		PROJECT No M48	
DATE **Sept., 1981**	REVISIONS		SCALE
NTS No			FILE No
COMPILED BY			



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GEOCHEMISTRY SOIL Cu., Ag.

0 100 200 300m

FIGURE No. 7b	SHEET 2	PROJECT No. M 486	
DATE SEPT. 1981	REVISIONS		SCALE 1: 5000
NTS No.			FILE No.
COMPILED BY D.A.			

GENERAL LEGEND

Soil sample	•	Peak	
Rock sample	▪	Ridge	
Silt sample	x	Creek	
Float	△	Cu 100ppm.+	
Blast pit	⊗	Ag 1.0ppm +	

•Cu ppm.
Ag. ppm.

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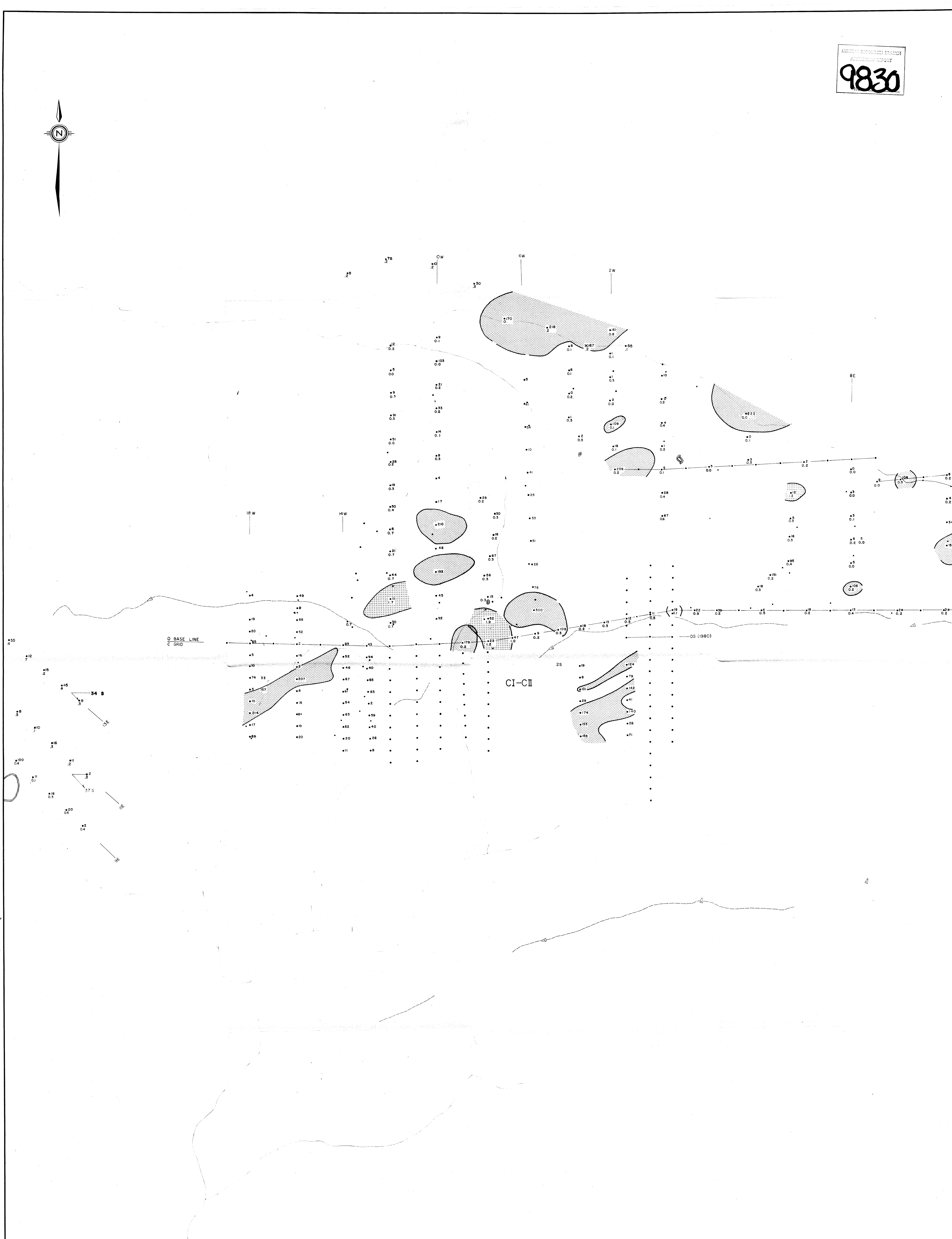
SECURITY PROJECT Q.C.I.

