WHITEHORSE M.D.

**MAP No.** 105 D 6

ASSESSMENT REPORT ☐
N. M. E. A. P. ☐
CONFIDENTIAL ☐
OPEN FILE ☐

**TYPE OF WORK:** PROSPECTING, GEOCHEMICAL

| | |
|---|---|
| REPORT FILED UNDER | Newhawk Gold Mines Ltd. — DOCUMENT NO. 091662 |
| DATE PERFORMED | 16 Sept. - 30 Oct. 1985 — DATE FILED: 20 Nov. 1985 |
| LOCATION - LAT. | 60°16'N — AREA: |
| LONG. | 135°02'W |
| CLAIM NO. | FANIN 1-6 YA86164-169 |
| | FANIN 13-24 YA86170-181 |
| VALUE $ | |
| WORK DONE BY | G.S. Davidson and R. Robertson |
| WORK DONE FOR | G. Macdonald and Associates Ltd. |

REMARKS

091662

The property is underlain by Triassic greenstones which have been intruded by Cretaceous granitic rocks. Local hornfels, veining, brecciation and pyritization occur at the intrusive contact.

Reconnaissance exploration, geologic mapping at a 1:10 000 scale and rock and soil sampling were done in 1985. A total of 76 samples were analyzed for gold and silver. No anomalies were detected. ✓

YOK 85 p. 105.

*G. MACDONALD AND ASSOCIATES LIMITED*
Consulting Professional Geologists

4 Hyland Crescent
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(403) 668-2044 (403) 667-7229



ASSESSMENT REPORT

# Prospecting and Geochemical Sampling

## FANIN 1-6 and 13-24 Claims (YA 86164-86169 and YA 86170-86181)

Wheaton River
NTS 105-D-6
Whitehorse Mining District
Latitude: 60°16'N
Longitude: 135°02'W
16 September to 30 October 1985

For: Newhawk Gold Mines Ltd.
By: G. S. Davidson, P.Geol. and R. Robertson
5 November 1985



091662

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 1800.00 .

D R Emond

for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

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## INTRODUCTION

This report describes a preliminary exploration program of prospecting and geochemical sampling carried out on the FANIN 1-6 and 13-24 mineral claims by G. Macdonald and Associates Ltd., consulting geologists, on behalf of Newhawk Gold Mines Ltd. of Vancouver, B.C.

The general location of the Wheaton River district is shown on Figure 1.

## PROPERTY

The FANIN 1-6 and 13-24 claims were staked on the 12th and 21st November 1984 and recorded on the 22nd November 1984 in the office of the Whitehorse District Mining Recorder under grant numbers YA 86164-YA 86181, in accordance with the Yukon Quartz Mining Act. The claims have been transferred from the original staker to McCrory Holdings Ltd. of Whitehorse. Exploration of the property is financed by Newhawk Gold Mines Ltd. under the terms of an option agreement with McCrory Holdings.

Yukon mineral claims are maintained in good standing by completing assessment work to the value of $100 per year for each claim. Surface work, such as geological, geochemical and geophysical surveys, is accepted for assessment credit only in the first three years after staking. In subsequent years, physical work i.e. drilling, trenching or underground exploration must be carried out.

The location of the FANIN claims with respect to local topography and adjacent mineral claims is shown in Figure 2.

