

FILMED

MAMMOTH
GEOLOGICAL LTD.

Box 14, Coal Harbour, B.C. V0N 1K0
Phone : (604) 949-5197 Fax : (604) 949-5198

INITIAL REPORT
1993 EXPLORATION PROGRAM
FOR THE

LOG NO:	APR 13 1994	RD.
ACTION.		
FILE NO:		

DUMP PROPERTY

Nanaimo Mining Division
Vancouver Island, B.C.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,327

By: R. Tim Henneberry, P. Geo.
December 24, 1993

SUMMARY

The initial mapping program of the Dump property in the Nanaimo Mining Division of Vancouver Island has met with favorable results. The on-going mapping and sampling has identified marketable marble on the claims, with at least one potential quarry site identified in each of the grey-white and white marbles. These marbles may also be considered as a source of industrial limestone.

The Dump property consists of the Dump 1-2 two-post mineral claims. The property is located 40 kilometres south of Port McNeill. A maintained logging road bisects the property.

The on-going mapping and sampling program needs to be completed. The cost of this phase (partially completed) is estimated at \$7,101.

A small program of excavator trenching will be required to clean and open the exposures of grey-white and white limestone. This will necessitate 25 hours of excavator time at an estimated cost of \$14,116.

A program of diamond drilling and bulk testing will be required to further evaluate the potential quarry sites before a production decision can be made. A minimum of 305 metres (1000 feet) will be drilled to assess continuity of color, texture and structural competency along strike and to depth. The 10 day program is estimated to cost \$48,818.

Upon successful completion of the drilling program, a bulk testing program of stripping of overburden and cleaning of the testing sites followed by excavation of several rough quarry blocks is recommended. The purpose is to ensure the blocks can be successfully processed into marble slabs and tiles. This phase also includes the necessary permitting and engineering of the quarry site, as well as outlining of reserves. Total cost of the 15-20 day program is estimated at \$133,659.

The total cost of the proposed program is \$203,694.

Mapping	\$7,101
Trenching	\$14,116
Drilling	\$48,818
Block-cutting	\$133,659

	\$203,694

The program of prospecting and partially completed geological mapping completed to date cost \$2,279.15.

TABLE OF CONTENTS

INTRODUCTION4
LOCATION, ACCESS6
CLAIM HOLDINGS8
REGIONAL GEOLOGY10
 Quatsino Formation12
1993 EXPLORATION PROGRAM14
 Property Geology14
 Grey-White Marble14
 White Marble14
 Grey-Black Marble14
DISCUSSION15
CONCLUSIONS AND RECOMMENDATIONS16
REFERENCES17
STATEMENT OF QUALIFICATIONS18
STATEMENT OF COSTS19
COST ESTIMATES20
SAMPLE DESCRIPTION21
CERTIFICATE OF ANALYSIS22

LIST OF FIGURES

1. Property Location5
2. Claim Location7
3. Geology of Vancouver Island9
4. Northern Vancouver Island Quatsino Limestone11
5. Property Geology13

INTRODUCTION

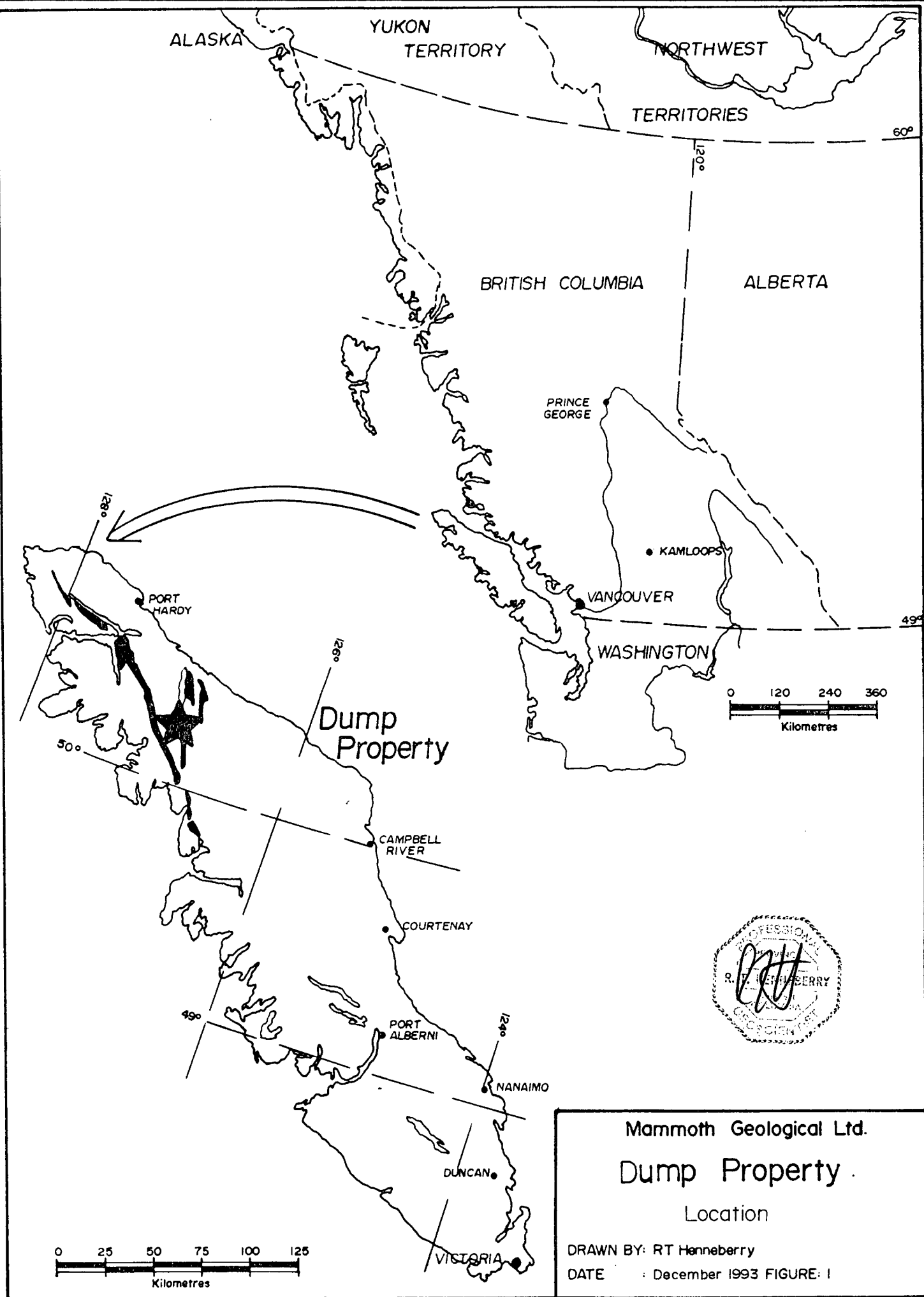
The purpose of this report is to document the initial exploration program on-going on the Dump property. The exploration program consists of prospecting and partially completed property mapping. The exploration target is marble for dimension stone, or possible industrial grade limestone.

