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**091817**

ASSESSMENT REPORT

PROSPECTING AND GEOLOGICAL MAPPING  
CR 157-166 (YA 78883-78891)

PUGH PEAK

NTS 105-D-6

Whitehorse Mining District

Latitude: 60°18' North

Longitude: 135°06' West



By:

G. S. DAVIDSON, P.GEOL.

March 1986

**091817**

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## **INTRODUCTION**

This assessment report describes a program of prospecting and geological mapping undertaken between 1st August and 30th September 1985 on the CR 157-166 claims owned by Tally-Ho Exploration Ltd.

## **LOCATION AND ACCESS**

The claims cover mountainous terrain around Pugh Peak in the Wheaton River district of southwestern Yukon. The property is located on NTS map sheet 105-D-6 at latitude 60°18' north and longitude 135°06' west. Property location is shown on Figure 1.

The property is accessible from Whitehorse via the Alaska and Carcross highways and the Wheaton River/Mount Skukum gravel road. A four-wheel-drive road extends up Thompson Creek from the Wheaton River road to the ridgetop on Gold Hill, 2 km west of Pugh Peak. Total road distance from Whitehorse to the claims is approximately 65 km.

A Frontier Jetranger helicopter was used for access to remote areas of the claim group.

## **PHYSIOGRAPHY, CLIMATE, VEGETATION**

Pugh Peak is the highest mountain (6825'/2080 m) east of Mount Skukum and features rugged talus covered slopes and cliffs especially on the north side. Steep slopes are totally devoid of vegetation, while ridgetops support dwarf grasses.

Figure 2 shows the claim location relative to adjacent claims and topography.

Southwestern Yukon has a dry sub-arctic climate, with temperatures varying between extremes of -50°C in winter and +25°C in summer. Precipitation averages 35 cm per year. Large areas of the CR claims are quite remote from reliable sources of water for diamond drilling; water sources are often dry by late July in years with low snowfall or exceptionally dry summers. On average, mineral exploration is practical from early June to late September.

Strong winds and squalls at higher elevations frequently disrupt exploration activities.

