MAP NO.:
105 K 5, 6

ASSESSMENT REPORT X
PROSPECTUS
CONFIDENTIAL X
OPEN FILE

DOCUMENT NO: 092840
MINING DISTRICT: Whitehorse
TYPE OF WORK: mapping

REPORT FILED UNDER: Curragh Resources Incorporated

DATE PERFORMED: 1989

DATE FILED: MAY 23,1990

LOCATION: **LAT.:** 62°24'N

AREA: FARO

LONG.: 133°32'W

VALUE $: $73,000

CLAIM NAME & NO.: RV

WORK DONE BY: Chris J. Rees

WORK DONE FOR: Curragh Resources Incorporated

DATE TO GOOD STANDING:

REMARKS: Area NW of Faro was mapped at 1:5,000 scale in 1989 adjacent to L. Pigage mapping. Area mapped is underlain by same Selwin Basin-equiv. stratigraphy which host PB-Zn deposits in Anvil district. Concludes that Mt Mye-Vangorda trans. zone lacks characteristics as seen at dep. areas but mineralization may be located at depth.

Curragh Resources Inc.

117 Industrial Rd.
Whitehorse, Yukon Y1A 2T8
Tel.: (403) 668-8021
Fax: (403) 668-6518

RECEIVED
MAY 24 1990
MINING RECORDERS OFFICE
WHITEHORSE, Y.T.

May 24, 1990

Whitehorse Mining Recorder
Room 201, Federal Building
308 Main Street
Whitehorse, Yukon Territory
Y1A 2B5

Dear Sir:

RE: RV CLAIMS

Enclosed are two copies of a Report on the assessment work filed in December, 1989 on the RV claims, as shown on the attached sketch.

Also enclosed is a "Statement of Costs" and copies of invoices for major expenses.

Thank you for your cooperation in this matter. If you require anything further, please do not hesitate to call me at 668-8026.

Yours very truly,

CURRAGH RESOURCES INC.

Janet Nyberg

Janet C. Nyberg
Exploration Coordinator

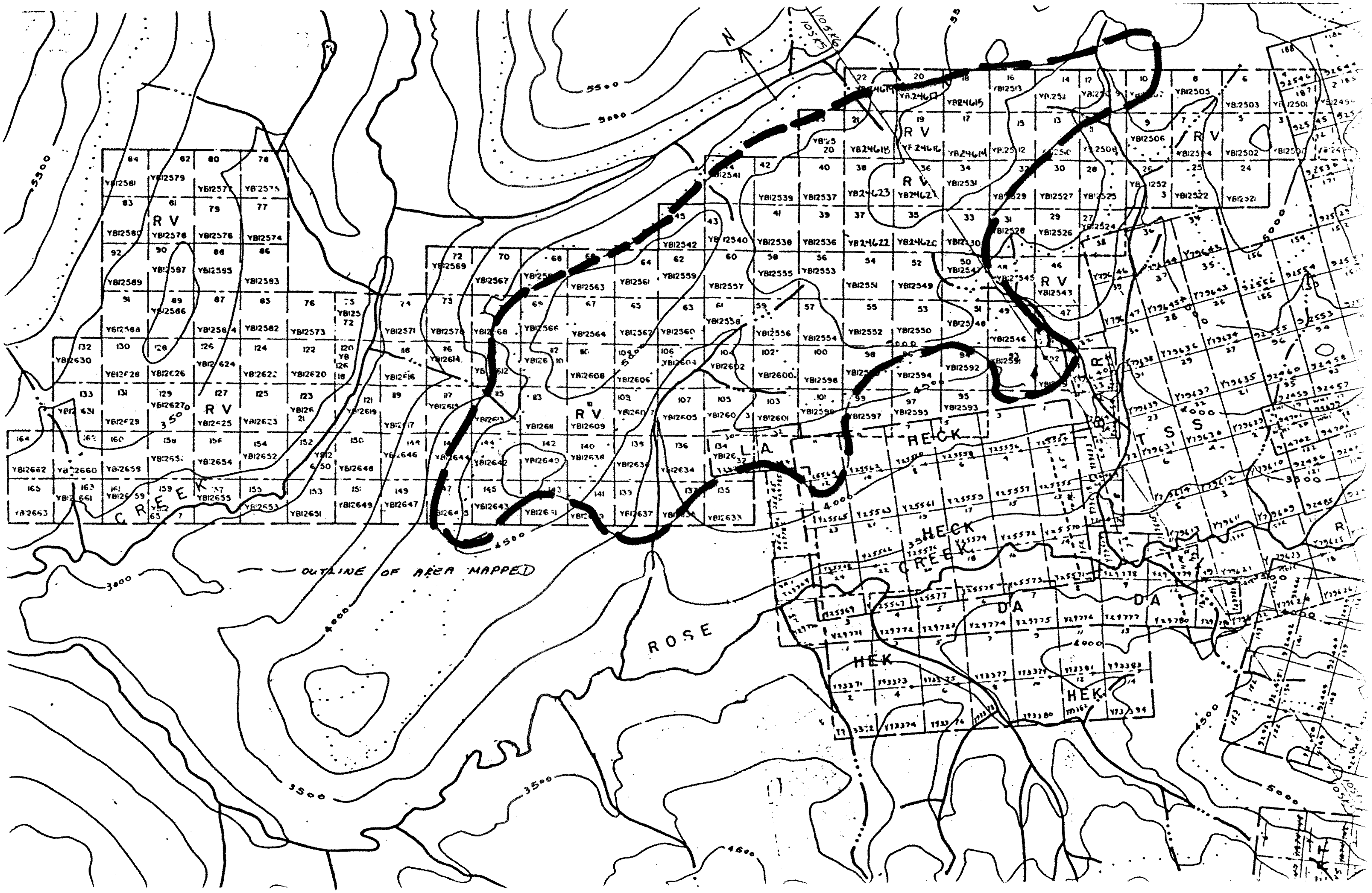
JCN*geb

OFFICE OF THE REGIONAL MANAGER
MINERAL RIGHTS
MAY 24 1990
WHITEHORSE
YUKON TERRITORY

092840

FARO NW 1989 EXPLORATION PART 1 - MAPPING	
SUMMER STUDENTS WAGES	$12,479
GEOLOGIST (C. Rees)	$42,225
PETROGRAPHICS	$3,012
MEALS/ACCOMODATION/TRAVEL	$9,303
RADIO PHONE (SBX-11,NWTEL)	$1,233
FREIGHT	$179
FIELD OFFICE SUPPLIES	$1,237
TRUCK RENTAL	$5,475
ATV RENTAL	$3,530
HELICOPTER	$4,038
MAPPING TOTAL	$82,711

092840



N
105K6
105K5
5500
5000
4500
4000
3500
3000
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6000
R V
L A
HECK
HECK CREEK
CREEK
ROSE
D A
HEK
T S S
OUTLINE OF AREA MAPPED

OFFICE OF THE REGIONAL MANAGER
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MAY 24 1990
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YUKON TERRITORY

GEOLOGY OF THE FARO NORTHWEST AREA
REPORT ON FIELDWORK 1989

N.T.S. 105 K/5, K/6

RECEIVED
MAY 2[illegible] 1990
MINING RECORDER'S OFFICE
WHITEHORSE, Y.T.

Prepared by

Chris J. Rees

for

Curragh Resources Inc.
117 Industrial Road
Whitehorse, Yukon Territory
Y1A 2T8

CONFIDENTIAL

092840

62°24'N
133°32'W

December, 1989

SUMMARY

Part of the area northwest of the Faro Mine was mapped at 1:5000 scale in 1989. The map area adjoins that of Pigage (1989). The area lies on the southwest flank of the Anvil Batholith and is underlain by the same Selwyn Basin-equivalent stratigraphy that hosts stratiform lead-zinc mineralization in the rest of the Anvil District along strike to the southeast.

Granite of the Cretaceous Anvil Batholith outcrops in the north of the map area, overlain southwestwards by Precambrian to lower Paleozoic Mt. Mye formation pelitic and calc-silicate schists, and Vangorda formation calc-silicate schist and phyllite with subunits of metabasite and marble. Thick metabasite intrusions (amphibolite and pyroxenite) characterize the upper part of the Vangorda formation.

Stratified rocks consistently dip gently to moderately to the southwest. The most significant deformation, phase two, produced mainly southwest-verging major and minor folding, under greenschist to lower amphibolite facies, low pressure regional metamorphism. Phase two structures trend northwesterly and plunge sub-horizontally with a slight bias towards the southeast. An earlier deformation, phase one, was responsible for a pre-S2 foliation (S1) and probable northeast-verging major folds in at least one sub-area.

Steep, northeast-trending faults are important, and may be related to similarly oriented, late stage dioritic dike intrusions. The area is subdivided by two major faults, West fault and East fault, which displace the Mt. Mye-Vangorda contact successively to the southwest. It is not known whether they are dominantly dip slip or strike slip faults.

On the surface, the stratigraphic interval of economic interest in the area, the upper 100 m of the Mt. Mye formation, lacks the features associated with mineralization elsewhere, namely sulphide deposits and carbonaceous lithologies. Mineralization, if ever present in this region of the Anvil District, has been lost to erosion or is preserved at depth. The lack of suitable geophysical anomalies suggests that mineralization is not particularly near the surface.

Assuming preservation at depth, exploration drilling should aim to sample the upper Mt. Mye formation at various depths. Initial holes could be sited on the three cross sections given in this report to take advantage of the projections provided. Structural complexity may be least in Map 6 which may make it a slightly more attractive target area.

Previous drilling in this area in the 1970's (3 holes) did not discover significant mineralization down to a depth of about 350 m.

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23. Station 89-377: Highly sheared unit 4 schist (3/1D).
24. Station 89-166: Looking SE at typical, NE-verging F3 minor fold in lower unit 5 calc-silicate (3D).

INTRODUCTION

This report describes the results of a 1:5000 scale geological mapping program conducted in 1989 in part of the area northwest of the Faro mine site. This area comprises rocks of the same stratigraphic interval as those hosting the stratiform lead-zinc massive sulphide deposit at Faro, as well as others in the Anvil District (Figs. 1 and 2), but here no mineralization is exposed at the surface. The purpose of the program is to provide more information on the stratigraphy and structure of this area in order to guide future exploration of its economic mineral potential. This report extends and complements the mapping by Pigage (1989) which covered the area immediately to the east, to as far as the Faro mine pit. Such detailed mapping, combined with diamond drilling programs, serves to improve the understanding of the geological framework of the Anvil mineral deposits.

LOCATION, PHYSIOGRAPHY AND ACCESS

The area mapped in 1989 is approximately 7 x 5 km, covering part of the RV claims immediately northeast of Rose Creek and southeast of Anvil Creek (Fig. 3). It is 10 km west-northwest of the Faro mine site and 22 km northwest of the town of Faro. A gravel road extends to the southeastern corner of the project area, beyond which a rough dirt road provides access for approximately 14 km through the area by ATV and 4x4 vehicles. The area is mountainous but not rugged, with mostly smooth ridges rising from 1000 m to 1790 m ASL. Tree line is at approximately 1450 m, depending on aspect. Traversing, aided by an ATV, was conducted from a centrally located, two-person camp which was put in using the Trans North Air helicopter based in Ross River.

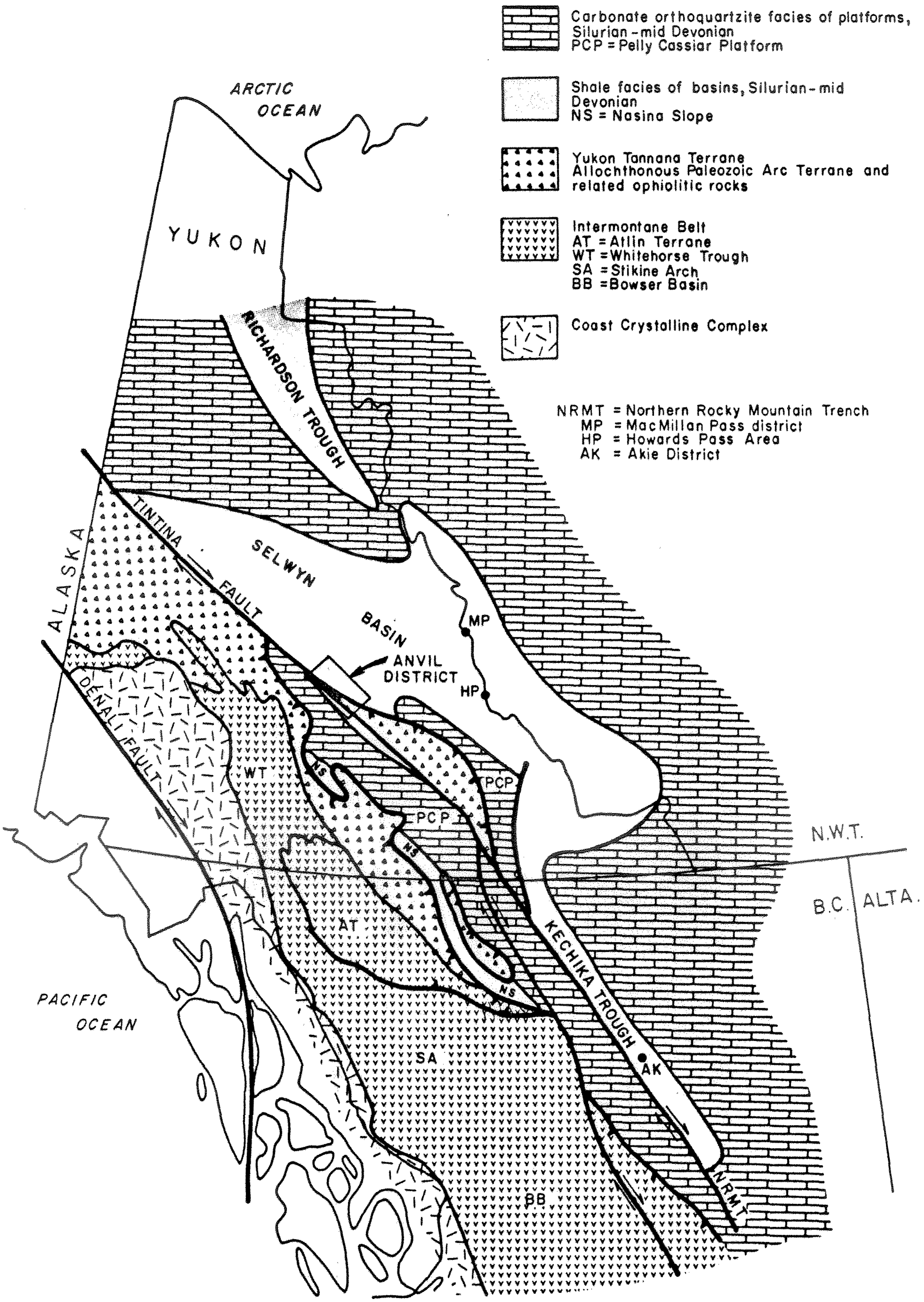

Fig. 1: Map of the northern Cordillera showing the Anvil District in relation to the Selwyn Basin and other major tectonostratigraphic features.

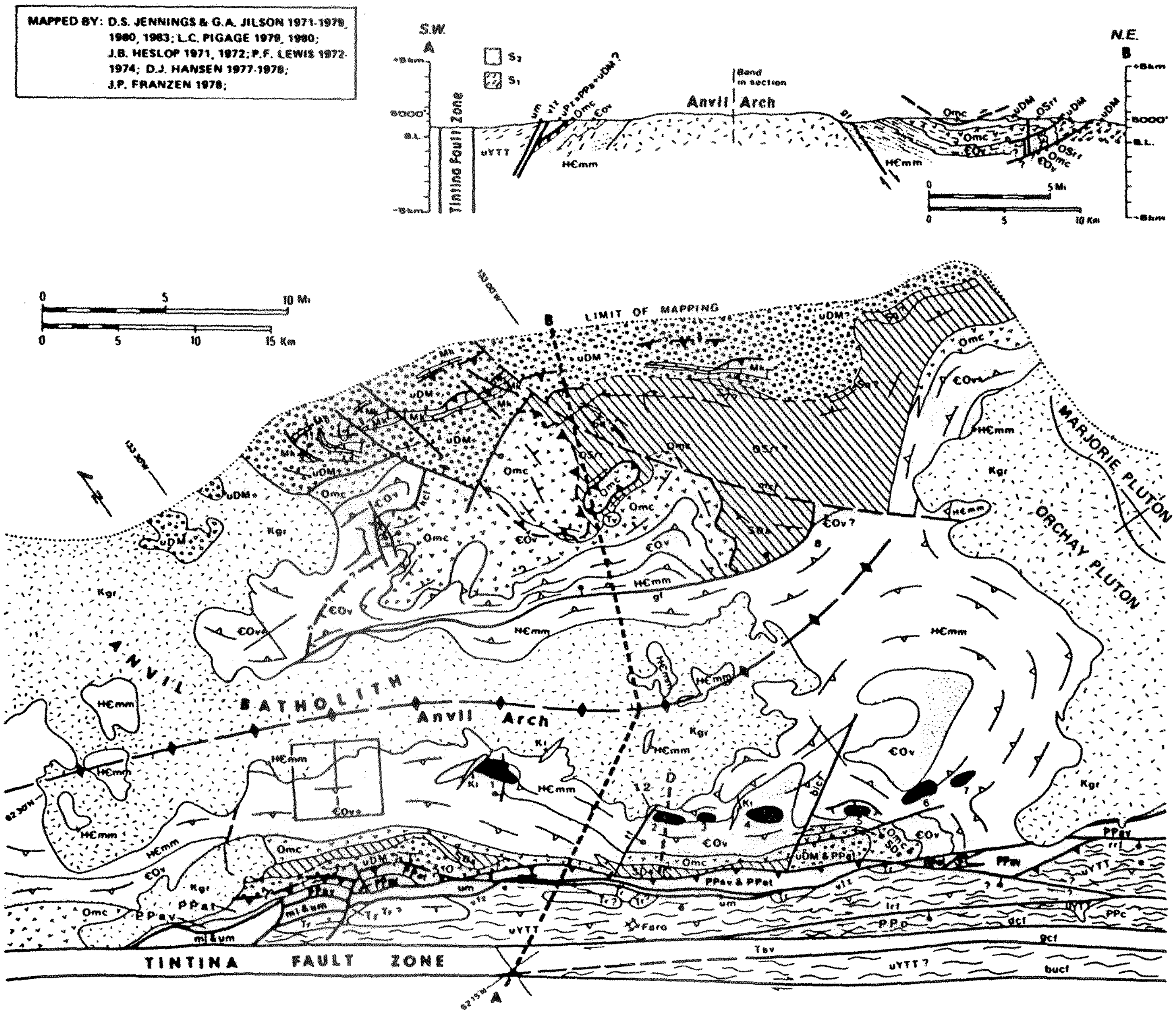

Fig. 2: General geological map and cross section of the Anvil District, from Jennings and Jilson (1986; see for complete legend). Present map area outlined. Blank = Mt. Mye formation (HCmm); stipple = Vangorda formation (COv). Lead-zinc deposits in black: 1 = Faro, 2 = Grum, 3 = Vangorda, 4 = Dy, 5 = Swim, 6 = SB, 7 = Sea.

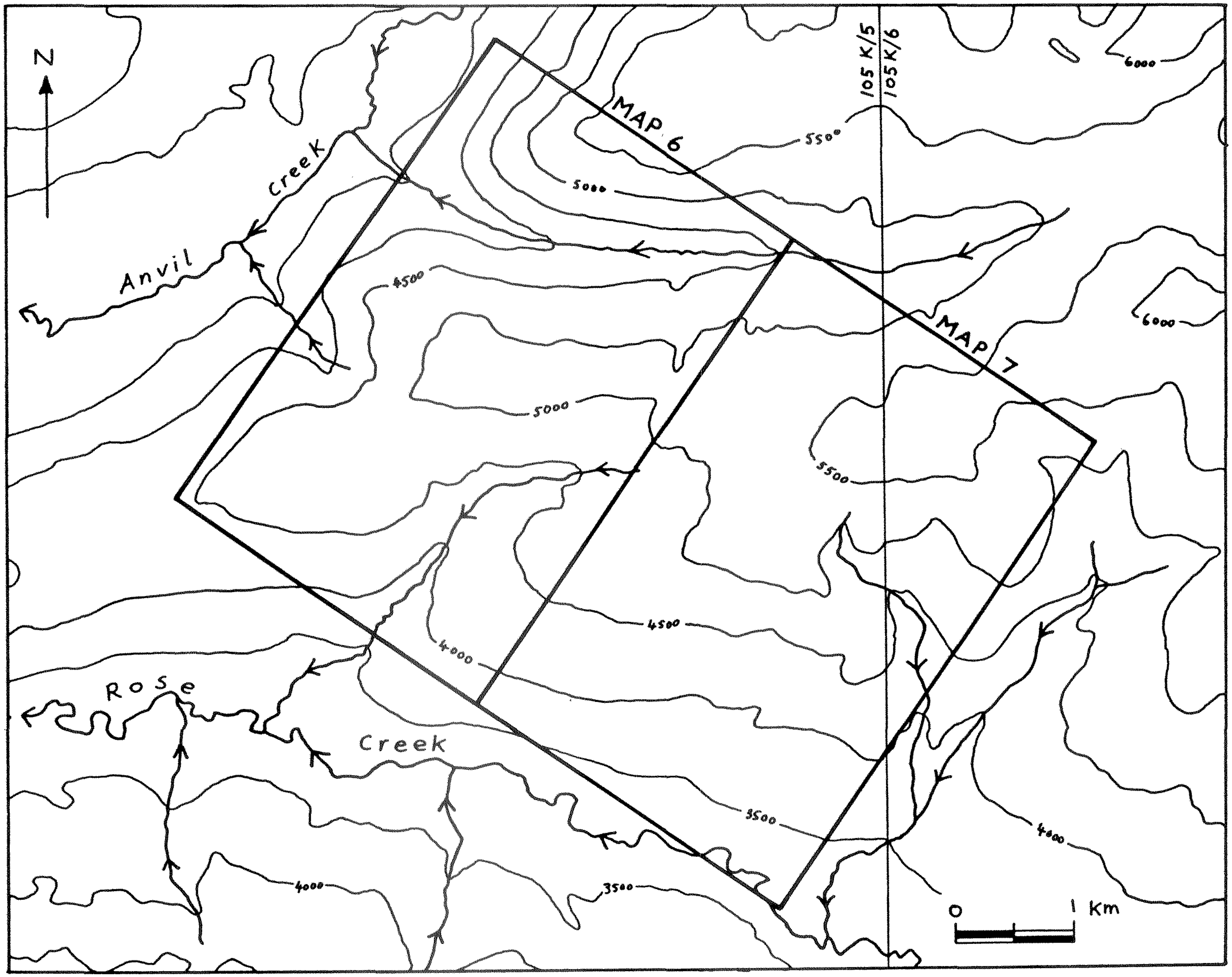

Fig. 3: Location of map area, Maps 6 and 7, in relation to main physiographic features. Contours are in feet.

PREVIOUS WORK

The area is covered by several small-scale geological mapping reports by the Geological Survey of Canada. The first reconnaissance mapping was done by Roddick and Green (1961) at a scale of one inch to four miles. Following the discovery of the Faro, Vangorda and Swim lead-zinc deposits, Tempelman-Kluit (1972) made the first detailed study of Anvil District geology, structure and mineral deposits. A recent revision of the regional geology at 1:250,000 scale was done by Gordey and Irwin (1987), notable for its tectonic interpretations. One feature of their map is that they infer a ?pre-Jurassic thrust (Faro Thrust) through the present map area; this will be commented on later, in the Discussion section.

The most pertinent and comprehensive study of the Anvil District is in Jennings and Jilson (1986), which forms the basis of the section on regional geology, below.

Exploration for lead, zinc, silver and copper in the area and its immediate vicinity began in the 1960's and continued into the 1970's.

In this period a number of surveys were carried out by various companies, including ground and airborne magnetics, EM, gravity, IP, and soil and lithogeochemical surveys, as well as geological mapping, some trenching, and a total of approximately 3275 m of diamond drilling over 17 holes in and immediately around the area.

The best documented diamond drilling is that done in a total of seven holes by Welcome North Mines Ltd. and Hecla Mining Company of Canada Ltd. in the 1970's. Their objectives and results are described in the Discussion section later in this report.

1989 FIELD PROGRAM

Fifty-eight days of geological mapping were completed between mid-June and early September. Due to an unusually fine summer, very few days were lost because of inclement weather. Orthophoto maps at 1:5000 scale, prepared from 1979 low level air photographs (Pigage 1988), were used as the field mapping base. Field data was compiled on mylar maps at the same scale. Mapping was concentrated above tree line where there is between roughly 1% and 35% exposure per sq. km. Parts of Maps 6 and 7 were mapped by L.C. Pigage in 1988 (Pigage 1989).

Upon completion of field work, essential data were entered into a computer program (PCXPLOR) designed to manage geological information.

Thirty-nine rock samples were thin-sectioned and given petrographic descriptions by Ken Northcote of Vancouver Petrographics Ltd. Most of the mineralogical details in this report are taken from Northcote (1989).

REGIONAL GEOLOGY

The following is based on a detailed summary of Anvil District geology by Jennings and Jilson (1986).

Anvil District refers to an area in central Yukon underlain by northwest-trending Upper Proterozoic to upper Palaeozoic metasedimentary and metavolcanic rocks, intruded by Cretaceous granitoid plutons. Most of the stratified rocks are related to the Selwyn Basin, the distal part of the ancient North American miogeocline in the northern Cordillera; the southwestern edge of the district comprises probably allochthonous rocks of the Yukon-Tanana terrane.

