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REPORT ON A GEOLOGICAL MAPPING PROGRAM

ON THE

LEO D'OR MINERAL CLAIM

Bonanza Lake, Vancouver Island
Nanaimo Mining Division
British Columbia

FOR

LEO D'OR MINING INC.

BY

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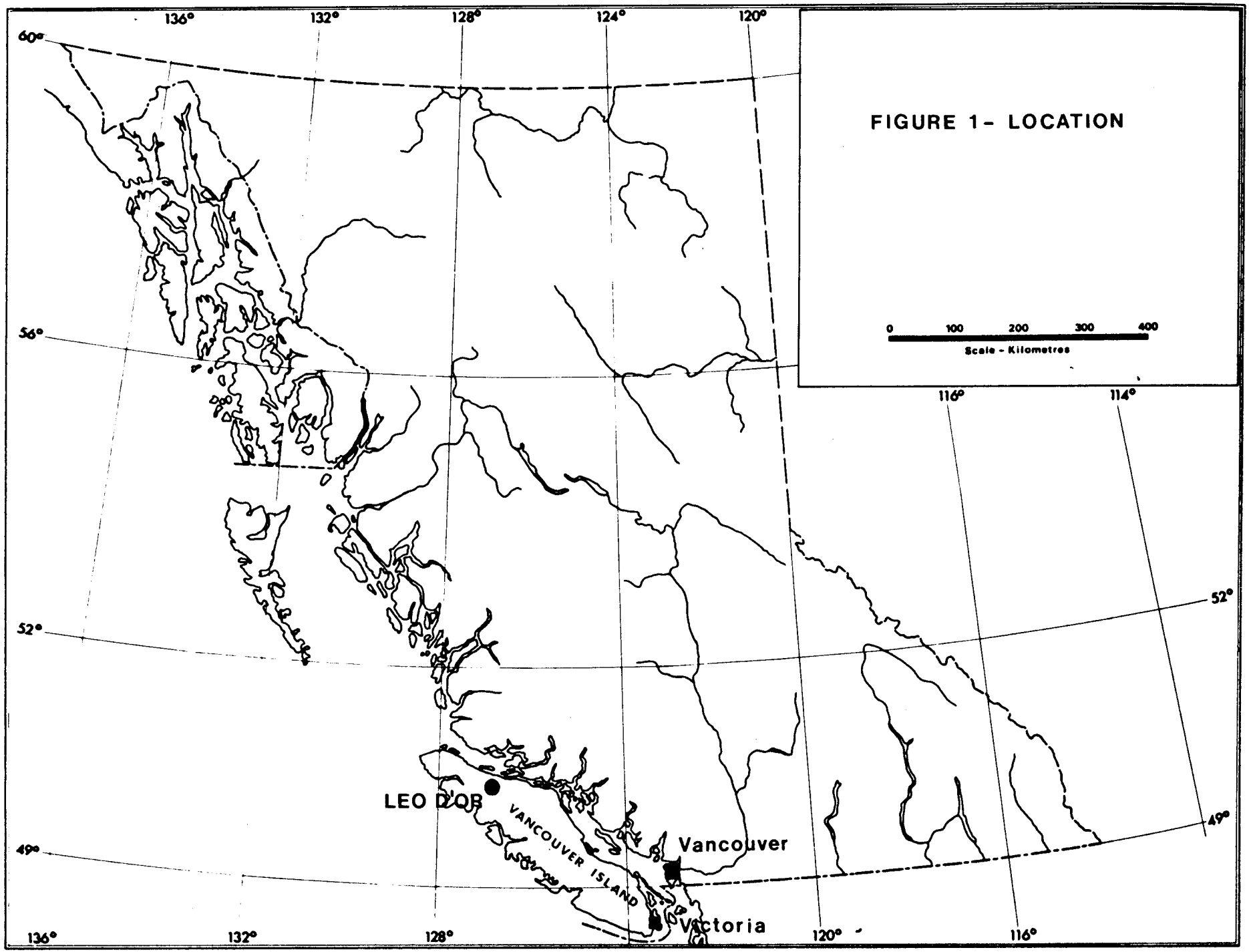

FIGURE 1- LOCATION

SUMMARY

A preliminary first phase geological mapping program, completed on the Leo D'Or mineral claim in July and August of 1993, provided useful information regarding the position of the granitic contact in the eastern claim area and the nature and frequency of fracturing, jointing, karst development and various igneous sills and dykes within the marble sequence which underlies most of the claim.

Three areas within the northern half of the claim were identified as having potential for quarry sites. Marble units within these areas are massive and exhibit a consistency of colour and texture. Limited chemical testing of samples from two of these areas indicates few impurities and calcium carbonate contents of 99.5%. Density of fracturing, jointing, karst development and acid and basic sills and dykes should not preclude the extraction of large marble blocks and slabs.

Detailed geological mapping, followed by diamond drilling, is recommended to better define the marble resource of the three areas.

Respectfully submitted,

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

INTRODUCTION

A first phase geological mapping program at a scale of 1:5000 was completed on the Leo D'Or mineral claim between July 5-9 and August 4- 11,1993. Field work was undertaken by Paul Reynolds under the general supervision of N.C. Carter. Program costs to date are in the order of $14,500.

The objectives of this program were to accurately locate the contact between the marble sequences and granitic rocks in the eastern claim area, to determine the nature and extent of felsic and basic sills and dykes which cut the marble sequences and to identify areas of relatively massive marble displaying a consistency of colour and texture for second phase investigation as potential quarry sites.

A number of compass traverses were run in the western and central claim areas; a hip chain was used for distance measurements. Mapping of the Onyx Hill area in the east-central part of the claim was carried out from a flagged grid.

Results of previous geological programs, including 1988 detailed mapping in the northwestern claim area and 1991 drilling on Onyx Hill, are integrated with the results of the 1993 program.

