

GEOLOGICAL and GEOPHYSICAL REPORT

ON THE

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Jo #1 - 6 Mineral Claims, Record Num-
bers 14516 - 14521, 51°00 North Lati-
tude, 121° West Longitude, 7 miles
northeast of Clinton

CLINTON MINING DIVISION

RIVIERA MINES LTD.

Vancouver, B.C.
January 23rd, 1968

W.G. STEVENSON, P. ENG.

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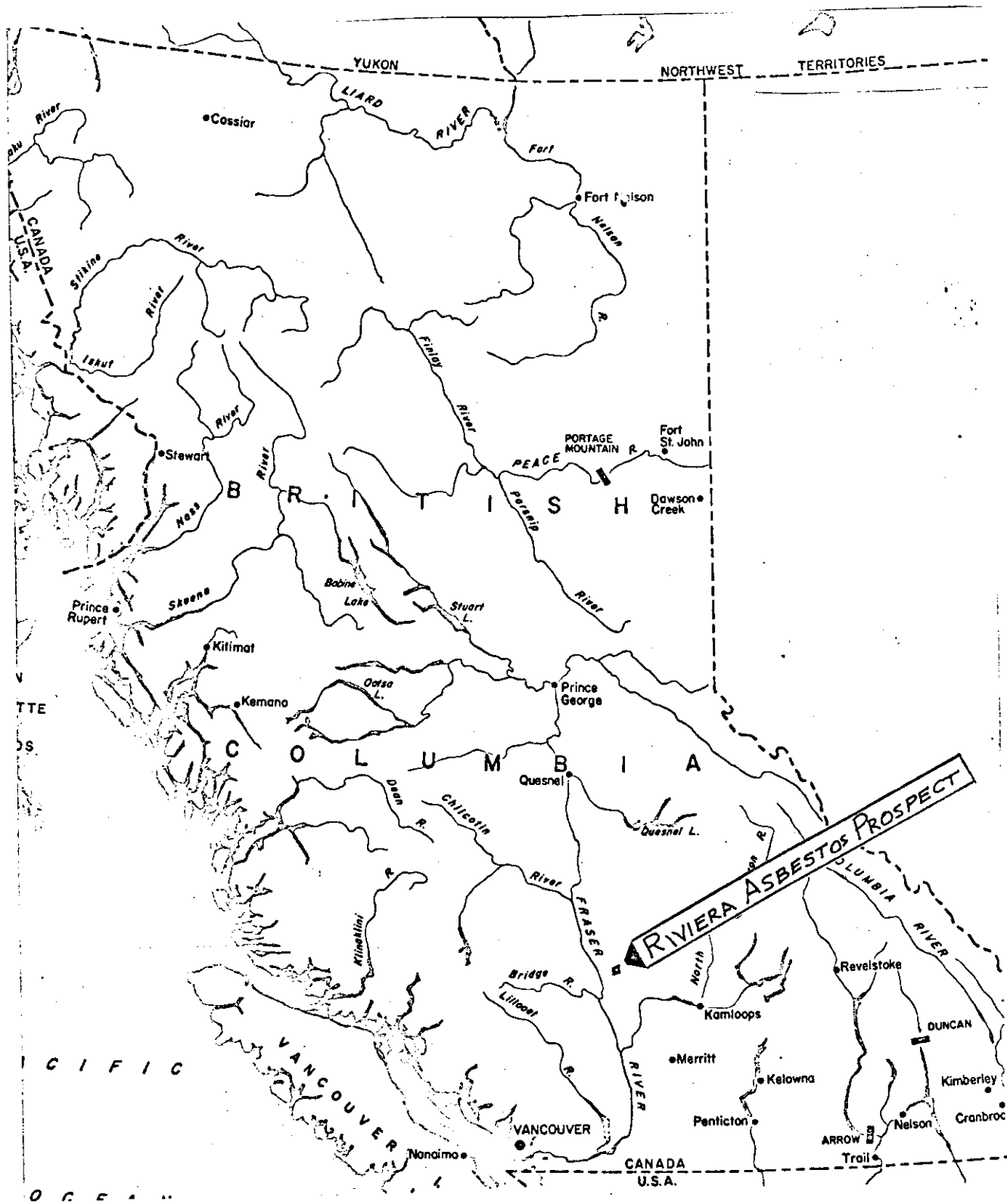
W.G. STEVENSON, P. ENG.

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- D. GEOLOGICAL MAP ~~#4~~ SCALE 1" = 100 feet
- E. CERTIFICATE OF W.G. STEVENSON, P. ENG.