The district is cored by the mid-Cretaceous Anvil Plutonic suite, primarily the granitic Anvil Batholith. The batholith forms a northwest-southeast elongate dome such that the overlying strata and structural fabrics dip away from the granite to the northeast and southwest. At least two ductile deformation phases (D_1 and D_2) are recorded in the cover rocks, under generally low to intermediate pressure, greenschist and amphibolite facies regional metamorphism.

Metamorphic grade and D_1 - D_2 fabrics decrease in intensity with distance from the granite contact. All rocks were affected by later faulting, a probable arching along the axis of the Anvil Batholith, and by dike intrusion.

The Anvil District is distinguished by the presence of major stratiform massive sulphide deposits at the transition between generally non-calcareous and calcareous units in the Selwyn Basin stratigraphy around the Hadrynian-Cambrian boundary. Almost all known deposits are confined to the southwest of the Anvil Batholith. In the district, the host units are informally called the Mt. Mye formation and the overlying Vangorda formation, dominantly pelitic and calc-silicate schist and phyllites, with subordinate marble and metabasite. (See Jennings and Jilson, 1986, their Figure 4, for their correlation with the main part of the Selwyn Basin to the northeast.)

Mt. Mye formation

The Mt. Mye formation has a structural thickness of at least 2000 m and consists mainly of non-calcareous meta-pelite, with minor carbonaceous pelite, marble, calcareous pelite and metabasite. Due to the variation in metamorphic grade, these compositions vary in lithology between, for example, muscovite-chlorite phyllite and greenstone in the greenschist facies, and biotite-muscovite schist and amphibolite in the amphibolite facies. It is believed to be of late Hadrynian to Early (Middle) Cambrian age.

A longstanding problem concerns the presence of a band of calc-silicate and minor marble typically 200-400 m below the top of the otherwise pelitic Mt. Mye formation. These rocks are identical in appearance to the calc-silicates typical of the overlying Vangorda formation. It is not clear if this band is indeed Mt. Mye formation, or whether it is lower Vangorda formation in a synclinal fold or repeated by a normal or reverse fault.

Vangorda formation

The Vangorda formation is typically about 1000 m thick, and is probably of Late Cambrian to Early Ordovician age. The most common lithology in the greenschist facies is grey muscovite-chlorite phyllite with paler microlithons of calcareous quartz-calcite siltstone, although locally these may be dolomitic or non-calcareous. The amphibolite facies equivalent is a banded (1 mm to 1-2 m) calc-silicate rock comprising discontinuous lenses of pelitic schist in less foliated calc-silicate.

Subordinate rock types include metabasites (amphibolite, greenstone, chloritic phyllite or schist) which increase in frequency and thickness up-section, calcitic marble, carbonaceous phyllite, and siliceous/carbonaceous phyllite/schist. Some of the metabasite occurs in large lensoidal bodies preserving meta-gabbro and meta -pyroxenite textures. These and most of the smaller metabasite units are considered to be basaltic, and intrusive rather than extrusive in origin.

Massive sulphide deposits

The main deposits lie in a 35 km-long curvilinear trend close to the southern margin of the Anvil Batholith. The Faro deposit is the largest and the only one in production to date. All deposits are associated with carbonaceous and siliceous phyllite/schist at or within about 100 m (usually below) of the contact between the Mt. Mye and Vangorda formations. The deposits vary somewhat in their internal stratigraphy, structural complexity, and nature of the alteration envelope surrounding the sulphide body. Current models of the mineralization hold that syngeneic sulphide formation occurred in submarine, reduced basins which probably pinched out along and across the strike of the ancient continental margin. These basins were probably controlled by extensional growth faults and metalliferous sea-floor exhalations driven by heat from basaltic magmatism. Each of the sulphide deposits has been deformed but has remained generally intact. Their present occurrence, size and depth are a function of primary facies changes, structural plunge, and erosion. Late tectonic faulting with potentially large displacement is now perceived to be a major factor in the preservation and continuity of mineralization within and between deposits. Knowledge of the stratigraphy and structure is obviously important in predicting the extent of mineralization.

Anvil Plutonic Suite

Three intrusive phases ranging from granite to granodiorite are present in the district (Pigage and Anderson 1985), of which the largest, the Mt. Mye Phase, is relevant to this report. It is a peraluminous biotite-muscovite granite, commonly containing potassium feldspar megacrysts, and is dated at 85-100 Ma (K-Ar and Rb-Sr methods).

The batholith is mostly texturally massive, but locally foliated, and was probably intruded during the later stages of D_2.

Dikes

Two major suites of dikes are important in the district. One is a hornblende-biotite porphyritic quartz diorite, and the other is a smokey quartz-feldspar-biotite porphyry. Both suites are unfoliated and post-date D_2 and the Anvil Plutonic suite. Many dikes are oriented between 060° and 090° and are associated with faults of that trend.

Structure and metamorphism

At least five phases of deformation have been recognized in the Anvil District. The first two are penetrative and formed during prograde metamorphism, and the latter phases generally involve more open folding and faulting. Apart from faulting, the geometry of the rock units is controlled by D_1 and D_2, which are generally coaxial, and the overall arch structure of the district. The most important are F_2 structures which are moderate to tight folds of bedding and S_1 (S_{0-1}) which range from map-scale structures to microscopic crenulations. S_1 is usually transposed parallel to the axial planar fabric S_2 on the outcrop scale, so generally S_{0-1} and S_2 are subparallel and dip away from the Anvil Batholith. Regionally, F_2 vergence is away from the batholith.

F_1 structures are far less clear, but a few major closures are known; vergence appears to be northeastwards on both flanks of the batholith. F_1 minor structures are rare and restricted to lower grade rocks where D_2 transposition is less intense.

The Anvil Batholith is only locally foliated, by a weak to moderate alignment of biotite and megacrysts. In addition, there are well defined zones of strong deformation, including S-C mylonitic fabrics, which are related to post-D_2 ductile faults such as the Tie Fault zone.

RESULTS OF THE 1989 FIELD PROGRAM

STRATIGRAPHY

Stratified rocks in the Faro NW area comprise the upper part of the Mt. Mye formation and the lower and probably middle part of the Vangorda formation. The Anvil Batholith outcrops over much of the north of the area, but was not mapped much beyond its contact. Although some significant folding is present, the strata generally dip and young to the southwest, away from the granite. A simplified geological map is shown in Fig. 4.

During field mapping an alphanumeric, lithostratigraphic code (Table 1) was followed which was developed by Cyprus Anvil geologists in the 1970's. This code covers nearly all the rock types in the area, but its drawback is that the coding of some units is based on similarities or differences in lithology or metamorphic grade which may misrepresent the stratigraphic succession. In an attempt to avoid ambiguity, the main stratigraphic map units are labelled from oldest to youngest (Fig. 18). Where necessary, individual stations are labelled by the conventional code if they differ from the unit's characteristic rock type.

Units (HЄ_{mmsl}), (HЄ_{mmcs}) and (HЄ_{mmsu}) belong to the Mt. Mye formation. Units (HЄ_{mmsl}) and (HЄ_{mmsu}) are pelitic schists, while unit (HЄ_{mmcs}) is calc-silicate schist which is virtually identical in appearance to calc-silicates of the Vangorda formation. Unit (ЄO_{va}) is a distinctive pelite-rich variety of calc-silicate that occurs at the base of the Vangorda formation. All these units contain subunits of marble and metabasite. Carbonaceous rocks are conspicuously absent at the Mt. Mye-Vangorda transition. Other map units are Anvil Batholith granite (K_{gmm}), and a suite of dioritic dikes (K_{ge}). All thicknesses given below and in Fig. 5 are structural thicknesses.

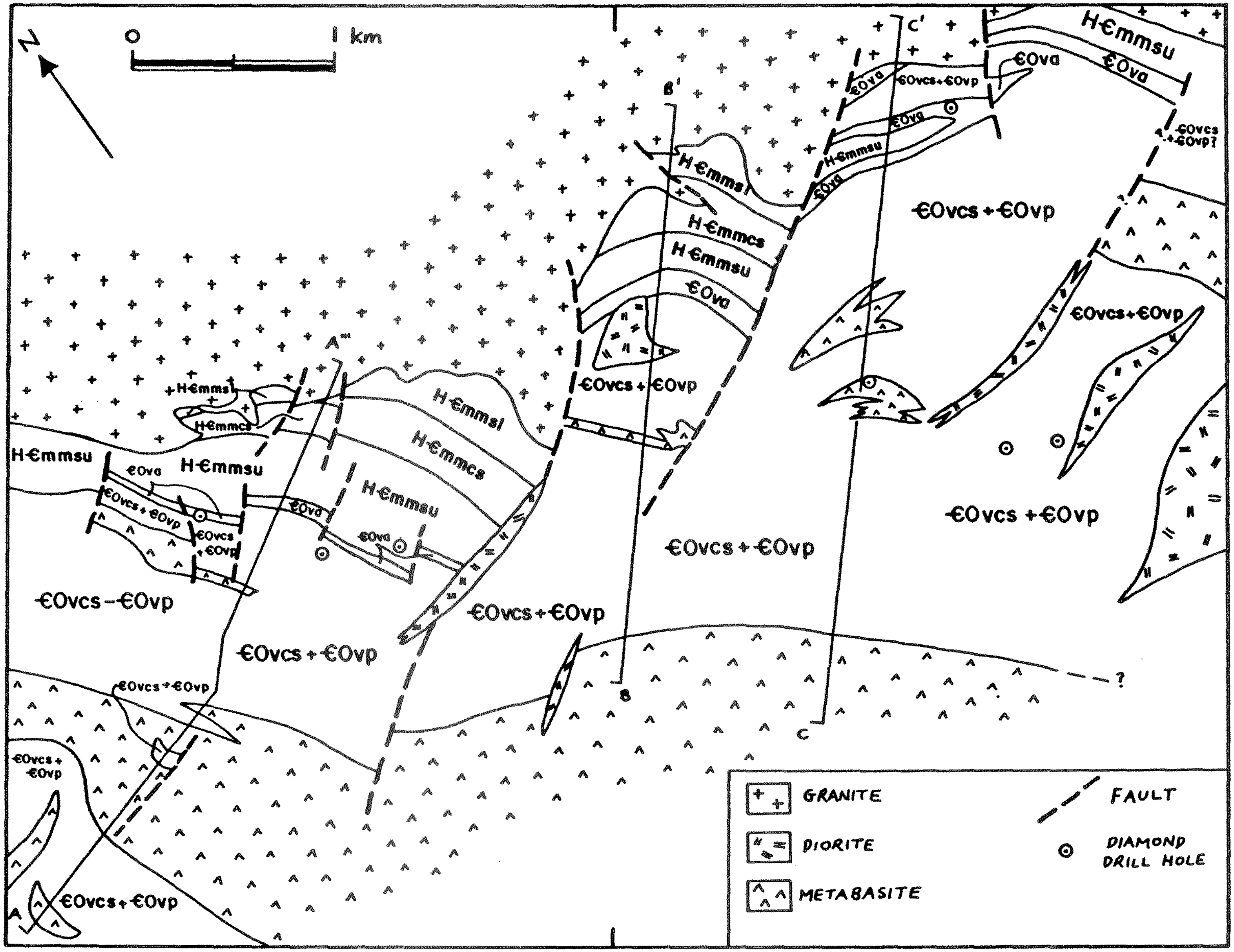

Fig. 4: Simplified geological map of the area. Cross section lines shown.

TABLE I ANVIL DISTRICT LITHOSTRATIGRAPHIC CODE

MAIN DEPOSIT AREA

LITHOSTRATIGRAPHIC CODE

Intrusive Rocks

Unit 10	928	10-A	Granodiorite (kspar<plag, quartz>10%)
	929	B	Adamellite (qtz monzonite)
	939	C	Pegmatite
	956	D	Quartz diorite (kspar<<plag, qtz>10%)
	934	E	Diorite (kspar<<plag, qtz 10)
	925	F	Monzonite (kspar~plag, qtz<10.)
	932	G	Pyroxenite
	937	H	Granite (kspar>plag, qtz>10%)
	930	I	Syenite (kspar>plag, qtz<10%)
	938	Q	Bull qtz veins/pods

1 *Foliated/lineated*
2 Porphyritic
3 Aphanitic
4 Smokey qtz-bearing
5 Muscovite-bearing
6 Kspar-bearing
7 Biotite-bearing
8 Amphibole-bearing
9 Altered (kaolinite, montmorillonite)
0 *Normal (equigranular)*

Vangorda Formation

Intrusive Contact

Unit 5	936	5-A	Variably calcareous, graphitic phyllite (hosts Unit 4; ≈ 1E, hosts Unit 2)
	920	B	Calcareous muscovite-chlorite:biotite phyllite (greenschist equivalent of 3D)
	908	C	Metabasite
	910	D	Chloritic phyllite
	904	E	Phyllitic marble and silicated marble
	910	F	*Laminarly banded, variably calcareous, chloritir phyllite (associated with 5C)*
	949	G	Variably calcareous, graphitic phyllite.

1 Siliceous
2 Carbonaceous
3 Calcareous
4 Altered, pyritic (white mica envelope)
5 Banded/laminated
6 Non-calcareous
7 *Chlorite laminations*
8 Chloritic
9 Sulfide-bearing
0 Normal
* Carbonate-bearing

Faro, Grum, Vangorda, DY Deposits

Conformable Contact

Unit 2/4	922	2/4-A	Sulfide-bearing, ribbon-banded, graphitic quartzite
	915	B	*Pyrite-free quartzite (may contain base metal sulfides)*
	916	C	Base metal-poor, pyritic quartzite
	942	D	Base metal-bearing, pyritic quartzite
	918	E	Massive pyritic sulfides
	923	F	Buckshot facies, massive sulfides
	928	G	Baritic facies, massive sulfides/sulfates (>10%:$BaSO_4$)
	924	H	Pyrrhotitic facies, massive sulfides
	949	J	Non-pyritic, massive sulfides/oxides
	921	K	Carbonate-bearing, massive pyritic sulfides
	914	L	

1 Siliceous
2 Coarse, porphyroblastic pyrite-bearing
3 Fine pyrite/marcasite-bearing
4 Sphalerite and/or galena-bearing
5 Carbonaceous
6 Barite-bearing
7 Pyrrhotite-bearing
8 Magnetite-bearing
9 Chalcopyrite-bearing
0 *Normal*
* Carbonate-bearing

2/4L Muscovite>qtz-chl-bio-phyllite (generally sulfide-bearing)

1 Siliceous
2 Pyrite-bearing
3 Talc/kaolinite-bearing
4 ZnS and/or PbS-bearing
5 Carbonate-bearing
6 Chl+bio>qtz-musc phyllite
7 *Pyrrhotite-bearing*
8 Magnetite-bearing
9 *Chalcopyrite-bearing*
0 Normal

Mt. Mye Formation

Conformable Contact

Unit 3	916	3-1	*Graphitic quartzite in non-calcareous phyllite/schist*
	913	H	Tuffaceous calc-silicate phyllite/schist (assoc. with 3D; identical to 5F)
	941	G	Non-calcareous muscovite-chlorite:biotite phyllite/schist (≈ 1C, 1D)
	906	F	Marble and silicated marble (≈ 1G)
	963	E	Graphitic phyllite/schist (≠ 5A)
	913	D	Calc-silicate phyllite/schist (u. greenschist to amphibolite facies equiv. of 5B)
	908	C	Metabasite
	946	B	Chloritic phyllite/schist (c.f. 5D)
	912	3-A	Transition zone with unit 1 (interbanded chloritic phyllite, graphitic phyllite *and pelites of Vangorda and Mt. Mye Fms.)*

1 Siliceous
2 Non-calcareous
3 Calcareous
4 Altered, pyritic (wme)*
5 *Banded/laminated*
6 Sulfide-bearing
7 Chlorite laminations
8 Chloritic
9 Carbonaceous
0 Normal

	902	1-B	Tactite and silicated marble (≠ 3F)
	943	C	*Quartzo-feldspathic, biotite-muscovite gneiss/schist (≈ 3G)*
	947	D	Carbonaceous biotite-muscovite-andalusite schist (≈ 3G)
	967	E	Graphitic schist (≈ 5A)
	908	F	Metabasite (≈ 3C)
	901	G	Marble and silicated marble (≈ 3F)
Unit 1	910	1-H	Chloritic schist (c.f. 5D)

1 Siliceous
2 Carbonaceous
3 Calcareous
4 Altered, pyritic (wme)*
5 Banded
6 Clotted
7 Staurolitic
8 Chloritic
9 *Sulfide-bearing*
0 Normal

*(wme) White mica envelope

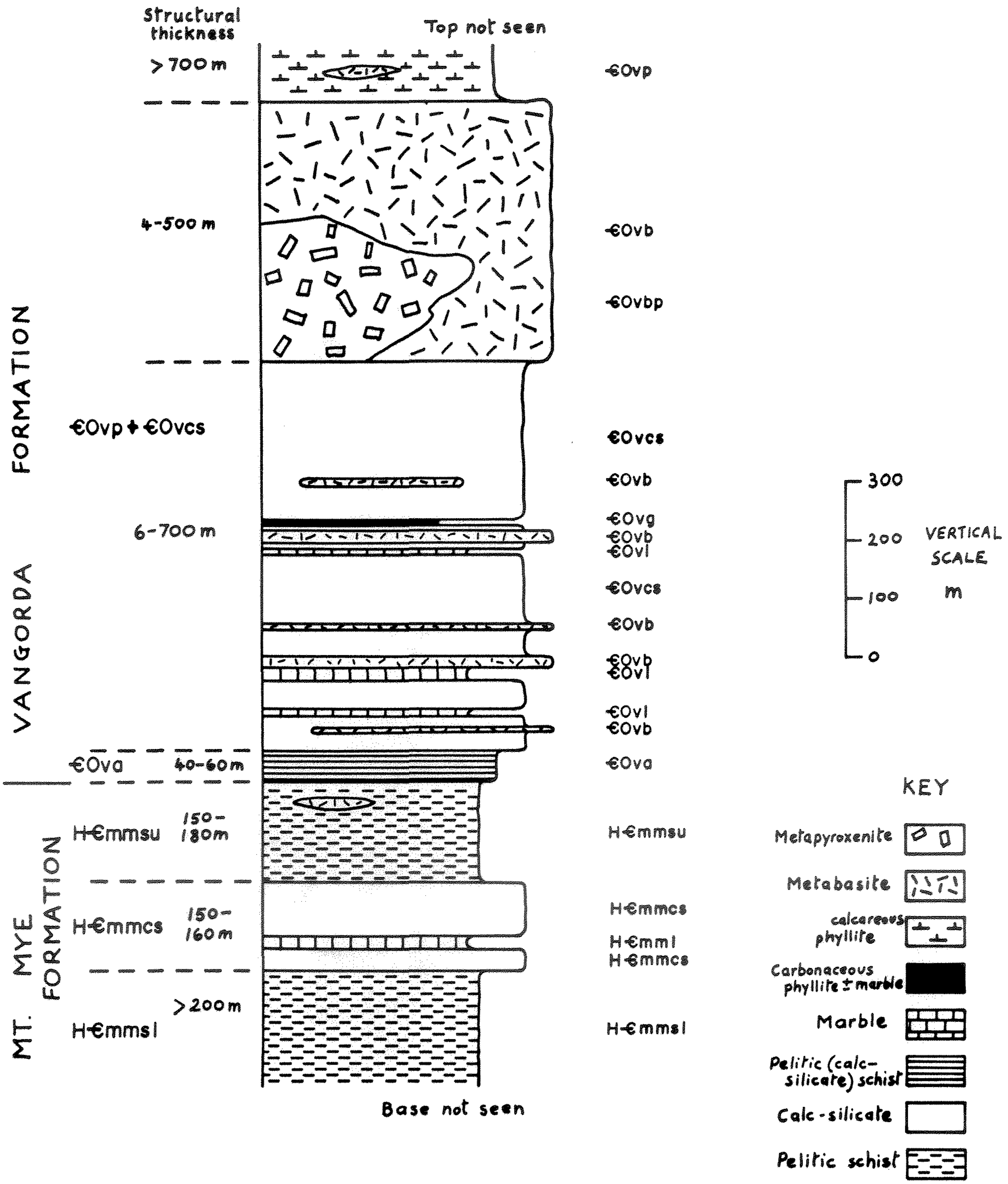

Fig. 5: Generalized stratigraphic column representing pre-Cretaceous rocks in the map area. (Compare Jennings and Jilson, 1986, their figure 4.) All thicknesses are structural. Position of metabasite and marble subunits in uppermost unit is somewhat schematic.

Mt. Mye formation

$H\epsilon_{mmsl}$: Pelitic schist (code 1CD)

The stratigraphically oldest rocks in the area, at least 200 m thick, are non-calcareous, medium to coarse grained pelitic schists, generally containing the assemblage staurolite-garnet-andalusite-biotite, with quartz, muscovite and plagioclase. Weathering a lustrous amber-brown, the schists are grey with a speckled, foliaceous texture due to abundant biotite, typically forming dark microlithons about 1 mm thick separated by paler grey quartz-feldspar microlithons. The foliation is characteristically wavy and anastomosing. Pink garnets are generally less than 3 mm across; many are retrograded. Staurolite porphyroblasts up to 2 cm in length are generally randomly oriented, but locally are aligned along presumed L_2 (89-31). Pale pink andalusite porphyroblasts up to 1 cm long are common. Sillimanite mainly occurs in a narrow zone adjacent to the Anvil Batholith (89-31) but can occur some distance from the granite (with andalusite; in unit $H\epsilon_{mmsu}$ at 89-94).

These schists are coded 1CD; another variety, 1D, containing prismatic chloritic pseudomorphs after ?andalusite, was recognized only at 89-99. Metabasite $H\epsilon_{mmb}$ = 3C occurs rarely.

$H\epsilon_{mmcs}$: Calc-silicate schist (code 3D)

This unit consists of calc-silicate schists, with subordinate marble $H\epsilon_{mml}$ = 3F and rare metabasite $H\epsilon_{mmb}$ = 3C. It is restricted to two areas, in each forming a band about 150 m thick within Mt. Mye pelitic schists, about 150-200 m below the top of the formation.

The calc-silicate schists comprise thinly interbedded or laminated pelitic schist and calc-silicate (cf. Photo 1). Locally one of the two lithologies may be very minor or absent, but over several metres or tens of metres of thickness their proportions tend to be subequal. The pelite may form beds several centimetres thick but usually occurs in discontinuous and lenticular, well foliated bands between 1 mm and 3 cm thick. It is fine to medium grained, and mid to dark grey with a maroon or purplish hue due to biotite. No garnet or staurolite was recorded.

The associated calc-silicate beds or laminae are pale grey to creamy green, and fine to medium grained. Despite being mica-poor it may be strongly foliated. The main constituents are diopside, plagioclase and potassium feldspar; minor constituents are wollastonite and quartz.

Marble $HЄ_{mml}$ = 3F in unit $HЄ_{mmcs}$ forms thin beds between 2 and 40 cm thick, and less commonly beds a few metres thick (Photo 2). Typical are zones (e.g. 10 m thick) where calc-silicate and marble beds alternate at the scale of a few dm to m. (In this respect, unit $HЄ_{mmcs}$ differs from unit $ЄO_{vcs}$ of the Vangorda formation in which marble forms comparatively discrete and homogeneous subunits, although small-scale interbanding does occur locally there too.) The marble is fine to medium grained, pale to mid-grey, and weathers grey to buff-brown. It is quite impure, containing up to 40% per cent laminar microlithons of calc-silicate minerals (diopside, actinolite -tremolite, feldspars), which weather in relief, and up to 10% biotite-rich foliae, both of which define a good foliation.

Metabasite $HЄ_{mmb}$ = 3C is uncommon. It occurs at 89-38 in dm- to m-scale, well foliated concordant sheets of dark green amphibolite; one sample contains a small coarse grained vein with chalcopyrite and sphalerite.

The lower and upper contacts of unit HЄ$_{mmcs}$ (within about 10 m of units HЄ$_{mmsl}$ and HЄ$_{mmsu}$), quite well exposed in Sheet 6, are very similar. The marginal unit HЄ$_{mmcs}$ is finely foliated pelite-rich calc-silicate similar to unit ЄO$_{va}$ of the basal Vangorda formation, although it is thinner, not as rusty weathering and lacks the andalusite porphyroblasts characteristic of unit ЄO$_{va}$ (see Discussion).

HЄ$_{mmsu}$: Pelitic schist (code 1CD)

This unit varies between 150 and 180 m thick, and is essentially identical to unit HЄ$_{mmsl}$, namely rusty-brown weathering, grey, fine to coarse grained, staurolite- garnet-andalusite-biotite schist, with quartz, muscovite and plagioclase. Judging by a few thin sections, staurolite and garnet tend to be mutually exclusive where andalusite is present.

Sillimanite occurs locally (89-94, 89-318), usually close to the Anvil Batholith.

The equivalent of this unit hosts the mineralization at the Faro mine 10 km to the east; yet there are no signs of sulphide deposit facies here in the map area except for a minor, dark grey, carbonaceous phyllite within the schists at 89-180.

Metabasite HЄ$_{mmb}$ = 3C or 3CA is a minor component, normally green, medium grained well foliated amphibolite up to a few metres thick. An unusual metabasite occurs in at least two places (89-29, 89-152): it is a green-grey mafic schist with two interfering foliations, consisting of a fine mesh of amphibole in radiating rosettes, and subordinate chlorite.

This lithology also occurs in the middle Vangorda formation (89-353), so is not unique to this horizon.

