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**GEOLOGICAL REPORT**

**ON THE**

**MACKTUSH PROPERTY  
Alberni Inlet  
Alberni Mining Division  
Vancouver Island  
British Columbia**

**Latitude 49°08' North  
Longitude 124°52' West  
NTS 92F/2W**

**FOR**

**SYMC RESOURCES LTD.**

**BY**

**N.C. CARTER, PH.D. P.ENG.  
January 17, 1994**

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**SUMMARY**

SYMC Resources Ltd. owns the Macktush gold prospect which is situated west of Alberni Inlet some 12 km south of Port Alberni on Vancouver Island.

The seven Modified Grid (4-post) mineral claims comprising the property cover a northwest trending contact between Island intrusions granitic rocks and volcanic rocks of the late Triassic Karmutsen Formation. A number of gold-bearing quartz-sulphide veins, discovered marginal to this contact in the central property area, are normal to the regional northwest structural trend and strike northeasterly with moderate to steep dips to the southeast. The quartz veins contain pyrite, pyrrhotite and chalcopyrite and values in gold, silver and copper have been obtained from sampling to date.

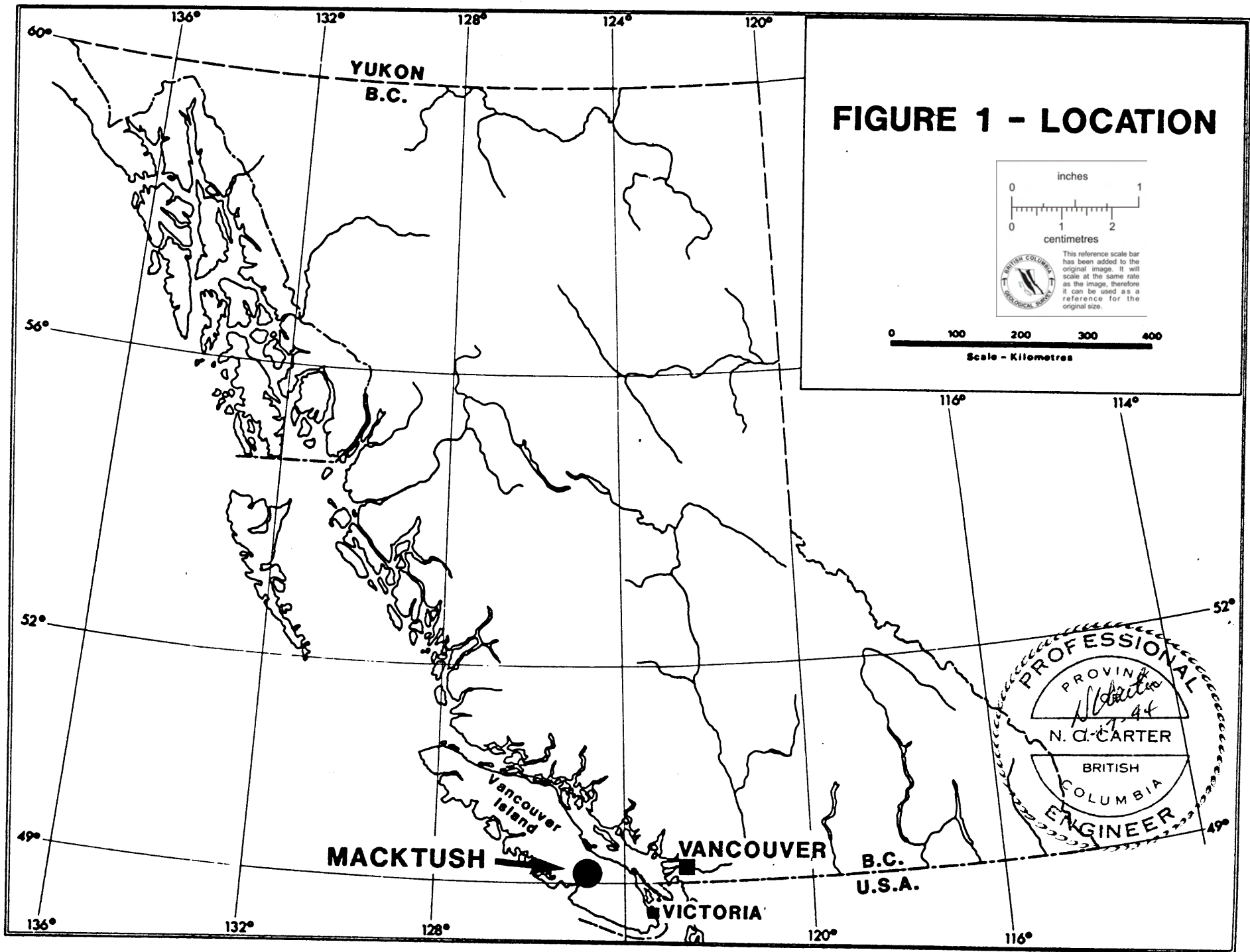
Two principal vein strike directions are evident including east-northeast and north-northeast. The best known example of the former is the Fred vein which has been traced by trenching and limited drilling over a strike length of more than 200 metres. Surface sampling at five sites within 100 metres of vein strike length yielded gold grades ranging from 0.218 oz/ton over 0.76 metre to 0.952 oz/ton over 4.88 metres. Four inclined drill holes, which intersected the structure between 10 and 40 metres vertically below the

surface exposures, returned gold grades of between 0.006 and 1.290 oz/ton over core lengths of 1.58 and 3.81 metres respectively.

The Red vein, an example of a north-northeast trending structure, is poorly exposed over an apparent strike length of 300 metres. A grab sample collected near the known southwestern limits of the structure assayed 0.318 oz/ton gold; a chip sample over a 1.1 metre width in the same area returned 0.073 oz/ton.

Work on the Macktush property over the past several years, including surface sampling, excavator trenching and limited diamond drilling, has identified locally good gold values over reasonable vein widths plus apparent continuity of the vein structures over significant strike lengths. Additional exploratory work is warranted to test the potential of the two principal vein structures and other possible zones.

It is recommended that an initial program consisting of base map preparation, orientation geophysics and geochemistry, detailed geological mapping, and additional excavator trenching and diamond drilling be undertaken at an estimated cost of \$253,350.00. A second phase program, including additional diamond drilling, would be predicated on the results obtained from first phase work.



## **INTRODUCTION**

SYMC Resources Ltd. owns the Macktush property which consists of 7 Modified Grid mineral claims and is situated south of Port Alberni on Vancouver Island.

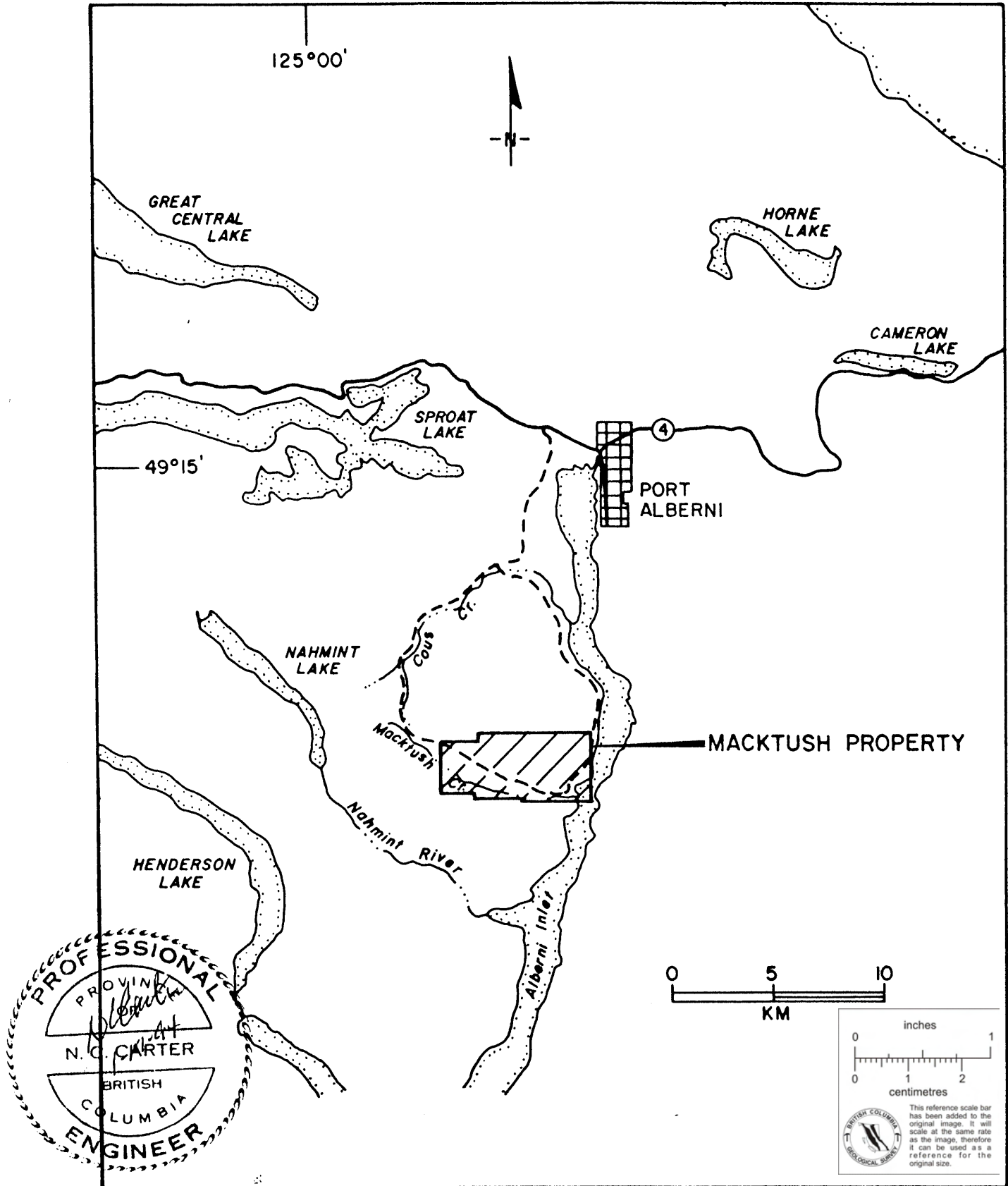
This report, prepared at the request of SYMC Resources Ltd., is a revision of two earlier reports on the property dated July 16, 1990 and July 10, 1991. These reports were based on examinations of parts of the Macktush property carried out by the writer April 26 and June 20 of 1990 and June 10, 1991 and on a review of results of previous exploration work and other studies undertaken on the property since 1982. The two previous reports and the present one include a compilation of previous surface sampling and diamond drilling prepared by John Wilson, FGAC, who also supervised a survey of part of the property.

Four previous diamond drill holes were re-logged; three by John Wilson and one by the writer which included some sampling. These data have been incorporated into this report.

Recent excavator trenching, carried out in the central property area, was inspected by the writer July 28, 1993.

## **LOCATION AND ACCESS**

The Macktush property is situated 15 km south of Port Alberni on southern Vancouver Island (Figure 1). The mineral



**FIGURE 2 - LOCATION - MACKTUSH PROPERTY**

claims are located on the west side of Alberni Inlet immediately north of Macktush Creek (Figure 2) in NTS map-area 92F/2W. The geographic centre of the property is at latitude  $49^{\circ}08'$  North and longitude  $124^{\circ}52'$  West.

Access to the property is by highway and road from Port Alberni by way of MacMillan Bloedel Limited Sproat Lake Woodlands Division Main roads along Cous and Macktush Creeks or a shore road along Alberni Inlet (Figure 2).

The mineral claims are situated in previously logged areas and access to most parts of the property is afforded by numerous logging roads.

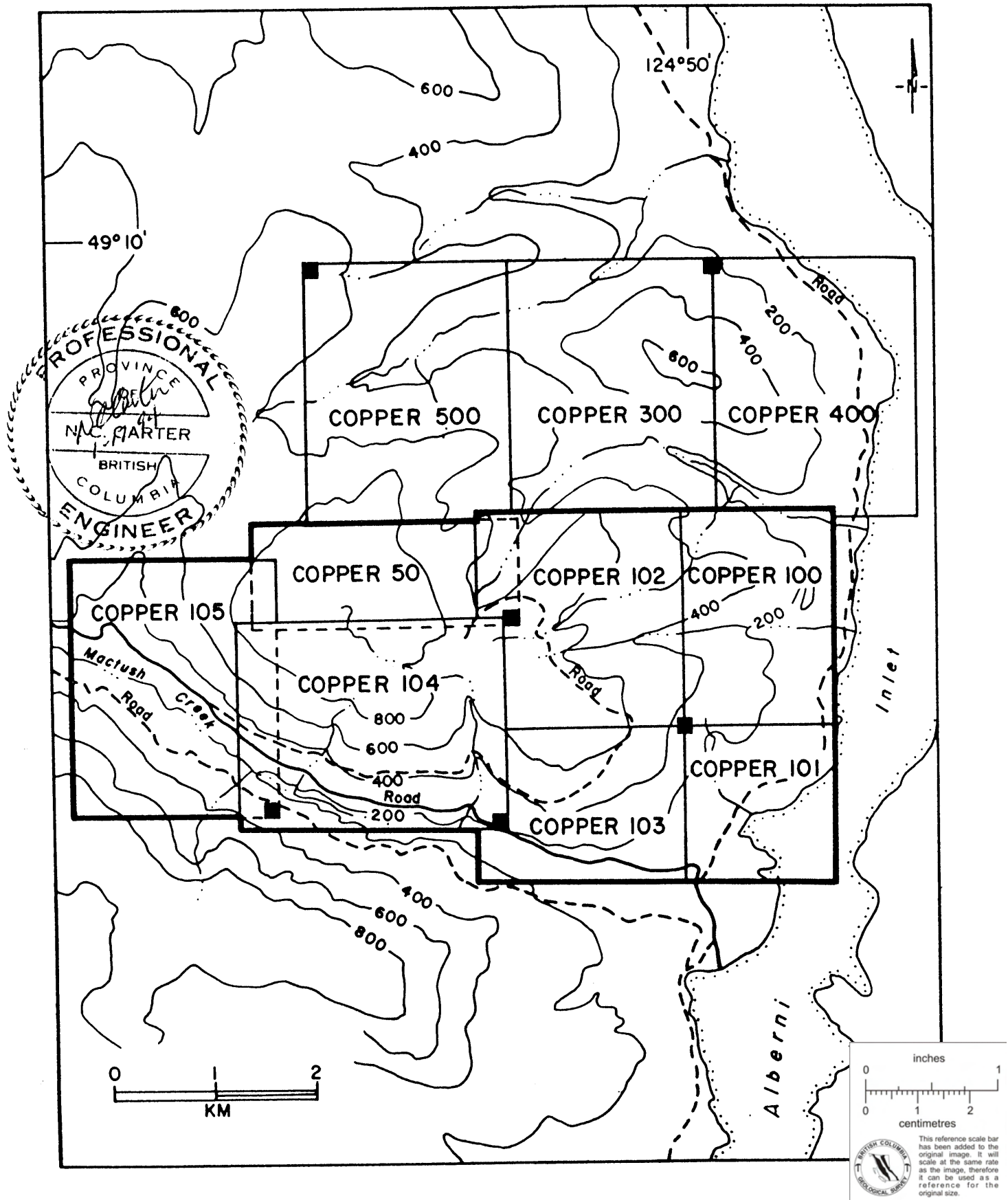
#### **MINERAL PROPERTY**

The Macktush property consists of 7 Modified Grid (4-post) mineral claims (99 units) located in the Alberni Mining Division.

