

RADCLIFFE RESOURCES LTD.

Inconspicuous Property  
Queen Charlotte Islands, B.C.

(North Graham Project)

SUMMARY

1. Majorem Minerals Ltd. holds seven claims, totalling 85 units, near the northwest corner of Graham Island, Queen Charlotte Islands, B.C., which cover a large gold-bearing hydrothermal system.
2. The Inconspicuous property is situated in a regional setting characteristic of Tertiary epithermal gold deposits in the western U.S. Miocene calc-alkalic volcanics and Mesozoic sediments are intruded by small plutons and extensively hydrothermally altered within an apparent incipient caldera. Northeasterly structural trends parallel the Beresford Bay Fault zone which intersects the major northeasterly-trending Sandspit Fault zone a few kilometres east of the property.
3. Although outcrop is rare, structurally controlled gold-bearing zones ranging up to .129 oz/t Au over 3 m have been found in outcrop. Preliminary drilling intersected .16 oz/t Au over 4m. Large intense geochemical anomalies in Au, Ag, Hg, As and Sb indicate linear mineralized zones; a large IP anomaly corresponds with the geochemical anomalies. Drilling to date has not tested the indicated linear zones.
4. A 2000 m drill program, budgeted at \$300,000, is currently planned for 1986.

INTRODUCTION

The Inconspicuous property consists of seven claims, which include a total of 85 units, centered at latitude 54 00'N and longitude 133 00'W, near the northwest corner of Graham Island, Queen Charlotte Islands, B.C. (Figs. 1, 3, 4). The claims are in good standing until 1994. Elevations range from 200' to 1700' and slopes are moderately steep but may be readily traversed. Slopes are covered with hemlock and spruce forest with little underbrush; flat ridge tops contain open swamps with stunted pine and cypress. The property is accessible by helicopter from Sandspit, 115 km to the southeast. The logging community of Naden Harbor is 25 km to the east and the nearest logging road is 20 km to the east. The west coast of Graham Island is 6 km from the property.

The property was discovered as part of a regional geochemical stream silt project conducted in the spring and summer of 1980 by Ventures West Minerals Ltd. and JMT Services Corp. Anomalous silt values in gold, arsenic and mercury from the north side of Hana Koot Creek led prospectors to the property. Evidence of extensive hydrothermal alteration and local gold mineralization gave rise to staking in August, 1980 and in January, 1981. JMT Services conducted geological mapping and geochemical bedrock and soil sampling surveys in 1981-82 and, following acquisition of the property from Ventures West, Majorem Minerals Ltd. optioned the property to Homestake Mineral Development Co. in 1983. Homestake undertook detailed geochemical, magnetic and induced polarization (IP) surveys on a 50 m x 100 m cut grid, and a total of 472.8 m of diamond drilling in three closely-spaced, steeply-inclined holes. Although Homestake terminated their option with Majorem, their work demonstrated excellent untested potential for large disseminated or lode-type gold-bearing mineralized zones.

Total expenditure to date on the property by Majorem (\$214,000) and Homestake (\$250,000) is \$464,000.

#### REGIONAL GEOLOGY

The Queen Charlotte Islands is essentially a collection of allochthonous terranes, underlain by a presumed Paleozoic metamorphic basement, which has undergone the following complex Mesozoic history: (1) rifting (reflected in Triassic basalts), (2) deposition of calcareous sediments and volcanics in an arc environment (Triassic-Jurassic), (3) intrusion of intermediate composition plutons (Jurassic) and deposition of conglomerates and turbidites (Cretaceous) during suturing against the North American continent, and (4) deposition of foreland and successor basin sediments (Jurassic-Cretaceous). Renewed Tertiary (Neogene) rifting up to about 17 m.y. gave rise to extensive bimodal volcanism with related local intermediate-silicic intrusions. Structural alignments are northwesterly. Fault and intrusive contacts are common and the characteristic structural style is expressed by vertical faults, most of which have a significant strike-slip component.