The goal of the property mapping is to examine as many outcrops as possible on the claim group to obtain samples for preparation. As well, as much structural information as possible is gathered from the outcrops.

Polished samples were made from each of the samples taken to date. These prepared samples were then compared to obtain indications of the color, style and texture of the stone for its intended purpose of polished slabs and tiles.

The mapping has already pinpointed locations where color and texture are consistent and fracturing looks to be minimized.

One of the samples was analyzed for use as industrial grade limestone.



ALASKA

YUKON
TERRITORY

NORTHWEST
TERRITORIES

BRITISH COLUMBIA

ALBERTA

PRINCE
GEORGE

KAMLOOPS

VANCOUVER

WASHINGTON

PORT
HARDY

Dump
Property

CAMPBELL
RIVER

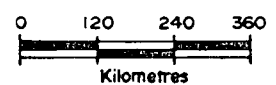
COURTENAY

PORT
ALBERNI

NANAIMO

DUNCAN

VICTORIA



Mammoth Geological Ltd.

Dump Property

Location

DRAWN BY: RT Henneberry

DATE : December 1993 FIGURE: 1

LOCATION, ACCESS

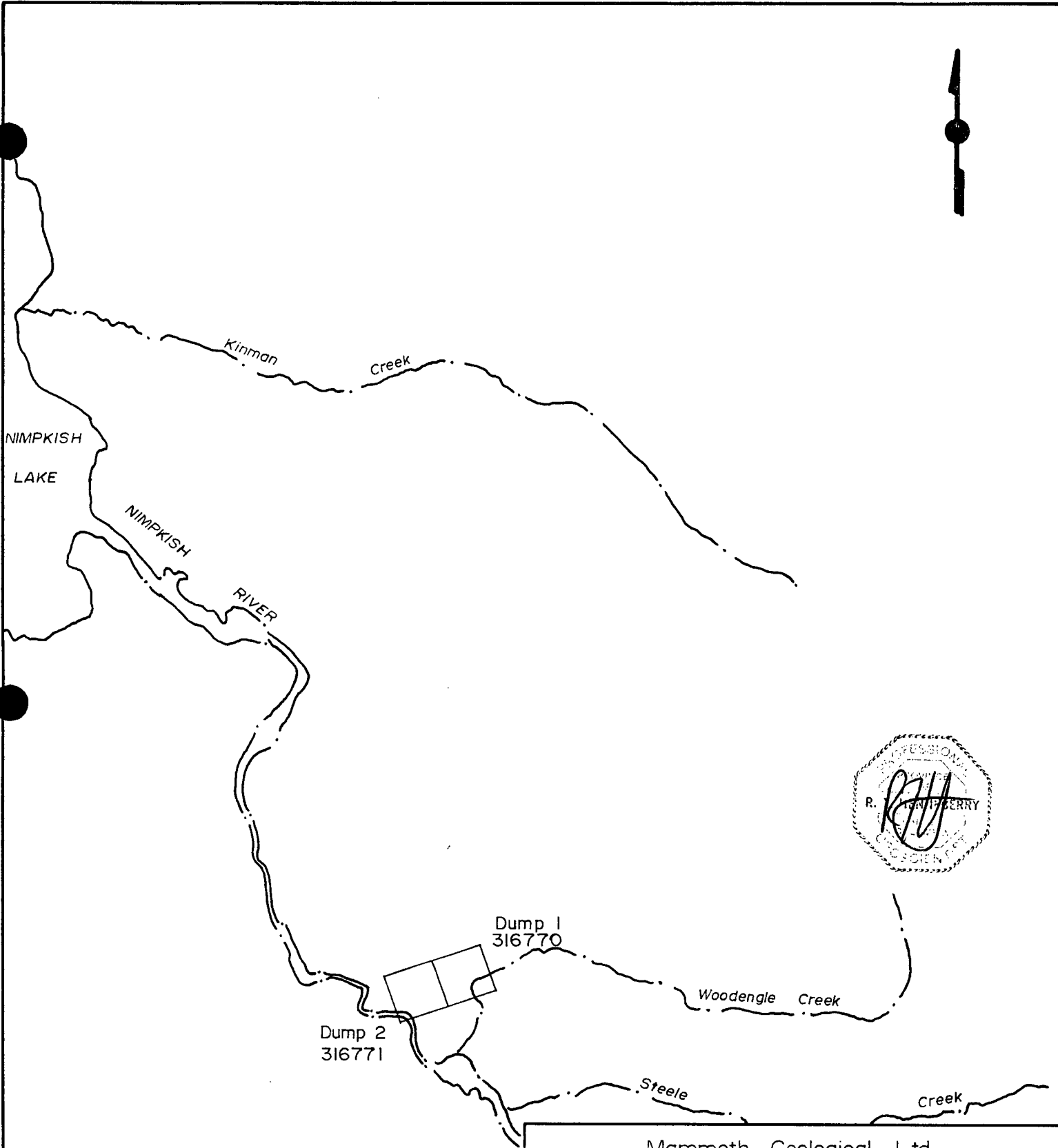
The area of interest is the northern section of Vancouver Island, between latitudes 49° 45' and 50° 45' and longitudes 126° 30' and 127° 55'. Topography ranges from Sea Level to 1050 metres, with valleys generally less than 300 metres. There are numerous lakes, creeks and streams where water for diamond drilling is readily obtainable. Heavy duty equipment for trenching and road-building will be accessible locally, in either Port Hardy or Port McNeill.