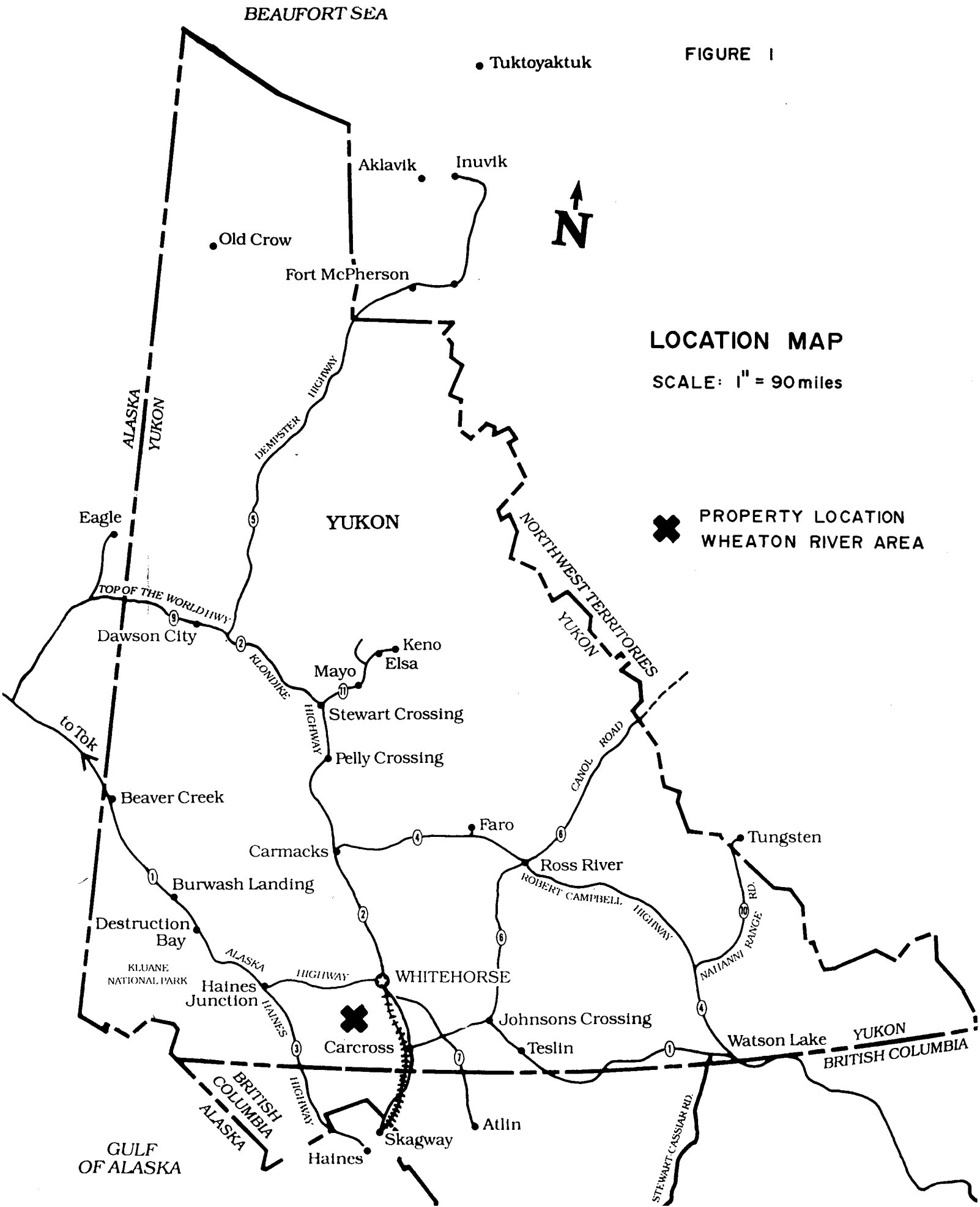
## LOCATION AND ACCESS

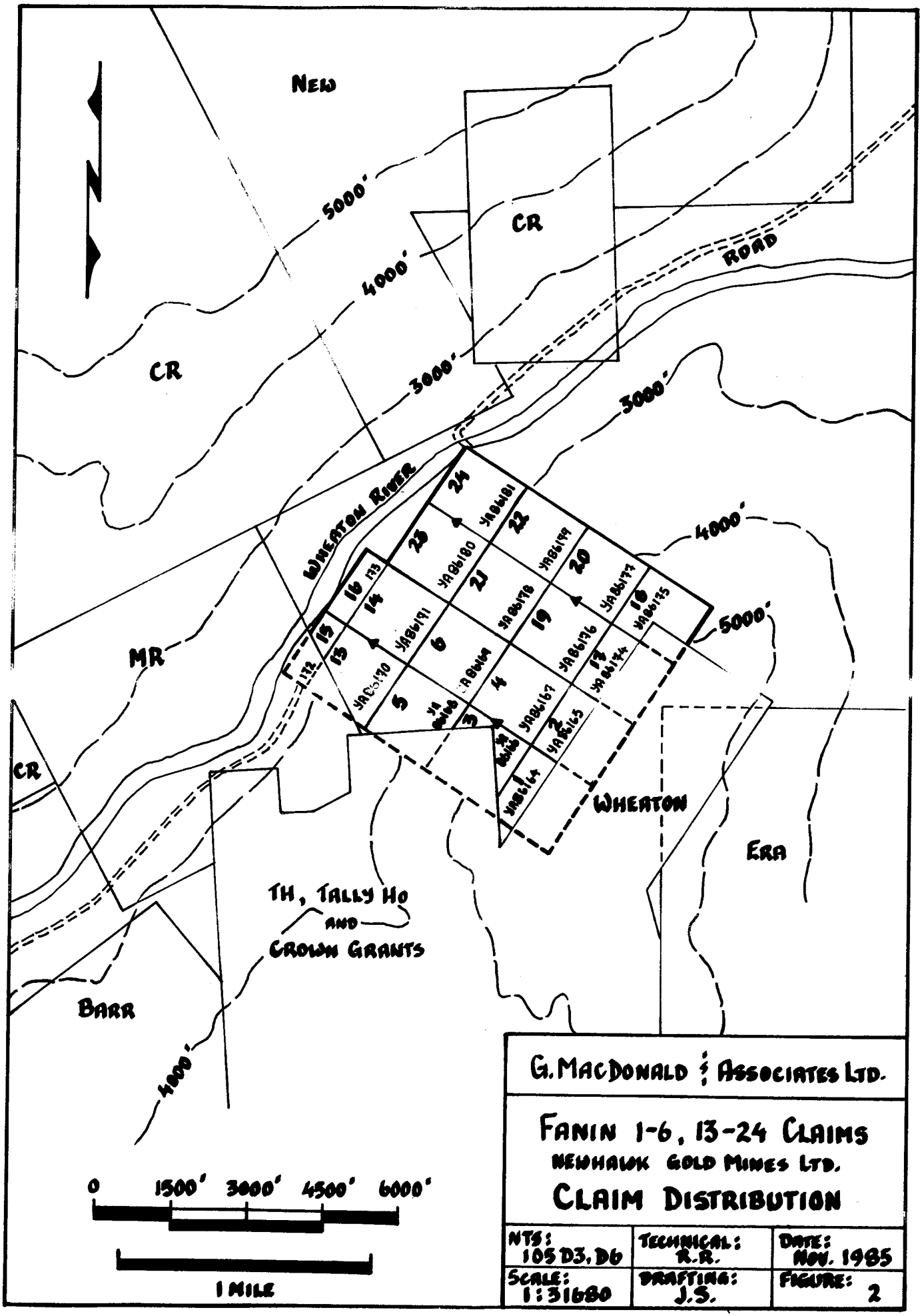
The FANIN claims are located about 50 km south of Whitehorse on NTS map sheet 105-D-6. Approximate geographical co-ordinates are 60°16' north latitude and 135°02' west longitude.