Since the preparation of the previous reports, three of the claims, COPPER 300, 400 and 500 (Figure 3) have been allowed to lapse.

No claim posts or lines on the Macktush property have been examined by the writer but the claims are believed to have been located in accordance with procedures as specified in the Mineral Tenure Act Regulations of the Province of British Columbia. According to Mineral Titles maps, some





**FIGURE 3 - MACKTUSH PROPERTY MINERAL CLAIMS**

overlapping of several of the claims is evident (Figure 3).

Details of the mineral claims are as follows:

<u>Claim Name</u>	<u>Record Number</u>	<u>Units</u>	<u>Expiry Date</u>
COPPER #100	200210	12	October 31,1996
COPPER #101	200211	9	October 31,1995
COPPER #102	200212	16	October 31,1995
COPPER #103	200213	12	October 31,1995
COPPER #104	200214	20	October 31,1995
COPPER #105	200215	20	October 31,1995
COPPER #50	200279	10	February 13,1995

#### PHYSICAL FEATURES

Mineral claims comprising the Macktush property cover an area of moderate to steep relief west of Alberni Inlet (Figure 3). Elevations range from sea level to 960 metres in the western property area.

Steeper slopes are found north of Macktush Creek, west of Alberni Inlet and marginal to a number of drainages flowing east to Alberni Inlet. Much of the claims area has been logged and bedrock is well exposed along logging roads, major drainages and some of the steeper slopes.

The climate is typical of the southwest coast of Vancouver Island with abundant rainfall in the fall and winter months. Mild winters allow for work on the property most months of the year.

## HISTORY

The earliest record of prospecting and mining activity west of Alberni Inlet dates back to the turn of the century when copper-gold vein occurrences near the head of the Inlet were investigated and some 1900 tonnes of material containing copper-silver-gold were mined from the Three Jays skarn deposit south of Nahmint River. Sporadic exploration work, directed to several copper and/or precious metal prospects, has continued to the present.

The current Macktush property includes a number of gold-silver-copper bearing quartz veins. The majority of these have been located by work over the past several years but at least one was explored a number of years ago by several pits and two short adits. Remains of an old cabin (now destroyed) attest to this earlier work and an old claim post with a claim tag characteristic of those in use up to the mid-1940's was observed adjacent to one of the known quartz veins. There are no records of this earlier work; references included in the B.C. Ministry of Energy Mines and Petroleum Resources Minfile (92F - Alberni, June 1990) description of the Macktush property pertain to descriptions of the regional geological setting.

The old workings on one of the vein structures were re-discovered by principals of SYMC Resources Ltd. in April of

1981. A number of 2-post mineral claims were located (abandoned and re-located as Modified Grid claims in 1983) and work through 1986 included prospecting, trenching and sampling.

SYMC Resources Ltd. was incorporated in March of 1987 and this company purchased the mineral claims comprising the Macktush property. Financing was arranged for additional exploration work in 1987 and 1988 which included a legal survey, ten diamond drill holes totalling more than 900 metres, mechanical trenching at more than 20 sites and surface sampling at 25 locations.

Preliminary metallurgical test work was carried out in 1988 (Broughton, 1988) as were initial investigations pertaining to a possible tailings impoundment area (Palmer and Skirmer, 1988) and potential mining methods. This work was undertaken in response to recommendations of the British Columbia Mine Development Steering Committee which had received a preliminary prospectus from SYMC Resources Ltd. earlier that year.

A survey of surface workings and drill hole collars on the main quartz vein structure was supervised by John Wilson, FGAC, in January of 1990 and a compilation of results of exploration work was completed by Wilson in April of that year. The writer completed a report on the property in

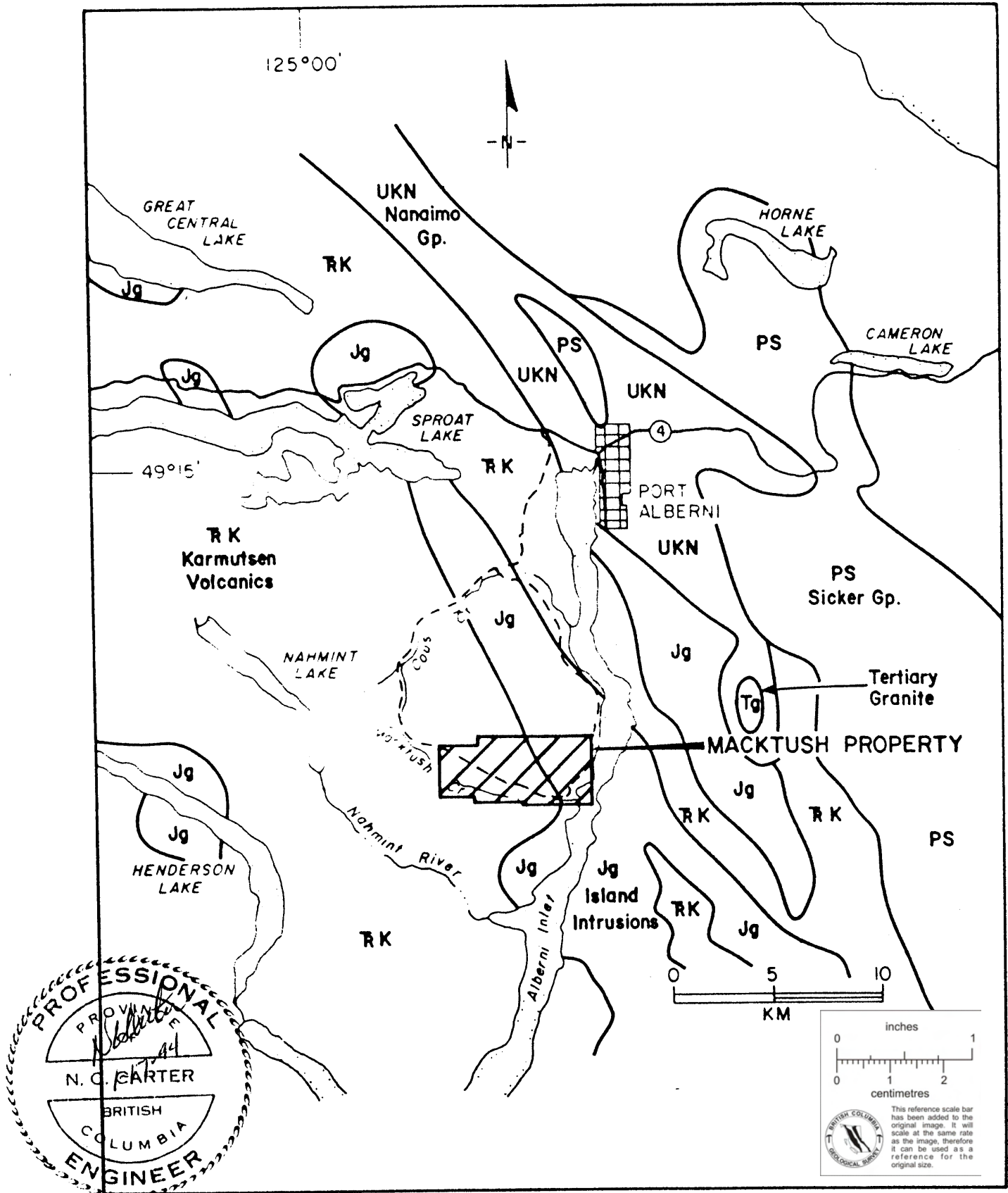
July, 1990 (Carter, 1990) and three 1987 diamond drill holes were re-logged by Mr. Wilson in late 1990. Additional excavator trenching was completed on two of the known quartz vein structures in early 1991.

Work in 1992 and 1993 included 160 metres of road construction, approximately 1500 cubic metres of excavator trenching and 12 hand pits.

Most of the work to date on the Macktush property has been carried out in the southwestern part of the COPPER #102 claim (Figures 3 and 5). The value of exploration work and related technical studies undertaken on the property since the initial location of mineral claims is estimated to be more than \$400,000.

#### **REGIONAL GEOLOGY AND MINERALIZATION**

Vancouver Island makes up the southern part of the Insular belt, the westernmost tectonic subdivision of the Canadian Cordillera. The southern Insular belt is dominated by Paleozoic and Mesozoic volcanic-plutonic complexes and lesser sedimentary rocks which are overlain on the east coast of Vancouver Island by clastic sedimentary rocks of late Cretaceous age. Tertiary basic volcanic rocks are prevalent in the south Island area and granitic intrusions of similar age are widespread along the west coast of the Island.



**FIGURE 4 - GEOLOGICAL SETTING**  
(After Muller and Carson, 1969)

Vancouver Island hosts a variety of mineral deposit types which include volcanogenic massive sulphides at Buttle Lake and near Duncan which are hosted by late Paleozoic Sicker Group volcanic rocks. The Island Copper deposit near Port Hardy' is a porphyry copper-molybdenum deposit with significant by-product gold which is related to Mesozoic subvolcanic intrusions. Iron-copper skarns, hosted by late Triassic limestones marginal to granitic intrusions, are numerous in the central and northern Island areas.

The west coast and central parts of Vancouver Island are noted for gold-bearing vein deposits. Many of these are at least spatially related to Tertiary granitic intrusions and examples include the Zeballos camp and deposits in the Kennedy Lake, Alberni Inlet and Mount Washington areas.

The oldest rocks exposed near Alberni Inlet are late Paleozoic Sicker Group volcanic and sedimentary rocks which underlie the northern part of the Cowichan structural uplift (Figure 4). Three volcanic formations comprise most of the Sicker Group in this area (Massey and Friday, 1989). From oldest to youngest these include a basal pillow basalt with minor felsic units, an intermediate fragmental andesite and an upper volcanoclastic-epiclastic sequence. The youngest sequence of the Sicker Group is comprised of cherty sediments, limestones, siltstones and sandstones.

Mesozoic volcanic and sedimentary rocks overlie Sicker Group rocks and include late Triassic Karmutsen Formation andesite and basalt pillow lavas, pyroclastics and massive flows and early Jurassic Bonanza Group fragmental andesites and lesser sedimentary rocks. Where complete Mesozoic sections exist, the Karmutsen Formation and Bonanza Group are separated by Quatsino Formation calcareous and clastic sedimentary rocks.

The Mesozoic sequences underlie much of the area west of Alberni Inlet (Figure 4) where they are intruded by granodiorites and quartz diorites of the Middle Jurassic Island Intrusions.

Youngest layered rocks include late Cretaceous Nanaimo Group clastic sedimentary rocks which underlie the fault-bounded Alberni valley (Figure 4). These are intruded by hornblende-feldspar porphyry dykes and sills of probable Tertiary (Eocene?) age (Massey and Friday, 1989).

The dominant northwest structural trend of the Alberni Inlet area is reflected by the Cowichan structural uplift, the elongate nature of Island Intrusion plutons and the distribution of late Cretaceous sediments in the northwest trending Alberni valley. Regional northwest trending thrust faults mark the boundaries between Sicker Group and younger rocks east of Alberni Inlet (Massey and Friday, 1989).



Various styles of mineralization are recognized in the Alberni Inlet area (Muller and Carson, 1969; Massey and Friday, 1989). These include volcanogenic massive sulphide occurrences in the lower volcanic unit of the Sicker Group, porphyry copper and/or molybdenum mineralization associated with Island Intrusions granitic rocks and iron-copper skarn deposits and occurrences in Mesozoic sedimentary and volcanic rocks, some of which have yielded limited production in the past. The best example of one of these is the Three Jays prospect on the west side of Alberni Inlet. According to Wahl (1980), much of the copper mineralization at this prospect may be related to shear zones.

Considerable work has been done in recent years investigating similar styles of mineralization at the head of east-flowing tributaries of Cous Creek (Figure 4). Here, discontinuous massive sulphide lenses and pods containing copper, silver and gold values are developed in Karmutsen andesite flows near their contact with Island Intrusions granitic rocks and adjacent to felsic dykes of probable Tertiary age (Sookochoff, 1986; Laanela, 1987).

Other known deposit types west of Alberni Inlet include a number of copper occurrences in fracture zones in Karmutsen Formation volcanic rocks, examples of which include one prospect near Alberni Inlet 5 km north of the Macktush

property and several occurrences immediately south of Macktush Creek. The latter prospect features pyrrhotite, pyrite and chalcopyrite in shear zones and in lenses in Karmutsen volcanics from which some silver values have also been reported (Stewart, 1983).

The most common mineral deposit types in the Alberni Inlet area are gold-bearing quartz-sulphide veins and fissure zones. These are widespread in the Franklin River-China Creek area east of Alberni Inlet where they are spatially and possibly genetically related to a north trending belt of Tertiary feldspar porphyry intrusions (Carson, 1969).

Gold-bearing quartz-sulphide veins also occur in shear zones in Karmutsen Formation basalts west of Alberni Inlet. Examples include the Ferguson prospect south of Two Rivers Arm on Sproat Lake and the Raven and Dauntless prospects due west of Port Alberni and 7-10 km north of the Macktush property. Gold values at these prospects is associated with quartz veins containing chalcopyrite, pyrite and pyrrhotite (LeRiche and Hopkins, 1988).

#### **PROPERTY GEOLOGY AND MINERALIZATION**

The Macktush property is underlain by late Triassic Karmutsen Formation basaltic pillow lavas and andesites which are in contact with granodiorites and quartz diorites of the

Middle Jurassic Island Intrusions in the central property area.