The climate on the north island is relatively mild. The summers are warm and generally dry, while the winters are cool and wet. Snow will accumulate on the higher peaks, but generally the valley bottoms and lower hills are clear for year round work.

There are several towns and lesser communities in the map area where accommodation and lodging can be readily obtained, including Port Hardy, Port McNeill and Woss. The Island Highway cuts through much of the map area. The numerous logging roads of Canadian Forest Products, Fletcher Challenge Canada and Canadian Pacific Forest Products provide access to different claim groups.

The Dump property lies on NTS Sheet 092L/07W, 40 kilometres south of Port McNeill. Access is 40 kilometres south along Island Highway to Zeballos Road, then 0.5 kilometres along this road to the property. The status of the property is immature second growth.

Part of the Dump claims cover an old gravel pit / garbage dump at the Anutz Reload.



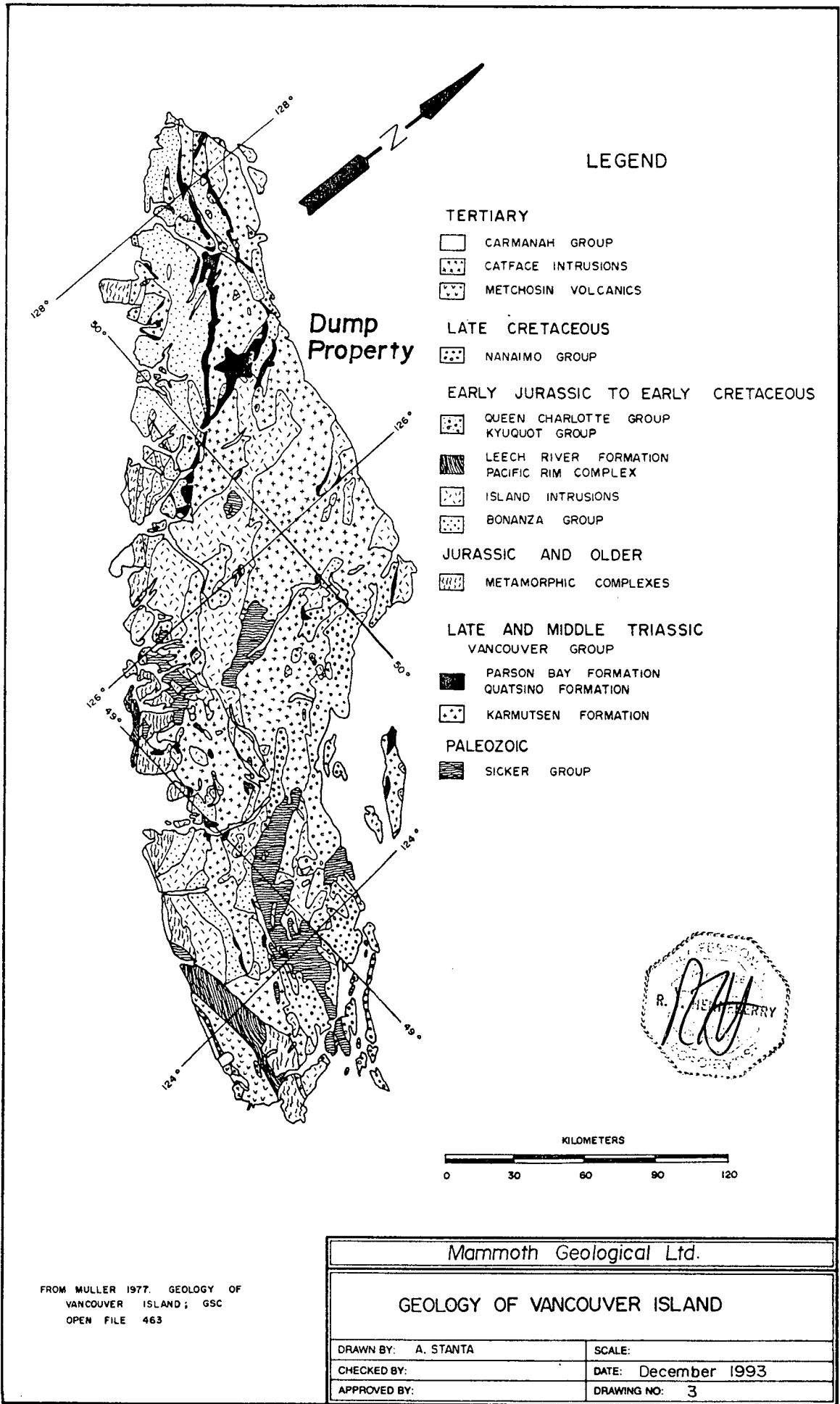
Mammoth Geological Ltd.	
Dump Property Claim Location	
DR. BY: RT Henneberry	SCALE: 1 : 50,000
DATE: December 1993	APPRD. BY:
CHK'D. BY:	REV.:
DWG. NO. 2	From Claim Sheet 92L/07W

CLAIM HOLDINGS

The Dump property comprises a total of 2 units. Unlike metallic mineral exploration, large tracts of ground do not need to be acquired to secure your deposit. The Dump group covers a large section of the south end of the Centre Band of the Quatsino Limestone, so larger claim holdings are pointless.

Name	Record Numbers	Anniversary Date
Dump 1	316770	March 31, 1994
Dump 2	316771	March 31, 1994

The claims are presently registered to Lou D. Straith.