Vangorda formation

ЄO$_{\text{va}}$: Pelitic (Calc-silicate) schist (code 3D/1D)

This unit is essentially a pelite-rich variety of Vangorda formation calc-silicates that occurs quite consistently over the lowest 40-60 m of the formation in the map area (Photos 3, 4). (It is not shown between units HЄ$_{\text{mmsu}}$ and ЄO$_{\text{vcs}}$ in the extreme northwest of Map 6; it is probably present there but was not distinguished during mapping.)

This unit is not conventionally distinguished in Anvil district maps (at lower metamorphic grades it would be difficult to recognize), but it has proven useful to differentiate it in the present mapping.

Unit ЄO$_{\text{va}}$ consists of dark grey-brown, well and finely foliated, fine to medium grained non-calcareous pelitic schist (Photo 5). The main minerals are biotite, muscovite, quartz and plagioclase and potassium feldspar, and locally up to 15% andalusite (89-151, 89-417). Pale grey-buff lithons form less than 30% of the rock, are grey-green and a few mm to a few cm thick; mostly they are quartzofeldspathic, but some may contain calc-silicates. Characteristic features of this unit are its rusty-brown weathering, a flaggy, platy parting along lustrous (possibly carbonaceous) foliation surfaces, and dark coloured, 1-3 cm long prisms or rosettes of andalusite in the foliation plane which weather in relief.

This pelitic schist differs from that of units HЄ$_{\text{mmsl}}$ and HЄ$_{\text{mmsu}}$ in locally containing calc-silicate beds and laminae (Photo 5), lacking staurolite and garnet, being finer grained, and having a more planar, laminar foliation which contributes to a platy or flaggy parting that is lacking in the Mt. Mye pelites.

ЄO$_{vcs}$ and ЄO$_{vp}$: Calc-silicate schist/phyllite (code 3D and 5B)

This unit refers to interbedded calc-silicate and pelitic schist/phyllite that forms the bulk of the Vangorda formation. It is the most common rock composition in the map area, and has a structural thickness of at least 1300 m; this figure excludes large thicknesses of metabasite within unit ЄO$_{vcs}$ and ЄO$_{vp}$.

Unit ЄO$_{vcs}$ and ЄO$_{vp}$, called calc-silicate overall, has a variety of appearances depending on the ratio of the two components (calc-silicate and pelite), the presence of carbonaceous material (which may inhibit grain growth), and degree of metamorphic grade or strain. Metamorphic grade is probably the most significant factor, and since the grade generally conforms to structural depth, the lithological appearance of unit ЄOvcs and ЄOvp changes with distance from the Anvil Batholith. Accordingly, three informal 'facies' A, B and C (A being deeper and closer to the granite) have been distinguished to aid description of the unit. The division between facies B and C is indicated by an informal "isograd" line (ЄO$_{vcs}$ = 3D and ЄO$_{vp}$ = 5B) in the west of Map 6. The division between facies A and B is more subtle and subjective and is not shown on the maps. Very roughly, the structurally lowest 300-400 m of unit ЄO$_{vcs}$ and ЄO$_{vp}$ tends to be facies A, overlain by at least 300 m of facies B.

All unit ЄO$_{vcs}$ calc-silicates (facies A, B and C) contain important subunits of metabasite and marble, which are described below immediately after the calc-silicate facies. Their volume and position with respect to the predominant calc-silicates are shown somewhat schematically in the stratigraphic column in Fig. 5. Note that marble is more abundant deeper in unit 5 (although this may be an artifact of less intensive field data higher up in the stratigraphy). Marble and metabasite show no significant lithological variations with respect to their position, except locally in the highest part of unit $\mathrm{ЄO}_{vcs}$ and $\mathrm{ЄO}_{vp}$ (within facies C calcareous phyllites) where they may have a texture consistent with a lower metamorphic grade (subunit 5E, see later).

Facies A. At deeper levels and higher metamorphic grade, unit $\mathrm{ЄO}_{vcs}$ (3D) consists of fine to medium grained, pale to mid-green-grey calc-silicate and mid-to dark mauve-maroon-grey pelitic schist in alternating bands or laminae between 0.5 and 3-5 cm thick (Photo 1). Thicker beds of calc-silicate up to 30-40 cm are not uncommon (Photo 6). Weathering of the unit is characteristic, being buff-brown to pale grey-green, with a flaggy parting resulting from the banding and foliation. "Newly weathered" bedding profiles display a high contrast colour striping (Photo 1).

The calc-silicate consists of diopside, tremolite, plagioclase and potassium feldspar and quartz, and is non- or very weakly foliated.

Subordinate minerals are wollastonite, vesuvianite, garnet (probably grossularite) and calcite. The pelitic schist is well foliated and contains biotite, muscovite, plagioclase and quartz; very rarely it is finely spotted with about 20% ?cordierite (Northcote 1989).

Transposition and pinch-and-swell of thinner calc-silicate and pelitic laminae are generally well developed; many of these thin lenses are probably dismembered segments of isoclinal minor folds. Phase three crenulations are locally well developed on weathered foliation surfaces.

In a few localities the unit is pelite-rich, the calc-silicate being confined to minor mm- or cm-scale bands in a brown weathering schist/phyllite. This lithology is very similar to unit $\mathrm{ЄO}_{va}$, and similarly may contain chloritic pseudomorphs of ?andalusite.

Isolated beds of marble, a few cm thick, occur locally but such an association is more common near large bodies of marble.

Mention should be made of an unusual lithology at 89-363, adjacent to a large diorite body (unit K_{ge}). This is a pale green and green-grey banded calc-silicate with a very inequigranular, fine to coarse grained texture. It contains at least 10% very dark green idioblastic (post-kinematic) hornblende porphyroblasts, typically 3-6 mm, scattered evenly through the rock. The pelite component seems to have been largely transformed to calc-silicate. Dikelets of diorite are present, and the hornblende blastesis is thought to be a contact effect of the intrusion.

Facies B. Towards the southwest of the map area, up-stratigraphic section, unit ЄO$_{vcs}$ calc-silicates (3D) differ due to decreasing metamorphic grade and possibly compositional variations. There is a general decrease in grain size (usually fine), a thinning of the bedding and a less distinct colour contrast between the beds, and a more homogeneous appearance of the lithology in a given outcrop.

Typical rocks weather a streaky buff-brown-grey (Photo 7). Fresh surfaces are dark brown-grey (pelite) to pale to mid-green-grey (calc-silicate). Beds or laminae are a few mm to a few cm thick; "pure" calc-silicate beds thicker than a few centimetres are rare (Photo 8).

The main constituents are biotite, diopside, actinolite-tremolite, epidote-clinozoisite, quartz and potassium and plagioclase feldspar, with minor calcite and chlorite. Cordierite is present in a spotted carbonaceous phyllite at 89-143. The pelite is marginal phyllite/schist, i.e. the dark mauve-grey schist characteristic of facies A gives way to fine grained, grey (possibly carbonaceous) phyllite/schist. Biotite is still stable, however. Minor interbedded buff-grey marble is present locally, up to 35 cm thick.

Locally, dark green amphibole selvages, 1-2 mm thick, occur between calc-silicate and pelite laminae (e.g. stations 89-115, 89-295, 89-392; Photo 9), or the calc-silicate itself is amphibolitic (89-115). This mineral is absent in higher grade equivalents, and may represent a particular metamorphic zone or rock composition.

This facies of unit ЄO$_{\mathrm{vcs}}$ is carbonaceous locally, especially close to carbonaceous phyllite (ЄO$_{\mathrm{vg}}$, described later). These rocks are generally thinly bedded to finely laminated, alternating between dark grey to black carbonaceous phyllite lithons and green-grey or grey-white (weakly calcareous) calc-silicate.

Facies C. Still farther west, the structurally (and presumably stratigraphically) highest unit ЄO$_{\mathrm{vp}}$ in the area comprises calcareous (5B) or non-calcareous (5B6) pelitic phyllites resembling the typical greenschist facies Vangorda formation of the Anvil District. These rocks are delineated from 3D of facies B in Map 6 by an informal isograd. In the extreme west, the rocks consist of dark shiny phyllitic laminae alternating on the mm-scale with paler (calcareous) quartz siltstone, typical of ЄO$_{\mathrm{vp}}$ (89-57, 89-275). Closer to the isograd, however, the phyllites have properties transitional with ЄO$_{\mathrm{cs}}$ of facies B, and are coded 5B6. These phyllites are mid- to dark brownish-grey to black, fine grained, well and pervasively foliated and weakly to moderately carbonaceous. They are not usually calcareous. Facies B (3D) characteristics persist locally such as pale to dark grey-green, weakly foliated, very fine grained calc-silicate siltstone thinly alternating with mauve-grey chloritic phyllite. Station 89-59 (= 88-513) is somewhat unusual: this non-calcareous phyllite has a rusty-brown weathering slaty texture closely resembling greenschist facies Mt. Mye pelite HЄ$_{\mathrm{mmp}}$ = 3G outside the map area.

In summary, a transect through the Vangorda formation, exemplified in the west of the map area (see cross section A-A'"), reveals a gradual transition from well differentiated calc-silicate and pelitic schist (facies A), followed by finer grained calc-silicate phyllite/ schist (facies B), through to more homogeneous non- calcareous phyllite (5B6) and ultimately calcareous phyllite (5B) in the extreme southwest (both facies C).

ЄO$_{vcs}$ and ЄO$_{vp}$ subunits:

Metabasite (code 3C,3CA,5C,5CA,3CP,5CP,3B,5D)

Probably most metabasite in the Vangorda formation in the map area is derived from mafic (basaltic) dikes, sills or larger intrusions; no volcanic textures were recognized. Structural thicknesses range from 1 m to a few tens of metres. The larger bodies that dominate the southwest of the area are four or five hundred metres thick and probably represent differentiated mafic-ultramafic intrusions.

At the prevailing metamorphic grade, the metabasite is dominantly foliated amphibolite ЄO$_{vb}$ = 3C[A] or 5C[A]. Most examples weather greenish or brownish grey, are mid- to dark green, equigranular, and fine to medium (coarse) grained (Photo 10). The foliation is defined by amphibole (normally hornblende or actinolite-tremolite after hornblende), accompanied by variable amounts of plagioclase, epidote-clinozoisite, clinopyroxene (augite/diopside) and minor chlorite, biotite, quartz and opaque oxides. Strongly foliated examples may contain 1-2 mm hornblende augen (Photo 11). Some amphibolies contain 2 to 10 mm thick, pale grey, creamy-buff weathering, felsic laminae concordant with the foliation, producing a streaky banding.

These laminae highlight the presence of minor folds (Photo 10). They are probably syn-metamorphic leucosomal "segregations".

The contact between amphibolite and calc-silicate is exposed at 89-310. Although it is tectonized, there is a relict intertonguing that indicates intrusion. At 89-113, the margin of a metabasite body becomes paler green and chloritic $ЄO_{vbf}$ = 3B, but this is not usually present. Very locally, unit $ЄO_{vp}$ phyllites adjacent to the larger metabasite bodies are green, fine grained, finely laminated chlorite schist $ЄO_{vpg}$ = 5B7, which may be calcareous. At 89-300 (= 88-509), for example, this lithology (Photo 12) grades into a typical grey calcareous phyllite $ЄO_{vp}$ = 5B with an otherwise identical texture.

The most significant metabasites are the large composite bodies that dominate the southwest of the map area, presumably the upper part of the Vangorda formation. The best exposed is in the extreme west, consisting of metapyroxenite, metagabbro and amphibolite; this body has a particularly strong aeromagnetic anomaly. The descriptions below apply to this and other occurrences.

The pyroxenite $ЄO_{vbp}$ = 3CP or 5CP weathers green-grey to the distinctive dun-brown of ultramafics, with a characteristic knobby texture (Photo 13). It has a dark grey-green, medium to coarse grained inequigranular texture comprising serpentinized pyroxene (3-10 mm) in a finer grained, fibrous aggregate of amphibole (probably actinolite-tremolite), chlorite and carbonate. Magnetite segregations in the pyroxene render the rock strongly magnetic. Veins of fibrous serpentine 5-20 mm thick are quite common. The rock is generally massive internally but may be chloritized and foliated at contacts, with pyroxenes forming augen. Metasediment at a pyroxenite contact at 89-60 is a fine grained, finely laminated and foliated, green chloritic phyllite (cf. $ЄO_{vpg}$) which may have suffered a pre-metamorphic chemical alteration due to the intrusion (see Jennings and Jilson 1986, p. 329).

A variety of amphibolitic metabasite with a non- or weakly foliated, coarse grained, speckled green and creamy white texture is interpreted to be metagabbro. It is usually associated with the metapyroxenite and locally the two lithologies merge (89-270). Typically the rock consists of ?actinolite, possibly after hornblende, in clusters that may have been glomerocrysts (Northcote 1989), and an albitized plagioclase groundmass. There is minor epidote, biotite, chlorite, carbonate and opaque oxides. Amphibolite with large hornblende augen (2-4 mm) in a strong anastomosing foliation occurs locally and probably represents sheared metagabbro. At one station (89-272), metagabbro contains 8-10 cm thick leucocratic veins of ?plagiogranite; these are creamy-white, medium grained and deformed, suggesting they are primary and "comagmatic" with the gabbro.

A minor facies of metabasite consists of chloritic phyllite/schist (ЄO$_{vbf}$; e.g. 89-53, 89-134). It is banded pale to dark green, fine grained and well foliated. It may represent altered metasediment (see above), or possibly mafic tuff.

While very minor amounts of sulphides (pyrite) are not uncommon in metabasite, significant amounts and associated rusty alteration is scarce (89-205).

At lower metamorphic grade, metabasite ЄO$_{vb}$ is green-brown weathering, pale to mid-green, fine to medium grained chloritic schist.

Marble (code ЄO$_{vl}$, HЄ$_{mml}$)

Marble subunits are important markers. They generally form beds 1 to 5 m thick within the calc-silicates and are more common in the lower part of the Vangorda formation.

Marble is typically mottled grey-white, and medium to coarse grained. Most are impure in that in addition to calcite they contain up to about 50% silicates, mainly diopside, plagioclase and biotite, with minor tremolite, quartz and feldspars. The silicates are in 1-3 mm thick foliae and laminae and define the foliations present, S_1 and S_2 (Photo 14), or S_{1-2}. Marbles with significant biotite (up to 30%) have a good parting or fissility. Differential weathering produces a buff-brown and grey, rough, finely ribbed surface (cf. Photo 2).

Marbles show F_2 minor folds well (Photos 15, 16). As well as matrix calc-silicate minerals, some marble units contain (calcareous) calc-silicate layers up to 2 m thick. Such close interbedding of marble and calc-silicate is not as common as in unit HЄ_{mmls} (i.e. unit ЄO_{vcs} and ЄO_{vp} marbles tend to be fairly homogeneous), but does occur (e.g. 89-92, 89-108, 89-174). The thinnest layers (1-4 cm thick) are commonly boudined within the less competent carbonate.

Marble around stations 89-368, 369 is noteworthy in that it is rich in coarse (up to 15 mm) red-brown, (idioblastic) garnet, and green calc-silicate minerals. Garnet approaches 40% locally, and is generally at least 10-20%. Garnet- and diopside-rich laminae enhance the foliation; the remaining calcite is mid-bluish grey and medium to coarse grained. This unusual assemblage is thought to be a contact metamorphic effect of the large dioritic intrusion immediately to the west.

One other unusual lithology is a black, highly carbonaceous marble ЄO_{vl} = 3F? occurring within carbonaceous calc-silicates at 89-265. It is fine to medium grained, and thinly layered with siltstone or calc-silicate laminae, and is about 50 cm thick. The marble itself contains 25% carbonaceous matter, with minor tremolite and quartz.

While most carbonate rocks in the area are marble, low grade carbonates ꞒO_{vl} = 5E occur locally in the extreme west, within "facies C" calcareous phyllites. The best exposure is at 89-274, consisting of fine to very fine grained, finely bedded and laminated (1 mm to 10 cm) carbonate, impure carbonate, calcareous calc-silicate and minor chloritic phyllite (Photo 17). The rocks are pale weathering in shades of creamy white, grey, buff and green, and are creamy-white to pale green fresh. Carbonate (calcite) is the main component (at least 50%), with epidote-clinozoisite, diopside, actinolite-tremolite, and minor chlorite and feldspar.

ꞒO_{vg}: Carbonaceous phyllite (code 3E)

Highly carbonaceous, non-calcareous phyllites are rare but do occur as mappable bands locally (e.g. 89-118) in the lower-middle Vangorda formation within calc-silicate rocks. They are dark grey to black, fine to very fine grained, and very finely cleaved with dark, shiny cleavage surfaces. They contain at least 20% carbonaceous material, the remainder being quartz and muscovite/sericite. These subunits are only about 10 m thick. The pelitic component of the adjacent calc- silicate rocks are invariably anomalously carbonaceous.

ꞒO_{vcs}: Skarn

Skarn alteration is quite common in the eastern half of the map area but is rare in the west. All skarn encountered is in Vangorda formation. It is indicated in Maps 6 and 7 by shading. Skarn calc-silicate is pale creamy buff-brown, medium to coarse grained, and weathers orange-brown to pale buff, with a rough, porous uniform texture. It generally consists of diopside, vesuvianite and calcite, with variable amounts of potassium feldspar, epidote-clinozoisite and anisotropic ?garnet (Northcote 1989).

Although it occurs at the contacts of many marble subunits, most skarn is directly associated with calc-silicate schist ϵO_{vcs} = 3D, facies A or B, relicts of which are usually discernible (Photo 18). For example, marginal skarnification consists of a coarser grained greener calc-silicate alteration that permeates and transgresses the bedding/foliation fabric in marble or calc-silicate. Replacement is locally several metres thick and is best developed in Map 7 along the ridge in the northeast of the area and the valley to its south where there are numerous dioritic dikes. Skarnified marble may have a knobby texture (1-2 cm across) in layers separated by thinner calcitic laminae.

Skarn alteration of metabasite is uncommon but does occur (89-168). Sulphide mineralization is not particularly developed. The best occurrence is at 89-136 which is a rusty brown weathering, green, massive, diopside -epidote rich rock containing roughly 5% combined sphalerite, galena, pyrrhotite and chalcopyrite. This mineralization was presumably the target of the diamond drilling done in this area (see Discussion).

Skarn alteration appears to be very young. It overprints metamorphic assemblages and F_2 folds, and its indirect association with the dioritic dike suite K_{ge} = 10E suggests that it is related to those intrusions (see below under unit K_{ge} = 10E.

Intrusive rocks

K_{gmm} Unit 10AB: Granite (Anvil Batholith code 10AB)

The granite is speckled grey (black) and white and weathers creamy white (Photo 19). Most of the outcrops mapped are megacrystic, comprising 1-15% potassium feldspar megacrysts up to 14 cm long in a coarse grained groundmass of feldspar, quartz (ca. 10%) biotite (5-8%) and locally hornblende (1%).

The granite is generally massive with randomly oriented megacrysts, but locally a foliation is present, defined by aligned biotite and megacrysts (e.g. 89-26). It varies from weak to fairly strong (89-36), but nowhere is it porphyroclastic or mylonitic. In some cases the foliation is concordant with the S_2 fabric in the cover rocks, but in others it is steep and transverse to regional trends, and may be related to younger semi-ductile faulting.

The contact with unit HЄmmsl pelitic schist is well exposed at 89-31 and 89-37, generally marked by leucogranite pegmatite; granite and pegmatite also appear in m-scale pods within the schist some distance away. There is no evidence of a structural discontinuity at 89-31, nor even of a significant foliation in the granite. Photo 19 shows a sharp igneous contact between granite and unit HЄ$_{mmcs}$ calc-silicate schist.

A distinctive tourmaline-garnet leucogranite pegmatite or micropegmatite K_{gc} = 10C is quite common, tending to occur along metasedimentary contacts within 1 km of the granite. Locally it contains pre-deformed xenoliths of the schists. It is medium to coarse grained (locally pegmatitic), has a "clean" white colour, and contains up to 10% black tourmaline, up to 1% orange-red pinhead garnets, muscovite and minor biotite. It forms sheets 1-5 m thick or thinner veins, and is more commonly concordant than discordant. It may be foliated, but is usually massive.

K_{ec}: Quartz diorite dike suite (Code 10E)

This dike suite is the youngest unit in the map area. It presumably post-dates the Anvil Batholith because it is exclusively unfoliated.

Dikes are much more common in the eastern half of the map area. The lithology is consistently speckled grey, medium to coarse grained, with porphyroblasts of hornblende (up to 1 cm, 3-5%) and biotite (1-3 mm, 10-15%) in a feldspathic groundmass. Plagioclase phenocrysts up to 8 mm are rare. Quartz is less than 10%, indicating a diorite to quartz diorite composition. It is massive and uniform, and only rarely non-porphyritic. Diorite at 89-262 contains about 1% pyrite.

A variety is a quartz-feldspar porphyry with a dark grey vitreous matrix. This rock occurs at dike margins or independently in cm-thick dikelets, and probably represents a chilled phase.

Near large dike contacts, stringers and tongues of diorite, 10-40 cm thick, intrude metasediments of unit $ЄO_{vp}$ and $ЄO_{vcs}$. At 89-22 for example, dikelets concordantly infiltrate the calc-silicate layering, enclosing and partially resorbing calc-silicate xenoliths. An intrusion breccia involving cm-scale xenoliths of unit $ЄO_{va}$ schist (3/1D) in a coarse grained dioritic matrix is present around station 89-417, visible mainly in float.

Because skarn alteration generally occurs in areas of dike intrusion, they are considered to be genetically related. However, this association is not consistent in detail, as some skarns occur some distance away from the nearest known dike (e.g. around 89-257), and conversely some dike "aureoles" are completely free of alteration.

As well as skarnification, dike intrusion may be responsible for contact metamorphic annealing and recrystallization, such as the anomalous garnet and hornblende blastesis present in marble and calc-silicate at stations 89-368-369 and 89-363, respectively.

STRUCTURE

The structural framework of the map area may be summarized by the following three characteristics:

1. Bedding (S_0) and the first two penetrative fabrics (S_1 and S_2) are mostly subparallel, and have a consistent northwest-southeast strike and moderate southwesterly dip resulting from their being situated along the southwestern flank of the Anvil Batholith arch.

2. Within this overall southwest-facing homoclinal structure, F_2 and possibly F_1 map-scale folding does occur locally.

3. High angle faulting, mainly along 030° to 080° trends, has an important effect on the map pattern, usually producing an apparent left-lateral horizontal offset from a few metres to about 1.5 km.

First and Second phase foliations

Most stratified rocks contain a planar structure which is a composite of bedding (S_0) and one or two foliations (S_1, S_2). The dominant foliation is normally S_2. S_1 is restricted to microlithon-scale crenulations, commonly visible in thin section if not in outcrop (Photo 14), especially in calc-silicate phyllites at shallower structural levels in the west of the area. Another situation where S_1 is well preserved, not uncommon in amphibolies, is in larger scale (centimetres to decimetres amplitude), open to moderate F_2 folds where the axial planar S_2 is poorly developed and the foliation being folded is clearly S_1. Photo 12 shows a similar feature in chloritic phyllite (5D). Nowhere was it possible to distinguish S_0 from S_1.

Where only one foliation is distinguishable this would normally be S_2 in which S_1 has been obliterated by D_2 transposition and recrystallization. Alternatively it may be S_1 which was not significantly recrystallized or modified in D_2 because it was rapidly rotated into an orientation kinematically compatible with S_2. In any case, the foliation is treated as S_2 (Fig. 6).

Foliations in granite and the large mafic-ultramafic intrusions may be difficult to identify. In some cases the dominant foliation is probably S_2 based on its orientation, but otherwise, steep or odd-striking foliations could be S_1, S_2 or S_3 or some other fabric.

Second phase minor structures: folds and lineations

While no F_1 minor folds were recognized, F_2 minor folds are widespread and quite common. They are typically on the scale of a few centimetres (rarely up to 1 m), and moderate to very tight (Photos 8, 10, 15, 16, 20, 21, 22). Axial planes are strongly overturned, being sub- parallel or slightly oblique to S_2. A clear crenulation of S_{0-1} by S_2 may be present around fold hinge zones, and may be mistaken for the S_3 crenulation. In higher strained rocks (Photo 23), rootless, isoclinal, intrafolial hinges are probably F_2 (although these might be hard to distinguish from F_1). F_2 minor fold axes are shown in Fig. 7.

Also included in Fig. 7 are S_0-S_1xS_2 intersection lineations (L_2), usually narrow, streaky S_{0-1} compositional bands on S_2. In marble, L_2 is defined by linear concentrations of fine calc-silicate minerals representing S_{0-1} laminae intersecting S_2. Most F_2 axes and L_2 lineations plunge gently to the southeast; the average is 06°/150°.

