ARCHER, CATHRO
AND ASSOCIATES LTD.
CONSULTING GEOLOGICAL ENGINEERS

BOX 1708, WHITEHORSE, Y.T. 667-4113 BENTALL CENTRE, VANCOUVER, B.C. 688-3022

770 ONE BENTALL CENTRE
505 BURRARD ST.
VANCOUVER 1, B.C.

SUMMARY REPORT

for

CONNAUGHT MINES LTD.

SIXTY MILE AREA, YUKON

OCTOBER 10, 1969

060840

A.R. Archer Consultant Vancouver, B.C.

SUMMARY

Connaught Mines Ltd. owns a 314 claim property in the Sixty Mile River area of the Yukon Territory. The property is accessible by 18 miles of tote road from Mile 49 on the Sixtymile Highway and is a total road distance of 390 miles from railhead at Whitehorse.

The property was originally acquired for its silver-lead vein showings. The vein potential was thoroughly explored by bulldozer trenching and soil sampling during 1968 and 1969. However, none of the veins exposed and sampled have returned economic values over mineable dimensions at present metal prices.

A program of regional geochemical exploration in 1969 located an area anomalous in copper and molybdenum. Additional claims were staked and grid soil sampling located a specific anomalous area, about 4000 feet by 6000 feet, within a granitic stock. The dimensions and intensity of the soil anomaly suggest a large low grade or porphyry type deposit. As this porphyry possibility lies in a part of the Yukon that was unglaciated during the Pleistocene there is a chance of finding a zone of secondary enrichment similar to that found by Casino Silver Mines Ltd. some 90 miles to the southeast. A $150,000 exploration program consisting of bulldozer trenching, geophysical surveys and diamond drilling is recommended for 1970. If the initial results are favourable, an additional $150,000 of drilling will be needed during the summer for a total of $300,000.

INTRODUCTION

This report summarizes results of the work completed to date on property owned by Connaught Mines Ltd. in the Sixty Mile River area of the Yukon Territory, and outlines an exploration program for 1970.

Information for the report is derived from the writer's personal knowledge of the property and the Yukon in general and from Geological Survey of Canada Map 13-1962. The writer supervised Connaught Mines 1969 exploration program and has examined all described mineral showings.

PROPERTY, LOCATION AND ACCESS

The property consists of 314 unpatented mineral claims arranged in a semi-contiguous, westerly trending, irregular group about three miles wide and ten miles long. The claims are registered at Dawson City, Yukon Territory and are in good standing until April 1970 or later.

The property is located 45 air miles west of Dawson City, near the Alaska-Yukon border, at latitude 63°55' and longitude 140°55'. Road access is available via 18 miles of tote road south from Mile 49 on the Sixty Mile Highway. Total road distance to the White Pass and Yukon railhead at Whitehorse is approximately 390 miles. Scheduled air service is available from Whitehorse to Dawson

City. A self contained 20 man trailer camp and machine shop has been established by Connaught on the northwestern side of the property.

HISTORY

During the summer of 1965, prospectors J. Lerner and M. Chefkoi discovered vein type silver-lead mineralization in the Sixty Mile area using a combination of soil geochemistry and prospecting. Their discovery was later acquired by Connaught Mines Ltd. and three veins were explored by bulldozer trenching in 1968. During 1969 the program of bulldozer trenching was expanded to include goechemical surveys, diamond drilling and geological mapping.

GEOLOGICAL SETTING

The Sixty Mile area lies within the Yukon Plateau, an uplifted peneplain about 5000 feet in elevation lying between the mountain walls of the Coast Range (St. Elias Mountains) to the southwest and the Cordillera Ranges (Ogilvie Mountains) to the northeast. The western Yukon was unglaciated during the Pleistocene, one of the few such areas in Canada, and the drainage pattern is charac-

terized by steep-walled V-shaped valleys and a complete absence of lakes. The area is permanently frozen. Vegetation consists of spruce in the valleys, thinning to buckbrush and alder on the slopes. Outcrop is rare and geological mapping has to be done by identifying rocks in felsenmere or overburden.

The predominate rock type on the property is a granitic textured quartz-biotite gneiss. Quartzite, quartz-mica schist and limestone are also found. This assemblage is part of an extensive metamorphic series, probably Precambrian, called the Yukon Group. Several small granitic stocks are found on the property and in the immediate area. These are part of a belt of stocks that occur along the eastern margin of the Coast Range batholith and are probably Cretaceous or younger.

MINERAL SHOWINGS

Vein Type

The Sixty Mile property was staked to cover silver-lead vein showings. These veins carry argentiferous galena in a quartz-arsenopyrite gangue. They are generally erratically mineralized, less than two feet wide, strike northeast and dip steeply southeast. The silver to lead

ratio averages 1 to 1. During 1969, two of the previously uncovered vein showings were mapped and sampled and 260 claims were grid soil sampled to locate additional veins. The three best lead anomalies found by soil sampling were bulldozer trenched and two new veins were exposed, mapped and sampled. Of the four veins sampled in detail, only one (the No. 1 vein) showed reasonable continuity of mineralization. Channel sampling of this vein, exposed for a total length of 3400 feet, indicated a single mineralized section 150 feet long grading 22.8 oz silver per ton, 19.9% lead and 0.031 oz gold per ton over a width of 4.0 feet. Five diamond drill holes explored the mineralized section to 100 feet below surface. Core recovery was good and the best intersection graded 29.1 oz silver per ton, 26.5% lead and 0.08 oz gold per ton over a true width of 2.2 feet.