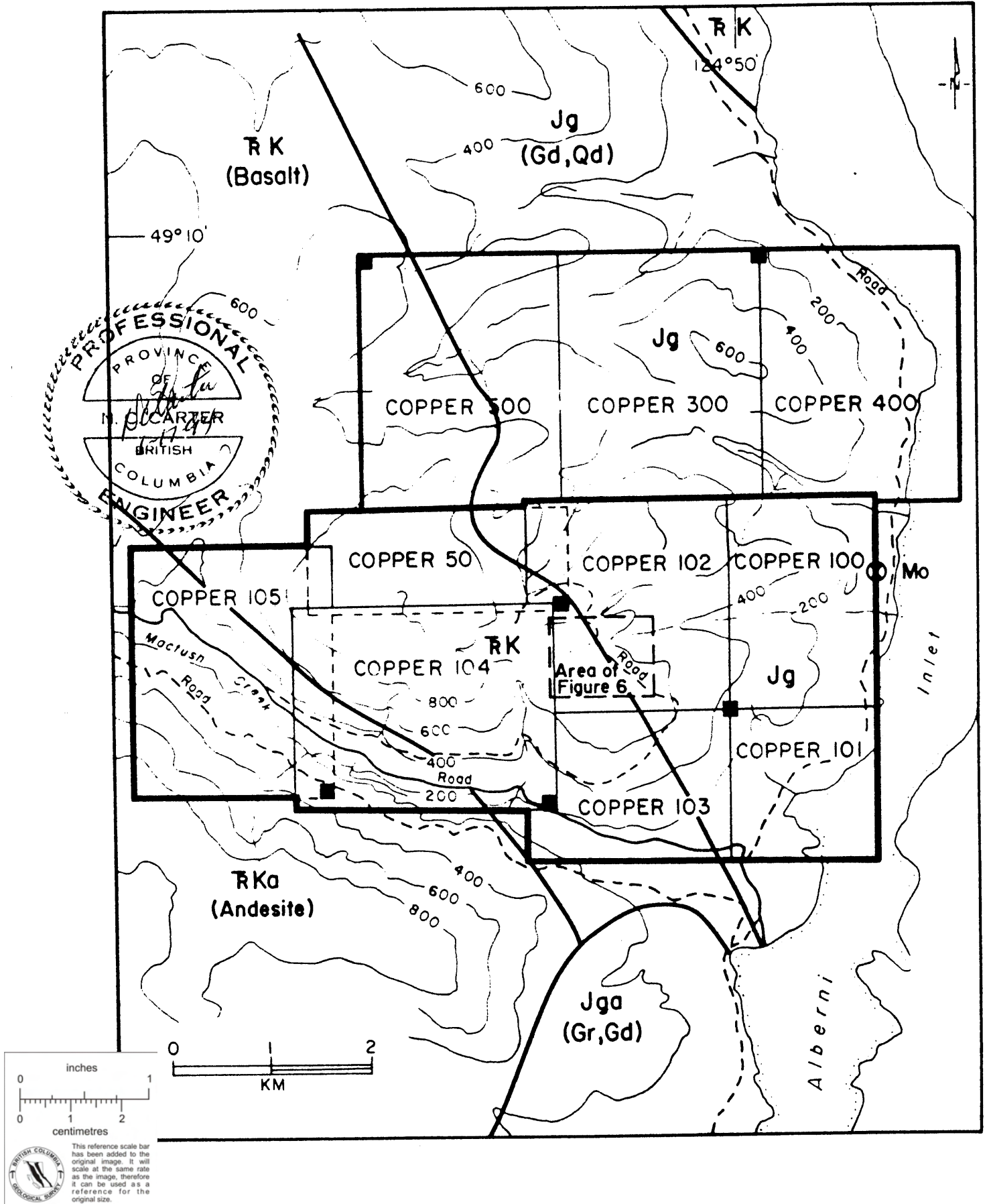
As indicated on Figure 4 these granitic rocks, which underlie much of the eastern half of the property, are part of an elongate pluton which extends southeasterly from Sproat Lake through the property area and across Alberni Inlet.

According to recent mapping by Sutherland Brown and others (1986), the contact between the Karmutsen volcanics and Island Intrusions extends in a southeasterly direction through the claims just below the height of land (Figure 5). Tholeiitic pillow lavas are the dominant rock type west of the contact while andesitic varieties underlie the southwestern claims area along Macktush Creek.

Granitic rocks of the Island Intrusions, where observed by the writer in the central property area, include medium to coarse grained grey quartz diorite and granodiorite. Some potassium feldspar stringers were noted locally as were northwest trending 15 cm wide aplite dykes.

The contact between the granitic and volcanic rocks in the central property area is irregular with numerous inclusions of Karmutsen pyroxene porphyry flows and bleached andesites.

Known mineralization on the property includes a small iron-copper skarn zone in Karmutsen volcanics in the central



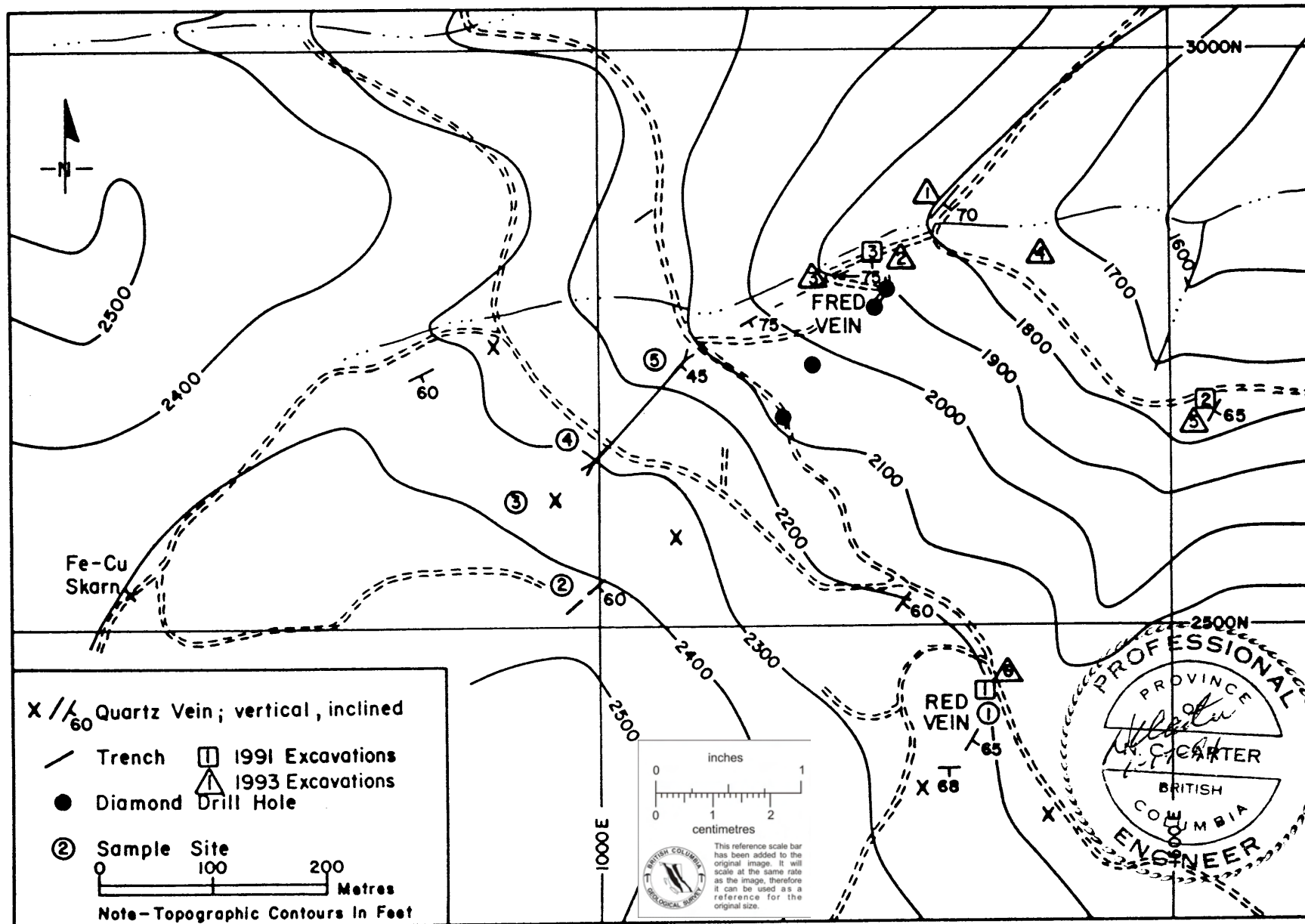
**FIGURE 5 - MACKTUSH PROPERTY - GEOLOGY**

property area and porphyry style mineralization in at least two localities. Examples of the latter include molybdenite in quartz veinlets and fractures in Island Intrusions granodiorite exposed in road cuts along Alberni Inlet in the eastern claims (Figure 5) and disseminated chalcopyrite in K-feldspar altered diorites north of the present property boundary (Figure 5).

A number of gold-bearing quartz-sulphide veins in various parts of the claims area constitute the most significant mineralization found to date. A number of these veins occur within a 0.5 square km area in the western part of the COPPER 102 mineral claim (Figure 5) marginal to the contact between Karmutsen volcanics and Island Intrusion granitic rocks.

As indicated on Figure 6, most of the known veins strike northeasterly and dip moderately to steeply southeast. The strike direction is normal to the overall trend of the Island Intrusions contact which parallels the regional trend and the distribution of veins in this area is about equally divided between volcanic and granitic host rocks.

Vein widths range from 0.30 to several metres with an overall average of about 1.3 metre. Vein contacts are commonly sheared with 7-30 cm wide gouge zones developed in both foot- and hangingwall host rocks. Quartz stringers in wallrocks were observed marginal to several of the vein



**FIGURE 6 - PRINCIPAL MINERAL SHOWINGS -  
COPPER 102 MINERAL CLAIM**

exposures. This feature is particularly evident at the northeast end of the 130 metre long trench (Figure 6) where 0.30 metre wide quartz veins within a 3-7 metre wide zone of shearing are separated by wedges of altered volcanic and granitic rocks. Narrow basic dykes parallel the northeast shear direction and cut both the veins and wallrocks. Elsewhere, inclusions of volcanic rocks are present near quartz veins hosted by granitic rocks and the southwest trench on the main quartz vein structure exposes a 1.4 metre wide quartz vein with a quartz diorite footwall and an andesitic hangingwall.

Most vein structures display multiple stages of quartz veining. Colloform banding is common as are drusy cavities. Sulphide mineralization within the veins includes fine to medium grained pyrite, pyrrhotite and chalcopyrite.

A number of the known quartz vein exposures occur along apparently persistent northeast structures. Two principal strike directions are evident including east-northeast and north-northeast. These structural directions are reflected by several drainages and prominent draws.

The Fred vein (Figure 6), the best known example of an east-northeast trending vein structure, is immediately south of a drainage of similar trend. The vein has been traced by drilling and trenching over a strike length in

excess of 200 metres.

The north-northeast trending structure containing the Red Vein (Figure 6) apparently extends several hundred metres down a draw of similar trend based on recent excavator trenching. Other exposures of quartz veins near the known southwestern limits of the Red vein may represent parts of parallel zones. The quartz veining in the long trench southeast of the Fred vein is considered to be another example of the north-northeast trending vein set.

#### ***Surface Sampling***

A number of surface samples have been collected from various exposures by principals of SYMC Resources Ltd., Provincial Government geologists and the writer. Note that all of the SYMC samples shown on Figure 6 are grabs, or more properly, character samples of vein material. Sample number 20773 - 20775 refer to samples collected by the writer in June of 1990. Locations are shown on Figures 6 and 7 and analytical data are contained in Appendix I. Results for sites indicated on Figure 6 are as follows:

<u>Site</u>	<u>Number</u>	<u>Width(m)</u>	<u>Gold(oz/ton)</u>	<u>Silver(oz/ton)</u>	<u>Copper(%)</u>
1	130	Grab	0.318	0.31	0.42
	20773	1.1	0.073	0.20(ppm)	88(ppm)
2	20774	1.0	696(ppb)	0.30(ppm)	37(ppm)
3	E19511	Grab	0.192	1.56	0.57
4	E19510	Grab	0.166	1.23	0.42
5	E19509	Grab	0.074	0.76	1.12
	20775	Chips	817(ppb)	1.40(ppm)	26(ppm)



Recent excavator trenching along the trend of the Red vein 50 metres northeast of, and along strike from sample site 1 (Figure 6) has exposed a zone of shearing in granitic rocks striking  $040^{\circ}$  and dipping steeply east. The zone, exposed along the logging road over a width of more than 6 metres, features multiple, narrow quartz veins with finely disseminated pyrite.

The probable extension of the Red zone was exposed by 1991 trenching along the lower logging road 350 metres northeast of, and 130 metres vertically below, the previously described exposure (Figure 6). Here, the zone is developed in dioritic rocks over a similar 6 metre width striking  $035^{\circ}$  and dipping  $60-80^{\circ}$  east. Margins of the zone are marked by one metre wide grey, clay-rich gouge zones which contain quartz veins (Wilson, 1991 - Appendix I). Dioritic rocks within the shear zone are deeply weathered and contain up to 3% disseminated pyrite. Ten chip samples, collected from a continuous line within and adjacent to the shear zone by Wilson (1991 - Appendix I), yielded low gold, silver and copper values.

More recent trenching in this area, immediately above the road and some 60 metres east, has exposed a 15 cm wide quartz vein within a 0.5 metre wide shear zone which is interpreted to be a second, parallel structure developed in the

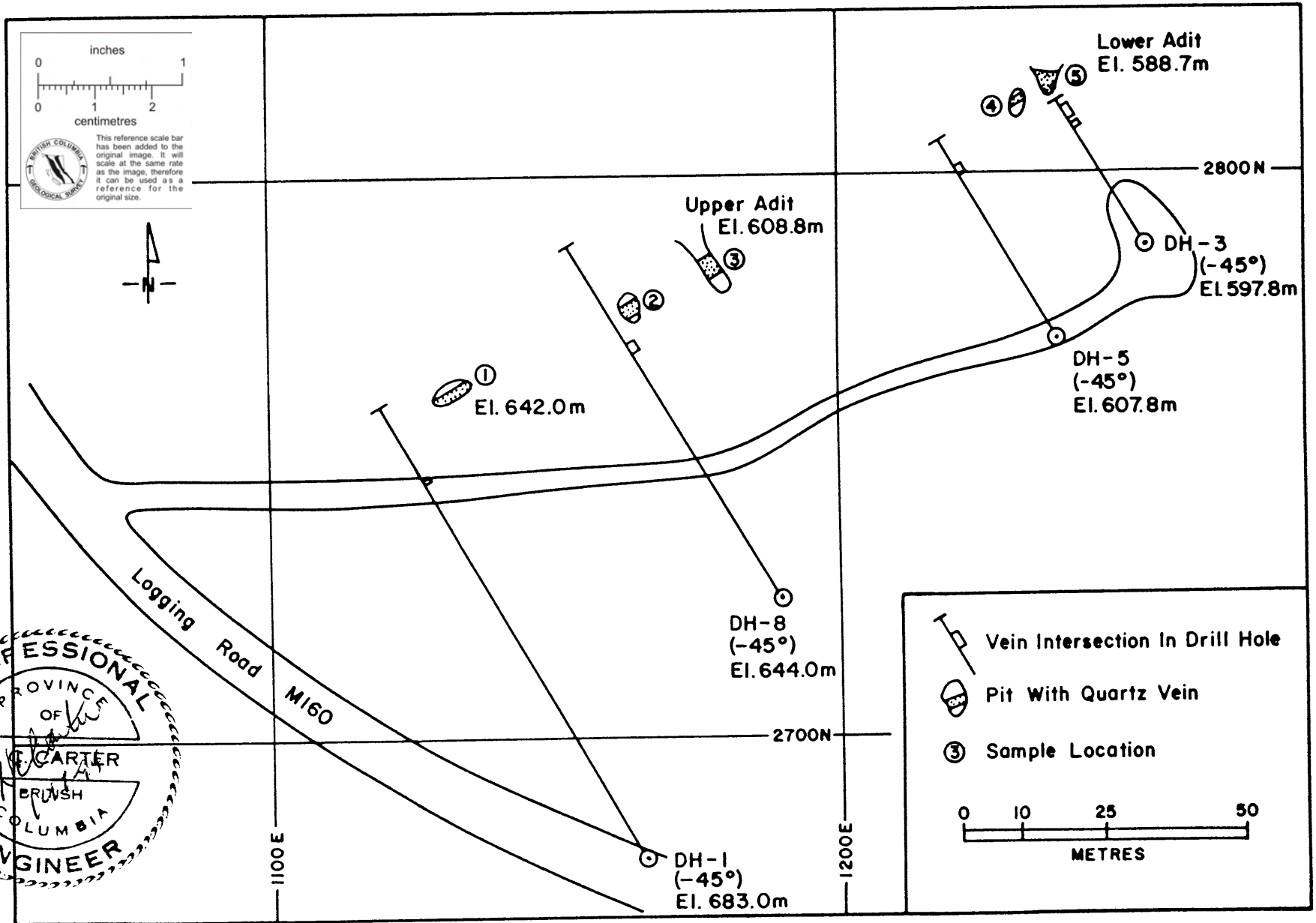
hangingwall of the main Red zone.