Department of
 Mines and Petroleum Resources
 ASBESTOS PROSPECT REPORT
 NO. 1146 MAP 1

Index Map
 showing location of
 RIVIERA MINES LTD.
 ASBESTOS PROSPECT
 CLINTON MINING DIVISION
 British Columbia
 Scale 1" = 100 miles

INTRODUCTION

During the period May 5th to 8th, 1967 inclusive, I mapped the geology and performed a geophysical survey over a block of mineral claims which are located 140 miles north-east of Vancouver and 7 miles northeast of Clinton, B.C. These claims have been staked to cover an Asbestos Prospect. Mr. Adam Derry who has held title to this property for many years assisted me on this Exploration Program.

PROPERTY AND TITLE

A block of 16 mineral claims have been staked over the asbestos prospect by Mr. Adam Derry as agent for Riviera Mines Ltd. (N.P.L.), 450 - 890 West Pender Street, Vancouver, B.C.

These claims, the Jo Numbers 1 - 12, Record Number 14516 - 14527, were located on January 14th, 1967, and the Jo Number 13 - 16, Record Number 14528 - 14531, were located on January 22nd, 1967. All of these mineral claims were recorded in Vancouver on January 25th, 1967.

A part of the serpentine body extends easterly on to Lot 160 which is farmland. In addition to the surface right, this lot carries title to the mineral rights. Riviera Mines Ltd. holds an agreement with the owner that will permit

mining to be accomplished on this lot if this is advantageous.

LOCATION AND ACCESS

The mineral claims held by Riviera Mines Ltd. are located on the west side of the Bonaparte Rive, 7 miles north-east of Clinton, B.C. The claims are positioned 2 miles south-east of Highway 2/97. A series of Logging roads accessible from the highway traverse the property. Lines of the P.G.E. Railway are located 2 miles northwesterly from the mineral claims.

HISTORY

This prospect was discovered a number of years ago and has been subjected to three modest exploration programs. The geological maps recently published by the Geological Survey of Canada do not recognize or show serpentine or ultra basic bodies in this area. There is only a cursory reference of this asbestos occurrence in the literature published by the B.C. Department of Mines.

This property was originally staked in 1952 by Messrs. Gordon Blaney, Adam Derry, Prospectors, and Vic Bjorkman, Professional Engineer. It was held under option for a short period by Western Asbestos, a small company who dropped their option without accomplishing any work. The property was

dormant until 1957 when it was optioned to New Jersey Zinc Exploration Co. Ltd. New Jersey performed a geological mapping program, a magnetometer survey and modest follow-up trenching. Their option was dropped the following year.

In 1958 and 1959 dozer trenching was accomplished to test the asbestos. Some underground work has been performed in the past to test the possibilities of developing commercial amounts of chromium, and Kaiser put down a drill hole reportedly to test for magnesite.

The property was dormant until January, 1967 when claims were staked for Riviera Mines Ltd.

GEOLOGY

The property is positioned near the eastern edge of a series of volcanic and sedimentary rocks. These rocks are part of the Cache Creek Formation of Permian age. This area has been subjected to intense deformation. The volcanic and sedimentary rocks have been folded into north to northwesterly trending anticlines and synclines with associated faulting which trends in this same direction.

The rocks that I saw within the claim block were essentially shales and carbonate rocks with interbedded basic and ultrabasic intrusives. These intrusives have a north to northwesterly trend and are concordant with the volcanic

sedimentary series. The basic intrusives are slightly altered and medium-grained ~~with~~ diorite. The ultrabasic rocks which are peridotite, dunite and pyroxenite have been serpentized and in places the rock has been completely altered to serpentine. Chrysotile asbestos is found in areas where the serpentization has been most intense.

Two zones of ultrabasic rock, each containing minor amounts of asbestos fibre, have been found on the property. These zones are parallel separated by possibly 3000 feet. The western ultrabasic zone, shown in detail in Appendix "C", has a north-south strike direction and dips 40° - 65° westerly. The zone is irregular and discontinuous and intermixed with diorite masses. Two serpentine bodies probably connected at depth were observed. The maximum observed width was 130 feet.

The eastern most ultrabasic zone shown in detail in Appendix "D" is a complex assemblage of serpentine bodies alternating with chert and associated with conglomerate. These ultrabasic bodies have been detected over a width approaching 1200 feet. The western most is relatively fresh peridotite with negligible amounts of fibre. It is about 80 feet wide. The central ultrabasic body is well serpentized and contains asbestos fibre. It is approximately 200 feet wide. The eastern body is unserpentized peridotite with only negligible amounts

of fibre. It is 500 feet wide. These three ultrabasic bodies are separated by two 80 foot layers of chert.

