

HERBERT L. COONS, B.A.Sc., P.Eng.
MINING ENGINEER

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(613) 542-8930

February 13, 1979

It is suggested that the Quadra Island property be acquired and put into a British Columbia corporation for trading on the Vancouver Stock Exchange. The "Northern Miner" of Toronto recently (February 8, 1979) suggested that the price of copper would triple by the end of 1981 (currently approximately \$1.00 Canadian). A calculated estimate from two independent sources of information would indicate a possible orebody of 4000 to 4500 feet in length, 5000 to 7000 feet in ultimate depth with widths varying from 25 feet to 70 feet with an average of 40 feet.

Using 4000 feet length, 5000 feet depth and 40 feet width, we get an orebody of 66 million tons. Values confirmed by previous sampling, using vein material only and also from two independent sources, could safely be calculated as (per ton):

Copper	2-1/2%	= 50 lbs.	@	\$ 1.00	=	\$ 50.00
Gold	. 2 oz.		@	300.00	=	60.00
Silver	. 5 oz.		@	7.50	=	3.75
						<u>\$113.75</u>

A round figure of costs (very safe) of \$23.75 for mining and milling would leave \$90.00 per ton. Mill should be of 1000 ton per day capacity to start, giving gross profit of \$90,000.00 per day or over \$30 million per annum.

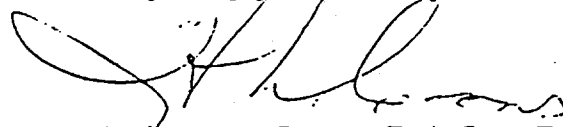
Total expenditures for starting an operation of this size would be \$8-\$10 million. Inflationary influences are considered but difficult to evaluate.

The gross value of the orebody is in the neighborhood of \$7.5 billion with a profitability of \$2.25 billion over 20 years. A rough present value of this profitability at 10% over 20 years is \$90 million, so say 2/3 of that for safety — \$60 million as at February 1979. From this subtract \$10 million start-up, leaving a fair present value of \$50 million.

A confirmatory diamond drilling program of 25,000 feet, costing \$400,000, would be a mandatory first step. With all results being positive and favorable metal markets, a period of 30-36 months would be required to first production.

This will serve as a brief outline, and if further information is required please call me and I will report further, but the accompanying reports and summaries should be sufficient.

Very truly yours,

A handwritten signature in cursive script, appearing to read 'H. Coons', written in dark ink.

Herbert L. Coons, B.A.Sc., P.Eng.

HLC/dt
Enclosures

Some Notes On A Copper Prospect on Quadra Island, British Columbia

In view of the current state of the world copper markets, and changes in supply being brought about by various political manoeuvres, and also considering the great progress being effected in the reduction of mining costs, it would seem a likely time to consider seriously the exploration of a long known but still undefined copper occurrence on the coastline of British Columbia.

The occurrence is presently protected by a group of 8 claims totalling about 410 acres, staked in mid-1969. The group is open on all sides, so further protection can be attained for the staking. The claims are situated on the east side of Quadra Island, about 12 air miles from Campbell River, on the east side of Vancouver Island, and about 70 miles north-west from the City of Vancouver. This is also about 250 miles by water (barge) from the smelter of the American Smelting and Refining Corporation at Tacoma, Washington.

The information quoted herein is largely taken from a report written by R. E. Renshaw, P.Eng., Consulting Geologist, and co-discoverer of the highly successful Craigmont Mines, in British Columbia in 1963-64.

Knowledge of the property dates back to 1916 or 1917, when showings were opened up over a length of 1500 feet with widths up to 40 feet. The prospectors drove an adit for 85 feet and shipped 174 tons of ore to Tacoma, which ran 4.5% copper and \$4.00 in gold (at \$20.67 per oz.). An

effort to revive the property in 1930 failed through lack of money.

"The early operators developed a contact zone between granodiorite and limestone along a length of 1500 feet and widths up to 40 feet, and through a vertical distance of about 800 feet by a series of open cuts, trenches, and the short adit mentioned previously from which 174 tons of ore were shipped."

"Initially, Mr. Renshaw and his crews traced the mineralized zone on the surface for a length of 4500 feet with widths up to 70 feet."

"In addition to the 85 foot adit previously referred to, 4 drill holes were sunk in the property in February and March 1964, and did not uncover by the core analysis any major mineral zone but continually showed an average copper mineralization throughout the rock of .30% copper. This extent of mineralization was present throughout the mass of granite rock (an altered quartz diorite) underlying the claims totalling in Mr. Renshaw's estimation, 200,000,000 tons (to a depth of 640 feet). This was borne out by the soil sampling and other tests conducted throughout the exploration and development program which lasted until April 1964."

