



082KSW 074
004344 Property File

VICTORIA

May 14th, 1973.

Mr. E.J. Couch,
827 Ioco Road,
PORT MOODY, B.C.

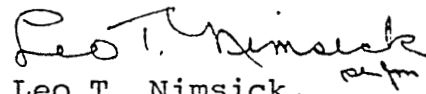
122
Rec'd May 14/73
DM Mines & P.R.

Dear Mr. Couch:

I am writing in reply to your letter of May 3rd, regarding your suggestion about Travertine marble located in British Columbia.

While your letter does not explain a great deal I would suggest that you write to the Attorney-General, who is at present in charge of the Development Corporation and outline in detail what you have in mind in regard to this project. Further, I am going to refer this letter to my Deputy Minister in order that he may assess the value of your suggestion.

Sincerely yours,


Leo T. Nimsick,
MINISTER.

cc: J. McMynn.

827 Ioco Rd,
Port Moody, B.C.

May 3 73.

H. Minsick,
Minister of Mines,
Provincial Government,
Victoria, B.C.

Dear Sir,

May I bring to your attention, to a natural formation of particular limestone, of Travertine marble, located in British Columbia.

Travertine, as you no doubt know is the most widely used interior, and exterior decorative stone used in Vancouver, and likely in the world, main source of supply, being Italy. There is no development or rather production of travertine in Canada, all being imported.

In Vancouver, Italian Travertine has been used in The Board of Trade Bldg, The Bentall Bldgs, The Pacific Press, The Pacific Centre, The Avord Bldg, Simpson Sears Store, The Royal Centre, etc,etc, all bldgs mentioned, being late large modern buildings. This Travertine located in British, is of commercial size, by geogolist report, it is of a more Golden colour than the Italian. It has been approved by Provincial Geogolist's and The National Research Council, and Bureau of Mines, Mineral Processing Di., Ottawa.

A sample has been submitted to Mr G Giles, office, Provincial Director of Design, Provincial Government, Victoria, also a sample submitted to Aurther Erickson, Architect in charge of the new proposed B.C. Centre Bldg, which may be built in Vancouver.

Would the development of this British Columbia, come under the Government's Industrial Development programe.?

Yours truly,

E.J. Couch.



MEMORANDUM

FROM THE

DEPARTMENT OF MINES
AND PETROLEUM RESOURCES

VICTORIA, B.C., May 16, 1973

TO Dr. J.T. Fyles
Assistant Deputy Minister

WHEN REPLYING PLEASE REFER
TO FILE No.....

Re: E.J. Couch travertine

Mr. Couch is an older retired chap who has been interested for several years in a travertine deposit on Arthur Creek at Hills, near the north end of Slokan Lake. So far as I can make out he has had no experience with mining, rocks, nor stone-masonry.

Last season I visited the property but unfortunately had no guide. A poor road had been partly built almost to the reported location of the deposit. Beyond the road end, in the area where Phil Olson had indicated the location, I found three patches of travertine-tufa beside and in the bed of a small creek. There were a few signs of cut lines but no evidence of development work. The material I saw was typical of the surface deposits that form in and near streams and springs highly charged with lime. The largest deposit formed a 30-foot high bluff up the north banks of the creek. It covered an area maybe 200 feet by 50 feet horizontal and extended from elevation 3976 to 4116. (The ground is steep). There was nothing to show the real thickness but is probably not great. A second patch of the rock, about 400 feet farther up the creek, forms the bed of the stream and underlies a small falls. It was exposed about 100 feet along the creek and ranged from 10 to 40 feet wide. I would not expect it to be very thick. The third showing was a patch 20 feet in diameter in the creek bed between the other two deposits. All in all I was unimpressed with what I saw.

In correspondence later with Mr. Couch he implied I had not found the "real" deposit. Therefore I plan to revisit the site this summer.

Couch was over here earlier this year with a 1-inch slab about a foot square which he said was cut from a chunk of material from his deposit. It looked pretty good.

With respect to "demand" I am a bit leary of Couch's estimates -- but, of course, I do not know how deeply he has investigated the market. Last summer Mr. C. Madden, operator of Quadra Stone, Vancouver's chief building stone supplier, told me that the demand for cut sheets of travertine was small. Travertine, like most sheet-cut stone to-day, is mainly sawn and polished in Italy and then distributed world-wide. The cutting and polishing of sheet stone is a specialized art that the Italians have developed very highly. It is not something where anyone can just set up a plant and start operating successfully with no prior knowledge or training.

J.W. McCammon, P.Eng.,
Geologist

JW/C/ds

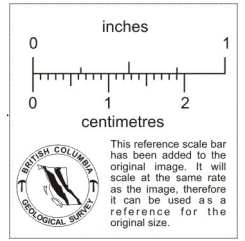
osteray
Compt. No. 17
K-3-d

BRITISH COLUMBIA
FOREST SERVICE

EXHIBIT A
Date JAN 18 1971
Atlas Ref. R 82 K/SW(A-4)

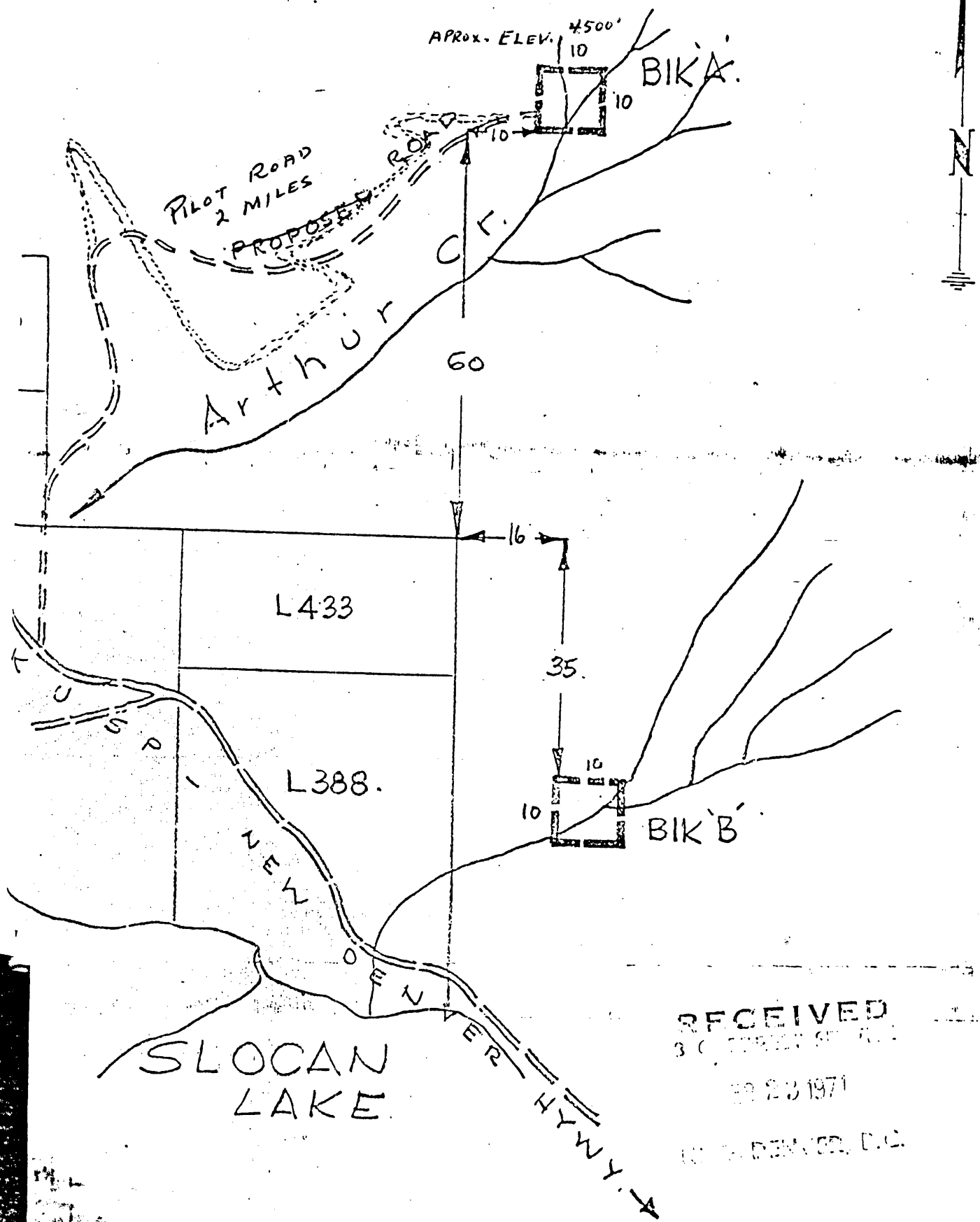
S.U.P. Quarry 6847

Acres ± 20 R.D. 9 Scale 20 chs. - 1 inch



Property File

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RECEIVED
30 JAN 23 1971
D.C.

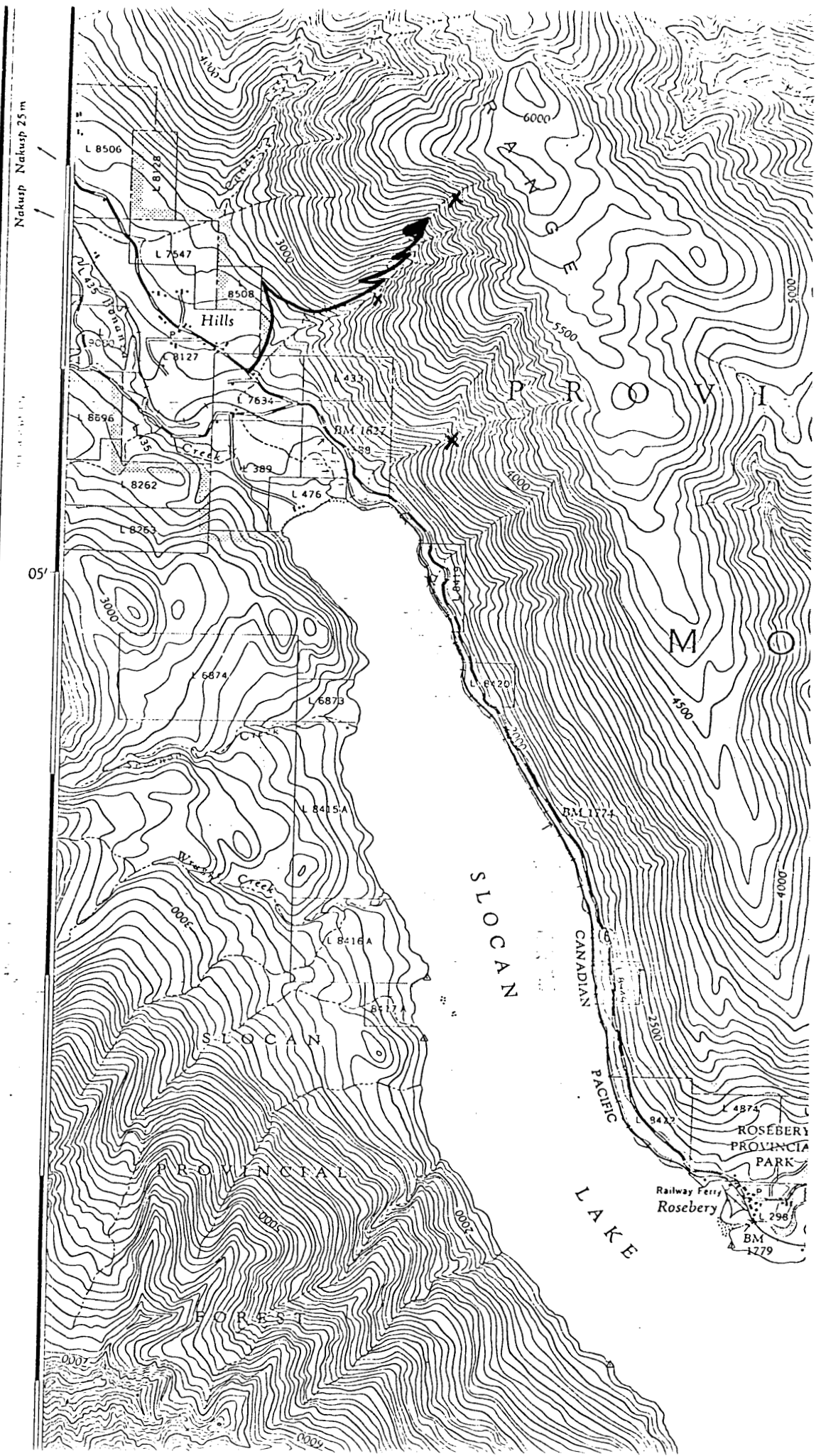
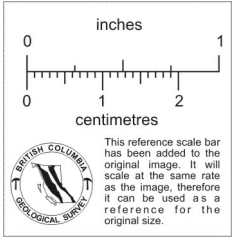