GEOCHEMISTRY: SOIL Cu., Ag

FIGURE No. Sheet 1 Fig. 7b		PROJECT No. M48	
DATE Sept., 1981	REVISIONS		SCALE
NTS No.			FILE No.
COMPILED BY			



FOR LEGEND REFER TO SHEET 1

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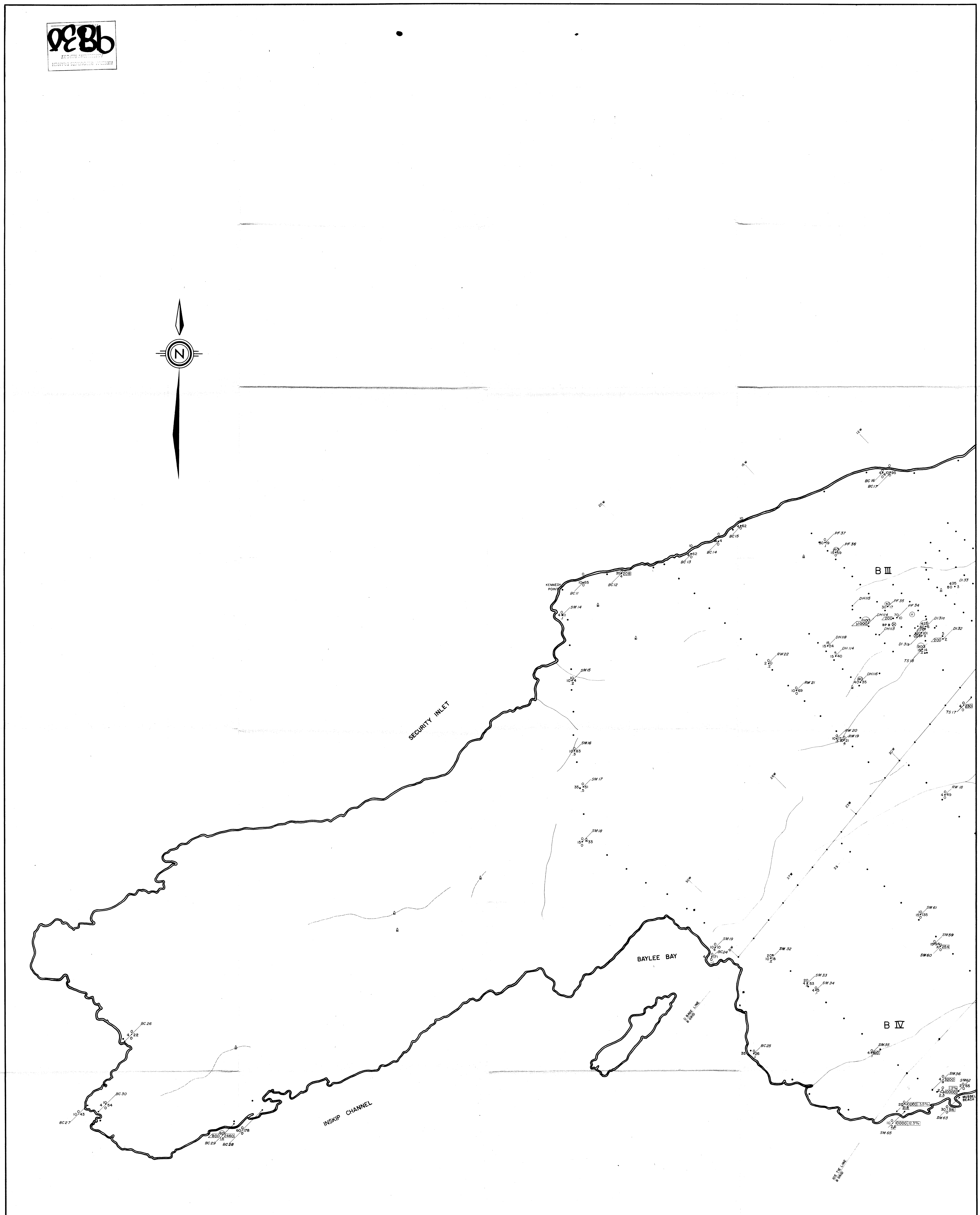
SECURITY PROJECT Q.C.I.

GEOCHEMISTRY Cu., Ag. SOIL

0 100 200 300 m

FIGURE No. 7b	SHEET 3	PROJECT No. M486	
DATE SEPT 1981	REVISIONS		SCALE 1: 5000
NTS No.			FILE No
COMPILED BY D.A.			