BEAUFORT SEA

• Tuktoyaktuk

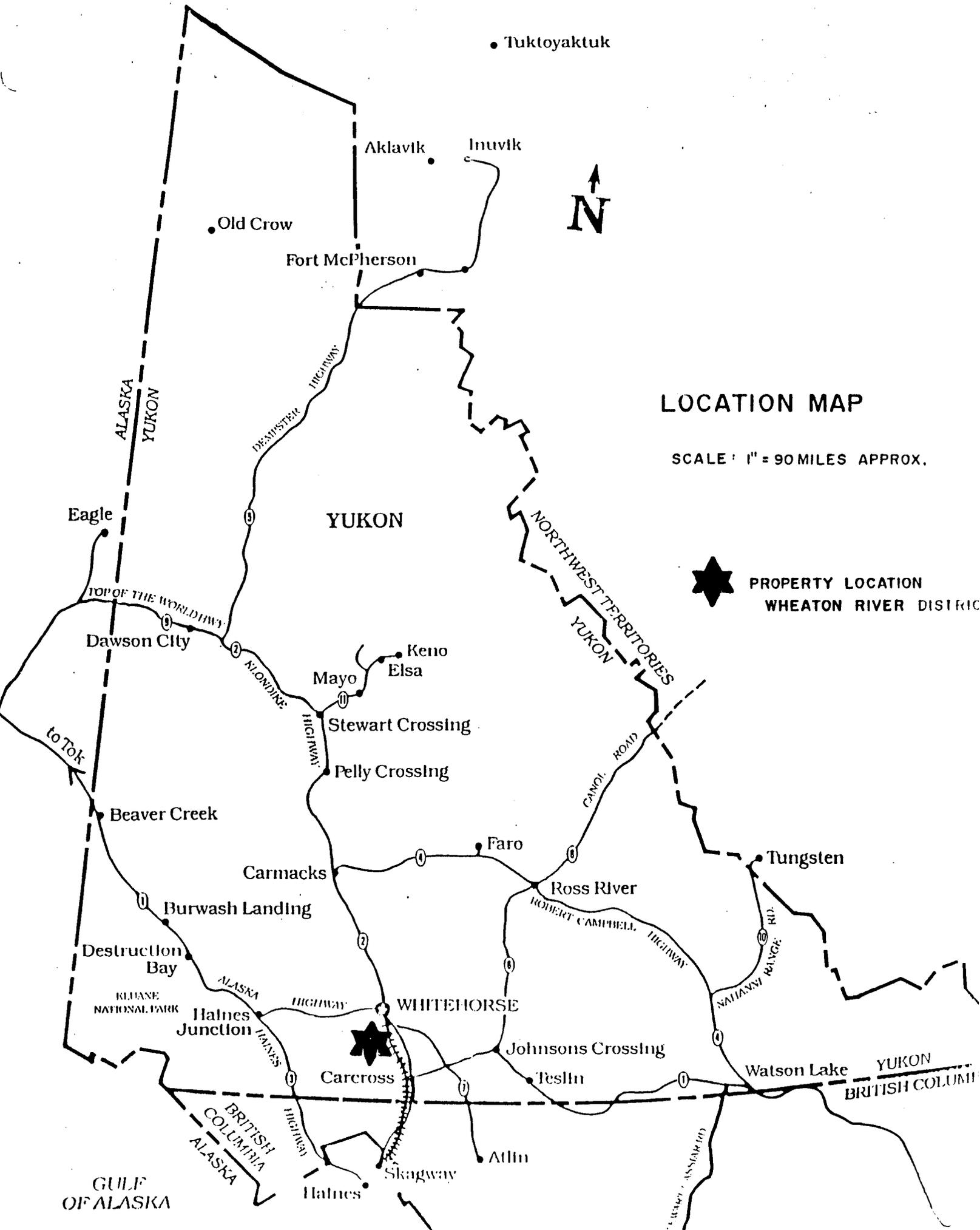


### LOCATION MAP

SCALE: 1" = 90 MILES APPROX.



PROPERTY LOCATION  
WHEATON RIVER DISTRICT



## REGIONAL GEOLOGY

The Wheaton River/Bennett Lake district overlies the boundary between two terranes: (1) the Whitehorse Trough, consisting of Mesozoic and Paleozoic, folded metavolcanic and metasedimentary rocks, and (2) a younger volcanic and intrusive suite consisting of intrusive rocks of the Cretaceous Coast Plutonic Complex and Early Tertiary volcanic rocks of the Skukum Group.

The Whitehorse Trough features a complex assemblage of deformed volcanic and sedimentary rocks consisting of the Triassic Lewes River Group, the Lower Jurassic Laberge Group, the Jurassic Tantalus Group and the Jurassic or Cretaceous Hutshi Group. The Lewes River Group consists of andesite, basalt and pyroclastic flows, and foliated marine sedimentary rocks. A narrow but continuous unit of limestone, limestone breccia and quartzite has been traced in a northwesterly direction from the west side of Mount Stevens across Tally Ho Mountain and Gold Hill to the Hodnett Lakes. Interbedded schists occur with the limestone and volcanic rocks of the Lewes River Group. A narrow band of Tantalus Group conglomerates and Laberge Group siltstones outcrops on Folle Mountain and Idaho Hill; however, rocks of these groups primarily outcrop north and east of the Wheaton River/Bennett Lake district. Hutshi Group volcanic rocks occur on Montana Mountain and Gray Ridge. They are thought to be contemporaneous with Mount Nansen volcanics in central Yukon.

Cretaceous granitic rocks of the Coast Plutonic Complex are the most common in the district; typically, they consist of fresh quartz monzonite or quartz diorite. Pendants and masses of Yukon Group quartz-mica schist, gneisses and crystalline limestone occur in the granitic intrusives. The Yukon Group is of early Paleozoic and Precambrian age.