FIG. 1

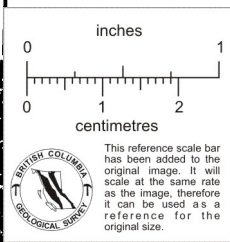
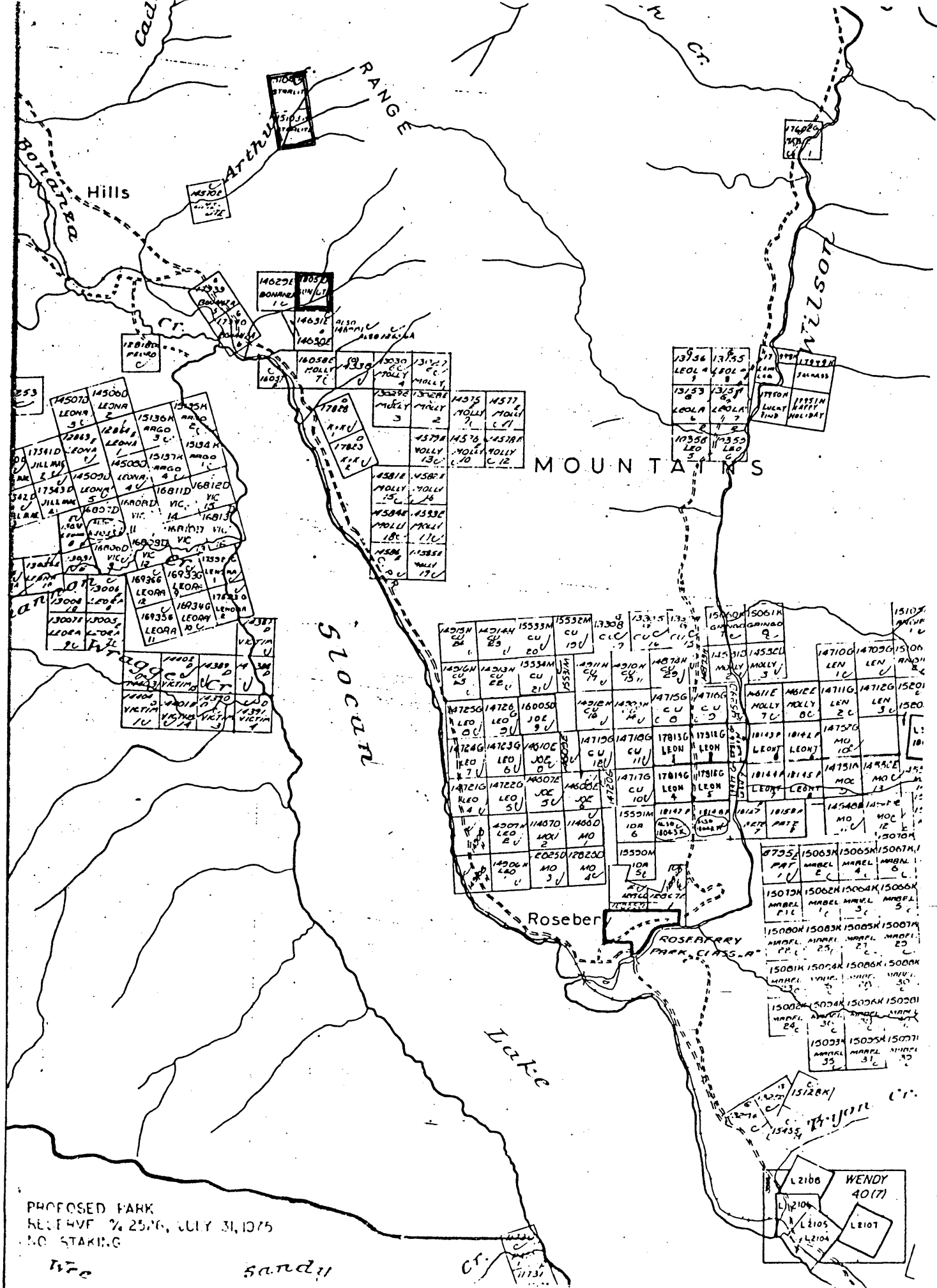


Fig. 1 Claim Location Map 82K3/W(M)

Nelson, B.C.

310 Ward St.,
November 7, 1975.

Dr. Ted Grofe,
Senior Geologist,
Dept. of Mines & Petroleum Resources,
Victoria, B.C.

Dear Ted:

Re: Sunlite Claim - Mike Makortoff's Travertine.

General:

The claim was visited on November 3 in company with Mr. Gordon White, P.Eng. and Mike Makortoff. At least three falls were seen with good looking travertine. It is assumed that the floor of the valley, for the whole claim length, also has travertine. Other smaller cliffs, not associated with the present river valley, also were of travertine. A rough estimate of tonnage would be at least three times what was seen previously on the Starlite claim. I also feel that the travertine on the Sunlite claim is more homogeneous than on the Starlite claim.

Access:

A short foot trail leads to the first falls at approximately the 2500 ft. elevation (Ref. topo map 82K/3W); from there on there is no well defined trail. The valley is not heavily forested and it should not be too difficult to put in a road.

Claim Ownership:

I understand from Mr. Makortoff that George Argatoff wholly owns the Starlite claim and that he (Makortoff) owns the Sunlite claim. Neither parties are talking to each other. Mr. Makortoff also tells me that both claims were originally under S.U.P.(s) and last year they were advised to stake them as mineral claims, which they have done. Mr. McKinnon, the Government Agent at Kaslo, advises me that they should again be under S.U.P.(s).

Sunlite Travertine:

As mentioned, the texture is more homogeneous than that seen at the Starlite claim. I did not see any "breccia" travertine and it took a considerable amount of time to find what I call "agate" travertine. The "moss" serpentine is plentiful on the valley floor and is indeed forming right now. Mr. White brought home to me the speed of formation

Dr. Ted Grove

November 7, 1975

by pointing out a tree trunk that is in the process of being replaced (see photo). Just what is the rate of replacement? Would it be possible to develop a "travertine farm"?

Tonnages:

The tonnages on the Starlite were inferred at 400,000 (ref. Dr. E.W. Grove's report dated October 27, 1975 - Appendix A). I would infer that the tonnage on the Sunlite claim is at least three times this amount - 1,200,000 tons. Keep in mind that traditionally only 25% of this material would end up as a finished product.

Sample:

A sample was sent to Dr. Grove on November 4, 1975.

Conclusion:

Ample tonnages of travertine are available to supply the requirements of the British Columbia market. All the travertine seen so far is of a very pleasing quality. The travertine at the Sunlite claim has an advantage of larger tonnage and perhaps a more homogeneous texture, compared to the Starlite claim.

Yours truly,

George Addie, P.Eng., P.Geol.,
District Geologist.

GA/hr

DANNY
HORA



WHEN REPLYING PLEASE REFER TO

FILE NO.

3.21

MINERAL RESOURCES BRANCH
DEPARTMENT OF MINES AND PETROLEUM RESOURCES
Nelson, B.C.

310 Ward St.,
November 27, 1975.

Dr. E.W. Grove,
Senior Geologist,
Dept. of Mines & Petroleum Resources,
Victoria, B.C.

Dear Dr. Grove:

Monthly Report November, 1975.

DEPT. OF MINES
AND PETROLEUM RESOURCES
Rec'd DEC - 1 1975

Outline:

Property visits.

- Makortoff's travertine.
- Rio Tinto's Wallace Creek drilling.
- Rio Tinto's Burrell Creek "porphyry copper"?

Office studies:

- (1) Rewrite of "Boundary District, B.C. Gold-Silver-Copper Mineralization".
- (2) Writing of 1976 prospecting course.

Miscellaneous:

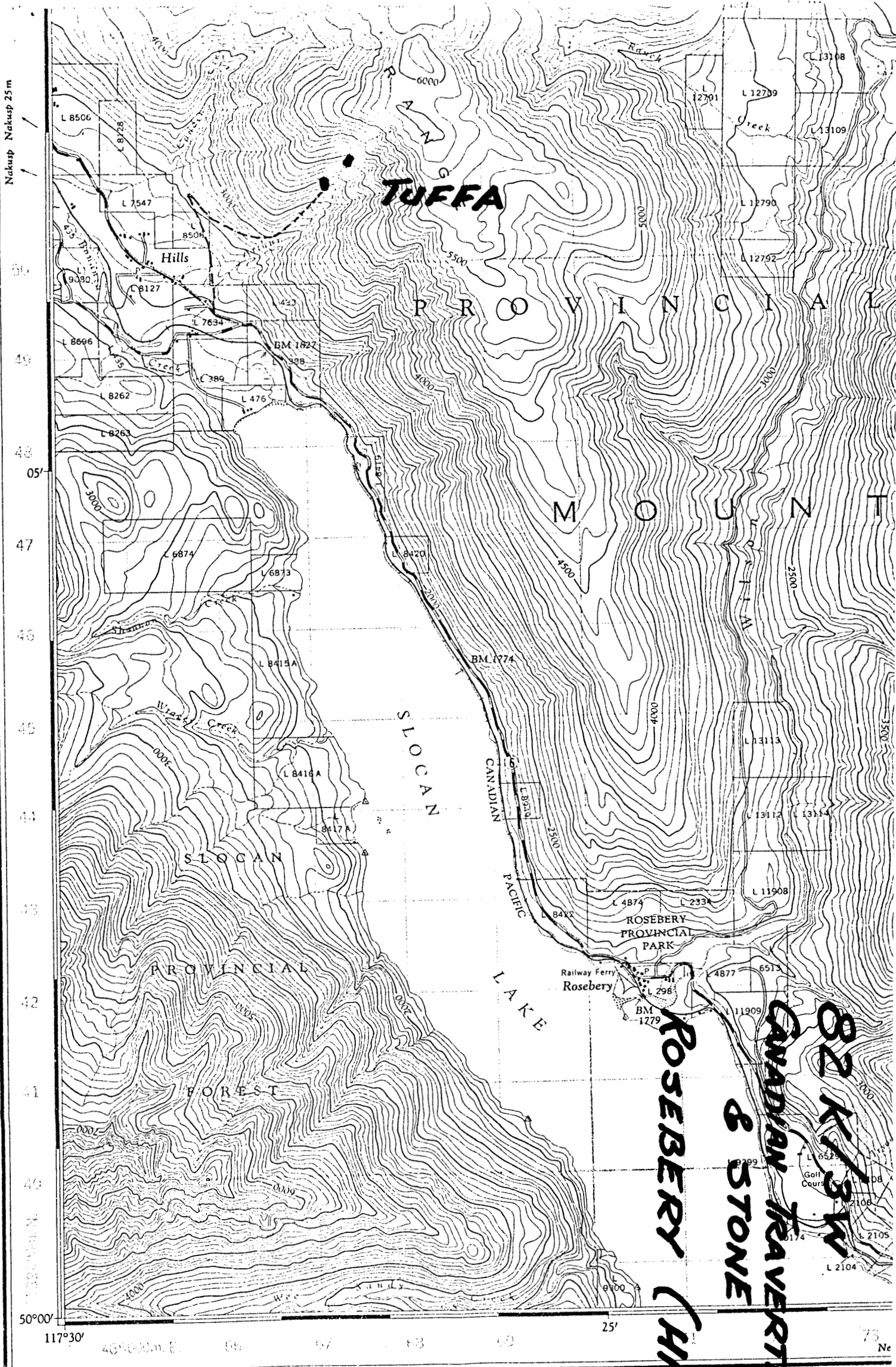
- (1) Scranton mine.
- (2) Victoria District Geologists' Meeting.

Property Visits:

Makortoff's Travertine: November 3 with Mike Makortoff and Gordon White, P. Eng., of Kamloops. This is on the "Sunlite" claim originally held S.U.P. then staked, and now advised to relocate under S.U.P.

The travertine is more homogeneous than that seen at the "Starlight" claim (see August monthly report). I would estimate that the tonnage of travertine is much larger (than on the "Starlight") i.e. in the order of over a million tons. All the travertine seen, so far, is of a very pleasing quality. It would not take much to establish a local industry. The logistics are excellent.

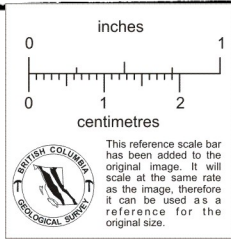
Rio Tinto-Wallace Creek Drilling: The property was visited on November 19th with Mr. Ted Johnson of Rio Tinto. Two holes had been completed: No. 1 at 496 feet and #2 at 806 feet. The core is available for viewing at Jim Foreshaw's garage in Greenwood. The lithology is of sharpstone conglomerate with occasional short sections of limestone (dolomite). Metamorphism includes garnet and tremolite in the limestone, and talc and serpentine slips in the sharpstone. A very small amount of



82 K/3W
ROSEBERY (HILLS)
CANADIAN TRAVERTINE & STONE

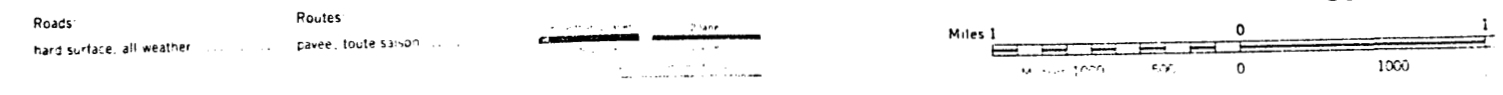
Produced and printed by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS, 1962, from air photographs taken in 1953.

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.



ROSEBERY
 KOOTENAY
 BRITISH COLUMBIA

SCALE 1:50,000



QUARRYING ■ SAWING ■ FABRICATING ■ POLISHING ■ MASONRY ■ FACING ■ TERRAZZO

Canadian Travertine & Stone Co. Ltd.

"THE GOLDEN TRAVERTINE"

827 IOCO ROAD
PORT MOODY, B. C.
CANADA

PHONE 936-3731
CODE (604)

Sept 8 72.

J.W. McCammon, P.Eng,
Geologist,
Dept. of Mines & Pet. Resources,
Provincial Government,
Victoria,
British Columbia.

2323

Dear Sir, Thank you for your letter of Sept 17th, was pleased and surprised to see you had been up to the Travertine location.

I am sorry the road is in disrepair, also if I had known, I may have been able to have been of some help, but I have Arthritis in the lower part of the back, which makes it hard for climbing hills.

I intend to make a different road, to the area, making the road farther North and using a much better grade, doing away with all those turns.

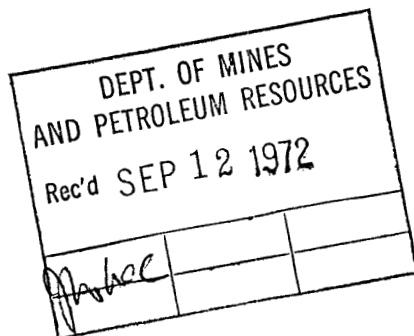
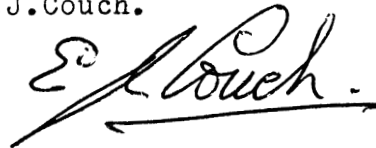
By what you say, perhaps you did not see the main part of the deposit, as the main part extends up over the hillside away from the creek.

I hope if you ever need to go there again, you will be able to drive right up to the area, over a good truck road.

Thank you.

Yours truly,

E.J. Couch.



FROM E. W. Grove, Sr. Geologist,
Geological Division,
Mineral Resources Br.

TO

H. Horn,
Associate Deputy Minister,
Operations Branch



PARLIAMENT BUILDINGS, VICTORIA, BRITISH COLUMBIA V8V 1X4

Sept 3rd/75

DATE

RE: B. C. Travertine - Slocan Lake Area.