In late August, a single bulldozer trench was cut across the east end of a lead soil anomaly 4000 feet in length located on the eastern side of the property. This trench exposed a galena-tetrahedrite vein with a carbonate gangue that assayed 96.5 oz silver per ton, 36.2% lead and 0.08 oz gold per ton over a width of 4.0 feet. The vein strikes east-west and dips steeply south. Galena

and tetrahedrite are little effected by oxidation in the unglaciated northern environment and surface sampling gives an accurate estimation of the lead and silver content.

Porphyry Type

The excellent exploration potential for porphyry copper deposits in the small intrusive stocks in the Sixty Mile area was recognized early in 1969 because of several similarities to the Casino Silver Mines Ltd. property. The Casino deposit, which lies 90 miles to the southeast, is a copper-molybdenum porphyry, which occurs in a similar regional geological setting. It was discovered during the exploration of silver-lead veins, which occur peripheral to the porphyry. The porphyry was unrecognized during the first four years of exploration because the long period of weathering and leaching in the unglaciated environment resulted in removal of virtually all copper sulfides and oxides from surface. The potential of the Casino porphyry was indicated geochemically and proven by drilling in 1969. Drilling has shown a leached capping several hundred feet thick over a zone of secondary enrichment which, in turn, overlies lower grade protore.

Connaught Mines Ltd. conducted a stream sediment sampling survey over an area of 500 square miles around the Sixty Mile property in July and discovered streams anomalous in copper and molybdenum immediately east of the property. Additional claims were staked and an area of five square miles was soil sampled on 400 foot centres. This sampling pinpointed a zone about 4000 feet by 6000 feet anomalous in copper with two smaller but coincident areas anomalous in molybdenum. The better portions of the anomaly average ten times background for copper and thirty times background for molybdenum. There is no outcrop in or near the anomalous area and the underlying geology can only be crudely mapped by identifying float in the overburden. Float mapping indicates a diorite stock about three miles in diameter with the anomalous geochemical values more or less coincident with a quartz and magnetite rich phase. There is little evidence of hydrothermal alteration, quartz veining or pyritization in the intrusive float over the anomalous area. However, a zone of quartz veining and brecciation was found about 5000 feet to the southwest and a weakly gossaned area was found to the northwest. The small size and generally sub-rectangular shape of intrusive float in the overburden suggests strong jointing. Even though the anomalous area

is found above timberline, soil is well developed and overburden probably exceeds 10 feet in thickness. A number of long shallow (3 to 4 feet deep) bulldozer trenches were cut through the centres of the copper and molybdenum anomalies and soil samples taken at a deeper "B" horizon. These samples returned values about 50% higher than the surface sampling.

CONCLUSIONS AND RECOMMENDATIONS

The silver-lead veins with the quartz arsenopyrite gangue are too erratically mineralized to be of economic interest at present metal prices. The silver-lead mineralization on the eastern side of the property warrants further exploration by bulldozer trenching because of its higher silver content and better continuity, as indicated by the geochemical survey.

There is geochemical evidence of a porphyry type copper-molybdenum deposit on the property. The long interval of erosion and leaching due to the lack of Pleistocene glacial action makes geological mapping difficult and has undoubtedly removed nearly all surface evidence of copper mineralization. An extensive exploration program designed to locate and test the source of the geochemical

anomalies is warranted, in view of the large potential size of the target involved and the possibility of finding a secondary enriched zone. A Stage 1 program of bulldozer trenching to expose float for mapping along with ground magnetometer and induced polarization surveys followed by diamond drilling is recommended. If evidence of porphyry type mineralization and/or alteration is found in the initial drilling a Stage 2 program of increased drilling would be warranted.

BUDGET

Stage 1

Diamond drilling, 4000 feet BX	$ 60,000.00
Bulldozer trenching	30,000.00
Geophysical surveys, including line cutting	25,000.00
Geological mapping, supervision, camp costs and engineering	25,000.00
Contingencies	10,000.00
Total	$150,000.00

Stage 2

Diamond drilling, 8000 feet BX	$120,000.00
Camp overheads, supervision, engineering and contingencies ...	30,000.00
Total	$150,000.00
Total Stages 1 & 2	$300,000.00

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES LTD.