Three major fault zones dominate the Islands. The Rennell Sound Fault zone is a northwesterly-trending set of shears which exhibit dextral and east-side-down normal separation. This fault zone forms the suture between the Alexander Terrane to the east and Wrangellia to the west (Fig. 2). South of the Rennell Sound structure the northwesterly-trending, dextral separation Louscoone Inlet Fault Zone is the dominant structure on Moresby Island. To the north, the dominant fault zone is the Sandspit Fault, a northwesterly-trending dextral strike-slip structure which may be traced geophysically through northwest Graham Island beneath glacial deposits and which represents the northward continuation of the suture zone boundary between the Alexander Terrane and Wrangellia. The Inconspicuous property is located about 17 km west of the projected Sandspit Fault.

Figure 4 shows the regional geology of the northwest corner of Graham Island. Triassic Karmutsen basalts are overlain by Triassic-Jurassic limestones and argillites and Cretaceous clastic sediments. Tertiary plutons cut the sediments locally, as on Pivot Mountain, and Tertiary volcanics with related small plutons underlie most of the area. Although the Sandspit Fault is inferred in the eastern part of the map area the dominant structural trends in the area are north-easterly, as reflected in the Beresford Bay Fault of Pliocene age (Fig. 1). A pronounced ring fracture zone is visible on satellite and air photo images and may reflect an incipient caldera.

#### GEOLOGY

Mapping on a scale of 1:5000 on the property has allowed the recognition of six units. Cretaceous Haida Formation sandstones and shales are overlain on a gently-dipping unconformity by Tertiary Masset Formation banded rhyolite ash-flow tuffs and hornblende needle porphyritic andesite flows, breccias and agglomerates. These units are cut by intrusive bodies of chunky feldspar porphyry, diorite and rhyolite; feldspar porphyry bodies are relatively large in size, underlying the southwest and northwest parts of the map area. Sandstones and shales are locally hornfelsed against intrusives.

All units are cut by faults. A north-northeasterly trending fault through the west half of the map area is dominant and may form a boundary structure. Magnetic trends and geochemical anomalies change direction at this fault. Northeasterly-trending faults are inferred from complex structural relations between units east of the boundary fault.

Pyrite-silica-clay alteration is widespread. Most zones appear to be fracture controlled although extensive brecciated, veined and jasperoid altered sediments and volcanics in the centre of the map area may express stratabound alteration. Four areas of gold mineralization related to alteration have been noted in outcrop. (1) In a north-flowing creek at the north end of the property a five metres wide silicified zone containing 2-10% pyrite with minor arsenopyrite and stibnite assayed .06 oz/ton Au. (2) In the center of the map area a three metre wide clay-silica altered zone with 1-5% pyrite and minor arsenopyrite assayed .129 oz/ton Au; a nearby sample assayed 737 ppb Au. (3) Between the two above locations a clay altered fault zone assayed 359 ppb Au. (4) In the southwest corner of the map area numerous clay-pyrite-silica zones are anomalous in gold, assaying in the range 100-500 ppb Au; the widest zone in outcrop is 10-20 metres wide.

## GEOCHEMISTRY

Figures 6-10 are geochemical soil survey maps of a grid area sampled by Homestake. Contourable anomalies are numerous in all elements. Threshold and peak values for the elements are as follows: Au - 20 and 790 ppb, Ag - 0.5 and 3.3 ppm, As - 100 and 3900 ppm, Hg - 500 and 24,000 ppb, Sb - 10 and 175 ppm. A broad anomalous area in all elements is located near the centre of the grid; Au, Ag and Sb anomalies exhibit elongate patterns trending east-northeast which are sub-parallel to the inferred direction of faulting in this area. The anomaly pattern strongly suggests structurally controlled mineralization.

## GEOPHYSICS

Figure 11 is a magnetic anomaly map plotted in 100 gamma intervals which shows a pattern of generally east-northeasterly and north-easterly trending elongate features surrounding a broad area of low values in the southern half of the map area. The inferred boundary fault noted above is reflected in the magnetics: patterns to the northwest of this line, which passes about 400 m to the west of and parallel with the base line, differ from those to the southeast. The broad low corresponds with the area of most intense soil geochemistry and a broad IP anomaly (see below); this feature is believed to reflect a broad area of alteration within which sediments and volcanics have been de-magnetized.

