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REPORT ON THE GEOLOGY AND MINERAL INVENTORY

of the

MT. NANSEN AND TAWA PROPERTIES

YUKON TERRITORY

WITH ASSESSMENT OF THE ECONOMIC POTENTIAL FOR OPEN PIT

MINING OF OXIDIZED MINERALIZATION IN THE BROWN-MCDADE ZONE

for

B.Y.G. NATURAL RESOURCES INC.

and

CHEVRON MINERALS LTD.

EIP88017

JANUARY, 1989

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SUMMARY AND RECOMMENDATIONS

The Mt. Nansen and Tawa Properties are located in south Yukon, 60 km by gravel road west of Carmacks. The Mt. Nansen Property is owned by B.Y.G. Natural Resources Inc. and has been explored under option agreements with Chevron Minerals Ltd. since 1985. The Tawa Property is owned by Consolidated BRX Mining & Petroleum Ltd. and was optioned to Chevron in 1986, which in turn sub-optioned the property to B.Y.G. in 1988.

Gold and silver occur in a series of subparallel, moderately- to steeply-dipping quartz-sulphide veins, most of which are strongly oxidized to depths of 5 to 30 m below surface. The most developed veins (Brown-McDade, Huestis, Webber and Flex Zones) lie within a 3 by 1.8 km area in the south-central part of the Mt. Nansen Property. Mineral inventories in these zones are tabulated below.

	Open Pit			Underground		
	Tonnes	Au g/t	Ag g/t	Tonnes	Au g/t	Ag g/t
Proven	124,606	10.42	98	71,924	13.18	433
Probable	---	---	---	266,033	13.87	178
Possible	62,606	7.44	178	52,245	7.65	226
Total	187,212	9.42	125	390,202	12.91	232

	Total		
	Tonnes	Au g/t	Ag g/t
Proven	196,530	11.43	221
Probable	266,033	13.87	178
Possible	114,851	7.54	200
Total	577,414	11.78	197

Proven open pit reserves are in the Brown-McDade Zone while proven and probable underground reserves include mineralization from the Brown-McDade, Huestis and Webber Zones. Possible reserves are from the Flex Zone. All four zones are open at depth and in at least one direction along strike.

Metallurgical testing indicates that predominantly oxidized mineralization within the proposed open pits responds well to cyanidization and should give about 86% gold and 35% silver recovery from milled material. Underground mineralization is generally sulphide-rich and cyanide amenability varies from zone to zone, with parts of the Brown-McDade Zone giving the best recoveries (about 80%) and the Huestis Zone the poorest (about 20%). Additional metallurgical testing will be required to determine the best techniques for treating sulphide-rich mineralization.

Previous owners constructed a 270 tonne/day mill on the Mt. Nansen Property in 1967 and operated during 1968-69 and 1975-76 using mineralization from underground mines at the Huestis and Webber Zones. Both operations were terminated because of poor gold recovery caused by the refractory nature of the sulphide mineralization and the lack of a cyanide plant to treat oxide mineralization.

The feasibility of redesigning the existing mill and infrastructure to permit cyanide vat leaching of oxidized mineralization was examined in 1988 and the cost of refitting the mill, installing a camp and assay lab, and re-establishing the water supply system was estimated to be $4,581,895 (including a 6% contingency). Construction of a new tailings pond with sufficient capacity for the first one and one-half years of production is estimated to cost $704,600 (including a 30% contingency). Operating costs for the milling, tailings and water supply systems are expected to be $47.68/tonne (including a 5% contingency) while mining costs for open pit mineralization at the Brown-McDade Zone are estimated to be $11/tonne for mineralization and $5.50/tonne for waste.

underground reserves; and, (4) rehabilitation of the Webber upper level. Metallurgical testing should also be started on mineralization from all four areas. The proposed exploration and development program is estimated to cost about $1,100,000.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

A.R. Archer, B.A.Sc., P.Eng.

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INTRODUCTION

This report summarizes the geology, mineral inventory and economic potential of precious metal veins at the Mt. Nansen and Tawa Properties located 60 km due west of the town of Carmacks in south-central Yukon (Figure 1). It is specifically directed toward the Brown-McDade Zone on the Mt. Nansen Property where recent work has outlined significant reserves of well oxidized cyanide amenable material that can be mined by open pit methods.

The authors are both partners in Archer, Cathro & Associates (1981) Limited which has conducted extensive exploration in Yukon since 1965. Mr. Archer was a mine geologist with United Keno Hill Mines Ltd. from 1956 to 1963 and Chief Geologist from 1963 to 1965. Both authors have considerable experience exploring other precious metal vein deposits and profitably operated two small open pit mines under leases from United Keno Hill between 1983 and 1986. Archer, Cathro has managed work at the Mt. Nansen Property since June 1985 and the Tawa Property since May 1986.

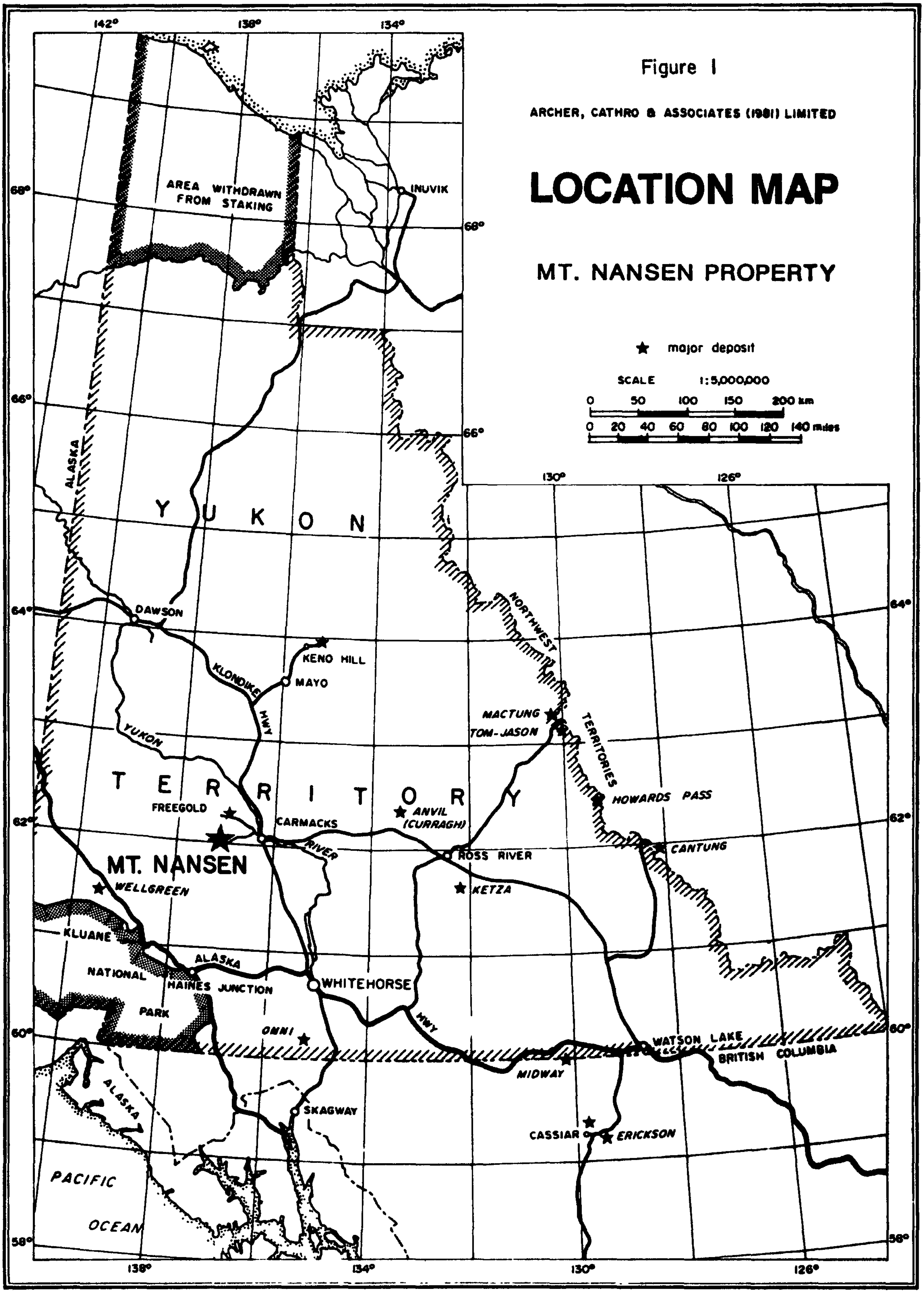


Figure 1
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
LOCATION MAP
MT. NANSEN PROPERTY
major deposit
SCALE 1:5,000,000
0 50 100 150 200 km
0 20 40 60 80 100 120 140 miles
AREA WITHDRAWN FROM STAKING
INUVIK
ALASKA
YUKON
TERRITORY
NORTHWEST TERRITORIES
DAWSON
KENO HILL
MAYO
KLONDIKE HWY
YUKON
MACTUNG
TOM-JASON
HOWARDS PASS
FREEGOLD
CARMACKS
ANVIL (CURRAGH)
RIVER
ROSS RIVER
CANTUNG
MT. NANSEN
WELLGREEN
KETZA
KLUANE
NATIONAL
PARK
ALASKA
HAINES JUNCTION
WHITEHORSE
HWY
OMNI
WATSON LAKE
BRITISH COLUMBIA
MIDWAY
ALASKA
SKAGWAY
CASSIAR
ERICKSON
PACIFIC
OCEAN
142°
138°
134°
130°
126°
68°
66°
64°
62°
60°
58°

HISTORY

The Mt. Nansen area is one of the oldest precious metal camps in the Yukon Territory. Gold was discovered in several creeks during the early 1900's and small scale placer mining has been performed intermittently since that time. In 1988 ten small placer mines were in production while a number of other prospects received exploration.

The first lode deposit (Brown-McDade Zone) was found in 1943 by prospectors A. Brown and G. McDade. Subsequent hand trenching and diamond drilling returned encouraging gold and silver values and in 1946 Leitch Gold Mines Ltd. formed Brown-McDade Mines Ltd. which explored with drifting and underground drilling from a crosscut adit. At the same time, a syndicate organized by H.H. (Spud) Huestis discovered and trenched the Huestis Zone about one and one-half kilometres to the west, while Conwest Explorations Ltd. explored the Webber Zone, which lies about one kilometre northwest of the Huestis Zone. Underground results at the Brown-McDade Zone did not meet expectations and when the project was abandoned in 1947 all lode activity in the area ceased.

In 1958 interest was revived and in 1962 the Mt. Nansen Exploration Syndicate (Newmont Mines Limited, Noranda Inc., Rio Tinto Canadian Exploration Ltd., Kerr Addison Mines Limited, Conwest Exploration Co. Ltd. and Faraday Resources Inc.) optioned the properties. This group explored the Webber and Huestis Zones by geochemical surveys and bulldozer trenching and drilled one hole at the Webber Zone. In 1963 Mt. Nansen Mines Ltd. was formed by the syndicate and the Webber Zone was further tested by bulldozer trenching and three drill holes. Peso Silver Mines Limited acquired control of Mt. Nansen

Mines Ltd. in 1964 and explored the Brown-McDade, Webber and Huestis Zones by underground development and diamond drilling between 1964 and 1967.