REGIONAL GEOLOGY

The geology of the north end of Vancouver Island has been described by Muller et al (1974) and Muller et al (1980). The area lies in the Insular Belt of the Canadian Cordillera. The map area is chiefly underlain by the middle to upper Triassic Vancouver Group, overlain by the lower Jurassic Bonanza Group. The Vancouver Group is intruded by large and small bodies of middle Jurassic Island Intrusions and the related (?) Westcoast Complex, and overlain unconformably by remnants of a lower Cretaceous clastic wedge on the southwest side and similar upper Cretaceous beds on the northwest side of Vancouver Island. There are some small early Tertiary (Catface) intrusions also mapped. The region may be divided into several great structural blocks, separated mainly by important near-vertical faults and themselves fractured into many small fault segments.

The Vancouver Group is comprised of the lower Karmutsen Formation, middle Quatsino Formation and upper Parson Bay Formation. The Karmutsen Formation, the thickest and most widespread of the Vancouver Group formations, consists of basaltic pillow lavas, pillow breccias and lava flows with minor interbedded limestones, primarily in the upper part of the formation. Karmutsen rocks outcrop throughout the north part of Vancouver Island, primarily on the east side.

The Quatsino Formation overlies the basalts. The lower part of the Quatsino Formation consists of thick bedded to massive, brown-grey to light grey, grey to white weathering, fine to microcrystalline, commonly stylolitic limestone. The upper part is thin to thick bedded, darker brown and grey limestone, with fairly common layers of shell debris. The formation is in gradational contact with the overlying Parson Bay Formation by an increase in layers of calcareous pelites. Quatsino limestone outcrops as three narrow belts on the north part of Vancouver Island.

The Parson Bay Formation consists of a series of interbedded silty limestones and calcareous shales and sandstones, and occasional beds of pure limestone. Parson Bay rocks outcrop sporadically overlying the Quatsino limestone.

The Bonanza Group overlies the Vancouver Group. Bonanza Group rocks are primarily a Jurassic assemblage of interbedded lava, breccia and tuff with compositions ranging from basalt through andesite and dacite to rhyolite, deposited in a volcanic island arc environment. The Bonanza Group outcrop primarily on the west side of northern Vancouver Island.

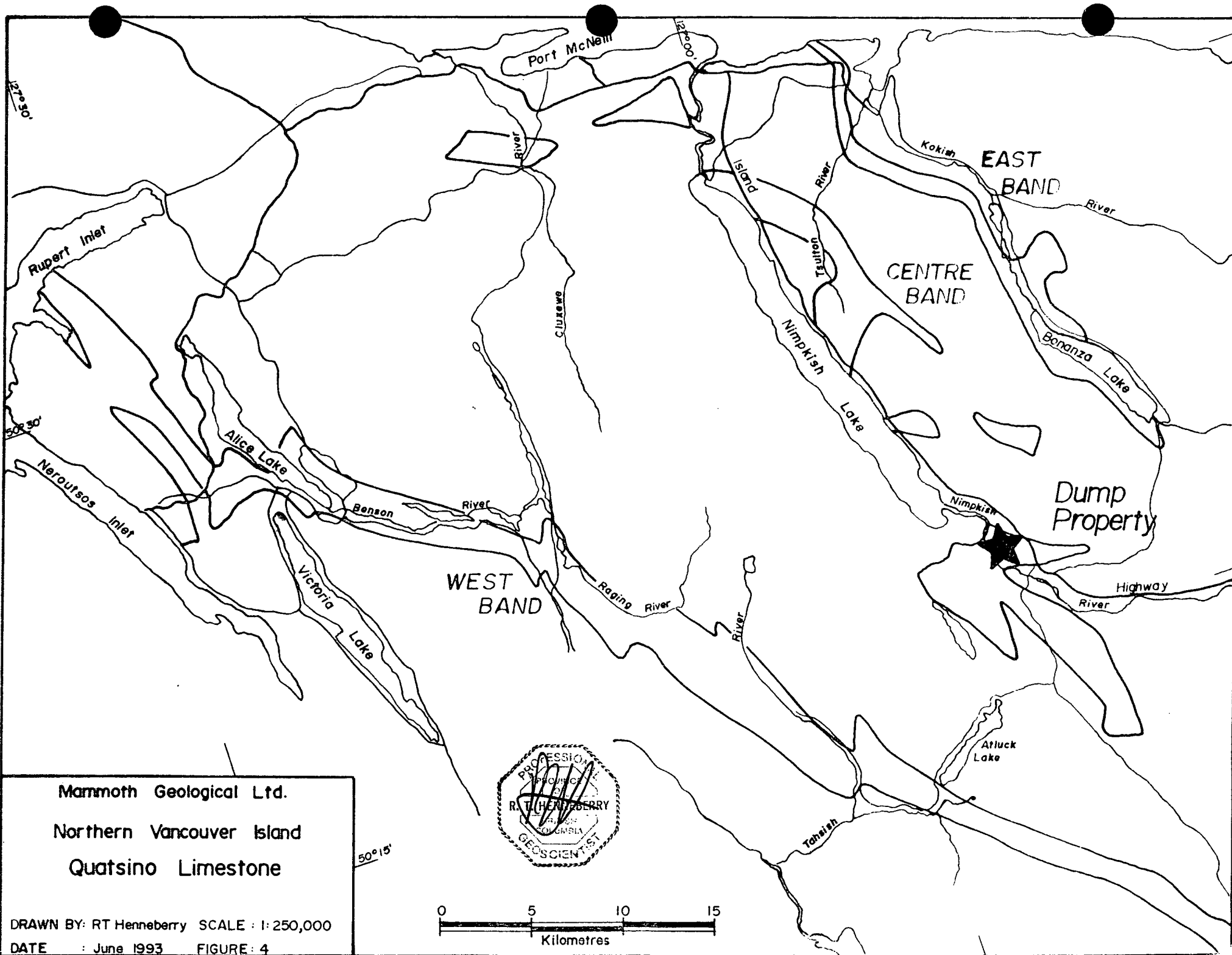
The Westcoast Complex is a heterogeneous assemblage of amphibolite and basic migmatite with minor metasedimentary and metavolcanic rocks of greenschist metamorphic grade. The Westcoast Complex outcrops in a loosely defined belt on the west coast of Vancouver Island.