A younger series of andesite and rhyolite flows, tuffs and agglomerates mapped as the Tertiary Mount Skukum Group intrude and overlie granitic rocks, forming volcanic complexes at Mount Skukum and Mt. Macauley. Also, Skukum Group rhyolite and granite porphyry dykes and plugs intrude Lewes River Group rocks and Cretaceous granodiorites throughout the Wheaton River area.

The geology of the Wheaton River region was initially mapped by D. D. Cairnes of the G.S.C., published in Memoir #31 (1912) and later by J. Wheeler published in Memoir #312 (1961). A reinterpretation of the regional geology formed part of the metallogenic map published as Open File E.G.S. 1979-6 (G. W. Morrison) by the Department of Indian Affairs and Northern Development.

Table 1  
TABLE OF FORMATIONS

|                                    |        |  |
|------------------------------------|--------|--|
| QUATERNARY                         | Q      | Alluvium; glacial and fluvial deposits.  |
| QUATERNARY(?)                      |        |  |
| Miles Canyon<br>Volcanics          |        | Basalt; minor pyroclastics.  |
| LATE CRETACEOUS/<br>EARLY TERTIARY |        |  |
| Skukum Group                       | Trp    | Stocks, plugs and dykes of quartz and feldspar porphyry with aphanitic rhyolitic matrix. Some granite porphyry; some intermediate plugs and dykes. |
|                                    | Tva    | Rhyolite and trachyte breccias, tuffs and flows; some felsic plugs and dykes (Trp).  |
|                                    | Tvb    | Andesite and basalt tuffs, flows and breccias; minor greywacke at base.  |
| MID-CRETACEOUS                     |        |  |
| Coast Plutonic<br>Complex          | Kgd    | Medium to coarse grained homogeneous biotite-hornblende granodiorite and quartz monzonite. Includes undifferentiated Trp and Tva.                  |
| JURASSIC/CRETACEOUS                |        |  |
| Hutshi Group(?)                    |        | Andesite, rhyolite flows and pyroclastic equivalents.  |
| JURASSIC                           |        |  |
| Tantalus Group                     |        | Mainly conglomerate  |
| LOWER JURASSIC                     |        |  |
| Laberge Group                      |        | Greywacke, arkose, quartzite, siltstone, argillite and conglomerate.   |
| TRIASSIC                           |        |  |
| Lewes River<br>Group               | uRc    | Fine to medium grained limestone, quartzite and some marble.   |
|                                    | uRwp   | Greywacke, siltstone, argillite and minor conglomerate.  |
|                                    | uRvb   | Basalt and andesite flows and flow breccias; augite and/or feldspar porphyry locally.  |
| PROTEROZOIC AND<br>PALEOZOIC       |        |  |
| "Yukon Group"                      | PIPC   | Marble, crystalline limestone, minor graphitic limestone, skarn.   |
|                                    | PIPsbg | Quartz-mica and quartz-chlorite schist, quartzite, minor amphibolite, feldspathic gneiss.  |

(Note: Symbols from Morrison (1979))

Mesozoic and Paleozoic sedimentary and volcanic rocks of the Whitehorse Trough Terrane are deformed and generally metamorphosed to at least lower green schist facies. These units trend north to northwest and are internally complex.

Structurally, the area features major faults, primarily along river valleys, associated with movement in the Coast Plutonic Complex and with early Tertiary volcanism at Mount Skukum, Mount Macauley and Montana Mountain(?). The Skukum Group volcanic rocks are equivalent to the Sloko Group of northern British Columbia and the Mount Nansen Group of central Yukon. Late stage features of Skukum Group volcanism include dacite, rhyolite and granite porphyry dykes, emplaced in fracture and fault zones around the volcanic complexes, and quartz or quartz carbonate veining with significant precious and base metal mineralization. Figure 3 shows the regional geology.

#### HISTORY OF EXPLORATION

The Wheaton River/Lake Bennett district was first explored by prospectors travelling along the major lakes and rivers of southwestern Yukon in the early 1890's. The original claims recorded in the district were those of prospectors Corwin and Rickman who, in 1893, located antimony showings on Carbon Hill and gold-silver bearing quartz veins at an undisclosed site. The untimely deaths of the two men occurred before revealing the location of the high grade quartz showings.