Homestake contracted an IP survey to Geoterrax Ltd. The area of an anomaly is shown on Fig. 6 and Figs. 13-23 are copies of profiles for lines 7 + 00S to 8 + 00N. Anomalies reflect significant chargeabilities which are in some cases related to resistivity lows. The most intense chargeability features appear on profiles 0 + 00, 1 + 00N and 2 + 00N. Only one of the Homestake drill holes came close to testing IP zones; this is hole 83-5 which intersected 4 m of .16 oz/ton Au at least 100 m above the core of the IP feature. Maximum chargeabilities on 1 + 00N and 2 + 00N have not been drilled.

## HOMESTAKE DRILL RESULTS

Homestake attempted five diamond drill holes, two of which were terminated before reaching target depths due to drilling problems; the three completed holes total 472.8 m. Table 1 is a summary of the holes. Figures 24-27 are geologic and assay cross-sections of holes 83-2, 83-3 and 83-5. The significant interval intersected in 83-5 occurs in silica-argillite altered and sheared volcanics and was interpreted by Homestake as fault-controlled: Homestake inferred a major northeasterly-trending shear zone in the area of drilling which parallels geochemical anomalies; intense argillization with minor silicification characterizes the shear zone.

The Homestake "concept stage" drill plan was designed to test for a large bulk tonnage deposit. The vertical and steeply-inclined holes were not intended to test for structurally-controlled mineralization. Indeed, the 4 m of .16 oz/t Au intersected in 83-5 clearly indicates that mineralization may be confined to fault or shear zones. Such zones are believed to be steeply-dipping in which case they should be drilled with angle holes. Homestake terminated its option with Majorem because of a lack of evidence for a bulk tonnage deposit on the property; they did not drill any holes to test for structurally controlled mineralization.

#### PROPOSED 1986 MAJOREM DRILL PROGRAM

The Inconspicuous property exhibits the following geological features which are typical of Tertiary epithermal gold-silver systems. Tertiary (pre-17 m.y.) rifting gave rise to widespread calc-alkalic volcanism over much of the northern Queen Charlotte Islands. The property is located within a distinct elliptical ring fracture zone of about eight miles in diameter believed to reflect a volcanic centre, probably an incipient caldera. Gently-dipping rhyolite and andesite units unconformably overlie Mesozoic basement and are intruded by at least three phases, in the form of small plutons and dykes, of different compositions. A sizeable Tertiary quartz monzonite pluton underlies Pivot Mountain immediately to the north of the property. Major fault zones characterize the area. The northwesterly-trending Sandspit Fault is a major strike-slip zone which forms the suture between the Alexander Terrane and Wrangellia. It is notable that the large Cinola gold deposit (41 million tons, .06 oz/t Au), located about 70 km to the southeast, is localized within the Sandspit Fault zone. The dominant northeasterly-trending faults on the Inconspicuous property appear to be members of the Beresford Bay Fault set; a major intersection between this fault and the Sandspit Fault occurs a few kilometres to the northeast of the property.

Figure 28 is a composite map of geological, geochemical, geophysical and drill hole location data which clearly exhibits a target area on the property. Although outcrop is poor, evidence of silica-clay-pyrite alteration is widespread and indicates the presence of a large hydrothermal system. A magnetic low on the property appears to reflect a large altered area within which volcanics and sediments have been de-magnetized. A sizeable, coherent IP anomaly characterized by significant chargeabilities appears to reflect a large body of alteration-mineralization; the core of this anomaly lies at depth below the deepest drilling conducted to date. Multi-element geochemical anomalies are coincident, intense and large with gold and silver values in soils reaching peaks of 790 ppb and 3.3 ppm, respectively. Significant gold mineralization has been observed in outcrop in at least four localities with the best zones assaying .129 oz/t Au over 3 m and .06 oz/t Au over 5 m. Only preliminary diamond drilling has been conducted but a significant shear zone was intersected which assayed .16 oz/t Au over 4 m.

Homestake drilled the property for a bulk mineable deposit with vertical and steeply-inclined holes. A review of data clearly indicates, however, that potential mineralized zones are most likely structurally-controlled fault or shear zones. This interpretation is substantiated by character of mineralization observed in outcrop and intersected in a drill hole, linearity of magnetic anomaly trends and the coincident linear trends seen in geochemical anomalies.