11-17-1989

POLES TO PHASE TWO FOLIATIONS
A:\GEOLOGY\S2FLTN.DAT
315 points

Average plane
136.68 / 30.84 W

Error Analysis
Mean error = 15.36 deg
Std dev of err = 10.74 deg
Var of err = 115.25 deg sqrd
Standard error = 0.37 deg

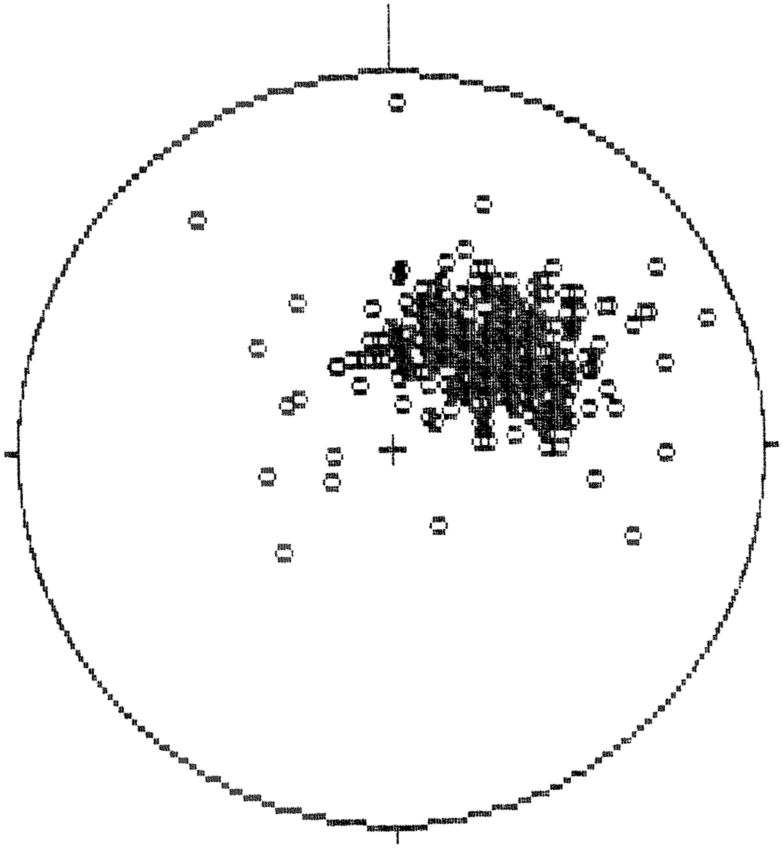

Fig. 6: Poles to second phase foliations (S2).

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                                                  12-07-1989

POLES TO SECOND PHASE FOLIATIONS
    A:\GEOLOGY\s2fltn.DAT
     315  points

Spacing for contouring grid =  5 degrees
No. of contour subintervals =  1

Contour interval =  4  %

Max population density =  24  %
 at azimuth =  50  degrees
 and plunge =  60  degrees
```

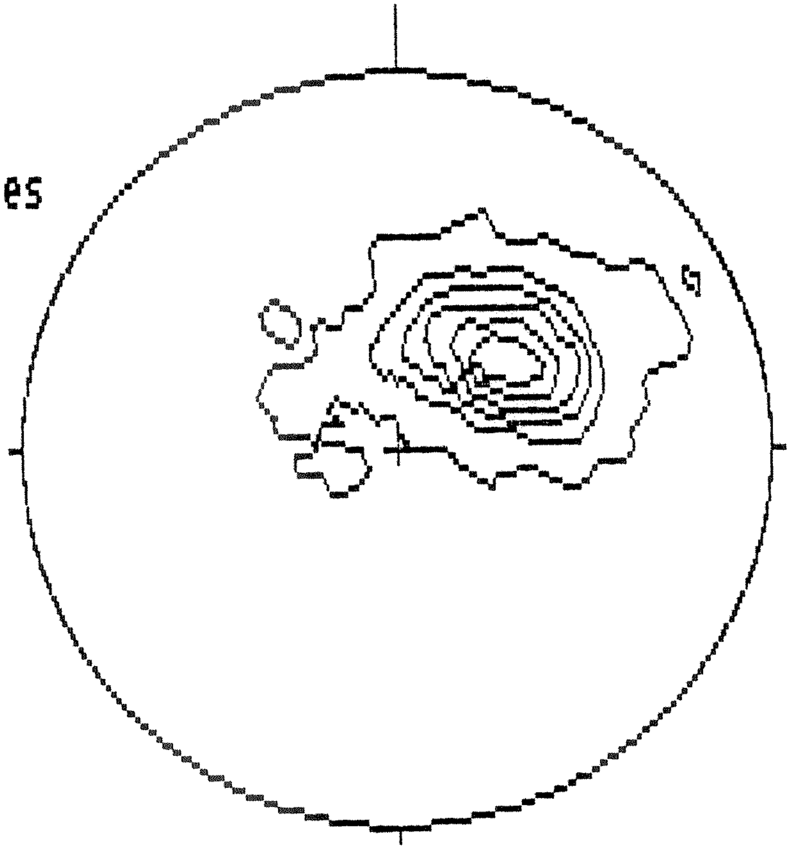

Fig. 6 (contd.): Poles to second phase foliations(contoured)

```
                                                        11-17-1989
PHASE TWO FOLD AXES AND INTERSECTION LINEATIONS
    A:\GEOLOGY\L2LIN.DAT
     66  points
Test vector
  azimuth = 325.00 deg
  plunge  =  10.00 deg
  test angle =  75 deg

Average lineation
149.87 /   5.05

Error Analysis
  Mean error      =  17.92 deg
  Std dev of err =  13.60 deg
  Var of err      = 184.84 deg sqrd
  Standard error =   2.80 deg
```

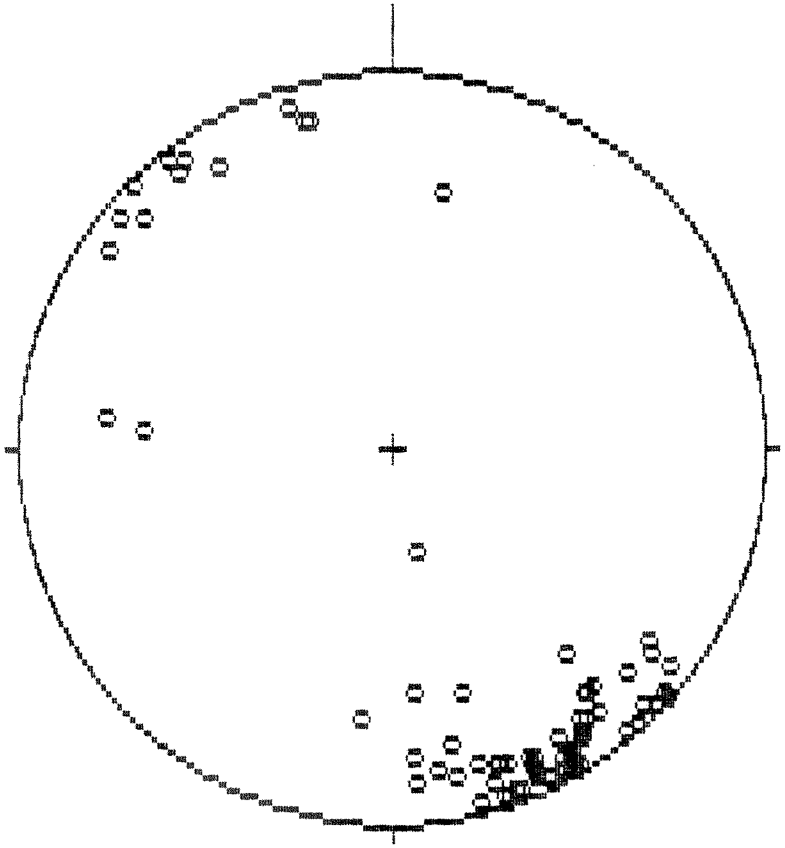

Fig. 7: Second phase minor fold axes and S0-1x2 intersection lineations (L2).

Second phase folding

Second phase fold geometry (F_2) is recorded by the asymmetry of minor folds or by measuring the strike and dip of the (S_{0-1}) enveloping surface where different from S_2. This type of information may be used to delineate domains of F_2 facing on a large scale. It was found that F_2 minor structures are predominantly southwest-verging throughout the map area, as they are in the region. This is also illustrated by Fig. 8 which shows a small number of S_{0-1} measurements: note that the mean plane (147°/46°SW) dips southwest more steeply than that of S_2 (137°/31°SW) in Fig. 6. No significant areas of predominantly northeast-verging minor folds were found, suggesting that there are no large overturned panels, and this is supported by the general lack of reversals or repetition of stratigraphy.

However, in places, northeast-verging and non-verging minor folds (Photos 10, 15, 22) are at least as common as southwest-verging folds.

These tend to be areas of complex map patterns, anomalous thicknesses, and abundant minor folds; they represent major F_2 hinge zones (e.g. around UTM 575750 6920100; see below). However, the quality and frequency of the minor structure data proved inadequate or unreliable to define the fold geometry in detail and much is left to interpretation. (Another potential problem is that some minor folds could be F_1 folds flattened into S_2.) Under these constraints, the overall structural geometry was best deduced from stratigraphy and detailed mapping of contacts and closures. The best documentation is described below, from areas containing fairly good exposure and several marker horizons. A few other areas, lacking these properties, are suspected of being strongly folded but this cannot be demonstrated.

```
                                                    11-17-1989

POLES TO FIRST PHASE FOLIATIONS
    a:\geology\s1fltn.DAT
     9  points

Test vector
  azimuth =  45.00 deg
  plunge  =  15.00 deg
  test angle =  60 deg

Average plane
146.78 /  45.85 W

Error Analysis
  Mean error      =  24.37 deg
  Std dev of err =  22.13 deg
  Var of err      = 489.94 deg sqrd
  Standard error =  54.44 deg
```

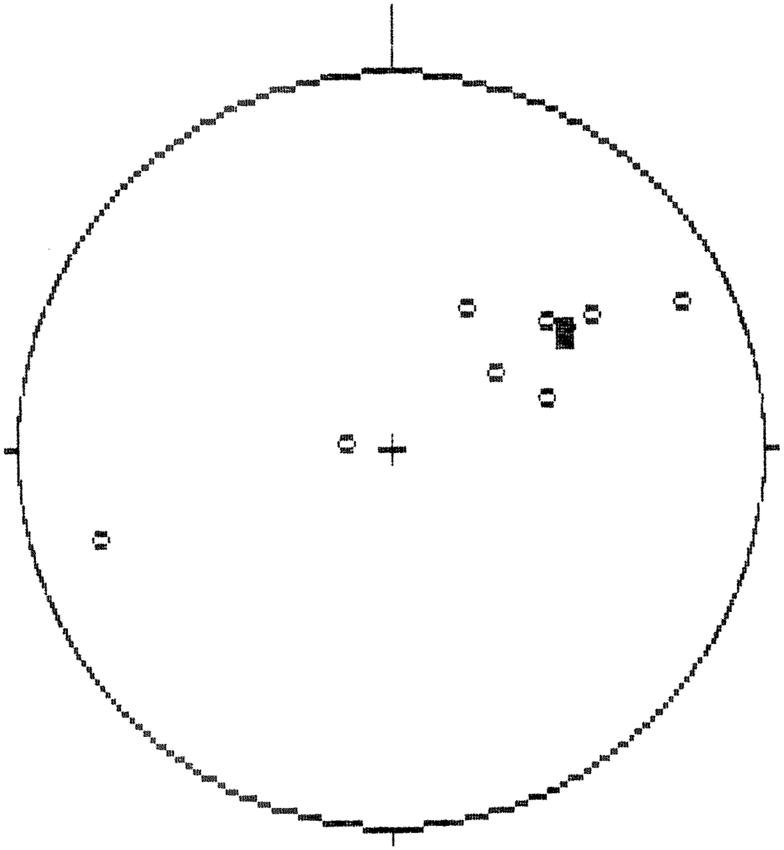

Fig. 8: Poles to first phase foliations (S1) where different from S2.

The main areas of major folding are around UTM 577800 6920350 (northeast end of cross section C-C') and UTM 575750 6020100 (middle of cross section B-B'). In the former, an overturned antiformal anticline is inferred to account for the repetition of units HЄ_{mmsu} and ЄO_{va}. This structure explains the pinching out of the units to the southeast, given that the dominant plunge is in that direction. However, there are problems. One is that this structure appears to be an upward-facing northeast- verging fold, suggesting that it is D_1 rather than the expected D_2. (To be part of a major southwest-verging D_2 fold, unit HЄ_{mmsu} would have to be in a synform, which is not supported by the map pattern.) Another problem is that the two marble bands near the base of unit ЄO_{vp} and ЄO_{vcs} have to be explained as a single marble folded in a synformal syncline. This is plausible but requires a very tight fold and there are no symmetrical minor folds to support a hinge zone.

Major folding is better documented in the area around UTM 575750 6920100 (cross section B-B'). This is an area of strong minor folding, especially in marbles and metabasites (Photos 10, 15). The cross-section is an interpretation that satisfies the outcrop pattern, and is consistent with the stratigraphy involved in cross-section C-C'.

It is interesting how similar the style of folding in this cross-section is to minor folding visible at the outcrop scale throughout the map area.

Third phase deformation

Third phase deformation is not well developed in the area, apart from L_3 crenulations on S_2 phyllitic surfaces (Fig. 9), which are almost ubiquitous. They are roughly coaxial with L_2. There is very limited foliation development in these crenulations suggesting that D_3 is late- or post-metamorphic. Where discernible, "S_3" dips steeply southwestwards (Fig. 10). Mesoscopic F_3 minor folds (Photo 24) are quite rare (89-18, 89-166, 89-398); most occur in the

```
                                                            11-17-1989
PHASE THREE CRENULATION AND FOLD AXES
    A:\GEOLOGY\L3LIN.DAT
     26  points
Test vector
  azimuth = 160.00 deg
  plunge  =   5.00 deg
  test angle =  45 deg

Average lineation
161.62 /  14.59

Error Analysis
  Mean error      =  16.78 deg
  Std dev of err =  15.66 deg
  Var of err      = 245.21 deg sqrd
  Standard error =   9.43 deg
```

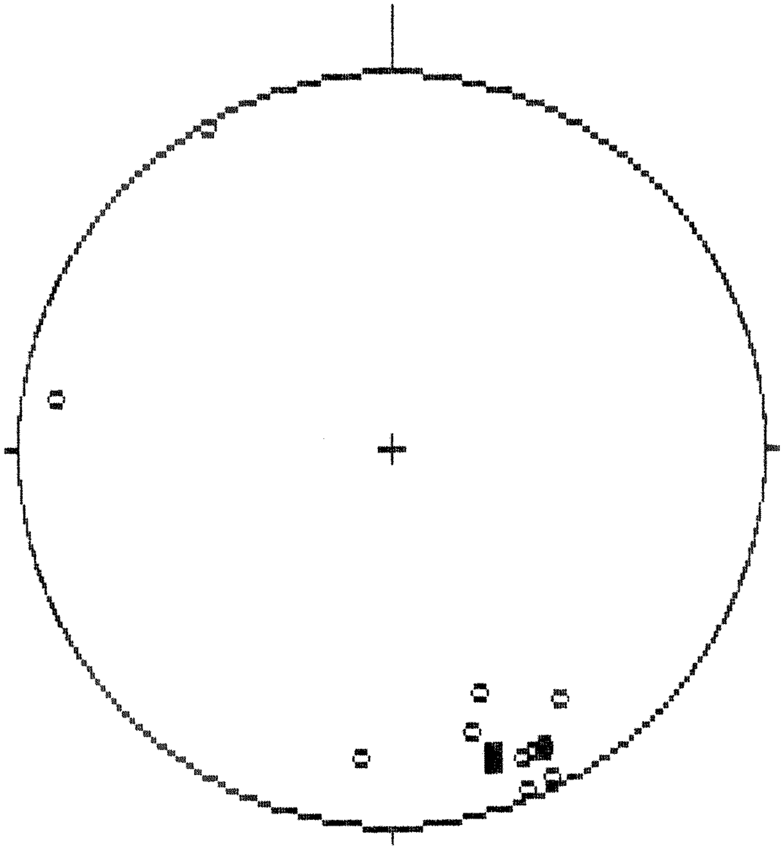

Fig. 9: Third phase crenulation axes and minor fold axes (L3).

```
                                        11-17-1989

POLES TO THIRD PHASE CRENULATION PLANES
    A:\GEOLOGY\S3FLTN.DAT
     11  points

Test vector
  azimuth =  45.00 deg
  plunge  =  10.00 deg
  test angle =  75 deg

Average plane
145.89 /  74.21 W

Error Analysis
  Mean error      =  26.08 deg
  Std dev of err =  15.82 deg
  Var of err      = 250.40 deg sqrd
  Standard error =  22.76 deg
```

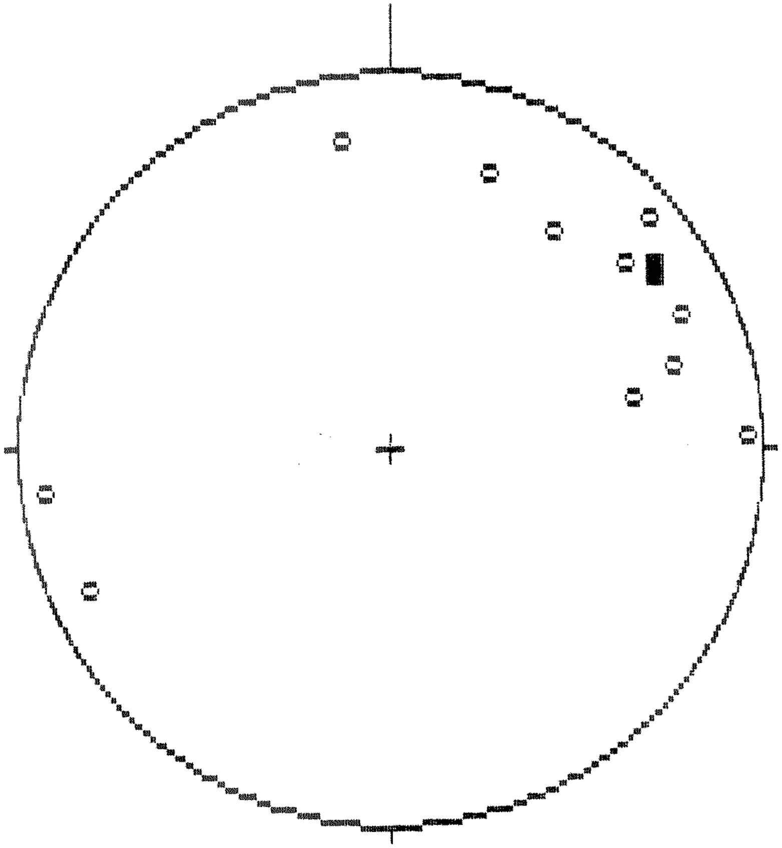

Fig. 10: Poles to third phase crenulation planes (S3).

northeast, within 1 km of the Anvil Batholith. They are moderate folds, with amplitudes of 10 to 40 cm. Like S_3 they are northeast-verging with steep axial planes, plunge gently northwest or southeast, and are approximately coaxial with F_2.

Map-scale folds of D_3 age or younger are very unlikely because S_{0-1-2} dips consistently to the southwest. The exception to this is around the west flank of the large mafic-ultramafic body in the extreme west of the area, where S_{0-1-2} commonly dips east or northeastwards, concordant with the igneous contact (cross-section A-A’”). The tentative interpretation is that open F_3 folding in this area has warped these foliations.

Fractures

Fractures are ubiquitous in the map area, and were not routinely measured except where conspicuous. Typical fractures are spaced on the cm- to dm-scale, trend between 030° and 100°, and are statistically vertical (+/- 15°). Those measured have an orientation distribution (Fig. 11) very similar to that of faults and 10E dikes; thus, many fractures are probably a small-scale expression of post-metamorphic brittle deformation and dike injection in the region.

A common feature on S_2 foliation surfaces in calc-silicate schists (3D in units HЄ$_{mmcs}$ and ЄO$_{vp}$ and ЄO$_{vcs}$ are tension fractures with a fine grained mineral infilling in narrow lenses a few centimetres long. The "filling" is zoned, specifically a green ?epidote-amphibole rich core enveloped by an off-white ?feldspathic rim. These features possibly represent a "young" hydrothermal remobilization of calc-silicate constituents and precipitation in the tension fractures.

11-17-1989

```
FRACTURES
    A:\GEOLOGY\FRACTS.DAT
     20  points

Test vector
  azimuth = 135.00 deg
  plunge  =   0.00 deg
  test angle =  90 deg

Average plane
 50.28 /  89.74 S

Error Analysis
  Mean error      =  35.17 deg
  Std dev of err =  16.95 deg
  Var of err      = 287.25 deg sqrd
  Standard error =  14.36 deg
```

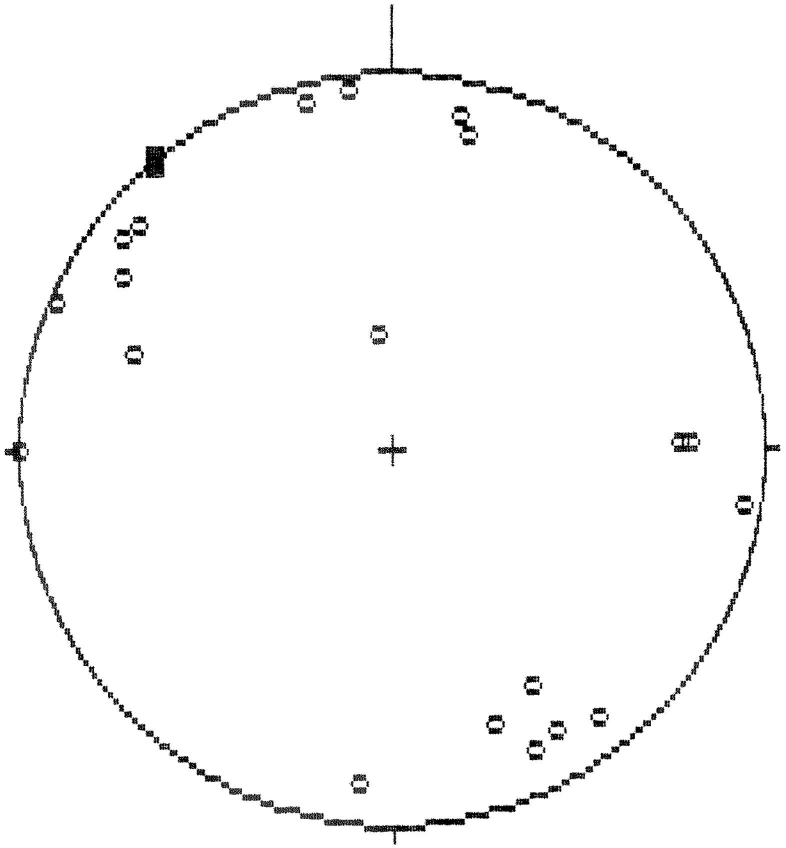

Fig. 11: Poles to outcrop-scale fracture planes.

Faults

Faults are inferred from demonstrable geological offsets or from topographic lineaments where an offset is likely. High level aerial photographs were useful for locating lineaments. Faults range from features a few metres in length to major faults several kilometres long.

Locally the amount and sense of offset on a fault can be demonstrated quite precisely, but generally the displacement is unknown or equivocal.

Nowhere was it possible to recognize fault plane kinematic indicators and hence the movement vector itself; thus it is not known if the faults are dominantly strike slip or dip slip or oblique slip.

The age of faulting is assumed to be post-D_3. Furthermore, the larger faults are tentatively believed to be syn- to post-granite emplacement, and pre-dike emplacement, for the following reasons:

1. The granite locally contains a fracture cleavage or a steep, weak foliation with a typical fault trend, which are probably not related to regional ductile deformation, but rather to transverse faulting.

2. Some offsets of the granite contact are almost certainly structural (although in the absence of independent evidence, other "offsets" could be the effect of an irregular intrusive contact).

3. Dikes are not foliated or offset.

Fault trends are illustrated in the rose diagram in Fig. 12. The data comprises faults longer than 100 m. The similarity between fault trends (and small-scale fractures, described earlier) and the trends of K_{ge} dikes regionally

11-19-1989