The Klondike Gold Rush brought a great influx of people to the Yukon, many of whom crossed Lake Bennett en route to Dawson City. Some of these individuals strayed into the Wheaton Valley, locating claims in the Schnabel Creek drainage in 1903.

More intensive exploration began in 1906 after the discovery of free gold and gold-silver tellurides on Gold Hill by D. Hodnett and J. Stagar, and the rediscovery of the Corwin-Rickman antimony-silver showings on Carbon and Chieftain Hills. Wagon roads were built along the Wheaton River, Thompson Creek and Stevens Creek to provide access to numerous adits and pits on Gold Hill, Mineral Hill, Mount Stevens, Wheaton Mountain and Mount Anderson. Limited mining of high grade gold and silver bearing ore occurred on the Gold Reef vein at the northeast end of Gold Hill and on the Becker-Cochran (WHIRLWIND) property on the west face of Mount Anderson. Adits and shafts on Mount Stevens and Wheaton Mountain were probably exploratory; no record of ore production exists.

The Tally Ho Mine on Tally Ho Mountain was the most significant operation during the early years of activity in the area. In 1918, a shipment of 14 tons of hand-sorted ore grading 2.35 oz/ton gold, 5.1 oz/ton silver and 7% lead was smelted at Tacoma. Underground development was continued at various times between 1909 and 1938; additional ore shipments were sent to Juneau but details no longer exist. On Montana Mountain, Colonel Conrad and associates developed several gold and silver bearing quartz veins on the slope above Windy Arm (Tagish Lake). A small mill on the shore of Windy Arm processed ore extracted from the Venus, Montana and

Big Thing quartz veins between 1906 and 1920.

From the mid-1920's to the late 1960's, little exploration of significance took place. By 1970, many of the old showings were restaked as an increase in the value of base and precious metals rekindled the interest of mining companies and prospectors. The Venus and Arctic mines operated on Montana Mountain between 1969 and 1971. The Venus Mine was briefly rehabilitated during 1980-1981 and a new mill was installed at the southern end of Windy Arm.

In 1981, Agip Canada Ltd. discovered a gold bearing vein structure on Mount Skukum and proceeded to define a commercially viable ore-body consisting of 165,000 tons grading 0.73 oz gold and 0.63 oz silver per ton by 1984. Mount Skukum Gold Mines Ltd., through a joint venture agreement with Agip, has developed the ore-body and constructed a 300 ton-per-day mill. Production is expected to commence in March 1986.

The discovery of gold on Mount Skukum has intensified exploration activities in the Wheaton district and initiated a methodical staking rush in which all of the known showings and most of the surrounding area has been staked. Presently, large claim blocks are held by Erickson Gold Mines Ltd., United Keno Hill Mines, Omni Resources Inc., Tally-Ho Exploration Ltd., Shakwak Exploration Co. Ltd., Island Mining and Exploration Ltd., Kerr Addison Mines Ltd., Berglynn Resources Inc., Carmac Resources Ltd. and Noranda Exploration Co. Ltd.

On Gold Hill, Tally-Ho Exploration Ltd. has investigated the ridgetop in a program consisting of grid development, geological mapping, geophysical and geochemical surveys and bulldozer trenching during 1984-85.

#### **1985 EXPLORATION**

Exploration in the Pugh Peak area in 1985 consisted of three days of prospecting and geological mapping, concentrating on early Tertiary felsic volcanic dykes and the "Folle-Intrusives" (M. Pride, 1981). Sixteen rock samples were collected and analyzed for gold, silver and lead; five samples were also analyzed for copper. Analytical techniques are described in Appendix I. Figure 4 shows the rock geochemistry and claim distribution.

A Frontier Jetranger helicopter was used for access to the claims.

#### **DISCUSSION**

The rhyolite and dacite porphyry stock which outcrops south of Pugh Peak contains numerous quartz, quartz breccia and chalcedony veins up to one metre wide. Coxcomb texture, open vugs and minor fluorite occur in the

quartz veins. The zone of quartz veining in this stock is approximately 50 metres wide and at least 300 metres long. Eleven rock samples (#2160-2170) were collected from this zone; five are weakly anomalous in gold (30-50 ppb) and three are moderately anomalous in gold (120-500 ppb). Further investigation of this zone is necessary.