Majorem is currently planning to conduct a 2000 m program of preliminary diamond drilling in 1986. Two initial proposed drill holes, each of 500 m and drilled at  $-45^\circ$  on azimuths of 160 and 340, have been selected (shown on Figs. 19 and 28) to test the indicated northeasterly structural trend in the heart of the geochemical and IP anomalies. Additional holes will be selected, pending evaluation of results of these two holes, but it is reasonable to expect that at least 1000 m of additional drilling will be required in this preliminary program. At an estimated all-in cost of \$150/metre, the 2000 m program is being budgeted at \$300,000.

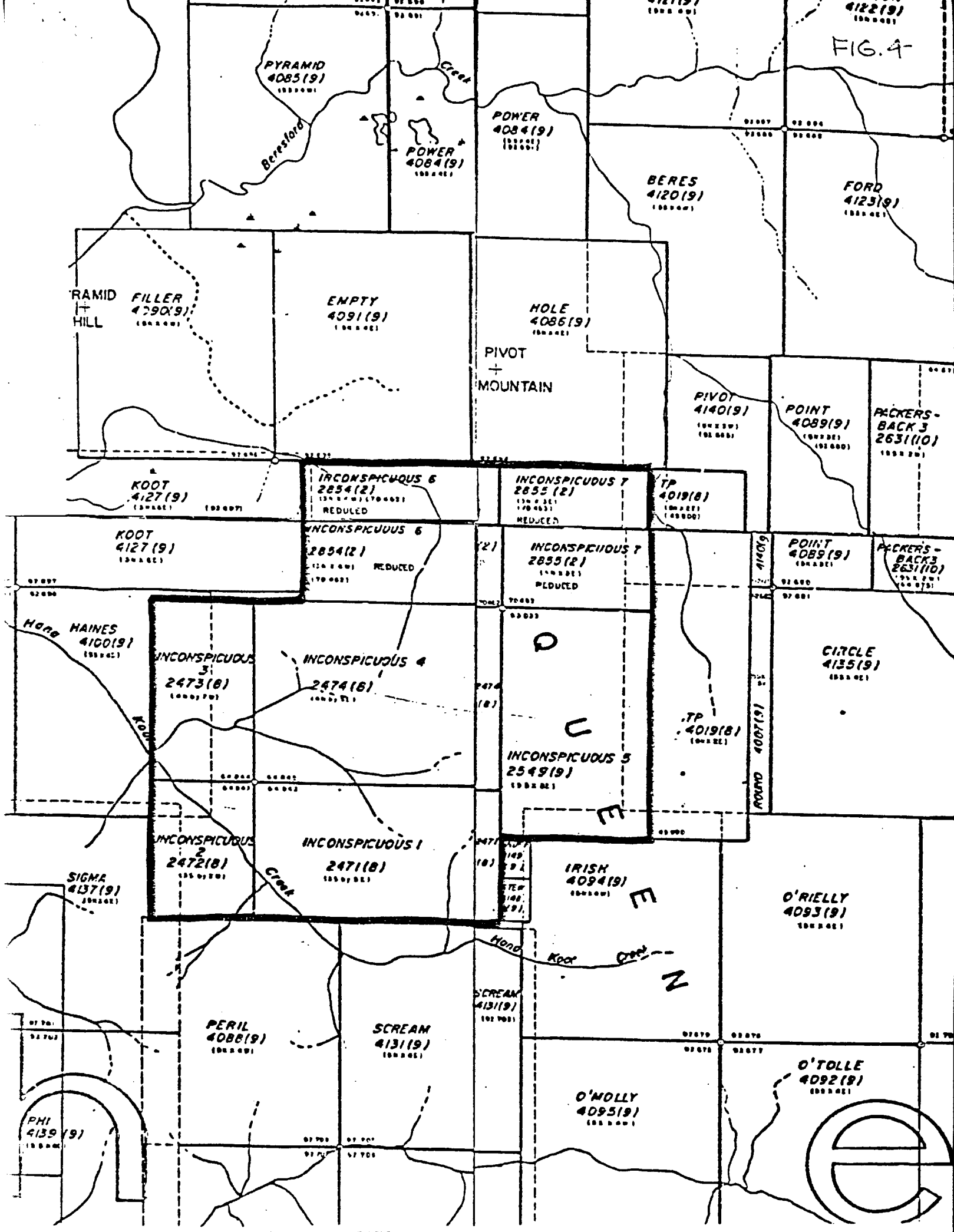
INCONSPICUOUS PROJECT

Concept Test  
Diamond Drilling Summary  
September-October 1983

Table 1

DDH Hole	Grid Coordinates	Starting Date	Finish Date	Depth	Dip	Azimuth	Depth of Casing	Total Meterage	Remarks
IN83-1	0+00E, 2+50E	Sept.28	Sept.30	91 ft. 27.7 m.	-90°	vert.		91 ft. 27.7 m.	Abandoned due to sanding
IN83-2	1+10S, 2+50E	Oct. 2	Oct. 5	510 ft. 155.5 m.	-90°	vert.	32 ft.left in hole	601 ft. 183.2 m.	