At your request I visited Slocan Lake to evaluate the geological aspects of travertine in that area. I was accompanied by Mr. M. Makortoff, the interested party, and Mr. George Addie, District Geologist.

LOCATION AND ACCESS

A tote road provides foot access from the New Denver/Nakusp highway to the Block "A" deposit at elevation 3,300 feet on Arthur Creek (Figs. 1 & 2).

THE DEPOSIT

This deposit of travertine has formed on the steep north slope of the hillside above Arthur Creek where carbonate charged water emerges at the surface. Calcium carbonate has precipitated on the rock surfaces and has replaced organic matter lying on, or growing on, the surface. The extent of this replacement and the deposit is uncertain because of heavy vegetation, but it was found to extend from 3,800 feet to at least 4,100 feet over a length of several hundred feet. The thickness of the deposit is probably highly variable and appears to range from a few tens of feet to perhaps a maximum of two hundred feet. At this early stage drill testing would be required to make an accurate estimate. The tonnage is crudely guesstimated at about 200,000 tons. A minimum of 40,000 tons was measured immediately adjacent to the creek.

The quality of the travertine is variable, that is, a variety of textural types was seen in the scattered outcrops. In order to get a crude idea of colour and texture several small and large samples were taken at random. Small cut and polished hand specimens show textures ranging from open/spongy to banded/spongy to massive/banded. Some of the material along the stream contains local rock fragments and has been termed 'conglomerate'. The colour of the travertine appears to be uniformly amber or banded light/dark amber. The competency of the cut material can only be estimated at equal to imported material

PREVIOUS WORK

Mr. Makortoff indicated that much of the work on the deposit was undertaken by a Mr. E. J. Couch of Port Moody (probably now deceased), who had a large selection of cut and polished slabs for display purposes. Mr. McCammon of the Geological Division once visited the deposit with Mr. Couch and has a small tile in his possession. A Mr. John Stanger now of Victoria, and employed by Economics and Development, has a large cut and polished slab in his possession.

...../2

Quality comparisons with imported Italian or Californian travertine are difficult to make without viewing slabs. The amount of each textured type is also unknown because of the lack of rock cuts.

PROBLEMS

- a) Mr. Makortoff and his partner George Argatoff control blocks B and A respectively (Fig. 2) and are apparently at odds. Ownership may be in doubt.
- b) Mining, cutting, and polishing techniques are not available in British Columbia. Costs of cutting and polishing equipment and operations are not known.
- c) Market studies by the usual methods will probably show a lack of interest in British Columbia travertine unless it is cut, polished, and stocked at a price competitive with the imports.
- d) Mr. Makortoff and his partners are not capable of financing the operation and do not have the technical experience to undertake such an operation.

SUMMARY

The Arthur Creek travertine deposit is one of many in the Slocan and one of at least five large deposits in the immediate vicinity of New Denver. Texture and quality are probably variable but the colour seems uniform. There does not seem to be any problem as regards available and future tonnage. Mining, cutting, polishing and preparation, and marketing are serious impediments without adequate technical assistance and funds.

RECOMMENDATION

If the British Columbia building stone industry is to be stimulated, an approach other than the standard supply/demand formula will be required.

Use of B. C. stone in government buildings (1,000,000 feet² on order) provides a steady market which could be expanded as architects, builders, and consumers come to appreciate the variety of materials available in the province.

Without technical and financial assistance the small operation proposed by Makortoff is not a viable proposal.

EWG/crd

- cc: J. T. Fyles,
- A. Sutherland Brown,
- J. S. Poyen

?

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variety
travertine
insertion



ootenay

22 Compt. No. 17
82 K-3-d

S.U.P. Quarry 6847

Acres ± 20 R.D. 9 Scale 200 ft = 1 inch

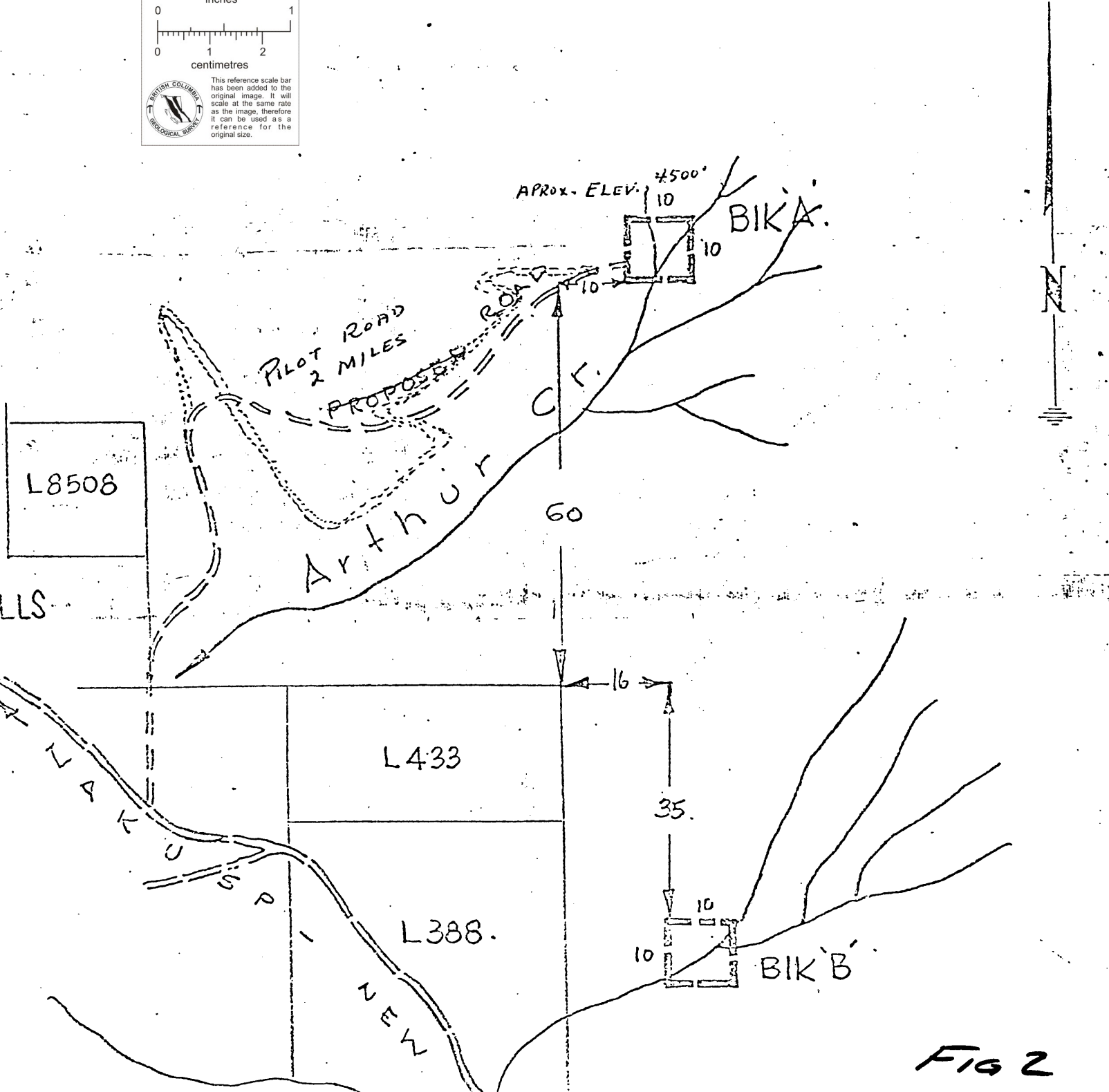
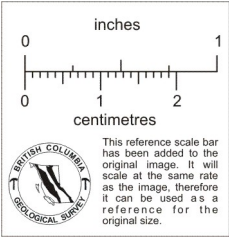


FIG 2



VICTORIA
VBV 452

July 4th, 1975.

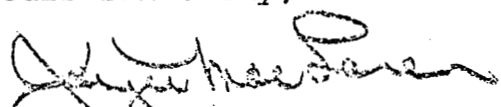
Mr. Mike M. Makortoff,
Site 5, c-17,
S.S.#2,
SHOREACRES, B.C.

Dear Mr. Makortoff:

In the absence of the Honourable Mr. Nimsick, I acknowledge receipt of your letter dated July 1st, and the attached resume regarding British Columbia Travertine.

I have taken the liberty of forwarding your correspondence to our Deputy Minister, Mr. J. E. McMynn, for his attention and further reply.

Yours sincerely,


Joyce MacLaren,
Secretary to the Minister.

cc: J. E. McMynn.

ditto copy filed

Site 5, C-17
B. S. #2
Shoresores, B. C.

July 1, 1975

Honourable Leo Nimsick
Minister of Mines & Petroleum Resources
Province of British Columbia
Victoria, B. C.

Dear Sir:

I am enclosing an interim resume of B. C. Travertine which I feel you may be interested in evaluating in order to help advise me as to what should be done next. I have no further funds to bring this project to realization, yet I strongly believe this project would help the Slocan area greatly.

This is not an official resume and is only based on what I feel are the most important areas to be covered in regard to this project.

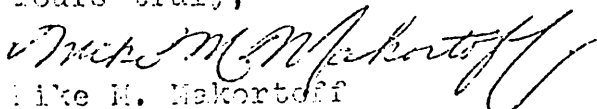
At a later date we may require Geologists, Engineers' reports and most likely will need to hire a Consultant to make an official report.

There are other areas to investigate and research, and if there is no help forthcoming, all our efforts will be to no avail. Although I am putting all my efforts into bringing this project to realization, I am afraid I will not be able to continue if monetary help is not available. I strongly believe this project is highly worthwhile and will therefore leave it to you for your kind consideration.

A similar letter has been sent to Mr. Jack Currie, Executive Assistant to the Minister of Labour, and I have also talked to Mr. Phil Olson about this project.

Any assistance you can give me will be greatly appreciated.

Yours truly,


Mike M. Makortoff

MMK/s

INTERNATIONAL MARBLE & STONE PLANT AND QUARRY

LOCATION: Lat. 49° 15.5' Long. 116° 38.5' (82F/7E)
East side of Highway 3, about 1 miles north of Sirdar.
OPERATOR: INTERNATIONAL MARBLE & STONE COMPANY LTD., 4030
Seventh Street SW., Calgary, Alta.
PRODUCTION: About 25,000 tons of crushed and sized rock products, much of it
dolomite, was produced.

CRAWFORD CREEK DOLOMITE QUARRY (No. 112, Fig. G)

LOCATION: Lat. 49° 41.5' Long. 116° 48' (82F/10W)
On the southeast side of Crawford Creek, about 1.5 miles from
Crawford Bay.
OPERATOR: INTERNATIONAL MARBLE & STONE COMPANY LTD., 4030
Seventh Street SW., Calgary, Alta.
PRODUCTION: About 50,000 tons of dolomite rock was mined underground.
REFERENCE: B.C. Dept. of Mines & Pet. Res., G.E.M., 1970, p. 492.

HILLS TRAVERTINE (No. 163, Fig. G)

LOCATION: Lat. 50° 06.7' Long. 117° 27.3' (82K/3W)
On Arthur Creek, about 2 miles east of Hills, at an elevation of 4,600
feet.
ACCESS: Via a newly constructed access road from Hills along the north side of
Arthur Creek.
OPERATOR: ~~F. J. COUCH, 827 Ince Road, Pitt Meadows~~
DESCRIPTION: There are several deposits of travertine east of Hills; some appear to
contain appreciable tonnages of attractive material suitable for cutting
and polishing for facing stone.
PRODUCTION: A rough tractor road was built to the main showings on Arthur Creek.

PITT RIVER QUARRY (No. 267, Fig. E)

LOCATION: Lat. 49° 17.4' Long. 122° 39.3' (92G/7E)
East bank of Pitt River, on northern side of Sheridan Hill, 4 miles north
of Pitt Meadows.
By road, 5 miles from Pitt Meadows.
OPERATOR: PITT RIVER QUARRIES LTD., 16211 - 84th Avenue, Surrey.
PRODUCTION: Eight men quarried 20,000 tons and shipped 60,900 tons of quartz
diorite.
REFERENCE: B.C. Dept. of Mines & Pet. Res., G.E.M., 1970, p. 493.

MUNRO QUARRY (No. 266, Fig. E)

LOCATION: Lat. 49° 19.2' Long. 122° 40.5' (92G/7E)
On west bank of Pitt River, immediately south of the mouth of Munro
Creek.

INTERIM RESUME OF BRITISH COLUMBIA TRAVERTINE

- Q. What is B. C. Travertine?
- A. B. C. Travertine is unique limestone deposits recently discovered at the head of Slocan Lake near Hills, B. C. (see geographical report 1971, No. 163, Figure G., page 457) which is highly suitable for cutting and polishing as its counterpart, the Italian Travertine. (Marble)
- Q. Has any work been done to open the said deposits?
- A. Yes, a two mile rough tractor road was built to one of the main showings on Arthur Creek in to take samples for testing the quality and quantity at the said locations.
- Q. What were the results?
- A. Since I have not done any technical research I must avail myself to an unofficial report. Reports state that B. C. Travertine is highly suitable for cutting and polishing and other uses. Because of its particular bondage and uniformity it can be cut thinner with less chance of breakage and because of its lightness in weight it saves on shipping and costs. Its stability and uniqueness with its neutral colour tone is supposedly preferred by architects to its counterpart thus giving a strong advantage for competition.
- Q. What can B. C. Travertine be used for?
- A. B. C. Travertine can be used for a multitude of purposes. Here are only a few as stated in my letter to Mr. J. A. Garnett, Ph.D., P. Eng., Department of Mines and Petroleum Resources of November 19, 1974. It can be cut and polished into larger sheets for all sorts of store and office facings, vanities, coffee tables and moulding columns; also, cut into various thickness of sheets, pressure broken into narrower rough strips it can be used for fireplace facings and flower planter dividers; certain types of bricks and patio slabs; various sizes of floor and wall tiles; acoustic board for fire rooms (from softer texture materials); ornamental purposes such as lamp stands, bookends, stone dishes, crocks and store displays (from lacey material). Possible calcium carbonate (CaCO_3) uses are not yet known as they require lab tests. Other uses are stone rubbles for rough facings (please note that most of this type or similar material is imported from the United States); beautiful rockery material for flower landscaping and show places; stones for over fountains and any wastages from above can be used for soil conditioner.
- Q. Would a project of this type be economical to undertake?
- A. Yes, I believe so, by taking the best quality for marble board panels and all types of facings, wall and floor tiles and going down the line to soil conditioner as mentioned above, I cannot see how it can fail. Take for example a square yard of B. C. Travertine stone 36" x 36" and cut it into 54 sheets approximately 5/8" thick. Each sheet contains 9 sq. ft. giving it a total of 486 sq. ft. to a yard of approximately 2 tons. Random grade, I understand, is imported for somewhere around \$1.00 - \$1.50 per sq. ft. If B. C. Travertine is preferred 2 to 1 to its counterpart, we can assume we can wholesale it for around \$1.50 per sq. ft. or more, thus realizing around \$729.00 per sq. yd. of our stone. Since it will be selected for various things to manufacture, there may be areas of up and down in price.
- Q. Is there adequate supply of this material to warrant a commercial undertaking?
- A. Yes, there is. Since it is worthless to core drill to find the quantity, there is enough visible to warrant a commercial undertaking.