The Fred vein (Figure 6), apparently the original zone discovered years ago, is exposed in two short adits (now caved) and three pits as shown on Figure 7. The width of the structure containing the vein, which strikes 060 to 080 and dips steeply south, ranges from 0.75 to more than 3 metres. Sample results for those sites indicated on Figure 7 are as follows:

<u>Site</u>	<u>Number</u>	<u>Width(m)</u>	<u>Gold(oz/ton)</u>	<u>Silver(oz/ton)</u>	<u>Copper(%)</u>
1(Vein)	101	0.91	0.303	0.12	0.01
(Wall)	102	0.46	0.173	0.71	0.05
2(Vein)	50	2.13	0.303	0.01	0.01
3(Vein)	104	3.66	0.416	2.21	0.78
4(Vein)	1003	0.76	0.218	1.43	1.34
5(Vein)	1	4.88	0.952	0.34	0.60
(Vein)	20772	1.20	0.659	8.1(ppm)	1286(ppm)

Most of the foregoing sample locations, widths (where applicable) and results are as provided by SYMC Resources Ltd. and refer to samples collected on the company's behalf between 1983 and 1987. Sample number 20772 was collected by the writer. Results of sampling by B.C. Ministry of Energy Mines and Petroleum Resources geologists at the lower adit include values of 4910 ppb gold, 3 ppm silver and 0.16% copper from a 1 metre chip sample and 7100 ppb gold, 34 ppm silver and 0.62% copper from a composite grab sample (H.P. Wilton, personal communication).

Excavator trenching in 1991 and 1993 in the area of the lower adit (Figure 7) has exposed two 0.6 and 0.3 metre wide,



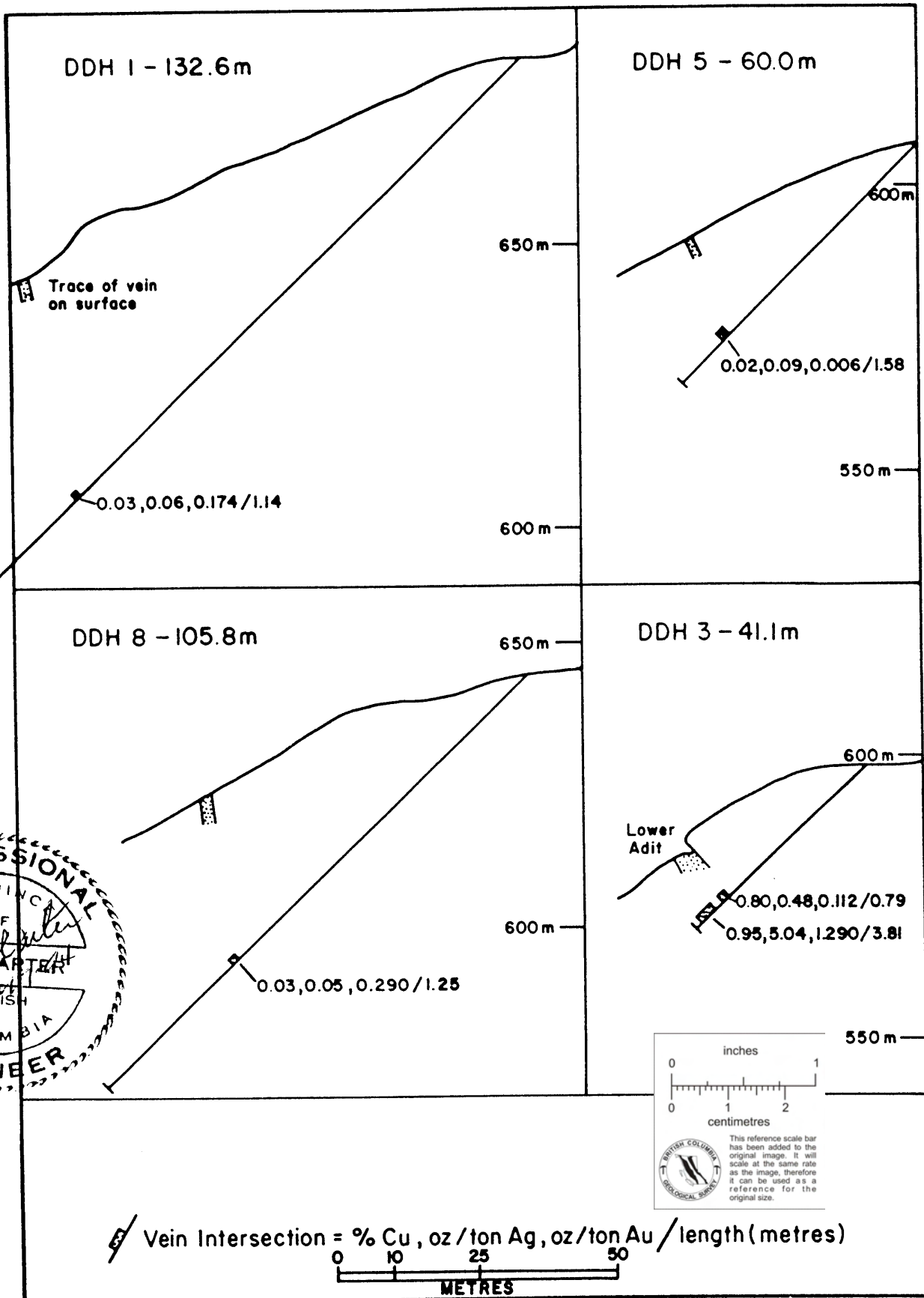
**FIGURE 7 - DIAMOND DRILL HOLE PLAN - FRED VEIN**

parallel quartz veins, 0.6 metre apart, and containing disseminated pyrite and chalcopyrite within a 4 metre wide zone of sheared quartz diorite with numerous quartz stringers. Similar parallel veins, with comparable widths, were observed in recent trenches 30 metres northeast and 5 metres southwest of the lower adit.

Of particular significance is the presence of north-northeast trending, 15 to 30 cm wide quartz veins developed in the apparent hangingwall of the Fred vein structure and exposed in 1993 excavation site 3 (Figure 6). A similar north-northeast trending, steeply east-dipping vein, apparently in the footwall of the Fred vein structure, is exposed in 1993 excavation site 1 (Figure 6) over a strike length of 30 metres. Vein widths here range up to 2 metres and the vein contains disseminated pyrite, pyrrhotite, chalcopyrite and possibly tetrahedrite.

#### *Diamond Drilling*

As noted previously, 10 BQ-size diamond drill holes were completed on the Macktush property in 1987 and 1988. Most of the core recovered was stored on the property. Sections of three 1987 holes, drilled on the Fred vein (DDH 87-01,-03 and-08), were split and sampled under the direction of Frank C. Loring, P.Eng. Core boxes containing split core sections from holes 87-01 and 87-03 and most of hole 88-05 (not logged



**FIGURE 8 - DIAMOND DRILL CROSS SECTIONS (Looking N 60°E)**

or sampled until June, 1990) were stored in Port Alberni. Core from the other six holes drilled was tipped while unattended at the field site before any logging or sampling was done and unfortunately, is of little or no value in its present condition. These six holes included two shallow inclined holes on the Red vein, two inclined holes near the southwest end of the large trench and two drilled to test parts of the Fred vein (H. McMaster - SYMC Resources Ltd.-personal communication).

Diamond drill cores from four inclined holes, totalling 321 metres and drilled to test the Fred vein, are in reasonably good order. These were drilled at  $-45^{\circ}$  along  $330^{\circ}$  azimuths and tested the Fred vein along its exposed strike length to vertical depths of between 20 and 40 metres. Drill hole locations are shown on Figure 7 and sections, after those originally prepared by John Wilson, FGAC, are illustrated on Figure 8. Surveyed locations of the holes are as follows:

<u>Hole Number</u>	<u>North</u>	<u>East</u>	<u>Elevation(m)</u>
DDH87-01	2679.5	1165.5	683.0
DDH87-03	2787.4	1253.4	597.8
DDH88-05	2770.8	1238.5	607.8
DDH87-08	2725.0	1188.5	644.0

Results of core sampling for the three 1987 holes were provided by SYMC Resources Ltd. The writer logged and sampled DDH88-05 and the drill log and analytical data for this hole

plus analytical data for the other three holes as provided by SYMC Resources Ltd. are contained in Appendix II.

Because of some uncertainties in establishing precise sample intervals for holes 87-01, -03 and -08, Mr. John Wilson undertook re-logging of these holes in December, 1990. Further information concerning the sample intervals was obtained from Mr. Frank C. Loring, P.Eng. Mr. Wilson's diamond drill core logging report, including drill logs for the aforementioned three holes, is contained in Appendix II.

The Fred quartz vein structure was intersected in the four holes drilled and results confirmed a southerly dip of between 60 and 80 degrees. Core lengths of vein material ranged from 1.14 metres in the most westerly hole (DDH87-01) to 3.81 metres in DDH87-03 near the known eastern limits of the structure.

Geological relationships noted by the writer in DDH88-05 are believed to be representative of the Fred vein in the area drilled and they generally confirm relationships noted in surface exposures. The hole was collared in generally fresh, medium grained, grey quartz diorite locally cut by 0.5-5 metre wide, post-mineral basic dykes with chilled margins. Some 15 metres above the quartz vein intersection, the quartz diorite features an increasing number of quartz-carbonate-pyrite stringers plus increased

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silicification and argillic-carbonate alteration. Disseminated pyrite and pyrrhotite is also a feature of more intensely altered zones and inclusions of Karmutsen volcanic rocks are evident. A 2 metre length of quartz vein, intersected between 47.5 and 49.5 metres, exhibits multiple stages of veining, drusy cavities and disseminated pyrite, pyrrhotite and chalcopyrite. An 8 metre section of variably altered quartz diorite, with 0.5 metre Karmutsen volcanic inclusions and a basic dyke, follows the quartz vein intersection with the hole terminating at 60 metres in relatively unaltered quartz diorite.

Sampling of drill cores from the four holes drilled on the Fred vein yielded the following results:

<u>Hole No.</u>	<u>Interval(m)</u>	<u>Length(m)</u>	<u>Au(oz/ton)</u>	<u>Ag(oz/ton)</u>	<u>Cu(%)</u>
DDH87-01	109.58-110.72	1.14	0.174	0.06	0.03
DDH87-03	33.50-34.29	0.79	0.112	0.48	0.80
	36.58-40.39	3.81	1.290	5.04	0.95
DDH87-08	71.63-72.88	1.25	0.290	0.05	0.03
DDH88-05	47.22-48.80	1.58	0.006	0.09	0.02
			(219ppb)	(3.0ppm)	(190ppm)

### ***Bulk Sampling***

Four 6-8 kg samples were collected from the Fred vein in 1988 and submitted to Coastech Research Inc. for preliminary metallurgical testing. Average head grades of a composite sample were 0.126 oz/ton gold and 0.29 oz/ton silver. Test work on the composite sample included standard flotation, gravity concentration and cyanidation procedures.



Results of the test work indicated that good recoveries for gold, silver, and copper could be obtained by initial gravity concentration to recover free milling coarse gold followed by froth flotation to produce a sulphide concentrate containing copper and precious metals.

### CONCLUSIONS

The Macktush property includes a number of gold-bearing quartz-sulphide veins. Work to date in the central property area, which includes mechanical trenching and diamond drilling, has partially defined several vein structures with apparent good gold grades over reasonable widths. Recent excavator trenching has confirmed vein continuity within part of the previously drilled area of the Fred vein and has indicated strike extension of the structure and the presence of subsidiary vein structures. Work along the trend of the Red vein has confirmed an appreciable strike length for this structure. Further work is warranted to test continuity of gold grades of these and other zones along strike and to depth.

Limited sampling of several of the veins indicates a wide variation in gold content. While this is a characteristic feature of deposits of this type, it does emphasize the need for detailed sampling to determine average grades. As noted

previously, most of the known quartz veins strike northeasterly, normal to the regional structural trend as reflected by the northwest trending contact between the Island Intrusions and Karmutsen Formation volcanic rocks. The quartz veins in the central property area are marginal to this contact which is considered to be prospective for the discovery of additional gold-bearing veins throughout the claims area.

Other styles of mineralization known on the Macktush property include iron-copper skarns and porphyry copper and molybdenum. Further investigation is necessary to determine the significance of these.

The Macktush property merits additional work as detailed in the succeeding section.

#### **RECOMMENDATIONS**

A two-phase work program is recommended for the Macktush property with the principal emphasis of the Phase I program being directed to detailed mapping and sampling of the known gold-bearing vein structures. To facilitate this and to determine precise locations of the vein structures, a topographic map on a scale of 1:5000 should be prepared utilising available colour air photography and the existing survey control in the area of the Fred vein. It is intended

that such a map would cover the entire property area with more detailed (1:1000) coverage prepared for the area of the Fred and Red veins.