A broad band of hard, dense, brown siliceous carbonate rock was observed immediately east of and parallel with these ultrabasic intrusives. This band of rock is several hundred feet wide. It extends for possibly one mile northwesterly to southeasterly, and parallel bands are exposed toward the northeast.

The asbestos fibre that has been exposed in the eastern and the western zones is probably less than 3%. I saw one stringer of fibre with a length of 1/4 inch and a few with lengths of 1/8 inch. The fibre that I saw is almost entirely less than 1/16 inch in length. The direction of the zones which contain the fibre and of the siliceous rock, as indicated by my geophysical survey and by my geological mapping, is northwesterly, southeasterly. This fibre zone extends southerly across the Bonaparte River and can be traced for a distance in excess of one mile. I found only minor fibre content in any of the rocks on the southerly extension of the ultrabasic zone across the Bonaparte River.

A broad expanse of recent volcanic flows and breccias overlie and mask the Cache Creek Formation and the ultrabasic bodies, easterly and northerly from the claim block.

I have attached a geological map as Appendix "B" which will show the relative positions and the dimensions of the fibre zones and the projection of the ultrabasic zones outside of the claim boundary.

GEOPHYSICAL SURVEY

While on the property I conducted a magnetic survey with a sharpe D - 2 dip needle. The responses with this instrument varied between 95° and 125°. These readings were taken when the needle was at the maximum swing, to obtain the most accuracy. Readings below 110° in every instance indicated sediments on possibly the Quartz carbonate dike. Responses above 110° were obtained over the serpentine bodies and over the Diorite intrusive. The highest readings were obtained in covered areas near serpentine and diorite outcrops.

CONCLUSIONS

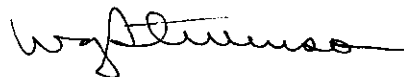
1. The Regional geological pattern of faulting and folding in the Cache Creek Formation in this area is north and northwesterly. The Serpentine and ultrabasic bodies appear to be intraformation sills within the Cache Creek Formation.
2. Within the claim block, held by Riviera Mines Ltd.,

two zones of serpentine and ultrabasic rocks with minor amounts of chrysotile asbestos fibre have been exposed by dozer trenching.

3. The asbestos fibre that has been exposed in these cuts is, for the most part, less than 1/16 inch in length. I estimated that the percentage of fibre in the highest grade section is less than 3%.

4. The geological mapping and geophysical work that I accomplished suggests that areas of high magnetic intensity within covered portions of the claims reflect the location of concealed serpentine bodies.

5. The mapping and prospecting that I have accomplished has shown that the serpentine zones trend northwest-southeast and extend beyond the limits of the claim block.



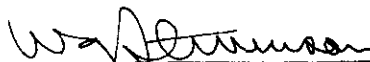
W.G. STEVENSON
Consulting Geologist

C E R T I F I C A T E

I, William G. Stevenson, do hereby certify:

1. That I am a Consulting Geological Engineer with offices at Suite 509 Stock Exchange Building, 475 Howe Street, Vancouver, B.C.
2. That I am a graduate of the University of Utah, 1946, with a Bachelor of Science Degree.
3. That I am a registered Professional Engineer in the Association of British Columbia.
4. That I have practised my profession for twenty-two years.
5. That this report dated January 23rd, 1968 is based on a study of the Geological literature that has been published on this area and as a result of an examination of this property that I made during May, 1967.

W.G. STEVENSON & ASSOCIATES LTD.
Consulting Geologists



W.G. STEVENSON, P. ENG.

DOMINION OF CANADA:
 SUB-MINING RECORDER
 PROVINCE OF BRITISH COLUMBIA.
 RECEIVED
 J To Wit: 1968
 M.R. # \$
 VANCOUVER, B. C.

In the Matter of the geological and geophysical survey over certain mineral claims held by Riviera Mines Ltd. near Clinton, British Columbia in the Clinton Mining Division.

I, William G. Stevenson, P. Eng.
 Consulting Geologist

of 509 - 475 Howe Street
 Vancouver 1, B.C.

in the Province of British Columbia, do solemnly declare that during 1967 I geologically mapped and geophysically surveyed a block of claims that were staked over an Asbestos prospect 7 miles northeast of Clinton, British Columbia. The exploration program commenced on May 5th and was completed on May 8th, 1967.