A production decision was made in 1967 and construction of a 270 tonne/day mill was started. During the period September 1968 to April 1969, 16,330 tonnes were mined and milled from the Huestis and Webber Zones yielding 70.36 kg Au, 2169.74 kg Ag and 55.18 tonnes Pb. Recovery averaged approximately 95% for silver and 60% for gold. The low gold recovery was due to the high work index of the rock, the refractory nature of the gold-bearing minerals and the lack of a cyanide circuit to treat oxidized material. The mine was reopened in late 1975 and 7435 tonnes were taken from the Huestis Zone during the first five months of 1976. Of this, 5832 tonnes grading about 10.3 g/t Au, 240 g/t Ag, 1.0% Pb and 1.0% Zn were milled. Gold recovery was again unfavourable and the operation was discontinued. Since that time, the property was relatively inactive until it was acquired by B.Y.G. Natural Resources Inc. in April 1984.

Chevron Minerals Ltd. optioned the Mt. Nansen Property in June 1985 and between then and the end of 1987 performed geological mapping, property-wide multi-element soil geochemistry, test geophysical surveys, aerial photography, baseline and claim surveys, rehabilitation of the Brown-McDade adit portal, 24,121 m of excavator trenching, 1283.5 m of rotary percussion drilling in 17 holes and 2605 m of diamond drilling in 41 holes, plus metallurgical, geotechnical and environmental studies. Exploration and results from these programs are described in detail in Eaton (1986a and b) and Eaton and Walls (1987a).

In spring 1988 B.Y.G. sub-optioned part of Chevron's interest in the Mt. Nansen Property and the nearby Tawa Property and subsequently funded exploration programs at both. The 1988 Mt. Nansen program consisted of 1117 m of excavator trenching, 5397 m of diamond drilling in 85 holes (mostly at the Brown-McDade Zone), rehabilitation of a portion of the Huestis underground workings, reserve calculations, metallurgical testing at Coastech Research Inc. and Lakefield Research, rotary drilling and geotechnical studies of proposed tailings dam sites by Klohn Leonoff, evaluation of mill equipment and flow sheet design by Melis Engineering Ltd., and continued environmental studies by Norecol Environmental Consultants Ltd. Results of this work are summarized in this report and presented in more detail in Eaton and Walls (1989) and in separate reports by each consulting group as listed in the bibliography.

The Tawa Property, located 10 km northwest of the Brown-McDade Zone, covers precious metal veins similar to those at Mt. Nansen and has been intermittently explored since 1947 with soil geochemistry, geophysics, bulldozer trenching and diamond drilling. Work in 1988 included 1924 m of excavator trenching and six diamond drill holes totalling 377 m. Details of recent exploration programs at Tawa are given in Eaton and Walls (1986c, 1987b and 1988).

A porphyry copper occurrence, which lies approximately 5 km north of the Mt. Nansen veins, is partially covered by the Mt. Nansen Property. This occurrence was discovered by Mt. Nansen Mines Ltd. in 1969 and was explored in 1970 by soil geochemistry and airborne geophysics. The claims covering the target were optioned to Area Exploration Company, a subsidiary of Cyprus Exploration Corporation, during the period 1971 to 1975 and were explored by soil geochemistry, ground geophysical surveys and percussion and diamond drilling, as described in Sawyer and Dickinson (1976). This target has not been explored since 1975.

PROPERTY AND ACCESS

The Mt. Nansen Property covers 53 sq km and consists of 30 mineral leases and 257 full or fractional mineral claims while the Tawa Property encompasses 73 full or fractional mineral claims in a 12 sq km area (Figure 2). None of the claims or leases are due to expire prior to February, 1998 and ownership can easily be extended beyond that date. Four surface leases are also held to protect the Mt. Nansen mill, tailings ponds, and water supply system.

Access from Carmacks to the property is provided by a 60 km gravel road that is maintained by the Yukon Territorial Government (YTG) from April to October. A 1000 m gravel airstrip suitable for all types of bush aircraft is located on the property but requires grading before it can be used. During 1988, the road and airstrip were examined by engineers from Boreal Consulting Services Ltd. and a report was submitted to the YTG, along with an application for $535,000 of upgrading assistance through its Resource Transportation Access Program. This proposal is still under serious consideration and is likely to be implemented in 1989.

Carmacks is a local transportation hub situated at the junction of the Robert Campbell and Klondike Highways, which provide access to the Anvil (Curragh), Ketza and United Keno Hill Mines and the Klondike goldfield. It has a population of about 300 and community services such as an elementary school, RCMP detachment, stores, petroleum outlets, nursing and ambulance stations, and territorial government road maintenance facilities. Whitehorse, the territorial capital and major supply centre, is 175 km south of Carmacks by paved highway while the deep-sea port at Skagway, Alaska lies 180 km farther to the south.

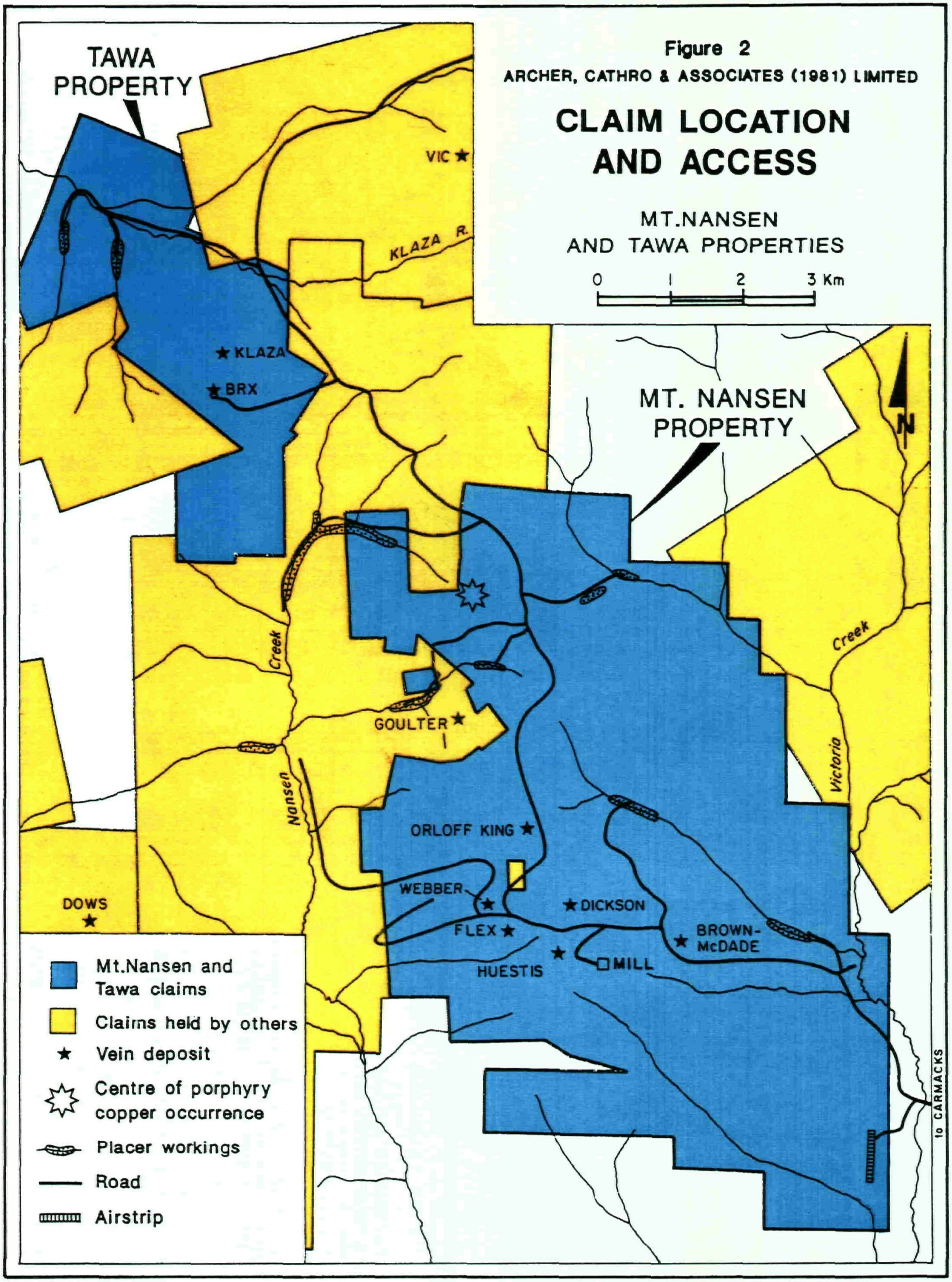


Figure 2
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
CLAIM LOCATION AND ACCESS
MT.NANSEN AND TAWA PROPERTIES
0 1 2 3 Km
N
TAWA PROPERTY
MT. NANSEN PROPERTY
VIC
KLAZA R.
KLAZA
BRX
Creek
Nansen
GOULTER
ORLOFF KING
WEBBER
DICKSON
FLEX
HUESTIS
MILL
BROWN-McDADE
DOWS
Creek
Victoria
to CARMACKS
Mt.Nansen and Tawa claims
Claims held by others
Vein deposit
Centre of porphyry copper occurrence
Placer workings
Road
Airstrip