It is also recommended that a picket line grid be established with a baseline parallel to the trend of the Fred vein and cross lines at 100 metre spacings with 25 metre stations. This grid, totalling 38 km, would cover the area of the Island Intrusions - Karmutsen Formation contact over much of the COPPER 102 claim and could be used for tying in drill holes prior to a proper survey and also for conducting orientation VLF-EM and magnetometer geophysical surveys and the collection of soil samples in overburden covered areas.

The foregoing recommended work program will assist in defining areas for excavator trenching followed by diamond drilling.

Additional diamond drilling of the Fred vein structure is recommended as part of the Phase I program and should include -60° holes drilled from the four original drill sites. Four holes are also recommended to test the Red vein between the main showing and the indicated strike extension downhill to the northeast.

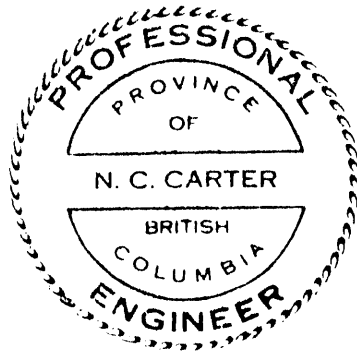
Phase II work would consist principally of additional excavator trenching and diamond drilling where warranted by the results of first phase work.

**COST ESTIMATE**Phase I

Topographic mapping	\$5,500.00
Picket line grid - 38 km @ \$400/km	\$15,200.00
Geological mapping, sampling	\$12,000.00
Geophysics - 38 km @ \$300/km	\$11,400.00
Soil Geochemistry - sample collection	\$5,000.00
Excavator trenching - 50 hours @ \$125/hour	\$6,250.00
Diamond drilling - 1000 metres @ \$125/metre	\$125,000.00
Sample analyses	\$20,000.00
Engineering, supervision, reporting	\$20,000.00
Contingencies @ 15%	<u>\$33,000.00</u>
Total, Phase I	\$253,350.00

Phase II (Contingent on results of Phase I Program)

Diamond drilling - 3000 metres @ \$125/metre	\$375,000.00
Excavator trenching - 50 hours @ \$115/hour	\$6,250.00
Sample Analyses	\$20,000.00
Engineering, supervision, reporting	\$50,000.00
Contingencies @ 15%	<u>\$67,700.00</u>
Total, Phase II	\$518,950.00



*N.C. Carter Ph.D. P. Eng.*

N.C. Carter, Ph.D. P.Eng.

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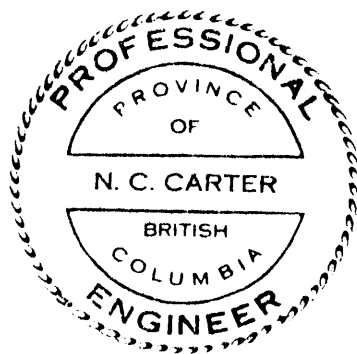
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## CERTIFICATE

I, NICHOLAS C. CARTER of Victoria, British Columbia, do hereby certify that:

1. I am a Consulting Geologist registered with the Association of Professional Engineers and Geoscientists of British Columbia since 1966.
2. I am a graduate of the University of New Brunswick with B.Sc.(1960), Michigan Technological University with M.S.(1962) and the University of British Columbia with Ph.D.(1974).
3. I have practised my profession in eastern and western Canada and in parts of the United States for more than 25 years.
4. The foregoing report on the Macktush Property, Alberni Mining Division, British Columbia, is based on personal examinations of parts of the property in 1990, 1991 and 1993, on a review of published and unpublished reports and maps and on information provided by SYMC Resources Ltd. which includes a compilation of previous work and re-logging of previously drilled holes by John Wilson, FGAC.
5. I hold no interest, directly or indirectly, in the mineral claims comprising the Macktush property or in the securities of SYMC Resources Ltd. nor do I expect to receive any such interest.



*N.C. Carter Ph.D. P.Eng.*  
N.C. Carter, Ph.D. P.Eng.

Victoria, B.C.  
January 17, 1994

N.C. CARTER, Ph.D., P.Eng.  
CONSULTING GEOLOGIST

**APPENDIX I**

**Analytical Results - Surface Sampling**



COMP: N.C.CARTER  
 PROJ: MACKTUSH PROPERTY  
 ATTN: N.C.CARTER

**MIN-EN LABS — ICP REPORT**  
 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2  
 (604)980-5814 OR (604)988-4524

FILE NO: OV-0774-RJ1  
 DATE: 90/07/02  
 \* CORE \* (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
20772 (ROCK)	8.1	6130	47	3	49	.7	1	710	.1	12	1286	28270	1430	4	4150	121	33	50	29	210	37	1	2	1	1	24.9	20	1	1	4	137	22000
20773 (ROCK)	.2	2130	32	1	25	.3	1	580	.1	7	88	12220	770	1	1220	123	31	60	3	80	22	1	1	1	1	7.4	9	1	1	4	143	2450
20774 (ROCK)	.3	7370	18	2	21	.5	1	7350	.2	5	37	16760	1720	2	4860	528	13	50	3	130	20	1	1	1	1	14.9	22	1	1	5	151	696
20775 (ROCK)	1.4	3460	36	2	18	.3	1	750	.5	5	26	11240	1530	1	930	52	17	50	4	180	22	1	1	1	1	9.7	8	1	1	3	119	817
20776 (CORE)	1.5	20250	1	8	163	1.1	3	40420	1.1	16	217	32440	1950	13	19400	741	8	180	36	480	34	1	1	1	1	70.2	42	6	1	6	164	76
20777 (CORE)	2.2	4050	56	5	15	.6	2	48730	1.0	10	276	21030	1100	10	6040	595	10	70	12	230	29	36	1	1	1	25.8	38	3	1	5	140	155
20778 (CORE)	3.7	3530	71	3	19	.6	2	11250	1.8	10	106	19620	1500	6	2960	274	29	60	10	170	303	19	1	1	1	16.6	292	2	1	22	560	281
20779 (CORE)	1.3	6430	21	7	44	.9	3	17800	.9	15	27	25440	2320	22	6300	406	12	80	10	450	88	2	4	1	1	31.4	42	2	1	4	126	62
20780 (CORE)	1.2	16110	1	7	203	1.2	4	30350	.7	16	19	36460	2320	11	15560	761	3	470	4	610	33	1	14	1	1	92.8	44	5	1	3	74	12
20781 (CORE)	1.7	9580	18	8	121	.8	2	12000	.1	16	35	24940	2680	35	4040	389	7	110	5	390	86	6	6	1	1	39.2	35	2	1	6	169	81

20772 - Sample Location 5 - Figure 7  
 20773 - Sample Site 1 - Figure 6  
 20774 - Sample Site 2 - Figure 6  
 20775 - Sample Site 5 - Figure 6



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**THUNDER BAY LAB.:**  
TELEPHONE (807) 622-8958  
FAX (807) 623-5931

**SMITHERS LAB.:**  
TELEPHONE/FAX (604) 847-3004

*Assay Certificate*

OV-0774-RA1

Company: **N.C.CARTER**  
Project: **MACKTUSH PROPERTY**  
Attn: **N.C.CARTER**

Date: **JUL-02-90**  
Copy 1. **N.C.CARTER, VICTORIA, B.C.**

*We hereby certify* the following Assay of 2 ROCK samples submitted JUN-27-90 by N.C.CARTER.

Sample Number	AU q/tonne	AU oz/ton
20772 (ROCK)	22.60	.659
20773 (ROCK)	2.50	.073

20772 - Sample Location 5 - Figure 7

20773 - Sample Site 1 - Figure 6

*Certified by*

*[Handwritten Signature]*  
MIN-EN LABORATORIES

## ASSAY CERTIFICATE

1.00 GRAM SAMPLE IS DIGESTED WITH 50ML OF 3-1-3 OF HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR,  
AND IS DILUTED TO 100ML WITH WATER. DETECTION FOR BASE METAL IS .01%.

SAMPLE TYPE: ROCK CHIPS AU88 10 GRAM FIRE ASSAY

DATE RECEIVED: MAR 11 1985 DATE REPORT MAILED: *March 18, 1985* ASSAYER: *T. Saundry* DEAN TOYE OR TOM SAUNDY, CERTIFIED B.C. ASSAYER

SY.E. TRESIERRA FILE # 85-0238

PAGE 1

SAMPLE#	Mo %	Cu %	Pb %	Zn %	Ag oz/t	Ni %	Co %	Mn %	Fe %	As %	U %	Th %	Cd %	Sb %	Bi %	Au oz/t
124	.001	.35	.01	.01	.01	.01	.00	.04	4.02	.01	.002	.01	.00	.010	.010	.002
125	.007	.01	.01	.01	.02	.01	.00	.03	2.15	.01	.002	.01	.00	.010	.010	.026
126	.010	1.26	.01	.01	3.09	.01	.00	.01	9.00	.01	.002	.01	.00	.010	.010	.465
127	.002	.81	.01	.01	.12	.01	.00	.01	2.44	.01	.002	.01	.00	.010	.010	.031
128	.001	.01	.01	.01	.01	.01	.00	.03	11.12	.02	.002	.01	.00	.010	.010	.003
129	.001	.01	.01	.01	.01	.01	.00	4.05	.25	.01	.002	.01	.00	.010	.010	.001
* 130	.004	.42	.01	.01	.31	.01	.00	.03	3.75	.01	.002	.01	.00	.010	.010	.218
STD R-1	.068	.84	1.37	2.31	2.95	.02	.01	.08	7.02	.03	.010	.01	.05	.150	.027	

\* Sample Site 1 - Figure 6

ASSAY CERTIFICATE

- SAMPLE TYPE: Rock Chips

DATE RECEIVED: OCT 14 1987

DATE REPORT MAILED: Oct 24/87

ASSAYER: D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

H. MCMASTER PROJECT-SYMC File # 87-4953

SAMPLE#	MO %	CU %	PB %	ZN %	AG OZ/T	NI %	CO %	MN %	FE %	AS %	U %	TH %	CD %	SB %	BI %	AU OZ/T
*E 19509	.006	1.12	.01	.01	.76	.01	.01	.01	3.96	.01	.002	.01	.01	.01	.01	.074
**E 19510	.021	.42	.01	.01	1.23	.01	.01	.04	6.43	.05	.002	.01	.01	.01	.01	.166
***E 19511	.008	.57	.01	.01	1.56	.01	.01	.03	7.68	.08	.002	.01	.01	.02	.01	.192

\* Sample Site 5 - Figure 6  
 \*\* Sample Site 4 - Figure 6  
 \*\*\* Sample Site 3 - Figure 6

ACME ANALYTICAL LABORATORIES  
852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6  
PHONE 253-3158 DATA LINE 251-1011

DATE RECEIVED: MAY 8 1987

DATE REPORT MAILED: *May 11/87*

### ASSAY CERTIFICATE

- SAMPLE TYPE: Rock Chips

ASSAYER: *D. Toye* DEAN TOYE, CERTIFIED B.C. ASSAYER

H. MCMASTER File # 87-1220

SAMPLE#	CU %	AG OZ/T	AU OZ/T
S5 ✓ #100	1.85	1.08	.364
S6 * #101	.01	.12	.303
S7 * #102	.05	.71	.173
<del>S8</del> #103	.01	.08	.011

\* Sample Location 1 - Figure 7

## ASSAY CERTIFICATE

- SAMPLE TYPE: Rock Chips

DATE RECEIVED: JUNE 17 1987

DATE REPORT MAILED: *June 20/87*ASSAYER *D. Toye*... DEAN TOYE, CERTIFIED B.C. ASSAYER

H. MCMASTER

File # 87-1823

SAMPLE#	MO %	CU %	PB %	ZN %	AG OZ/T	NI %	CO %	MN %	FE %	AS %	U %	TH %	CD %	SB %	BI %	AU OZ/T
25	.001	.01	.01	.01	.01	.01	.01	.04	2.27	.01	.002	.01	.01	.01	.01	.002
* 50	.009	.01	.01	.01	.01	.01	.01	.01	1.67	.01	.002	.01	.01	.01	.01	.303
75	.006	.01	.01	.01	.01	.01	.01	.03	1.92	.01	.002	.01	.01	.01	.01	.008

\* Sample Location: 2 - Figure 7



To: Mr. H. McMaster  
3009 Kingsway  
Port Alberni, B.C.

ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B.C. V6A 1R6

Telephone: 253 - 3158

83-1038

File No. \_\_\_\_\_

Type of Samples Rock

Disposition \_\_\_\_\_

# ASSAY CERTIFICATE

No.	Sample	Cu%	Ag oz/ton	Au oz/ton	Total MoS <sub>2</sub> %				No.
1	100	.01	.01	.001					1
2	101	.01	.01	.001					2
3	102	.01	.01	.001					3
4	103	.01	.10	.012					4
5	* 104	.78	2.21	.416					5
6	105	4.59	1.92	.006	1.740				6
7	106	.01	.02	.002					7
8	107	.01	.01	.001					8
9	108	.01	.01	.001					9
10									10
11									11
12		* Sample Location 3 - Figure 7							12
13									13
14									14
15									15
16									16
17									17
18									18
19									19
20									20

All reports are the confidential property of clients.

DATE SAMPLES RECEIVED July 4, 1983

DATE REPORTS MAILED July 7, 1983

ASSAYER

*D. Toye*

DEAN TOYE, B.Sc.  
CHIEF CHEMIST  
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.

852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6

PHONE 253-3158

TELEX 04-53124

## ASSAY CERTIFICATE

SAMPLE TYPE: ROCK CHIPS AU: 10 GRAM REGULAR ASSAY

DATE RECEIVED: APRIL 4 1986

DATE REPORT MAILED: *Apr 14/86*ASSAYER: *D. J. J.*

DEAN TOYE, CERTIFIED B.C. ASSAYER.

H. MCMASTER FILE # 86-0431

PAGE 1

SAMPLE#	Mo %	Cu %	Pb %	Zn %	Ag OZ/T	Ni %	Co %	Mn %	Fe %	As %	U %	Th %	Cd %	Sb %	Bi %	Au OZ/T	Pt** OZ/T	Fd** OZ/T
* 1003	.008	1.34	.01	.01	1.43	.01	.02	.01	7.51	.01	.002	.01	.010	.010	.010	.218	.001	.001
1004	.001	.01	.01	.01	.02	.01	.01	.03	2.22	.01	.002	.01	.010	.010	.010	.001	.001	.001
1005	.001	.01	.01	.01	.01	.01	.01	.09	5.83	.01	.002	.01	.010	.010	.010	.001	-	-
1006	.001	.01	.01	.01	.02	.01	.01	.04	2.39	.01	.002	.01	.010	.010	.010	.001	-	-

\* Sample Location 4 - Figure 7





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## CERTIFICATE OF ANALYSIS A8714226

To: LORING, F. C.