Access to the property from Whitehorse is by paved highway following the Alaska Highway and then the Klondike Highway (Carcross section) as far south as Robinson - a distance of 40 km. From Robinson, an all-weather gravel road (Annie Lake/Wheaton River road) is followed for 23 km to the FANIN claims; this road runs along the northern edge of the property.

During the summer of 1985, major improvements to the Annie Lake road were carried out by the Yukon Government Highways Department and Mount Skukum Gold Mines Ltd. (a subsidiary of Erickson Gold Mines Ltd.) as part of the development program at the Mount Skukum gold mine owned by Agip Canada Ltd. and Erickson Gold Mines Ltd. Production from this deposit is scheduled for February 1986.

Exploration of the FANIN property in 1985 was carried out from a tent and trailer camp located on the Wheaton River road 3 km west of the property. Four-wheel-drive trails constructed by other companies lead from the Wheaton River road via Partridge Creek to the top of Wheaton Mountain, providing easy access to the southern portion of the property.


BEAUFORT SEA
Tuktoyaktuk
FIGURE 1
Aklavik
Inuvik
N
Old Crow
Fort McPherson
LOCATION MAP
SCALE: 1" = 90 miles
ALASKA
YUKON
DEMPSTER HIGHWAY
Eagle
YUKON
PROPERTY LOCATION
WHEATON RIVER AREA
NORTHWEST TERRITORIES
YUKON
TOP OF THE WORLD HWY.
Dawson City
KLONDIKE HIGHWAY
Keno
Elsa
Mayo
Stewart Crossing
to Tok
Pelly Crossing
CANOL ROAD
Beaver Creek
Faro
Tungsten
Carmacks
Ross River
Burwash Landing
ROBERT CAMPBELL HIGHWAY
NAHANNI RANGE RD.
Destruction Bay
KLUANE NATIONAL PARK
ALASKA HIGHWAY
Haines Junction
WHITEHORSE
HAINES
Johnsons Crossing
Carcross
Teslin
Watson Lake
YUKON
BRITISH COLUMBIA
BRITISH COLUMBIA
ALASKA
HIGHWAY
Skagway
Atlin
GULF OF ALASKA
Haines
STEWART CASSIAR RD.