- Q. Have you had any Geologists or Engineers inspect the property?
- A. I understand there were some, though I did not hire any myself. Mr. P. E. Olson, P. Eng., Department of Mines, an Inspector for this area sometime ago had been to see one of the deposits and has given a favourable report.
- Q. What are your plans now as to the development of these deposits?
- A. There are two things I hope to do. One, is that I would like to apply to the government for a grant to further research the B. C. Travertine or possibly advertise and get interested parties to develop the deposits or sell the deposits altogether.
- Q. Where would you set up such a factory if a manufacturing plant was to be established?
- A. The New Denver, Roseberry or Hills area would be the most preferable and there may be some Crown Land available. I am certain the area would welcome such an undertaking because it would boost the immediate economy and probably employ around 30 men.
- Q. Have you any ideas as to the cost of such an undertaking?
- A. Not really but I would roughly put it around a quarter of a million dollars depending on what is going to be manufactured.
- Q. What are the possibilities with respect to mining, manufacturing and returns on investments?
- A. First, mining. The mining portion would consist of mostly on the surface cutting of stone blocks which would be done by carbide tipped chain saws or drilling and feather wedging; hoisting the blocks onto the trailer and delivering to the factory. (We have most of this material on the surface and find it would be inexpensive mining.)
- Q. Have you got any ideas as to the methods of quarrying of the material and transporting it to the factory?
- A. Yes. Since a tote road has been built to one of the quarries, I would improve some and walk up a crane to the deposit then build a working platform and use the crane to hoist the platform to work off and use the crane also for hoisting large stones onto a specially made sloop hooked to a bulldozer and skid material down to a factory instead of hauling by truck and avoid building a good road to the deposits.
- Q. Have you any idea as to the tonnage of material at the said deposits?
- A. Not really since there are several deposits in the immediate area. It is really difficult to determine the tonnage but roughly guessing it may be well over a million tons (not including the conglomerate type which is also valuable).
- Q. Have you got any sales for such products?
- A. I have been assured for rubble type stone. Trying to get a sale for something that is still in the mountains is like putting the cart before the horse. No architect will put it on the drawing board when he is unsure of the product being delivered at a specified time.

Q. Have you any idea as to the quantity of this or similar stones imported into British Columbia?

A. To the best of my knowledge, in 1974 there has been close to \$200,000 worth of marble stone imported into B. C. Taking into consideration other provinces in Canada and the United States, the consumption would be a worthwhile venture.

082KSW074

Property File

REPORT
ON
COMMERCIAL DEVELOPMENT
OF
TRAVERTINE DEPOSITS
AT
HILLS, B. C.

Mike Makoroff
Site 5 C-17 S.S. #2
Shoreacres, B.C. PH. 359-7483

INDEX

FEBRUARY 2, 1979

1. General Overview
2. Available Deposits
3. Potential Products
4. Market
5. Plan
6. Financial Requirements
7. Statistics

Gary Exner
Nelson, B.C.

GENERAL OVERVIEW

Travertine is a unique type of limestone unlike other limestones. It is highly suitable for cutting and polishing as is its counterpart, the Italian travertine or marble. In particular it has reasonable bondage and uniformity which can be cut thinner with less chance of breakage, and because of its lightness in weight, it saves on shipping costs.

The stability and uniqueness of travertine along with its neutral colour tone, is supposedly preferred by architects to its counterpart, thus giving a strong advantage for competition.

The colour of the clean travertine is peach and beige that is, a golden brown, and is consistent and the texture reasonably attractive. A variety of textural and compositional types are present although the proportion of each is not known. Only mining, cutting, breaking and sorting will determine the proportions of each textural type.

AVAILABLE DEPOSITS

The travertine deposits to be developed are located at the head of Slocan Lake near New Denver, B. C. at an elevation of approximately 3,000 feet. There are several deposits of travertine that appear to contain appreciable tonnage of attractive material. Approximately 1.5 miles of road would be required to gain access to the main deposit.

It is estimated that the several deposits in the immediate area contain approximately a million tons, excluding the Breccia type which is also valuable. These are surface deposits and no specific exploration is required.

The material at these deposits is on the surface and therefore carries many advantages over other direct processes as mining for ore.

The deposits are presently held on Special Use Permits issued by the Ministry of Forests at the Nelson District Office.

POTENTIAL PRODUCTS

B. C. Travertine can be used for a multitude of purposes.

- 1) Cut and polished into larger veneer sheet 4' x 8' for all sorts of store and office facings.
- 2) Used for hearths of fireplaces and facings for flower planter dividers
- 3) Decorative types of bricks and patio slabs
- 4) Various sizes of floor and wall tiles
- 5) Acoustic board for fire rooms from the softer texture materials
- 6) Stone rubble for rough facings
- 7) Beautiful rockery material for flower landscaping and show places
- 8) Stones for water fountains, and
- 9) All refuse from above can be used as a soil conditioner.

A second industry may result in producing:

- 1) Facing for vanities, coffee tables and moulding columns
- 2) Ornamental purposes such as lamp stands, bookends, stone dishes and store displays using lacey material.

MARKET

The market demand for all classes of building stone and end products, has shown an overall increase in use in B.C. and especially in Alberta during the past few years. The production of native building stone is increasing noticeably. The amalgamation of independent quarries in this area has resulted in sales exceeding expectations and sales per year are increasing. The current explanation of public buying motivation, stresses that the products being purchased must be uniform and that it will be delivered to the user on schedule. Also, the buyer should be attracted if the product is superior in reducing cost.

The limit of the market area is also determined by the transportation plus production cost break-even point.

Presently, discussions are continuing with Japanese interests who are promoting the product in Japan. The Japanese are interested in a finished product only, and the latter promoters may become the wholesaler and deal with foreign markets excluding North America.

Other attempts are, and will be made following incorporation.

PLAN

Production in two (2) stages:

- 1) Quarrying
- 2) Finishing Plant

QUARRYING

Quarrying of large blocks by conventional drilling, breaking and cutting methods and then transporting blocks to a finishing plant appears to present the best method for optimal utilization of the material.

This would consist of surface cutting stone blocks with either use of carbide tipped chain saws or with the use of wire saws. A second method would be by drilling and feather wedging stone blocks. The blocks would then be hoisted onto a trailer by a mobile crane and delivered to the finishing plant.

FINISHING PLANT

The large stone blocks would be cut by gang saws into veneer sheets mostly into one inch thick and then squared into 4' x 8' sheets, right down to 4" x 4" tiles, graded, polished or unpolished and crated for shipment.

In addition to gang saws, automatic cut off squaring, grinding, honing, polishing and automatic tile cutting machines, material handling, dressing and packaging equipment will be used. Also an overhead crane is necessary. Certain types of vehicles will also be required.

A crusher may be required for minimizing waste when buildup of refuse will exist, if economically feasible.

FINANCIAL REQUIREMENTSRequired Capital

Quarrying - Wire saws or chain saws	\$ 20,000
- Truck and trailer	20,000
- Pickup	8,000
- Other small units	7,000
- Miscellaneous equipment	20,000
- Used Bulldozer	20,000
- (2) 10-20 ton used Cranes @\$15,000	<u>30,000</u>
	125,000
Finishing	
Plant - Foundation and Installation-Equipment	35,000
- Large aluminum building	150,000
- (2) Gang saws - used	25,000
- Overhead crane	15,000
- Diamond cut-off saws (2)	20,000
- Radial type polishing machines	20,000
- Heating and air circulating equipment	15,000
- Packaging equipment	15,000
- Fork lift	35,000
- Office complex and equipment	15,000
- Electrical and hookup	25,000
- Water systems	10,000
- Plumbing and Waste Pools	<u>20,000</u>
	400,000
Road Building Approximate	25,000
Operating Capital	<u>50,000</u>
Total Requirements	<u>\$600,000</u>

If new equipment was to be purchased for the finishing end a total estimated capital of \$1,250,000 would be required as per quotes from a firm in the Netherlands.

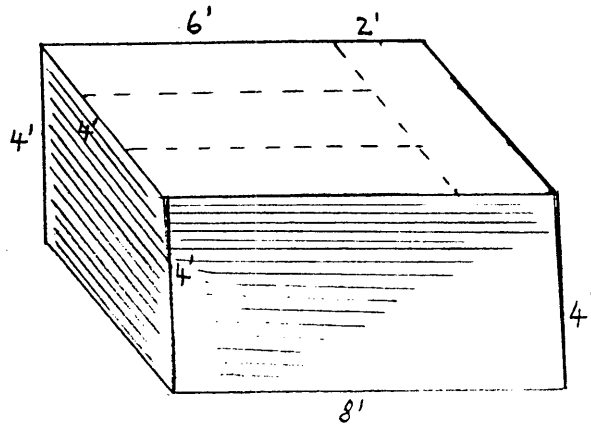
STATISTICS

Production - Assume Gang Saw - Averages 10 tons/shift
 1 ton = 1 cubic yard.

- 1 cubic yard - sawn into 1" thick slab = 324 square feet

Therefore 10 tons (10 cubic yards) = 3240 square feet/shift

The present filled and polished travertine in U.S. retails at \$14.00 per square foot



Details of cut block into (1)
 one inch slabs.
 48 slabs @ 32 Sq. ft. x 48 =
 1536 sq. ft.
 @ 14.00 per sq. ft. = \$21,504.00
 or (3) three hearths retailing
 @ \$135.00 each = \$405.00 plus a
 2' x 4' a \$14.00 per sq. ft. =
 \$112.00 = \$517.00 per sheet x 48
 sheets
 TOTAL - \$24,816.00

082 KSW074
Property File

TRAUERTINE

NORTHMONT MINING

W LUGARD ~ 669-4025 ~ }
689-5300 - } Vaic.

August 10, 1982

Mr. Daniel J. Gallagher
Pearson Gallagher Ltd.
616-510 West Hastings
VANCOUVER, B.C.
V6B 1L8

Dear Mr. Gallagher:

This will acknowledge receipt of your letter dated July 29th.

Please be assured that your correspondence will be brought to the attention of the Minister, and a reply will be forthcoming shortly.

Yours sincerely,

Original Signed by
KATHLEEN A. MAYOH

Kathleen A. Mayoh
Executive Assistant

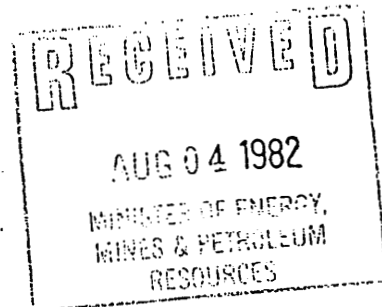
PEARSON GALLAGHER LTD.

Vancouver Office

July 29, 1982

Ministry of Energy, Mines and
Petroleum Resources
Parliament Buildings
Victoria, B. C.
V8V IX4

Attention: Mr. R. H. McClelland,
Minister



Dear Sir:

During a recent conversation with Joe Martin of B. C. Business Magazine he mentioned that he had brought to your attention a project concerning the development of a travertine deposit our Company is involved in. We enclose a report on this proposed project that was done in 1980. Estimates and costs would naturally have to be updated; however, we feel the project has merit and would be of considerable benefit to British Columbia and more particularly to the Slocan area which is experiencing employment and economic problems at this time.

Our group of Companies is actively involved in exploration, development and venture capital financing for precious, base and industrial minerals, petroleum and natural gas throughout British Columbia. To date we have been unsuccessful in soliciting interest from the private sector to finance a project of this nature.

We would appreciate any advice or guidance you could offer regarding possible Government participation in this project or your referring us to the appropriate Government Corporation or Division if you feel the project has merit.

If you wish to discuss the report in further detail please do not hesitate to contact the writer.

Yours truly,


Daniel J. Gallagher

DJG/go

(with attachments)
08 10 A4 orig to ADMM (C)

Draft reply for Minister's signature	<input checked="" type="checkbox"/>
Direct Reply	<input type="checkbox"/>
Attention & File	<input type="checkbox"/>
For Information	<input type="checkbox"/>
File	<input type="checkbox"/>

REPORT
ON
WEST KOOTENAY MARBLE PRODUCTS

WEST KOOTENAY MARBLE PRODUCTS

INDEX

August 11, 1980

The Concept	Page 1
Manufacturing Details	" 3
Marketing and Sales	" 4
Financial Analysis	" 5
Proposed Capital Expenditures Schedule "A"	" 6
Pro-Forma Income Statement Schedule "B-1"	" 7
Pro-Forma Income Statement Schedule "B-2"	" 8

Moore, Exner & Co.
715 Vernon St.
Nelson, B.C.

WEST KOOTENAY MARBLE PRODUCTS

The Concept

PRODUCT

Travertine is a unique type of limestone unlike other limestones. It is highly suitable for cutting and polishing as is its counterpart, the Italian travertine or marble. In particular it has reasonable bondages and uniformity which can be cut thinner with less chance of breakage, and because of its lightness in weight, it saves on shipping costs.

The stability and uniqueness of travertine along with its neutral colour tone, is supposedly preferred by architects to its counterpart, thus giving a strong advantage for competition.

The colour of the clean travertine is peach and beige that is, a golden brown, and is consistent and the texture reasonably attractive. A variety of textural and compositional types are present although the proportion of each is not known. Only mining, cutting, breaking and sorting will determine the proportions of each textural type.

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A second industry may result in producing:

- 1) Facing for vanities, coffee tables and moulding columns.
- 2) Ornamental purposes such as lamp stands, bookends, stone dishes and store displays using lacey materials.