There were 4 holes drilled, all vertical, and averaged about 640 feet in depth. Perhaps more and better information would have been obtained by a different program. In any case the work was not nearly enough to be conclusive in any way.

"Three samples were taken in the vicinity of the old adit, as representative of the mineralization, but are slightly low as obvious blebs of intense sulphides were avoided.

Sample #1. width 10 feet, taken at tunnel mouth: 0.01 oz. gold, 1.80% copper.

Sample #2. width 10 feet, taken 60 feet southeast from #1 and 50 feet higher:
.005 Au. and 3.30% Copper.

Sample #3. ore dump at the mouth of tunnel about 40 tons; 0.02 oz. gold,
2.25% copper.

The average of these three samples is 0.01 oz. gold, and 2.45% copper.

"The present showing was confined to a length of 1500 feet and a width of up to 40 feet. This zone is still open at both ends as well as vertically. The present known depth is at least 800 feet from the highest exposure to the adit. This zone is ideally suited on a hillside for tunnel mining and exploration.

"The possibility that two or more of these zones exist is evidenced by the presence of north-south depressions adjacent to knobs or hills of granodiorite. These may be shear zones or andesites or limestone."

Taking 25 feet as the average between 10 and 40 for an average width, and using a factor of 9 cu. ft. per ton, there is shown at the adit alone a potential of:

$$\frac{1500 \times 800 \times 25}{9 \times 2} \text{ (-shaped showing) } = 1,666,666 \text{ tons at average, say 2.5\% copper, a very handsome start.}$$

Also to be considered, the property is criss-crossed with logging roads, and only a mile of new road need be constructed to connect with the system of Public Roads on Quadra Island, which are served by the British Columbia Government Ferry System to Campbell River. Charter air and boat services are also available from Campbell River. A transmission line of about 2 miles would be needed to connect with the British Columbia Hydro Power Commission transmission lines. Campbell River is the distributing centre for the mining and logging industries on Vancouver Island and nearly all supplies can be purchased there or in Vancouver 70 miles away.

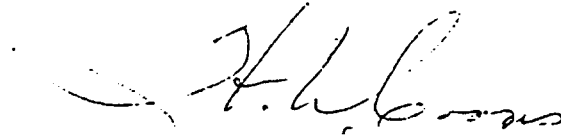
The above are facts. Also of great importance are the current developments in other B.C. copper properties. The Brenda Mine controlled by Noranda is in the process of tuning up its 24,000 ton per day treatment plant on its initial production. Brenda calculated reserves at 177 million tons grading 0.183% copper and 0.049% molybdenum of which 26 million tons has a higher grade of 0.212% copper and 0.063% molybdenum (actually molybdenite MoS_2). These represent copper equivalents of 0.281% and 0.338% respectively, and current dollar values of \$3.77 and \$4.61 (Can.). This immensely expensive installation was decided upon after exhaustive economic studies and prior to the current booming prices.

The Brameda Resources property in the Yukon is readying for financing with an orebody of 1,164,000,000 tons grading 0.30% Cu and 0.040% MoS₂ — a copper equivalent of .38% copper. The company puts a value of \$4.05 per ton on the ore. They contemplate a plant of 100,000 t.p.d. capacity and assume 80% recovery. They assume operating costs of \$1.50 per ton and an operating profit of \$1.74 and a cash flow of approximately \$60 million annually and a capital return within 30-36 months. All this must be considered in the light of operating conditions in the far north and all that implies regarding labor problems and extra high costs.

Bethlehem Copper has just completed their most successful year working on .51% copper at a rate of 15,000 tons per day and 83% recovery. Revenue from production amounted to \$7.6 million and operating costs were \$2.9 million and net profit after taxes \$2.3 million. Copper sales averaged 63 cents per lb. and operating costs were approximately 24.4 cents per lb.

On the speculative side can be seen the possibilities of any or all of the following: 1. Increasing the tonnage figures at the indicated uniform grade (.30%) on area and depth. 2. The inclusion of one or more 'sweetners' such as that encountered at the adit. No geophysical work has been done yet. 3. The presence at depth of the main source of the 'emanation' and probable higher grade. 4. The possibility of molybdenum values which are fairly widespread in the Province. There are no records of MoS₂ assays.

Above all, mining will be done in a climate moderated by the Japanese Current of the Pacific Ocean and practically adjacent to a major world city and seaport, on tidewater and less than a day from a large efficient smelter with available capacity.