IN83-3	1+10S, 2+50E	Oct. 5	Oct. 9	437 ft. 133.2 m.	-60°	295°	40 ft.left in hole	1038 ft. 316.4 m.	
IN83-4	1+00N, 3+00E	Oct. 11	Oct. 15	127 ft. 38.7 m.	-90°	vert.		1165 ft. 355.1 m.	Abandoned due to caving and sanding
IN83-5	0+00E, 3+09E	Oct. 17	Oct. 23	604 ft. 184.1 m.	-80°	295°	85 ft.left in hole	1759 ft. 539.2 m.	Lost circulation

FIG. 4



PYRAMID  
4085(9)

POWER  
4084(9)

FORD  
4123(9)

RAMID  
HILL

FILLER  
4790(9)

EMPTY  
4091(9)

HOLE  
4086(9)

PIVOT  
MOUNTAIN

PIVOT  
4140(9)

POINT  
4089(9)

PACKERS-  
BACK 3  
263(10)

KOOT  
4127(9)

INCONSPICUOUS 6  
2854(2)  
REDUCED

INCONSPICUOUS 7  
2855(2)  
REDUCED

TP  
4019(8)

KOOT  
4127(9)

INCONSPICUOUS 6  
2854(2)  
REDUCED

INCONSPICUOUS 7  
2855(2)  
REDUCED

POINT  
4089(9)

PACKERS-  
BACK 3  
263(10)

HAINES  
4100(9)

INCONSPICUOUS 3  
2473(8)

INCONSPICUOUS 4  
2474(8)

INCONSPICUOUS 5  
2549(9)

TP  
4019(8)

CIRCLE  
4135(9)

INCONSPICUOUS 2  
2472(8)

INCONSPICUOUS 1  
2471(8)

IRISH  
4094(9)

O'RIELLY  
4093(9)

SIGMA  
4137(9)

PERIL  
4088(9)

SCREAM  
4131(9)

O'MOLLY  
4095(9)

O'TOLLE  
4092(9)

PHI  
4139(9)