PRINCIPAL OFFICERS & COMPANY STRUCTURE

This is an interim submission, in order to determine if government agencies are willing to accept this type of industry and support it, and also determine what financing will be made available by B.C. Development Corporation and what equity will be required and under what conditions.

Once the financial groundwork is planned, we will proceed in finding parties interested in investing in the project, probably in the form of a corporation, and at that time names, addresses, background and qualifications will be made available, along with bank references and statements of personal net worth.

LOCATION

The travertine deposits to be developed are located at the head of Slocan Lake near New Denver, B.C. at an elevation of approximately 3,000 feet.

No concrete decision has been made as to the location of the complex to carry out manufacturing and processing. Three to four locations may be examined once the company has selected and named officers.

A Crown land location can probably be acquired. The area most suited may be in South Slocan at the Junction of Highways no. 3 and 6. This location may be chosen because of its central location in also receiving stone from Ymir and the Lardeau areas.

Aug. 11/80

WEST KOOTENAY MARBLE PRODUCTS

Manufacturing Details

PROCESS

Quarry will consist of surface cutting of stone blocks with either use of carbide tipped chain saws or wire saws. The blocks will then be hoisted on to a trailer by mobile crane and delivered to the milling plant. Three men will be running the quarry for approximately three months of the year which will supply the needs of the operation.

The large stone blocks would be cut by Gang Saws into veneer sheets 4' x 8' x 3/4", down to 4" x 4" x 3/8" tiles, graded, filled or non-filled, polished or non-polished and crated for shipment.

PLANS & DRAWINGS

Present drawings on lay out of production systems and equipment refer to attached from van Voorden of Netherlands, Holland.

BUILDING

Selected a building of concrete blocks approximately 16 feet high, with an aluminum roof with a pitch for snow non-accumulation. Open building with restrictions columns (beams) only every 60 - 100 feet. Approximately 20,000 sq. feet necessary to allow for storage of slabs indoors in order to reduce high breakage in cold weather.

MACHINERY & EQUIPMENT

Attached herewith is a list of proposed capital Expenditures-Schedule "A" and accompanying it is a catalogue of equipment priced in guilders from van Voorden, Holland.

EFFLUENT & WASTE DISPOSAL

Minimal pollution equipment is required. A catch tank to recover dusting off saws which is small. May require an overflow to a settling field. Waste is minimal as refuse may be economically crushed for soil conditioner.

Related problems to acid etching because muriatic/hydrochloric acid is used. Acid is brushed on the stone burning the surface impurities.

RAW MATERIALS, COMPONENTS, SUPPLIES & ENERGY

Attached herewith is a Pro-Forma Income Statement for years 1 & 2, schedules "B-1" and "B-2".

EMPLOYMENT

12 employees initially which could be increased, nine (9) in operations and three (3) in administration and sales. No union is anticipated at this time.

LABOUR AVAILABILITY & TRAINING

Majority of labour and operators will be local residents except for possibly two (2) highly skilled personnel to train employees and start-up the operation initially.

Aug. 11/80

WEST KOOTENAY MARBLE PRODUCTS

Marketing and Sales

MARKET AREA

The market demand for all classes of building stone and end products, has shown an overall increase in use in B.C. and especially in Alberta during the past few years. The production of native building stone is increasing noticeably. The current explanation of public buying motivation stresses that the products being purchased must be uniform and that it will be delivered to the user on schedule. Also, the buyer should be attracted if the product is superior in reducing cost.

The limit of the market area is also determined by the transportation plus production cost break-even point.

We have a letter from Alberta Association of Tile, Terrazzo and Marble of Edmonton, Alta., who say that thousands of feet of Marble is purchased every year. We also have a letter from Mr. John Eto of Victoria, who is in importing and exporting, and has stated that he has sent some of our samples to Japan and they supposedly have shown interest.

Principal cities that are in reach are Vancouver, Kamloops, Prince George, Edmonton, Calgary, Lethbridge, Saskatoon, Regina, Winnipeg and possibly Eastern Canada depending on freight rates to such distances.

Most connections will be made through Architects and as a last resort with Building Supply Centres. A large amount of the sales could be to the Provincial and Federal Governments in an effort to have them use our native stone products.

MARKET SHARE

In discussions with people knowledgeable in the travertine trade, our product appears it will be competitive with other suppliers including the Italian products.

Travertine products from the U.S. (Montana and Idaho Falls) do not appear to be imported into Canada, and if it is, our travertine is lighter in weight and projected to be cheaper in price. The off-white colour of the U.S. does not appear as attractive as our beige, golden brown colour.

MARKETING PLAN & SALES FORECAST

The number and type of customers that will be supplied is difficult to assess. However, again Architectural firms will be the number one outlet.

The size of the sales force will be basically one person who will do the contact work for the travertine operation. Sales could be sporadic and forecasts indicate the sale of 100,000 sq. feet in the first year and increased to 176,000 sq. feet in the second year. Refer to Schedules "B-1" and "B-2" attached.

PRODUCT & POLICY

Consumers should be attracted to the use of native stone on buildings, because of its beauty and varied uses.

Packaging will be in wooden crates on pallets for larger slabs and paper boxes for smaller tiles and assortments.

Aug. 11/80

WEST KOOTENAY MARBLE PRODUCTS

Financial Analysis

CAPITAL REQUIREMENTS

Please refer to Schedule "A" attached.

QUARRY	\$ 265,000
LAND	10,000
BUILDING	240,000
EQUIPMENT	760,000
WORKING CAPITAL	<u>75,000</u>
TOTAL REQUIREMENTS	<u>\$1,350,000</u>

EQUITY

Proposing equity of approximately \$250,000 or 18.5%. With the setting of development expenditures of \$20,000 the proposed equity is increased to 20%.

PROFIT & LOSS FORECAST

Refer to Schedules "B-1" and "B-2" to obtain a grasp of the profit and loss for the first two years of operation.

Aug. 11/80

WEST KOOTENAY MARBLE PRODUCTS

Proposed Capital Expenditures

SCHEDULE "A"

QUARRY

Used Pick-up 3/4 ton 4x4 or wagon	\$10,000	
Used Tractor (similar to CAT D6 series)	75,000	
Road construction to Quarry	50,000	
Initial development of Quarry	80,000	
Carbide tipped chainsaw or wire saws	30,000	
Used mobile crane-truck mounted or track type	15,000	
Homemade trailer or Hauling sloop	<u>5,000</u>	\$265,000

LAND

Plant location--approximately 10 acres
vicinity of South Slocan--Junction
Highways No. 3&6

Possibly only require 4-5 acres → 10,000

BUILDING

To house manufacturing and processing plant
20,000 sq. ft. including office--ample to start
125' x 185' - 23,125 sq. ft.

Cement blocks--16 feet high & labour	\$45,000	
Aluminum roof--170' x 188' @ .85¢/sq. ft.	27,000	
Plywood 1/2" roofing--1,000 sheets @ 12.50/ sheet	12,500	
Joists 2" x 12" 48 MBF @ \$250.00/MBF	12,000	
Electrical service--wired	15,000	
Insulation--32,000 sq. ft. @ \$.35/sq. ft.	11,200	
Labour for roof & inside walls	9,300	
Footings, walls & floor--856 yds. @ \$55.00/yd.	47,000	
Doors & windows	10,000	
Tools, nails & unforeseen materials	10,000	
Plumbing, water & sewage (Pollution Control)	11,000	
Electrical service--hook up	5,000	
Heating, Air conditioning & Fire protection	<u>25,000</u>	240,000

MANUFACTURING & PROCESSING EQUIPMENT

Clycor high speed Gang saw--50 blades	\$208,900	
Jenny Lind hand polishing machine	8,800	
Tartarus No. 29SBLF automatic beltgrinding & polishing machine	239,100	
Automatic control of 7 grinding/polishing heads	9,400	
Gamma circular saw slab sizing machines	21,200	
Unitor circular saw slab sizing machines	44,600	
Cronos strip sawing machine	74,400	
Titaan cut off sawing machine	5,200	
Delphi automatic edge grinding and polishing machine (2) \$23,900 each	47,800	
Accessories, immediate parts, freight & installation	47,600	
Scales & first aid equipment	6,000	
Used overhead crane	10,000	
Pallets, slab stalls, etc.	10,000	
Used forklift	20,000	
Pickup, 1/2 ton	<u>7,000</u>	760,000

TOTAL CAPITAL EXPENDITURES

\$1,275,000

WEST KOOTENAY MARBLE PRODUCTS

Pro-Forma Income Statement

Year 1	Schedule "B-1"	
	SQ. FT.	
<u>Sales</u> (1000 sq. ft./shift - 100 shifts @ \$6.00/ sq. ft.) (net of freight)	100,000	\$600,000
 <u>Cost of Goods Sold:</u>		
Opening Inventory	nil	nil
Production-Labour - 9 men @ \$125/shift each @ 160 shifts	120,000	180,000
-Material @ \$.50/sq. ft.	120,000	60,000
-Electricity - \$100/shift - 160 shifts		16,000
-Fuel, gas & oil @ \$200/shift		32,000
-Maintenance & Repairs @ \$200/shift		32,000
-Operating supplies @ \$75/shift		12,000
-Royalties - Owner & Government @ \$50/sq. ft.	100,000	50,000
-Shipping & Packing supplies @ \$26/sq. ft.	100,000	<u>26,000</u>
\$3.40/sq. ft.	120,000	\$408,000
 Less: Closing Inventory:		
20,000 sq. ft. @ \$3.40	20,000	<u>68,000</u>
 Cost of Sales		<u>340,000</u>
 Gross Profit on Sales		260,000
 <u>Expenses:</u>		
General Manager, including benefits	\$ 42,000	
Industrial Relations, including benefits	32,000	
Salesman, including benefits	40,000	
Accountant, including benefits	20,000	
Advertising	10,000	
Office Expenses	6,000	
Telephone	12,000	
Travel & Entertainment	20,000	
Interest on \$1,100,000 @ 13%	<u>143,000</u>	<u>325,000</u>
 Net loss		<u>(65,000)</u>

Aug. 11/80

*Insurance expense - building
- third party liability*

WEST KOOTENAY MARBLE PRODUCTS

Pro-Forma Income Statement

Year 2

Schedule "B-2"

	SQ. FT.	
<u>Sales</u> (1100 sq. ft./shift - 160 shifts @ \$6.00/sq. ft.)	176,000	\$1,056,000
<u>Cost of Goods Sold:</u>		
Opening Inventory	20,000	68,000
Production-Labour - 9 men @ \$130.00/shift each @ 180 shifts	180,000	210,600
-Material @ \$55/ sq. ft.	180,000	99,000
-Electricity @ \$110.00/shift - 180 shifts		19,800
-Fuel, gas & oil @ \$220.00/shift - 180 shifts		39,600
-Maintenance & Repairs @ \$220.00/shift		39,600
-Operating supplies @ \$75.00/shift		13,500
-Royalties - Owner & Government @ \$.50/sq. ft.	176,000	88,000
-Shipping & Packing supplies @ \$.29/sq. ft.	176,000	<u>51,900</u>
	\$3.15/sq. ft.	200,000
		630,000
Less Closing Inventory:	24,000	<u>86,000</u>
Cost of Sales		<u>544,000</u>
Gross Profit on Sales		512,000
<u>Expenses</u>		
General Manager	\$ 45,000	
Industrial Relations	32,000	
Salesman	43,000	
Accountant	22,000	
Advertising	8,000	
Office Expenses	5,000	
Telephone	12,000	
Travel & Entertainment	25,000	
Interest on \$1,100,000 @ 13%	<u>143,000</u>	<u>335,000</u>
Net Income		<u>\$177,000</u>
Payout of Principal \$1,100,000 - 7 years		<u>157,000</u>
Net Cash Remaining		<u>\$ 20,000</u>

Aug. 11/80

General

John LaRue (Reliance claims, Gold Bridge) was visited in Lillooet October 1 and rocks of the Gold Bridge area were discussed. A trip to Gold Bridge was made to become familiar with the mineralogical setting in the camp. Properties visited were the Warstar, Tyax, Pilot (briefly), Congress and the Standard. The most time was spent on the Lou discovery on the Congress.

Office visits were received from Dave Lobdell, Jim Milligan, Dirk Moraal, Murray Roed, Larry Lutjen, Ron Wells, Schrizza - Fournier - Nie, Brian Oja and Don Mustard.

Jim Carson phoned October 1 asking about prospecting in this area; Clev Lowry phoned from Calgary October 9 for a Winkie drill and he was placed in contact with Vagn Trarup. A number of calls were received and made for Bill Huxley and we have managed to divest ourselves of this situation.

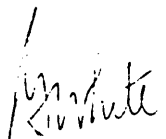
Barry Sherman phoned October 17; he examined the market for travertine in B. C. and found that Italy and Greece could land crated travertine in Vancouver in tile form quality for \$90/ton. He says there is no way that they can compete with that.

Murray Roed was assisted with Pt (?) beads in the office. He saw the Redbird rocks, contacted Bill Huxley and he is attempting to get the claim from (or with) Bill. He had 0.66 ozs of Au from surface samples. A ½ day was spent with Roed on October 19.

Over and above Cominco's shake-up, the BP - Selco move may see Brian Grant moved here and Dave Gamble back to Ontario.

R. Rooks phoned from Calgary October 29 asking about the carbonate on Crowsfoot Mountain north of Shuswap Lake. We had looked at the showing in 1974 but had no chemistry on the carbonate.

Five days were spent in and travelling to Bralorne and area, one and half in the Stump Lake area, one on the Bonaparte Plateau and one and a half with Mike Dickens on his Judy claims southwest of Savona. One long day was spent with Mike where he has found old working west of Indian Garden Creek. Altered Nicola andesite with an altered QFP has quartz veining and silicification along shears where Mike says he has high arsenic, mercury and gold. The next day (a.m.) (October 31) was spent on a long hike to find (successfully) my glasses left on an outcrop where jasperite veins were photographed in altered Nicola basalt.