Toronto, Ont.,

H. L. Coons, P. Eng.

Jan. 7, 1970

Note to Report of January 1970 by H. L. Coons

Please note that in the 1964 assessment of the property, a concept of a large open pit operation of low grade material (.30% copper) was the guiding philosophy as per the then current thinking.

Our present consideration is based entirely on the vein material, the increased gold and silver prices being the major influence (i.e. gold up by almost 10 times). Also note the most favorable width for large-scale mechanized mining.

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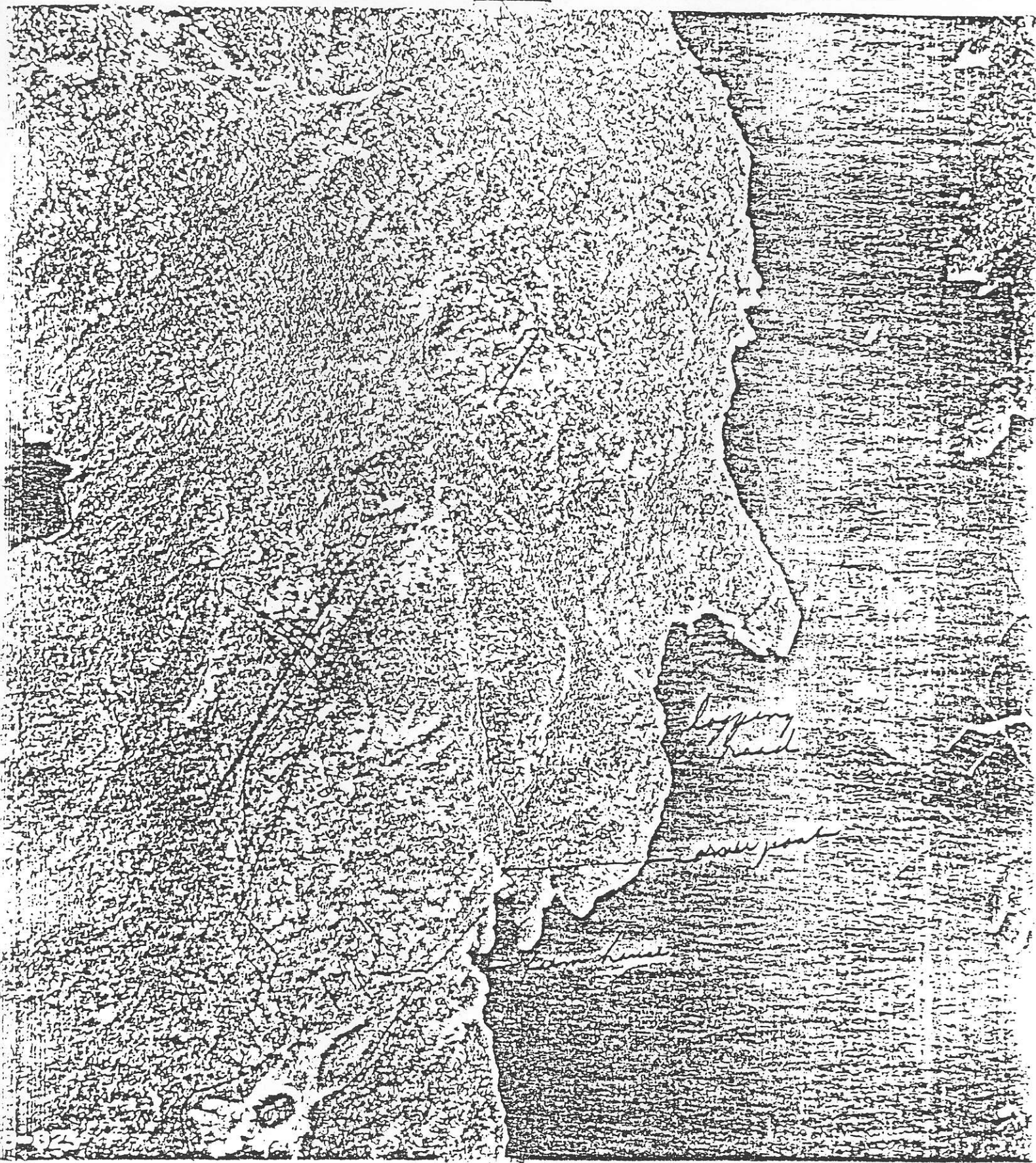
Aerial Photo B C 4328-025

The low grade ore is colored in green; this ore goes from near the surface to about 200 feet deep and some should be near the veins at greater depth. This low grade ore may be profitable to mine if the copper markets are very favorable.