NEW
CR
5000'
4000'
3000'
ROAD
CR
3000'
WHEATON RIVER
4000'
MR
5000'
CR
WHEATON
ERA
TH, TALLY HO
AND
CROWN GRANTS
BARR
4000'
0 1500' 3000' 4500' 6000'
1 MILE
G. MACDONALD & ASSOCIATES LTD.
FANIN 1-6, 13-24 CLAIMS
NEWHAWK GOLD MINES LTD.
CLAIM DISTRIBUTION
NTS: 105 D3, D6
TECHNICAL: R.R.
DATE: NOV. 1985
SCALE: 1:31680
DRAFTING: J.S.
FIGURE: 2

## PHYSIOGRAPHY, CLIMATE, VEGETATION

The property is located on the northwest side of Wheaton Mountain, just west of the "Big Bend" in the Wheaton River valley. The claims extend from the south bank of the river at an elevation of 820 metres (2700 feet) over the steep slope of the mountain to an elevation of 1555 metres (5100 feet) with a total relief of over 700 meters. The upper slopes are quite rugged and incised by several narrow gullies. Outcrop is quite extensive at the higher elevations. Lower slopes are well-forested with spruce and alder. Above 1100 meters (3600 feet) the slopes are rocky with talus debris fans and brush.

Climatic conditions are typical of similar elevations elsewhere in the Carcross district of southern Yukon, characterized by a northern interior climate modified by a warmer, moist influence from the nearby Pacific Ocean. Average annual precipitation is approximately 40 cm. Winters in the area are long, with temperature extremes to -40°C but commonly in the -10°C to -20°C range. Summers are pleasant, with temperatures up to 25°C and long hours of daylight during May, June and July. The area is generally snowfree from late May to late September.

## REGIONAL GEOLOGY

The Wheaton River district straddles the boundary between folded Mesozoic and Paleozoic volcanic and sedimentary rocks of the Whitehorse Trough and the granitic intrusive rocks of the Cretaceous Coast Crystalline Complex to the west. All of these units are locally overlain by volcanic rocks of the late Cretaceous/early Tertiary Skukum Group and intruded by rhyolite and andesite dykes of the same age.

The region has been mapped twice by the Geological Survey of Canada and the results published as Memoir 31 (D. D. Cairnes, 1912) and Memoir 312 (J. O. Wheeler, 1961). A re-interpretation of the regional geology formed part of the metallogenic map published as Open File EGS 1979-6 of the Department of Indian Affairs and Northern Development (G. W. Morrison).

Table 1 - Formations

| | | |
|---|---|---|
| QUATERNARY | | Alluvium; glacial and fluvial deposits |
| QUATERNARY (?) | Miles Canyon volcanics | Basalt; minor pyroclastic rocks |
| TERTIARY | Skukum Group | Basalt, andesite, rhyolite flows, tuffs and breccias, dykes and sills |
| MID-CRETACEOUS | Coast Range intrusions | Medium-grained quartz-monzonite; granodiorite |
| JURASSIC | Tantalus Group | Mainly conglomerate |
| LOWER JURASSIC | Laberge Group | Greywacke, arkose, quartzite, siltstone, argillite and conglomerate |

(continued overleaf)

Table of Formations (continued)

| | | |
|---|---|---|
| TRIASSIC | Lewes River Group | Andesite, basalt flows and pyroclastic equivalents; limestone; minor rhyolite flows |
| LOWER PALEOZOIC | "Yukon Group" | Metamorphic terrain; quartz-biotite schist; micaceous quartzite; minor gneissic units |

Older sedimentary and volcanic rocks are typically deformed and exhibit at least lower-greenschist facies regional metamorphism. These units generally trend north or northwest and appear to be separated by unconformities. Much of the deformation seen in these rocks relates to regional tectonic events associated with intrusion of large bodies of quartz monzonite and granodiorite of the Coast Range Complex about 100 m.y.

Major fault structures are associated with early Tertiary volcanic complexes at Montana Mountain, Mount Macauley and Mount Skukum, but older structures may also be present. 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 andesite, dacite and rhyolite dykes, small rhyolite porphyry stocks and quartz or quartz-carbonate veining with important precious metal mineralization.

## HISTORY

The earliest exploration work in the Wheaton River area pre-dates the Klondike Gold Rush by several years. The first recorded claims staked in the region were located by Frank Corwin and Thomas Rickman on Carbon Hill, Chieftain Hill and Mt. Anderson(?) during the summer of 1893. Additional prospecting in the Wheaton River District continued intermittently until 1906 when the discovery of gold and gold telluride bearing quartz veins on Gold Hill led to a staking rush which resulted in over 700 claims being located near the discovery and on Carbon Hill where Corwin and Rickman's original claims had been found. Many of the claims were further developed until the outbreak of WWI - with adit entry underground drifts driven on shear zones or veins on Gold Hill, Tally Ho Mountain, Mt. Stevens and Carbon Hill. After the termination of the war, additional exploration was conducted on several of the more promising occurrences and limited production arose from high grade zones at Tally Ho Mountain, Gold Hill and Mt. Stevens.