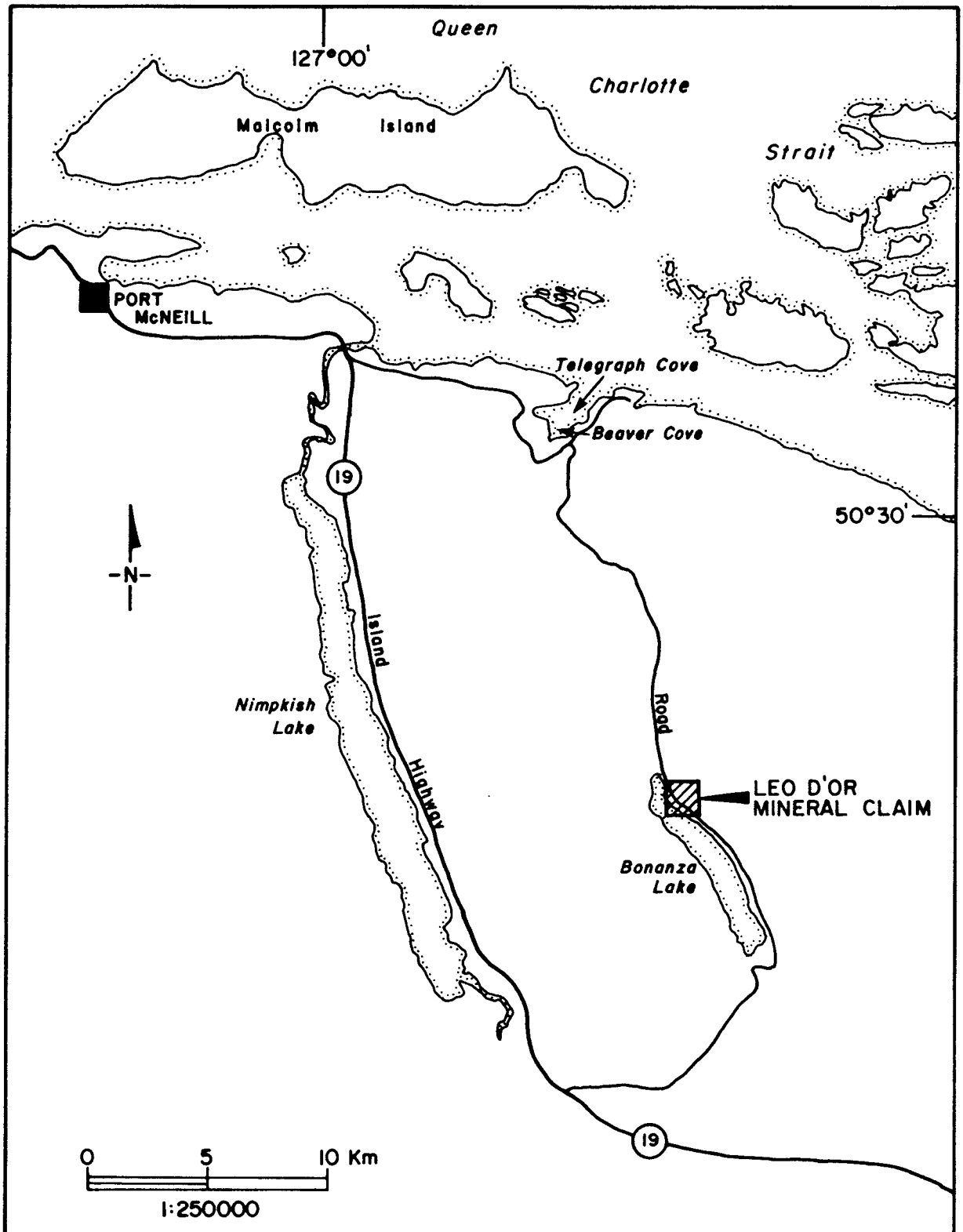

FIGURE 2 -
LOCATION - LEO D'OR MINERAL CLAIM

LOCATION AND ACCESS

The Leo D'Or mineral claim covers a 225 hectare area on northern Vancouver Island (Figure 1). The Legal Corner Post of the claim, at latitude 50°23.8' North and longitude 126°48.2' West in NTS map-area 92L/7W, is adjacent to the northeast shore of Bonanza Lake 30 km southeast of Port McNeill (Figures 2 and 3).

Access to the topographically lower, northwestern part of the claim is by Provincial highway 19 and paved road to Beaver Cove and from there by Fletcher Challenge Main Road South (Figure 2). Total road distance from Port McNeill is approximately 45 km.

Higher elevations, in the southeastern part of the claim are accessible by helicopter. Two helipads were contructed on Onyx Hill and a 3.3 km trail into this area from the end of a logging road was flagged and surveyed in 1991 (Figure 5).

MINERAL PROPERTY

The Leo D'Or mineral claim consists of 9 mineral claim units in the Nanaimo Mining Division as shown on Figure 3. Details of the claim are as follows:

Claim Name	Record Number	Units	Date of Record
Leo D'Or	229934	9	June 10,1985

The mineral claim is registered in the name of Massoud

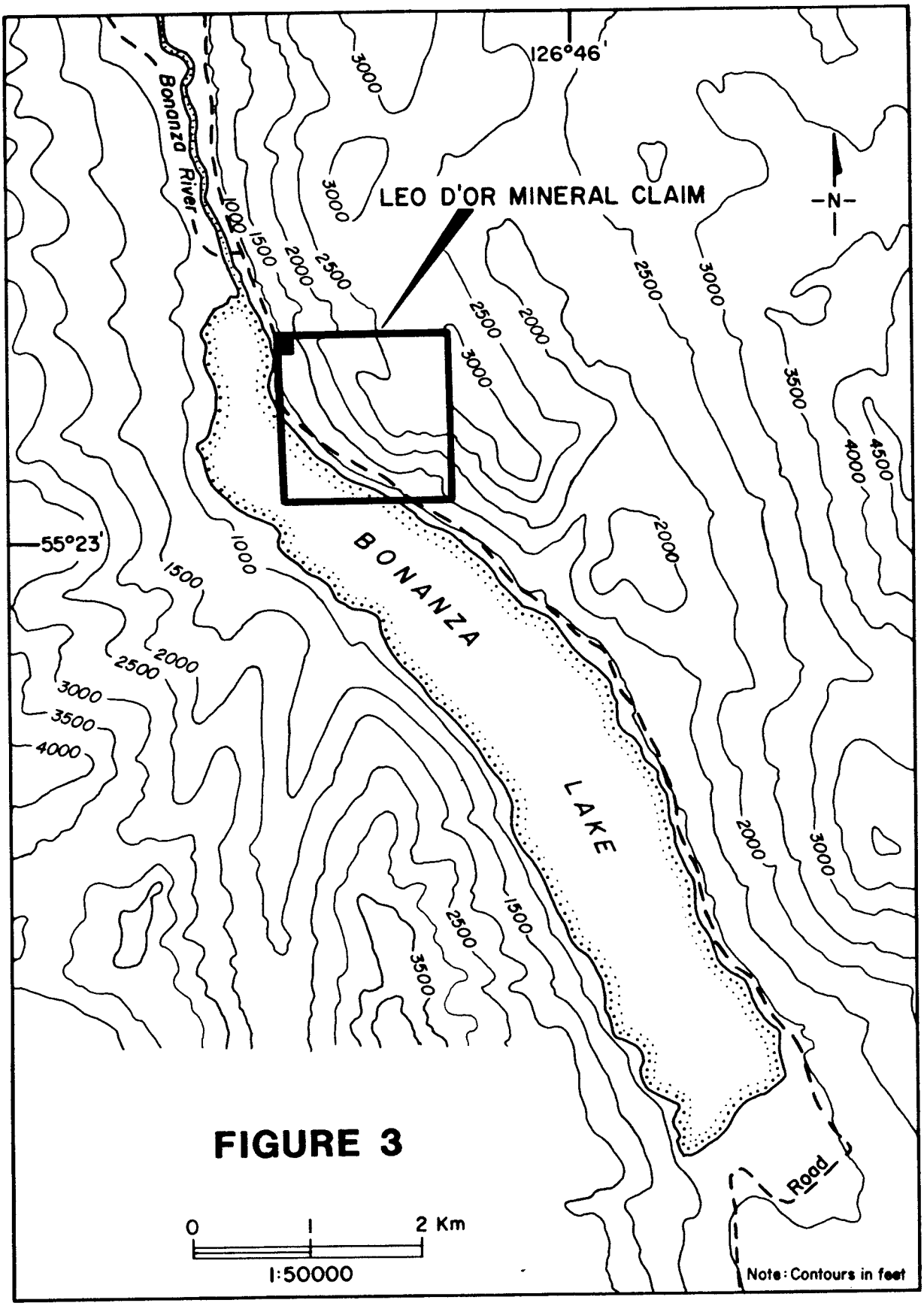
126°46'
LEO D'OR MINERAL CLAIM
-N-
Bonanza River
55°23'
BONANZA
LAKE
Road
0
1
2 Km
1:50000
Note: Contours in feet

FIGURE 3

Shariatmadari, president of Leo D'Or Mining Inc., and is in current good standing until June 10,2002.