The red lines represent veins. The top of these veins appear to be about 180 feet below surface and bottom about 7,000 feet. The average width of the veins appears to be about 40 feet and average about 50 pounds of copper, 0.2 oz. of gold and 0.5 oz. of silver per ton. The veins appear almost vertical.

There is a short cross vein in the center of the green part but the vein structure does not show above the 200 foot level. In the top 200 feet the ore seems to appear any place that it had an opening to enter with no good continuous vein structure.

The red veins appear very uniform and should make a good mining property.



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GEOLOGICAL REPORT

SANTANA GROUP, QUADRA ISLAND, B.C. FOR
THE QUADRA ISLAND COPPER SYNDICATE.

INTRODUCTION

The examination upon which this report is based was done September 4th to 6th, 1963. It was made at the request of the Quadra Island Copper Syndicate, c/o Mr. J. Rama, Suite 604 - 1095 Butte Street, Vancouver, B.C.

The purpose of the examination was to map and sample the old workings, assess the economic potential of the property and to recommend and lay out an exploration program for the development of the property.

LOCATION AND ACCESS

The claims are on the east side of Quadra Island and extend N 10°W for a distance of over one mile from the head of Conville Bay.

They are some 12 air miles northeast from Campbell River. They are also 250 miles by barge route to the Tacoma Smelter.

From Conville Bay several old logging roads run through the claims. These roads could be easily and cheaply rehabilitated for truck and jeep use. From Conville Bay about 1 mile of new road would have to be

constructed to connect with the system of Public Roads on Quadra Island and which are served by the British Columbia Government Ferry System to Campbell River.

At the present time access is either by boat or by charter air service from Campbell River.

Conville Bay is a well sheltered, deep anchorage cove and boats and barges can easily load and unload cargo from several steep banks along the side of the cove. Alternatively, if the one mile of road is built cargo can be shipped to and from the several existing government wharves already built.

The head of the cove is a sandy beach some 200 yards in length.

TOPOGRAPHY

Quadra Island is saucer shaped. The shores rise quite steeply to elevations of almost 3,000 feet. The interior of the island is relatively low and is occupied by Main Lake at an elevation of 500 feet. The Santana claims rise from sea level to elevations of about 2500 feet. On the eastern side of the island nearly all the hills and knobs are the more resistant granites while the lowlands and depressions are limestone or volcanics.

CLIMATE

The climate is warm and equitable. Rainfall is about 40 inches per year and falls throughout the year with the exception of the summer months of July and August. Hot summer and cold winter temperatures are moderated by the surrounding coastal waters and temperatures range from a high of 80° to a low of about 25°.

The climate is such that year round operations can be maintained with little or no loss of time from inclement weather conditions.

TIMBER

The claims are covered with small stands of second growth fir and hemlock suitable for all mining needs.

Lumber can be purchased locally from numerous sawmills and dealers in the area.

WATER

Several small streams suitable for mining and domestic needs are present on the claims.

Ample water for milling and metallurgical requirements is available at Main Lake some 1/2 mile distant from the mineral showings.

POWER

No electrical power is available on the property. A transmission line 2 miles or more in length would be necessary to connect with the British Columbia Hydro Power Commission transmission lines.

ACCOMMODATION

One building suitable as a bunkhouse and cookery for a crew of 8 to 10 men is situated on the claims at the head of Corville Bay. Little expense will be entailed in rehabilitating this building, mainly replacing broken windows, etc.

LABOUR

A ready pool of experienced miners, diamond drillers, and geophysical crews is available at Campbell River.

SUPPLIES

Campbell River is a distributing centre for the mining and logging industries and nearly all supplies can be purchased there or brought in from Vancouver within a few hours either by air express or truck.

ADJACENT AND OTHER NEARBY PROPERTIES

Several other copper-gold properties are present on the Island and were partially explored during the years 1916 to 1918.

At the present time Noranda Mines has been consolidating several of these old groups and staking additional claims and is starting an exploration program on them very shortly. These groups lie several miles to the west of the Santana claims.

CLAIMS

The Santana group consists of eight Crown Granted Mineral claims named Santana 1 to 8. The Lot Numbers are 1340 to 1347. They are held by Mineral Lease No. 8 in the name of Mr. C. M. Munro, Suite 301 - 1272 Comox Street, Vancouver, B.C.

The group contains 410.08 acres. All taxes and rentals amounting to \$205.50 per year have been paid up to January 23rd, 1964. No liens or other encumbrances are registered against the property.