Granitoid batholiths and stocks of the Island Intrusions underlie large parts of Vancouver Island. These intrusions range in composition from quartz diorite and tonalite to granodiorite and granite. Island Intrusions outcrop in a belt through the central section of Vancouver Island.

The Cretaceous clastic wedge includes the Queen Charlotte and Nanaimo Groups. These groups consist of cyclical successions of sandstone, conglomerate and shale, with interbedded coal in the Nanaimo Group. These rocks outcrop around Quatsino Sound.

Small intrusive stocks of early Tertiary age and of general quartz dioritic composition are known in many parts of Vancouver Island. These rocks are generally massive, light colored, fine to medium grained equigranular to locally porphyritic granitoid rocks. They are commonly regularly and closely jointed.

The network of faults displayed on the north end of Vancouver Island appears to be the super position of two or more fracture patterns, each with a characteristic directions and of different age and origin.



Quatsino Formation

The Quatsino Formation limestones are the main focus of the marble exploration. The larger, massive beds of limestone are white to grey in color and distinctly crystalline. Exceedingly fine-grained beds form a small percentage of the whole and siliceous or cherty varieties are likewise sparingly developed (Gunning, 1930). The Quatsino formation consists almost entirely of limestone, with a few thin flows of andesite or basalt. The limestone is fine to coarsely crystalline, and ranges from white to black, with various intermediate colors. Towards the base, it tends to be exceedingly fine grained, and grey and brownish or buff colors are characteristic. Midway of the formation the colors are predominantly white or grey, but towards the top the limestone becomes dark grey to black, due to a varying quantity of carbonaceous matter, and the formation grades upward into argillites and impure limestones of the overlying Parson Bay Formation. Even at the top, however, light grey or even white beds are interbedded with the darker varieties. The bedding, as represented by colour banding, is generally well preserved in the upper part of the formation but in the lower part, where white to brownish grey and buff colors predominate, it is poorly preserved. In the upper part, too, the beds are generally thin, thicknesses of 1-2 centimetres being common and more than 60-100 centimetres uncommon. The formation as a whole is dominantly a high-calcium limestone (Hoadley, 1953).

Within 1-3 kilometres of bodies of the Coast Intrusions, the limestone may be highly contorted and extremely jointed and fractured, cut by many acidic dykes, and partly to completely skarnified (Hoadley, 1953).

Limestone outcrops in three relatively narrow discontinuous bands of varying lengths on the north end of Vancouver Island (McCammon, 1968). The East Band reaches from the hill just west of Beaver Cove southeast across Tsulton River to Bonanza Lake and down the west side of the lake to its west end. The Centre Band extends from 5 kilometres south of Port McNeill southeast to 15 kilometres past the south end of Nimpkish Lake. The West Band extends from west of Nahwitti Lake southeast to Tlupana Inlet. A additional limestone occurrence extends along the south shore of Holberg Inlet.

The limestone from the Centre Band is generally medium grey to black or dark brown to black. The limestone becomes darker and argillaceous towards the top of the formation (Gunning, 1932a). White to dark grey limestones occur at several places on Nimpkish Lake where they are recrystallized and somewhat faulted and obtain a thickness of 150 to 300 metres (Gunning, 1930). Along the east side of Nimpkish Lake a section of "dirty" sugary grey white limestone was observed. Both Gunning (1930) and Hoadley (1953) consider the outcroppings along Nimpkish Lake too jointed in many places to serve as a building stone.

1993 EXPLORATION PROGRAM

The Dump property, lying in the Centre Band of the Quatsino Limestone, is completely underlain the limestone. The property is marked largely by river deposits of gravel from the Nimpkish River. Small knobs of grey-white and white limestone protrude through the gravel. Both of these limestones have potential for dimension stone.

The property was located during on-going assessment of the marble bands. Exploration to date consisted of prospecting and sampling and preliminary property mapping. Initial activity was concentrated to the numerous roads providing access to most of the claim group. Most outcrops seen were examined.

Access through the entire claim group via logging roads is good. The immature second growth obliterates views across the property, but does not appear to be much of impediment to traversing. Diamond drilling water is available from Woodengle Creek.

Property Geology

The Dump property is entirely underlain by Quatsino limestone. The river deposits cover much of the property, with only ridges and knobs of limestone protruding through the sediments. Three limestones were identified: a fine-grained grey-white, fine-grained white and a coarse-grained grey black. The grey-black limestone was only noted in one exposure, while the two remaining marbles both have potential as dimension stone. Bedding has been measured at 124/30-50SW.

The exposures are confined to gravel pits and road and rail cuts. The faces of the gravel pits range to 15 metres in height. The pits appear to be abandoned after uncovering marble ridges. The other main exposure is along the spur rail line at the Anutz Reload.

Grey-White Marble

The grey-white limestone is exposed in the large gravel pit on the eastern side of the claim group. The main exposure is 40 metres long by 15 metres high by 10 metres wide. A second exposure is behind the first on the far side of a second gravel pit. In this location the marble is intruded by a 2 metre thick andesite dyke, intruded along a bedding plane. The outcrop is grey-white in color and shows numerous zones of limonite, confined primarily to weathered surfaces and fractures. There are several blocks or boulders of this marble in excess of 2 metres lying in the gravel.

The marble is dense and coarsely crystalline (1-2mm). The color is almost a "dirty" white grey. The "dirty" look to the stone is likely due to impurities. The stone shows little signs of stress fracturing. There is 1/2% disseminated sulfides throughout the sample as 1-3mm crystals. There is also traces of limonite on some of the bedding planes (?).