PHYSICAL SETTING

The southwestern half of the Leo D'Or claim covers a fairly steep (35^{o}) slope extending from Bonanza Lake (270 metres above sea level) to an elevation of about 760 metres or 2,500 feet (Figures 3,4,5 - note that elevations are in Imperial units). The area between the road along Bonanza Lake and 550 metres elevation has been clear-cut logged and bedrock is well exposed throughout this area.

The northeast quarter of the claim features more subdued topography rising to a maximum elevation of 900 metres (3,000 feet) along the eastern claim boundary. Old growth forest cover, with locally thick underbrush, is broken by small swamps and several creeks.

The dominant topographic feature on the mineral claim is Onyx Hill in the east-central claim area which is bounded by +100 metre high cliffs (Figures 4,5).

PREVIOUS WORK

The present mineral claim was located in 1985 following the identification of marble by Massoud Shariatmadari, president of Leo D'Or Mining Inc. Work since that time has

included prospecting and preliminary geological mapping (Game,1986; Devlin and Rychter,1987) and the collection of samples for chemical and physical analyses.

Klohn Leonoff Ltd. (Broughton and Bruce,1988 - Appendix III) undertook detailed geological mapping of a 400 x 150 metre (6 hectare) area centred on the area of current investigation in early 1988. This work, completed on behalf of a predecessor company, White Marble Mountain Corporation, included petrographic studies and X-Ray diffraction analyses of 12 rock samples collected during this program. A short access road was constructed into this area in early 1991.

Leo D'Or Mining Inc. entered into a an option/joint venture agreement with Harvard Capital Corporation in July,1991 for the purpose of carrying out further investigation of the property. Work completed by Harvard during a three month period included the drilling of eight vertical holes totalling 213.5 metres within a 240 x 170 metre area on Onyx Hill in the east-central claim area (Figure 4).

A light-weight Prospector 89 diamond drill, supplied by Hydracore Drills Ltd., was transported to a camp area at the south end of Onyx Hill by helicopter. Helicopter support was also used for most of the drill moves.

195 metres of JKT 48-size drill core (almost identical

to BQ-size) was recovered from six of the holes drilled; holes 1 and 1A were lost in overburden at 9.5 metre depths. Hole depths ranged from 9.5 to 63.1 metres. Drill cores are stored in the camp area and at the various drill sites on Onyx Hill (Figure 4). Drill logs from the 1991 program, a drill hole plan and sections and chemical analyses of two drill core samples, are included as Appendix II to this report.

Additional 1991 work included surveying of drill hole locations and preliminary surveying of an access road route to Onyx Hill from the end of existing logging roads by McElhanney Engineering Services Ltd.(Figure 5).

Diamond drilling within the area of current investigation in the northwestern claim area includes one short 1992 hole near the BC Hydro powerline and and a 56.7 metres (186 ft.) hole completed in late July of 1993. A drill log of the 1993 hole is included in Appendix II.

Investigative test work undertaken in the northwestern claim area in 1993 was directed to the feasibility of extracting (1.8 x 1.8 x 2.8 and 2 x 2.05 x 2.5 metres) marble blocks utilizing large diamond wire and tungsten-carbide chain saws designed for quarry work.

REGIONAL GEOLOGICAL SETTING

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

Northern Vancouver Island, and in particular, the Port McNeill - Nimpkish - Bonanza Lakes area, includes most of the foregoing geological elements. Much of this area is underlain by late Triassic - early Jurassic Vancouver Group volcanics and sediments which are intruded by mid-Jurassic Island intrusions granitic rocks. Late Cretaceous clastic sediments are preserved along the Island east coast in the Suquash Basin between Port Hardy and Port McNeill.

Late Triassic Karmutsen Formation basaltic flows and pyroclastic rocks of the Vancouver Group are the most widespread geological unit. These are overlain by Quatsino Formation carbonate-rich sediments, Parson Bay clastic sediments and by slightly younger (Lower Jurassic) Bonanza volcanics in the Nimpkish - Bonanza Lakes area.

Quatsino Formation limestones are well exposed in the area bordering Bonanza Lake where they are intruded by an elongate mass of Island intrusions granitic rocks east of the lake. A north-northwest trending regional fault extends through Bonanza Lake (Muller et al,1974).

PROPERTY GEOLOGY

General Statement

Principal geological elements of the Leo D'Or mineral claim are illustrated on Figure 4. The claim area is mainly underlain by Quatsino Formation carbonate sediments which have been mainly converted to marble exhibiting a variety of textures and colours.

The presence of marble is due mainly to the contact metamorphic effects associated with an elongate, northwest trending, granitic pluton bordering the east side of Bonanza Lake (Muller et al,1974). The northwest contact of this Island intrusion extends through the eastern part of the Leo D'Or claim (Figure 4).

A thick quartz porphyry - aplite sill in the central property area is interpreted to be a late phase of the Island intrusions. Products of younger (Tertiary) igneous activity include numerous acid and basic sills and dykes.

Table of Formations

CENOZOIC TERTIARY

Miocene(?)
Felsic and Mafic (acid, basic) sills, dykes

- Not in Contact(?) -

MESOZOIC

JURASSIC

Middle Jurassic
Island intrusions - Quartz Porphyry Sills
- Granodiorite, Quartz Diorite

- Intrusive Contact -

TRIASSIC

Upper Triassic
Vancouver Group
Quatsino Formation - Marble, Limestone
Karmutsen Formation - Basalt Flows

Lithologies

The oldest rocks noted on the Leo D'Or claim are Karmutsen Formation basalts which are poorly exposed in an erosional window along the power line right-of-way near the southern claim boundary (Figure 4).

These volcanic rocks are disconformably overlain by the most widespread lithologic units on the claim, Quatsino Formation marbles of varying textures and colours. These are described in more detail in a succeeding section.

Granitic rocks of the Island intrusions, mainly medium-

to coarse-grained, light grey granodiorites and lesser quartz diorites, intrude the marble sequence in the eastern claim area. The intrusive contact was fairly accurately located on a regional scale by Hoadley(1953) and partly mapped in detail during the 1993 program. The contact extends in a north-northwesterly direction from the southeast corner of the claim to a point 450 metres north of the summit of Onyx Hill where it swings abruptly to the west-northwest (Figure 4).

A 150 metre thick, fine-grained, pink aplitic to quartz porphyry sill cuts the marble units at the base of Onyx Hill. Quartz porphyry is distinguished from aplite by the presence of 1 - 2 mm quartz phenocrysts. This apparent late phase of the Island intrusions extends in a northwesterly direction from the main granitic contact for a distance of at least 800 metres (Figure 4).