GENERAL LEGEND

Soil sample	•	Peak	
Rock sample	▪	Ridge	
Silt sample	x	Creek	
Float	△		
Blast pit	⊗		

Au.ppb.
As ppm ▪ Cu ppm.
Ag.ppm.

- As 200 ppm.
- Cu 200 ppm.
- Ag. 1.0 ppm
- Au 30 ppb.

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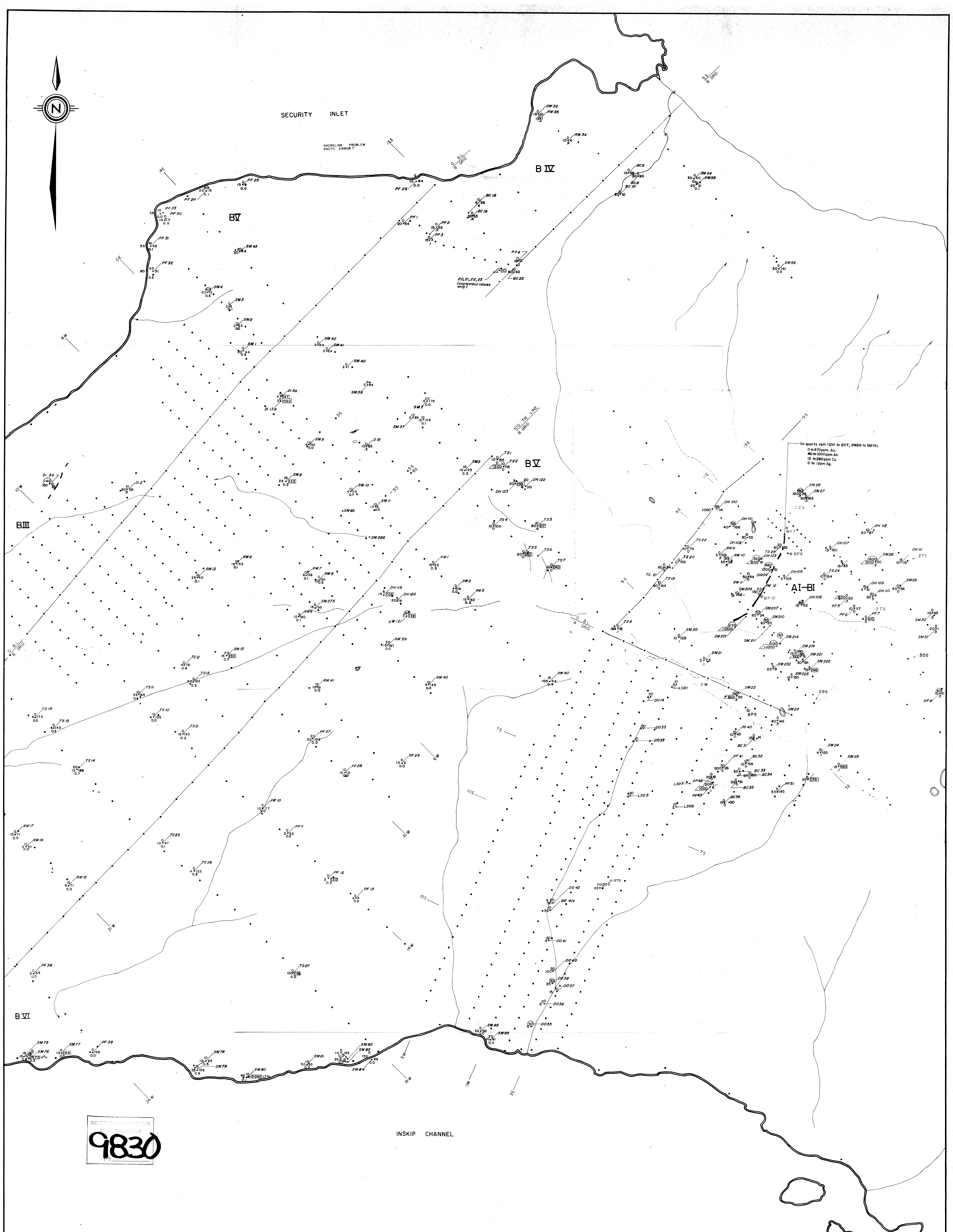
GEOCHEMISTRY: ROCKS Au, As, Cu, Ag

FIGURE No. **Sheet 1 Fig. 7c**		PROJECT No. M486	
DATE **Sept., 1981**	REVISIONS		SCALE
NTS No			FILE No.
COMPILED BY			



FOR LEGEND REFER TO SHEET I

NOTE: LS0 and DO are 1980 series samples

S. M. Ellis

Chevron Standard Limited
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SECURITY PROJECT Q.C.I.