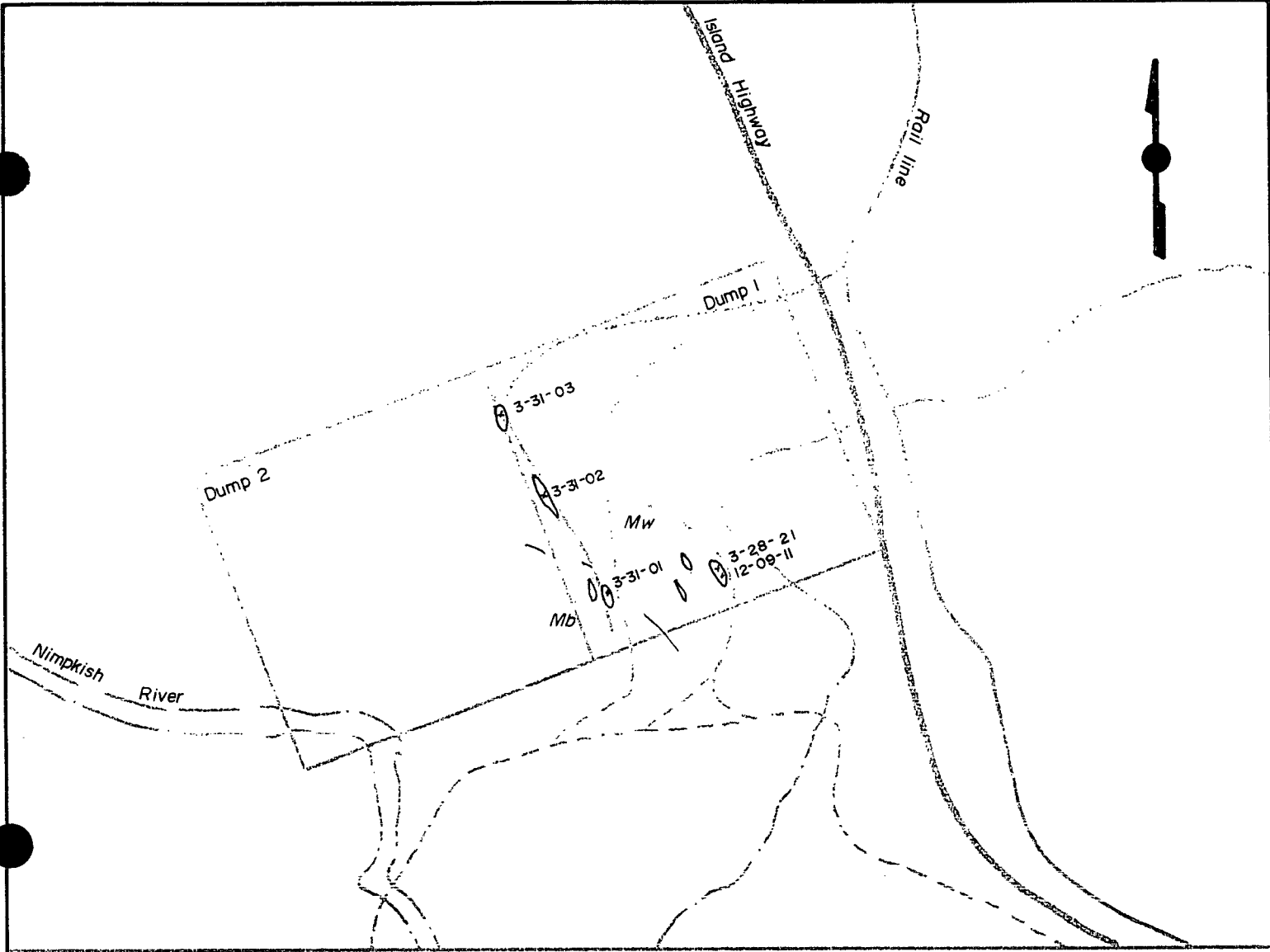
White Marble

The white marble, ranging from semi-massive to well-fractured, is exposed along the rail cut. Limonite is common to abundant on fractures, though little clay or carbonate has been noted. The fracturing pattern seems to indicate there is a potential for the extraction of large blocks.

This marble is dense and medium-grained. Though the color of this stone is a grey-white it is quite a bit lighter in color than (03-28-21). The sample is massive, though it is not homogeneous. There is 1/2% disseminated sulfide throughout the sample, ranging from 1-3mm.

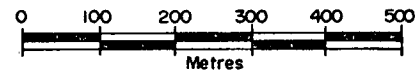
Grey Marble

There is one small outcrop of well-fractured, coarse-grained grey-black marble. The stone is a dense, coarse-grained grey marble, with individual crystals of calcite up to 2mm in size. The sample shows a foliation of lighter and darker bands in widths to 3cm. The sample is massive with traces of sulfides and limonite.



LEGEND

- Ad* Andesite dyke
- Mw* White marble
- Mb* Black marble
- Creek
- Outcrop
- Road
- 3-31-01 Sample location



Mammoth Geological Ltd.	
Dump Property Geology	
DR. BY: RT Henneberry	SCALE: 1 : 10,000
DATE: January 1994	APPRD. BY:
CHK'D. BY:	REV.:
DWG. NO. 5	

DISCUSSION

The initial mapping of the Dump property has located three distinct limestones: a grey-white, a white and a grey. The grey is too broken for consideration as dimension stone. Both of the white marbles appear to be massive enough in sections for consideration as dimension stone, based on preliminary examination of fracture patterns.

The next step is to complete the mapping and sampling over the remainder of the property, primarily via the logging roads and rail cuts. Once the mapping and sampling is completed target areas for follow up exploration will be pinpointed.

The general low relief on the property, coupled with the large volume of river and lake detritus, suggests excavator trenching will be required to clean, open and adequately assess the exposures. Approximately 25 hours of trenching with a 690 John Deere Hoe should sufficiently assess the property.

A program of diamond drilling will then be required to test the grey-white and white marbles to a depth of ± 30 metres. A successful drill program will pinpoint sites for further testing.

Finally, a program of test quarrying should be undertaken. This will involve stripping and clearing of overburden to be followed by the cutting of 10-25 blocks of marble, with approximate dimensions of 1.8*1.8*2.5 metres. The purpose will be to ensure the structural competency of the stone for its intended use as marble slabs and tiles.