A number of flat to gently dipping aplite and quartz porphyry sills, up to several metres wide, are exposed in the cliff faces bordering Onyx Hill (Figure 4). Similar sills were also encountered in some of the holes drilled in this area in 1991 (see sections - Appendix II). All of the aplite and quartz porphyry sills contain minor amounts of disseminated pyrite.

Numerous acid and basic sills and dykes cut the marble units at lower elevations on the claim. Some of the more

prominent of these are shown on Figure 4 and are distinguished by the letters 'A' and 'B' denoting acid and basic respectively. Both varieties of sills and dykes are between 0.5 and 2 metres wide; sills trend northwesterly and dip at gentle angles reflecting the bedding of the marble units. Dykes generally have a northeast trend, normal to bedding and are steeply dipping to vertical. Both acid and basic varieties contain between 2 and 5% disseminated pyrite and lesser pyrrhotite.

The acid and basic sills and dykes are interpreted as being part of a younger (Tertiary) igneous event. Acid varieties are distinguished from the older sills on and near Onyx Hill by the absence of a quartz porphyry phase. Basic dykes and sills are andesitic to basaltic in composition.

Marble Sequence

Much of the Leo D'Or mineral claim is underlain by a fine- to coarse-grained, gently dipping marble sequence some several hundred metres in thickness. Where evident, the sequence is thickly bedded with an overall northwest trend and gentle dips to the east.

Medium-grained varieties predominate (1 - 5 mm grain sizes) and colours range from various shades of white and buff to light and dark grey. Some attempt has been made to differentiate between white and grey marble on Figure 4 - the

letter 'G' denotes a 15 - 80% grey component in surface exposures (see Appendix I for detailed descriptions or exposures). Variations in colour are more apparent vertically rather than along strike where colour consistency was noted over distances of tens to hundreds of metres. This is a reflection of the flat-lying nature of much of the marble sequence.

Regardless of the inherent colour, all natural exposures within the previously logged, lower areas of the property are weathered to a uniform dark grey colour with some near-surface iron-staining commonly present.

Various shades of white marble predominate in the northwestern part of the claim. Colour banding is locally evident in this area with 0.5 - 3 metre wide alternating bands of light and dark grey marble. Faintly banded, light to medium grey marble, gradational to creamy white to buff varieties, was encountered during 1991 drilling on Onyx Hill.

Frequency or density of fracturing and jointing varies throughout the marble sequence. Closely spaced fractures and joints (0.3 - 0.5 metre apart) are evident along the main road in the western claim area proximal to the regional fault through Bonanza Lake and also marginal to the large quartz porphyry sill in the southern part of the claim. Generally, the northern half of the claim includes mainly massive marble

units in which joints and fractures are widely spaced or several metres apart (Figure 4). Most joints and fractures trend northeast and northwest and are vertical to steeply dipping. A flat joint set was also noted.

Karst features are widespread. Two caves have been identified along the road south of the claim Legal Corner Post (Figure 4) and crevice karst is locally well developed along joint and fracture planes. Most drainages on the west-facing slope above Bonanza Lake are discontinuous and disappear into sinkholes.

Based on work to date, three areas within the claim have been identified as having potential for quarry sites (Figure 5 - areas A,B,C). The marble units within these areas are relatively massive and exhibit a uniformity or consistency of colour and texture over appreciable areas. Some detailed work has been completed in two of the three areas and details are as follows.

Area A

Slightly less than half of this area, which includes the 1993 test area (Figure 5), was mapped in some detail by Klohn Leonoff several years ago (Broughton and Bruce,1988 - Appendix III). The following comments are based largely on this work.

As noted previously, surface exposures within this area

are weathered to some degree with some light orange iron-staining evident locally. The marble varies from creamy white to various shades of grey with some alternating white to light grey banding noted in the southern part of the area. Most of the marble is medium-grained with some finer grained, friable, dark grey units present.

Northeast and northwest-trending, steeply dipping joints and fractures are spaced several cm to 10 metres apart. Crevice karst is present throughout the area mapped with crevices up to 1 - 3 metres wide and 3 - 5 metres deep. Two caves along the road (Figure 4) have lengths of at least 8 and 25 metres.

1988 work identified a 160 x 100 metre area of massive, medium-grained, light grey to white marble. This is the area currently undergoing investigation to determine the feasibility of extracting marble slabs and blocks.

Petrographic studies and X-Ray diffraction analyses of 11 marble samples from this area indicate calcium carbonate contents of 99.5% with only minor traces of quartz, chlorite or muscovite present. Physical testing of two samples showed compressive strengths of 14,900 and 15,800 PSI.

A 1993 drill hole intersected alternating white to medium to dark grey, medium-grained, fairly massive marble cut by minor acid dykes or sills and one 2 metre core length

of basic intrusive (see Appendix II for drill log).

Area B

This area, which includes Onyx Hill (Figure 5), was partially tested by a reconnaissance short hole drilling program in 1991. The following comments are from a report (Carter,1992) prepared after completion of this program. Drill logs are contained in Appendix II.

Core was recovered from six vertical holes within a 250 x 150 metre area and over a vertical range of 100 metres (Figure 4). Medium-grained, faintly banded, light to medium grey marble was the dominant rock type encountered during the drilling program. This unit has gradational contacts with a creamy white to buff, medium-grained variety which commonly contains scattered 0.5 - 1 cm calcite crystals. Drill hole lengths of the two principal varieties of marble range from 1 to 10 metres which should be very close to true thicknesses considering the generally flat-lying nature of the sequence.

Hole 4 intersected a unique coarse grained, light grey marble consisting of 1 -2 cm calcite crystals. A 4 metre section at the beginning of this hole contained the 10 - 15 cm epidote-garnet skarn bands as did a 15 cm section in hole 7. These are the only occurrences of skarn seen to date on the property, a feature indicative of very few impurities in the original limestone.

The marble sequence is cut by a number of quartz porphyry and basic sills. Drilling provided some information on the location and nature of these (see sections-Figure 4), some of which are at least 10 metres thick.

The frequency of fracturing and jointing seen in drill cores appears to be within acceptable limits for the extraction of blocks. Two chemical analyses of selected core samples of marble indicated few impurities and calcium carbonate contents of 99.14 and 99.51% (Appendix II).

Area C

The few exposures of massive marble in this largely overburden-covered area (Figure 5) include a medium-grained, white variety near the southwest corner and alternating white to medium grey , medium-grained marble in the northern part of the area.

CONCLUSIONS AND RECOMMENDATIONS

The first phase 1993 geological program on the Leo D'Or mineral claim has identified the northern half of the property as having the best potential for additional quarry sites.

Three areas have been selected for continued and/or additional investigation. Marble units within these areas are fairly massive and display a uniformity of colours and

textures throughout significant areas. The density of fracturing, jointing, karst development and younger igneous dykes and sills in the three areas should allow for the extraction of large marble blocks and slabs. Limited chemical testing of marble samples to date indicates few impurities and calcium carbonate contents of 99.5%. Two physical tests yielded strength tests exceeding ASTM standards.

Additional geological work is recommended for the three areas. 1993 test work in a relatively restricted area within area A has demonstrated the feasibility of extracting large marble blocks. Precise limits of this area require definition by way of detailed geological mapping and closely spaced diamond drill holes. Detailed geological mapping should be undertaken within area B on Onyx Hill to define the various marble units and to precisely locate the quartz porphyry sills prior to additional drilling. Area C requires detailed investigation of bedrock exposures prior to drill testing.