GEOCHEMISTRY: ROCKS Au.,Cu,As.,Ag.

0 100 200 300m

FIGURE No. 7C	SHEET 2	PROJECT No. M 486	
DATE SEPT. 1981	REVISIONS		SCALE 1: 5000
NTS No.			FILE No.
COMPILED BY D.A.			

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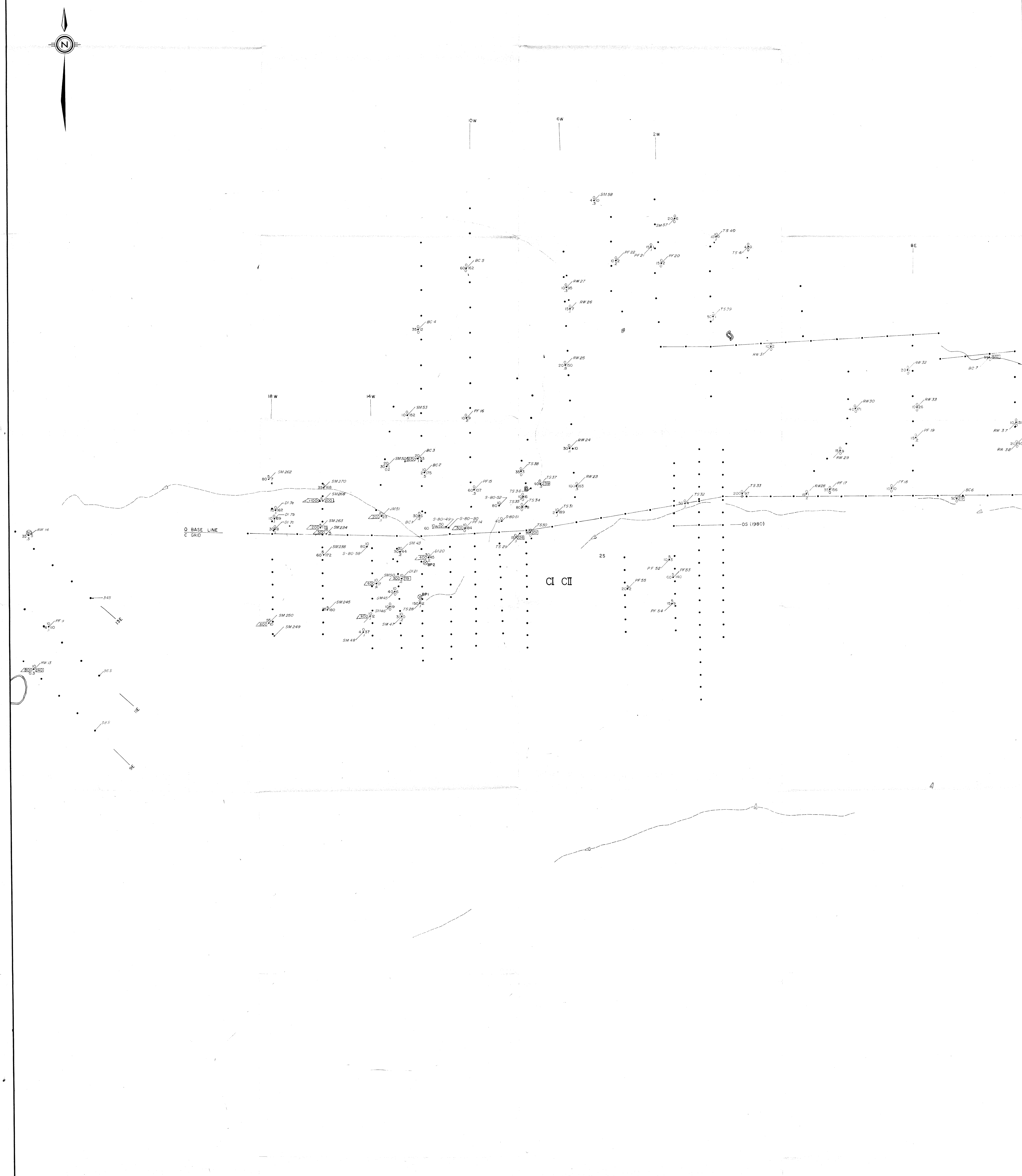

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SECURITY PROJECT Q.C.I.

GEOCHEMISTRY: ROCKS

0 100 200 300 m

FIGURE No 7C	SHEET 3	PROJECT No. M486	
DATE SEPT 1981	REVISIONS		SCALE 1:5000
NTS No			FILE No
COMPILED BY D.A.			