R. R. #2  
QUALICUM BEACH, B.C.  
VOR 2T0

•Page No. : 1  
Tot. Pages: 1  
Date : 11-MAY-87  
Invoice # : I-8714226  
P.O. # : NONE

Project :

Comments :

SAMPLE DESCRIPTION	PREP CODE	Cu ppm	Mo ppm	Ag ppm Aqua R	Au ppb FA+AA		Cu %	Mo %	Ag Oz/T	Au Oz/T	
SAMPLE NO. 1 *	205 --	6000	-----	11.7	>10000		0.60	-	0.34	0.952	✓
SAMPLE NO. 2	205 --	5280	930	7.2	345		0.53	0.093	0.21	0.010	✓
* Sample Location 5 - Figure 7											

CERTIFICATION : *R. L. Swaine*

REPORT ON CHIP SAMPLING  
OF APRIL, 1991  
ON THE  
MACKTUSH PROPERTY

Alberni Mining Division  
British Columbia

Latitude 49°08' North  
Longitude 124°52' West

NTS 92F-2W

For SYMC Resources Ltd.

By John Wilson, FGAC

May, 1991

### Introduction

The Macktush property, owned by SYMC Resources Ltd., is located south of Port Alberni, B.C. It consists of ten Modified Grid mineral claims, of which the COPPER 102 claim (record #1911), with an expiry date of Oct. 31, 1991 has received exploration and other studies since 1982 (Carter, 1990).

This report, prepared at the request of SYMC Resources Ltd., is based on mapping and chip sampling by the writer at an excavated site beside road M-100 on April 30, 1991.

### Chip Sampling Report

The accompanying figure shows the location of work, a geological plan and a section illustrating the road cut / excavation.

The excavation is centered on a shear zone cutting an extensive Jurassic Island Intrusion exposure of diorite to quartz diorite. The shear has a true width of nearly six metres, strikes 035°, and dips 60° to 80° easterly. The zone has a deeply weathered centre that contains quartz veinlets, silicified patches and a few boulder sized intrusive remnants. Edges of the shear are marked by grey gouge bands up to one metre wide that contain quartz veins. Disseminated pyrite to 3% occurs throughout the entire zone but normally is less than 1%. Beyond the shear zone, the intrusive is nearly fresh.

One line of continuous chip sampling was taken across the zone and into country rock on both sides. It consisted of ten samples collected by the writer.

Locations of sampling is shown on the accompanying figure.

Geological descriptions of the ten samples follow. The intrusive is a borderline diorite-quartz diorite.

W-1: fairly fresh intrusive.

W-2: fractured intrusive, some brecciation, silicification, rusty veinlets.

W-3: interlayered gouge and sheared intrusive. Gouge is grey with quartz veins and veinlets. Disseminated pyrite reaches 3% but is usually less than 1%. Sheared rock is chloritic with lesser sericite.

W-4, W-5, W-6 and W-7: brecciated, sheared and deeply weathered intrusive. Some boulder sized intrusive remnants. Silicified in places. Some irregular quartz veins to 10 cm. Rusty fractures. Disseminated pyrite to 2%, usually less than 1%.

W-8: grey gouge with quartz veining to 20 cm. Silicified intrusive fragments.

Disseminated pyrite to 3%, usually less than 1%.

W-9: fractured, sheared intrusive. Chloritic, sericitic. With 20cm quartz vein.

W-10: fairly fresh intrusive.

The certified analyses by Min En Laboratories (attached) are:

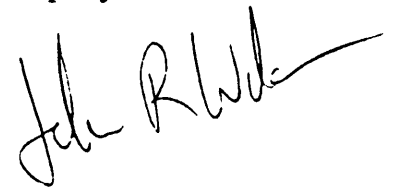
sample number	width (metres)	Au ppb	Ag ppm	Cu ppm
W-1	1.0	5	1.9	28
W-2	2.0	15	1.1	9
W-3	2.0	20	1.3	6
W-4	2.0	5	0.9	8
W-5	2.0	5	0.8	10
W-6	2.0	5	0.7	5
W-7	2.0	5	0.8	7
W-8	1.0	5	0.8	24
W-9	1.0	5	0.9	53
W-10	1.0	5	0.9	41

**Conclusions and Recommendations**

While no high analyses were found, the structure is significant because there are known gold bearing quartz veins nearby (Carter,1990). The shear-vein system should be mapped and sampled along strike as part of a geological mapping and exploration program over the entire mineral property.

**References**

Carter, N.C. (1990): Geological Report on the Macktush Property. Private report for SYMC Resources Ltd.





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FAX (807) 823-5931

SMITHERS LAB.:  
TELEPHONE/FAX (604) 847-3004

Geochemical Analysis Certificate

1V-0386-RG1

Company: JOHN WILSON  
Project: MACKTUSH  
Attn: HERB MCMASTER/JOHN WILSON

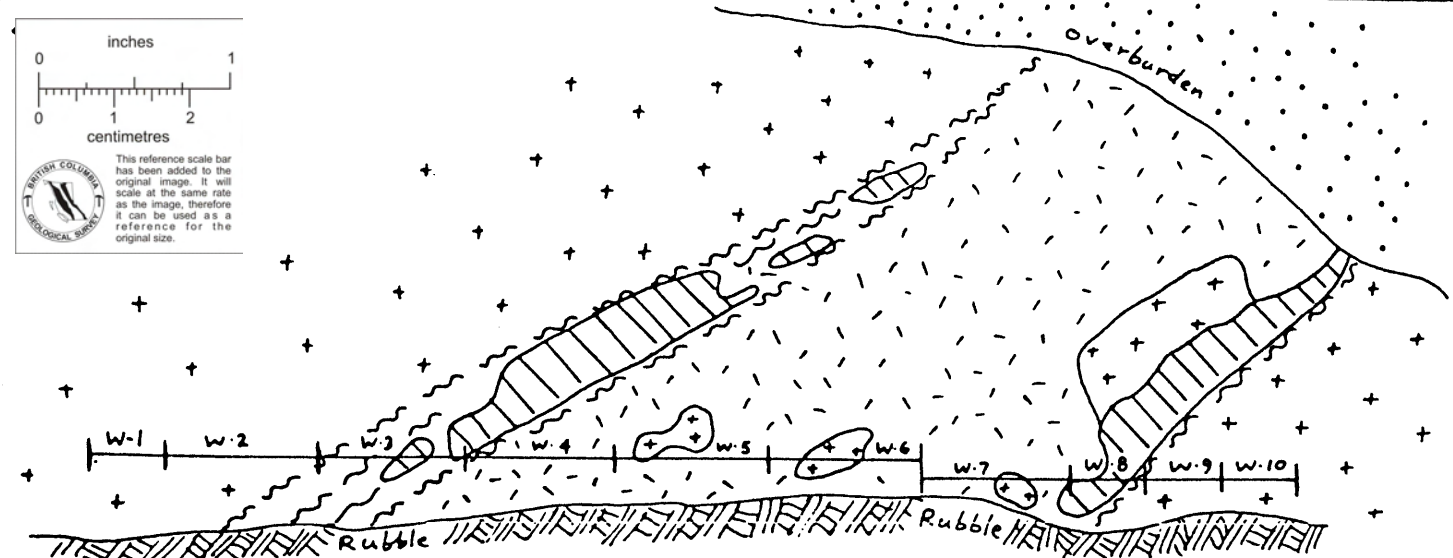
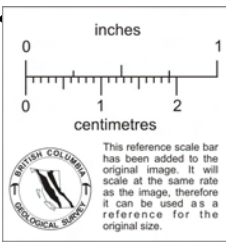
Date: MAY-06-91  
Copy 1. SYMC RES, PORT ALBERNI, B.C.  
2. JOHN WILSON, MERVILLE, B.C.

We hereby certify the following Geochemical Analysis of 10 ROCK samples submitted APR-02-91 by JOHN WILSON.

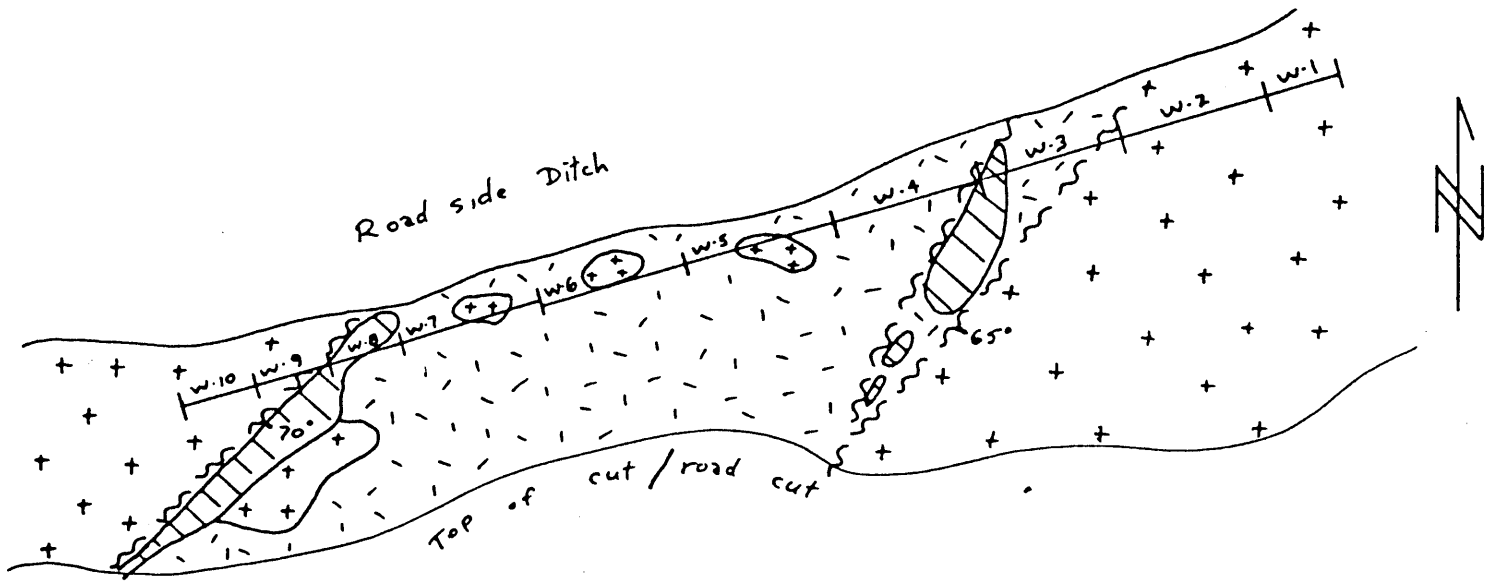
Sample Number	AU-WET PFB	AG PPM	CU PPM
W-1	5	1.9	28
W-2	13	1.1	9
W-3	20	1.3	6
W-4	5	.9	8
W-5	5	.8	10
W-6	5	.7	5
W-7	5	.8	7
W-8	5	.8	24
W-9	5	.9	53
W-10	5	.9	41

Certified by \_\_\_\_\_

MIN-EN LABORATORIES



TRENCH/ROAD CUT SECTION-LOOKING SOUTHERLY



TRENCH/ROAD CUT PLAN

**LEGEND**



grey gouge, some quartz veining



deeply weathered diorite, quartz diorite



fresh diorite, quartz diorite

Scale 1:100 0 1 2 3 4 5 metres

Scale 1:5000 0 100 200 300 metres

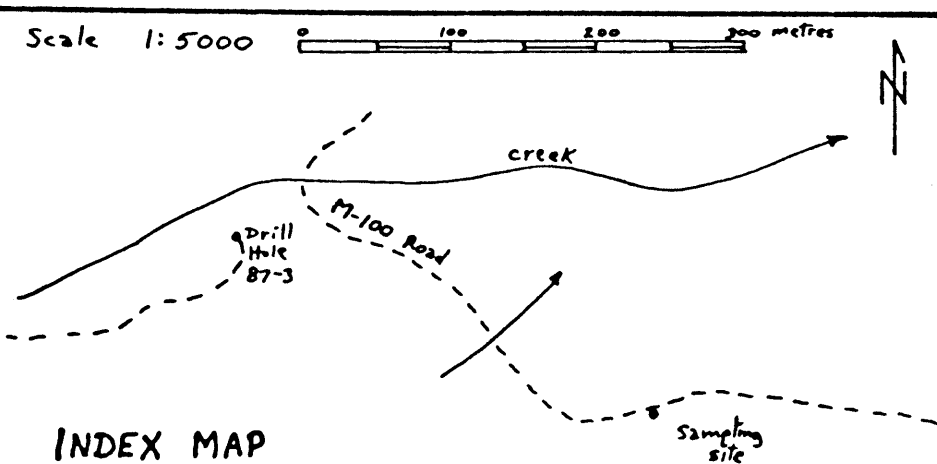
**SYMBOLS**



fault, shear



chip sample location, number



INDEX MAP

SYMC RESOURCES LTD
MACKTUSH PROPERTY
Chip Sampling on M-100 Road
Copper 102 claim <i>[Signature]</i>
NTS: 92F-2W
Date of work: April 30, 1991

**APPENDIX II**  
**Diamond Drilling Data**

# DIAMOND DRILL RECORD

PROPERTY MACKTUSH

HOLE No. 88-05

DIP TEST		
Footage	Angle	
	Reading	Corrected

Hole No. \_\_\_\_\_ Sheet No. 1 Lat. 2770.8 Total Depth 53.24m  
 Section \_\_\_\_\_ Dep. 1238.5 Logged By N.C. Carter  
 Date Begun \_\_\_\_\_ Bearing -45° @ 330° Claim \_\_\_\_\_  
 Date Finished \_\_\_\_\_ Elev. Collar 607.8m Core Size BQ  
 Date Logged June 24, 1990

DEPTH FROM	TO	RECOVERY	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH OF SAMPLE				
0	4.88		CASING								
4.88	14.60		QUARTZ DIORITE - medium grained, grey, uniform appearance; occasional 2 cm quartz veins @ 45° to core axis(CA)								
14.60	20.00		ANDESITE - DIORITE DYKE - chilled contacts; occasional dark grey, rounded inclusions								
20.00	30.00		QUARTZ DIORITE as previous; quartz-carbonate stringers near end of section								
30.00	30.20		GOUGE ZONE								
30.20	33.00		QUARTZ DIORITE cut by narrow basic dykes; silicified zones with pyrite in QD, also some bleaching - basic dykes not affected; post mineral								
33.00	46.05		QUARTZ DIORITE - increasing disseminated pyrite and quartz stringers - inclusions of basic Karmutsen volcanics also cut by quartz stringers.								
46.05	46.94		QUARTZ DIORITE - argillic alteration of feldspars; 1-3 cm qtz-carb str @ 40° to CA Minor disseminated pyrite in matrix; Dissem. pyrite-pyrrhotite in qtz veins and in 0.5 cm veinlets - 2 stages qtz veining								