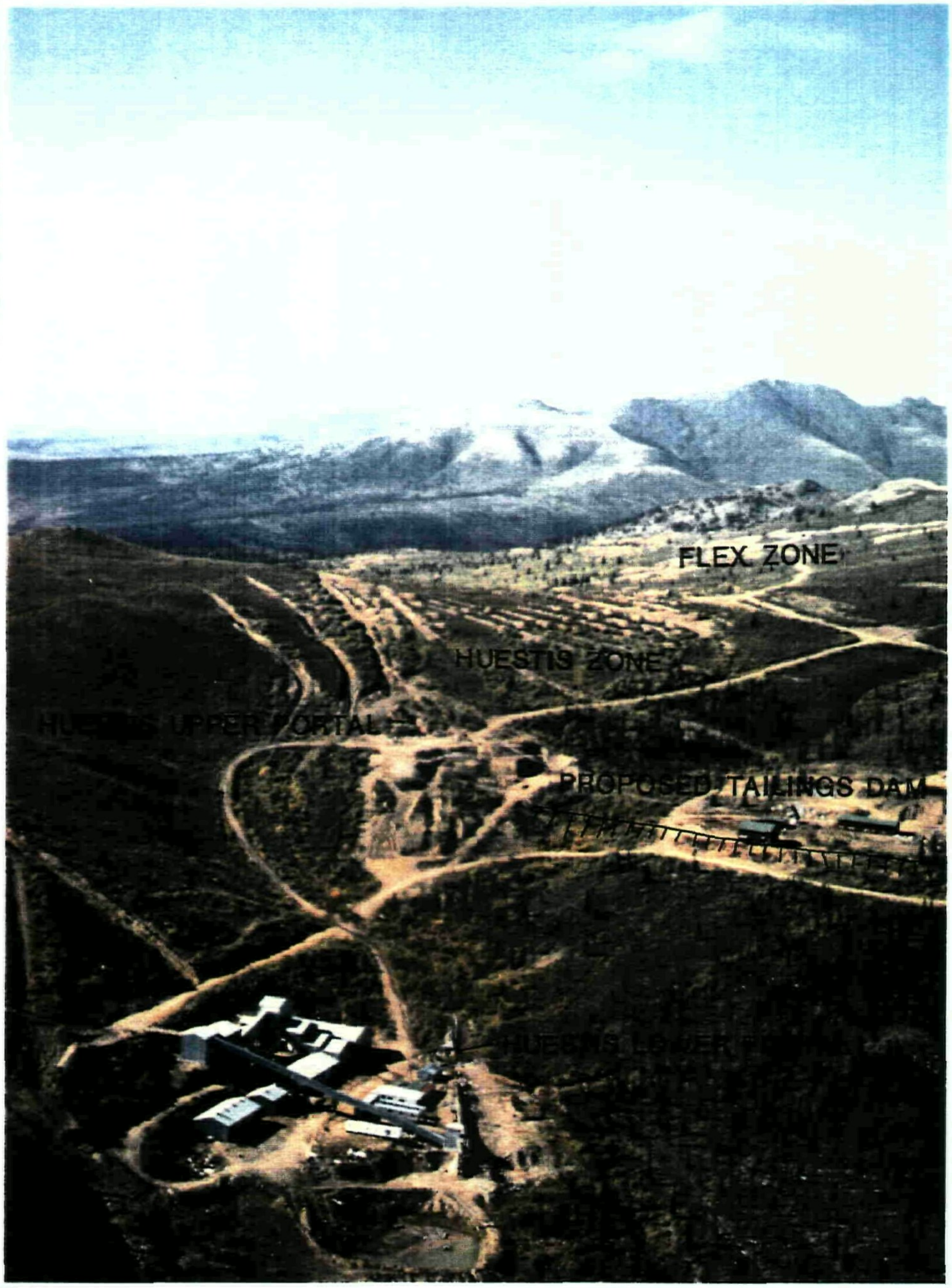
EXISTING PLANT AND INFRASTRUCTURE

After operations at Mt. Nansen were suspended in 1976, the mill, camp, water supply system, and underground workings were left largely unguarded and were subsequently scavenged and vandalized. This, plus lack of maintenance and sale of some components, has rendered much of the plant and infrastructure inoperable. The following is a summary of facilities and equipment still on the property.

1. The mill (Photograph 1) includes: a crushing building with a coarse ore bin, primary jaw crusher and secondary cone crusher; a mill building containing two fine ore bins, two ball mills, flotation cells, scrubbers and a large warehouse; two covered conveyors; a small steam building with boiler; an electrical building with diesel generators and compressors; a large empty building built to house a cyanide plant; a heavy equipment garage; and, a shed for maintaining underground equipment. In October 1988 J. Sutherland of Melis Engineering supervised a comprehensive examination of the mill buildings and equipment and concluded that the buildings, plus the crushing, grinding and flotation circuits could be rehabilitated but that the electrical and heating systems would probably have to be replaced (Melis, 1988).

2. The tailings ponds are located immediately below the mill and are still intact. Unfortunately, they are much too small for any conceivable operation and cannot be easily expanded.

3. The camp consists of a number of Atco-type trailers near the mill plus an office and cookhouse approximately 400 m away. The trailers are delapidated beyond repair. The other buildings appear to be structurally sound but have been badly scavenged and are situated on the most suitable site for a new tailings pond.



Photograph 1: Aerial view of mill and camp buildings facing north.

4. The water system includes wells on the floor of Victoria Creek, a pump shed near the wells, a 10 cm diameter pipeline extending 4.5 km from the wells to the mill, a water storage shed uphill from the mill, a large redwood water tank from the shed which is stored in Carmacks and a powerline from the mill to the Victoria Creek pumphouse. The entire system will likely have to be replaced, except for the wells, pipeline and storage shed, all of which will require some repairs to be serviceable.

5. Underground workings have been developed on two levels at the Huestis and Webber Zones and on one level at the Brown-McDade Zone. Both levels at Webber are blocked with ice while the lower level adit at Huestis is blocked by an ice plug and is partially caved. The Brown-McDade workings are accessible but there are several small caves. The upper Huestis adit level, which is connected to the lower level by a raise, was rehabilitated in 1988. Most of the track, water and air lines appear to be intact but the underground machinery is either in poor repair or has been stolen. There is relatively little timber underground, aside from the adit portals, and what was used is generally sound and is not taking weight.

6. The road network on the Mt. Nansen Property is extensive and is in good condition.

GEOMORPHOLOGY AND CLIMATE

The Mt. Nansen and Tawa Properties lie on the eastern margin of the Dawson Range which forms the backbone of a deeply dissected peneplane known as the Yukon Plateau. This region is unique in Canadian geography as it lies northwest of the maximum advance of the Wisconsin ice sheet and, thus, escaped Pleistocene continental glaciation. The result is a deeply weathered terrain characterized by broad, rounded ridge tops flanked by gentle slopes. Outcrop is rare and is normally restricted to resistant weathering rock units exposed on ridge tops. Drilling on various parts of the properties indicates that total oxidation extends from 1 to 75 m in depth depending upon bedrock permeability. A few drill holes intersected thin layers of pre-Wisconsin glacial till, however this material appears to be confined to small isolated pockets.

The major drainages in the area are the Klaza River and Nansen and Victoria Creeks which occupy wide, flat bottomed valleys fed by tributaries with steeper gradients and V-shaped dendritic drainages. Broad terraces, comprised of poorly sorted glacial outwash sand, flank Nansen and Victoria Creeks. Local elevations range from 1030 to 1500 m.

Permafrost is widespread, with north-facing slopes remaining frozen throughout the year and south-facing slopes thawing to a depth of 1 to 2 m by late summer. Once the insulating organic layer is removed, permafrost rapidly melts and does not reform. Vegetation consists of spruce up to 30 cm in diameter along the main streams, giving way to stunted black spruce and aspen on lower slopes, moss and buckbrush on upper slopes, and lichen on ridge tops.

Average monthly temperatures in the Mt. Nansen area range from about 15°C in July to -15°C in January and frost is rare from late May to early September. Annual precipitation averages about 25 cm, most of which falls as rain in the summer months. Late winter snow pack is normally 30 to 40 cm deep.

GENERAL GEOLOGY AND MINERALIZATION

GEOLOGY

The Mt. Nansen area is located within the Yukon Crystalline Terrane (Tempelman-Kluit, 1984) which consists of: Upper Paleozoic or older metamorphic rocks; foliated Upper Triassic and unfoliated Jurassic diorite, granodiorite and syenite batholiths; and, unfoliated Mid- to Late Cretaceous, mafic to felsic volcanic, pyroclastic, hypabyssal and plutonic rocks. Triassic and older rocks belong to an island arc that was accreted to North America during Mid-Jurassic time, while the younger igneous rocks are related to the Coast Plutonic Complex (Tempelman-Kluit, 1979). Geology of the Mt. Nansen area is illustrated on Figure 3.

Metamorphic rocks underlie the southern part of the Mt. Nansen Property and include quartz-feldspar-chlorite gneiss, augen gneiss, amphibolite and quartz-chlorite schist, with occasional limestone and quartz-graphite horizons. Foliation within these rocks generally strikes northeast and dips moderately to steeply to the northwest.

The northern and eastern parts of the Mt. Nansen Property and most of the Tawa Property are underlain by medium- to coarse-grained granodiorite that grades locally to quartz diorite or quartz monzonite. Although the most recent Geological Survey of Canada mapping (Tempelman-Kluit, 1984) assigns these rocks a Mid-Cretaceous age, weak foliations observed in them suggests they may be, at least in part, Triassic. Contacts between the granodiorites and metamorphic rocks are rarely exposed but, where observed, the gneiss and schist have been partially assimilated.

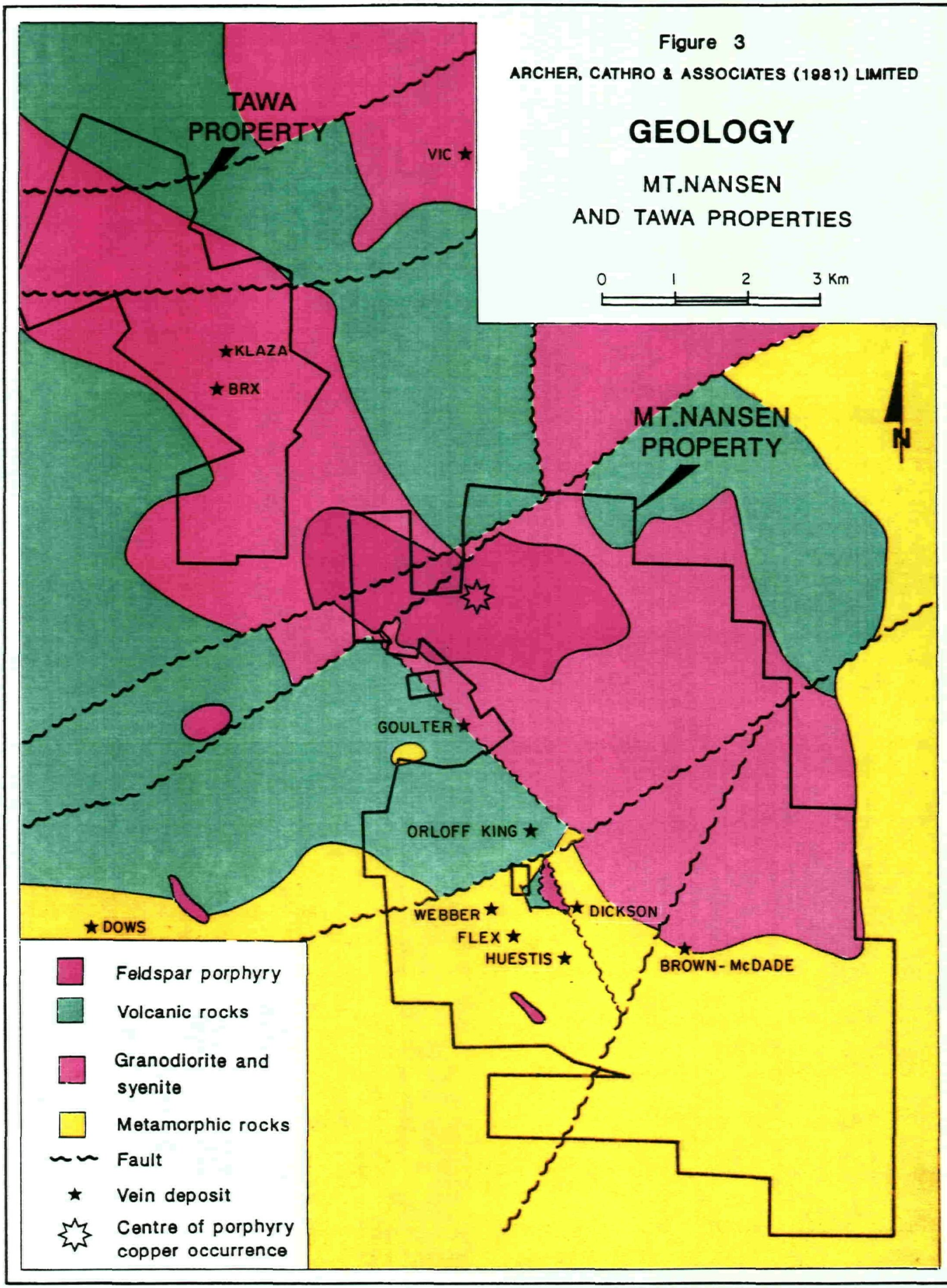


Figure 3
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
GEOLOGY
MT.NANSEN
AND TAWA PROPERTIES
0
1
2
3 Km
N
TAWA
PROPERTY
VIC
KLAZA
BRX
MT.NANSEN
PROPERTY
GOULTER
ORLOFF KING
WEBBER
DICKSON
FLEX
HUESTIS
BROWN-McDADE
DOWS
Feldspar porphyry
Volcanic rocks
Granodiorite and
syenite
Metamorphic rocks
Fault
Vein deposit
Centre of porphyry
copper occurrence