Most of the Wheaton River district then lay idle from the mid-1920's until the late 1940's as most exploration efforts during this period were directed to silver-lead veins in the Keno Hill area of central Yukon. From the 1940's until the early 1980's, the Wheaton River district witnessed only sporadic exploration activity as specific commodities were sought. During the 1970's, exploration reconnaissance programs were conducted in the region for porphyry copper deposits. With the increasing price of gold during the late 1970's, interest again revived for precious metal exploration in southern Yukon.

A regional exploration program conducted by Agip Canada Ltd. in 1980 led to discovery of gold-bearing vein structures at Mount Skukum in 1981. Subsequent diamond drill

programs in 1982-1984 defined a commercial ore body consisting of 165,000 tons grading 0.73 oz gold and 0.63 oz silver per ton as finely disseminated gold hosted by quartz-calcite veining. Development work by Mount Skukum Gold Mines Ltd. (a subsidiary of Erickson Gold Mines Ltd. of Vancouver) proceeded during 1984-1985 under a joint venture agreement with Agip; production is scheduled to commence early in 1986.

The significance of this discovery was realized in 1983 and exploration activity in the Wheaton River district showed a dramatic increase during 1983-1985.

The area presently covered by the FANIN claims was undoubtedly prospected in the 1900-1920 period of intensive precious metal exploration in the Wheaton River district. At that time, significant discoveries were made in the immediate area at Tally Ho Mountain and Mount Stevens, and mineralized showings were discovered on Wheaton Mountain and at Dail Creek and Pugh Peak north of the Wheaton River in geological environments similar to those present on the FANIN claims. Reconnaissance exploration of Wheaton Mountain was carried out by Silver Pack Mines Ltd. in 1966-1967. Recent exploration on Wheaton Mountain on claims immediately adjacent to the south edge of the FANIN property by Wheaton River Joint Venture (Tally-Ho/Europetroleum/Permian Resources) in 1984-1985 included relocation of old pits, trenching and resampling of quartz veining carrying locally high-grade gold values. This vein system strikes towards the FANIN claims.

Currently, all of the adjacent properties held by other companies are being actively explored.

## GEOLOGY AND EXPLORATION - 1985

Reconnaissance-level exploration of the FANIN 1-6 and 13-24 claims in 1985 was carried out by a three-man crew consisting of G. Davidson (geologist) and J. Atkinson and M. Van Veen (field assistants), all of Whitehorse, Yukon, supervised by R. Robertson of G. Macdonald and Associates Ltd. This crew was based at a tent and trailer camp located on the road 3 km west of the property, and supplied from Whitehorse.

The lower northern portion of the FANIN claims is underlain by talus, alluvium and glacial drift. Bedrock is well exposed on the upper slopes of Wheaton Mountain in the southern half of the claim block. The geology of the property is shown on Figure 3.

The oldest sequence of rocks present on the FANIN claims is a series of older andesitic volcanics ("greenstones") which regionally show considerable deformation and at least low grade greenschist facies metamorphism. This unit is probably part of the Upper Triassic Lewes River Group and strikes north-westerly. Mid-Cretaceous granitic rocks of the Coast Range Intrusive Complex intrude this older volcanic sequence on both sides. The intrusive unit is normally a fresh equigranular medium-grained hornblende-biotite quartz monzonite to granodiorite. On the Tally Ho Mountain property just southwest of the FANIN claims, veins carrying precious metal mineralization seem related to fracture systems associated with the andesite-granite contact.

On the FANIN property, the intrusive rocks locally cause brecciation of the volcanics and elsewhere the volcanics are hornfelsed by the intrusions. Iron sulphide bands in the volcanics (e.g. Sample 20048, Table 2), locally up to 0.3 metres wide, may be a primary feature of the volcanic sequence or may indicate sulphide skarn replacement of thin carbonate lenses related to intrusion of the granitic rocks.