CONCLUSIONS AND RECOMMENDATIONS

The initial mapping program completed to date on the Dump property has met with favorable results. The white marble and possibly the grey-white marble appear to be a marketable stones. Potential quarry sites have been preliminarily identified, though further work is definitely required. Consideration should also be given to these marbles as potential industrial marble, especially if fracturing patterns preclude a dimension stone end use.

A program of excavator trenching and diamond drilling, followed by test block cutting is recommended at the completion of the on-going mapping and sampling program.

Most of the property has yet to be mapped and sampled. The total cost of mapping program (partially completed) is estimated at \$7,101.

A small excavator trenching program is required due to the general low relief of the property. A total of ±25 hours is recommended at an estimated cost of \$14,116.

The proposed diamond drilling program will test the grey-white and white marbles for consistency of color and texture and structural competency at the potential quarry sites. A total of 5-8 twenty metre (sixty five foot) holes will test each of these two marbles. Cost of this phase is estimated at \$48,818.

The test block cutting is estimated to cost \$133,659. A detailed budget and a positive report on the diamond drilling results will be required before the block cutting program can commence.

Mapping	\$7,101
Trenching	\$14,116
Drilling	\$48,818
Block Cutting	\$133,659

	\$203,694

The program of prospecting and partially completed geological mapping completed to date cost \$2,279.15.

REFERENCES

- Gunning,H.C. (1930). Geology and Mineral Deposits of Quatsino-Nimpkish Area, Vancouver Island, British Columbia. Geological Survey of Canada Summary Report 1929A. pp.94A-143A
- Gunning,H.C. (1932a). Preliminary Report of the Nimpkish Lake Quadrangle, Vancouver Island, British Columbia. Geological Survey of Canada Summary Report 1931A. pp.22A-35A.
- Henneberry,R.T. (1992). Summary of Observations and Exploration Recommendations for the Tsult, Sally and Beaver Properties, Vancouver Island, B.C. Private Report of Panorama Natural Stone Ltd. 33p.
- Hoadley,J.W. (1953). Geology and Mineral Deposits of the Zeballos-Nimpkish Area, Vancouver Island, British Columbia. Geological Survey of Canada Memoir 272. 82p.
- McCammon,J.W. (1968). Limestone Deposits at the North End of Vancouver Island. British Columbia Ministry of Mines Annual Report for 1968. pp.312-318.
- Muller,J.E. (1977). Geology of Vancouver Island. Geological Survey of Canada Open File 463.
- Muller,J.E., K.E.Northcote and D.Carlisle (1974). Geology and Mineral Deposits of Alert - Cape Scott Map-Area (92L-102I) Vancouver Island, British Columbia. Geological Survey of Canada Paper 74-8. 77p.
- Muller,J.E., B.E.B.Cameron and K.E.Northcote (1981). Geology and Mineral Deposits of Nootka Sound Map-Area, Vancouver Island, British Columbia. Geological Survey of Canada Paper 80-16. 53p.
- Stevenson,J.S. (1950). Geology and Mineral Deposits of the Zeballos Mining Camp, British Columbia. British Columbia Department of Mines Bulletin 27. 145p.
- Studio Marmo S.r.l. (1992). NATURAL STONES. Marbles and granites from all over the world. Published by: Studio Marmo S.r.l., Via Aurelia 115, 55046 Querceta, Lucca, Italy.

STATEMENT OF QUALIFICATIONS

I, R. Tim Henneberry, am the principle of Mammoth Geological Ltd., a geological consulting firm with offices at #1 - 5745 Hardy Bay Road, Port Hardy, B.C. The mailing address is Box 14, Coal Harbour, B.C. V0N 1K0

I earned a Bachelor of Science Degree majoring in geology from Dalhousie University, graduating in May 1980.

I have practiced my profession continuously since graduation.

I am registered with the Association of Professional Engineers and Geoscientists in the Province of British Columbia as a Professional Geoscientist. I am also a Fellow of the Geological Association of Canada.

I undertook the mapping and sampling programs described in this report on the following 1993 dates: March 28, March 31, and December 9.

I have an indirect interest in the Dump 1-2 mineral claims.

This report may be used for any purpose normal to the business of Mammoth Geological Ltd., provided no part is used in such a manner to convey a meaning different than that set out in the whole.

Dated this 24th day of December in the Town of Port Hardy, British Columbia.



STATEMENT OF COST

Dump Property

Project Manager	1.5 days @	450.00 /day	\$675.00
On-site Geologist			
Room and Board			
Vehicles	1.5 days @	50.00 /day	\$75.00
Analysis	5 samp @	50.00 /sample	\$250.00
Analysis	1 samp @	29.15 /sample	\$29.15
Documentation	3 days @	450.00 /day	\$1,250.00
Dump Property Costs			\$2,279.15

COST ESTIMATES

Phase I - Property Mapping
(3 day duration)

Field Costs (Geological and Supervision)	\$2,400
Support Costs (Room and Board, Vehicles)	\$600
Analysis Costs (Polished/Thin Sections)	\$1,375
Documentation (Reports)	\$1,800
Contingency (15%)	\$926

Phase I Property Mapping Budget **\$7,101**

Phase II - Excavator Trenching
(3 day duration - 25 hours)

Contractor Cost (Excavator)	\$4,000
Field Costs (Geological and Supervision)	\$2,400
Support Costs (Room and Board, Vehicles)	\$600
Analysis Costs (Polished/Thin Sections)	\$2,125
Documentation (Reports)	\$3,150
Contingency (15%)	\$1,841

Phase II - Excavator Trenching Budget **\$14,116**

Phase III - Diamond Drilling
(15 day duration - 1000 feet)

Contractor Cost (Excavator)	\$2,800
Contractor Cost (Diamond Driller)	\$16,500
Field Costs (Geological and Supervision)	\$12,000
Support Costs (Room and Board, Vehicles)	\$3,000
Analysis Costs (Polished/Thin Sections)	\$1,400
Documentation (Reports)	\$6,750
Contingency (15%)	\$6,368

Phase III - Diamond Drilling Budget **\$48,818**

Phase IV - Block Cutting
(20 day duration)

Contractor Cost (Excavator)	\$14,000
Contractor Cost (Quarry Crew)	\$38,850
Field Costs (Geological and Supervision)	\$12,000
Support Costs (Room and Board, Vehicles)	\$6,375
Permitting Costs	\$15,000
Sample Preparation	\$20,000
Documentation (Reports)	\$10,000
Contingency (15%)	\$17,434

Phase IV - Block Cutting Budget **\$133,659**

TOTAL BUDGET **\$203,694**

SAMPLE DESCRIPTIONS

Dump

Sample 03-28-21 - Dense, coarsely crystalline (1-2mm) white marble. The color is almost a "dirty" white grey. The "dirty" look to the stone is likely due to impurities. The stone shows little signs of stress fracturing. There is 1/2% disseminated sulfides throughout the sample as 1-3mm crystals. There is also traces of limonite on some of the bedding planes (?).