# DIAMOND DRILL RECORD

PROPERTY MACKTUSH

HOLE No. 88-05

DIP TEST		
Footage	Angle	
	Reading	Corrected

Hole No. \_\_\_\_\_ Sheet No. 2 Lat. \_\_\_\_\_ Total Depth \_\_\_\_\_  
 Section \_\_\_\_\_ Dep. \_\_\_\_\_ Logged By \_\_\_\_\_  
 Date Begun \_\_\_\_\_ Bearing \_\_\_\_\_ Claim \_\_\_\_\_  
 Date Finished \_\_\_\_\_ Elev. Collar \_\_\_\_\_ Core Size \_\_\_\_\_  
 Date Logged \_\_\_\_\_

DEPTH FROM	TO	RECOVERY DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH OF SAMPLE	Au (ppb)	Ag (ppm)	Cu (ppm)
46.94	47.22	KARMUTSEN PX PORPHYRY - 0.5 cm qtz strs @ 45° to CA							
47.22	47.50	DIORITE - bleached to buff colour; original texture destroyed; clay-carbonate alt'n; 1 cm qtz strs; dissem pyrite-pyrrhotite possible MoS <sub>2</sub>	20776	46.33	47.22	0.89	76	1.5	217
47.50	49.50	QUARTZ VEIN - some brown carbonate; drusy cavities in part - multiple stages of quartz. Disseminated pyrite-pyrrhotite, minor chalcopyrite. Sulphides to 3%. Good qtz vein to 48.80 then argillically alt'd diorite with 0.5 cm qtz strs to 49.32, qtz vein to end of section. Dissem py in alt'd diorite	20777	47.22	48.00	0.78	155	2.2	276
			20778	48.00	48.80	0.80	281	3.7	106
			20779	48.80	49.50	0.70	62	1.3	27
49.50	51.46	DIORITE - medium grained, alternating clay-carbonate alt'n	20780	49.50	50.40	0.90	12	1.2	19
51.46	53.10	KARMUTSEN BASIC VOLCANIC inclusions to 52.02; 52.65-end of section; qtz veining to 52.21; 4 cm gouge zone @ 52.02 @ 70° to CA followed by qtz vein to 52.21	20781	52.02	52.21	0.19	81	1.7	35
53.10	54.50	BASIC DYKE							
54.50	57.50	QUARTZ DIORITE - bleached with gouge zones occ qtz stringers							
57.50	60.0	QUARTZ DIORITE - unaltered							

COMP: N.C.CARTER  
 PROJ: MACKTUSH PROPERTY  
 ATTN: N.C.CARTER

**MIN-EN LABS — ICP REPORT**  
 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2  
 (604)980-5814 OR (604)988-4524

FILE NO: 0V-0774-RJ1  
 DATE: 90/07/02  
 \* CORE \* (ACT:F31)

SAMPLE NUMBER	AG PPM	AL PPM	AS PPM	B PPM	BA PPM	BE PPM	BI PPM	CA PPM	CD PPM	CO PPM	CU PPM	FE PPM	K PPM	LI PPM	MG PPM	MN PPM	MO PPM	NA PPM	NI PPM	P PPM	PB PPM	SB PPM	SR PPM	TH PPM	U PPM	V PPM	ZN PPM	GA PPM	SN PPM	W PPM	CR PPM	AU PPB
20772 (ROCK)	8.1	6130	47	3	49	.7	1	710	.1	12	1286	28270	1430	4	4150	121	33	50	29	210	37	1	2	1	1	24.9	20	1	1	4	137	22000
20773 (ROCK)	.2	2130	32	1	25	.3	1	580	.1	7	88	12220	770	1	1220	123	31	60	3	80	22	1	1	1	1	7.4	9	1	1	4	143	2450
20774 (ROCK)	.3	7370	18	2	21	.5	1	7350	.2	5	37	16760	1720	2	4860	528	13	50	3	130	20	1	1	1	1	14.9	22	1	1	5	151	696
20775 (ROCK)	1.4	3460	36	2	18	.3	1	750	.5	5	26	11240	1530	1	930	52	17	50	4	180	22	1	1	1	1	9.7	8	1	1	3	119	817
20776 (CORE)	1.5	20250	1	8	163	1.1	3	40420	1.1	16	217	32440	1950	13	19400	741	8	180	36	480	34	1	1	1	1	70.2	42	6	1	6	164	76
20777 (CORE)	2.2	4050	56	5	15	.6	2	48730	1.0	10	276	21030	1100	10	6040	595	10	70	12	230	29	36	1	1	1	25.8	38	3	1	5	140	155
20778 (CORE)	3.7	3530	71	3	19	.6	2	11250	1.8	10	106	19620	1500	6	2960	274	29	60	10	170	303	19	1	1	1	16.6	292	2	1	22	560	281
20779 (CORE)	1.3	6430	21	7	44	.9	3	17800	.9	15	27	25440	2320	22	6300	406	12	80	10	450	88	2	4	1	1	31.4	42	2	1	4	126	62
20780 (CORE)	1.2	16110	1	7	203	1.2	4	30350	.7	16	19	36460	2320	11	15560	761	3	470	4	610	33	1	14	1	1	92.8	44	5	1	3	74	12
20781 (CORE)	1.7	9580	18	8	121	.8	2	12000	.1	16	35	24940	2680	35	4040	389	7	110	5	390	86	6	6	1	1	39.2	35	2	1	6	169	81

20776-20781 - Drill Hole 5

ACME ANALYTICAL LABORATORIES LTD. DATE RECEIVED: MAR 17 1988  
852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6  
PHONE (604)253-3158 FAX (604)253-1716 DATE REPORT MAILED: *Mar 21/88*

ASSAY CERTIFICATE

- SAMPLE TYPE: Pulp

ASSAYER: *C. Leong* ..... D. TOYE OR C. LEONG, CERTIFIED B.C. ASSAYERS

H. MCMASTER PROJECT-SYMC File # 97-3963R

SAMPLE#	CU	AG	AU
	%	OZ/T	OZ/T
P 0512	.03	.06	.174

Drill Hole 1

ACME ANALYTICAL LABORATORIES LTD. DATE RECEIVED: MAR 17 1988  
852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6  
PHONE (604) 253-3158 FAX (604) 253-1716 DATE REPORT MAILED: *Mar 21/88*

ASSAY CERTIFICATE

- SAMPLE TYPE: Pulp

ASSAYER: *C. Leong* ..... D. TOYE OR C. LEONG, CERTIFIED B.C. ASSAYERS

H. MCMASTER File # 87-5229R

SAMPLE#	CU	AG	AU
	%	OZ/T	OZ/T
E 60357	.80	.48	.112
E 60358	.95	5.04	1.290

Drill Hole 3 - second split (quarter core)

ACME ANALYTICAL LABORATORIES LTD. DATE RECEIVED: MAR 17 1988  
852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6  
PHONE (604) 253-3158 FAX (604) 253-1716 DATE REPORT MAILED: *Mar 21/88*

ASSAY CERTIFICATE

- SAMPLE TYPE: Pulp

ASSAYER: *C. Leong* D. TOYE OR C. LEONG, CERTIFIED B.C. ASSAYERS

H. MCMASTER File # 87-5772R

SAMPLE#	CU %	AG OZ/T	AU OZ/T
- P 0565	.01	.06	.116
[ E 60354	.03	.05	.290 ]

Drill Hole 8

DIAMOND DRILL CORE LOGGING REPORT  
for  
Drill Holes 87-1, 87-3 and 87-8

on the  
MACKTUSH PROPERTY

Alberni Mining Division

Latitude: 49° 08' North  
Longitude: 124° 52' West

NTS: 92F/2W

for  
SYMC Resources Ltd.

By John Wilson, F.G.A.C.

May 21, 1991

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### APPENDIX I

Diamond Drill Logs for Holes 87-1, 87-3 and 87-8

### APPENDIX II

Letter to Frank Loring, P.Eng. from J. Wilson, April, 1991.

Letter to Herb McMaster from Frank Loring, P.Eng., May, 1991.

Table of footage measurements and metric equivalents.

### APPENDIX III

Previously reported core sample intervals.

### APPENDIX IV

Table of "true width" sampling information.

**John R. Wilson, F.G.A.C.  
Consulting Geologist**

## Introduction

The Macktush property, south of Port Alberni, B.C. is owned by SYMC Resources Ltd. It consists of ten Modified Grid mineral claims in the Alberni Mining Division. Exploration and other studies have taken place on the property since 1982, largely on the COPPER 102 claim (record number 1911) which has an expiry date of October 31, 1991. This report presents recent diamond drill logs for holes numbered 1,3 and 8, which were drilled and split in 1987.

## History of Diamond Drilling Reports

In April of 1990 the writer, at the request of SYMC Resources Ltd., compiled results from diamond drilling, trenching and chip sampling that had been undertaken during the previous few years (Wilson, 1990). The compilation included a field survey of positions of drill hole collars, trenches and portals. No exploration reports were available for the compilation and some of the data provided by SYMC Resources Ltd. was verbal. For example, some drill hole collars and trenches were located and surveyed in the field; other sites, under snow at the time, were identified by the president of SYMC Resources Ltd. and then surveyed. Assays were provided by certified commercial laboratory reports dated 1988. A table of sample information (Appendix IV), provided by SYMC Resources Ltd., listed chip sample and drill core assays across true widths. The true width measurements were used in the compilation for chip sampling information but could not be used to plot intersections on drill hole cross-sections. Instead, the sampling interval for drill core from holes 87-1, 87-3 and 87-8 was provided verbally by the president of SYMC Resources Ltd (Appendix III).

In June of 1990, core from drill hole 88-5 was logged and sampled by N.C. Carter, Ph.D, P.Eng. for part of a geological report on the property (Carter, 1990).

In December, 1990, at the request of SYMC Resources Ltd, the writer logged core from drill holes 87-1, 87-3 and 87-8. This report describes the drill core geology and the probable intervals of split core.

## Core Logging Background

Following drilling in 1987, most of the core boxes were stored on the mineral claims. Boxes containing split sections from holes 87-1 and 87-3 were stored at the Port Alberni premises of SYMC Resources Ltd. In the ensuing years some of the contents of boxes stored on the claims had been lost when they tipped over while unattended. On December 12, 1990 Herb McMaster of SYMC Resources Ltd. and the writer moved the remaining boxes of core to the Port Alberni premises of SYMC Resources Ltd. for the purpose of geological logging. All boxes were weather beaten from being stored outside.

Boxes from Hole 87-1 were all found to be labelled with hole number and footage. Of the 24 boxes that comprise the hole, core was found in boxes numbered 2 and 13 to 24. A brief examination of the pile of jumbled, loose core at the field storage site revealed only quartz diorite with occasional inclusions of andesitic volcanic; no significant veining, alteration or mineralization was apparant.

All seven boxes comprising Hole 87-3 were found to be labelled with hole number and footage. Very minor core was missing.

**John R. Wilson, F.G.A.C.  
Consulting Geologist**



All 19 boxes comprising Hole 87-8 were found to be labelled with hole number and footage except box 13 which had no readable markings. Minor core was missing from the boxes. The designation of an unlabelled box as the thirteenth of Hole 87-8 was based on:

1. the geological continuity of drill core between the unmarked box and adjacent boxes
2. the position of a split section in the unmarked box which approximates the interval reported by Frank Loring, P.Eng. (Appendix II)
3. a statement from the president of SYMC Resources Ltd., identifying it as the thirteenth box

### **Drill Core Geology**

Holes 87-1, 87-3 and 87-8 were drilled to depths of approximately 133, 41 and 106 metres respectively. Drill logs for the three holes are in Appendix I. Figures showing locations of the drill holes are in a report by Carter (1990) after a compilation map by Wilson (1990).

Split sections of core containing quartz veining, usually with fragments of silicified andesitic volcanic and minor quartz diorite, are from each hole. Veining is grey and white, multistaged, banded and brecciated with some open spaces. Split sections normally have 2% disseminated pyrite but sometimes have 5%. Minor disseminated chalcopyrite and malachite occur in some split sections. Thinner quartz veining to several centimetres, unassociated with brecciated country rock, occurs unsplit in Holes 87-1 and 87-8.

Core in the three holes consists of mainly quartz diorite with lesser andesitic volcanic inclusions in places.

Quartz diorite is medium grained and usually has a fresh appearance with white feldspar, pale grey quartz and black mafics. Sections of quartz diorite that carry andesitic volcanic inclusions have a mottled, chloritic green-grey character. Occasional thin clay-carbonate altered zones occur close to the sampled quartz veining. Sheared core with gouge is found in Holes 87-1 and 87-8.

### **Split Core**

Split intervals measured during core logging (Appendix I) were found to differ from the intervals that had been reported earlier (Appendix III). They were closer to the "true width" intervals of Appendix IV. In April of 1991 a written request was made to Frank Loring, P.Eng., the supervisor of sampling in 1987, to provide a statement describing the split intervals and any other relevant information. This letter and the response is included in Appendix II.

Using the writer's core logging measurements described in Appendix I and the statement by Frank Loring, P.Eng. (Appendix II) a new series of sample intervals is proposed. Each of the three drill logs in Appendix I contains the reasoning which led the writer to believe the following sample intervals are more accurate than previous tabulations.

Hole number	Split interval (metres)
87-1	109.58-110.72
87-3	33.50-34.29 36.58-40.39
87-8	71.63-72.88

### Conclusions

Core from Holes 87-1, 87-3 and 87-8 contain the same rock type: quartz diorite with inclusions of andesitic volcanic in variable proportions. Split sections in the three holes consist of quartz veining in a silicified country rock mixture of quartz diorite and andesite. Pyrite and occasional chalcopyrite or malachite are disseminated in the split sections of veined, silicified country rock.

Based on core logging by the writer and documentation provided by Frank Loring, P.Eng., the supervisor of sampling in 1987, the intervals of split core have been revised. It is believed that the intervals listed above and in Appendix I are more accurate than those reported earlier and listed in Appendices II, III and IV.

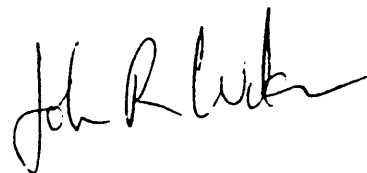
### References

- Carter, N.C. (1990): Geological Report on the Macktush Property. Private report for SYMC Resources Ltd.
- Wilson, J. (1990): Compilation of Sampling and Diamond Drilling on the Macktush Property, private compilation for SYMC Resources Ltd. consisting of map, sections and tables.

### Certificate

I, John Wilson, of Merville, British Columbia hereby certify that:

1. I am a graduate of the University of British Columbia with a BSc. (honours geology), 1972.
2. I am a Fellow of the Geological Association of Canada.
3. I have worked as a professional mineral exploration geologist in B.C. and eastern North America every year since 1972.