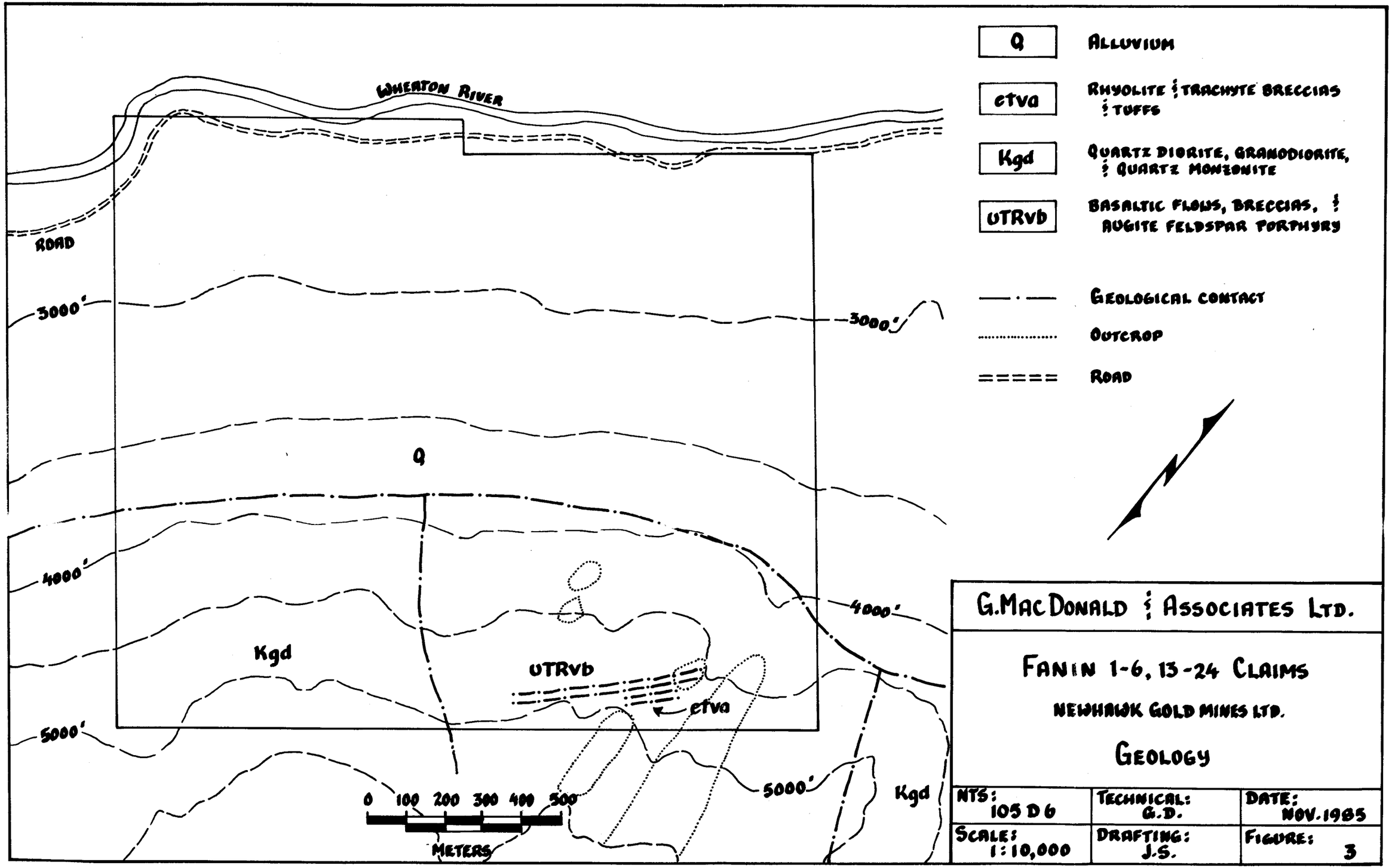
A body of Tertiary Skukum Group rhyolite porphyry ("Folle Mountain intrusion") outcrops just north of the property on the other side of the Wheaton River; associated peripheral rhyolite and granite porphyry dykes intrude both andesites and granitic rocks on the upper slopes of Mount Wheaton. These dykes commonly contain minor amounts of pyrite and/or arsenopyrite and weather to a bright orange colour.

No significant mineral showings were located during prospecting and geological mapping in 1985. A total of 10 rock samples were collected and analyzed by Bondar-Clegg Ltd., Vancouver. Sample descriptions are presented in Table 2; sample locations and analytical results are shown in Figure 4. Samples were analyzed for gold and silver only; silver determinations were by standard atomic absorption techniques. Gold analyses used a 10 g portion of pulverized rock with fire assay preconcentration (preparation of the dore bead) followed by digestion of the bead in acid and analysis by atomic absorption spectrophotometry. All results are low, respresenting background levels of these elements in the rock types sampled.

Table 2 - Rock Sample Descriptions

| Sample # | | |
|---|---|---|
| 20040 | - | Medium-grained hornblende-biotite granodiorite containing narrow rusty quartz veinlets |
| 20041 | - | Buff weathering quartz-feldspar porphyry with medium grained phenocrysts in an aphanitic groundmass and minor magnetite |
| 20042 | - | Basalt containing lenses and veins of quartz, and minor pyrite |
| 20043 | - | Buff weathering felsic porphyry containing feldspar phenocrysts and minor arsenopyrite |
| 20044 | - | Rusty weathering, fine-grained black volcanic rock with minor disseminated arsenopyrite |
| 20045 | - | Fine rusty lenses and black veinlets in orange weathering rhyolite |
| 20046 | - | Narrow carbonate-quartz veins and veinlets occurring in andesite; no visible sulphide minerals |
| 20047 | - | Rusty weathering dark metavolcanic rock containing bands of pyritic and sericitic andesite |
| 20048 | - | Massive fine-grained pyrrhotite-pyrite-arsenopyrite sample from very rusty lense in andesite porphyry. Some coarse crystalline pyrrhotite. |
| 20049 | - | Orange weathering quartz-feldspar porphyry containing minor arsenopyrite. |