```
FARO NW, FAULT AZIMUTHS
    A:\GEOLOGY\FAULTS.DAT
     31  points

     Perimeter =  100  %
Class interval =  18 degrees

Max population density =  26  %
 at azimuth =  45  degrees
```

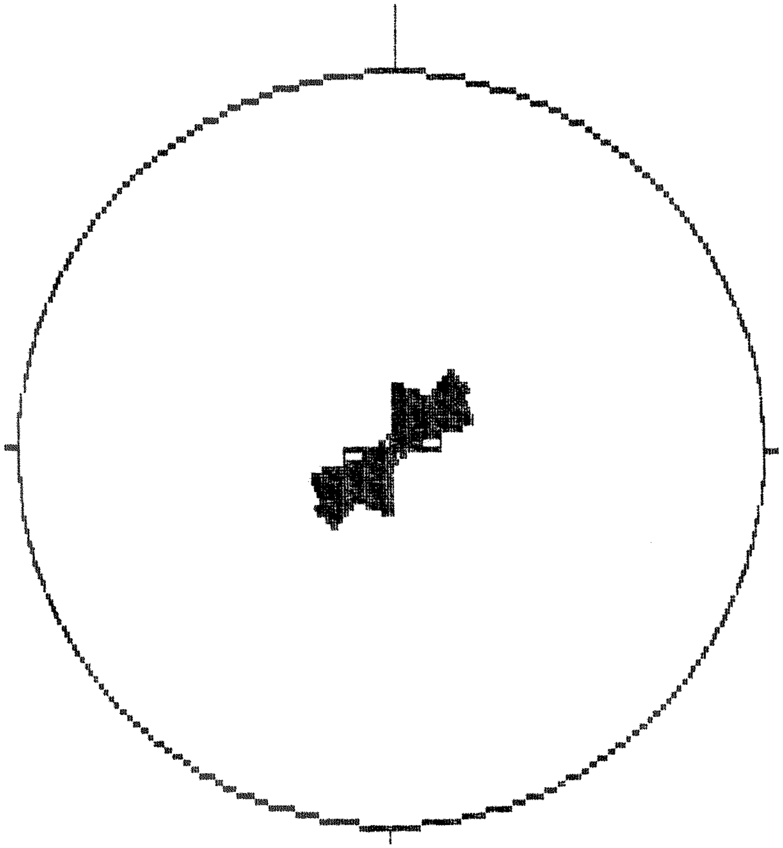

Fig. 12: Rose diagram of azimuths of faults in the map area greater than 100 m in length.

implies a relationship. (Similarly, a large diorite dike at the northwest end of the Faro sulphide deposit is linked to a major fault responsible for cutting off mineralization there). The most likely relationship is that dikes were preferentially intruded along pre-existing faults or fractures with a 030° to 080° trend.

The map area is subequally divided into three structural domains by two major, subparallel faults, informally named East fault and West fault. Nowhere are the faults exposed but each is essential to explain the displacement of the Mt. Mye-Vangorda contact.

East fault

This fault is probably at least 2.5 km long and trends approximately 060°. The dip is probably subvertical. On the northwest side, the top of the Mt. Mye formation is displaced approximately 800 m to the southwest. This could represent left-lateral strike slip, or about 500 m of vertical dip slip, southeast-side down, or oblique slip.

Additional support for this fault is the discontinuity in the trends of geological contacts (Map 7) and the strike of S_2 (Fig. 16); in an attempt to confirm structural disparity across the fault, subsets of S_2 data from each side were plotted and compared. The stereograms are not convincing and are not reproduced here, although the mean strike does differ by 8° from one side of the fault to the other.

West fault

Like the East fault, this fault trends about 050° to 060°; it may have a slight northwestward inclination from vertical. At the northeast end of the fault, on the northwestern side, the top of the Mt. Mye formation is displaced southwestwards about 1400 m. The fault's extent farther to the north is not known, although there is a prominent north-trending gorge in the granite (north of 89-26).

The fault is tentatively extended southwestwards roughly down the creek valley for a total length of about 3.25 km. The evidence for it here includes a string of K_{ge} dike outcrops in the valley side: following the relationship suggested earlier, it is reasoned that this dike marks the expected extension of the West fault. Still farther southwest in the valley, other evidence is an apparent displacement of the contact between unit €O_{vcs} and €O_{vp} and the major metabasite body there (between stations 89-394 and 89-341) which is supported by a significant deflection of S_2 trends across the alleged fault. Finally, there is a very weak lineament visible in high level aerial photographs.

The northeasterly trending fault interpreted to cut off the pyroxenite body in the extreme east of Map 7 is hypothetical. Apart from the sudden termination of this large metabasite intrusion and of its associated aeromagnetic anomaly, there is no direct evidence for a fault except that it may connect with a pair of collinear K_{ge} dikes to the southwest that may occupy a fault zone.

No evidence was found for significant extensional faulting in the map area.

METAMORPHISM

Based on the metamorphic minerals identified in the field and thin section (Northcote 1989), metamorphic grade in the area varies from lower amphibolite facies in the northeast, closer to the Anvil Batholith, to lower or middle greenschist facies in the southwest.

While isograds are generally concordant with the batholith regionally, and metamorphic grade appears to be related to distance from the granite, the metamorphism is definitely "regional" rather than "contact", the granite forming the core of a regional thermal anomaly rather than a local one. The presence of andalusite and cordierite and the absence of kyanite suggests a low pressure versus "Barrovian" facies series. Sillimanite is restricted to a zone within about 400 m (usually much less) of the Anvil Batholith.

The "isograd" separating facies B and C of unit ЄO$_{vcs}$ and ЄO$_{vp}$ is based on a marked textural change that occurs in the west of Map 6. No specific metamorphic reaction was recognized here, apart from the development of calcium-rich silicate minerals towards the northeast side (3D) at the expense of free calcite which is a widespread constituent in phyllites to the southwest (5B; L.C. Pigage, personal communication).

Porphyroblasts appear to be syn- to post-kinematic with respect to the S_2 fabric, indicating the peak of metamorphism is probably of D_2 age.

A detailed study of the metamorphism in the Anvil District was made by Smith (1988).

DISCUSSION

Several problems and features mentioned in this report warrant further comment. This is followed by a brief discussion of the diamond drilling that has been done previously in the area.

Is unit HЄ$_{mmcs}$ Mt. Mye formation or Vangorda formation? No conclusive proof has been found, but the author is inclined towards the conservative view that unit HЄ$_{mmcs}$ is a stratigraphic unit of calc-silicate within the Mt. Mye formation.

Several reasons are given. The interpretation of unit $H\text{Є}_{mmcs}$ as a synclinal fold (F_1 or F_2) involving the lower Vangorda formation is not favoured because unit $\text{Є}O_{va}$ would be repeated on both sides. It is true that unit $H\text{Є}_{mmcs}$ calc-silicates are more pelitic within about 10 m or so of units $H\text{Є}_{mmsl}$ and $H\text{Є}_{mmsu}$, but these intervals are not identical to unit $\text{Є}O_{va}$, and would appear to be too thin anyway. More likely they represent a narrow lithofacies transition between Mt. Mye pelitic schist (1CD) and calc- silicate (3D).

The interpretation of unit $H\text{Є}_{mmcs}$ as lower Vangorda formation repeated by a fault may be rejected for the same reason, plus the fact that a fault would preserve pelitic rocks (unit $\text{Є}O_{va}$) on only the northeastern side of unit $H\text{Є}_{mmcs}$, and not on both sides as is observed (but not unit $\text{Є}O_{va}$!).

A further argument against unit $H\text{Є}_{mmcs}$ being Vangorda formation is the observation that calc-silicate rocks or their lower grade equivalents occur at about the same horizon within Mt. Mye non-calcareous pelites for a considerable strike length in the Anvil District, and beyond to the southeast in Selwyn Basin stratigraphy (G. Jilson, personal communication). If this is indeed the same calc-silicate band, it is highly unlikely that it would be so continuous if it were a single tectonic structure.

Is pyroxenite unique to a particular stratigraphic level and can it be used as a structural marker?

Pyroxenite has been found in four general locations. Two are in the southwest (the hills around station 89-292) and south (stations 89-146 and 260), both in the upper (?) part of the Vangorda formation.

Outcrop is sparse between these two areas, but it is quite likely that they belong to the same large mafic-ultramafic intrusion, slightly offset by the West Fault.

A third occurrence of pyroxenite (and amphibolite) was mapped by L.C. Pigage (Pigage 1989) in the extreme east of Map 7. This body would appear to be considerably lower in the Vangorda formation. A fault displacing it about 2 km to the northeast from the first mentioned body is unlikely because a fault of this trend and magnitude would surely cut and offset the Anvil Batholith contact, whereas the contact is probably uninterrupted. It is true that a fault is shown truncating this pyroxenite body in Map 7, but the evidence for it is weak (see section on Faulting, earlier).

Finally and most interestingly, a fourth occurrence of pyroxenite is located in the extreme northwest of Map 6 (station 89-98), apparently surrounded by the Anvil Batholith. Its extent is poorly known due to the lack of exposure in its vicinity. It may have been exposed through the granite by minor faulting. Its "stratigraphic" position is at the unit HЄ_{mmsl} and HЄ_{mmcs} contact in the Mt. Mye formation.

These four pyroxenites are at significantly different "stratigraphic" horizons, which indicates that they are different bodies, and perhaps of different ages, and cannot be used for structural reconstructions on a regional scale. Correlation may be possible on a more local scale where continuity is reasonable, such as the major mafic-ultramafic unit along the southwest margin of the map area.

Faro Thrust

Gordey and Irwin (1987) show a thrust passing through the Faro NW area, placing the Cambrian Gull Lake Formation (= Mt. Mye formation) and overlying Rabbitkettle Formation (= Vangorda formation calcareous phyllite) on top of an unnamed Cambro-Ordovician unit (probably equivalent mainly to Vangorda formation calc-silicate). This Faro Thrust would appear to be predicated on the age inversion implied by Gordey and Irwin's correlations. However, more detailed work in the region would indicate that the unnamed unit is in part equivalent to the Gull Lake Formation and in part to a deeper (higher metamorphic grade) equivalent of their Rabbitkettle Formation, such that there is not necessarily an age inversion, and hence no firm basis for a thrust.

Previous diamond drilling

Seven diamond drill holes have been located in the area (Fig. 4, and Maps 6 and 7).

Three holes lie in Map 6 and were drilled by Welcome North Mines in approximately 1975 (Brock and Foster 1975). The old camp was visited but no core was found at the site. Each of the holes (6VM-1, 6VM-2, 6VM-3) is collared at or within 100 m (surface distance) of the top of the Mt. Mye formation and clearly were drilled to sample the strata equivalent to that hosting the Faro deposit. No significant mineralization was encountered. Hole 6VM-1 (343.2 m) is located at station 89-53; it passes through about 55 m of Vangorda formation (units ЄO_{va} +/- ЄO_{vp} and ЄO_{vcs}), the remainder being in Mt. Mye pelitic schist (unit HЄ_{mmsu}).

Similarly, hole 6VM-2 (248.7 m) at station 89-100 intersects 15 m of Vangorda formation before Mt. Mye schists. Hole 6VM-3 (267.3 m) is entirely within Mt. Mye schist (unit HЄ$_{mmsu}$). Based on the results of the present work, none of these holes would have been quite deep enough to intersect calc-silicates of unit HЄ$_{mmcs}$.

The four other diamond drill holes occur in Map 7. These were drilled in 1970 by Hecla Mining Company of Canada Ltd. to test for Ag-Pb-Zn mineralization associated with skarn in Vangorda formation calc-silicate schists and phyllites. The area was targeted by prominent gravity and I.P anomalies. The core (BQ) is stored in racks at the old camp at station 89-352; most is in fair condition but some trays are disrupted.

Holes J-1, J-2 and J-3 are collared in unit ЄO$_{vcs}$ calc-silicate (3D) or metabasite (3C) on the ridge immediately south and west of the camp.

Hole J-1 (154.2 m, -90o) intersected calc-silicate rocks and skarn, with minor K$_{ge}$ diorite dikes and metabasite. Hole J-2 (303.9 m, -45°/030°) intersected K$_{ge}$ dikes, particularly near the top, and predominantly calc-silicate and skarn with minor mineralization. At least four brecciated fault zones with minor sulphide mineralization were encountered at various depths. Hole J-3 (304.5 m, -90°) lies on cross-section C-C'. It passes mainly through calc-silicate schist and phyllite with minor metabasite, marble and mineralized skarn. It is tentatively estimated, based on the present mapping, that all three holes are collared between 300 and 500 m above the base of the Vangorda formation, and bottom out at least 50 m above the base (these are structural thicknesses).

Hole J-4 (154.2 m, -90°) was targeted over a different anomaly, in the north of Map 7 at station 89-167. Collared in unit ЄO$_{va}$ pelite-rich calc-silicate, it passes into 3D calc-silicate, some mineralized skarn, K$_{gmm}$ granite dikes, and marble units at deeper levels. This agrees quite well with cross section C-C' if hole J-4 is projected into it.

The section shows unit ЄO$_{vcs}$ calc-silicate being folded underneath unit ЄO$_{va}$. If this interpretation of an overturned fold was wrong, hole J-4 would probably have passed from unit ЄO$_{va}$ at the top of the hole into unit HЄ$_{mmsu}$ pelitic schist (1CD) instead of calc-silicate and marble (unit ЄO$_{vcs}$).

RECOMMENDATIONS

The Mt. Mye-Vangorda formation transition zone, which extends for about 4 km through most of the map area, lacks any of the characteristics associated with Anvil district mineralization such as sulphide showings, carbonaceous metasediments, and alteration. The options are that mineralization occurred above the present erosion surface and has been eroded, or is present beneath it at some unknown depth down the dip of the formations' contact or within unit HЄ_{mmsu}). (the stratigraphic level of the Faro mine deposit). The lack of suitable geophysical anomalies in the area suggests that mineralization is not particularly near the surface. A third possibility might also be borne in mind, that the map area occupies a "barren zone", regardless of structural depth, where the original sulphide-bearing lithofacies pinched out laterally along the strike of the ancient sedimentary basin.

Any further exploration in the area would assume the possibility that mineralization does occur at depth. Before the better targets are discussed, some circumstantial evidence with negative implications should be mentioned.

First, the map area and the area to its east (map sheets E-6-5 west half and east half, in Pigage 1989) contain significant northeast-southwest trending faults, including the West and East faults, with northwest-side-up displacements. The vertical component of the displacement could be in the order of a few hundred metres on each fault. This suggests that the area west of the Faro mine is step-faulted such that a progressively deeper level is exposed westwards. The Faro deposit is only about 300 m or less below the topographic surface, so the chances are that its extension to the northwest has been uplifted and eroded.

On the other hand, the effect of this faulting might be compensated somewhat by a gentle southeasterly L_2 plunge, if such a net plunge is the case. Also, it was assumed above that the faulting is dominantly dip slip. The greater the horizontal component, the lesser the structural relief that is implicated such that mineralization might still be preserved somewhere.