A.R. Archer

ARA:sh

ARCHER, CATHRO
AND ASSOCIATES LTD.
CONSULTING GEOLOGICAL ENGINEERS

BOX 1708, WHITEHORSE, Y.T. 667-4113 BENTALL CENTRE, VANCOUVER, B.C. 688-3022

770 ONE BENTALL CENTRE
505 BURRARD ST.
VANCOUVER 1, B.C.

October 10, 1969

CERTIFICATE

I, ALAN R. ARCHER, with business address in Whitehorse, Yukon Territory, and residential address in South Burnaby, B.C., do hereby certify that:

1. I am a consulting geological engineer.

2. I graduated from the University of British Columbia with a B.A.Sc. in Geological Engineering in 1957.

3. I am a registered Professional Engineer in British Columbia and the Yukon Territory.

4. From 1957 to 1966 I was engaged in mineral exploration in Canada as a geologist for a number of companies. I was Chief Geologist for United Keno Hill Mines Ltd. when I retired to private practice in 1966.

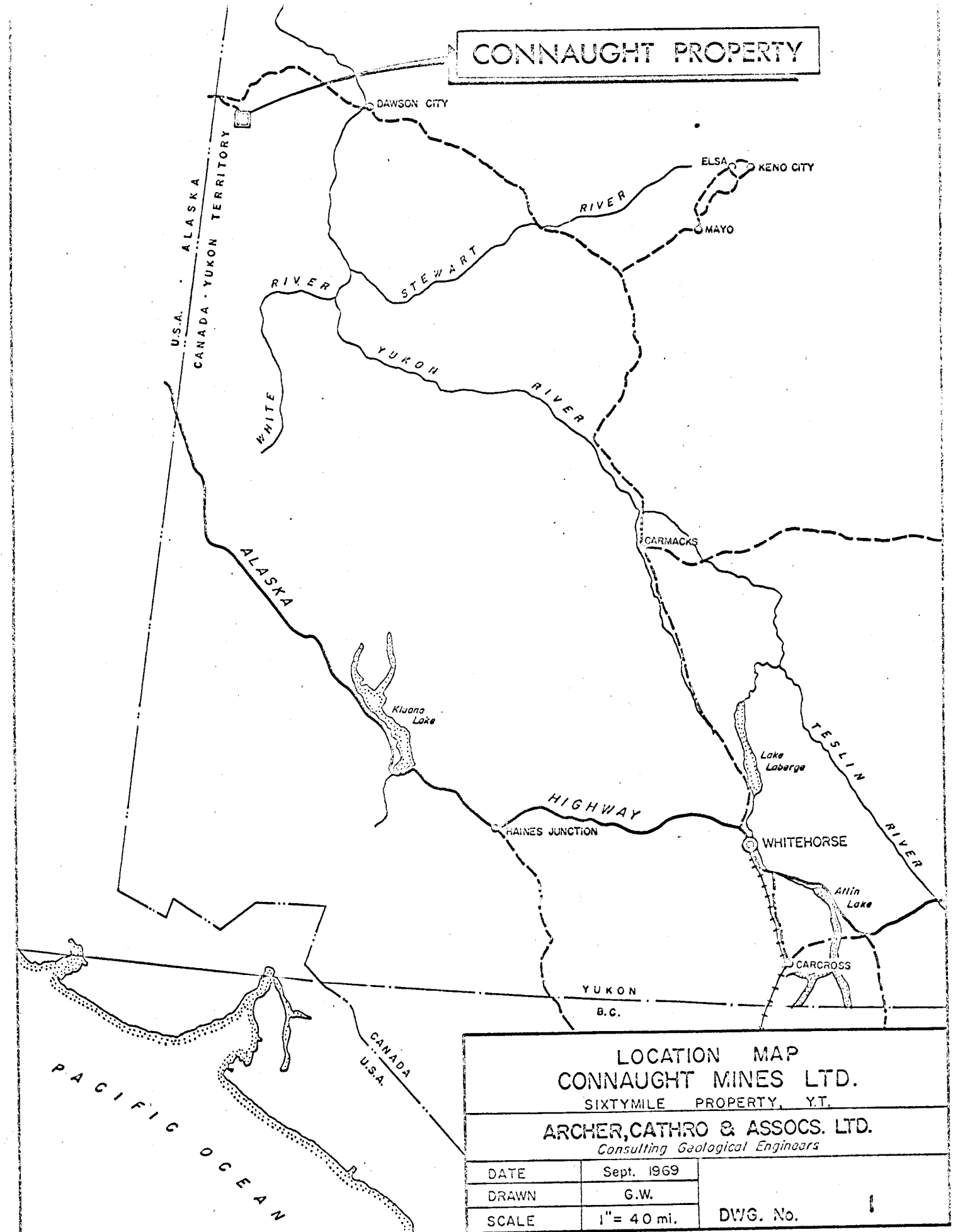
5. I have examined all publications and reports referred to in this report and have personally examined the mineral showings on the Connaught Mines property.

6. I have not received, nor do I expect to receive, any interest, directly or indirectly, in the properties or securities of Connaught Mines Ltd.

Respectfully submitted,

Alan R. Archer

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



LOCATION MAP
CONNAUGHT MINES LTD.
SIXTYMILE PROPERTY, Y.T.

ARCHER, CATHRO & ASSOCS. LTD.
Consulting Geological Engineers

DATE	Sept. 1969
DRAWN	G.W.
SCALE	1" = 40 mi.

DWG. No. 1