It is recommended that bedrock and core samples be collected during the course of the recommended programs for chemical and physical testing.

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APPENDIX I

Descriptions of Bedrock Exposures

STATION	LITHOLOGY	COLOUR	GRAIN SIZE	JOINTING	BEDDING	STRIKE/DIP	COMMENTS
1	MARBLE	WHITE	MEDIUM	MASSIVE			
2	MARBLE	WHITE	MEDIUM	MASSIVE			
3	MARBLE	WHITE	MEDIUM	MASSIVE			
4	MARBLE	WHITE	MEDIUM	1 per 4m.			
5	MARBLE	20% GREY	MEDIUM	1 per 2.4m.			
6	APLITE DYKE					105/70N	TRACE SULPHIDES
7	MARBLE	15% GREY	MEDIUM	MASSIVE			KARST HOLES TO 40cm. WIDE
8	MARBLE	80% GREY	MEDIUM	MASSIVE	080/10S		
9	MARBLE	WHITE	MEDIUM	MASSIVE			
10	MARBLE	80% GREY	MEDIUM	MASSIVE			
11	MARBLE	WHITE	MEDIUM	020/75E			MINOR Fe STAIN
12	APLITE DYKE					040/70W	RUSTY POD
13	MARBLE	WHITE	MEDIUM	MINOR			Fe STAIN ALONG FRACTURES
14	MARBLE	15% GREY	MEDIUM	FEW			
15	MARBLE	15% GREY	MEDIUM	MASSIVE			
16	MARBLE	15% GREY	MEDIUM	MASSIVE	350/15W		
17	APLITE SILL					340/15E	0.5m. THICK
18	MARBLE	WHITE	MEDIUM	MASSIVE			
19	MARBLE	WHITE	MEDIUM	MASSIVE			
20	MARBLE	WHITE	MEDIUM	MASSIVE			
21	APLITE SILL						
22	MARBLE	WHITE	MEDIUM	HIGHLY			
23	BASIC DYKE	BROWN				065/90	
24	MARBLE	WHITE	MEDIUM	HIGHLY			
25	MARBLE	WHITE	MEDIUM	HIGHLY			
26	MARBLE	WHITE	MEDIUM	HIGHLY			
27	MARBLE	WHITE	MEDIUM	HIGHLY			
28	MARBLE	WHITE	MEDIUM	HIGHLY			
29	MARBLE	WHITE	MEDIUM	HIGHLY			
30	BASALT	DK. GREEN					SLIGHTLY MAGNETIC
31	BASALT	DK. GREEN					
32	OB						
33	MARBLE	80% GREY	MEDIUM	MASSIVE			
34	MARBLE	15% GREY	MEDIUM	MASSIVE			
35	MARBLE	WHITE	MEDIUM	MASSIVE			FEW KARST HOLES
36	MARBLE	WHITE	MEDIUM	170/70E			JOINTS EVERY 1-3m.
37	MARBLE	WHITE	MEDIUM	1 per 3-5m.			
38	MARBLE	WHITE	MEDIUM	MASSIVE			
39	MARBLE	WHITE	MEDIUM	080/75N			
40	MARBLE	WHITE	MEDIUM	110/70S			
41	MARBLE	WHITE	MEDIUM	200/75E			JOINTS EVERY 0.5-1m.
42	AND. DYKE	DK. GREEN				060/80S	1-2m. WIDE. Tr - 2% Po.
43	MARBLE	WHITE	MEDIUM	MINOR			
44	MARBLE	40% GREY	MEDIUM	MASSIVE			
45	MARBLE	50% GREY	MEDIUM	110/80S			MINOR JOINTING
46	MARBLE	50% GREY	MEDIUM	110/80S			MINOR JOINTING
47	MARBLE	15% GREY	MEDIUM	MASSIVE			
48	MARBLE	15% GREY	MEDIUM	1 per 1-2m.			
49	MARBLE	WHITE	MEDIUM	HIGHLY			MINOR COARSE Cc IN FRAC'S
50	MARBLE	15% GREY	MEDIUM	HIGHLY			
51	MARBLE	15% GREY	MEDIUM	MASSIVE			
52	MARBLE	80% GREY	MEDIUM	MASSIVE	020/35W		
53	MARBLE	WHITE	MEDIUM	HIGHLY			
54	MARBLE	WHITE	MEDIUM	1 per 1-5m.			
55							
56	MARBLE	WHITE	MEDIUM	MASSIVE			
57							
58	MARBLE	80% GREY	MEDIUM	MINOR			
59	MARBLE	50% GREY	MEDIUM	MASSIVE			
60	MARBLE	15% GREY	MEDIUM	MASSIVE			
61	MARBLE	WHITE	MEDIUM	MASSIVE			
62	MARBLE	WHITE	MEDIUM	MASSIVE			
63	MARBLE	WHITE	MEDIUM	MASSIVE			
64	MARBLE	WHITE	MEDIUM	MASSIVE			BROWN Fe STAINING
65							
66	QFP						UP TO 2mm QTZ EYES
67	GRANODIORITE						
68							CENTERLINE OF PROP. ROAD
69							STN: 2+790
70							
71							
72	MARBLE	WHITE	MEDIUM	HIGHLY			
73	MARBLE	WHITE	MEDIUM	HIGHLY			
74	GRANODIORITE						
75	MARBLE	WHITE TO BUFF	COARSE	MASSIVE			MINOR ORANGE (FE) STAIN
76	MARBLE	WHITE TO BUFF	COARSE	MASSIVE			MINOR ORANGE (FE) STAIN
77	MARBLE	MOTTLED WHITE TO GREY	MEDIUM	MASSIVE			MINOR ORANGE (FE) STAIN
78	MARBLE	WHITE	COARSE	MASSIVE			MINOR ORANGE (FE) STAIN
79	MARBLE	MOTTLED WHITE TO GREY	MEDIUM	MASSIVE			HIGHLY STAINED
80	MARBLE	BANDED WHITE & GREY	COARSE	MASSIVE			MINOR ORANGE (FE) STAIN
81	MARBLE	WHITE	COARSE	MASSIVE			
82	MARBLE	WHITE TO BUFF	COARSE	MASSIVE			
83	MARBLE	30-40% GREY	MEDIUM	110/85S			JOINTS EVERY 1M.
84	MARBLE	20% GREY	MEDIUM	HIGHLY			MINOR ORANGE (FE) STAIN
85	MARBLE	20% GREY	MEDIUM	MASSIVE			MINOR ORANGE (FE) STAIN
86	MARBLE	20% GREY	MEDIUM	MASSIVE			MINOR ORANGE (FE) STAIN
87	MARBLE	80% GREY	MEDIUM	MASSIVE			TRACE ORANGE (FE) STAIN
88	MARBLE	20% GREY	MEDIUM	MASSIVE			MINOR ORANGE (FE) STAIN
89	MARBLE	70% GREY	FINE TO MEDIUM	MASSIVE			

APPENDIX II

Diamond Drill Logs

Drill Hole 1

0 - 9.4 metres - Overburden (hole lost)

