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GEOCHEMICAL REPORT
ON
THE SAYWARD PROPERTY
FOR
CONOCO SILVER MINES LTD. (N.P.L.)

Sept. 1971 BRIAN MOTTERSHEAD

GEOCHEMICAL REPORT

on

THE SAYWARD PROPERTY

BRUCE - DENNIS - KEVIN
Groups . Adam River in
the Nanaimo Mining
Division, B. C.

for

CONOCO SILVER MINES LTD., (N.P.L.)

by

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INTRODUCTION

The work described in the following report was completed during the summer of 1971. Fifty-three miles of line were run using chain and compass and some thirteen hundred soil samples were collected and analyzed for copper content. Several encouraging anomalies were encountered warranting further investigation.

Previous work on these claims had included soil sampling on a minor scale but no definite conclusions could be drawn from the results. The present survey was carried out on the basis of recommendations by J. S. Vincent P. Eng. in his report of January 1971.

LOCATION AND ACCESS

The claims are located approximately ten miles Southwest of Sayward, British Columbia, in the Nanaimo mining division. Access is by twelve miles of logging road from Sayward. Although the property as a whole is easily accessible, a major portion of the claims is extremely inaccessible because of the rugged topography existing in this area.

PHYSICAL FEATURES OF THE AREA

As already stated the topography is extremely rugged. Elevations range from 1,000 to 4,000 feet above sea level. Steep slopes and bluffs up to 200 feet in height are common.

The valley of the upper Adam River has been logged off, but the remainder of the area contains sizeable stands of hemlock and cedar.

A thick cover of glacial till covers most of the valley floor and there is a well developed soil profile. Over the higher ground, however, glacial material is only sporadically distributed and inorganic soil samples are often extremely difficult to obtain.

GEOLOGICAL FEATURES OF THE AREA

Although geological mapping has not been carried out in any detail the following general features are known to exist. The major portion of the claimsarea lying West of the Adam River is composed of massive lava flows, commonly amygdaloidal and belonging to the Karmutsen Group of Upper Triassic age. Minor amounts of limestone occur within these volcanic flows.

Overlying the Karmutsen, a narrow belt of Quatsino limestone runs roughly parallel to the river along the West side of the valley. Attitude of the obervable bedding varies from 140/35NE in the North to 180/50E in the vicinity of Boyes Creek and 160/40NE in the South. The width of this limestone band also varies from about 1200 feet at the North and South boundaries narrowing down to approximately 300 feet at Boyes Creek.

To the East the Quatsino is overlain by a thin layer of volcanics and sediments of the Upper Triassic Bonanza Group having largely the same attitude as the limestone.

On the East side of the valley Granitic rocks of the Jurassic island intrusions are encountered and the contact with the new Bonanza Group follows the river for much of it's length. At Boyes Creek the intrusives outcrop on the West bank of the river and are in contact with the Quatsino limestone at this point.

Limestone overlain by volcanic material also occurs on the Northwest portion of the claims at an elevation of 2,000 feet. The limestone appears to be only about 50 feet thick and dips gently Northeast. Because of it's large areal extent it is thought to belong to the Quatsino Formation and the overlying volcanics are assumed to be part of the Bonanza Group.

Attitudes of the limestone indicate the possiblility of a broad dome or anticlinal structure trending North to Northwest.

Mineralization containing copper has been discovered at several locations within the claims area. The best showings to date are associated with a fault zone in the upper reaches of Boyes Creek.

Air photo interpretation has indicated numberous faults throughout the area several of which have also been detected on the ground.

LOCATION OF GRID LINES

A grid was established consisting of five base lines running E-W across the claims and equally spaced 4,000 feet apart. The sampling lines were then run N-S to cross these control lines. All lines were run using chain and compass and clearly marked with seismic tape. Samples were initially taken every 200 feet along each line. Additional lines were run later over some interesting anomalies and samples were then taken every 100 feet.