The youngest rocks are volcanic flows, lapilli tuffs and agglomerates, plus feeder dykes and plugs, belonging to the Mid-Cretaceous Mount Nansen Group. Two suites are present, one is predominantly andesitic and the other dacitic to rhyolitic. Andesitic units occur primarily in the west-central part of the Mt. Nansen Property and generally consist of 1 to 2 mm feldspar phenocrysts in a medium-grained, dark green groundmass. Dacitic to rhyolitic volcanic rocks have not been found on either claim block but subvolcanic dykes and plugs, thought to be feeders to these units, are widespread. Although not volumetrically abundant, these intrusions are significant as they are closely associated with the porphyry copper mineralization and some precious metal veins. They have been given the field name feldspar porphyry and typically consist of 1 to 3 mm feldspar ± quartz phenocrysts in an aphanitic to fine-grained, buff to tan, felsic groundmass. The largest plug is 3.5 km long by 1.5 km wide and is partially covered by the northern part of the Mt. Nansen Property. Dykes range from 10 cm to 12 m in width, averaging about 1.5 m, and cut all other rock types on the properties.

Two major fault sets are developed in the Mt. Nansen area. One set trends northwesterly, exhibits near vertical to moderate southwesterly dips and often contains precious metal veins, while the other strikes northeasterly, generally dips moderately to steeply toward the northwest and is rarely mineralized. Both appear to be approximately coeval but exact timing, direction of relative movement and size of offsets are difficult to determine. There is some evidence for block faulting and several of the structures have moved more than once. Where offsets have been determined, northeast-trending faults have generally produced small (less than 50 m) dextral offsets in northwest-trending structures. The largest movement recognized to date occurs along the Webber Creek Fault in the central part of the Mt. Nansen Property where there is an apparent 1.2 km offset. However, much of this apparent offset could be due to a combination of strike slip and dip slip motion, orientation of marker structures and topographic relief. The actual offset could be as little as 600 m.

MINERALIZATION

Two types of mineralization have been recognized on the Mt. Nansen and Tawa Properties: 1) precious metal vein zones; and, 2) disseminated and stockwork porphyry copper mineralization. Detail descriptions of mineralization discovered prior to 1985 appear in Campbell (1965), Saager and Bianconi (1971), Sawyer and Dickinson (1976) and Ranspot (1983). The following summary briefly describes the characteristics of each type of mineralization and incorporates results of the work done since 1985.

Precious metal vein zones occur throughout the Mt. Nansen camp and are found in all rock types (Figure 4). The mineralization is highly variable in grade and width but the host structures show considerable lateral and vertical continuity. Ore and gangue mineralogy differ from one vein zone to another but are usually relatively consistent within a single structure. The strike of individual veins commonly ranges between 130 and 180°, averaging about 150°. Dips range from 30°SW to 45°NE but most are between 60°SW and 80°NE. The widest, highest grade zones are normally found where a vein splits, takes a bend or intersects a northeast-trending cross fault, thus creating more open space for mineralizing fluids. While a wide variety of veins are present, most fall into one of two end member categories: 1) narrow, relatively simple vein

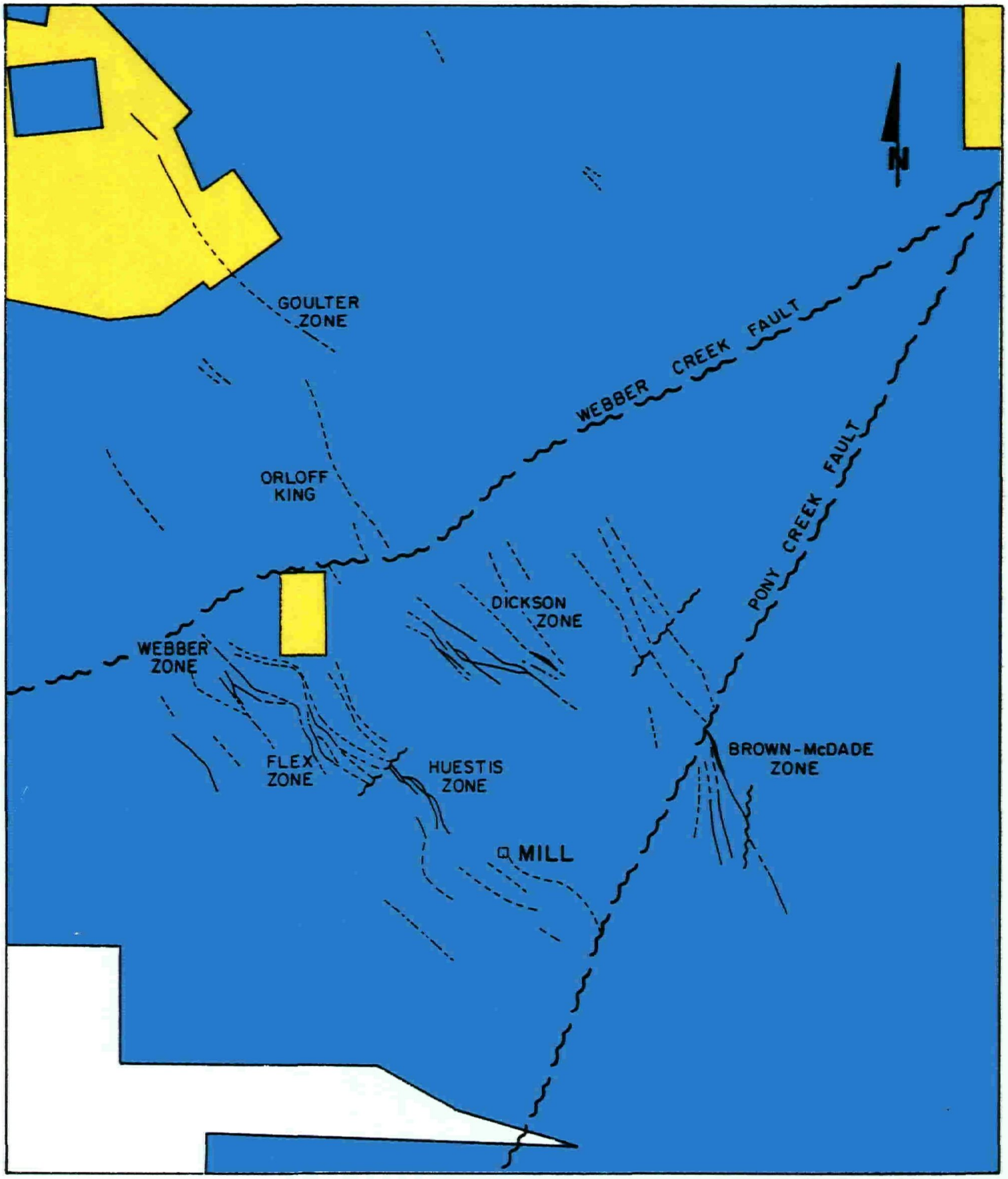


Figure 4

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

VEIN ZONES

MT.NANSEN PROPERTY

systems (Webber, Huestis and Dickson); and, 2) complex vein and breccia zones (Brown-McDade, Goulter, BRX, Klaza). The Orloff King and Flex Zones share some characteristics of both groups.

Narrow precious metal veins occur along anastomosing, steeply-dipping, northwest-trending faults and are best developed within the metamorphic rocks although they have been found in all major rock types. They range from a few centimetres to 5 m in width and consist of quartz- and sulphide-rich cores surrounded by narrow, intense phyllic and kaolinitic facies alteration envelopes. Wallrocks within 5 m of the veins are often bleached and exhibit weak montmorillonite alteration. Higher grade precious metal values (greater than 3.5 g/t Au and 35 g/t Ag) are confined to quartz-rich zones and values drop off rapidly to less than 0.7 g/t Au and/or 17 g/t Ag in the surrounding altered wallrocks. Depth of weathering is variable, with total oxidation (aside from occasional sulphides encapsulated in quartz) ranging from less than 5 m in the Huestis Zone to about 30 m in the Webber Zone. The weathering is deepest on south-facing and shallowest on north-facing slopes. Primary sulphides include, in approximate order of abundance: pyrite, arsenopyrite, galena, sphalerite, chalcopyrite, sulfosalts and stibnite. Neither native gold nor silver has been observed megascopically in primary or weathered ores. Silver to gold ratios are normally in the range of 20 to 30:1.

Complex precious metal zones share many characteristics with the narrow precious metal veins but also exhibit some features that suggest a close affinity with the porphyry copper mineralization. Mineralization and alteration in these zones is more widely distributed than in the narrow vein zones, and there is a spatial, and probably genetic, link with feldspar porphyry dykes. These zones are up to 150 m wide and consist of a series of subparallel faults separated by fractured and altered wallrocks. The mineralization is best developed where the faults cut igneous rocks. The highest assays (greater than 3.5 g/t Au) are obtained from quartz + sulphide ± calcite veins that occur with sericite and kaolinite in the fault zones. The wallrocks typically exhibit montmorillonite or kaolinite alteration and grade between 0.3 and 1.7 g/t Au. Kaolinite altered, frequently brecciated feldspar porphyry dykes often intrude along or subparallel to the faults and it is common for a mineralized vein to grade into a breccia zone and then into a porphyry dyke either along strike or downdip. The dykes normally range from 10 cm to 5 m wide and grade between 0.3 and 2.1 g/t Au. Ore mineralogy and metal ratios in the complex precious metal zones are variable probably reflecting different depths of erosion into the hydrothermal system. For example, the Goulter Zone, which is thought to be high level, contains a wide range of ore minerals including realgar in a mixed calcite, quartz and barite gangue while the presumably deeper Brown-McDade Zone contains predominantly pyrite and arsenopyrite with quartz. Silver to gold ratios for complex precious metal zones are slightly lower than those in the narrow precious metal veins, typically ranging between 5 and 20:1. Oxidation in these zones is usually slightly deeper than might be expected from a narrow vein in a comparable geomorphological setting due to the increased permeability in the highly fractured wallrock.

The <u>porphyry copper zone</u> is probably related to the same hydrothermal cell as the veins, but represents a deeper and hotter part of the system. The mineralization is weak (average grade of less than 0.1% Cu) but extensive, covering a 4.5 sq km area. The zone exhibits classic porphyry alteration zonation, with localized silicic and potassic cores surrounded by advanced argillic and phyllic halos giving way to weak argillic and propylitic margins. Primary mineralization consists of pyrite and chalcopyrite, which are usually oxidized to limonite within 30 m of surface. Precious metal sampling has not been conducted systematically throughout the zone but preliminary indications are that the values are low, averaging less than 0.1 g/t Au and 0.3 g/t Ag.