Sample 09-12-11 - Dense, medium-grained (1-2mm) grey white marble. Almost a faint remnant banding through stone. Fractured with white carbonate healing. 15mm stylolite through centre of sample. Traces of limonite on 10% of fractures. Traces of sulfides.
This sample was submitted for chemical analysis.

Outcrop - The outcrop is covered for the most part by river gravels. It is accessible only in a small location, where it is hard to ascertain fracture information. Limonite was present on the exterior of the sample.

Sample 03-31-01 - Dense, coarse-grained grey marble, with individual crystals of calcite up to 2mm in size. The sample shows a foliation of lighter and darker bands in widths to 3cm. The sample is massive. Traces of sulfides and limonite.

Outcrop - Well fractured, coarse-grained grey-black marble. Vertical fractures 10-50cm in length, spaced at intervals of 50-100cm. Horizontal fractures 50-100cm in length, 100-200cm interval spacing.

Sample 03-31-02 - Dense, medium-grained grey-white marble, with individual 1mm calcite crystals. Though this stone is a grey-white it is quite a bit lighter in color than (03-28-21). The sample is massive, though it is not homogeneous. There is 1/2% disseminated sulfide throughout the sample, ranging from 1-3mm.

Outcrop - Semi-massive white marble. Horizontal fractures 20-50cm in length at 100-200cm spacings. Vertical fractures 20-40cm in length, 100-200cm spacings. Minor limonite noted.

Sample 03-31-03 - No sample.

Outcrop - Well-fractured white marble. Extremely well brecciated, almost looks like the beds have been tipped on edge. The outcrops appear to be more massive towards the NW. Abundant fracture limonite.



Chemex Labs Ltd.

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



MAMMOTH GEOLOGICAL LTD.

BOX 14
 COAL HARBOUR, BC
 V0N 1K0

A932664E

Comments: ATTN: R. TIM HENNEBERRY

CERTIFICATE

A9326648

MAMMOTH GEOLOGICAL LTD.

Project: NONE
 P.O. #:

Samples submitted to our lab in Vancouver, BC.
 This report was printed on 5-JAN-94.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
208	4	Assay ring to approx 150 mesh
274	4	0-15 lb crush and split
200	4	Whole rock fusion

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
594	4	Al2O3 %: Whole rock	ICP-AES	0.01	99.99
588	4	CaO %: Whole rock	ICP-AES	0.01	99.99
590	4	Cr2O3 %: Whole Rock	ICP-AES	0.01	100.00
586	4	Fe2O3 (total) %: Whole rock	ICP-AES	0.01	100.00
821	4	K2O %: Whole rock	ICP-AES	0.01	99.99
593	4	MgO %: Whole rock	ICP-AES	0.01	99.99
596	4	MnO %: Whole rock	ICP-AES	0.01	99.99
599	4	Na2O %: Whole rock	ICP-AES	0.01	99.99
597	4	P2O5 %: Whole rock	ICP-AES	0.01	99.99
592	4	SiO2 %: Whole rock	ICP-AES	0.01	99.99
595	4	TiO2 %: Whole rock	ICP-AES	0.01	99.99
475	4	L.O.I. %: Loss on ignition	FURNACE	0.01	99.99
540	4	Total %	CALCULATION	0.01	105.00
891	4	Ba ppm	ICP	10	10000
1067	4	Rb ppm	ICP	5	10000
898	4	Sr ppm	ICP	10	10000
973	4	Nb ppm	ICP	10	10000
978	4	Zr ppm	ICP	10	10000
974	4	Y ppm	ICP	10	10000



Chemex Labs Ltd.

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



MAMMOTH GEOLOGICAL LTD.

BOX 14
COAL HARBOUR, BC
V0N 1K0

Project : NONE
Comments: ATTN: R. TIM HENNEBERRY

Page No. : 1
Total Pages : 1
Certificate Date: 05-JAN-94
Invoice No. : 19326648
P.O. Number :
Account : LJQ

CERTIFICATE OF ANALYSIS

A9326648

SAMPLE	PREP CODE	Al2O3 %	CaO %	Cr2O3 %	Fe2O3 %	K2O %	MgO %	MnO %	Na2O %	P2O5 %	SiO2 %	TiO2 %	LOI %	TOTAL %	Ba ppm	Rb ppm	Sr ppm	Nb ppm	Zr ppm	Y ppm
10-25-01	208 274	0.19	54.10	< 0.01	0.24	0.02	0.31	0.01	0.15	< 0.01	1.17	0.01	42.84	99.06	10	< 5	1450	< 10	< 10	< 10
12-08-01	208 274	0.14	54.38	< 0.01	0.19	0.02	0.22	0.04	0.15	< 0.01	0.93	< 0.01	43.14	99.24	30	< 5	540	< 10	< 10	< 10
12-09-01	208 274	0.06	53.45	< 0.01	0.13	0.01	0.97	< 0.01	0.04	< 0.01	0.43	< 0.01	42.51	97.64	170	< 5	>10000	< 10	< 10	< 10
Dump → 12-09-11	208 274	0.71	53.63	< 0.01	0.31	0.03	1.34	0.01	0.06	< 0.01	2.69	0.02	41.13	99.95	< 10	< 5	910	< 10	< 10	< 10

CERTIFICATION:

Robert Buckler