SAMPLING PROCEDURE

Samples were generally taken with a soil auger except where good material was available in the roots of recent windfalls. In the valley a 4 foot auger was used but over the higher ground a lighter 3 foot auger was found to be adequate.

Every effort was made to ensure consistency in sampling. Organic samples were not accepted under any circumstances. The average sample was composed of fine sand with some clay particles, orange-brown in colour and derived from the B1 horizon directly below the humus layer. Colour and particle size varied somewhat with the degree of development of a soil profile.

To assist in interpreting the results information was recorded at the time of sampling as to the depth, colour, composition and quality of the sample and the slope of the terrain. Wherever possible samples were taken from around the roots of large trees and were then rated more highly on the basis that a tree draws large quantities of water up through the soil. This should be particularly applicable in the valley where glacial material is thick but since, in this case, the trees were cut down some 4 to 5 years ago it is not known whether the assumption is still valid.

ANALYSIS OF SAMPLES

Samples were placed in high wet strength kraft envelopes, marked and shipped to Bondar-Clegg & Company in North Vancouver. The following is a description of the analytical procedure as carried out under the direction of K. Bright, Geol. Eng.:

> "Samples are dried in dust-free, infra-red driers and sieved to -80 mesh. The material is homogenized to insure reproduceability, weighed, digested 3 hours in Lefort aqua regia, bulked to a uniform 20% acid concentration and analyzed by atomic absorption in comparison with both synthetic and matrix standards. Results are permanently recorded on chart paper. Detection limit for copper is 1 ppm, while the semi-quantitative figure reported represents the true value $\pm$ 10%."

All samples were analyzed for copper content and a few samples from one anomalous area were analyzed for molybdenum.

INTERPRETATION OF RESULTS

In the absence of an absolute statistical determination, background concentration for the survey area was visually estimated to be about 75 p.p.m. Cu. This is in agreement with results normally obtained over areas underlain by volcanic rocks.

With the exception of a few scattered high values, anomalous readings are confined to two areas on the Northern half of the survey. The first of these, in the vicinity of North Creek, extends across all the lines from 8 + 00 E to 16 + 00W between 12 + 00 N and 24 + 00N with maximum values of 8 to 10 times background. Detailed sampling over this anomaly as shown in fig. 1 reinforced existing high values and gave a clearer insight into the possible structures involved.

North Creek can be seen to divide for about 600 feet, the south branch following a clearly defined fault. Pyrite mineralization with minor copper is exposed along this branch of the creek near the Baseline and the high valued encountered on lines 4 + 00 W to 12 + 00 W appear to be a westerly extension of this mineralization along the fault.

A similar mineralized fault could be postulated striking Northwesterly from 8 + 00 W at 18 + 00 N and possibly intersecting the North Creek fault.

On the Northern quarter of the survey a series of small anomalies forms a roughly crescentic pattern extending Northeasterly and Northwesterly from 36 + 00 W at 36 + 00 N. It is highly probable that this distribution relates to the almost flat lying limestone bed and overlying younger volcanics mentioned in the section on geology of the area. The anomalous values are all located around the margins of the limestone and derived from the older, underlying volcanics so that the possibility of a large body of mineralization extending under the limestone must be taken into consideration.

Detailed sampling over the largest anomalous area produced a very strong anomaly (fig. 4) with values up to 12 times background and excellent continuity over a length of 1200 feet.

Traces of copper mineralization have been found in this area but no attempt has yet been made to expose these showings by blasting or trenching.

A series of rather scattered high values were encountered on lines 4 + 00 W to 16 + 00 W extending from 60 + 00 N to 72 + 00 N. Detailed sampling as shown in (fig. 3) did little to reduce the erratic distribution of these highs which average only 2 or 3 times background.

Two factors, however, should be taken into consideration before discounting these anomalous values. This area is known to be underlain by limestone over which there is a thick covering of glacial drift. Under these conditions, lower and slightly erratic values might be expected to occur and the possibility of underlying mineralization cannot be ruled out.