A second concern involves the possibility that the Anvil Batholith cuts off the stratigraphy at an unfavourably shallow level. This really depends on whether the granite contact has a significantly shallower dip (less than about 30°) than that of the strata. Otherwise it would have little impact except probably in the northeast of Map 7 (see cross-section C-C') where even on the surface the granite is only about 50 m from the base of the Vangorda formation. The actual dip of the contact is not known, but it is suspected of being subequal to that of the strata, although it is probably quite irregular.

Notwithstanding these concerns, most of the map area overlies rocks that could host mineralization. The present mapping has defined the Mt. Mye-Vangorda boundary quite precisely; drill holes should be collared southwest of this line (in the Vangorda formation), preferably somewhere along the three cross sections given here to take advantage of the projections provided. In a given subarea, the strike and dip of bedding and foliations are consistent, which should aid the orientation of drill core. This surface and cross section information provides some control in predicting target intersections, although it should be emphasized that the projection of contacts deeper than about 300 m below the surface is tentative.

The main potential complication is zones of F_2 folding, which if intersected would probably increase the depth of the target horizon.

The style of folding interpreted here, particularly in section B-B' may serve to guide the interpretation of drilling results. Map 6 may be the least complex area structurally, which may make it a more attractive target area.

Drill holes could be designed to intersect the upper 100 m of the Mt. Mye formation at various depths. If no encouraging results are obtained at less than 1000 m of vertical depth, it would be reasonable to conclude that the area lies structurally below and "stratigraphically outboard" of massive sulphide mineralization.

Referring to cross section C-C', the top of the Mt. Mye formation outcrops in two areas in the northeast, due to what is interpreted as a tight northeast-verging anticline-syncline pair. If this is correct, the upper part of the Mt. Mye formation could be accessed by less than 400 m of vertical drilling for a distance of 1 km from the granite, and by roughly 1000 m of vertical depth for a further 1 km southwestwards.

There may be complications in the central part of this cross section due to F_2 folding, and faulting. There is good road access almost everywhere along the cross section.

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APPENDIX A

LIST OF PETROGRAPHIC SAMPLES

UNIT 2:	Calc-silicate (3D):	89-38
	Marble (3F):	89-388
UNIT 3:	Pelitic schist (1CD):	89-94
		89-318
		89-409
UNIT 4:	Pelitic (calc-silicate) schist:	89-167
		89-377
		89-417
UNIT 5:	Calc-silicate (3D), facies A:	89-255
		89-322
		89-420A
		89-420B
	facies B:	89-110
		89-143
		89-359
	facies A/B:	
		89-250
	facies C:	89-418
	Calc-silicate (3D), misc.:	
		89-101
		89-119
		89-142
		89-382
	Metabasite, amphibolite (3C):	
		89-211
		89-270
	metagabbro (3C):	
		99-178A
		89-271
	meta-pyroxenite (3CP):	
		89-146
	misc. (3C):	89-178B
		89-205
		89-353
		89-395
	Marble (3F):	89-108
	Low grade marble/calc-silicate (5E):	
		89-274
		89-282

APPENDIX A

LIST OF PETROGRAPHIC SAMPLES
(continued)

Carbonaceous marble (3F9):
89-265
Skarn (3D): 89-136
89-246
89-257
Carbonaceous phyllite (3E):
89-132

STATEMENT OF QUALIFICATIONS

I, Chris J. Rees of Victoria, British Columbia, do hereby certify that:

I am a graduate of the University College of Wales with a B.Sc. degree in 1976;

I am a graduate of the University of Regina with an M.Sc. degree in 1980;

I am a graduate of Carleton University with a Ph.D. degree in 1987;

I have been engaged in geological mapping, mineral exploration and underground exploration since 1987;

I am the author of this report describing field work completed by myself in 1989.

CJRees

C.J. Rees,
Contracting geologist

LIST OF PHOTOGRAPHS

PHOTO 1. Station 89-172: Typical facies A calc-silicate schist (3D) from lower part of unit 5, north of Sheet 7. Note high contrast colour banding of dark pelitic schist and pale calc-silicate. Looking SE.

PHOTO 2. Station 89-87: Typical 3F marble. This example from main carbonate subunit in calc-silicates of unit 2 of Mt. Mye formation, Sheet 6.

PHOTO 3. Station 89-166: View looking W at cliff in north-facing bowl in north of Sheet 7. Darker coloured, relatively pelite-rich schists (3/1D) in lower part of cliff are unit 4. Paler calc-silicate rich rocks (3D) above are unit 5. Base of Vangorda formation at foot of exposed cliff.

PHOTO 4. Station 89-378: Contact between unit 4 schist (3/1D) below and calc-silicate (3D) of unit 5 above, cut by granitoid dike. Looking E, near batholith contact, north Sheet 7.

PHOTO 5. Station 89-372: Typical pelitic (calc-silicate) schist (3/1D) of unit 4, north Sheet 7. Note good platy foliation. Looking NW.

PHOTO 6. Station 89-177: Unusually homogeneous and massive calc-silicate rich unit 5 (3D). Looking NE.

PHOTO 7. Station 89-294: Calc-silicate schist/phyllite (3D, facies B) of unit 5 from west Sheet 6. Note that compared with facies A (Photo 1), pelite and calc-silicate components are poorly distinguished. Looking NNW.

PHOTO 8. Station 89-215: Calc-silicate (3D, facies A/B) with large F2 folds from west Sheet 6. Thick calc-silicate bed by hammer. Looking WNW.

PHOTO 9. Station 89-295: Calc-silicate schist/phyllite (3D, facies B) of unit 5 from Sheet 6 containing dark green amphibole. Looking W.

PHOTO 10. Station 89-211: F2 folds in amphibolite (3C) in unit 5. Symmetrical shape indicates hinge zone. From tightly folded area shown in SW half of cross section B-B'. Looking W.

PHOTO 11. Station 89-313: Strongly foliated amphibolite (3C) with small hornblende augen, unit 5, NE Sheet 7. Looking W.

PHOTO 12. Station 89-300: Low grade chloritic phyllite (5D) of unit 5, Sheet 6, immediately underlying large mafic-ultramafic body. Looking SE. Open, steep F3 minor folds (upper part) warp flat-lying S2, itself axial planar to folded, subvertical S0-1.

PHOTO 13. Station 89-418: Meta-pyroxenite (5CP). Boulder near Station 89-418. Shows coarse, knobby texture, weathered (brown) and unweathered (dark green).

PHOTO 14. Station 89-398: Good S1-S2 microlithon definition in marble (3F) of unit 5, border of Sheets 6 and 7. S2 axial planar to crenulations of S1.

PHOTO 15. Station 89-212: Very tight F2 folds in impure marble (3F) in unit 5. Symmetrical shape indicates hinge zone. From tightly folded area shown in SW half of cross section B-B'. Looking W.

PHOTO 16. Station 89-92: Tight, SW-verging F2 minor fold in marble (3F) associated with calc-silicate (3D), unit 5. Looking SE.

PHOTO 17. Station 89-274: Low grade impure marble and calc-silicate (5E) from possibly upper part of unit 5. Structurally underlies large mafic- ultramafic body in Sheet 6. Looking NE.

PHOTO 18. Station 89-257: Partially skarnified 3D calc-silicate (unit 5), from north Sheet 7. Lensoidal remnants of schist; spots in schist may be cordierite (?).

PHOTO 19. Station 89-90: Contact between granite sheet (10AB) and unit 2 calc-silicate (3D) in extreme northwest. No shearing at contact, no fabric in granite. Megacryst above hammer.

PHOTO 20. Station 89-131: SW-verging F2 minor folds in slightly carbonaceous calc-silicate (3D9, facies B), unit 5. Looking NW.

PHOTO 21. Station 89-388: SW-verging F2 minor folding, highlighted by calcareous weathering, in calc-silicate (3D) of unit 2, Sheet 6. Looking ESE.

PHOTO 22. Station 89-141: Very tight F2 minor folds in unit 5 calc-silicate (3D, facies B). 'M' -shape geometry implies fold hinge zone. Looking SE.

PHOTO 23. Station 89-377: Highly sheared unit 4 schist (3/1D), north Sheet 7. Note fine foliation, rootless, isoclinal minor folds. Probably represents interstratal shearing. Looking SE.

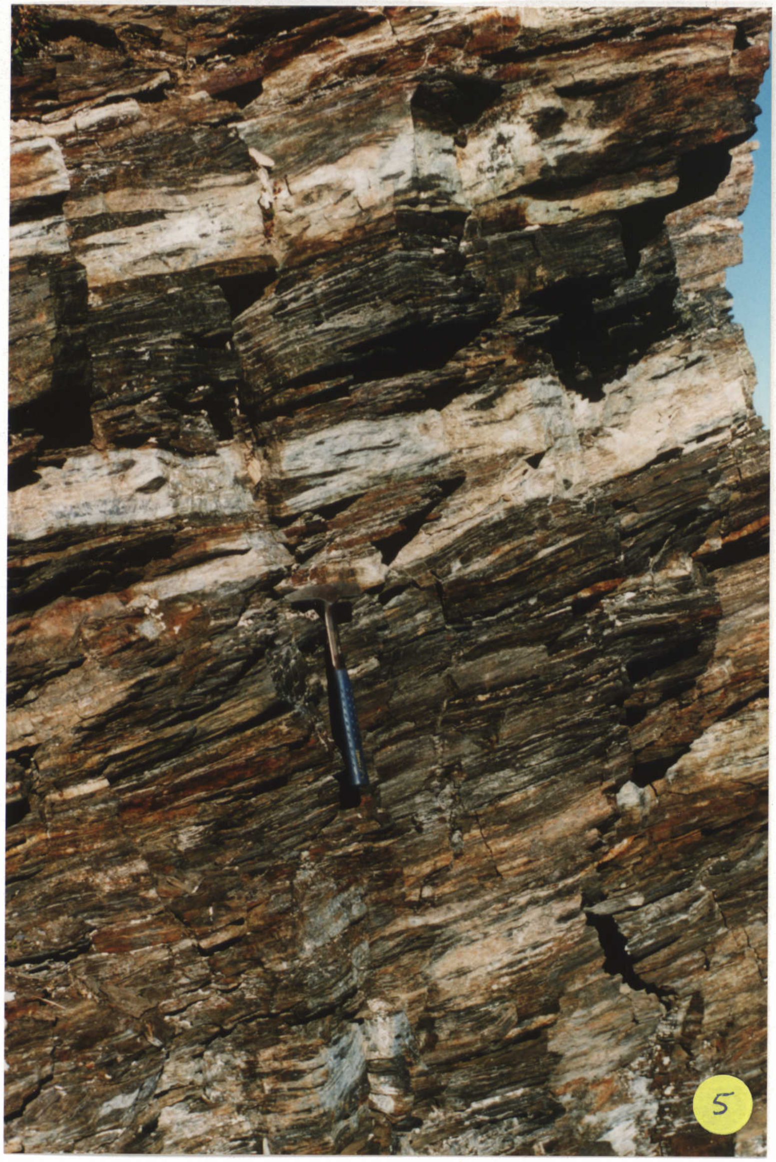
PHOTO 24. Station 89-166: Looking SE at typical F3 minor fold. NE-verging. S3 in axial plane. Lower unit 5 calc-silicate (3D).


1


2

3

4



5

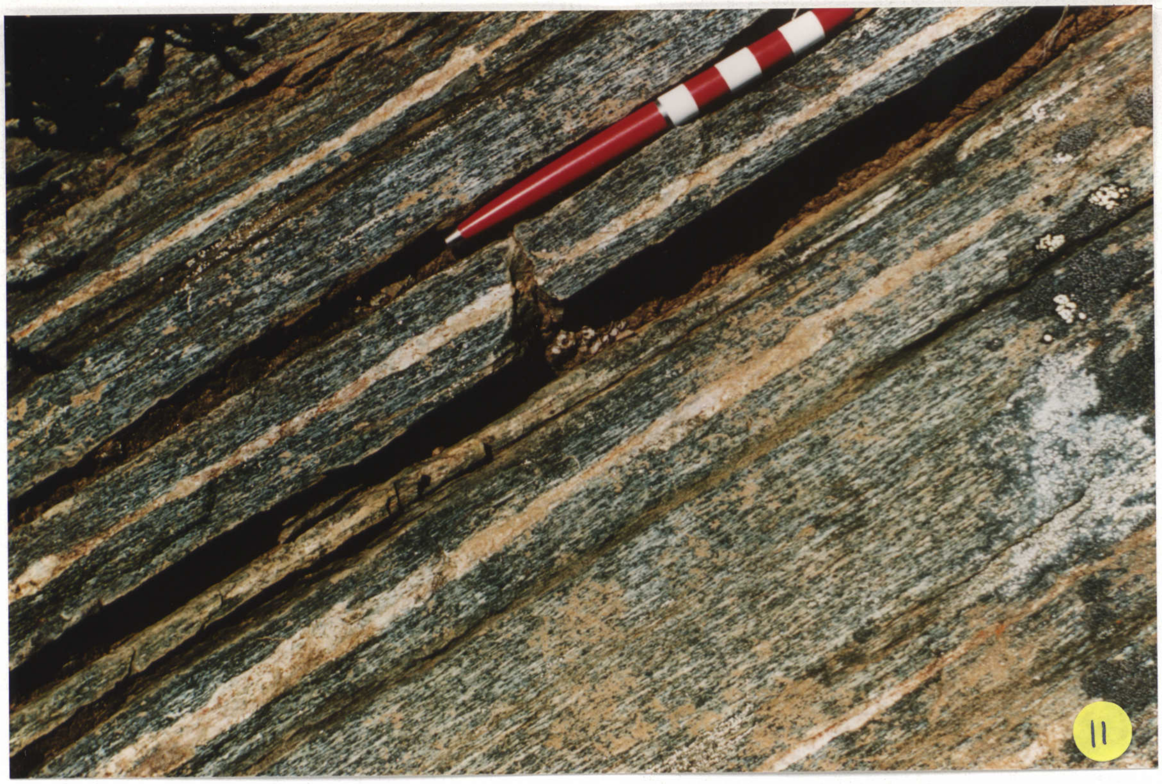
6


7


8

9

10



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12

13

14

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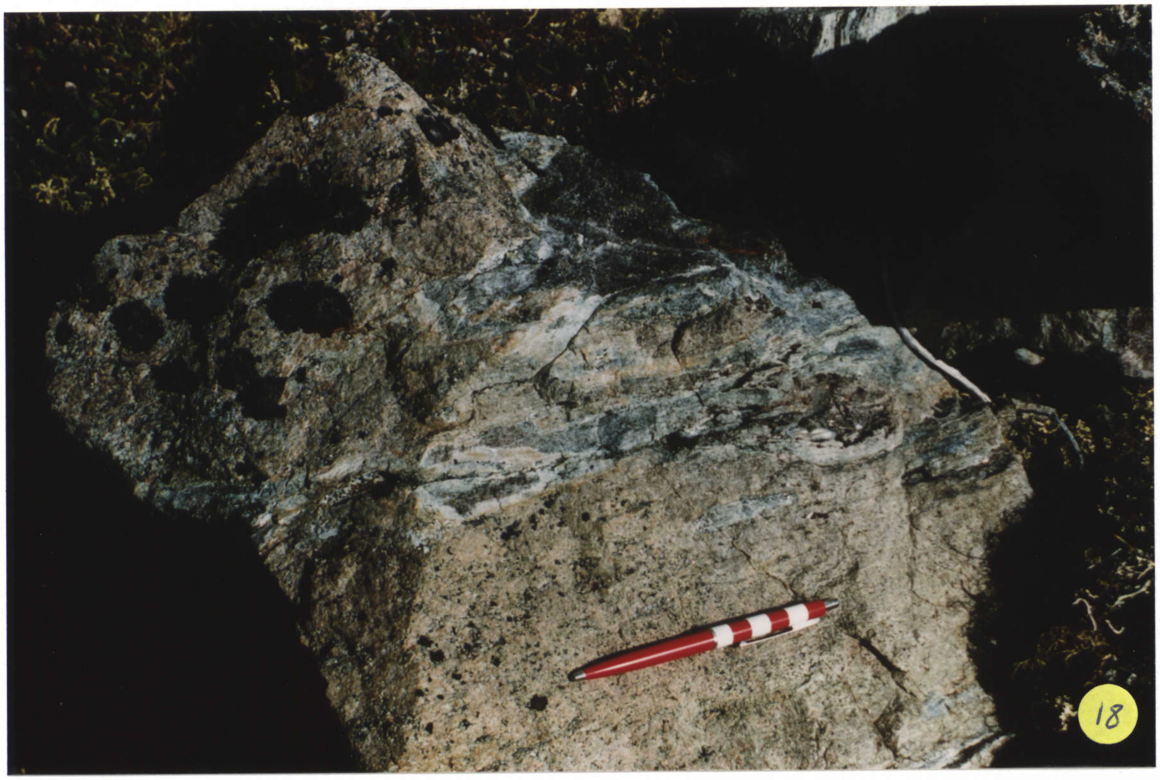
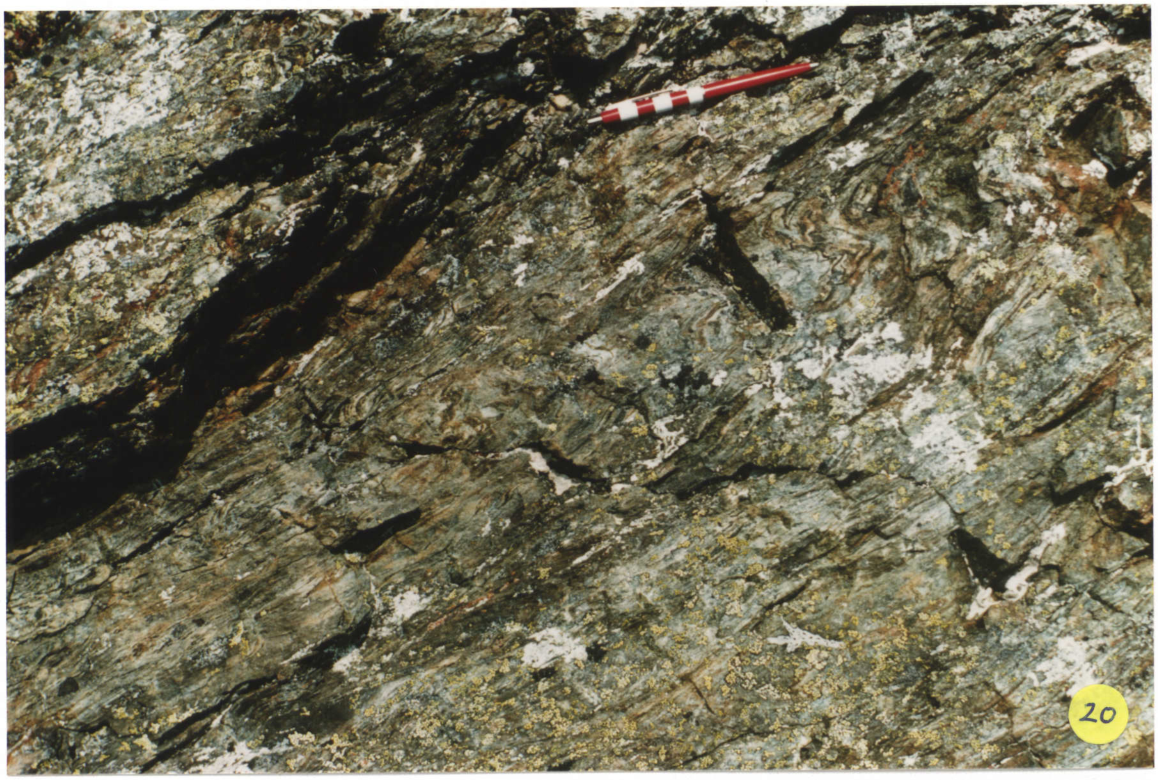
16

17



18

19



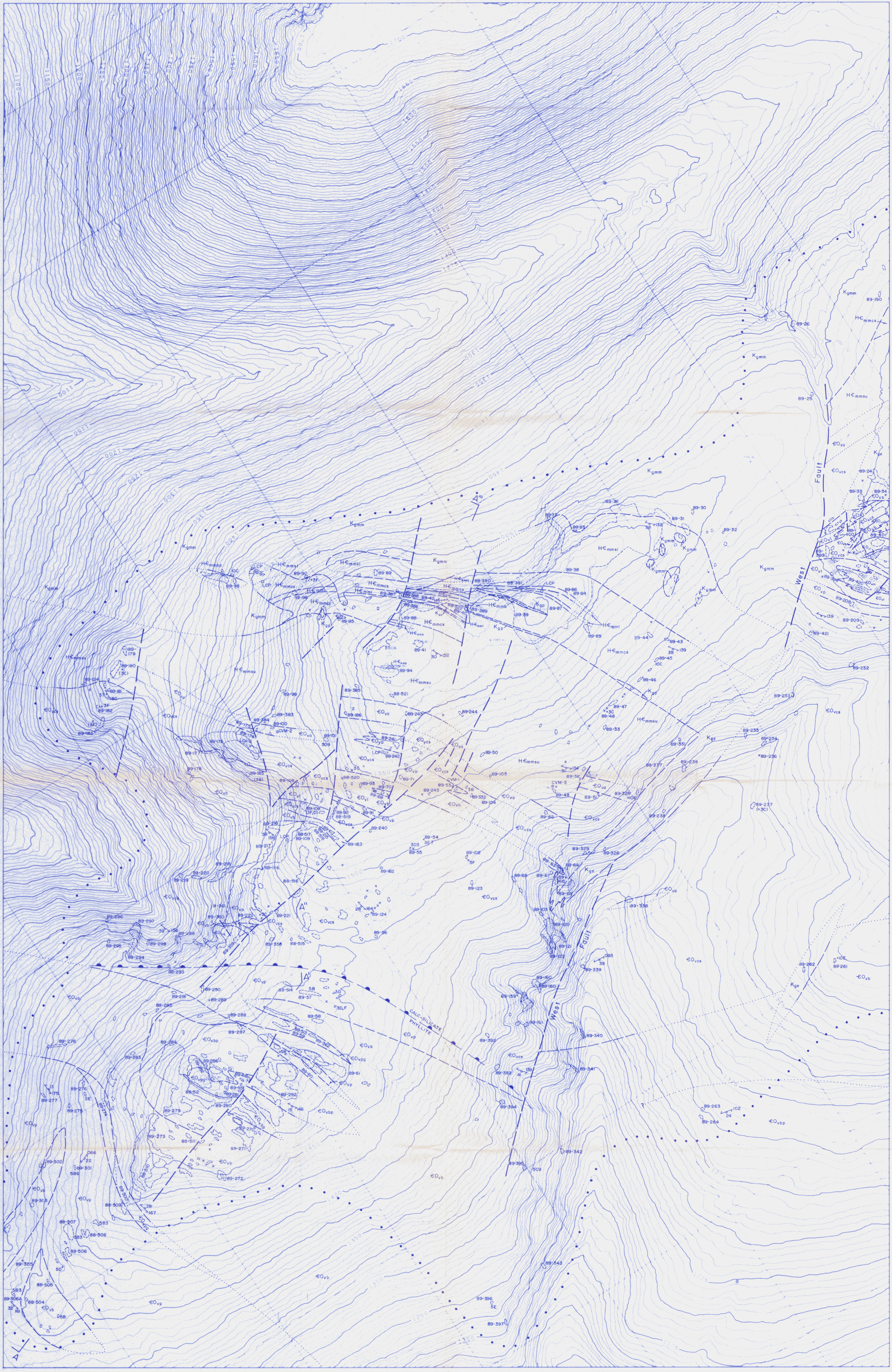
20

21

22


23


24



Orthophoto map compiled from aerial photography taken in August, 1979 by North West Survey Corporation International Ltd.
Coordinates shown are U.T.M. coordinates based on Clarkes Spheroid of 1866 and are computed for Zone 8.
Elevations shown are Geodetic elevations based on the North American Datum, 1927
Horizontal and vertical control survey was performed by Hosford, Impey, Welter & Associates Ltd. and North West Survey Corporation (Yukon) Ltd. in the summer of 1979 for Cyprus Anvil Mining Corporation and is included in a report of the same date.

Sheet No. 6

WEST RIDGE

CURRAGH RESOURCES INC.

ANVIL AREA

Scale 1:5000
Contour Interval 5 Metres

GEOLOGY MAP 6

1:5,000
See Anvil District legend for symbols

FIGURE No. : FIG. 13 DATE : JAN. 1990
DESIGNED BY : Chris Rees
DRAWN BY : WMKB
DRAWING No. : AN-FN-89-002

HUGH HAMILTON LTD.

6

092840

No MAP#
Doc#092840
136

Orthophoto map compiled from aerial photography taken in August, 1979 by North West Survey Corporation International Ltd.
Coordinates shown are U.T.M. coordinates based on Clarkes Spheroid of 1866 and are computed for Zone 8.
Elevations shown are Geodetic elevations based on the North American Datum, 1927.
Horizontal and vertical control survey was performed by Hosford, Impey, Welter & Associates Ltd. and North West Survey Corporation (Yukon) Ltd. in the summer of 1979 for Cyprus Anvil Mining Corporation and is included in a report of the same date.

Sheet No. 7

AHO RIDGE

CURRAGH RESOURCES INC.

ANVIL AREA

Scale 1 : 5000
Contour Interval 5 Metres

GEOLOGY MAP 7

1:5,000
See Anvil District legend for symbols

FIGURE No. : FIG. 14 DATE : JAN. 1990
DESIGNED BY : Chris Rees
DRAWN BY : WMKB
DRAWING No. : AN-FN-89-003

HUGH HAMILTON LTD.
850 West 15th Street, North Vancouver
British Columbia, Canada V7P 1M6
FORESTRY CONSULTANTS AND MAPPING SERVICES

SHEET INDEX
6 7 8 E 6 5 D 6 4

092840

No Map #
Doc# 092840
(137)

Orthophoto map compiled from aerial photography taken in August, 1979 by North West Survey Corporation International Ltd.
Coordinates shown are U.T.M. coordinates based on Clarkes Spheroid of 1866 and are computed for Zone 8.
Elevations shown are Geodetic elevations based on the North American Datum, 1927.
Horizontal and vertical control survey was performed by Hosford, Impey, Welter & Associates Ltd. and North West Survey Corporation (Yukon) Ltd. in the summer of 1979 for Cyprus Anvil Mining Corporation and is included in a report of the same date.

Sheet No. 6

WEST RIDGE

CURRAGH RESOURCES INC.

ANVIL AREA

Scale 1:5000

Contour Interval 5 Metres

STRUCTURE
MAP 6

SCALE 1 : 5000

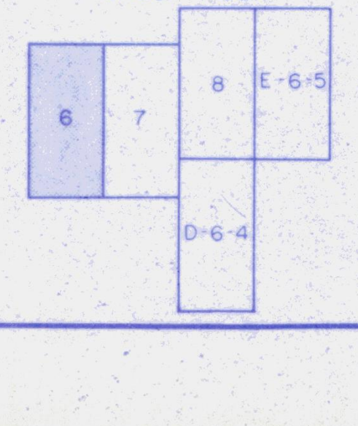
see Anvil District Legend for symbols

FIGURE No. : 15 DATE : NOV. '89
DESIGNED BY : Chris Rees
DRAWN BY :
DRAWING No. : AN-FN-89-004

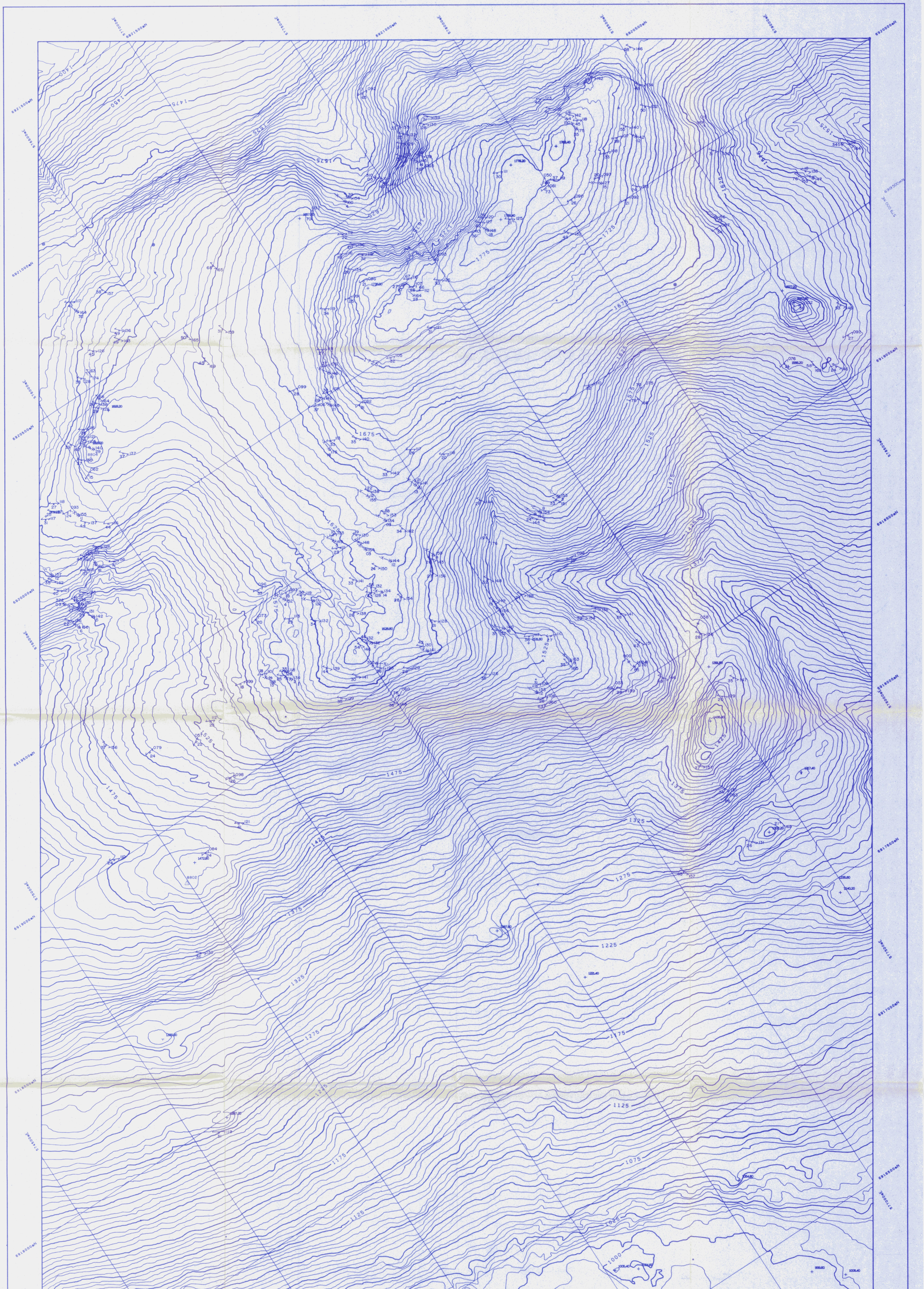
HUGH HAMILTON LTD.
850 West 15th Street, North Vancouver
British Columbia, Canada V7P 1M6
FORESTRY CONSULTANTS AND MAPPING SERVICES

092840

SHEET INDEX



No Map#
Doc#092840
138



Orthophoto map compiled from aerial photography taken in August, 1979 by North West Survey Corporation International Ltd.
Coordinates shown are U.T.M. coordinates based on Clarkes Spheroid of 1866 and are computed for Zone 8.
Elevations shown are Geodetic elevations based on the North American Datum, 1927.
Horizontal and vertical control survey was performed by Hosford, Impey, Welter & Associates Ltd. and North West Survey Corporation (Yukon) Ltd. in the summer of 1979 for Cyprus Anvil Mining Corporation and is included in a report of the same date.

Sheet No. 7

AHO RIDGE

CURRAGH RESOURCES INC.

ANVIL AREA

Scale 1:5000

Contour Interval 5 Metres

STRUCTURE
MAP 7

SCALE 1 : 5000

see Anvil District Legend for symbols

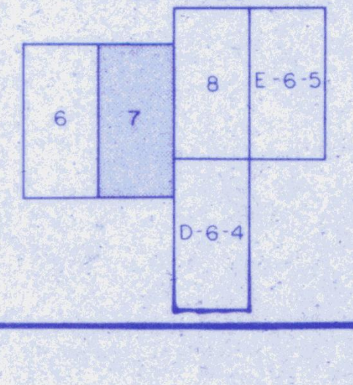
FIGURE No. : 16 DATE : NOV. '89
DESIGNED BY : Chris Rees
DRAWN BY :
DRAWING No. : AN-FN-89-005

HUGH HAMILTON LTD.
850 West 15th Street, North Vancouver
British Columbia, Canada V7P 1M6

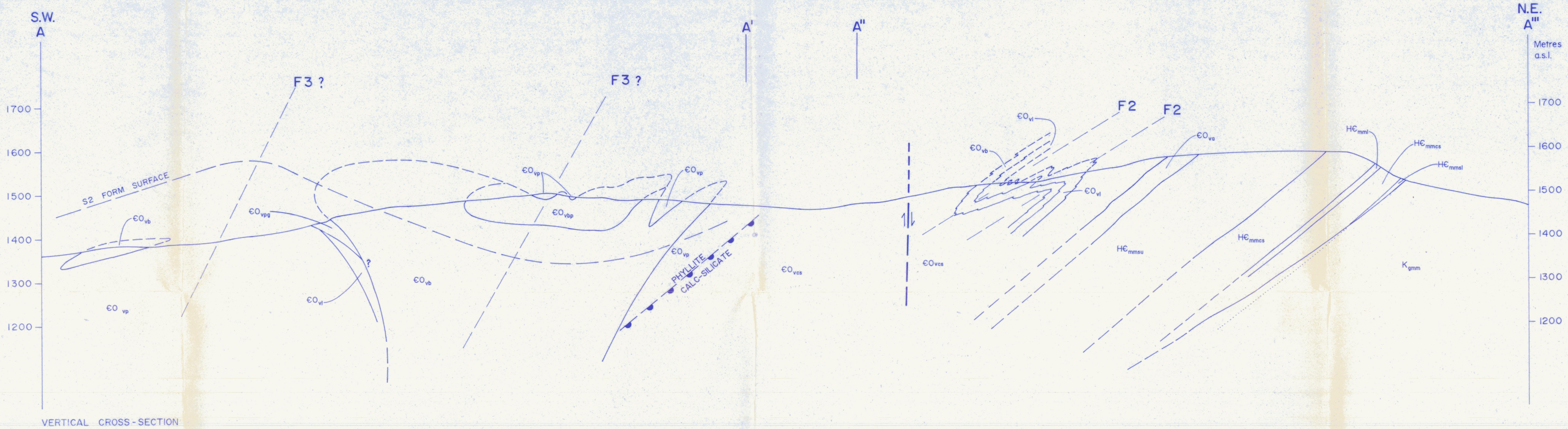
FORESTRY CONSULTANTS AND MAPPING SERVICES

092840

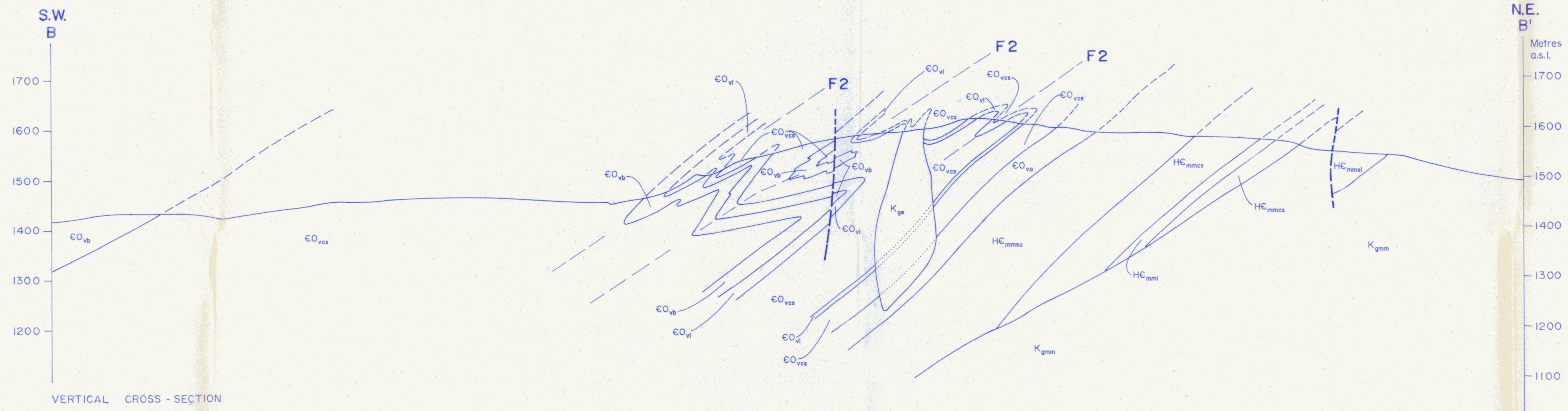
SHEET INDEX



No MAP#
Doc# 092840
139



VERTICAL CROSS-SECTION



VERTICAL CROSS-SECTION

VERTICAL CROSS-SECTION

CURRAGH RESOURCES INC.

ANVIL AREA

Scale 1:5000

CROSS SECTIONS
A-A'''
B-B'
C-C'

092840

see Anvil District Legend for symbols

FIGURE No. : 17
DATE : NOV. 89, MAR. 90
DESIGNED BY : CHRIS REES
DRAWN BY : K. B., Hondesign
DRAWING No. : AN-FN-89-001

No MAP# Doc 092840 (140)

OTHER FEATURES

Geological contact
definite, approximate, inferred

Fault
definite, approximate, inferred
(ball on downthrown side)

Lineament

Thrust fault
definite, approximate, inferred
(teeth on overthrust panel)

Limit of mapping

Outcrop, subcrop, spot

Bedding (S_0), compositional layering (strike/dip)
upright, overturned, vertical

Foliation/Cleavage (strike/dip)
phase I, phase 2, phase 3, unknown

Fold axis (azimuth/plunge)
phase indicated by number of arrowheads

Lineation (azimuth/plunge)
phase indicated by number of arrowheads

elongation/stretching	S
mineral	M
prismatic phenocrysts	P
boudin axes	B
intersection of planes	X
crenulations	C

Fold axial surface trace, with phase indicated by the arrow, plunge direction also indicated by arrow.
upright, overturned

Stratigraphic younging

Shear - shear zone (azimuth/dip)

Fracture/Joint
inclined, vertical

Glacial striae

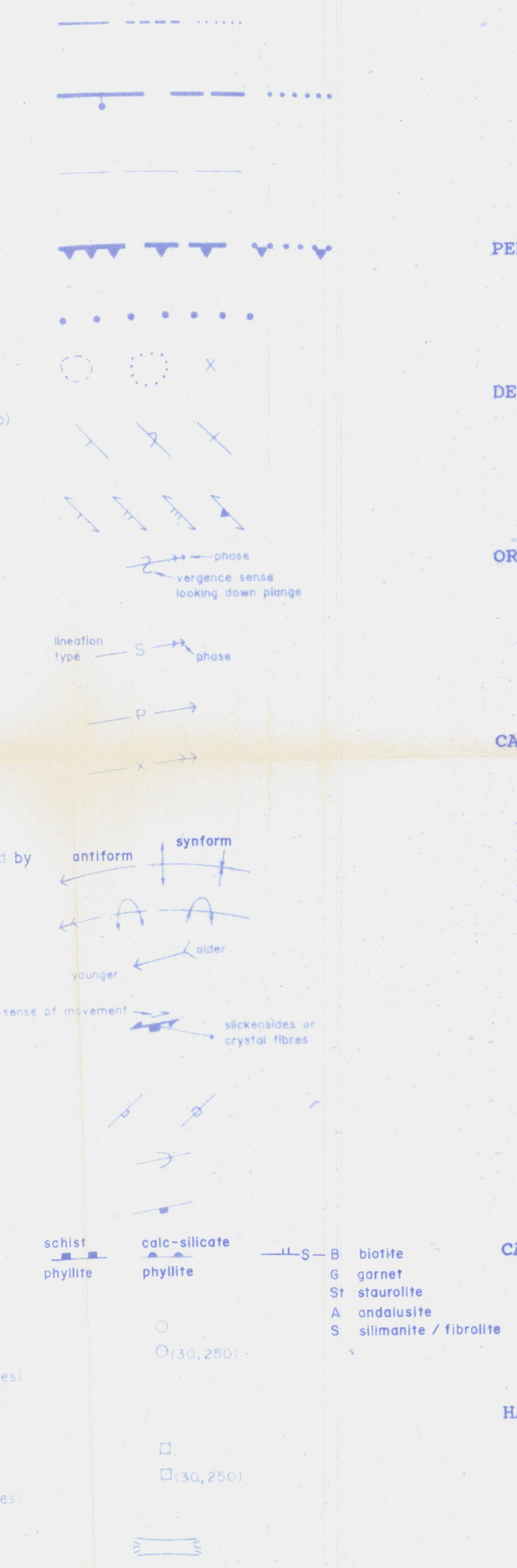
Vein

Mineral isograd (marks on high grade side)

Diamond drill hole
location approximate
location defined in field
(overburden depth, total length - in metres)

Rotary drill hole
location approximate
location defined in field
(overburden depth, total depth - in metres)

Trench



ROCK UNITS

CRETACEOUS
INTRUSIVE ROCKS

K_{gf}	Smokey Quartz - feldspar porphyry
K_{ge}	Hornblende - biotite granite
	Anvil plutonic suite
K_{gmm}	Mount Mye phase: biotite-muscovite granite
K_{go}	Orchay phase: biotite-hornblende granite
K_{gm}	Marjorie phase: biotite-hornblende granite with quartz phenocrysts
K_{gp}	Pegmatite to aplite dykes

PENNSYLVANIAN - PERMIAN
Anvil Range Group

PP_{arb}	Epidotized, massive basalt
PP_{arrch}	Red, green, and beige chert
PP_{arbch}	Green, black, and beige chert

DEVONIAN - MISSISSIPPIAN
Earn Group

DM_{es}	Carbonaceous shale, siltstone, chert
DM_{el}	Carbonaceous shale with bioclastic limestone
DM_{ecg}	Chert pebble conglomerate, sandstone
DM_{eb}	Laminated to nodular Barite

ORDOVICIAN
Road River Group

O_{rrs}	Carbonaceous, slightly calcareous, locally graptolitic shale