Drill Hole 1A

0.- 9.1 metres - Overburden (hole lost)

Drill Hole 2

0 - 3 metres - Overburden

3 - 7.9 m - Fractured, creamy white to buff marble
7.9 - 9.4 m - Fractured, broken, pink quartz porphyry sill

End of Hole

Drill Hole 3

0 - 3 metres - Overburden

3 - 7.6 m - fractured, creamy white to buff marble; one fracture per 1 - 15 cm
7.6-16.8 m - alternating creamy white - buff and light grey marble; samples M,O from this section

End of Hole

Drill Hole 4

0 - 4 metres -	coarse grained light grey marble consisting of 1 - 2 cm interlocking calcite crystals; 10-15 cm bands of epidote-garnet-K-feldspar skarn
4 - 4.3 m -	Coarse grained creamy white marble
4.3 - 7.3 m -	Coarse grained light grey marble
7.3 - 14.3 m -	Alternating light grey to creamy white coarse grained marble
14.3 - 15.5 m -	Light grey coarse grained marble
15.5 - 16.5 m -	Alternating light grey to creamy white coarse grained marble
16.5 - 22.9 m -	Alternating light grey to creamy white medium to coarse grained marble; minor skarn @ 22.9 m; few fractures
22.9 - 28.0 m -	Light grey medium grained marble

End of Hole

Drill Hole 5

0 - 1.5 metres -	Overburden
1.5 - 2.7 m -	Light grey medium grained marble; massive; gradational lower contact
2.7 - 4.9 m -	Creamy white medium to coarse grained marble;iron stained fractures,1 per 0.3 m
4.9 - 5.5 m -	Light grey medium grained marble
5.5 - 13.4 m -	As previous, medium to coarse grained, massive
13.4- 15.5 m -	Light grey, medium grained, one fracture
15.5 - 16.5 m -	Light grey to creamy white medium to coarse grained marble; faint banding @ 60° to core axis
16.5 - 22.9 m -	Banded, dark grey marble sections with pyrite @ 20.4 m; some sections gradational to 0.3 m bands of creamy white material @ 22.6 m, then massive to end of section.
22.9 - 24.7 m -	Creamy white, coarse grained marble,
24.7 - 33.2 m -	Basalt sill or dyke, contact @ 70° to core axis; weakly magnetic
33.2 - 63.1 m -	Creamy white medium to coarse grained marble; massive

End of Hole

Drill Hole 6

0 - 2.1 metres - Overburden

2.1 - 5.5 m - Buff to creamy white marble, medium-grained, some 1 cm calcite crystals
5.5 - 6.7 m - Light grey, medium grained marble; no fracturing to this point
6.7 - 9.8 m - As previous but with scattered 1 cm calcite crystals; 2 fractures 0.6 m apart
9.8 - 14.3 m- Light grey, medium grained marble; 2 fractures 1.8 m apart
14.3 -15.2 m- Light grey to creamy white marble with occasional 1 cm calcite crystals
15.2 -17.5 m - As previous
17.5 -21.3 m - Alternating uniform medium grained light grey to variety with 1 cm calcite crystals
21.3 -24.4 m - Light grey, medium grained, massive
24.4 -30.8 m - Buff to creamy white marble, medium grained with occasional 1 cm calcite crystals, some gradations to grey variety; one fracture @ 35°
30.8 -35.1 m - As previous; broken 31.7-33.2 m; grades to fine grained buff variety; iron staining on fractures
35.1 -39.5 m - Light grey, medium grained, massive
39.5 -41.1 m - Quartz Porphyry - aplite; sharp upper contact @ 45° to core axis

End of Hole

Drill Hole 7

0 - 0.9 metres - Overburden
0.9 - 4.3 m - Buff to creamy white medium to coarse grained marble
4.3 - 9.3 m - Quartz Porphyry sill - contacts @ 60°
9.3 - 11.3 m - Buff to creamy white marble - mg to cg
11.3 -15.2 m - As Previous
15.2 -15.4 m - Skarn - epidote, pink carbonate
15.4 -18.0 m - Light grey, medium gained marble
18.0 -20.4 m - Alternating creamy white, mg to cg to banded light grey marble
20.4 -36.6 m - Quartz Porphyry sill

End of Hole

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

To: HARVARD CAPITAL CORP. **

1311 BEACH AVE.
VANCOUVER, BC
V6E 1V6

Project :
Comments:

Page Number :1
Total Pages :1
Certificate Date: 14-AUG-91
Invoice No. :I9119579
P.O. Number :

CERTIFICATE OF ANALYSIS A9119579

SAMPLE DESCRIPTION	PREP CODE		Al2O3 %	BaO %	CaO %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %	P2O5 %	SiO2 %	TiO2 %	LOI %	TOTAL %
SAMPLE M	208	294	0.21	< 0.01	54.72	0.21	< 0.01	0.38	< 0.01	0.08	0.07	0.50	0.01	42.94	99.14
SAMPLE O	208	294	< 0.01	< 0.01	55.60	0.09	< 0.01	0.33	< 0.01	0.09	0.03	< 0.01	< 0.01	43.31	99.51

CERTIFICATION: B. Caplin

DIAMOND DRILL RECORD

PROPERTY LEO D'OR **HOLE No.** 93-1

DIP TEST		
	Angle	
Footage	Reading	Corrected

Hole No. 93-1 Sheet No. 1 OF 4 Lat.
Section Dep.
Date Begun Bearing
Date Finished Elev. Collar
Date Logged 5 AUG 93

Total Depth 186'
Logged By P. REYNOLDS
Claim
Core Size BQ

DEPTH FROM	DEPTH TO	RECOVERY	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH OF SAMPLE
0	37'		WHITE, MASSIVE MED. GR MARBLE				
			7' FRAC. @ 45° TO C.A.				
			16.5' FRAC (OR PRESSURE SOL'N STYLOLITE) @ 45-90° TO C.A.				
			24' 1" POD OF VERY FINE GR, MILKY QTZ WITH				
			TR SULPHIDES (Py).				
			29' Py FILLED FRAC. (OR PRESSURE SOL'N STYLOLITE)				
			@ 50-90° TO C.A.				
37'	41'		VARIABLE WHITE TO 20% GREY, MED GR				
			MASSIVE MARBLE				
			38' 1.5" FRAC ZONE W 10% Py & STRINGERS				
			& BLEBS OF Cc ALL IN A BLACK, FINE				
			GR. Cc MATRIX. @ 75° TO C.A.				
			39' 0.5" FRAC. ZONE @ 70° TO C.A. FRAC.				
			FILLED WITH FINE GR Cc.				
41'	44'		60% GREY, MED GR, MASSIVE MARBLE				
			43-44' FRACS @ 45 & 60° TO C.A.				