North of Pugh Peak, five rock samples (#2051-2055) were collected primarily from rhyolite porphyry dykes or quartz veins. Sample #2055 of a 10 cm wide quartz vein in granodiorite recorded a gold value of 360 ppb.

Genetically, the mineralizing events are not well understood at present; they are associated with early Tertiary volcanism in the Bennett Lake/Wheaton River district. The volcanics are present as rhyolite and trachyte breccias, dykes and sills, and may represent late associated ring fracture intrusions related to caldera formation at Bennett Lake and/or Mount Skukum (M. Pride, 1981). Fluids associated with the volcanic activity have filled fractures with quartz or quartz-calcite veining in orientations parallel or occasionally perpendicular to the major fracture orientation.

#### REFERENCES

- Bostock, H. C., 1938: Mining Industry of the Yukon, Canada Department of Mines and Resources, Geological Survey, Memoir 220 (21 pp).
- Cairnes, D. D., 1912: Wheaton District, Yukon Territory. Canada, Department of Mines, Geological Survey Branch, Memoir 31 (153 pp).
- Morrison, G. W., 1979: Metallogenic Map, Whitehorse, Yukon. Open File EGS 1979-6, Northern Affairs, Whitehorse.
- Pride, M. J., 1981: Petrology and Geology of High Level Rhyolite Intrusives of the Skukum Area, 105-D-SW, Yukon Territory. Yukon Exploration and Geology, 1981.
- Pride, M. J., 1985: Preliminary Geological Map of Mount Skukum Volcanic Complex. Exploration and Geological Services Division, Northern Affairs, Whitehorse.
- Wheeler, J. O., 1961: Whitehorse Map Area, Yukon Territory. Geological Survey of Canada, Memoir 312 (156 pp).

APPENDIX I  
ANALYTICAL TECHNIQUES

Rock and soil samples were analysed by Bondar-Clegg Laboratories in Whitehorse and Vancouver. Most samples were analysed for Au, Ag, Cu and Pb. Soil samples were collected in the B horizon; however, in many areas soil profiles are poorly developed. On very rocky ground or talus slopes, insufficient fine material was available for sampling.

Soil samples are dried and sieved to minus 80 mesh while rock and chip samples are pulverized and a split of the minus 150 mesh fraction is analysed.

Gold analyses are by fire assay techniques using a 10 g sample (30 g sample for rocks) but, after preparation of the lead bead, the bead is dissolved in acid and the gold content determined by atomic absorption spectrophotometry.

Gold assays are by standard fire assay techniques using a 30 g sample. After preparation of the bead, silver is removed by dissolving with nitric acid and the bead weighed to determine the gold content of the original sample.

Copper, lead and silver are analysed by atomic absorption techniques; the sample is dissolved in hot aqua regia. Silver values greater than 4.0 ppm are checked using a nitric acid digestion.

APPENDIX II

STATEMENT OF EXPENDITURES

PERSONNEL:

G. Davidson (Geologist): 3 days \$ 787.50

HELICOPTER:

Frontier Jetranger 544.50

GEOCHEMISTRY:

5 samples Au, Ag, Pb, Cu x 14.25 71.25  
11 samples Au, Ag, Pb x 13.00 143.00

MISCELLANEOUS:

Camp costs, equipment, supplies: 3 x 35.00 105.00  
Vehicle: 3 x 75.00 225.00  
Gas 50.00  
Report drafting/typing/preparation 400.00

-----  
\$2,326.25  
=====

**G. MACDONALD AND ASSOCIATES LIMITED**  
Consulting Professional Geologists

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(403) 667-7229

**APPENDIX III**

**STATEMENT OF QUALIFICATIONS**

**I, GRAHAM DAVIDSON, of the City of Whitehorse in the Yukon Territory,  
HEREBY CERTIFY:**

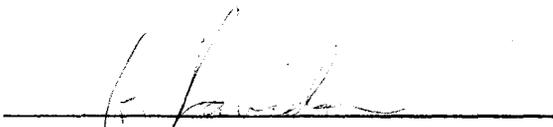
**THAT I am a geologist employed by G. Macdonald and Associates Limited AND  
THAT I participated in the work described in this report;**