BROWN-MCDADE ZONE

The Brown-McDade Zone consists of a series of veins within a 500 m long by 200 m wide area located 2 km by road east of the mill (Photograph 2). Prior to 1985 it was explored by bulldozer trenches at approximately 50 m intervals, a few diamond drill holes and 670 m of underground workings which include a crosscut adit and 400 m of drifting at an average depth of 30 m below surface. Since 1985 Chevron and B.Y.G. have performed additional trenching, 1283.5 m of rotary percussion drilling in 17 holes on section lines spaced 100 m apart, and 5443 m of diamond drilling in 82 holes on section lines 33.3 m apart. The diamond drill holes tested the zone at approximately 20 m intervals vertically down each section line to a maximum depth of 120 m below surface.

Initial exploration was directed toward heap leach mining potential but as the characteristics of the deposit were established, the focus gradually shifted toward a milling operation. Metallurgical programs considered both options and included agitated cyanide leach tests, bottle roll cyanide amenability and column leach tests of the oxide and sulphide-bearing mineralization, results of which are described in Lakefield Research (1985, 1987), Hazen Research (1986) and Melis (1988). More comprehensive evaluations of sulphide-rich mineralization were included in the 1986 Hazen Research studies and are continuing under Melis's supervision.

The mineralization occurs in a number of subparallel quartz veins and feldspar porphyry dykes developed in the hanging wall of a strong fault (Footwall Fault) which strikes 160° and dips 50 to 70° to the southwest (Figure 5). The fault cuts obliquely across a contact between granodiorite and

Photograph 2: Aerial view of Brown-McDade Zone facing west.

Note approximate outline of proposed open pits.

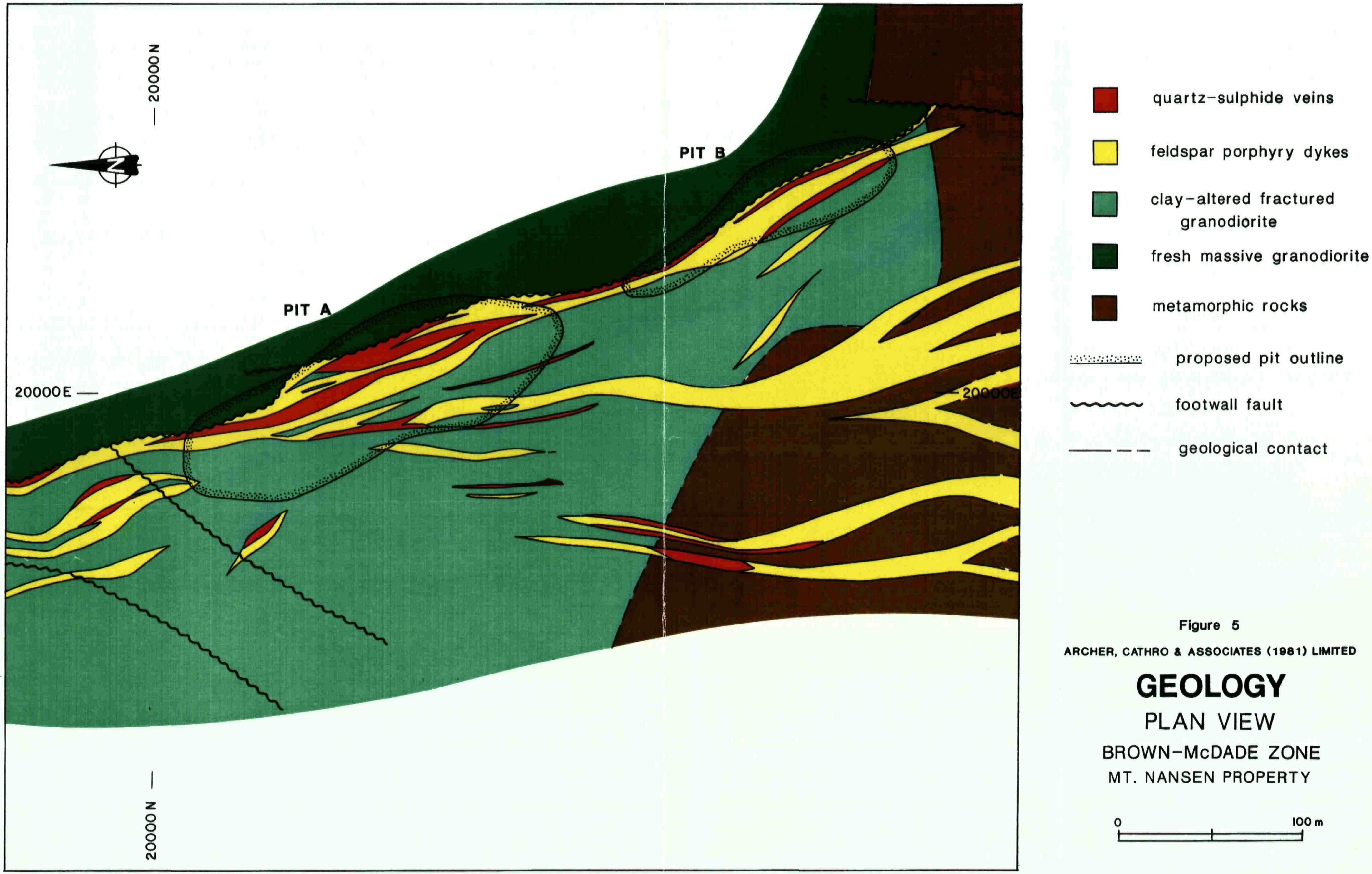


Figure 5

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

GEOLOGY

PLAN VIEW

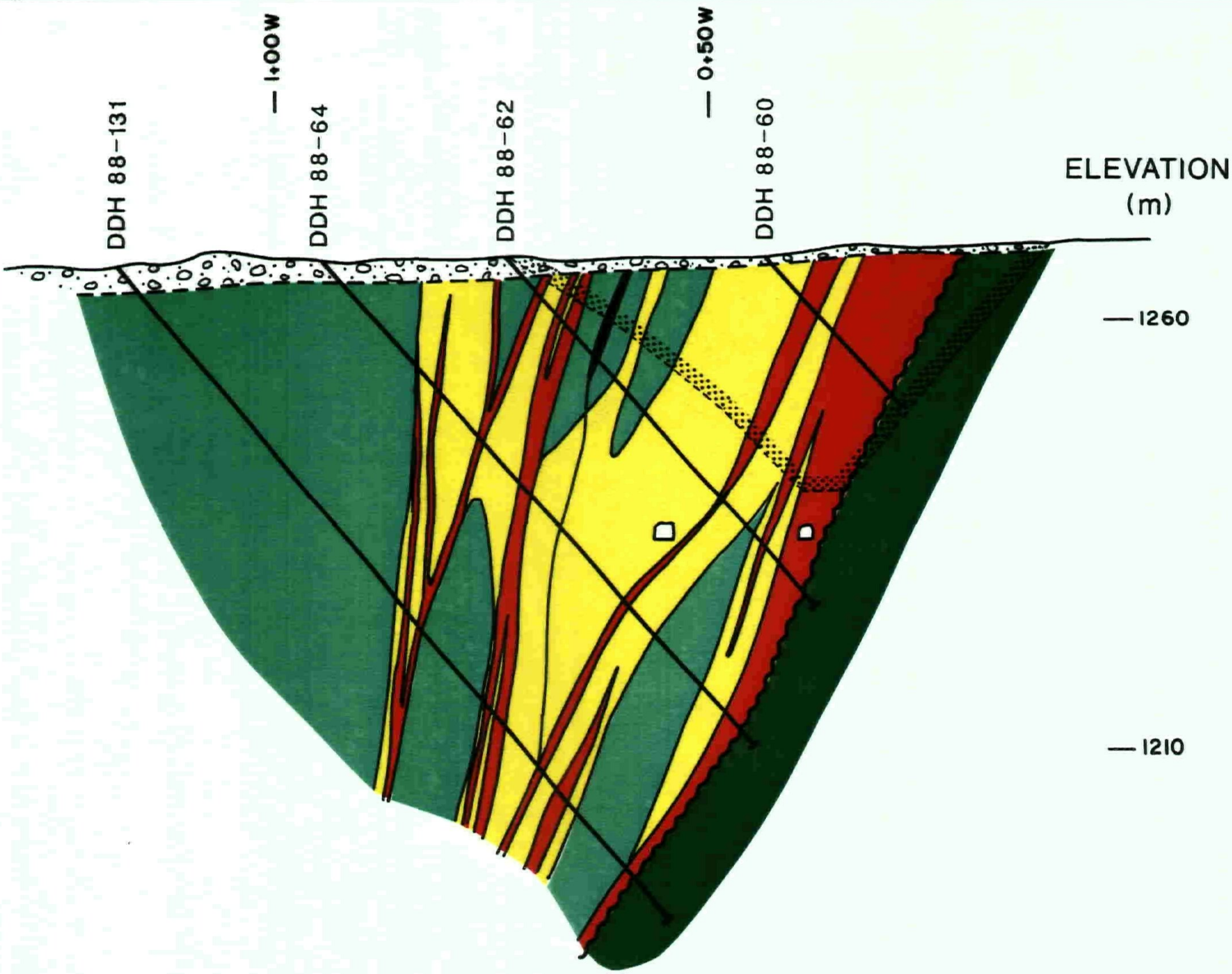
BROWN-McDADE ZONE

MT. NANSEN PROPERTY

metamorphic rocks and is best mineralized where granodiorite forms both walls. Footwall rocks are relatively unaltered and massive while hanging wall rocks are clay altered and highly fractured. Poorly defined northeast-trending, moderately northwest-dipping cross faults occur at the north and south ends of the zone. Veins that appear to be offset extensions of the Brown-McDade Zone are exposed in widespread trenches for 1200 m to the north and 200 m to the south of the cross faults but most intersections along the extensions are narrow and low grade.

The strongest veins occur in a 3 to 40 m wide band directly adjacent to the Footwall Fault while weaker subsidiary structures are common further out in the hanging wall. The subsidiary structures horsetail off the main band and usually exhibit more northerly strikes and steeper dips which result in a wedge-shaped pattern with increasing divergence toward the south. A typical cross-section through the zone is shown on Figure 6. The greatest concentration of mineralization (a 133 by 40 m area within which drill intersections averaged 9.67 g/t Au and 86 g/t Ag over 10.99 m) is exposed in the central part of the zone near where the subsidiary structures converge with the Footwall Fault. A second near-surface concentration is located 133 m to the south. The single intersection with the highest total gold content (11.97 g/t Au and 101 g/t Ag over 23.0 m) is located 66 m to the north and 40 m downdip from the main concentration, as shown on Figure 7, and is part of a northwest-raking shoot that may be controlled by the intersection of the Footwall Fault with the northerly cross fault.