A total of 66 soil samples were collected on two parallel contour lines traversing the north slope of Wheaton Mountain at about 1370 metres (4500 feet) elevation. Sample interval was 50 metres. Sample locations and analytical results are shown in Figure 4.




| | |
|---|---|
| Q | ALLUVIUM |
| etva | RHYOLITE ⁞ TRACHYTE BRECCIAS ⁞ TUFFS |
| Kgd | QUARTZ DIORITE, GRANODIORITE, ⁞ QUARTZ MONZONITE |
| UTRvb | BASALTIC FLOWS, BRECCIAS, ⁞ AUGITE FELDSPAR PORPHYRY |
| —·— | GEOLOGICAL CONTACT |
| ..... | OUTCROP |
| ===== | ROAD |

G.MACDONALD ⁞ ASSOCIATES LTD.

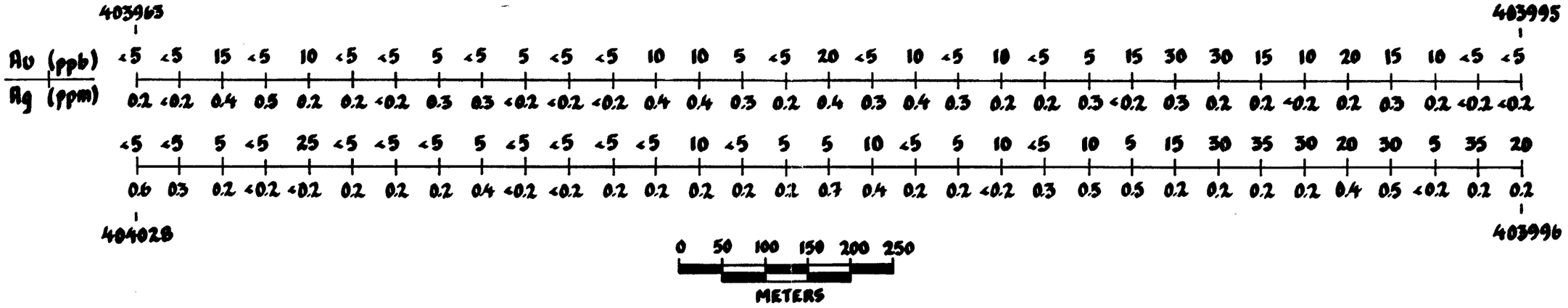
# FANIN 1-6, 13-24 CLAIMS

NEWHAWK GOLD MINES LTD.

## GEOLOGY

| | | |
|---|---|---|
| NTS: 105 D 6 | TECHNICAL: G.D. | DATE: NOV. 1985 |
| SCALE: 1:10,000 | DRAFTING: J.S. | FIGURE: 3 |