DIAMOND DRILL RECORD

HOLE NO: 93-1

DEPTH FROM	DEPTH TO	RECOVERY	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH OF SAMPLE
44'	47'		VARIABLE COLOURED 20% - 60% GREY, MED GR,				
			MASSIVE MARBLE				
			46' Py FILLED FRAC @ 50° TO C.A.				
			47' Py FILLED FRAC @ 50° TO C.A.				
47'	58'		WHITE, MASSIVE, MED GR MARBLE				
58'	60'		15% GREY, MED GR, MASSIVE MARBLE				
60'	62'		70-80% GREY, MASSIVE, MED GR MARBLE.				
62'	64'		10% GREY, MED GR, MASSIVE MARBLE				
			64' Cc FRAC FILLING @ 45° TO C.A.				
64'	66'		70% GREY, MED GR, MASSIVE MARBLE.				
66'	74'		0 - 10% GREY, MED GR, MASSIVE MARBLE.				
			SLIGHT MOTTLED APPEARANCE.				
74'	79'		0 - 10% GREY, MED GR, MASSIVE MARBLE				
			74 - 75' Py STRINGERS @ 80° TO C.A. EVERY 1-2"				
			77' 2" WIDE BAND OF 80% GREY.				
79'	83'		70% GREY, MED GR, MASSIVE MARBLE.				
			BEDDING (?) @ 80° TO C.A.				
83'	85'		0-5% GREY, MED GR, MASSIVE MARBLE				

DIAMOND DRILL RECORD

HOLE NO: 93-1 | PAGE NO: 3 OF 4

DEPTH FROM	DEPTH TO	RECOVERY	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH OF SAMPLE
85'	92'		0-10% GREY, MED GR, MASSIVE MARBLE w				
			FINE Py LAMINATIONS @ 80° TO C.A.				
			91' 2". Py LAMINATION				
92'	97'		WHITE (0-5% GREY), MED GR, MASSIVE, MARBLE.				
97'	103'		WHITE (0-5% GREY), MED GR, MASSIVE MARBLE				
			w FINE Py LAMINATIONS EVERY 1-3"				
103'	107'		BASIC INTRUSIVE (KARMUTSEN ?). UPPER &				
			LOWER CONTACTS @ 45° TO C.A. UP TO 5% Py.				
107'	109'		SAME AS 97-103'				
109	140		WHITE, MED GR, MASSIVE MARBLE				
			110-121' VERY FINE Py LAMINATIONS @				
			80° TO C.A. EVERY 1-5"				
140'	156'		WHITE (0-5% GREY), MED GR, MASSIVE MARBLE				
			WITH VERY FINE Py LAMINATIONS EVERY				
			1-6". MINOR GR. STAIN (FE) IN FRAC'S				
			151-155' & FRAC'S @ 45°-70° TO C.A.				
			EVERY 2-4"				
151'	161'		WHITE, MED GR, MASSIVE MARBLE				
161'	191'		SAME AS 140-156'				

DIAMOND DRILL RECORD

HOLE NO: 93-1

DEPTH FROM	DEPTH TO	RECOVERY	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH OF SAMPLE				
181'	186'		WHITE, MED GR, MASSIVE MARBLE. MINOR								
			OR STAIN.								
186'			E.O.H.								

APPENDIX III

1988 Klohn Leonoff Report

KLOHN LEONOFF
CONSULTING ENGINEERS

COPY

Our File: PB 3942 0101

April 8, 1988

White Marble Mountain Corporation
220 - 7525 King George Highway
Surrey, British Columbia
V3W 5A8

Mr. J.D. Stewart

Summary of Field Work and Preliminary
Evaluation - Bonanza Lake Marble Property

Dear Sir:

This letter summarizes the results of field work recently carried out at the Leo D'or marble claim on the east shore of Bonanza Lake and provides a preliminary technical evaluation of the suitability of the site for development of a potential marble quarry. As agreed, we have made no assessment of the economic viability of the property with respect to development costs or market value of the product. The field work, undertaken during the week of March 21, 1988 to March 25, 1988, constitutes the first phase of a technical evaluation for the quarry, as outlined in our proposal dated January 8, 1988.

1. LOCATION

The Leo D'or marble claim is located approximately 30 km southeast of Port McNeill on northern Vancouver Island. The property is located at the northeast end of Bonanza Lake on a tree covered slope which rises from the lake shore, up to the east at an average slope of 1.7H:1V (30°). The claim covers an area of approximately 225 hectares (555 acres). Access to the claim from the Island Highway is via a public road to Beaver Cove followed by a Crown Forest Industries' private logging road to the site. The general location and the claim boundary is shown on Drawing B-1001.

2. FIELD WORK

The field work consisted of detailed geologic mapping and sampling. Traverse lines were run approximately east from the edge of the existing Crown Forest logging road using compass and topofil chains. The traverse lines were spaced approximately 50 m apart as measured along the Crown Forest road. Mapping stations were located along each traverse line at outcrops. Rock chip samples were taken at all stations and taken back to our Richmond laboratory for detailed colour evaluation and further laboratory testing. A descriptive note was made between stations when significant change in rock colour or rock type were noticed.

A base map was prepared using the eastern edge of the Crown Forest road as a base line. The road alignment and road width were surveyed using a Brunton compass and topofil chain line. A B.C. Hydro power line which runs approximately parallel to, and between 80 m to 110 m east of the road, was located on the base map by triangulation.

The road alignment, power line and station locations are shown on Drawing D-1002. Field descriptions of the rock observed at each station are included on Drawing D-1002.

Initially, the geologic mapping was intended to cover the entire claim area shown on Drawing B-1001. However, snow prevented exploration of the higher eastern parts of the property. Following discussions with Mr. Jim Stewart at the site, the areal extent of the field mapping was reduced to the area shown on Drawing D-1002.

3. GENERAL GEOLOGY

The claim area is underlain for the most part by either Upper Triassic age limestones of the Quatsino Formation or Jurassic age granodiorites of the Island Intrusions. Discontinuous dykes or sills of basalt of unknown age were frequently observed intruding the limestone.

The limestones have been metamorphosed by the intrusions of the granodiorite and recrystallized to a marble.

3.1 COLOUR AND GRAIN SIZE VARIATIONS

The marble varies in colour from a very light grey to a dark grey or almost black. In some areas the colour varies gradationally and appear to be mottled grey and white whereas at other sites, distinct bands of colour varying from several centimetres to several metres in width were observed. The bands vary in colour from very light grey to black. The contacts between colour bands vary from very sharp to gradational. The orientations of the colour bands vary from horizontal to near vertical.

The grain size of the marble varies from fine to coarse grained. The majority of the marble (approximately 75%) is medium grained. The very dark grey marble was predominantly fine grained, while most of the coarse grained texture observed was contained in the very light grey marble.

3.2 WEATHERING

All of the geological mapping, with the exception of the interior mapping of two caves, was done on surface exposures of marble. No drilling was undertaken at this time. Consequently, most of the rocks observed were weathered to some degree.

Most of the rock samples observed had a light brown to very light orange stain superimposed on their base colours. The staining is caused by oxidation of the iron impurities in the marble. The degree of weathering and the resulting colour varies with the percentage of iron present. Brown staining along micro cracks and around grain boundaries was observed in some of the highly weathered, near-surface rocks. Some samples showed no signs of iron staining at all.

Most of the iron impurities are present as discrete iron particles shaped like rods 0.5 mm in diameter and 3 to 4 mm long, or sand size particles up to 1 mm in diameter. The particles, which oxidize to a rusty brown, were observed at several locations in all colours of marble. A visual estimation of the percentage of iron was made in the field and from a review of the chip samples taken back to our Richmond laboratory. The percentage of iron is estimated to vary from 0% to 4%.