**THAT I am a graduate of the University of Western Ontario (H.B.Sc., Geology,  
1981);**

**THAT I am registered as a Professional Geologist by the Association of Professional  
Engineers, Geologists and Geophysicists of Alberta (No. 42308);**

**THAT I have been engaged in mineral exploration on a full-time and part-time  
basis for seven years, of which five have been in the Yukon and Northwest  
Territories.**

**SIGNED at Whitehorse, Yukon Territory, this 29 day of March, ,  
1986.**

  
\_\_\_\_\_  
G. S. Davidson, P.Geol.



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WHEATON RIVER JOINT VENTURE

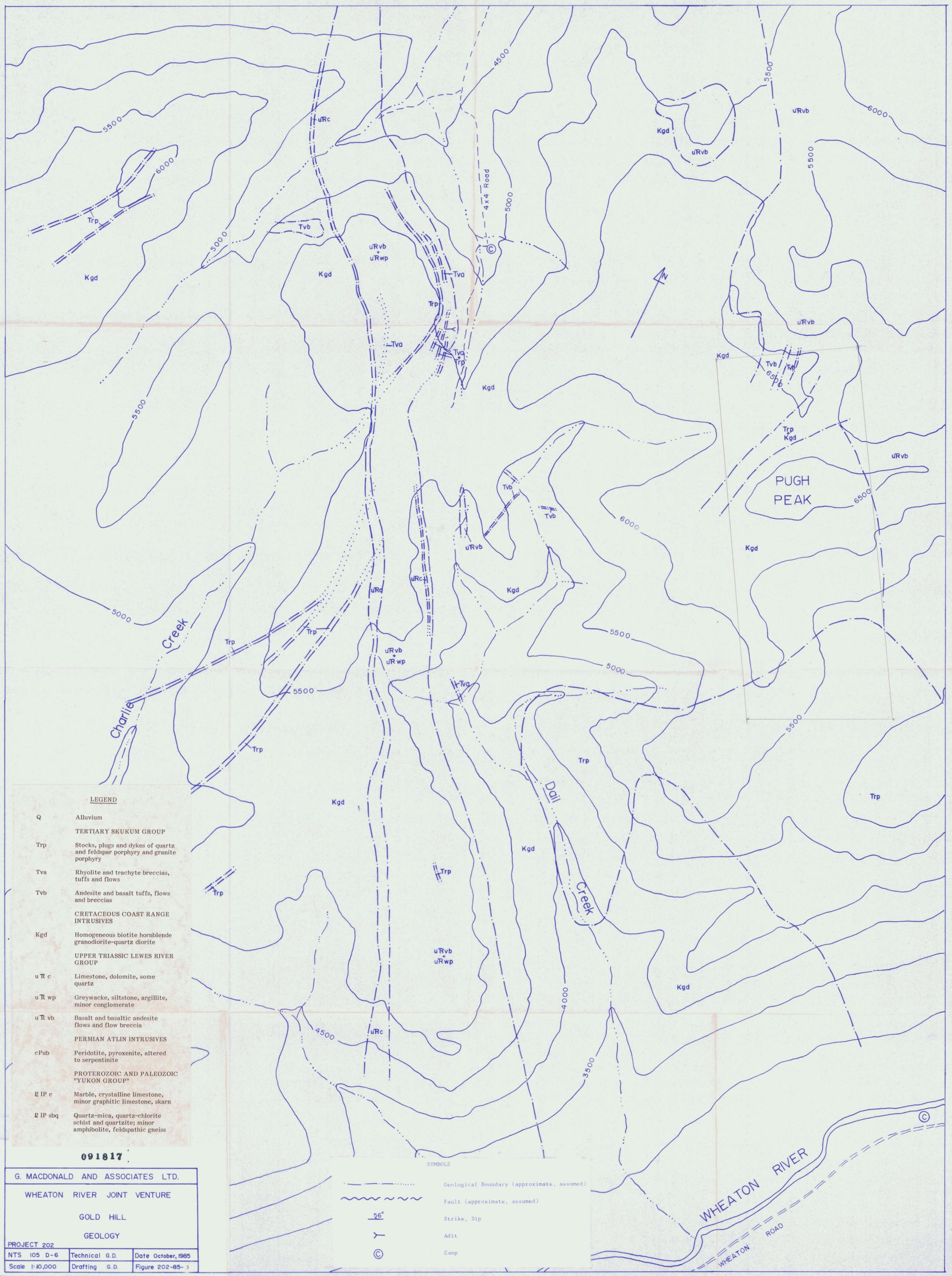
GOLD HILL

CLAIM AND GRID PLAN

PROJECT 202

NTS 105 D-6 Technical G.D. Date November, 1985

Scale 1:10,000 Drafting G.D. Figure 202-85-2



**LEGEND**

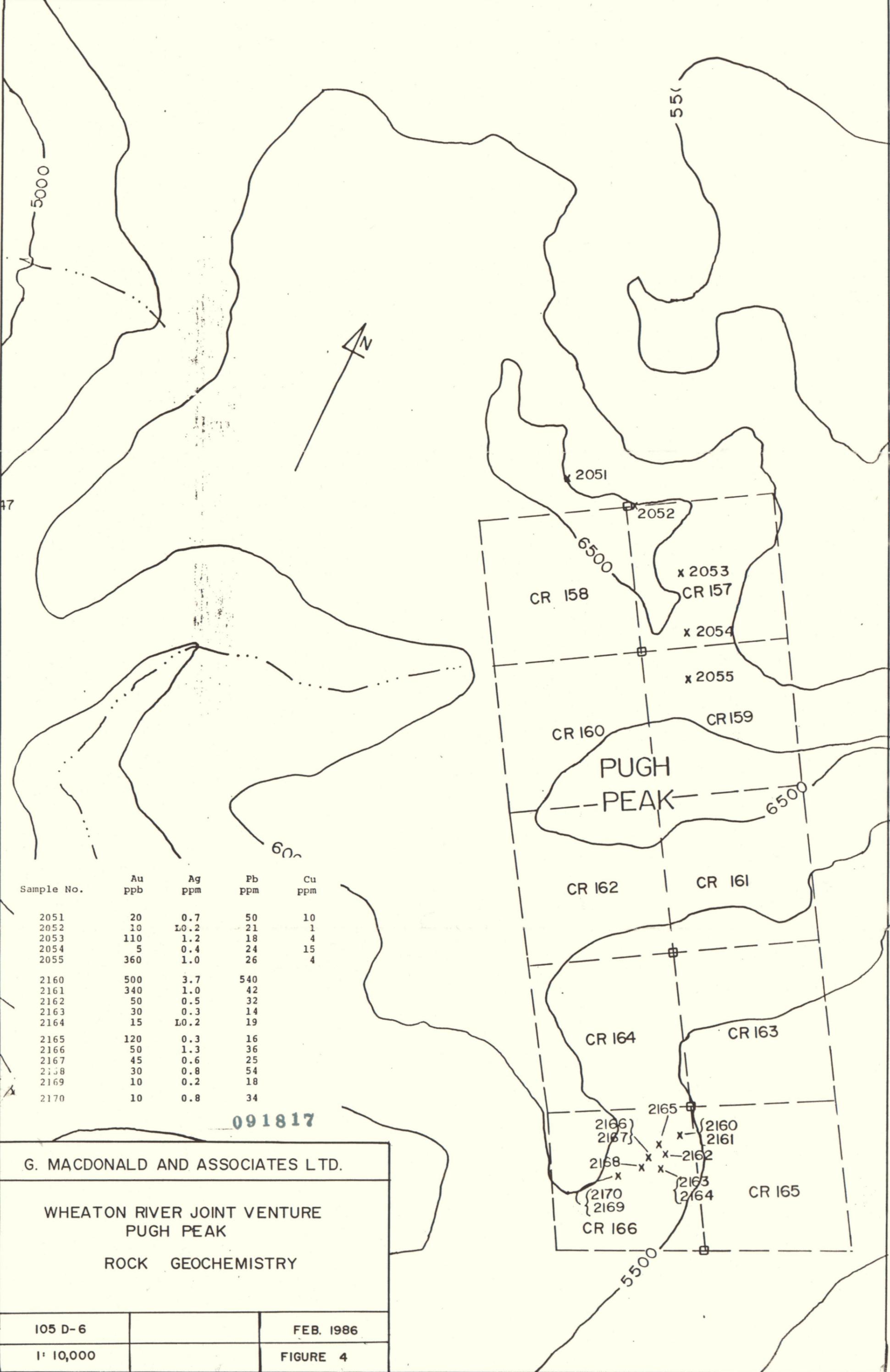
- Q Alluvium
- TERTIARY SKUKUM GROUP**
- Trp Stocks, plugs and dykes of quartz and feldspar porphyry and granite porphyry
- Tva Rhyolite and trachyte breccias, tuffs and flows
- Tvb Andesite and basalt tuffs, flows and breccias
- CRETACEOUS COAST RANGE INTRUSIVES**
- Kgd Homogeneous biotite hornblende granodiorite-quartz diorite
- UPPER TRIASSIC LEWES RIVER GROUP**
- uRc Limestone, dolomite, some quartz
- uRwp Greywacke, siltstone, argillite, minor conglomerate
- uRvb Basalt and basaltic andesite flows and flow breccia
- PERMIAN ATLIN INTRUSIVES**
- cPub Peridotite, pyroxenite, altered to serpentinite
- PROTEROZOIC AND PALEOZOIC "YUKON GROUP"**
- EIPc Marble, crystalline limestone, minor graphitic limestone, skarn
- EIPsbq Quartz-mica, quartz-chlorite schist and quartzite; minor amphibolite, feldspathic gneiss