Supergene weathering of the veins and adjacent wallrocks has converted near surface sulphide minerals to limonite and other oxides, most feldspar and



SECTION FACING NORTH

- overburden
- quartz-sulphide veins
- feldspar porphyry dykes
- clay-altered fractured granodiorite
- fresh massive granodiorite
- proposed pit outline
- old exploration drift
- footwall fault

Figure 6

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

SECTION 0+67S

BROWN-McDADE ZONE

MT. NANSEN PROPERTY

0 25 50m

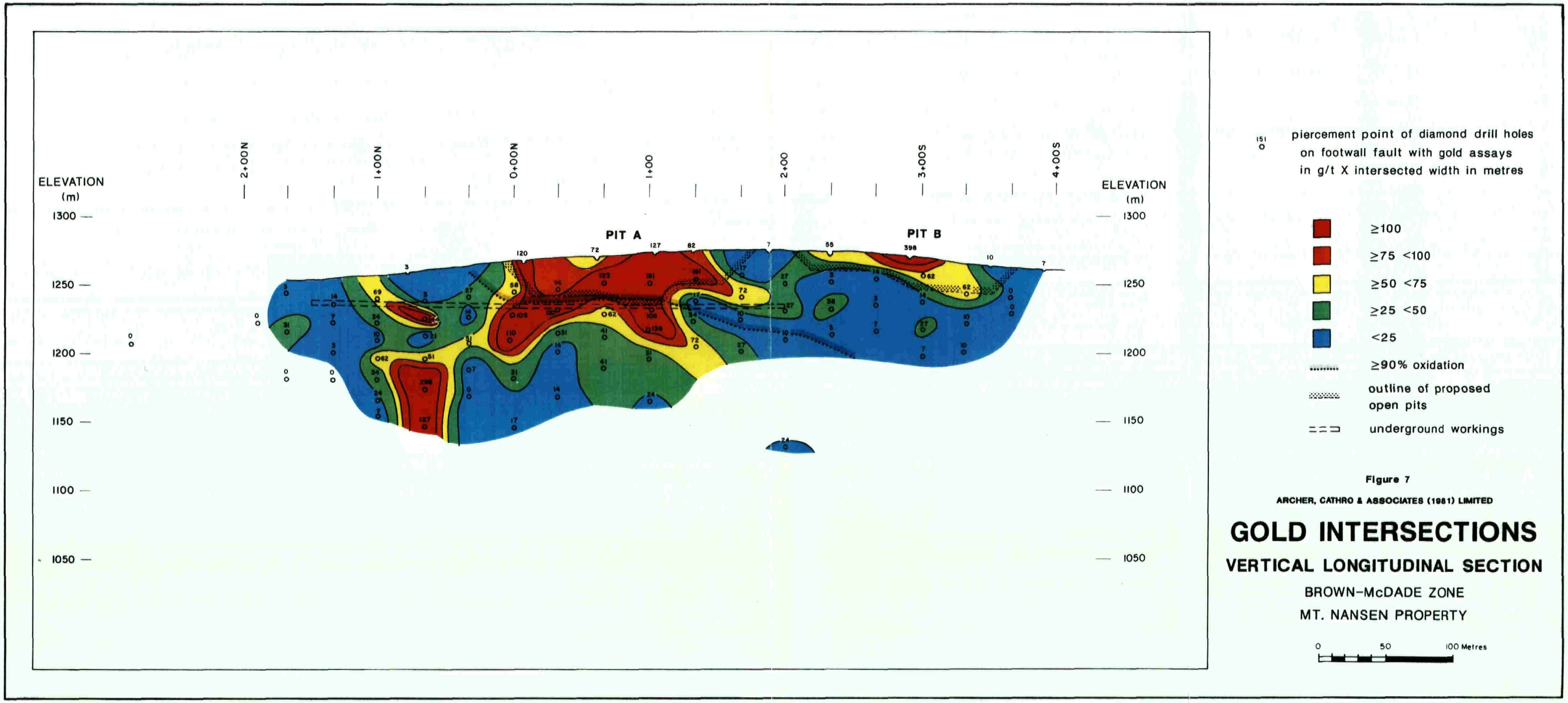


Figure 7

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

GOLD INTERSECTIONS

VERTICAL LONGITUDINAL SECTION

BROWN-McDADE ZONE

MT. NANSEN PROPERTY

montmorillonite to kaolinite, and mafic minerals to sericite. The oxidation and alteration impart a strongly bleached white colour to the veins making them easy to recognize. Effects of weathering gradually diminish with increasing depth but are not uniform across the zone. Depth of total oxidation is much deeper at the south end of the zone (at least 75 m) than it is at the north end (about 5 m), as shown on Figure 7.

Three distinct suites of sulphide minerals have been recognized. The first consists of finely intergrown pyrite, arsenopyrite, sphalerite, galena and sulfosalts. This assemblage is confined to quartz veins, particularly in the central part of the zone, and normally returns high gold and silver values. The second suite is characterized by medium- to coarse-grained pyrite and arsenopyrite occurring in narrow veinlets within highly fractured wallrock. This type of mineralization was intersected in several holes in the northern part of the zone and yields high gold values but lower than average silver values. The final suite was only observed in one hole (88-84) in the south-central part of the zone and is comprised of coarse-grained sphalerite, galena and pyrite with higher than average silver grades and much lower than normal gold values.

A mineral inventory of open pit (in two pits) and underground reserves has been calculated for the Brown-McDade Zone as follows.

Category	Tonnes	Au (g/t)	Ag (g/t)
Open Pit Proven	124,606	10.42	98
Underground Probable	193,706	14.47	100
Total	318,312	12.87	99

These calculations assume a 1.52 m minimum mining width and cutoff grades of 3.4 g/t Au for open pit material and 6.8 g/t Au for underground material. Assays exceeding 34.3 g/t Au were cut to that value and all intervals have been diluted by including 0.50 m of waste on either side of the mineralization (the effective minimum mining width is therefore 2.52 m.) Tonnages were calculated using specific gravities of 2.67 for open pit waste and underground mineralization and 2.46 for open pit mineralization.

Open pittable inventory is mineralization that is strongly oxidized and can be mined with an overall stripping ratio below 3 to 1, assuming a 45° slope on the hanging wall and a 50° slope on the footwall (outlines of two proposed pits are shown on Figures 4, 5 and 7). Waste from these pits will include some lower grade material that might be separated and later treated by heap leaching. Underground potential has only been tested to 120 m below surface and mineralization is still strong at that depth.

Oxidized material from surface trenches and shallow drill holes and partially oxidized material from the underground workings and deeper drill holes have been extensively tested for gold and silver recoveries using cyanide extraction techniques on both coarse and fine grinds. On the basis of this testing, heap leach extraction was rejected in favour of milling (Melis, 1988).

Bottle roll cyanidization tests on finely ground material indicates that, in general, gold recovery at the Brown-McDade Zone is inversely proportional to sulphide content and depth below surface (Figure 8). Silver recovery is more erratic and is not as directly related to the abundance of sulphide minerals or depth. Strongly oxidized samples taken from surface trenches yielded 87.9 to 94.8% gold recovery (arithmetically averaging 90.5%) and 34.3 to 63.8% silver