Gordon P. E. White, P.Eng.
District Geologist

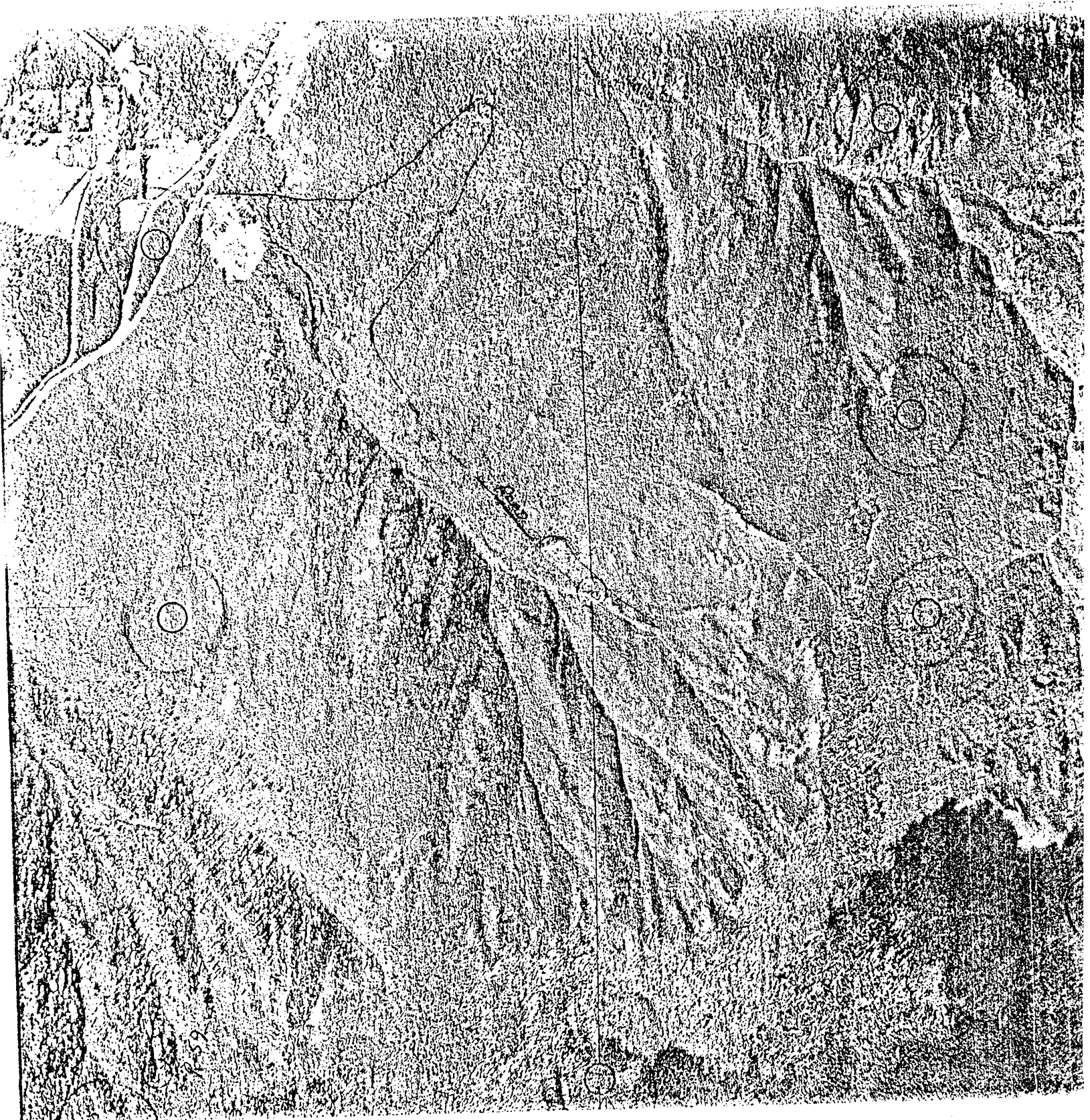
GPEW/lc

cc: R. Smyth

District Geologists

082 K S W 074

Property File



REPORT ON THE MAKORTOFF TRAVERTINE PROPOSALO.8212SW 074
Property FileObject

Mr. Makortoff submitted a request for assistance to the B.C. Government with regard to his travertine deposit in June, 1975. The reply from Mr. McMynn indicated that he was not willing to recommend the expenditure of any funds on the project. Mr. Markortoff replied in October, 1975, requesting the cost analysis on which the above decision was made.

The report attempts to provide a realistic cost base from which Mr. Makortoff can proceed, as well as a specific direction of operation.

The Market

A report on travertine marble by the Import Analysis Division, Department of Industrial Policy (Ottawa) indicated that imports into Canada of slab and tiles totalled about 65,000 ft.² for the first quarter of 1973 (est. 260,000 ft.²/1973) with a value of \$48,000 (est. \$192,000/1973). Slightly more than 30% of this material entered western Canada. At the same time all classes of marble

TABLE 1 - BUILDING STONE AND NATURAL ROCK PRODUCTS

IMPORTS (OVER \$75,000) THROUGH B.C. CUSTOM PORTS - 1974

	<u>Country</u>	<u>Unit</u>	<u>Quantity</u>	<u>Value</u>
Pumice and Lava - crude or ground	U.S.A.	cwt.	51,908	199,288
Silica sand	U.S.A.	ton	127,423	1,157,995
Sand and gravel NES	U.S.A.	ton	1,192,809	1,156,477
Crushed limestone and limestone refuse	U.S.A.	ton	40,291	433,189
Crushed stone and stone refuse	Mexico	ton	22	506
	U.S.A.	ton	<u>27,366</u>	<u>434,282</u>
			27,388	434,788
Talc or soapstone	U.S.A.	ton	4,709	294,459
Roofing granules	U.S.A.	cwt.	166,592	244,360
Marble, shaped or dressed	Italy	N/A *	N/A	102,461
	Portugal	N/A	N/A	27,103
	Taiwan	N/A	N/A	5,111
	U.S.A.	N/A	N/A	<u>31,461</u>
				166,136
Natural stone, basic products, NES	Italy			76,537
	Netherlands			1,832
	U.S.A.			<u>50,082</u>
				128,451
			<u>TOTAL</u>	<u>\$4,215,143</u>

* - not available from Economic Development
but could be ft.²

N.B. - 1975 unit prices not known
- 1975 FOB cost/ft.² for polished travertine not available

entering Canada in 1973 were estimated to value \$1,865,000 (see Table 1).

The External Trade Report, Department of Economic Development (B.C.) shows that shaped or dressed marble, valued at \$166,136; natural stone (NES) valued at \$128,451; crushed 'limestone' valued at \$434,189^(74/ton); and crushed 'stone' valued at \$434,788^(59/ton) entered B.C. during 1974. In addition roofing granules valued at \$244,360 and natural stone valued at \$128,451 were also imported. The value of these materials totals \$1,420,769. There does not appear to have been any simple trend (general increase) in this situation over the last five years with the possible exception of dressed marble imports which have increased steadily at about 15 to 20% per annum.

The B.C. production of building stone has shown a dramatic overall decrease in recent years. Only three quarries are now operating (Sirdar, Greenwood and ¹⁹⁷⁷Revelstoke). The Greenwood and Revelstoke quarries produce quartzite for facing (\$60.00/ton), flagstones (\$45/ton) and rip rap (\$25.00/ton) etc., and the Sirdar produces dolomite. Only the Revelstoke quarry, operated by an individual, has shown any major increase in its productivity. Most of this rock is shipped to Calgary, but it is also becoming popular for many users in the Revelstoke area.

The market demand for all classes of building stone (and end products) has shown an overall increase in use in B.C. during the last five years. But, conversely the production of native building stone has decreased noticeably with the result that only three quarries are now in operation (part-time), and only one shows positive growth.

Current explanation of public buying motivation stresses that the product being purchased must be uniform and that it will be delivered to the user on schedule. Also, the buyer should be attracted if the product is superior in reducing cost. The limit of the market area is also determined by the transportation plus production cost (break-even point). These as well as a host of other variables enter into the question of marketability.

If the economic precept "that the market is more important than the deposit" is accepted and that the indication is the market for building stone is expanding (example 15 - 20% per annum for dressed limestone), then serious consideration should be given to new proposals. The social benefit of new industry and employment in the Slokan must also be considered.

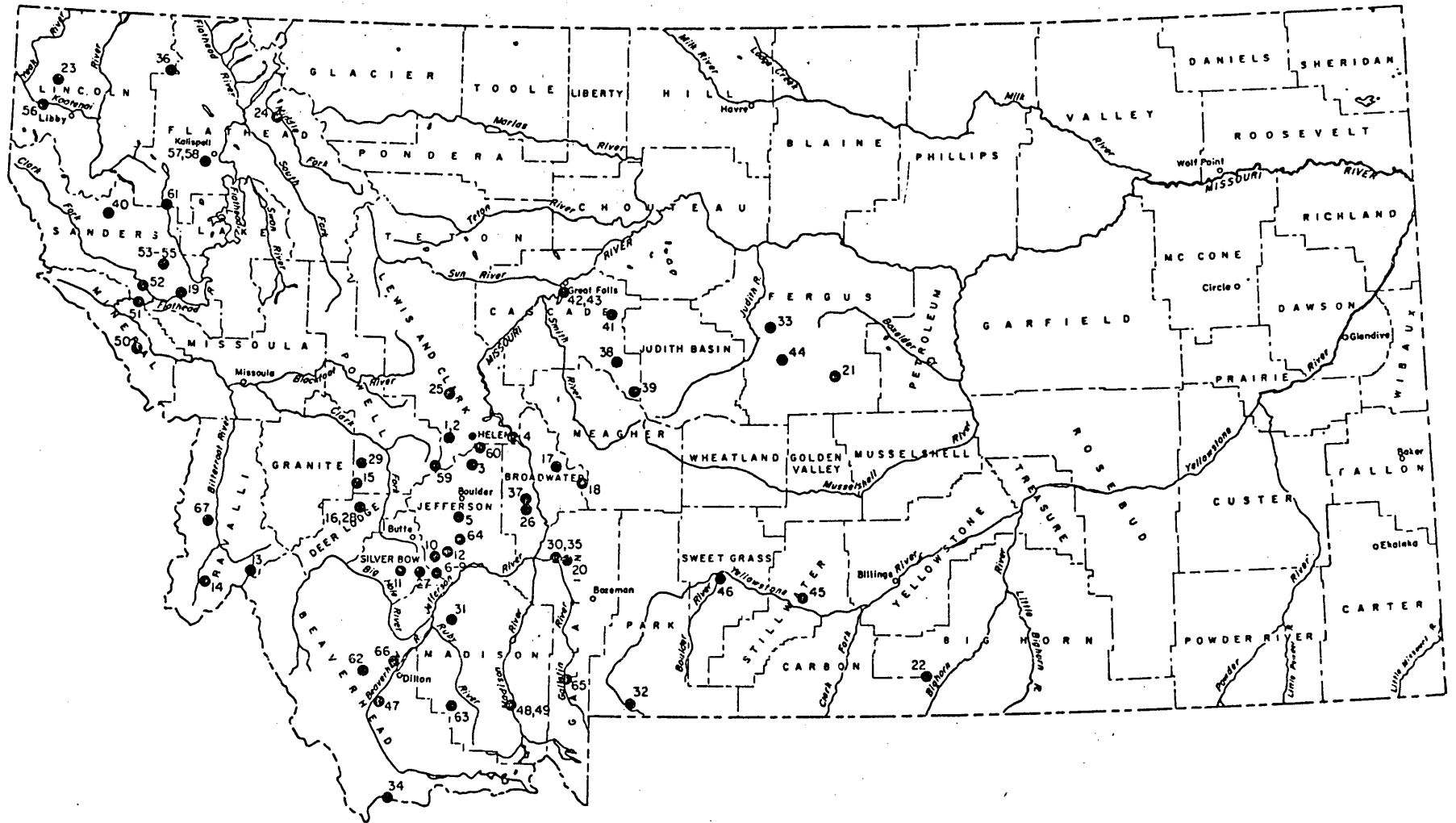
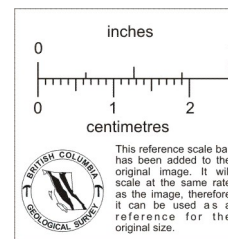


Figure 1.—Deposits of building stone. See Table 2 for additional information.

MONTANA



The Deposit

As I indicated in my geological report of September 3/75, the travertine on Arthur Creek is only one of several large deposits in the New Denver area. This deposit can be made easily accessible by upgrading the existing road. The tonnage in sight was estimated at about 200,000 tons, and has an inferred potential of about 400,000 tons. The colour of the clean travertine is consistent and the texture reasonably attractive. A variety of textural and compositional types are present although the proportion of each is not known. Only mining, cutting, breaking and sorting will determine the proportions of each textural type.

Mining

Quarrying experience in Montana where travertine deposits have been mined continuously since 1932 has shown that only about 25 per cent of a deposit is actually sent to a mill for sawing. During manufacture another 50 per cent of this stone may be lost to waste. The stone from these quarries is variable in colour and texture and has been sold for a variety of decorative uses. Quarried blocks are hauled to mills where polished panels, and split face ashlar blocks are produced. A study of the literature

shows that there are four major areas of travertine in Montana (up to 8.2 million tons) where material of quite variable colour, texture and absorption has been explored and two are now being mined.

Very little literature on quarrying methods and costs are available for examination. What there is, shows a tendency for adaptability to the local rock and market situation. As indicated previously Montana travertine is broken into large blocks at the quarry and then transported to a finishing plant. In other situations, as in Australia for example, ashlar has been cut directly in the quarry utilizing small mobile power saws. These two examples appear to represent the major trends.