	Menzie Creek formation
O_{mc}	Foliated, amygdaloidal basalt, tuff, breccia

CAMBRIAN-ORDOVICIAN
Vangorda formation

eo_{vp}	Calcareous, medium grey phyllite (green schist facies)
eo_{vcs}	Striped cream and brown calc-silicate (amphibolite facies)
eo_{vpg}	Pale green, calcareous phyllite - contact metamorphosed adjacent to metabasites
eo_{vg}	Carbonaceous, locally calcareous phyllite/schist
eo_{vl}	Marble
///	skarn
eo_{vb}	Poorly foliated, dark green, metabasite/amphibolite
eo_{vbf}	Foliated, medium green, chloritic phyllite/schist
eo_{vbp}	Metamorphosed pyroxenite
eo_{va}	Interbedded phyllite, calc-silicate, metabasite. Transitional unit from Vangorda formation to Mount Mye formation.

CAMBRIAN
Ore Zones (in Vangorda and Mount Mye formations)

e_{ms}	Massive sulphides
e_{qs}	Quartzose disseminated sulphides
⬚	Alteration associated with mineralization (white mica envelope)

HADRYNIAN-CAMBRIAN
Mount Mye formation

He_{mmp}	Noncalcareous, brownish grey phyllite
He_{mmpu}	Upper horizon
He_{mmpl}	Lower horizon
He_{mms}	Noncalcareous, brownish grey schist
He_{mmsu}	Upper horizon
He_{mmsl}	Lower horizon
He_{mmcs}	Striped cream and brown calc-silicate
///	Skarn
He_{mmgp}	Noncalcareous, carbonaceous phyllite
He_{mmgs}	Noncalcareous, carbonaceous schist
He_{mml}	Grey marble
///	Skarn
He_{mmglp}	Carbonaceous phyllite with dark marble lenses
He_{mmgls}	Carbonaceous schist with dark marble lenses
He_{mmb}	Poorly foliated, dark green metabasite/amphibolite
He_{mmbf}	Well foliated, medium green chloritic phyllite/schist
He_{mmbp}	Metamorphosed pyroxenite

REFERENCE TO REPORT No.: ______ BY: C. REES
DRAWING No.: AN-FN-89-006

CURRAGH RESOURCES INC.
ANVIL DISTRICT LEGEND
092840

No Map# Doc# 092840 (141)

FIGURE No.: ______ DATE: APR. 90
DESIGNED BY: LEE PIGAGE
DRAWN BY: HM
DRAWING No.: AN-AN-90-001

This invoice to Curragh Resources Inc. is for services rendered by Chris Rees on the Faro NW project for 21 days in the period Monday, October 16 to Sunday, November 5, 1989, inclusive

16 days of office work at $150.00 per day = $2400.0

(5 days not worked)

Yours truly,

C J Rees

November 6, 1989

c/o Curragh Resources Inc.
117 Industrial Road,
WHITEHORSE, Y.T.
Y1A 2T8

SEND TO:	TORONTO ☐ FARO ☑
CODE	**AMOUNT**
JH0710-321	2400.00
APPROVED	DATE 11/13/89.

WHITEHORSE
INVOICE

This invoice is to Curragh Resources Inc. for services rendered by Chris Rees on the Faro NW project in the period Monday, November 27 to Thursday, December 14, 1989, inclusive.

In this period, 5 days of office work claimed,
@ $150.00 per day
= $750.00

(Term of employment expires December 14)

Yours truly

Rees

December 14, 1989

Chris Rees
304-915 Cook Street
VICTORIA BC
V8V 3Z4

ONTO ☐	FARO ☑
E	AMOUNT
dH0710-321	750.00
ED	DATE 12/28/89

RECEIVED DEC - 4 1989

WHITEHORSE
INVOICE

This invoice to Curragh Resources Inc. is for services rendered by Chris Rees on the Faro A.A. project for 21 days in the period Monday, November 6 to Sunday, November 26, 1989, inclusive.

17 days of office work @ $150 per day = $2550.00

(4 days not worked)

Yours truly,

C.J. Rees

December 5, 1989

c/o Curragh Resources Inc.
117 Industrial Road
Whitehorse, Y.T.
Y1A 2T8

SEND TO:	TORONTO ☐ FARO ☒
CODE	AMOUNT
HC71C-321	2550.00
APPROVED	DATE 12/25

This invoice to Curragh Resources Inc. is for services rendered by Chris Rees on the Faro N.W. project for 21 days in the period Monday, September 25 to Sunday, October 15, 1989, inclusive.

16 days of office work @ $150 per day = $2400.00

(5 days not worked)

Yours truly,

CJRees

CHRIS REES

October 17, 1989

C/o Curragh Resources Inc.
117 Industrial Road
WHITEHORSE, Y.T.
Y1A 2T8

TORONTO ☐ FARO ☑

CODE	AMOUNT
1H0710-321	
	2400.00
ROVED	DATE 11/2/89.

This invoice to Curragh Resources Inc. is for services rendered by Chris Rees on the Faro N.W. Project for 21 days in the period Monday September 4 to Sunday, September 24, 1989, inclusive.

7 days of field mapping work @ $300 per day

11 days of office work @ $150 per day

Total = $3750.00 ✓

Yours truly,

CJRees

C. J. REES

October 2, 1989

c/o Curragh Resources Inc.
117 Industrial Road
WHITEHORSE, Y.T.
Y1A 2T8

ORONTO ☒	FARO ☐
ODE	AMOUNT
H0710-321	$3,750.00
ROVED	DATE 10/10/89

RECEIVED SEP 14 1989

This invoice to Curragh Resources Inc. is for services rendered by Chris Rees on the Faro N.W. project for 21 days in the period Monday, August 14 to Sunday, September 3, 1989, inclusive.

19 days of field mapping work @ $300 per day

2 days of office work @ $150 per day

Total = $6000.00

WHITEHORSE INVOICE

Yours truly, C J Rees

C. J. REES

September 11, 1989

c/o Curragh Resources
117 Industrial Road,
WHITEHORSE, Yukon
Y1A 2T8

TO[illegible]	[illegible]
CODE	AMOUNT
JH0710-371	6000.00
[illegible]	DATE Sept 21/89

RECEIVED AUG 22 1

WHITEHORSE INVOICE

This pay invoice to Curragh Resources Inc. is for services rendered by Chris Rees on the Faro N.W. Project, for 21 days in the period Monday, July 24 to Sunday, August 13, 1989, inclusive.

19 days of field mapping work @ $300 per day
1 day of office work @ $150 per day
(1 day not worked)

= $5850.00

Yours truly,

CJ Rees

C. J. REES
August 17, 1989

Chris Rees
c/o Curragh Resources Inc.
117 Industrial Road
WHITEHORSE, Yukon
Y1A 2T8

TORONTO ☐	FARO ☑
CODE	AMOUNT
Faro NW	5850.00
J40 710-332	
APPROVED	DATE 8-25-89

August 7, 1989

This invoice to Curragh Resources Inc. is for services rendered by Chris Rees on the Faro N.W. Project, for 21 days in the period Monday, July 3 to Sunday, July 23, inclusive, 1989

21 days of field mapping work
at $300.00 per day
= $6300.00

Yours truly

C. J. REES

TORONTO ☐	FARO ☐
CODE	AMOUNT
APPROVED	DATE

c/o Curragh Resources Inc
117 Industrial Road
WHITEHORSE, Yukon
Y1A 2T8

P.O. 700633

TORONTO ☐	FARO ☑
CODE	AMOUNT
JH0710-771	$63 00.00
Faro NW	
APPROVED	DATE 8-25-89

This is an invoice to Curragh Resources Inc. for services rendered by Chris Rees on the Faro NW project for 21 days in the period Monday June 12 to Sunday July 2, 1989, inclusive.

This period consists of 13 days of field mapping work at $300.00 per day

= $3900.00

and 8 days of office/camp work at $150.00 per day

= $1200.00

TOTAL = $5100.00

Yours truly

C. J. REES

July 7, 1989

CODE	JH9710 - 321
APPROVED	
DATE	July 10-89

c/o Curragh Resources
117 Industrial Road
WHITEHORSE, Yukon
Y1A 2T8

This is an invoice to Curragh Resources for employment services rendered by Chris Rees for 21 days in the period Monday, May 22 to Sunday, June 11, 1989, inclusive.

This period consists of 16 days of field mapping work at $300 per day
= $4800

and 5 days of office/camp work at $150.00 per day
= $750

Total = $5550.00

Yours truly

CJ Rees

C. J. Rees

June 12, 1989

original sent to Toronto

CODE	JH0710-321
APPROVED	
DATE	

Mt Hundere geology $4800

Faro NW $750

Toronto

9515

May 21, 1989

This is a statement of services rendered by Chris Rees for Curragh Resources for the period Monday May 8 to Sunday May 21, inclusive, 1989.

Whitehorse Office Work @ $150.00/day

May 8-12 ind. ½ } days
May 15-20 ind. } 10½ = $1575.00

Yours faithfully,

CJRees

Faro N.W. Project

CODE	JH0710-599 - (1000.00) JH0710-599 - 73.93 JH0710-321 1575.00
APPROVED	
DATE	

Chris Rees invoice + supplies expenses

invoice for time JH0710-321

? for supplies JH0710-599?

this is on a P.O.

1073.93 - Supplies
1575.00 - JH0710-321
(1000.00) - advance.

JULY 17, 1989

THIS IS A STATEMENT OF EXPENSES RECEIVED FROM CURRAGH RESOURCES AND INCURRED BY CHRIS REES FOR THE FARO N.W. PROJECT, FOR THE PERIOD MAY 23 TO JULY 17, 1989, INCLUSIVE.

(PREVIOUS STATEMENT, APPROX. MAY 19:

CREDIT	$1000.00
DEBIT	$1073.93
→ DEFICIT	-$73.93

)

RECEIVED FROM CURRAGH RESOURCES:

JUNE 12	Cash	(FROM LEE PIGAGE)	$73.00
JUNE 17	CASH	(FROM LEE PIGAGE)	$250.00

TOTAL = + $323.00

EXPENSES INCURRED:

			$
MAY 23	GARBAGE BAGS	RECEIPT # ㉑	2.80
JUNE 18	TYRE REPAIR (15.00) PROPANE (13.25)	RECEIPT # ㉒	28.25

..../2

MAY 21 1989

This is a statement of Cash expenses by Chris R
for Curragh Resources for the period Monday May 8
to Sunday May 21 inclusive, 1989.

Refer to enclosed photocopies for details.

Cash advanced: Two $500.00 cheques = $1000.

Total expenses for this period = $1073.
(Deficit carried by VISA)

Receipts for all expenses are enclosed, numbered f
cross-referencing.

Yours faithfully

Faro N.W. Project

			$
JUNE 19	SPATULA PARING KNIFE	RECEIPT # ㉓	10.74
JUNE 19	MOTOR OIL (3.50) JERRY CAN (19.95)	RECEIPT # ㉔	23.45
JUNE 28	SCREEN	RECEIPT # ㉕	2.40
JUNE 29	ROPE	RECEIPT # ㉖	15.20
JULY 9	POP	RECEIPT # ㉗	9.50
		TOTAL	$ 92.34

→ TOTAL CREDITS THIS PERIOD = + $323.00
TOTAL DEBITS THIS PERIOD = - $92.34

= + $230.66

LESS PREVIOUS DEFICIT FROM MAY 19 (-73.93) = + $156.73

YOURS TRULY,

Chris Rees.

TRANS NORTH TURBO AIR LTD
AIRPORT HANGAR "C" • WHITEHORSE • YU[illegible] Y1A 3E4
TEL[illegible] FAX (403) 668-342[illegible]

RECEIVED AUG 4 1989

NUMBER

INVOICE NUMBER 85983

INVOICE DATE 31/07/89

AREA
B.C ☐
YUKON ☑
NWT ☐
ALTA ☐

CHARTERER: Curragh Resources

BILLING ADDRESS: 117 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2T8

A/C TYPE: 206B

AIRCRAFT REGISTRATION C-: FDDL

FLIGHT DATE: DAY 27 MONTH 07 YEAR 89

PURCHASE ORDER NO.

FUEL & OIL-X TNTA	CUST.	TNTA ~~FUEL USED~~	HRS/LITRES	FROM
✓		JP.4	2.3	

FROM / TO	MILES	HOURS	ZONE	REMARKS · NO. OF PASS · FREIGHT Kg
Setouts		1.2		
Pickups		0.7		~~[illegible]~~
Rtn Ross				
FARO N.W. PROJECT				
JH0710-349				

TORONTO ☐ FARO ☒

CODE	AMOUNT
~~[illegible]~~	~~[illegible]~~
JH0710-349	1547.90

APPROVED DATE Aug 5/89

SUB	G.L.	AMOUNT
1606	502	1403.00
1600	131	144.90

2.3	@	610.00	1,403.00
	@		
	@		
	@		
WAITING TIME	@	/HR.	
FUEL:	@	/LITRE	
FUEL: 230 l	@	63¢ /LITRE	144.90
MEALS & LODGING			
OTHER			
OTHER			
TOTAL	$		1,547.90

TERMS: PAYABLE UPON RECEIPT OF INVOICE.
2% INTEREST PER MONTH (24% PER ANNUM) WILL BE CHARGED ON ALL OUTSTANDING AMOUNTS OVER 30 DAYS. IF INTEREST IS NOT PAID, FUTURE FLIGHTS WILL BE ON A CASH BASIS.

X
CHARTERER'S SIGNATURE

INITIALS: JDW
PILOT'S SIGNATURE
CO-PILOT'S NAME

DPH
ENGINEER'S NAME: HLAOJN.
CYCLES

K

CARRIAGE SUBJECT TO TERMS OF PUBLISHED TARIFF.
TARIFF AVAILABLE TO PUBLIC VIEW AT TRANS NORTH OFFICE.

THIS IS YOUR ONLY INVOICE — PAY UPON RECEIPT

REMIT PAYMENT TO:

TRANS NORTH AIR

TRANS NORTH TURBO AIR LTD
AIRPORT HANGAR "C" • WHITEHORSE • YUKON • Y1A 3E4
TELEPHONE (403) 668-2177 FAX (403) 668-3420

ACCOUNT NUMBER: CU R R LES

INVOICE NUMBER: 85948

INVOICE DATE: 30 06 89

AREA: BC ☐ YUKON ☐ NWT ☐ ALTA ☐

A/C TYPE: 206B

AIRCRAFT REGISTRATION C: F[illegible]

FLIGHT DATE: DAY 30 MONTH 06 YEAR 89

PURCHASE ORDER NO:

CHARTERER: CURRAGH RESOURCES

BILLING ADDRESS: 117 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2T8

FUEL & OIL X TNTA	CUST	TNTA ~~FUEL~~ USED	HRS./LITRES	FROM
✓		JP4	1.1	[illegible]

FROM: [illegible]

TO	MILES	HOURS	ZONE	REMARKS · NO. OF PASS ·	FREIGHT Kg
PHOTOS VANGORDER CRK.		1.1		LEE PIGAGE	
PAX TO CAMP N.W. OF				CHRIS REES	
MINESITE					

DATE: July 11-89

APPROVED

CODE: 1711(0)-349

~~SUB~~	G.L	AMOUNT	
1606	502	671	00
1600	131	69	30

1.1 @ 610.00		671	00
@			
@			
@			
WAITING TIME @ /HR.			
FUEL: 110 l @ 63¢/LITRE		69	30
FUEL: @ /LITRE			
MEALS & LODGING			
OTHER			
OTHER			
TOTAL $		740	30

TERMS: PAYABLE UPON RECEIPT OF INVOICE.
2% INTEREST PER MONTH (24% PER ANNUM) WILL BE CHARGED ON ALL OUTSTANDING AMOUNTS OVER 30 DAYS. IF INTEREST IS NOT PAID, FUTURE FLIGHTS WILL BE ON A CASH BASIS.

X for L. [illegible]
CHARTERER'S SIGNATURE

PILOT'S SIGNATURE

INITIALS

CO-PILOT'S NAME

ENGINEER'S NAME: HLADUN

CYCLES

CARRIAGE SUBJECT TO TERMS OF PUBLISHED TARIFF.
TARIFF AVAILABLE TO PUBLIC VIEW AT TRANS NORTH OFFICE.

THIS IS YOUR ONLY INVOICE — PAY UPON RECEIPT

REMIT PAYMENT TO:

TRANS NORTH AIR

TRANS NORTH TURBO AIR LTD.
AIRPORT HANGAR "C" • WHITEHORSE • YUKON • Y1A 3E4
TELEPHONE (403) 668-2177 FAX (403) 668-3420

RECEIVED JUN 23 1989

ACCOUNT NUMBER: CURRES

INVOICE NUMBER: 85937

INVOICE DATE: 21 06 89

AREA: B.C. ☐ YUKON ☐ NWT ☐ ALTA ☐

CHARTERER: Curragh Resources
317 Industrial Road.
Faro Mine.

BILLING ADDRESS: WHITEHORSE YT Y1A 2T8

A/C TYPE: 2063

AIRCRAFT REGISTRATION C-: FODC

FLIGHT DATE	DAY	MONTH	YEAR
	1 2	0 6	8 9

PURCHASE ORDER NO.

FUEL & OIL-X TNTA	FUEL & OIL-X CUST.	TNTA FUEL USED	HRS LITRES	FROM
✓			1.4	RR

FROM / TO	MILES	HOURS	ZONE	REMARKS - NO. OF PASS - FREIGHT Kg
FROM RR				
TO Grum		0.3		L. Piccace
Recce Photos & Recce				C. Rees
Campsite		0.8		
Return Ross		0.3		

CODE JH0710-349 421.10 471.10
JH1190-349 421.10 471.10
APPROVED

June 89

SUB	G.L.	AMOUNT	
1666	502	854	00
1600	131	88	20

1.4	@	610.00	854.00
	@		
	@		
	@		
WAITING TIME	@	/HR.	
FUEL: 140l	@	63¢/LITRE	88.20
FUEL:	@	/LITRE	
MEALS & LODGING			
OTHER			
OTHER			

TOTAL $ 942.20

K

TERMS: PAYABLE UPON RECEIPT OF INVOICE.
2% INTEREST PER MONTH (24% PER ANNUM) WILL BE CHARGED ON ALL OUTSTANDING AMOUNTS OVER 30 DAYS. IF INTEREST IS NOT PAID, FUTURE FLIGHTS WILL BE ON A CASH BASIS.

X C. Rees
CHARTERER'S SIGNATURE

PILOT'S SIGNATURE

INITIALS

CO-PILOT'S NAME

ENGINEER'S NAME

CYCLES

CARRIAGE SUBJECT TO TERMS OF PUBLISHED TARIFF.
TARIFF AVAILABLE TO PUBLIC VIEW AT TRANS NORTH OFFICE.

THIS IS YOUR ONLY INVOICE — PAY UPON RECEIPT

SAME

SPILSBURY
COMMUNICATIONS LTD.

1495 FRANKLIN ST.
VANCOUVER, B.C.
CANADA V5L 5B6

TELEPHONE: (604) 254-6411
FAX: (604) 254-2080
TELEX: 04-55482

CURRAGH RESOURCES INC.
117 INDUSTRIAL RD.,
WHITEHORSE, YUKON
Y1A 2T8

INV. DATE	CUST. NO.	INV. NO.	OUR ORDER NO.	PAGE
08/20/89	3099	41242	890068	

ASE NO.	PURCHASE DATE	TERR. #	F.S.T. EXEMPT	P.S.T. EXEMPT	DATE SHIPPED	SHIPPING INSTRUCTIONS:
	6/20/89	1	INCLUDED	N.A.		IN POSSESSION

T CODE	DESCRIPTION	ORDERED	SHIPPED	B/ORD.	PRICE	PER	DISC.	AMOUNT
	RENTAL NO. 89-06							
	QTY 1- SBX11A RADIOTELEPHONE SERIAL NBR 86082.	1	1		235.00			235.00
	ONE MONTHS RENTAL FROM AUG. 20/89 THRU TO SEPT. 20/89.							

WHITEHORSE
INVOICE

ORONTO ☐ FARO ☑
CODE
235.00
JH0710-550
VED
DATE Sep 28/89

RECEIVED SEP 18 1989

TAL	DISCOUNT %	DISCOUNT AMOUNT	FED. TAX AMOUNT	PROV. TAX AMOUNT	POSTAGE	MISCELLANEOUS AMOUNT	MISCELLANEOUS DESCRIPTION
.00	0	0.00	0.00	0.00	0.00	0.00	

RENTALS BASED ON A 30 DAY PERIOD ONLY
NO PRORATED RENTAL ALLOWED.

TERMS: NET 30 DAYS.
1½ % INTEREST PER MONTH (18 % PER YEAR)
CHARGED ON OVERDUE ACCOUNTS.

$235.00

PLEASE PAY
THIS AMOUNT

INVOICE ORIGINAL

06591

[illegible]

CURRAGH RESOURCES INC.
117 INDUSTRIAL RD.,
W ITEHORSE, YUKON
Y A 2T8

SPILSBURY COMMUNICATIONS LTD.

1495 FRANKLIN ST.
VANCOUVER, B.C.
CANADA V5L 5B6

TELEPHONE: (604) 254-6411
FAX: (604) 254-2080
TELEX: 04-55482

C RRAGH RESOURCES INC.
117 INDUSTRIAL RD.,
WHITEHORSE, YUKON
Y A 2T8

INV. DATE	CUST. NO.	INV. NO.	OUR ORDER NO.	PAGE
6/20/89	3099	40902	890068	1

RCH SE NO.	PURCHASE DATE	TERR. #	F.S.T. EXEMPT	P.S.T. EXEMPT	DATE SHIPPED	SHIPPING INSTRUCTIONS:
3	6/20/89	1	INCLUDED	N.A.	6/20/89	CAIL01833428076

CT ODE	DESCRIPTION	ORDERED	SHIPPED	B/ORD.	PRICE	PER	DISC.	AMOUNT