HISTORY

This property dates back to 1916 or 1917 when Messrs. Taylor and McCongle opened up the showings along a length of 1500 feet and widths up to 40 feet. They drove an eighty-five foot adit and shipped 174 tons of ore to the Tacoma Smelter which ran 4.5% copper and \$4.00 in gold.

The property remained dormant until 1930 when the same group built a dock and cabins and drove a 160 foot cross-cut adit entirely in granodiorite without cutting their objective of the limestone-granodiorite contact before they ran out of money and discontinued work.

The property has remained idle until the present time.

DEVELOPMENT

The early operators developed a contact zone between granodiorite and limestone along a length of 1500 feet and widths up to 40 feet and through a vertical distance of about 800 feet by a series of open cuts,

trenches, and the short adit mentioned previously from which 174 tons of ore were shipped.

At the present time all the cuts and trenches have sloughed in or have been overgrown by second growth, or covered by logging slash.

I was able to trace the zone for a distance of 900 feet.

GEOLOGY

Quadra Island is underlain by rocks of the Vancouver Island group of Triassic age. These consist largely of andesitic lavas and tufts with intercalated limestone beds which vary in thickness from a few feet to several hundred or more.

Intruded into the Vancouver Island group are granitic rocks of the Coast Range batholith of Jura-Cretaceous age. These are mainly medium grained granodiorite or quartz diorite. They are usually massive and uniform except in the vicinity of the volcanics or limestone. Near the contact the granodiorite quite often develops a gneissic structure. Epidotization and chloritization of the amphiboles is prevalent.

The limestone in the vicinity of the contact is either marbled or altered to a garnet skarn. The andesites develop garnet to a lesser degree. Epidote and silicification are also common.

Mineralization consists of magnetite, pyrite, chalcopyrite, and copper carbonates. These occur as scattered crystals, small irregular veinlets, and in fair sized lenses. The main concentration of mineralization occurs mainly in the limestone portion of the contact. The granodiorite portion is also mineralized to a lesser extent. The degree diminishes away from the contact.

ECONOMIC POTENTIALS OF PROPERTY

1. The property has had little or no exploration done on the claims. The present showing was confined to a length of 1500 feet and a width of up to 40 feet. This zone is still open at both ends as well as vertically. The present known depth is at least 600 feet from the highest exposure to the adit.

This zone is ideally situated on a hillside for tunnel mining and exploration.

2. The possibility that two or more of these zones exist is evidenced by the presence of a parallel limestone-granodiorite contact some 300 feet southwest of the first. Also the presence of north-south depressions adjacent to knobs or hills of granodiorite. These may be shear zones or andesite or limestone.

Ore Reserves

A. PROVEN ORE

Little or no ore of proven category is present.

A. GEOLOGICALLY INFERRED ORE

The main showing was traced by myself for a distance of 900 feet and a vertical distance of about 600 feet and a mineralized width up to 40 feet. An average width of 10 feet is assumed. Using a factor of 9 cubic feet to the ton this gives a potential of

$$\frac{900 \times 600 \times 10}{2 \times 9} = 300,000 \text{ tons}$$

Three samples were taken as representative of this mineralization, but are slightly low as obvious blebs of intense sulphides were avoided.

SAMPLE: 1: width 10 feet, taken at tunnel mouth, 0.01 gold, 1.80% copper.

SAMPLE: 2: width 10 feet, taken 60 feet southeast from #1 and 50 feet higher. 0.005 gold, 3.30% copper.

SAMPLE: 3: ore dump at mouth of tunnel, about 40 tons, 0.02 gold, 2.25% copper.

The average of these three samples is 0.01 gold, 2.45% copper.

Recommendations

1. Detail mapping of property.
2. Magnetometer and soil sample of portion of property in vicinity of showings. This area to be about 2500 feet long by 1000 feet wide.
3. At least one diamond drill hole about 800 feet long under the tunnel to cut both potential mineralized zones. This may be followed by a series of shorter holes to prove tonnage and grade.

ESTIMATED COSTS

My table of estimated costs to carry out the above program are listed in Appendix A of this report.

R. E. Renshaw, P.Eng.

Consulting Geologist

7 Sept., '63.

Appendix "A" - Table of Estimated Costs

1. Rehabilitation of camp	\$ 500.00
2. Rehabilitation of roads, etc.	500.00
3. Geological survey	500.00
4. Magnetometer and geochemical survey ..	1,000.00
5. 1,000 feet of diamond drilling @ \$6.00 per foot	6,000.00
6. Reserve for contingencies	1,000.00
	<hr/>
Total	\$9,500.00

If the results of this program show the expected promise of the property further funds will be required to do more diamond drilling and exploration.