- A) Quarrying of large blocks by conventional drilling and breaking methods and then transportation to dressing sheds (and mill) appears to present the best method for optimal utilization of the rock.
- B) Cutting slabs and ashlar in the quarry would limit the type of product initially but would require the least amount of men, equipment and buildings, and decrease transport problems. In addition, the mobile cutting saws are run by one man and have

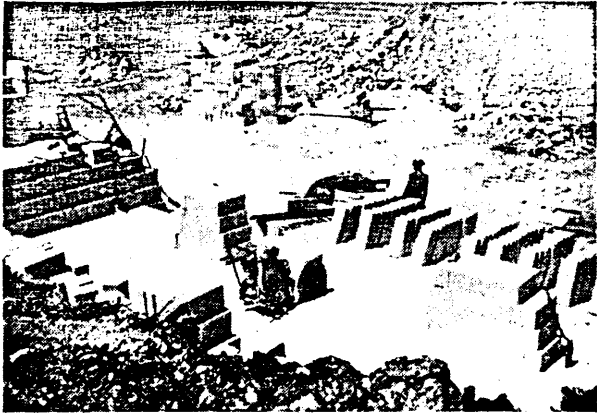


Fig. 69—General view of a limestone quarry—Mount Gambier

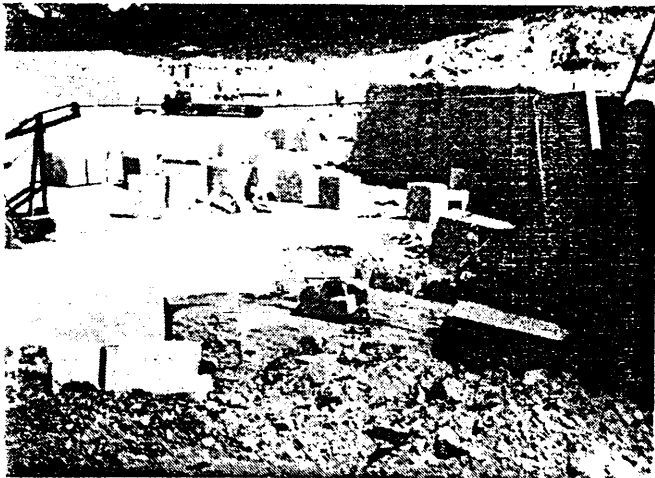


Fig. 70—Pulling block of limestone over with cable—Mount Gambier



Fig. 71—Vertical mobile ashlar-cutting saw—Mount Gambier

Experiments were made with a petrol-driven crosscut saw, column mounted, to do the same job. Later experiments were successfully conducted on a method of cutting ashlar *in situ* with petrol-driven circular saws mounted on small rubber-tired wheels and pushed or pulled by a man. Conventional-toothed saws were first used with the mobile units, but improvements have been made with tungsten carbide-tipped teeth, and the machines are now self propelled. Almost all of the Mount Gambier stone is now cut direct from the face by this method. A small quantity of block stone is produced for the Adelaide market by hand-sawing methods—the power-driven crosscut saw is no longer used.

Overland Corner and Cadell Limestone

These types of stone are similar to the Mount Gambier stone but are slightly darker in colour and somewhat harder. They are worked intermittently.

Waikerie Limestone

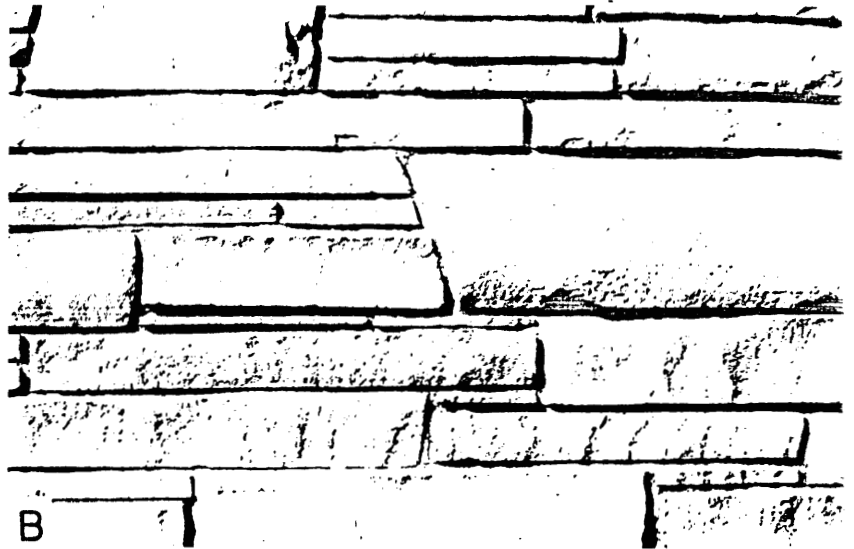
The Waikerie deposits are much harder. This building limestone is won by boring jackhammer holes close together

a low unit price compared to the large gang saws employed in mills.

The type of mobile equipment suitable for a small quarrying operation is apparently available through a manufacturer in Portland, Oregon. These equipment prices are being sent but are not available at the moment. Small commercial mobile vertical saws plus blade start at about \$900.00, portable saws at about \$500.00, portable masonry saws (table or cut-off type) at \$700.00, and hydraulic rock splitters at \$500.00. Other mobile equipment such as a front-end loader, fork lift, small trucks, and eventually polishing equipment would also be required. The typical stiff-legged crane used in larger quarrying operations could be replaced by a low-cost truck-mounted mobile crane.

Two or three men could operate a small quarry using mobile equipment governed by both weather and market demand. Stockpiled material could be finished during pit down-time.

The products of A would be dressed slabs for interior and exterior veneer, dressed table tops (and other decorative items), rough slabs, ashlar, flagging, rubble, crushed stones, and refuse which could find use as a soil conditioner. Mr. Makortoff has outlined



Travertine and sandstone. A. Travertine ashlar. B. Ashlar of Flathead Quartzite. C. Blocky sandstone of Lahood Formation (locality 35). Note well-developed joints. D. Exposure of Flathead Quartzite, bedding steeply inclined to left (locality 37).

1.

the products in his presentation. This approach would involve large scale quarrying equipment, saws etc., big transport equipment, dressing sheds, a gang saw, cutting and breaking equipment, and polishing. This direction is therefore capital intensive, would require experienced quarry, dressing, and polishing personnel, and extensive factory and storage areas. Rohwedder's estimate of \$200,000 working capital for the basic equipment for a 15-20 man operation is probably low, with the \$1 million to \$1.5 million probably close.

The products from B, would be small slabs, ashlar, flagstones, rubble blocks, crushed stone etc. as above, but would require a working capital of at least \$50,000.

Conclusion

- (1) The advantages of quarrying method B over A are fairly obvious. In addition the mobile equipment can be moved at will from one deposit to another. Also, once a deposit had been opened up and markets tested, method A could be implemented.
- (2) The market in B.C. and western Canada for dressed building stone has obviously enlarged and is still growing as exhibited by the import statistics.

- (3) The state of the building stone industry in B.C. has probably never been worse. However, as Mr. McKenzie of Revelstoke has shown, completely on his own, without marketing studies etc., there is a strong market in Alberta. Freight costs mitigate against shipping to Vancouver.
- (4) The market for ashlar, flagstone, rubble, and end products in western Canada is strong but also dominated by imports.
- (5) The travertine deposits near New Denver are probably of sufficient size, quality and reasonable access to allow for intermittent production of a variety of building stone materials.
- (6) The energy and skill of the operator will largely determine the profitability of the venture.

Recommendation

The B.C. Department of Mines and Petroleum Resources should help

Mr. Makortoff in this venture by:-

- (a) Providing funds to upgrade the road to the Arthur Creek deposit (2 miles \pm)
- (b) Extend technical assistance through Inspection Division, and

(c) Help Mr. Makortoff to get technical training through the Department of Economic Development.

(d) Incentive should be given to utilizing B.C. building stone products in public buildings. The B.C. Legislative and Museum Complex are two of the rare examples where this has been done in the past.



E.W. GROVE,
Senior Geologist, Geological Division,
Mineral Resources Branch.

October 27, 1975.

082ksw074

Property File

REPORT
ON
COMMERCIAL DEVELOPMENT
OF
TRAVERTINE DEPOSITS
AT
HILLS, B. C.

INDEX OF PROSPECTUS

NOVEMBER 15, 1978

1. General Overview
2. Available Deposits
3. Potential Products
4. Market
5. Plan
6. Financial Requirements
7. Financial Forecast

November 13, 1978

Gary Exner

GENERAL OVERVIEW

Travertine is a unique limestone which is highly suitable for cutting and polishing as is its counterpart, the Italian travertine or marble. Because of its particular bondage and uniformity, it can be cut thinner with less chance of breakage, and because of its lightness in weight, it saves on shipping costs.

The stability and uniqueness of travertine along with its neutral colour tone, is supposedly preferred by architects to its counterpart, thus giving a strong advantage for competition.

The colour of the clean travertine is peach and beige this is, a golden brown and is consistent and the texture reasonably attractive. A variety of textural and compositional types are present although the proportion of each is not known. Only mining, cutting, breaking and sorting will determine the proportions of each textural type.

AVAILABLE DEPOSITS

The travertine deposits to be developed are located in the West Kootenay's near New Denver, B. C. about two (2) miles east of Hills on Arthur Creek, and at an elevation of 4,250 feet. There are several deposits of travertine that appear to contain appreciable tonnage of attractive material.

It is estimated that the several deposits in the immediate area contain approximately a million tons excluding the conglomerate type which is also valuable.

A two mile rough tractor road has been constructed to one of the main showings on Arthur Creek. This deposit can be made easily accessible by upgrading the existing road. Approximately 1.5 miles of road would be required to gain access to the other deposits.

The material at these deposits is on the surface and therefore carries money advantages over other direct processes as mining for ore.

The deposits are presently held on Special Use Permits issued by the Ministry of Forests at the Nelson District Office.

POTENTIAL PRODUCTS

B. C. Travertine can be used for a multitude of purposes.

- 1) Cut and polished into larger veneer sheets 4' x 8' for all sorts of store and office facings.
- 2) Cut for facing vanities, coffee tables and moulding columns
- 3) Cut into various thickness of sheets and made into ashlar.
- 4) Used for fireplace facings and flower planter dividers
- 5) Decorative types of bricks and patio slabs
- 6) Various sizes of floor and wall tiles
- 7) Acoustic board for fire rooms from the softer texture materials
- 8) Ornamental purposes such as lamp stands, bookends, stone dishes and store displays using lacey material
- 9) Stone rubble for rough facings
- 10) Beautiful rockery material for flower landscaping and show places
- 11) Stones for water fountains; and
- 12) All refuse from above can be used as a soil conditioner.

MARKET

The market demand for all classes of building stone and end products, has shown an overall increase in use in B. C. during the past few years. But, conversely the production of native building stone has decreased noticeably. The current explanation of public buying motivation, stresses that the products being purchased must be uniform and that it will be delivered to the user on schedule. Also, the buyer should be attracted if the products is superior in reducing cost.

The limit of the market area is also determined by the transportions plus production cost break - even point.

Presently, discussions are continuing with Eto Enterprises Ltd. who are promoting the product in Japan. The Japanese are interested in a finished products only.

Discussions are presently underway is which Eto Enterprises Ltd. may become the wholesaler and deal with foreign markets excluding North America.

PLAN →

Production in two (2) stages:

- 1) Quarrying
- 2) Finishing Plant

QUARRYING

Quarrying of large blocks by conventional drilling, breaking and cutting methods and then transporting blocks to a finishing plant appears to present the best method for optimal utilization of the material.

This would consist of surface cutting stone blocks with either the use of carbide tipped chain saws or with the use of wire saws. A second method would be by drilling and feather wedging stone blocks. The blocks would then be hoisted onto a trailer by a mobile crane and delivered to the finishing plant.

FINISHING PLANT

The large stone blocks would be cut by gang saws into veneer sheets one inch thick and then squared into 4' x 8' sheets, right down to 4" x 4" tiles, graded, polished or unpolished and crated for shipment.

The equipment requirements in addition to the gang saws, consists of cut-off saws, polishing units, honing and tile cutting machines, packaging equipment, dressing sheds, packaging equipment, storage space, vehicles and the building itself. Also, a crusher will be required to convert refuse to a soil conditioner, therefore completely minimizing waste.

FINANCIAL REQUIREMENTSRequire Capital

Quarrying - Wire saws or chain saws	\$ 50,000
- Truck, mounted crane and trailer	60,000
- Pickup	8,000
- Other small units	<u>7,000</u>
	\$ <u>125,000</u>

Finishing .	
Plant - Large aluminum Building	100,000
- Gang saw	25,000
- Overhead crane	15,000
- Diamond cut-off saws (2)	20,000
- Radial type polishing machines (2)	20,000
- Crusher	15,000
- Packaging equipment	15,000
- Fork lift	35,000
- Pickup	8,000
- Office complex and equipment	15,000
- Other equipment	<u>7,000</u>
	<u>275,000</u>

Operating Capital 50,000

Total Requirement \$ 450,000

Cash input \$ 50,000
Finance 400,000

\$ 450,000

\$ 400,000 loan over 10 years @ 12 % \$ 5,672.12/ month

FINANCIAL FORECAST

Assume one (1) month - 20 - 8 hour shifts.

Production - Assume Gang Saw - Averages 10 tons/shift
1 ton = ± 1 cubic yard.

- 1 cubic yard - sawn into 1" thick slab = 324 square feet

Therefore 10 tons (10 cubic yards) = 3240 square feet/shift

The present filled and polished Travertine in U.S. retails at \$14.00 per square foot = or 10 tons could retail \$45,360. \$ 45,360

less loss and down grade 50% of tone 25,360

Say sales all materials \$ 20,000

20 shifts per month \$400,000

Less shipping and sales commission 200,000

200,000

Wages - 15 men - \$150/day	\$2,250 x 20	\$45,000
Accounting	3,000 / 12	250
Advertising		1,000
Fuel, gas and oil		5,000
Insurance		500
Interest		2,500
Maintenance and repairs		8,000
Office Supplies		200
Operating supplies		3,000
Power		200
Telephone		300
Travel		600
Royalties		2,000
Materials		<u>30,000</u>
		98,550

Say 100,000

Income 100,000



To: Mr. Z. D. Hora
Industrial Minerals Specialist
Geological Division
Ministry of Energy, Mines & Petroleum Resources
Victoria

Date: 1979-04-30

Headquarters File: 22-11-01

Regional File:
**MINISTRY OF MINES
AND PETROLEUM RESOURCES**

Rec'd MAY 3 - 1979

Re: Testing of Stone Samples - Request For Services

RSB OH.

As per your request, the travertine samples from the Stocin Lake area have been tested for Compressive Strength (ASTM C-170) and the Modulus of Rupture (ASTM C-99).

2790

Sample Identification

Travertine blocks marked 1 through 6 of nominal size 50 mm x 50 mm x 215 mm, and blocks marked 7 through 12 of nominal size 50 mm x 50 mm x 155 mm were tested for Modulus of Rupture. Load was applied, with the number identification facing upward as per your instructions. A.S.T.M. was not followed for blocks Nos. 7-12, in that the supporting span was reduced to 127 mm from the prescribed 177.8 mm to accommodate the shorter length. The 50 mm thick travertine slabs marked A, B, C and D were cored for compression testing and identified as samples A1, C4, etc. The 50 mm diameter cores were taken perpendicular to the marked surfaces as per your instruction.