L	NO. 89-06	2	2	0	235.00		00%	470.00
	QTY 1- SBX11A RADIOTELEPHONE							
	S/N- 86082. 2 MONTHS RENTAL							
	FROM JUNE 20 THRU AUG 20/89							
	PURCHASE ITEMS-							
	85-222 CHANNEL CRYSTALS	4	4	0	28.34		00%	113.36
	PREPAID 958.36 THANK YOU							

~~CODE~~	
~~APPROVED~~	
~~DATE~~	

Prepaid
file

OTAL	DISCOUNT %	DISCOUNT AMOUNT	FED. TAX AMOUNT	PROV. TAX AMOUNT	POSTAGE	MISCELLANEOUS AMOUNT	MISCELLANEOUS DESCRIPTION
83 36	0	0.00	0.00	0.00	0.00	0.00	

~~583.36~~ 0.00

TERMS: NET 30 DAYS.
1½ % INTEREST PER MONTH (18 % PER YEAR)
CHARGED ON OVERDUE ACCOUNTS.

PLEASE PAY
THIS AMOUNT

06344

INVOICE ORIGINAL

1	SBX11A			$ 220.26
2	11A	CHANNELING CHARGES (LESS CRYSTALS PURCHASED)	@ 110.13	

Total Purchase Price $ 2,090.18

207

RONTO ☐	FARO ☑
ODE	MOUNT
JH0710-321	$ 4.97
APPROVED	DATE

And a
pls remit from P.C.

October 3, 1989

Statement of expenses received from Curragh Resources and expenses incurred by Chris Rees on the Faro N.W. project, for the period July 18 to October 3, 1989, inclusive.

Received from Curragh Resources in this period = 0

Expenses incurred in this period = $ 161.70
Receipts (# 28 to # 41) enclosed

Previous statement submitted July 17 :
Total credits to July 17 = $ 1323.00
Total debits to July 17 = $ 1166.77
Balance, July 17 = + $ 156.73

Current balance, October 3 :

+ $156.73 − $ 161.70 = − $ 4.97

Yours truly,

C. J REES

paid from
petty cash a.h.

REMIT PAYMENT TO:

TRANS NORTH AIR

TRANS NORTH TURBO AIR LTD.
AIRPORT HANGAR "C" • WHITEHORSE • YUKON • Y1A 3E4
TELEPHONE (403) 668-2177 FAX (403) 668-[illegible]

RECEIVED SEP 8 1989

ACCOUNT NUMBER	C U R R E S
INVOICE NUMBER	86057
INVOICE DATE	11 09 89
AREA	BC ☐ YUKON ☑ NWT ☐ ALTA ☐
A/C TYPE	B146
AIRCRAFT REGISTRATION C	F D P C
FLIGHT DATE	DAY 06 MONTH 09 YEAR 89
PURCHASE ORDER NO.	

CHARTERER: CURRAGH RESOURCES.

BILLING ADDRESS: 117 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2T8

FUEL & OIL X TNTA	CUST.	TNTA FUEL USED	HRS./LITRES	FROM
✓			110 l	YDM

FROM Ross R.

TO	MILES	HOURS	ZONE	REMARKS · NO. OF PASS ·	FREIGHT Kg
– GRUM CAMP		1.1			
– FARO N.W CAMP					
– move out camp				FARO NW	
– GRUM CAMP				PROJECT	
– ROSS R.					

ONTO ☐ FARO ☑
AMOUNT
JH0710.349 740.30
APPROVED
DATE Sep 28/89

SUB	G.L.	AMOUNT
1606	502	671.00
1600	131	69.30

1.1	@ 610.00		671.00
	@		
	@		
	@		
WAITING TIME	@	/HR.	
FUEL: 110 l	@ 0.63	/LITRE	69.30
FUEL:	@	/LITRE	
MEALS & LODGING			
OTHER			
TOTAL	$ 740.30		

TERMS: PAYABLE UPON RECEIPT OF INVOICE.
2% INTEREST PER MONTH (24% PER ANNUM) WILL BE CHARGED ON ALL OUTSTANDING AMOUNTS OVER 30 DAYS. IF INTEREST IS NOT PAID, FUTURE FLIGHTS WILL BE ON A CASH BASIS.

X
CHARTERER'S SIGNATURE

INITIALS	
JBB	J. Boles PILOT'S SIGNATURE
	CO-PILOT'S NAME
OPH	ENGINEER'S NAME HLADUN
1	CYCLES

WHITEHORSE INVOICE

CARRIAGE SUBJECT TO TERMS OF PUBLISHED TARIFF.
TARIFF AVAILABLE TO PUBLIC VIEW AT TRANS NORTH OFFICE.

THIS IS YOUR ONLY INVOICE — PAY UPON RECEIPT

REMIT PAYMENT TO

TRANS NORTH AIR
TRANS NORTH TURBO AIR LTD
AIRPORT HANGAR "C" • WHITEHORSE • YUKON • Y1A 3E4
TELEPHONE (403) 668-[illegible] FAX (403) 668-3420

RECEIVED AUG 22 1989

ACCOUNT NUMBER: W L L 66 S

INVOICE NUMBER: 86003

INVOICE DATE			AREA
16	08	89	BC ☐ YUKON ☑ NWT ☐ ALTA ☐

CHARTERER: CURRAGH RESOURCES

BILLING ADDRESS: 117 INDUSTRIAL ROAD.
WHITEHORSE YT Y1A 2T8

A/C TYPE: 206B

AIRCRAFT REGISTRATION C-FDDC

FLIGHT DATE	DAY	MONTH	YEAR
	06	08	89

PURCHASE ORDER NO.

FUEL & OIL X TNTA ☑ CUST. ☐

~~TNTA FUEL USED~~ 69.4 [✓ HRS] / LITRES FROM PA

	MILES	HOURS	ZONE	REMARKS · NO. OF PASS ·	FREIGHT Kg
FROM WL					
TO SETOUT & PICKUP		0.6		JOHN BRADFORD	
SWIM LK		0.3			

TORONTO ☐ FARO ☑

CODE	AMOUNT
SWIM BAS	
JH0670-34	605.70

APPROVED

DATE 8-25-89

SUB	G.L.	AMOUNT	
1606	802	549	00
1600	131	56	70

0.9	@	610.00	549	00
	@			
	@			
	@			
WAITING TIME	@	/HR.		
FUEL: 901	@	6.3¢/LITRE	56	70
FUEL:	@	/LITRE		
MEALS & LODGING				
OTHER				
OTHER				

TOTAL $ 605.70

TERMS: PAYABLE UPON RECEIPT OF INVOICE.
2% INTEREST PER MONTH (24% PER ANNUM) WILL BE CHARGED ON ALL OUTSTANDING AMOUNTS OVER 30 DAYS. IF INTEREST IS NOT PAID, FUTURE FLIGHTS WILL BE ON A CASH BASIS.

X
CHARTERER'S SIGNATURE

JDW
PILOT'S SIGNATURE

INITIALS

CO-PILOT'S NAME

DPH
ENGINEER'S NAME HARVEY

CYCLES

CARRIAGE SUBJECT TO TERMS OF PUBLISHED TARIFF.
TARIFF AVAILABLE TO PUBLIC VIEW AT TRANS NORTH OFFICE.

THIS IS YOUR ONLY INVOICE — PAY UPON RECEIPT

TRANS NORTH AIR
TRANS NORTH TURBO AIR LTD
AIRPORT HANGAR "C" • WHITEHORS[illegible]ON • Y1A 3E4
TELEPHONE (403) 668-2177 FAX (403) 6[illegible]0

ACCOUNT NUMBER: W C R REES

INVOICE NUMBER 86002

INVOICE DATE: 16 04 89

AREA: B.C. ☐ YUKON ☑ NWT ☐ ALTA ☐

CHARTERER: CURRAGH RESOURCES

BILLING ADDRESS: 117 INDUSTRIAL ROAD
WHITEHORSE YT Y1A 2T8

A/C TYPE: Z06B

AIRCRAFT REGISTRATION C: FDDL

FLIGHT DATE: DAY 06 MONTH 08 YEAR 89

PURCHASE ORDER NO.

FUEL & OIL-X TNTA	CUST.	TNTA FUEL USED	[✓ HRS.] / LITRES	FROM
✓		JP.I	1.0	dh

FROM dh

TO	MILES	HOURS	ZONE	REMARKS - NO. OF PASS -	FREIGHT Kg
SETOUT RECCE		0.7		CHRIS REES	
PICKUP.		0.3			

~~TORONTO~~ ☐ FARO ☑

CODE	AMOUNT
FaroNW	673.00
J40710-349	

APPROVED
DATE 8-25-89

SUB		AMOUNT	
1606	802	610	00
1600	131	63	00

	1.0	@	610^00	610.00
		@		
		@		
		@		
WAITING TIME		@	/HR	
FUEL:	100l	@	63¢/LITRE	63.00
FUEL:		@	/LITRE	
MEALS & LODGING				
OTHER				
OTHER				

TOTAL $ 673.00

TERMS: PAYABLE UPON RECEIPT OF INVOICE.
2% INTEREST PER MONTH (24% PER ANNUM) WILL BE CHARGED ON ALL OUTSTANDING AMOUNTS OVER 30 DAYS. IF INTEREST IS NOT PAID, FUTURE FLIGHTS WILL BE ON A CASH BASIS.

X J Bradford
CHARTERER'S SIGNATURE

JDW
PILOT'S SIGNATURE

INITIALS

CO-PILOT'S NAME

DPH
ENGINEER'S NAME
Hason.

CYCLES

CARRIAGE SUBJECT TO TERMS OF PUBLISHED TARIFF.
TARIFF AVAILABLE TO PUBLIC VIEW AT TRANS NORTH OFFICE.

THIS IS YOUR ONLY INVOICE — PAY UPON RECEIPT

13679 NAME AND ADDRESS—PLEASE PRINT

RECEIVED OCT 10 19

NORCAN F.L.F. WKAN

NORCAN LEASING LTD.
917. 4 ALASKA HIGHWAY, WHITEHORSE, YUKON Y1A 3E5
1-403-668-2137

1. WHITE GEOPHYSICS

P.O. # JH0710.

(CURRAGH - WHSE. OFFICE).

10. KILOMETERS IN: 15929

11. KILOMETERS OUT: 14794

KILOMETERS DRIVEN: 1135

14. DATE & TIME IN: SEPT. 17/89 1700

15. DATE & TIME OUT: SEPT 10/89 1100

16. DAYS UTILIZED: 8 DAYS

17. @ ¢

2. TYPE OF PAYMENT:

☑ one: ☐ CASH ☒ ☒ DIS. PAL

C/C NAME

AUTH'D BY

3. VEHICLE

VEHICLE NO.	MAKE	TYPE
6201141	FORD	4X4 P.UP.

LICENSE NO.	PROVINCE	COMMODITY HAULED
RPX 1	Y.T.	

4. ADDITIONAL CHARGE

OPTIONAL EQUIPMENT/MISC.: JACK & WRENCHES $ 1100 90

VEHICLE WILL BE RETURNED 24 / 09 / 89 TO
DAY MTH YR

5. ADDITIONAL TERMS AND CONDITIONS:

* CANOPY # 215 - $10.00/DAY
- EXTRA OR $75.00 MAXIMUM
PER MONTH.

18. TIME	19. RATE		
1 DAY @	$80.00	80	00
1 WK @	$480.00	480	00
@	$1100.00		

RENTER IS RESPONSIBLE FOR ALL OVERHEAD AND CARGO DAMAGES WHETHER OR NOT THE COLLISION DAMAGE WAIVER IS ACCEPTED

20. SUB TOTAL	560	00
21.		
22. TOTAL TIME & KM	560	00
23. ADDITIONAL CHARGES	75	00
24. SUB TOTAL	635	00
	~~7797~~ 590	00
27. SUB TOTAL	1225	00
28. TAX: % OF SUB TOTAL		
29. FUEL	49	80
30. TOTAL CHARGE	1274	80
31. ROAD EXPENSES		
32. NET CHARGES		
TOTAL DEPOSIT		

25. COLLISION DAMAGE WAIVER, SEE PARA. 7
DAYS ☐ @
WKS. ☐ @
MTHS. ☐ @
ACCEPTS X
DECLINES X

26. AMOUNT DEDUCTIBLE $ 1000.00

28. Ded. per accident

29. FUEL: 83 GAL. @ 60 ¢

TICKET NO

33. DEPOSITS
1
2

TORONTO ☐	FARO ☑
CODE	AMOUNT
JH0710-341	1274.80
	DATE 11/2/89.

THIS IS YOUR INVOICE PAYABLE ON RECEIPT TO:
NORCAN LEASING LTD.
917. 4 ALASKA HIGHWAY. WHITEHORSE YUKON Y1A 3E5

6. I HAVE READ THE TERMS AND CONDITIONS ON BOTH SIDES OF THIS RENTAL AGREEMENT AND AGREE HERETO.

X B R

SIGNATURE

CUSTOMER IS LIABLE FOR ALL PARKING AND TRAFFIC VIOLATIONS

7. DRIVER

NAME: BRENT ~~[illegible]~~ ROBERTSON AGE

ADDRESS: 1319 224th. ST. LANGLEY, BC.

LICENSE: 3272889 PROV.: B.C. EXP. DATE

8. OUT BY SIGNATURE: V3A 6H5.

34. TOTAL AMOUNT DUE: 1274 80

35. CASH REFUND REC'D BY

36. IN BY SIGNATURE

13679

THIS INVOICE NUMBER MUST APPEAR ON ALL CORRESPONDENCE AND REMITTANCES.

WHILE ON THE ROAD:
- OBTAIN RECEIPTS FOR ALL REIMBURSABLE EXPENSES AND PRESENT THEM WITH THIS COPY AT CHECK-IN.
- REPORT ACCIDENTS IMMEDIATELY TO LOCAL POLICE AND CALL NORCAN COLLECT.
- IF DELAYED IN RETURNING VEHICLE PLEASE CALL NORCAN COLLECT.

GAS NOT INCLUDED IN RATES

NORCAN
FEATURES FORD CARS & TRUCKS

WHITE - ORIGINAL • YELLOW - CUSTOMER COPY • PINK - INVOICE COPY • GREEN - ACCTS. RECEIVABLE

VEHICLE CONDITION REPORT

RECEIVED OCT 10 1989

NORCAN

NORCAN LEASING LTD.
917.4 ALASKA HIGHWAY, WHITEHORSE, YUKON Y1A 3E5
1-403-668-2137

RENTING LOCATION WHITEHORSE, Y.T.
NORCAN EMPLOYEE GERI
UNIT NO. 620141 LIC. RPX 1
R/A NO. 13679
RENTER WHITE GEOPHYSICS

P.O. # JH0710.

	MILEAGE / KILOMETERS	TIME
OUT	14794	SEPT. 10/89
IN		

	SPARE	JACK	WRENCHES	CANOPY	WINCH	FIRE EXT.	S. KIT		
OUT	✓	✓	✓	#215					
IN									

OUT

FRONT:
LEFT: REAR BOX - DENT AT TOP.
RIGHT:
REAR:
TOP:
CARGO AREA:
INTERIOR:
MISC.:

560 00

7747
570 00

PERSON ACCEPTING:
NAME:
ADDRESS:
SIGNATURE: PH.:

IN

FRONT:
LEFT:
RIGHT: VERY Heavy Scratches
REAR:
TOP: BOTH SIDES
CARGO AREA:
INTERIOR:
MISC.:

PERSON RELEASING:
NAME:
ADDRESS:
SIGNATURE: PH.:

FILE

Mile - 917.4 Alaska Hwy.
Whitehorse, Yukon
Y1A 3E5

RECE[illegible]ED OCT 10 1989

☐ OWNER
☐ DEALER

DATE 22 - 9 1989

CUSTOMER WHITE GEOPHYSICS

ADDRESS Curragh TELEPHONE

ADJUSTER TELEPHONE

INSURANCE CO. TELEPHONE

ATTN. OF TELEPHONE

ADDRESS TELEPHONE

MAKE FORD MODEL 4x4 P/U ~~[illegible]~~co YEAR 89

MILEAGE SERIAL NO. 620141

LICENSE RBH- MOTOR NO.

TRIM RPX-1 PAINT

DESCRIPTION AND LABOUR	AMOUNT		QTY	PARTS	AMOUNT	
PAINT						
RIGHT & LEFT SIDES		10			440	00
TOTAL				TOTAL	440	00

ESTIMATED COST OF REPAIRS

PARTS		
LABOUR	440	00
SUBLET & NET ITEMS	150	00
TAX		
TOTAL	$590	00

This estimate expires 30 days from the above date unless otherwise specified.

This is purely an estimate and not a definite contract price. Owing to the impossibility of determining damage of concealed parts, we reserve the right to submit a further estimate for approval or otherwise. Prices on parts subject to change without notice.

ESTIMATED BY

07797 SHEET NO. OF SHEETS

REDIFORM 5M209

NORCAN LEASING LTD.
MILE 917.4 ALASKA HIGHWAY
WHITEHORSE, YUKON Y1A 3E5

09/01/89	CURRAGH RESOURCES			CU103	

MONTHLY RENTAL INVOICE FOR THE MONTH OF AUGUST / 89

THIS INVOICE NUMBER :			[illegible]
RENTAL PERIOD :	FROM :		08/01/89
	TO	:	08/31/89
RENTAL AGREEMENT #			12893
NORCAN VEHICLE #			6201830
LICENSE PLATE NO.			RTG 1
CONTRACT/PO NO.			MONTHLY RENTAL
MONTHLY RATE			1100.00
TIME PERIOD			ONE MONTH
LEASE CHARGES			1100.00

TORONTO ☐	FARO ☑
ODE	AMOUNT
~~J[illegible]~~	~~[illegible]~~
JH0710-341	1100.00
ROVED	DATE Sep 6/89

TOTAL : 1100.00

Sep 6/89

CURRAGH RESOURCES
117 INDUSTRIAL ROAD

WHITEHORSE Y1
Y1A 2T8

NORCAN LEASING LTD.
MILE 917.4 ALASKA HIGHWAY
WHITEHORSE, YUKON Y1A 3E5

RECEIVED AUG 1 1989

7/31/89	CURRAGH RESOURCES			CU103	

MONTHLY RENTAL INVOICE FOR THE MONTH OF JULY / 1989

THIS INVOICE NUMBER :		3044
RENTAL PERIOD :	FROM :	07/01/89
	TO :	07/31/89
RENTAL AGREEMENT #		12892
NORCAN VEHICLE #		5201726
LICENSE PLATE NO.		FH 2
CONTRACT/PO NO.		MONTHLY RENTAL
MONTHLY RATE		1100.00
TIME PERIOD		ONE MONTH
LEASE CHARGES		1100.00

Faro NW

SEND TO: TORONTO ☐ FARO ☑

CODE	AMOUNT
JH0710-340	1100.00
APPROVED	DATE Aug /89

TOTAL : 1100.00

CURRAGH RESOURCES
117 INDUSTRIAL ROAD

WHITEHORSE YT
Y1A 2T8

NORCAN LEASING LTD.
MILE 917.4 ALASKA HIGHWAY
WHITEHORSE, YUKON Y1A 3E5

RECEIVED OCT 10 1989

10/03/89	CURRAGH RESOURCES			01168	

MONTHLY RENTAL INVOICE FOR THE MONTH OF SEPTEMBER / 89

THIS INVOICE NUMBER :		3359
RENTAL PERIOD :	FROM :	09/01/89
	TO :	09/30/89
RENTAL AGREEMENT #		12893
NORCAN VEHICLE #		6201230
LICENSE PLATE NO.		PTG 1
CONTRACT/PO NO.		MONTHLY RENTAL
MONTHLY RATE		1100.00
TIME PERIOD		ONE MONTH
LEASE CHARGES	- 240	1100.00

ONTO ☐	FARO ☑
CODE	AMOUNT
[illegible]	1100.00
JH0710-341	1100,00
SIGNED	DATE 11/2/89

11-2/89

TOTAL : 1100.00

CURRAGH RESOURCES
117 INDUSTRIAL ROAD

WHITEHORSE YT
Y1A 2T8

NORCAN LEASING LTD.
MILE 917.4 ALASKA HIGHWAY
WHITEHORSE, YUKON Y1A 3E5

09/01/89	CURRAGH RESOURCES			00103	

MONTHLY RENTAL INVOICE FOR THE MONTH OF AUGUST / 89

INVOICE NUMBER :	[illegible]
[illegible] FROM :	08/01/89
TO :	08/31/89
RENTAL AGREEMENT #	12894
UNIT VEHICLE #	6201800
LICENSE PLATE NO.	RTG 7
[illegible]	MONTHLY RENTAL
MONTHLY RATE	900.00
TIME PERIOD	ONE MONTH
LEASE CHARGES	900.00

TORONTO ☐	FARO ☑
CODE	AMOUNT
~~[illegible]~~	~~[illegible]~~
~~[illegible]~~	900.00
JHo 710-341	
APPROVED	DATE Sep 6/89

Lee

TOTAL : 900.00

CURRAGH RESOURCES
117 INDUSTRIAL ROAD

WHITEHORSE YT
Y1A 2[illegible]6

RECEIVED SEP 8 1989

LISTERS RENTALS LTD.
3209 - 3rd AVENUE
WHITEHORSE, YUKON
Y1A 5J5 TEL: (403) 668-2776

DATE Sept 1 19 89

NAME Curraugh Resources Inc

ADDRESS 117 Industrial Road Whitehorse YT

POSTAL CODE

QUANTITY	DESCRIPTION	PRICE	AMOUNT
1	Rental of Suzuki ATV LTF-4WD		800.00
1	ATV Trailer		80.00

ENTERED SEP 18 1989

TORONTO ☐	FARO ☑
CODE	AMOUNT
JH0 710-341	880.00
APPROVED	DATE Sep 08/89

PO 700651.

CLERK ○ CASH ○ C.O.D. ☑ CHARGE ○ ON ACCT. ○ MDSE. RET. ○ PAID OUT

TAX

I HAVE RECEIVED THE ABOVE IN GOOD ORDER.

X

TOTAL 880.00

MOORE® FLATPAKIT® 2 REDIFORM 5R096E

17054

LISTERS RENTALS LTD.
3209 • 3rd AVENUE
WHITEHORSE, YUKON
Y1A 5J5 TEL: (403) ~~668~~-2776

June 1 19 87

NAME CURRAGH RESOURCES
ADDRESS 117 INDUSTRIAL ROAD
POSTAL CODE WHSE-Y-T.

QUANTITY	DESCRIPTION	PRICE	AMOUNT
1	RENTAL SUZUKI CTF4WDJ		900.00
1	TRAILER RENTAL		30.00
	ABOVE FOR 1ST MONTH		
2	FILTERS		9.90
			939.90
		TAX	
		TOTAL	[illegible]

RECEIVED JUN - 5 1987

FARO NW
PO # 700651

CODE JH0710 341
APPROVED

CLERK ○ CASH ○ C.O.D. ○ CHARGE ○ ON ACCT. ○ MDSE. RET. ○ PAID OUT

I HAVE RECEIVED THE ABOVE IN GOOD ORDER.
X L C Pigage

MOORE FLATPAK 2 REDIFORM 5R096E

17012

RECEIVED JUL 6 1989

LISTERS RENTALS LTD.
3209 - 3rd AVENUE
WHITEHORSE, YUKON
Y1A 5J5 TEL: (403) 668-2776

DATE July 4 1989

NAME Curragh Resources

ADDRESS 117 Industrial Road Whitehorse YT

POSTAL CODE

QUANTITY	DESCRIPTION	PRICE	AMOUNT
1	Rental of Suzuki LTF4WD.		800.00
1	Trailer Rental		80.00

Above for 2nd Month

Faro nw
PO 700651

DATE July 11-89
APPROVED
CODE 3EHO10-341

CLERK ○ CASH ○ C.O.D. ○ CHARGE ○ ON ACCT. ○ MDSE. RET. ○ PAID OUT ○

TAX

TOTAL 880.00

I HAVE RECEIVED THE ABOVE IN GOOD ORDER.
X

MOORE® FLATPAKIT® 2 REDIFORM 5R096E

17024

Lister Rentals

WHITEHORSE INVOICE

DATE Aug 2 19 89

NAME Curragh Resources

ADDRESS 117 Industrial Road

Whitehorse POSTAL CODE

QUANTITY	DESCRIPTION	PRICE	AMOUNT
1	Rental of Suzuki LTF4WD ATV		800.00
1	Trailer Rental.		80.00
	3rd month		

Vehicle rentals

Faro

80 700651.

TORONTO	☐	FARO	☐
CODE	341	AMOUNT	
JH040-[illegible]		$880.00	
APPROVED		DATE 8-25-89	

RECEIVED AUG 7 1989

CLERK ○ CASH ○ C.O.D. ○ CHARGE ☑ ON ACCT. ○ MDSE. RET. ○ PAID OUT ○

TAX

I HAVE RECEIVED THE ABOVE IN GOOD ORDER.

X

TOTAL 880.00

MOORE® FLATPAKIT® 2 REDIFORM 5R096E

17041