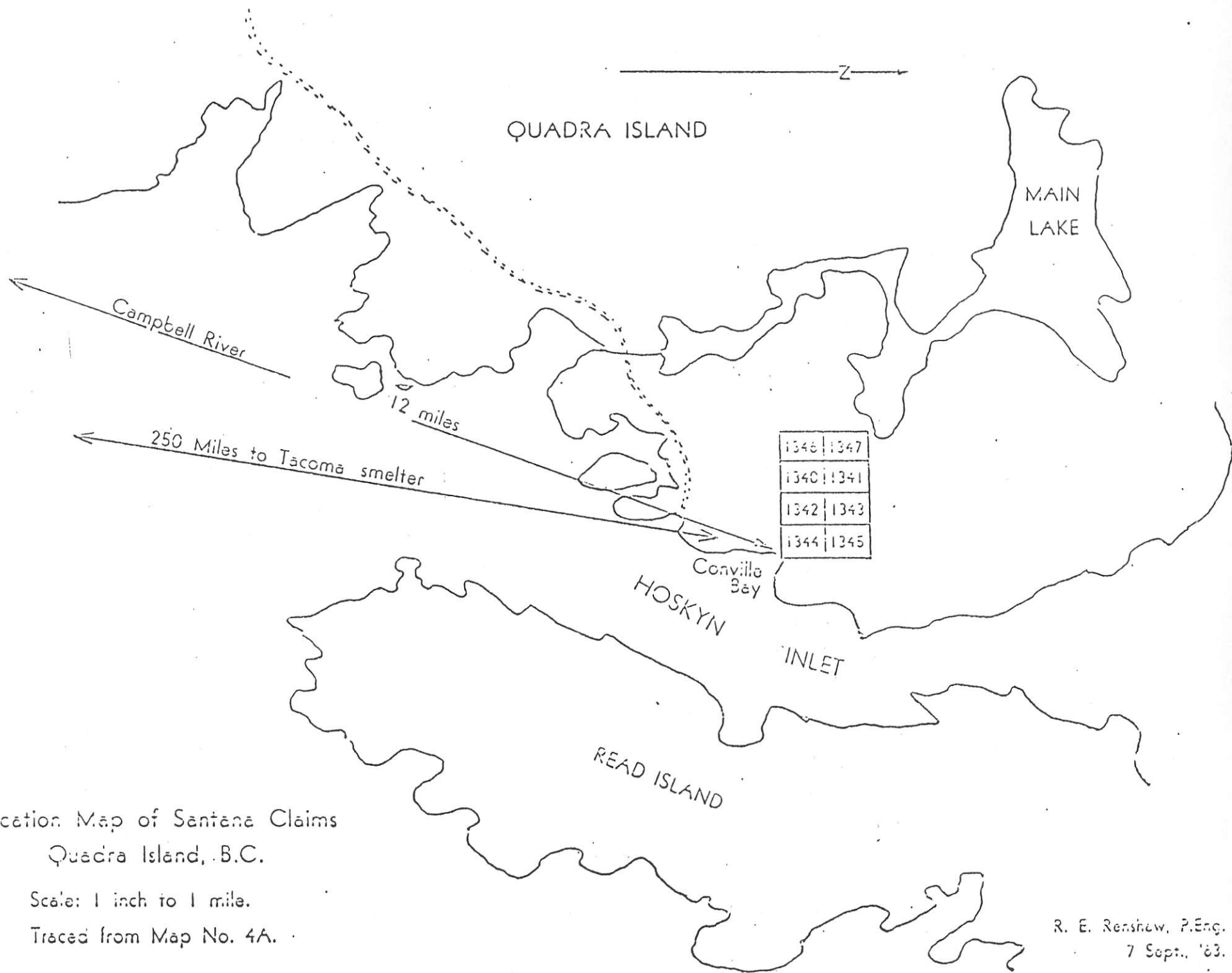
R. E. Renshaw, P.Eng.
Consulting Geologist
7 Sept., '63.

CERTIFICATE OF COMPETENCY

I, Rodney E. Renshaw do declare that:

1. I reside at 1361 Kings Avenue, West Vancouver, B.C. and maintain an office at #810 - 675 West Hastings St.; Vancouver, B.C.
2. I am a graduate of the University of British Columbia with a degree of Bachelor of Applied Science in Geological Engineering and have also taken two years post graduate studies in geology and geophysics.
3. I am a registered Professional Engineer for the Province of B.C.
4. I have been practising my profession as a consulting geologist during the past 16 years.
5. That this report is based upon my personal examination of the property.
6. That I have no interest either direct nor indirect in the property or company nor do I expect to receive any.