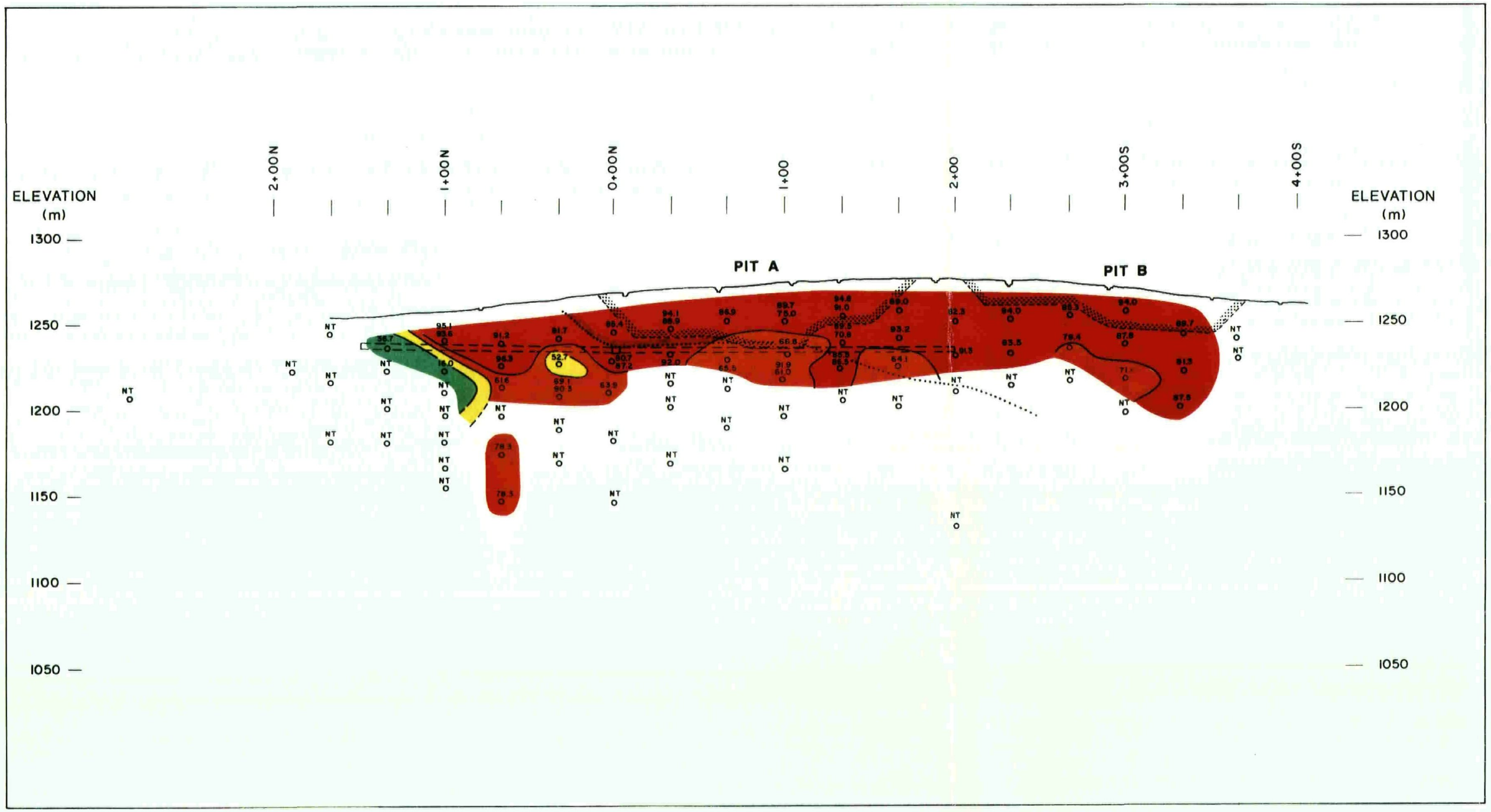


Figure 8

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

GOLD EXTRACTION

VERTICAL LONGITUDINAL SECTION

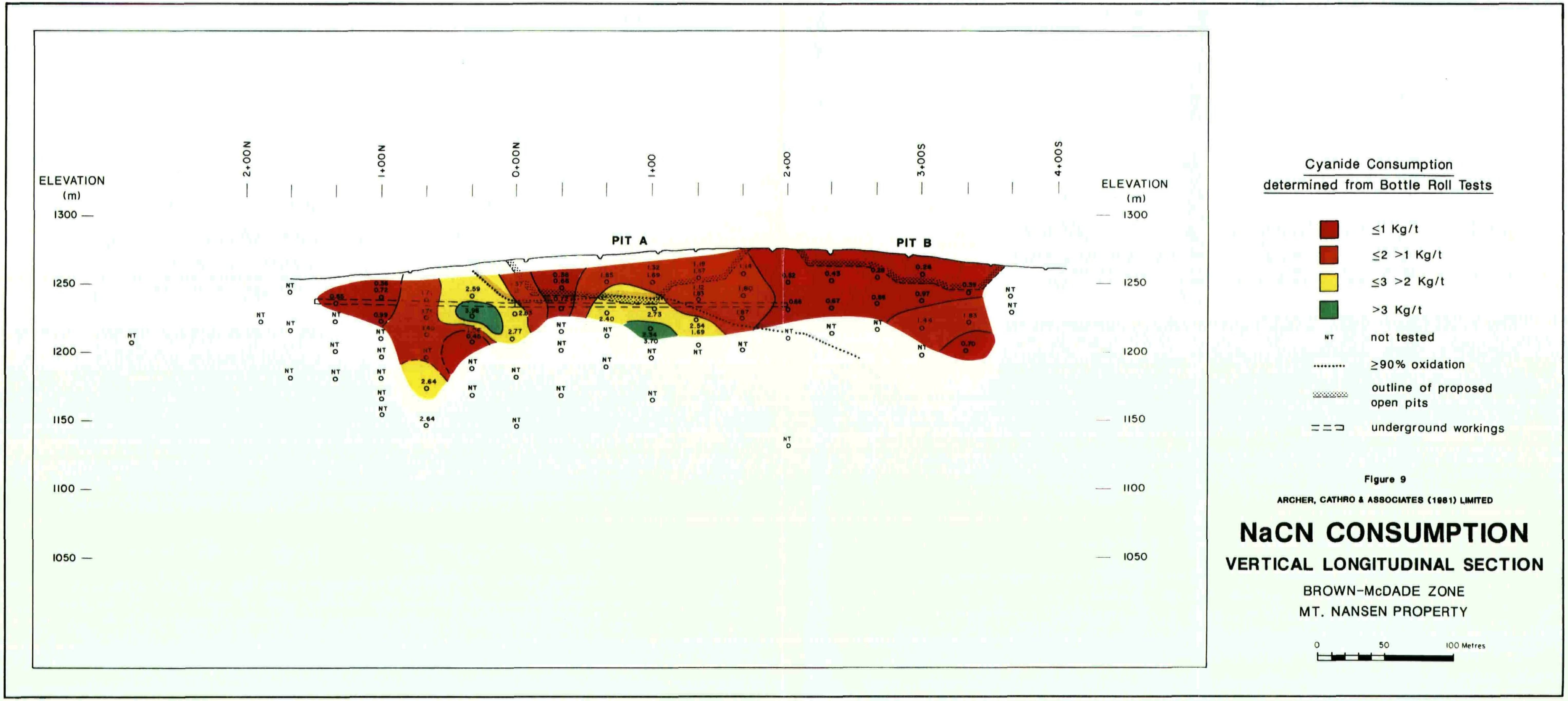
BROWN-McDADE ZONE

MT. NANSEN PROPERTY

recovery (arithmetically averaging 54.3%) in twenty-four hours using a 98% minus 37 micron grind. Recovery from composite samples representing drill intersections within the proposed open pit arithmetically averaged 87.1% for gold and 41.6% for silver. Similar tests conducted on more sulphide-rich material below the proposed open pit gave recoveries ranging from 16.0 to 93.6% for gold and 24.3 to 65.7% for silver, with the best gold recovery obtained from the pyrite-arsenopyrite suite and the lower recoveries from the finer grained, more complex, sulphide-sulfosalt suite. Subsequent tests showed similar recoveries can be obtained for all categories of mineralization using a coarser grind of 70% minus 74 microns.

As expected, cyanide and lime consumption is lowest in tests on well oxidized, near-surface samples and highest on the deeper sulphide-rich samples (Figure 9). Tests on composite samples from drill intersections within the proposed open pits consumed an average of 1.2 kg/t cyanide and 6.5 kg/t lime.

Column leach tests on porous, well oxidized trench samples gave 81.6% gold recovery in 32 days from minus 12.7 mm material in a 30.5 cm diameter column. Clay-rich trench samples gave only 8.6% gold recovery because the material compacted badly and plugged the columns in six days. Clay-rich material makes up only a small proportion of the mineralization exceeding 3.4 g/t Au but comprises about 30% of the material grading between 1.3 and 3.4 g/t Au, indicating that this lower grade material would have to be agglomerated if it was heap leached. A partially oxidized sample from a drift 30 m below surface was still consuming lime after 42 days in the column and, because the pH could not be increased to a suitable alkalinity, the material appears to be unsuitable for heap leaching.



ELEVATION (m)
1300
1250
1200
1150
1100
1050
2+00N
1+00N
0+00N
1+00
2+00
3+00S
4+00S
PIT A
PIT B
NT
Cyanide Consumption determined from Bottle Roll Tests
≤1 Kg/t
≤2 >1 Kg/t
≤3 >2 Kg/t
>3 Kg/t
not tested
≥90% oxidation
outline of proposed open pits
underground workings
Figure 9
ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
NaCN CONSUMPTION
VERTICAL LONGITUDINAL SECTION
BROWN-McDADE ZONE
MT. NANSEN PROPERTY
0
50
100 Metres

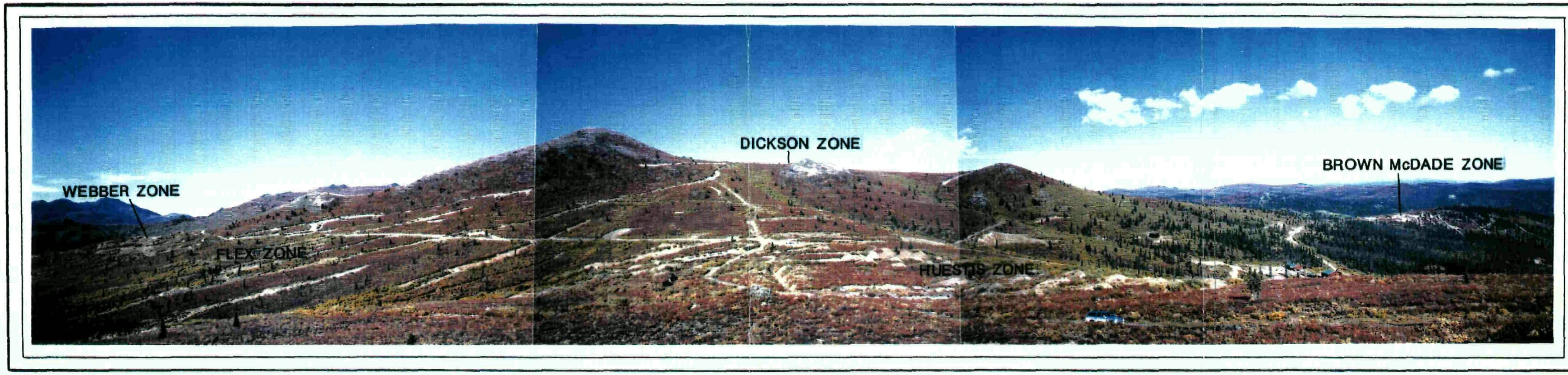
OTHER VEIN ZONES

In addition to the Brown-McDade Zone, sixteen other vein zones have been identified on the Mt. Nansen and Tawa properties. Most have only been tested by a few widespread trenches and returned relatively low assays, but four produced encouraging results and have received more thorough exploration as described below. Photograph 3 shows the location of most of the main zones on the Mt. Nansen Property.

The Huestis Zone has been explored by trenches, diamond drilling and 2533 m of underground workings on two levels. It is approximately 450 m long and is comprised of narrow (5 to 200 cm wide) anastomosing veins that dip about 80° to the northeast. Mineralization consists of fine intergrowths of pyrite, arsenopyrite, galena, sphalerite, chalcopyrite, sulfosalts and stibnite in a predominantly quartz gangue. Fresh sulphides are common at surface and depth of total oxidation rarely exceeds 5 m. The veins cut relatively competent metamorphic rocks and pre-mineralization feldspar porphyry dykes and exhibit narrow clay-altered selvages. The best mineralization is confined to a series of vertically-plunging shoots which are open at depth. Approximately 50% of the drifted length of the veins is well mineralized and is included in the mineral inventory tabulated below.

Category	Tonnes	Au g/t	Ag g/t
Underground Proven	40,963	14.9	277
Underground Probable	44,764	13.1	289

These reserves were reported in Dolmage Campbell (1982) and Ranspot (1983) and have not been checked by the authors. The calculations are limited to the upper 150 m of the vein system and were made using uncut assay data, mostly



Photograph 3: Panorama showing the location of the main zones on the Mt. Nansen Property.

from channel samples taken at 1.52 m intervals along the underground workings. They assumed a minimum mining width of 1.20 m, a specific gravity of 2.56, and a mining cutoff of approximately 7.8 gm gold equivalent per tonne (at a time when 33 g Ag was considered equivalent to 1 g Au). Proven reserves are those which lie within 12 m of sampled mine openings (drifts, raises or stopes) or surface exposures while probable reserves extend 12 m beyond proven reserves or 12 m beyond three or more close spaced drill intersections where the location has a reasonable assurance of future development.

Past metallurgical testing and production have shown that silver mineralization responds well to flotation but that gold does not. Once a cyanide plant is operating, it may be possible to pre-oxidize the mineralization and recover the gold by cyanidization. Future metallurgical tests are planned to determine which methods will produce the best results.

The Webber Zone closely resembles the Huestis Zone except that the veins have an average dip of 70° to the southwest, silver to gold ratios are higher and strong oxidation extends about 30 m below surface. It has been stripped to bedrock along much of its 600 m length and has been explored by drill holes and 1512 m of underground workings on two levels. The highest grade mineralization occurs in shoots that rake steeply toward the northwest and approximately 55% of the drifted length of the vein system is well mineralized. A mineral inventory, which was reported in Dolmage Campbell (1982) and Ranspot (1983) and calculated using the same parameters as the Huestis Zone, is listed below.

Category	Tonnes	Au g/t	Ag g/t
Underground Proven	30,961	10.9	645
Underground Probable	27,563	10.9	550

The zone appears to be faulted off to the north but is open to the south and at depth.

Relatively little pre-1985 metallurgical data is available for the Webber Zone but tests that were performed suggest that oxidized mineralization responds to cyanidization but sulphide-rich material does not. Recent studies support the earlier findings. A sample taken from a surface trench yielded 85.0% gold and 93.3% silver recoveries in twenty-four hours from cyanidization of 100% minus 74 micron material (Lakefield, 1987) while a composite of samples taken from partially oxidized mineralization on the upper level dump gave 74.2% gold and 57.4% silver recoveries (Lakefield, 1986) in a similar test. The underground workings are presently full of ice and will have to be reopened before samples can be collected to fully assess the best method to treat the mineralization.