E



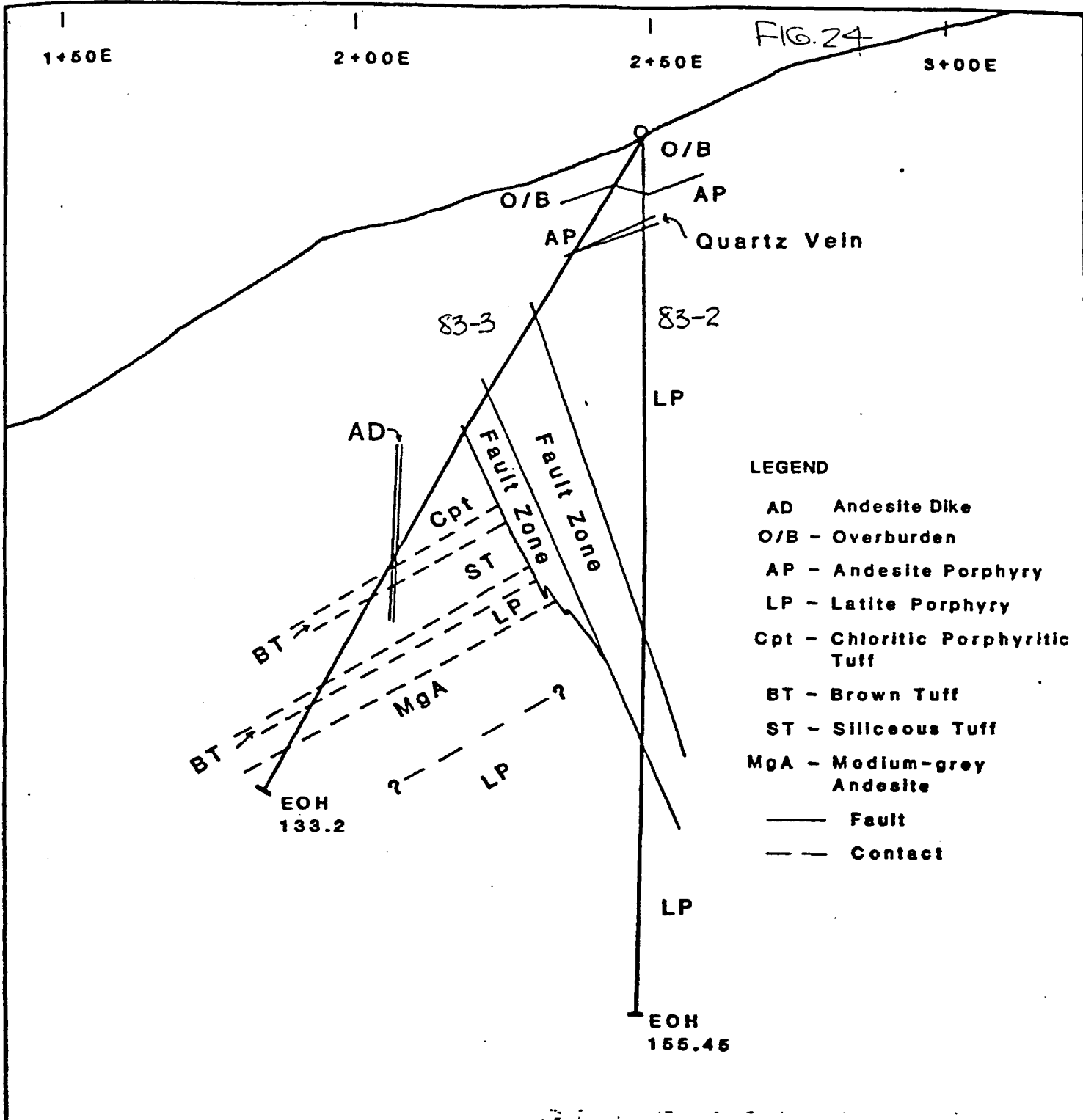
FIG. 24

1+60E

2+00E

2+50E

3+00E



LEGEND

- AD Andesite Dike
- O/B - Overburden
- AP - Andesite Porphyry
- LP - Latite Porphyry
- Cpt - Chloritic Porphyritic Tuff
- BT - Brown Tuff
- ST - Siliceous Tuff
- MgA - Medium-grey Andesite
- Fault
- - - Contact