Rodney E. Renshaw, P.Eng.
Consulting Geologist.
7 Sept., '63

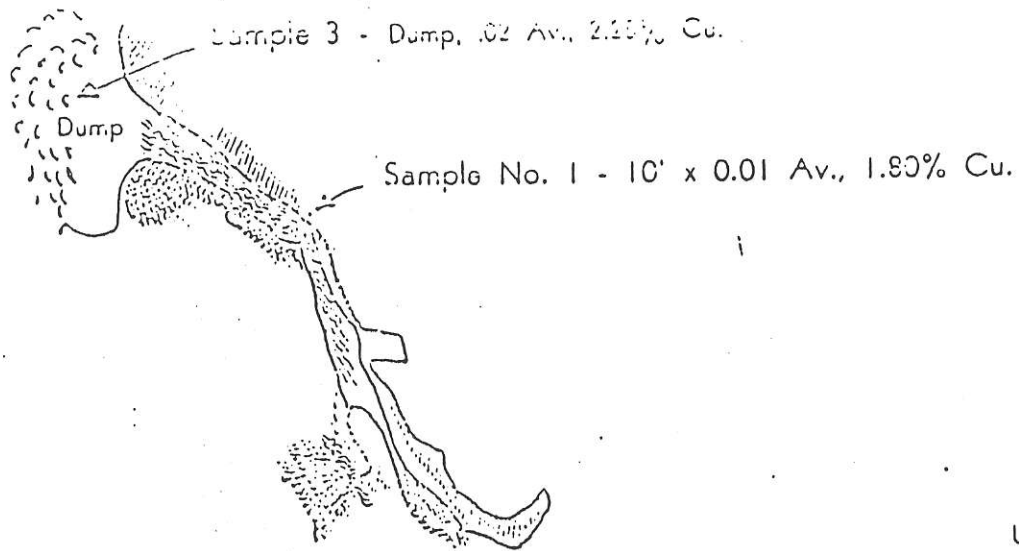





Location Map of Santana Claims
 Quadra Island, B.C.

Scale: 1 inch to 1 mile.

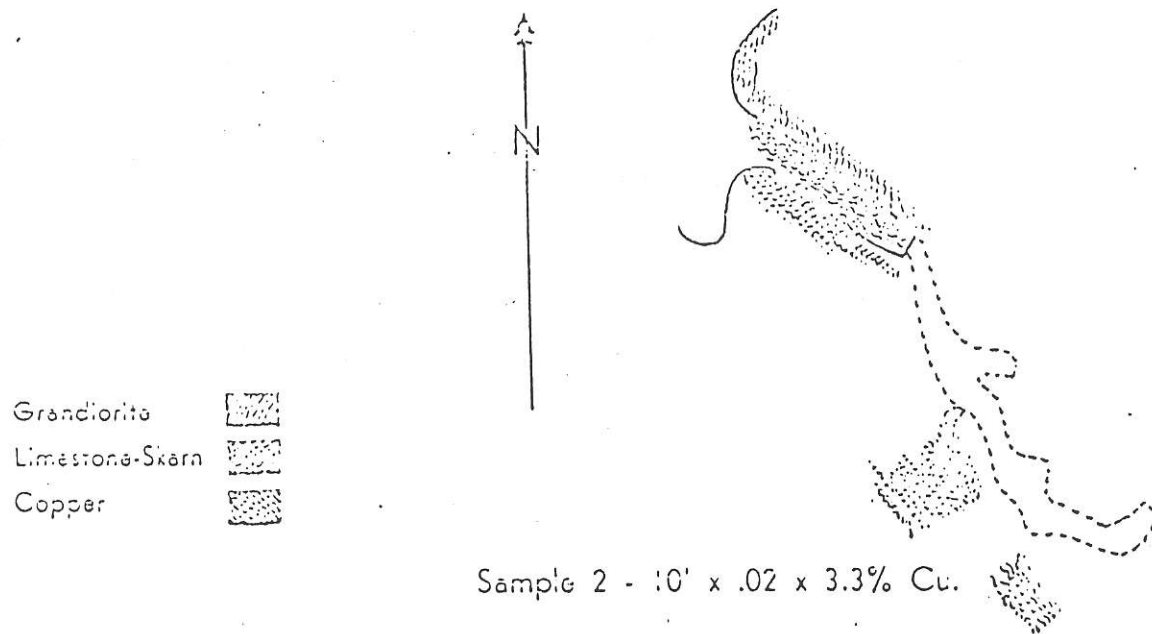
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


R. E. Renshaw, P.Eng.
 7 Sept., '63.



Granodiorite 
 Limestone-Skarn 
 Copper 

UNDERGROUND WORKINGS, SANTANA
 Scale: 1 inch to 40 feet.