The massive marble for the most part is hard and resists weathering. However, some blocks of coarse grained very light grey marble and several bands of the very fine grained dark grey marble were observed to be friable and less competent than the majority of the rock.

A strong sulphur odor can be detected in some of the rocks when they are broken open by hammer blows. The sulphur smell was only observed occasionally.

3.3 KARST

The marble rocks observed at Bonanza Lake are predominantly calcium carbonate and as such are susceptible to the formation of karst which forms as a result of circulating groundwater dissolving the calcium carbonate material. The karst usually forms along pre-existing geologic discontinuities which concentrate and control the flow of groundwater. Descriptions of the karst features observed within the claim area are given below.

Crevice karst is present throughout the claim area. The crevices, which follow joints or faults, may be up to 1 to 3 m wide and 3 to 15 m deep. Generally the crevices extend laterally for up to 15 m.

Caves were observed at two locations along the existing Crown Forest road. The caves were explored for a distance of 8 m and 25 m respectively and the cave outlines are shown on Drawing D-1002. Both caves could not be explored to their source due to narrowing of the passages but are assumed to end either at sinkholes or crevices. The larger of the two caves explored ends very close to the location of a wide deep crevice mapped on the surface. Both caves were dry at the time of exploration.

Springs were observed at several spots within the mapped area. One major spring flowed from rubble at an estimated rate of 20 to 30 gpm. The location is shown on Drawing D-1002. Other springs, which were little more than trickles, appeared to be flowing along and exiting from joints in otherwise massive blocks.

3.4 STRUCTURES

Bedding in the marble has a regional dip of approximately 20°. The strike varies considerably. Locally, the beds are folded into tight synclines or anticlines, the limbs of which dip locally as steeply as 40° to 60°. The fold axes vary in plunge from 0° up to 65°.

A major fault has been mapped by Muller et al. (1974) running north-south through Bonanza Lake. Minor faults, probably sympathetic to the Bonanza Lake Fault, were observed running east-west at several outcrops along the road. Movements on the small faults, quantified by offsets in the marble banding, vary from 3 to greater than 1 m. The faults are generally steeply dipping to both the north and south.

Faulting and folding were observed frequently in the northern third of the mapped area and were infrequently observed in the south.

Joints in the area are generally steeply dipping. The strike of joints varies from parallel and perpendicular to the slope (parallel and perpendicular to the main fault in Bonanza Lake) to 30° to 60° from slope directions. Joint spacing varies from several centimeters to as much as 10 m. Closely spaced joints form blocky outcrops while widely spaced joints form massive outcrops. Massive or blocky outcrops occur randomly within the mapped area.

3.5 INTRUSIVES

The major intrusive which is believed responsible for the marblization of the Quatsino limestone was observed at approximately marker 22 km, south of the Leo D'or claim area. The rock exposed on the road is a medium grained, medium to light grey granodiorite.

Dykes of basalt rock were observed throughout the mapped area. The dykes vary in thickness from 30 cm to several metres. The majority observed are approximately 60 cm thick. The dykes vary from vertical to almost flat lying. All are discontinuous and could not be traced for more than 10 to 15 m.

4. LABORATORY TESTING

Chip samples of marble have been submitted to Geotex Consultants for thin section analysis and X-ray diffraction. The results have not yet been reported.

A single sample of marble was dissolved in concentrated hydrochloric acid in the Klohn Leonoff laboratory. Approximately 97% to 98% of the sample by weight was completely dissolved within several minutes. The residue was dried and examined under a hand lens. The remaining residue (2% to 3% by weight) consisted of an unidentified white mineral and iron

particles. The iron was estimated visually to be one half of the residue by volume. Additional testing is underway to provide a range of iron content and identify the nature of the residue.

5. PRELIMINARY CONCLUSIONS

Prior to the start of field work, Klohn Leonoff was requested by Mr. J. Stewart to identify, if possible, areas of consistent colour within the mapped area.

A single preferred site approximately 160 m long x 100 m wide (approximately 4 acres) has been identified for further evaluation. The outline of the area is shown on Drawing D-1002. The site consists of very light grey to white marble, with varying amounts of iron staining. Very little colour banding was observed within this area. The majority of the rock is massive although some areas are blocky and dissected by joints. The area is close to the road and is considered accessible. Crevice karst and springs were observed within this preferred site. However, there does not appear to be any site within the claim which does not contain karst.

The overall slope of the ground within the identified area is 30°, although individual faces as steep as 45° are present.

A volume of marble available within the area of consistent colour has been estimated, assuming that the rock at depth is similar to that observed on the surface, and that the average ground surface slope over the site is 30°. We have further assumed that rock waste due to close joint spacing or karst will be 50% and that quarry slopes will extend up at approximately 60° from the outline of the preferred site as shown on section A on Drawing B-1003. We estimate that a rock volume of 240,000 m^3 is potentially available for quarrying. Assuming a unit weight of 2752 kg/m^3 (172 psf) the total tonnage available for quarrying is

660,000 tonnes. Volume will vary depending upon the design quarry slopes eventually determined.

Development of a marble quarry at the Leo D'or claim area is considered to be technically feasible. Blocks of marble will be removed by either very light explosive or wedging by expanding cement and should not therefore interfere with the operation of the existing B.C. Hydro power line. However, support of the transmission towers on the perimeter of the quarry will require closer examination at a later stage.

Groundwater at the site is expected to be concentrated in karst channels at a variety of depths. The actual flows cannot be easily determined prior to development but are not expected to cause insurmountable problems.

Access to the preferred site shown on Drawing B-1001 will be relatively convenient. We understand that a written road use agreement has been granted by Crown Forest Industries for use of its private logging road.

6. FUTURE WORK

Additional field work in the form of drilling is recommended to assess the variation in colour and the variation in iron content of the subsurface marble.

Samples recovered should be subjected to ASTM tests for strength and abrasion resistance. In addition, accelerated weathering tests should be conducted on fresh samples, particularly samples with iron particles, to determine the reaction and acceptability of weathering with respect to the product.

We recommend that the White Mountain Marble Corporation approach B.C. Hydro to determine what limitations, if any, would be imposed by Hydro for future quarry developments in the vicinity of the existing power line.

Yours very truly,
KLOHN LEONOFF LTD.

for Scott E. Broughton
Project Engineer

Iain G. Bruce, P.Eng.
Project Manager

Encl.
Drawing B-1001 - General Locations
D-1002 - Geologic Map
B-1003 - Schematic Section A

IGB/ld

REFERENCES

Muller J.E., Northcote, K.E. and Carlisle, D. 1974. Geology and Mineral Deposits of Alert Bay - Cape Scott Map area, Vancouver Island, British Columbia. Geological Survey of Canada, paper 74-8, 77 pp.

126°48'

50°24'

Logging Road 2.4 km

LCP

CURRENT TEST AREA

A

B

C

Flagged Trail

(H) (Heliport)

ONYX HILL

Road

Power Line

BONANZA LAKE

876'

N

0 100 200
METRES

0 500 1000
FEET

1:5000

inches
0 1 2
0 1 2 3 4 5
centimetres

BRITISH COLUMBIA GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

2500 Contour level in feet

FIGURE 5 - LEO D'OR MINERAL CLAIM
PROPOSED AREAS FOR LICENSES OF OCCUPATION