**John R. Wilson, F.G.A.C.  
Consulting Geologist**

APPENDIX I

Diamond Drill Logs for Holes 87-1, 87-3 and 87-8

**John R. Wilson, F.G.A.C.**  
**Consulting Geologist**

# SYMC Resources

## Diamond Drill Record

Property Macktush Claim Copper 102 Hole no. 87-1 Page no. 1  
 North 2679.5 Bearing N 030° W Purpose Testing Fred vein  
 East 1165.5 Dip -045° Date logged Dec 14, 1990  
 Elev. 683 metres Length 132.58 metres Logged by J. Wilson  
 Core size NQ

*John R. Wilson*

from (metres)	to	description	sample from	to	sample no.	Au	Ag	Cu
0-8.23		CASING and missing core.						
8.23-14.03		QUARTZ DIORITE. Medium grained; white with black mafics. Fairly fresh appearance.						
14.03-69.19		Core missing.						
69.19-73.46		QUARTZ DIORITE. As above.						
73.46-96.62		QUARTZ DIORITE with ANDESITIC VOLCANIC INCLUSIONS. Dark greenish-grey. Minor quartz veining to 1 cm at 20°-40° to core axis (CA). Occasional epidote and hematite in veinlets.						
96.62-98.15		QUARTZ DIORITE. As above. Fairly broken core; sheared in places; weakly chloritic. Quartz stockworks common. Minor disseminated and veinlet pyrite.						
98.15- 99.21		QUARTZ DIORITE with ANDESITIC VOLCANIC INCLUSIONS. As above. White and grey veinlets throughout. Some chloritic slip surfaces and alteration. Minor disseminated fine grained pyrite. Very broken core.						
		98.75-99.21 m: strongest quartz veining in interval; mainly white quartz cut by chloritic veinlets. Up to 1% disseminated pyrite.						
99.21-100.58		ANDESITIC VOLCANIC. Chloritic; sheared with some gouge. Minor quartz veins to 1 cm at 15° to CA.						

from (metres)	to	description	sample from	to	sample no.	Au	Ag	Cu
100.58-104.85		<p>QUARTZ DIORITE. Crumbly core. Chloritic alteration of mafics. Intense quartz-carbonate stockworks. Up to 3% disseminated pyrite in places. Occasional 1 cm quartz veins at 15°-25° to CA.</p> <p>103.33-104.85 m: sheared, broken and crumbly with quartz veinlets and veins. Disseminated and veinlet pyrite to 1%.</p>						
104.85-106.22		<p>ANDESITIC VOLCANIC.</p> <p>104.85-105.46 m: very sheared, with quartz veinlets and minor pyrite.</p> <p>105.46-106.22 m: solid core, chloritic with strong quartz stockworks.</p>						
106.22-109.58		<p>QUARTZ DIORITE with minor ANDESITIC VOLCANIC INCLUSIONS. As above. Mainly solid and fresh-looking. Occasional quartz-calcite veinlets.</p>						
109.58-110.72		<p><i>Split section.</i> Silicified ANDESITIC VOLCANIC and possible minor QUARTZ DIORITE. Many grey and white pyritic quartz veins to several cm. Quartz veins exhibit banding, brecciation, multiple stages. Veins are cut by minor chloritic veinlets. Quartz-carbonate veinlets occur throughout. Disseminated pyrite to 5% in patches but average is 2%. Veining angle is 35°-50° to CA.</p> <p><u>Note:</u> Approximately 35% of the split core remains in the tray. It occupies 1.6 metres of space and is bounded above and below by solid core.</p> <p>The split section was logged by the writer as 109.48-111.25 metres but these measurements were rough because no footage marker blocks were in the tray; the measurements were based on footage marker blocks in adjacent boxes and on the footage summary inscribed at the end of the tray. Further errors may have been induced by lost core.</p>						

from (metres)	to	description	sample from	to	sample no.	Au	Ag	Cu
110.72-132.58  End of Hole	<p>The true interval of the split section is believed to be 109.58-110.72 metres as indicated by Frank Loring, P. Eng. (Appendix II). The variance is likely due to missing markers, shifting core within the tray and minor lost core.</p> <p>QUARTZ DIORITE with ANDESITIC VOLCANIC INCLUSIONS. Fairly fresh appearance. Minor quartz-calcite veinlets.</p> <p><u>Note:</u> Core boxes were weather beaten from being stored in the field. Some boxes had been tipped over while in storage and the contents jumbled. A brief examination of the pile of loose core revealed only quartz diorite with occasional inclusions of andesitic volcanic; no significant veining, alteration or mineralization was apparant. All boxes were found to be labelled with hole number and footages. Of the 24 boxes that comprise hole #87-1, core was found and logged in boxes numbered 2 and 13 to 24. Logging indicated core recovery to be 100%.</p>							

# SYMC Resources

## Diamond Drill Record

Property Macktush Claim Copper 102 Hole no. 87-3 Page no. 1  
 North 2787.4 Bearing N 030° W Purpose Testing Fred vein  
 East 1253.4 Dip -045° Date logged Dec 14, 1990  
 Elev. 598 metres Length 41.06 metres Logged by J. Wilson  
 Core size NQ

*John R. Webb*

from to (metres)	description	sample from	sample to	sample no	Au	Ag	Cu
0-2.74 m	CASING						
2.74-5.49	QUARTZ DIORITE with ANDESITIC VOLCANIC INCLUSIONS. Fractured and broken in places, but generally solid core.						
5.49-19.81	QUARTZ DIORITE. Medium grained. White with black mafics. Mostly fractured and broken above 14.32 m.  10.06-13.11 m: quartz-calcite stockworks and veinlets common.						
19.81-33.50	QUARTZ DIORITE with ANDESITIC VOLCANIC INCLUSIONS. Occasional 5 to 10 cm rusty weathered fracture zones. Occasional soft, buff coloured clay-carbonate alteration zones cut by 1 cm buff stained quartz veins.						
33.50-34.29	<i>Split section.</i> Silicified QUARTZ DIORITE and ANDESITIC VOLCANIC cut by grey and white quartz veins to several cm. Minor malachite. Disseminated fine pyrite to 2 %. Sharp contacts with enclosing core. No obvious gradation or alteration in country rock adjacent to vein zone.  <u>Note:</u> Approximately 35% of the split section remains in the tray, occupying 79 cm of space. It is bounded above and below by solid core. No gaps indicative of lost core are evident in the box.						

from (metres)	to	description	sample from	to	sample no.	Au	Ag	Cu
		Loring (Appendix II) reports the sampling interval here to be from 33.53 to 34.29 metres. The variance could have been induced during conversion from feet to metres and from rounding-off discrepancies during measurement.						
34.29-36.58		QUARTZ DIORITE with ANDESITIC VOLCANIC INCLUSIONS.						
36.58-40.39		<i>Split section.</i> 40% QUARTZ VEINS and 60% ANDESITIC VOLCANIC with minor QUARTZ DIORITE. Quartz veining occurs throughout the section but a one metre wide quartz-vein rich zone is in the middle of the interval. Quartz veining is white and grey, often banded and carries minor disseminated pyrite as 2 mm crystals. Some veins contain open spaces filled with quartz crystals. Veining cuts very rusty, iron stained, greenish andesite and some quartz diorite. The country rock contains traces of disseminated pyrite varying up to 5% across 15 cm in places. Occasional quartz stockworks cross the andesite and quartz diorite.  <u>Note:</u> Approximately 25% of the split core section (quartered?) remains in the tray and occupies the first 3.81 metres of core box space. It is followed by 67 cm of solid core which marks the end of the hole. Loring (Appendix II) reports the sampling interval here to be from 37.19 to 41.00 metres, a length of 3.81 metres, which is equivalent to the sample width the writer measured.						
40.39-41.06		QUARTZ DIORITE. Medium grained; white with black mafics. Weak to strongly iron stained / weathered.						
End of Hole		<u>Note:</u> Core boxes were weather beaten from being stored in the field but all boxes had readable labels indicating hole number and footage. Minor core was missing from the boxes, apparantly due to tipping over while in storage. All seven boxes that comprise hole #87-3 were logged. Core recovery appeared to be 95-100%, normally the latter.						



# SYMC

## Diamond Drill Record

Property Macktush Claim Copper 102 Hole no. 87-8 Page no. 1  
 North 2725.0 Bearing N 030° W Purpose Testing Fred vein  
 East 1188.5 Dip -045° Date logged Dec 14, 1990  
 Elev. 644 metres Length 105.77 metres Logged by J. Wilson  
 Core size NO

*J. R. Wilson*

from to (metres)	description	sample from to	sample no.	Au	Ag	Cu
0-2.14	CASING.					
2.14-14.93	QUARTZ DIORITE. Medium grained. White with black mafics. Fairly fresh appearance, although exhibiting a reddish iron stain throughout due to weathering. Weathering is strongest in top 9 m, gradually weakening with depth. Minor chlorite on fractures. Rare quartz-calcite veining to 1 cm wide at 0° to 10° to core axis (CA).					
14.93-64.31	<p>QUARTZ DIORITE with sections of ANDESITIC VOLCANIC INCLUSIONS. The quartz diorite is as above but seldom with a pink weathered tinge. The weathering is restricted to obvious fracture zones. Volcanic inclusions are often dominant, giving core a mottled, dark character with indistinct green-gray crystals with weak chloritic alteration. Calcite-quartz stockworks are common in volcanic-rich sections. Especially strong 0.5 to 3 cm quartz veining at 20-40° to CA is at 35.7 to 64.31 m. Strong quartz stockworks with minor, patchy chloritization of mafics, some argillic alteration and minor red iron weathering at 57.0 to 61.0 m.</p> <p>31.09-34.14 m: occasional shear and gouge                      35.05 m: shear at 50° to CA; poor core recovery; chloritic and possibly epidote alteration.                      35.36 m: 3 cm banded quartz vein at 45° to CA; 15% pyrite crystals to 3 mm are within a grey quartz band cut by later 1 cm apparently barren white quartz veining.                      40.48 m: 1 cm white quartz vein at 25° to CA.</p>					

from (metres)	to	description	sample from	to	sample no.	Au	Ag	Cu
		41.76 m: 5 mm white quartz vein at 20° to CA. 43.89 m: 3 cm banded quartz vein with trace pyrite in grey quartz at 40° to CA. 51.82 m: shearing and quartz-calcite veinlets at 15° to CA.						
64.31-71.63		QUARTZ DIORITE and some ANDESITIC VOLCANIC INCLUSIONS. Medium-grained quartz diorite as above, but much less veined and altered. Minor 0.5-1 cm quartz-calcite veining. Minor epidote veinlets in lower 2m.						
71.63-72.88		<p><i>Split Section.</i> QUARTZ VEIN. Multi-stage, banded and brecciated. Some open spaces and quartz crystals. Some buff coloured, iron stained patches. Total sulphides (pyrite and trace chalcopyrite) is 3-5%.</p> <p><u>Notes:</u>            The split section is in core box #13 which, unlike adjacent boxes, contains no footage marker blocks or inscriptions describing footage, hole number or box number.</p> <p>The designation of this box as number 13 of hole 87-8 is based on:            1. the statement of Herb McMaster, president of SYMC Resources Ltd., identifying it as such.            2. the geological continuity of drill core between box #13 and adjacent boxes            3. the position of the observed split section which approximates the interval recorded by Frank Loring, P.Eng. (Appendix II).</p> <p>Accurate measurements of core intervals in box #13 are hindered by missing footage markers, some missing core and the broken, apparently quartered nature of the split section.</p>						

from (metres)	to description	sample from to	sample no.	Au	Ag	Cu
72.88-76.66	<p>An estimated 120 cm of split core remains in the tray. Based on the nearest footage markers, core box #13 begins with solid core from 69.49 to 71.63 m. The next section, measured from 71.63 to 74.68 m, consists of split core and a probable gap of missing core. The end of the box contains solid core from 74.68 to 76.20 m.</p> <p>The true interval of the split section is believed to be 71.63 to 72.88 m. The letter by Frank Loring, P. Eng. (Appendix II) describes a zone of quartz with chalcopyrite and molybdenite starting at 71.63 metres. It is followed by quartz containing pyrite starting at 71.93 metres, which is followed by more quartz containing chalcopyrite and molybdenite from 72.72 to 72.88 metres. The latter interval corresponds with his sample number 60354. It is assumed that the split section was from 71.63 to 72.88 metres based on:</p> <ol style="list-style-type: none"> <li>1. the coincidence of Loring's and the writer's 71.63 metre measurement.</li> <li>2. an estimated 120 centimetres of split core remaining in the tray (nearly equivalent to the assumed split interval).</li> <li>3. the sample section ends at 72.88 metres, according to Loring.</li> </ol> <p>The variance with the interval measured during logging is likely due to missing markers, shifting core within the tray and missing core.</p> <p><b>QUARTZ DIORITE with ANDESITIC VOLCANIC INCLUSIONS.</b> Mottled, mixed grey-green appearance. Minor pinkish iron stain. Many quartz veinlets, both white and grey. Up to 5% disseminated and veinlet pyrite in patches but 0.5-1% pyrite is usual.</p> <p>75.4 m: 2 cm banded white and grey quartz vein with 2% pyrite at 15° to CA. Up to 5% disseminated pyrite in adjacent 10 cm of silicified country rock.</p> <p>75.9 m: 2 cm banded white and grey quartz vein with 1% pyrite at 20° to CA. Up to 5% disseminated pyrite in 10 cm zone of adjacent country rock.</p>					

from (metres)	to description	sample from to	sample no.	Au	Ag	Cu
76.66-78.03	QUARTZ DIORITE. Mostly broken with shearing and quartz-calcite veinlets throughout. Top few cm are more strongly sheared and contain some gouge.					
78.03-78.33	ANDESITIC VOLCANIC INCLUSION. No significant veining, alteration or mineralization.					
78.33-79.86	QUARTZ DIORITE. Medium grained, well fractured and broken.					
79.86-85.65	ANDESITIC VOLCANIC INCLUSIONS in QUARTZ DIORITE. Grey-green colour. Quartz-calcite veinlets are fairly common.					
85.65-87.17	QUARTZ DIORITE. Minor ANDESITIC VOLCANIC INCLUSIONS. Intense quartz-calcite veinlets. Core often broken.					
87.17-105.77	<p>QUARTZ DIORITE. Minor ANDESITIC VOLCANIC INCLUSIONS.</p> <p>Fairly fresh-looking quartz diorite. Solid core. Rare quartz-calcite veinlets.</p> <p>87.48 m: 3 mm hematite-quartz veinlet at 35° to CA.</p> <p>95.86 m: iron stained fracture</p> <p>97.23-97.84 m: intense, buff coloured, bleached (?), clay-carbonate alteration. Minor 1 cm buff stained quartz veins.</p> <p>104.85 m: two 1cm banded white-grey quartz veins at 0° to 35° to CA. No visible mineralization.</p>					
End of Hole						