SUMMARY AND RECOMMENDATIONS

The soil sampling and testing has revealed three anomalous areas warranting further investigation. Copper mineralization is known to exist in two of these areas and an extensive program should be undertaken to determine the extent of this mineralization. The third anomalous area located within the Quatsino limestone should be subjected to a limited program pending favourable results.

As the first step is thoroughly testing these anomalies it is recommended that an Induced Polorization Survey be carried out using the soil sampling lines where possible. Some lines may have to be relocated where the terrain is too rugged for this type of survey.

A Magnetometer Survey should also be conducted over the anomalies in order to delineate fault structures and shear zones with which the mineralization may be associated.

Because of the rugged terrain it is not feasible to conduct I.P. or Magnetometer Surveys over all the anomalies. It is estimated that 6 to 8 miles of I.P. Survey and 12 to 15 miles of Magnetometer Survey could be carried out without too much difficulty and would be adequate to locate drill targets necessary for the next stage of development.

Respectfully submitted,

Brian Mottershead

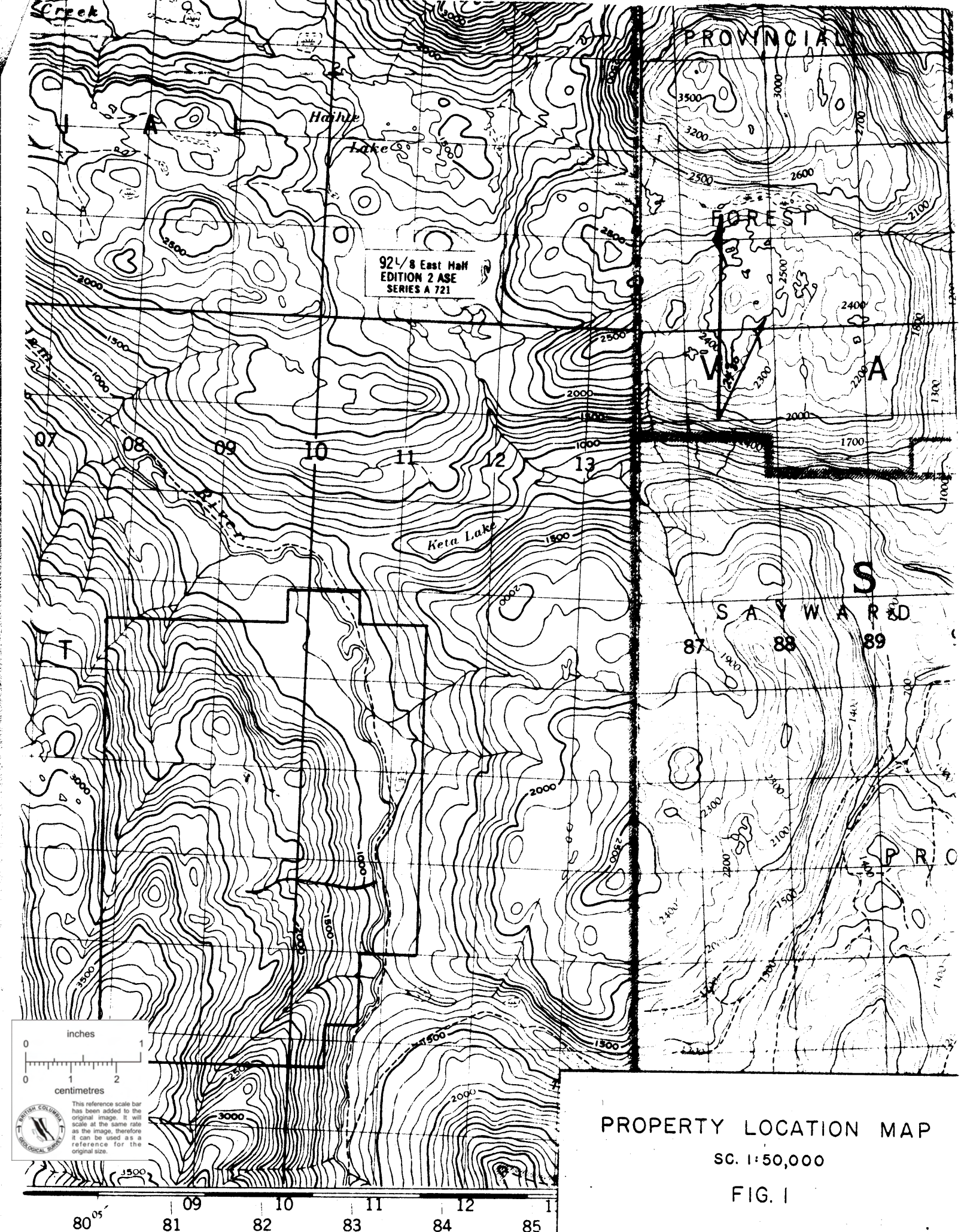
Brian Mottershead. B. Sc.