0 10 20 30m

Scale

HOMESTAKE  
MINERAL DEVELOPMENT COMPANY



INCONSPICUOUS PROPERTY

GEOLOGY

Section 1+00E

DRAWN

DATE

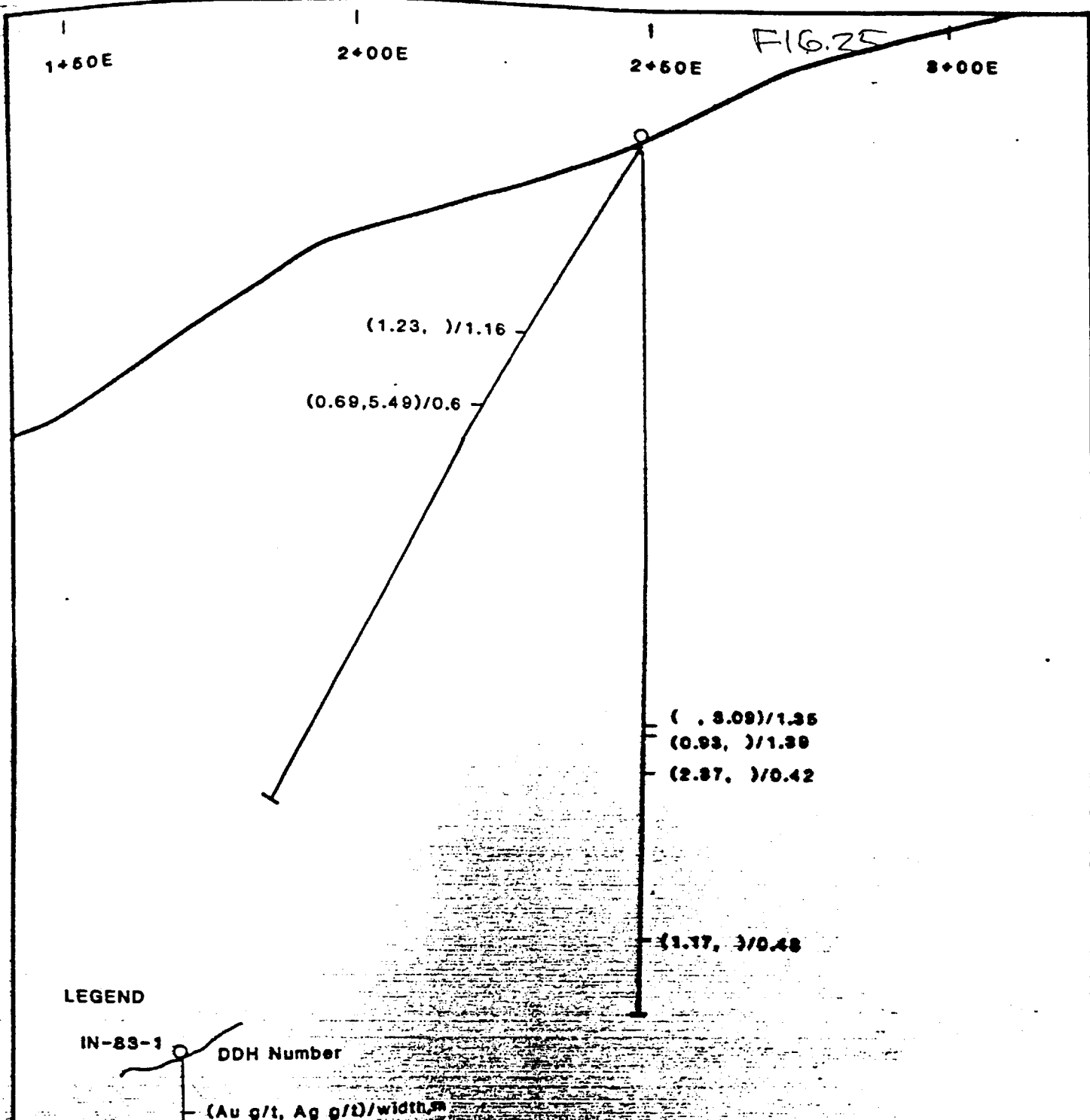
FILE CODE

Jan. 1984


NTS

103F/14

Revised



**LEGEND**

IN-83-1  DDH Number  
 (Au g/t, Ag g/t) / width, m

**HOMESTAKE**   
**MINERAL DEVELOPMENT COMPANY**

**INCONSPICUOUS PROPERTY**

**MINERALIZATION**

**Section 30008**

0 10 20 30m

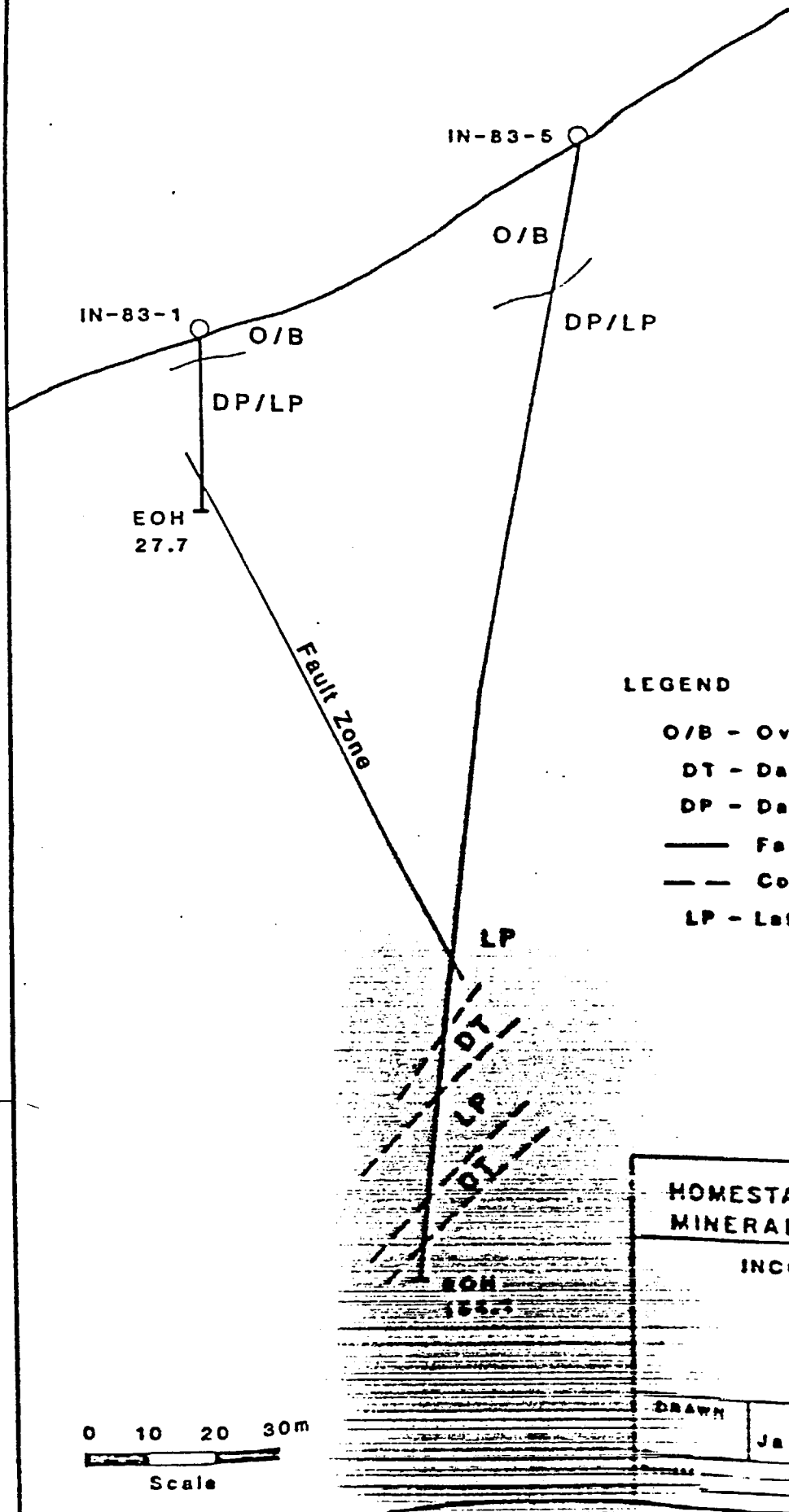
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DATE	FILE CODE
JAN, 1982	MTS
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2+50E

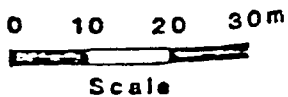
3+00E

FIG. 26



LEGEND

- O/B - Overburden
- DT - Dacite Tuff
- DP - Dacite Porphyry
- Fault
- - - Contact
- LP - Little Porphyry



HOMESTAKE MINERAL DEVELOPMENT COMPANY		
INCONSPICUOUS PROPERTY		
GEOLOGY		
Section 0+00		
DRAWN	DATE	FILE CODE
	Jan. 1984	-NTS 103F/14

2+50E

3+00E

FIG. 27

IN-83-1

(1.03, )/1.37

IN-83-5

LEGEND

IN-83-1

DDH Number

(Au g/t, Ag g/t)/width, m

(1.1, 1.03)/.99

(5.80,.69)/1.55

(1.37,0.84)/.94

(6.04,.69)/1.50

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INCONSPICUOUS PROPERTY

MINERALIZATION

Section 0+00

DRAWN	DATE	FILE CODE
	JUN. 1984	NTS
		103F/14

0 10 20 30m

Scale