The Flex Zone lies midway between the Huestis and Webber Zones and has been tested by trenching and diamond drilling. The mineralization has been traced for a strike length of 650 m and occurs in a series of anastomosing quartz veins that dip at 50 to 60° to the southwest. Sulphides consist of either complex intergrowths of sulphide and sulfosalt minerals similar to those in the Huestis Zone or, in some areas, pyrite with only minor amounts of the other minerals. The top 15 to 40 m of the veins is strongly oxidized. Grade and width of mineralization are highly erratic and often controlled by vein intersections. A mineral inventory tabulated below was calculated for a 360 by 100 m area near the centre of the zone where most of the trenching and drilling was done.

Category	Tonnes	Au g/t	Ag g/t
Open Pit Possible	62,606	7.44	178
Underground Possible	52,245	7.65	226

The calculations were made using uncut assays (none exceeded 34.3 g/t Au) from channel samples taken along the ribs of trenches and core samples from diamond drill holes. They assume specific gravities of 2.46 for mineralization and 2.67 for waste, a 1.52 m minimum mining width, a maximum open pit mining depth of 15 m below surface, cutoffs of 3.4 g/t Au for open pit and 6.8 g/t Au for underground mineralization, and 0.50 m of dilution on either side of each mineralized interval. Assay data was extrapolated up to 14 m in the dip of the veins and 50 m along strike. Open pit reserves are expected to be strongly oxidized and have a waste to ore ratio of 2:1. The zone is open along strike in both directions and at depth. Preliminary bottle roll cyanidization tests on samples from trenches and drill holes that were ground to 100% minus 74 microns yielded 90.9 to 94.7% gold and 47.0 to 72.6% silver recoveries in a 24 hour period for strongly oxidized material and 61.0 to 71.3% gold and 50.6 to 69.9% silver recoveries for partially oxidized material (Lakefield, 1987).

The Orloff King Zone is located 1 km northeast of the Webber Zone and consists of quartz veins and limonitic fractures that dip 45° to the southwest subparallel to a 20° slope. It has been tested by wide spaced trenches and drill holes over a 280 m strike length. The veins cut highly fractured volcanic rocks and are strongly oxidized to the depth of the deepest drill hole, about 30 m below surface. Occasional grains of pyrite and galena encapsulated in quartz were the only sulphides observed. A possible mineral inventory has been calculated as shown below.

Category	Tonnes	Au g/t	Ag g/t
Open Pit Possible	84,584	2.06	52

The calculations were made using uncut assays (none exceeded 34.3 g/t Au) from channel samples in trenches and core from drill holes. They assume a specific gravity of 2.46 for mineralization and 2.67 for wallrock, a 1.52 m minimum mining width, a 1.37 g/t Au cutoff, and 0.50 m of dilution on either side of each intersection. The mineralization is well oxidized and could be mined from an open pit at a waste to ore ratio of less than 2:1. No metallurgical testing has been done. The zone appears to be faulted off at its south end but is open to the north and at depth.

Other Zones and Geochemical Anomalies are widely scattered across both the Nansen and Tawa Properties. Several of the zones have produced encouraging assays but none have received enough exploration to permit reserve calculations. Among the most significant zones in this category are the Dickson and Goulter Zones at Mt. Nansen and the BRX and Klaza Zones at Tawa. Some of the better assays returned from the zones are tabulated below.

	Indicated Strike Length	Sample Type	Width (m)	Au g/t	Ag g/t	Comments
Dickson	660 m	Trench	3.0	17.59	80	resembles Huestis Zone
		Diamond Drill	6.1	3.57	10	
Goulter	1500 m	Trench	1.1	6.10	5	only one short trench tested the zone on the Mt. Nansen Property but considerable work has been done on the adjoining claims

	Indicated Strike Length	Sample Type	Width (m)	Au g/t	Ag g/t	Comments
BRX	1200 m	Trench	7.5	2.13	9	in places resembles the Brown-McDade Zone but is only weakly oxidized
		Trench	1.7	16.25	1289	
		Diamond Drill	8.9	6.27	15	
Klaza	300 m	Trench	8.0	4.22	92	occurs in an extremely poorly exposed area with heavy frost but shows up as a strong soil geochemical anomaly; only a few exposures have been obtained to date but generally resembles the Brown-McDade Zone
		Trench	1.1	43.06	102	

In addition to the zones mentioned above, eight other veins have produced at least one trench intersection greater than 3.4 g/t Au over 2 m. There are also numerous untested or only lightly explored soil geochemical anomalies on both properties with polymetallic signatures similar to those from the main zones.

PROPOSED NEW PLANT AND INFRASTRUCTURE

Reserve calculations and metallurgical test data clearly show that open pittable, oxidized mineralization has the best economic potential and that the Brown-McDade Zone is currently the most attractive target of this type on the Mt. Nansen and Tawa Properties. Based on a thorough examination of the existing plant and equipment and metallurgical test results, Melis Engineering Ltd. has redesigned the mill to treat oxidized mineralization by cyanidization. The proposed design utilizes the present crushing and grinding circuit (which based on work indexes from samples of Brown-McDade mineralization should be capable of generating 270 tonnes of minus 74 micron material per day) and replaces the present flotation equipment with cyanide leach tanks, a carbon-in-pulp circuit, and a bullion furnace. Electrical and heating systems will be totally replaced and a new trailer camp to house mill personnel will be constructed adjacent to the mill. Existing flotation equipment will be stored on site so that it can be reinstalled at a later date once oxidized mineralization is exhausted and sulphide-rich material is being mined. Total cost of refitting the mill, constructing the camp, installing an assay lab, purchasing vehicles and equipment required to operate the mill and camp, and re-establishing the water system is calculated at $4,581,895 including a 6% contingency, while on site operating costs exclusive of mining are estimated to be $47.68/tonne (Melis, 1988) including a 5% contingency.

Existing tailings ponds are much too small for a 270 tonne/day mill and Klohn Leonoff was contracted to study possible sites for a larger pond. Three sites were examined but only two were seriously considered. Site 1 is located 400 m northwest of the mill and is centered on the old campsite (see

Photograph 1). It is 60 m higher than the mill but has the advantages of thin overburden cover and having been stripped for several years which means the permafrost should have melted. Site 2 lies 500 m east of the mill and covers the floor of Dome Creek. It has the advantage of being below the mill but is underlain by a thick permeable layer of outwash sand and pre-Wisconsin glacial till, which contains numerous ice lenses. Site 1 will be mainly excavated into bedrock and is therefore expected to be completely stable and much less permeable. Each site can be constructed in two phases with each phase containing tailings from 150,000 tonnes of milled material. Thus a total of 600,000 tonnes, or about six years of production, can be stored before further expansion is needed. Estimated costs from Klohn Leonoff (1988), including a 30% contingency and assuming bentonite linears are required, are tabulated below.

	Phase 1	Phase 2	Total
Site 1	$ 704,600	$865,880	$1,570,480
Site 2	$1,196,100	$814,700	$2,010,800

Cost of purchasing and maintaining water lines, pumps and tailings treatment equipment are included in Melis's capital and operation cost estimates.

Mining at the Brown-McDade pits will be done at a rate of approximately 1,000 tonnes/day during the summer months and the material will be stockpiled near the mill. It is expected that most of the excavation will be done with a minimum of drilling and blasting using a backhoe excavator under direction of a geologist who will maintain visual grade control with assay cross checks. A bulldozer will be used to push away much of the waste, while dump trucks will transport the mineralization to the mill. The mining crew will be housed in a seasonal camp near the open pits. On the basis of previous open pit experience in the Keno Hill area, the authors estimate that it will cost about $11/tonne to mine and stockpile the ore and about $5.50/tonne to remove waste.

Maintenance and upgrading of the road between Carmacks and the property is currently being discussed with the Yukon Territorial Government and it is expected that the government will take responsibility for it. Roads on the property will be maintained by the operator and the cost of this work is included in Melis's operating cost estimate.

Norecol Environmental Consultants Ltd. has collected environment information on water quality, hydrogeology and wildlife in the Mt. Nansen area since 1985. The proposed mining operation is on a pre-existing road network and is therefore not likely to open any new areas to hunting and should not seriously affect wildlife habits. There are no commercial fisheries or known salmon spawning grounds in the Mt. Nansen area and sport fishing potential is minimal. Additional fisheries and water quality studies are planned for 1989 and hydrogeological studies will be done in conjunction with final project design (Norecol, 1989).

CONCLUSIONS

The Mt. Nansen and Tawa Properties contain a number of precious metal zones that collectively have potential to support a 270 tonne per day mill for at least six years. Initial production would come from open pits on the Brown-McDade Zone and then progress to other zones with open pittable oxidized material (Flex and possibly Webber Zones), underground deposits that are amenable to cyanidization (parts of Brown-McDade and Webber Zones) and finally to underground deposits that would require flotation to produce a sulphide concentrate that could be oxidized and treated by cyanidization or shipped to a smelter (Huestis, Webber, Brown-McDade and others). Once the cyanide circuit is operating, consideration should also be given to heap leaching some of the lower grade (1.4 to 3.4 g/t Au) strongly oxidized material that occurs peripheral to the high grade mineralization in the open pits and in outlying zones like the Orloff King Zone.

The estimated net return from mining and milling the Brown-McDade open pit reserves of 124,606 tonnes grading 10.42 g/t Au and 98 g/t Ag at a rate of 270 tonnes/day is shown on the following page. This calculation assumes a gold price of $400/oz, a silver price of $6.00/oz US and a Canadian dollar value of $0.83 US. No additional contingency costs have been added to the estimates given by Melis and Klohn Leonoff and no allowance is included for the cost of permit applications, off-property administration, mill start-up or interest carrying charges during the construction and mining phase. Gold recovery is assumed to be 86% and silver recovery 35%.

FIRST FIFTEEN MONTHS OPERATIONS
(OPEN PIT PORTION OF BROWN-MCDADE ZONE)

COST

Capital cost of rebuilding mill and water supply system plus construction of a winterized camp for mill personnel and an assay lab	$4,582,000	
Construction of a tailings pond at Site 1 (Stage 1 only)	705,000	
		$ 5,287,000
Mine 124,606 tonnes at $11/t, including trucking to the mill and preparation of a storage site	$1,371,000	
Remove 373,818 tonnes of waste at $5.50/t	2,056,000	
		3,427,000
Mill 124,606 tonnes at the rate of 270 t/day at a cost of $47.68/t		5,941,000
	TOTAL -	$14,655,000

TOTAL RETURN

124,606 tonnes grading 10.42 g/t gold		$17,305,686
124,606 tonnes grading 98 g/t silver		993,900
	TOTAL -	$18,299,586
	NET RETURN -	$ 3,644,586

Similar calculations using the same assumptions but different metal prices returned the following.

Metal Price		
$US/oz Au	$US/oz Ag	Expected Return (Canadian Dollars*)
350	5.25	1,357,137
400	6.00	3,644,586
450	6.75	5,932,034
500	7.50	8,219,482

The above calculations indicate that at current metal prices open pit reserves at the Brown-McDade Zone can be expected to cover operating costs, repay capital expenditures for the mill, camp and tailings ponds and return a profit during the first fifteen months of operation at a production rate of 270 tonnes/day. With the infrastructure paid for, mining and development would then proceed to other targets on the property. As the proven reserves at the Brown-McDade Zone will be exhausted in about fifteen months, development of other open pit reserves, coupled with aggressive exploration and metallurgical testing programs, will be required to ensure that additional reserves are established to replace those which are mined.

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