Granodiorite 
 Limestone-Skarn 
 Copper 

SURFACE GEOLOGY, SANTANA GROUP
 Scale: 1 inch to 40 feet.

R. E. Renshaw, P.Eng.
 7 Sept., '63.

EXTRACT FROM: NEW FAR NORTH EXPLORATIONS LTD.
PROSPECTUS DECEMBER 10, 1964

M. Santana Claims

- (1) The claims are located on the east side of Quadra Island approximately one mile from the head of Conville Bay. The claims are connected to Conville Bay by old logging roads which could be easily and cheaply rehabilitated for use by truck and jeep. From Conville Bay about one mile of new road would have to be constructed to connect with the system of public roads on Quadra Island which are served by the British Columbia Government Ferry System to Campbell River, British Columbia. The claims would be served by a barge route terminating at Conville Bay and Tacomma, Washington, or by the air route terminating in Conville Bay and Campbell River, B.C. Conville Bay is a well sheltered, deep anchorage cove and barges can easily load and-unload cargo from several steep banks along the side of the cove. If the one mile of road previously referred to is built, cargo could be shipped to and from several existing government wharfs already located on Quadra Island.
- (2) In addition to the 85 foot adit subsequently referred to 4 drill holes were sunk in the property in February and March 1964, and did not uncover by the core analysis any major mineral zone but continually showed an average copper mineralization throughout the rock of .30%.
- (3) This property dates back to 1916 or 1917 when showings were open along a length of 1500 feet with widths up to 40 feet. The developers at that time drove an 85 foot adit and shipped 174 tons of ore. The property remained dormant until 1930 when a dock and cabins were constructed and 160 foot cross cut added. The early developers opened a series of open cuts and trenches and the adit previously mentioned with cuts and trenches has now caved in or been overgrown by second growth. These cuts and trenches were cleared by our crews and additional samples for assay were taken. As well a magnetometer survey was done on the property and soil samples were taken at regular intervals. This additional sampling and surveying lent way to the earlier findings that the complete extent of the claims is underlain by mineralized copper rock of a non commercial grade down to a depth of 642 feet with irregular small pods of high grade mineralization.

EXTRACT FROM: NEW FAR NORTH EXPLORATIONS LTD.
PROSPECTUS DECEMBER 10, 1964

The relevant history of this Company begins in November 1963 when the present board of directors of the Company were appointed. At that time the Company acquired the Crown Granted Santana Mineral claims Numbers 1 to 8 on Quadra Island, B.C. for their further exploration and development as a possible commercial copper and gold mine. The program for this development was laid out by the Company's mining geologist, Mr. R. E. Renshaw, P. Eng. Subsequently six additional claims adjacent to the Santana claims were acquired by the Company.

Initially Mr. Renshaw and his crews traced the mineralized zone on the surface for a length of 4500 feet with widths up to 70 feet. At the same time a magnetometer survey was undertaken together with soil sampling for later analysis.

After the completion of this exploratory work Diamond Drill Hole #1 was spotted and commenced on Sunday, February 9, 1964. No significant copper or other mineralization was encountered and the hole was bottomed at 638 feet. Three other holes were spudded and completed at approximately the same depths with concurrent results, showing an altered quartz diorite mineralized with copper to an average of .30%. This extent of mineralization was present throughout the mass of granite rock underlying the claims totalling in Mr. Renshaw's estimation 200,000,000 tons of .25% copper rock. This was borne out by the soil sampling and other tests conducted throughout the exploration and development program which lasted until April 1964.

At that time it was Mr. Renshaw's firm recommendation to the Board of Directors that further drilling cease and that invitations be given to certain of the major copper mining companies for a possible joint mining-development operation to be undertaken on our claims at a cost it was estimated would total \$200,000.00. This was based on deeper drilling of the existing structures in an attempt to uncover the geologically inferred ore in the commercial quantities that were indicated by all the development work accomplished to date. The Board of Directors have not as yet been presented with a suitable offer from any of those major companies that have examined the property at Quadra Island and the existing geological data on same.