The large travertine sample shown in Photo No. 1, was cored both horizontally and vertically, and identified as 1, 1A, 2, etc. For sample orientation, refer to Photos Nos. 1 and 2.

Test Results

1. Modulus of Rupture (50 x 50 x 215 mm blocks)

<u>Sample No.</u>	<u>Span (mm)</u>	<u>Modulus of Rupture (MPa)</u>	PSI
1	177.8	1.86	270
2	177.8	.64	93
3	177.8	1.11	161
4	177.8	2.91	422
5	177.8	2.53	367
6	177.8	.99	143
		<u>Average</u>	<u>242</u>

Property File 082 K50974

Test Results (cont'd.)

1. Modulus of Rupture (50 x 50 x 155 mm blocks)

<u>Sample No.</u>	<u>Span (mm)</u>	<u>Modulus of Rupture (MPa)</u>
7	127	.30 44
8	127	3.60 522
9	127	3.69 535
10	127	5.51 799
11	127	5.81 843
12	127	1.39 202
		Average 3.38 490

hard

2. Compressive Strength

A. Block Core Samples (Large travertine samples)

<u>Sample No.</u>	<u>Compressive Strength (MPa)</u>
1	3.55 5157
2A	8.00 1168.6
2B	5.70 831.4
3	13.80 2000.9
4A	17.90 2596
4B	10.70 1545
5A	6.40 933
5B	11.10 1616
5C	19.60 2835
5D	17.20 2498
6A	8.00 1165
6B	4.50 659

chally

Test Results (cont'd.)

2. Slab Core Samples

<u>Sample No.</u>	<u>Compressive Strength (MPa)</u>	
A1	14.0	2020
A2	6.1	897
B1	9.8	424
B2	15.0	2180
C1	22.4	3247
C2	18.4	2671
C3	16.9	2451
C4	26.3	3812
D1	26.0	3769
D2	20.6	2988

soft

hard

E. J. Redden

for

E. O. Darby,
Senior Laboratory Technician

for

Director of Geotechnical
and Materials Engineering

CSG: sb

Attachment



M118

To: Dr. Z. D. Hora
Industrial Minerals Specialist
Geological Division
Ministry of Energy, Mines & Petroleum Resources
Victoria

Date: 1979-04-30

Headquarters File: 22-11-01

Regional File:
District File: **MINISTRY OF MINES
AND PETROLEUM RESOURCES**

Property File 082KSW 074

Rec'd MAY 3 - 1979

RSB DH.

Re: Testing of Stone Samples - Request For Services

As per your request, the travertine samples from the Slocan Lake area have been tested for Compressive Strength (ASTM C-170) and the Modulus of Rupture (ASTM C-99).

2790

Sample Identification

Travertine blocks marked 1 through 6 of nominal size 50 mm x 50 mm x 215 mm, and blocks marked 7 through 12 of nominal size 50 mm x 50 mm x 155 mm were tested for Modulus of Rupture. Load was applied, with the number identification facing upward as per your instructions. A.S.T.M. was not followed for blocks Nos. 7-12, in that the supporting span was reduced to 127 mm from the prescribed 177.8 mm to accommodate the shorter length. The 50 mm thick travertine slabs marked A, B, C and D were cored for compression testing and identified as samples A1, C4, etc. The 50 mm diameter cores were taken perpendicular to the marked surfaces as per your instruction.

The large travertine sample shown in Photo No. 1, was cored both horizontally and vertically, and identified as 1, 1A, 2, etc. For sample orientation, refer to Photos Nos. 1 and 2.

Test Results

1. Modulus of Rupture (50 x 50 x 215 mm blocks)

<u>Sample No.</u>	<u>Span (mm)</u>	<u>Modulus of Rupture (MPa)</u>
1	177.8	1.86
2	177.8	.64
3	177.8	1.11
4	177.8	2.91
5	177.8	2.53
6	177.8	.99
	Average	<u>1.67</u>

Test Results (cont'd.)

1. Modulus of Rupture (50 x 50 x 155 mm blocks)

<u>Sample No.</u>	<u>Span (mm)</u>	<u>Modulus of Rupture (MPa)</u>
7	127	.30
8	127	3.60
9	127	3.69
10	127	5.51
11	127	5.81
12	127	1.39
	Average	<u>3.36</u>

2. Compressive Strengths

A. Block Core Samples (Large travertine samples)

<u>Sample No.</u>	<u>Compressive Strength (MPa)</u>
1	3.55
2A	8.00
2B	5.70
3	13.80
4A	17.90
4B	10.70
5A	6.40
5B	11.10
5C	19.60
5D	17.20
6A	8.00
6B	4.50

MEMORANDUM

TO Mr Danny Hora, P. Eng.
.....
Industrial Minerals,
.....
Victoria.
.....

FROM G. Addie, P. Eng., P. Geol.,
.....
District Geologist,
Nelson. 25th Nov 1978

SUBJECT AND
OUR FILE

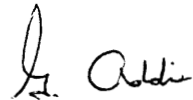
Rec'd NOV 8 1978

YOUR FILE

Re Mike Makortoff's Travertine.

We are sending you three large samples of the Travertine from Hills, B.C. for testing etc.

Mike also asked me to send you a small report he has put together for your comments. He also needs to know the tax rates on this material.



G. Addie, P. Eng., P. Geol.,
District Geologist.

GA/elg
Encl.



Province of
British Columbia

Energy,
Ministry of Mines and
Petroleum Resources

Parliament Buildings
Victoria
British Columbia
V8V 1X4

Property File
082-K-SW-074

May 11, 1979

Mr. Mike Makortoff
Site 5C-17, SS #2,
Shoreacres, B.C.

Dear Mike:

Please find enclosed the report on results of testing the samples of travertine from your deposit near Hills.

As far as your report on commercial development is proposing, I do not feel that the result will justify promotion overseas. However, the local market in the western provinces and perhaps the adjacent U.S., should find travertine from Hills as a reasonable alternative to at least part of imported stone used for interior decorations.

Part of the cut slabs used for our testing are being shipped to Mr. Addie in Nelson.

Yours truly,

Z.D. Hora
Industrial Minerals Specialist,
Mineral Resources Branch

ZDH/dlb

Encl.

cc: George Addie

1) Hard and strong looking type, bands of small voids:

	MPa	psi
Compressive strength		
perpendicular to the rift	20.60-26.00	2988-3769
normal to the rift	16.90-26.30	2451-3812
Modulus of rupture	1.39-3.60	202-849

2) Partially hard, with softer sections, irregular larger and smaller voids:

	MPa	psi
Compressive strength		
perpendicular to the rift	9.80-15.00	1424-2180
normal to the rift	6.10-14.00	887-2020
Modulus of rupture	0.64-2.91	93-422

3) Soft looking type, many irregular small and larger voids:

	MPa	psi
Compressive strength		
perpendicular to the rift	4.50-19.60	659-2835
normal to the rift	3.55-17.90	516-2596

The results indicate poorly homogeneous material of types 2 and 3, where most likely only a small portion will be of acceptable quality for cut, dimension and masonry stone. The type 1 test results indicate relatively homogeneous material with slightly below average values typical for good quality travertine.



Z.D. Hora
Industrial Minerals Specialist
Mineral Resources Branch



H118

To: Dr. Z. D. Hora
Industrial Minerals Specialist
Geological Division
Ministry of Energy, Mines & Petroleum Resources
Victoria

Date: 1979-04-30

Headquarters File: 22-11-01

Regional File:
District File:
**MINISTRY OF MINES
AND PETROLEUM RESOURCES**

Rec'd MAY 3 - 1979

ASB	DH.	
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Re: Testing of Stone Samples - Request For Services

As per your request, the travertine samples from the Sločan Lake area have been tested for Compressive Strength (ASTM C-170) and the Modulus of Rupture (ASTM C-99).

2790

Sample Identification

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The large travertine sample shown in Photo No. 1, was cored both horizontally and vertically, and identified as 1, 1A, 2, etc. For sample orientation, refer to Photos Nos. 1 and 2.

Test Results

1. Modulus of Rupture (50 x 50 x 215 mm blocks)

<u>Sample No.</u>	<u>Span (mm)</u>	<u>Modulus of Rupture (MPa)</u>
1	177.8	1.86
2	177.8	.64
3	177.8	1.11
4	177.8	2.91
5	177.8	2.53
6	177.8	.99
	Average	<u>1.67</u>

Test Results (cont'd.)

1. Modulus of Rupture (50 x 50 x 155 mm blocks)

<u>Sample No.</u>	<u>Span (mm)</u>	<u>Modulus of Rupture (MPa)</u>
7	127	.30
8	127	3.60
9	127	3.69
10	127	5.51
11	127	5.81
12	127	1.39
		Average <u>3.38</u>

2. Compressive Strengths

A. Block Core Samples (Large travertine samples)

<u>Sample No.</u>	<u>Compressive Strength (MPa)</u>
1	3.55
2A	8.00
2B	5.70
3	13.80
4A	17.90
4B	10.70
5A	6.40
5B	11.10
5C	19.60
5D	17.20
6A	8.00
6B	4.50

Test Results (cont'd.)

2. Slab Core Samples

<u>Sample No.</u>	<u>Compressive Strength (MPa)</u>
A1	14.0
A2	6.1
B1	9.8
B2	15.0
C1	22.4
C2	18.4
C3	16.9
C4	26.3
D1	26.0
D2	20.6



R. O. Darby,
Senior Laboratory Technician

for

Director of Geotechnical
and Materials Engineering

GSG: sb

Attachment

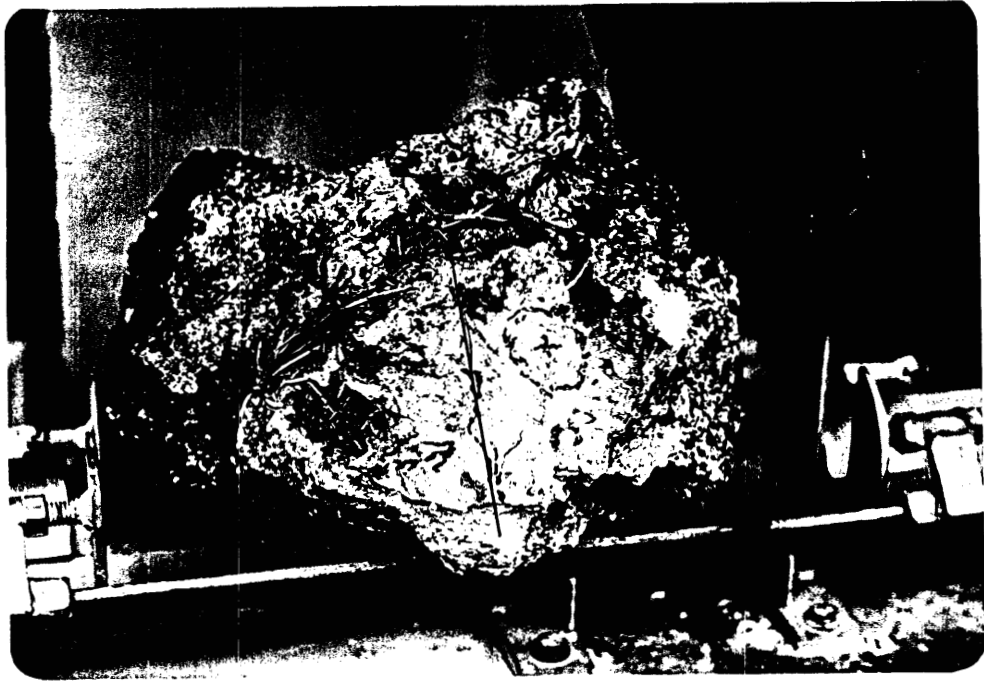


Photo No. 1 Sample as received



Photo No. 2 Core Nos. 1, 2, 3 and 4 } 90°
Core Nos. 5 and 6

OR2 KSW 074
Property File

Site 5 C-17 S.S. #2
Shoreacres, B.C.
Nov. 30, 1978. Ph. 359-7483.

Mr. Danny Hora,
Industrial Minerals Dept.,
Ministry of Mines & Petroleum Resources,
Geological Division,
630 Superior Street,
Victoria, B.C. V8V 1V1.

Dear Mr. Hora:

Last week I had the opportunity to send you some stone samples of Travertine for testing. I am very happy that this can be done as we require results for our prospectus which we are making now. WE will also require the Federal and the Provincial Taxation data to complete it.

I am also sending you other information for your perusal, such as Stone Information Manual, a couple of Building Stone Newspapers, a draft copy of partly completed Prospectus. (Slightly revised from one you recieved from Mr. Addie of Nelson.) Some of this information will give you an idea as to what we in B.C. are missing, and not taking advantage of our resources, and not creating employment. I must admit what I have researched in the way of a Stone cutting industry, not only Travertine, we can employ around 100 men, there are other projects that I have in mind, but all this requires study, research, travel etc., which I have no finances to do so.

I have asked help from the provincial Gov. before but as usual they have no funds for this end. We have had seminars in regards to the economy etc., I have outlined certain features as to how we should go about it, but there is nothing in their books legislated to help us enterprauers.

You may want to discuss the Travertine with Mr Phil Olsen or Mr. E. W. Grove as they are both familiar with my project.

I would also like to ask you if it is reasonably possible to get some cut samples from these stones for showing to people that may wish to venture to develop the property as we have no one to cut them here. You will also possibly notice that they are

(?)

of three different types of composition, one is extremely hard and best for polishing, one is semi hard, for decorative wall tiles and bricks, the other has semi acoustical properties for possibly noisy firerooms, also they can too be used for all sorts of tiles but may have to be spray painted in gold or similar color to take off the chalky texture.

I must thank you in advance for your interest on my project, I hope that it wont be too long that we may get the results to complete the prospectus so we can present it to the public or interested individuals over the winter so possibly a start can be made in the spring.

Yours Sincerely,

A handwritten signature in cursive script that reads "Mike Makortoff". The signature is fluid and somewhat stylized, with a large loop at the end of the last name.

Mike Makortoff.