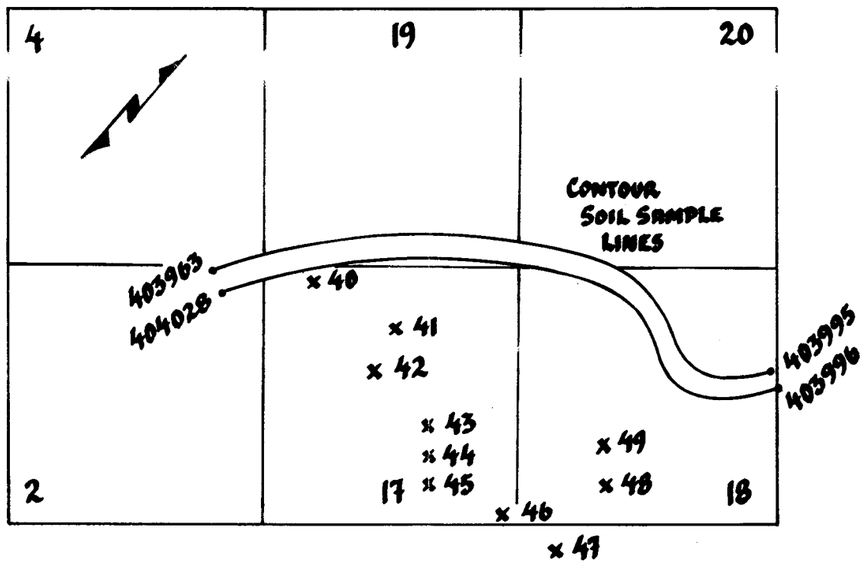
## Soil Geochemistry




## Rock Geochemistry & Sample Locations

### Rock Analysis

| Sample #200- | Au (ppb) | Ag (ppm) |
|---|---|---|
| 40 | < 5 | <0.2 |
| 41 | < 5 | 0.6 |
| 42 | < 5 | 0.3 |
| 43 | 10 | <0.2 |
| 44 | 5 | 0.3 |
| 45 | 10 | 0.3 |
| 46 | < 5 | <0.2 |
| 47 | < 5 | 0.4 |
| 48 | 5 | 1.0 |
| 49 | < 5 | 0.5 |




x40 ROCK SAMPLE SITE; SAMPLE 200-40.

0 100 200 300 400 500
METERS

G. MAC DONALD & ASSOCIATES LTD.

FANIN 1-6, 13-24 CLAIMS

NEWHAWK GOLD MINES LTD.

ROCK & SOIL GEOCHEMISTRY

| | | |
|---|---|---|
| NTS: 105 D6 | TECHNICAL: G.D. | DATE: NOV. 1985 |
| SCALE: 1:10,000 | DRAFTING: J.S. | FIGURE: 4 |

Portions of the minus 80 mesh fraction of the samples were analyzed for gold and silver by Bondar-Clegg and Co. Ltd. by the techniques described earlier. Analytical results are essentially all at background levels; slightly elevated gold and silver values occur in several samples towards the northeast end of the upper line.

## CONCLUSIONS AND RECOMMENDATIONS

Only two days of fieldwork have been carried out on the FANIN claims and the results obtained must be regarded as very preliminary in nature.

Geological units and contacts identified on the property are associated with potentially significant gold-silver mineralization on adjacent properties. In particular, quartz veining with some high-grade gold values occurs on the WHEATON claims and appears to trend towards the FANIN claims.

Analyses of rock and soil samples did not detect target areas warranting immediate investigation. Soil samples on part of the upper contour line perhaps deserve some follow-up as the sample interval (50 metres) is wide relative to the target size and orientation (veins of only a few metres in width probably oriented near-perpendicular to the sample lines).

Additional prospecting and rock sampling should focus on structures parallel to the granite-andesite contacts and on attempting to locate continuations of the mineralized quartz veins identified on adjacent claims on Wheaton Mountain. Samples should be analyzed for base metals, arsenic and mercury as well as gold and silver.

## APPENDIX I

### STATEMENT OF EXPENDITURES ON FANIN 17, 18, 19, 20

| | | |
|---|---|---|
| **Geochemistry** | | |
| 10 rock samples (Au, Ag) @ $12.00 | | $ 120.00 |
| 66 soil samples (Au, Ag) @ $9.65 | | 636.90 |
| **Personnel** | | |
| R. Robertson: | ½ day @ $400.00/day | 200.00 |
| G. Davidson: | 2 days @ $262.50/day | 525.00 |
| J. Atkinson: | 2 days @ $135.00/day | 270.00 |
| M. Van Veen: | 2 days @ $112.50/day | 225.00 |
| **Other** | | |
| Vehicle and gas - 2 days | | 145.00 |
| Camp and field equipment and supplies, food, expediting | | 125.00 |
| Report preparation, drafting, secretarial | | 250.00 |
| TOTAL EXPENDITURES | | $2,496.90 |

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Whitehorse, Y.T.
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## APPENDIX II

## 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 caused to be performed 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 day of , 1985.

G. S. Davidson, P.Geol.

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## APPENDIX II

## STATEMENT OF QUALIFICATIONS

I, **RONALD CHARLES RAMSAY ROBERTSON**, of the City of Whitehorse in the Yukon Territory, HEREBY CERTIFY:

THAT I am a Geologist employed by G. Macdonald and Associates Ltd. AND THAT I caused to be performed, and supervised, the work described in this report;

THAT I obtained a Bachelor of Science degree with First Class Honours in Geology from the University of Aberdeen, Scotland, in 1970 and subsequently carried out graduate studies at McMaster University, Hamilton, Ontario, and at Queen's University, Kingston, Ontario;

THAT I have been engaged in mineral exploration on a full-time and part-time basis for sixteen years, of which eight have been on mineral exploration programs in the Yukon Territory, British Columbia and Alaska;

THAT I am a member of the Geological Association of Canada, the Canadian Institute of Mining and Metallurgy, and the Prospectors and Developers Association.

DATED at Whitehorse, Yukon Territory, this 12th day of November, 1985.

Ronald C. R. Robertson