John S. Vincent

John S. Vincent. P. Eng.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA J. S. VINCENT

September 24th 1971.

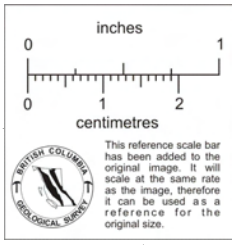


PROPERTY LOCATION MAP

SC. 1:50,000

FIG. 1

					Bruce 24 27197	Bruce 23 27196		
Bruce 14 27065	Bruce 12 27063	Bruce 10 27061	Bruce 8 27059	Bruce 6 27057	Bruce 4 27055	Bruce 2 27053	Bruce 16 27067	Bruce 15 27066
13 27064	11 27062	9 27060	7 27058	5 27056	3 27054	1 27052	18 27069	17 27068
Dennis 34 27107	Dennis 32 27105	Dennis 30 27103	Dennis 28 27101	Dennis 26 27099	Dennis 24 27097	Dennis 22 27095	Bruce 20 27071	Bruce 19 27070
33 27106	31 27104	29 27102	27 27100	25 27098	23 27096	21 27094	22 27073	21 27072
Dennis 20 27093	Kevin 22 27117	Kevin 21 27116	Kevin 20 27115	Kevin 19 27114	George 4 19259	George 3 19458	Kevin 24 27119	Kevin 23 27118
Dennis 39 27112	Kevin 6 32941	Kevin 5 32940	Kevin 2 32937	Kevin 1 32936	George 2 19257	George 1 19256	Kevin 29 27124	Kevin 30 27125
Dennis 38 27111	Kevin 7 32942	Kevin 4 32939	Kevin 3 32938	Boyes 1 18636	Boyes 3 18638	George 6 19261	Kevin 27 27122	Kevin 28 27123
Dennis 37 27110	Kevin 15 32950	Kevin 12 32947	Kevin 11 32946	Boyes 2 18637	Boyes 4 18639	George 5 19260	Kevin 16 26249	Kevin 17 26250
Dennis 36 27109	Kevin 14 32949	Kevin 13 32948	Kevin 10 32945	Kevin 9 32944	Kevin 8 32943	Kevin 18 27113	Kevin 25 27120	Kevin 26 27121
Dennis 35 27108	Dennis 12 27085	Dennis 9 27082	Dennis 8 27081	Dennis 5 27078	Dennis 4 27077	Dennis 1 27074		
19 27092	11 27084	10 27083	7 27080	6 27079	3 27076	2 27075		
18 27091	17 27090	16 27089	15 27088	14 27087	13 27086			



J.S. VINCENT ——— CONSULTANT

CONOCO SILVER MINES LTD.

BOYES GROUP

PROPERTY MAP

SC. 1"=3000'	JAN. 1971	FIG. 2

Conoco Silver Mines Ltd.
Sayward Property.

Preliminary Geochemical Survey (p.p.m. Cu.)

Scale 1 inch = 400 feet — July 1971. B.M.