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|                                  |                |                    |
|----------------------------------|----------------|--------------------|
| G. MACDONALD AND ASSOCIATES LTD. |                |                    |
| WHEATON RIVER JOINT VENTURE      |                |                    |
| GOLD HILL                        |                |                    |
| GEOLOGY                          |                |                    |
| PROJECT 202                      |                |                    |
| NTS 105 D-6                      | Technical G.D. | Date October, 1985 |
| Scale 1:10,000                   | Drafting G.D.  | Figure 202-85-3    |

**SYMBOLS**

- Geological Boundary (approximate, assumed)
- Fault (approximate, assumed)
- Strike, Dip
- Adit
- Camp



| Sample No. | Au<br>ppb | Ag<br>ppm | Pb<br>ppm | Cu<br>ppm |
|------------|-----------|-----------|-----------|-----------|
| 2051       | 20        | 0.7       | 50        | 10        |
| 2052       | 10        | LO.2      | 21        | 1         |
| 2053       | 110       | 1.2       | 18        | 4         |
| 2054       | 5         | 0.4       | 24        | 15        |
| 2055       | 360       | 1.0       | 26        | 4         |
| 2160       | 500       | 3.7       | 540       |           |
| 2161       | 340       | 1.0       | 42        |           |
| 2162       | 50        | 0.5       | 32        |           |
| 2163       | 30        | 0.3       | 14        |           |
| 2164       | 15        | LO.2      | 19        |           |
| 2165       | 120       | 0.3       | 16        |           |
| 2166       | 50        | 1.3       | 36        |           |
| 2167       | 45        | 0.6       | 25        |           |
| 2168       | 30        | 0.8       | 54        |           |
| 2169       | 10        | 0.2       | 18        |           |
| 2170       | 10        | 0.8       | 34        |           |

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WHEATON RIVER JOINT VENTURE  
PUGH PEAK

ROCK GEOCHEMISTRY

105 D-6

FEB. 1986

1" 10,000

FIGURE 4