The costs of this program have been \$675.00 as follows:

COSTS

Wages or fees

Adam Derry, Prospector - 4 days at \$37.50/day \$150.00
 W.G. Stevenson, Consulting Geologist -
 4 days at \$100.00/day 400.00

\$550.00

Transportation

75.00

Map Preparation

50.00

\$675.00

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City
 of Vancouver, in the
 Province of British Columbia, this 24
 day of January, 1968, A.D.

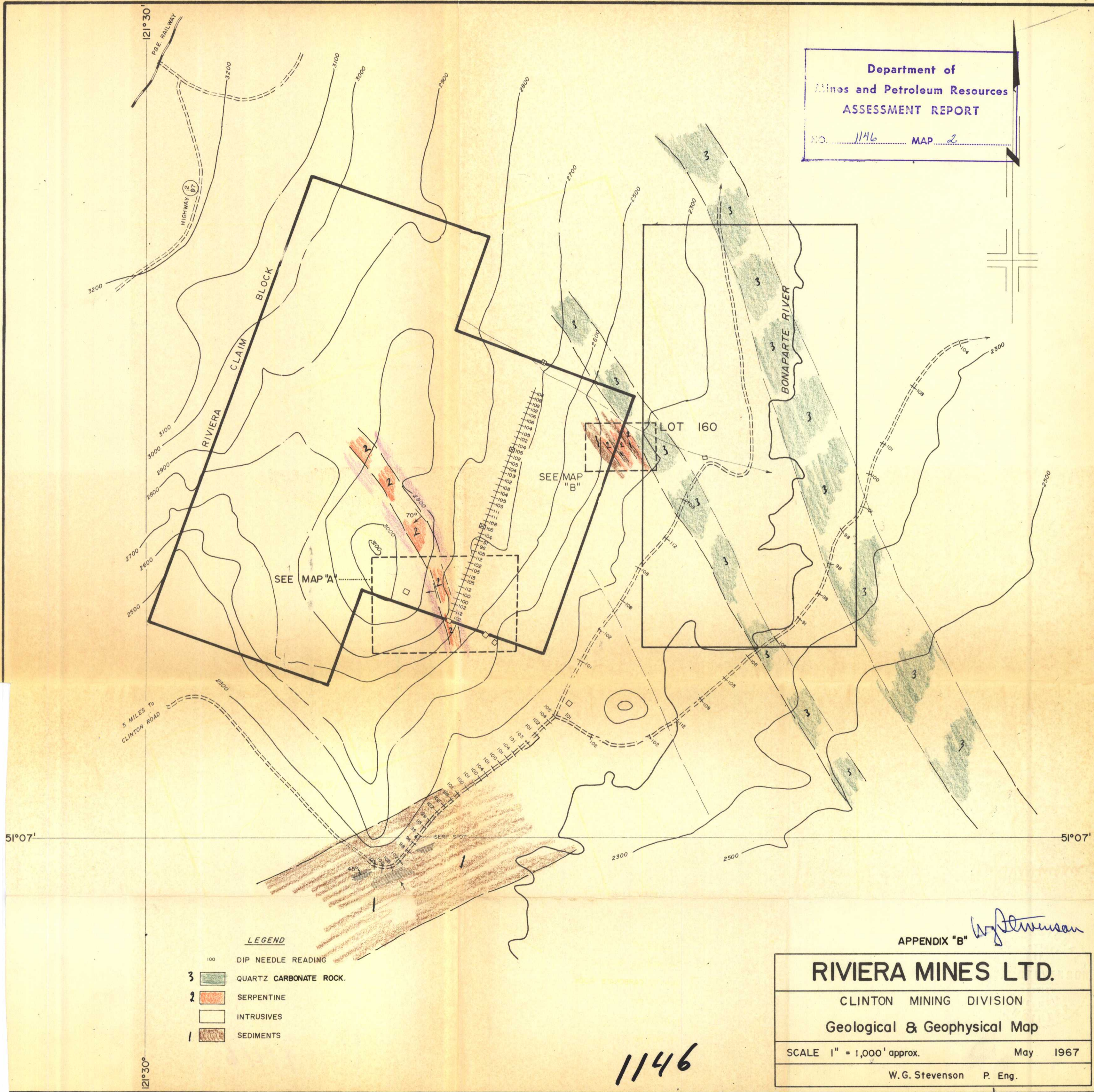
W.G. Stevenson

[Signature]
 A Commissioner for taking Affidavits for British Columbia or
 A Notary Public in and for the Province of British Columbia.

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Sub-Mining Recorder

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 1146 MAP 2



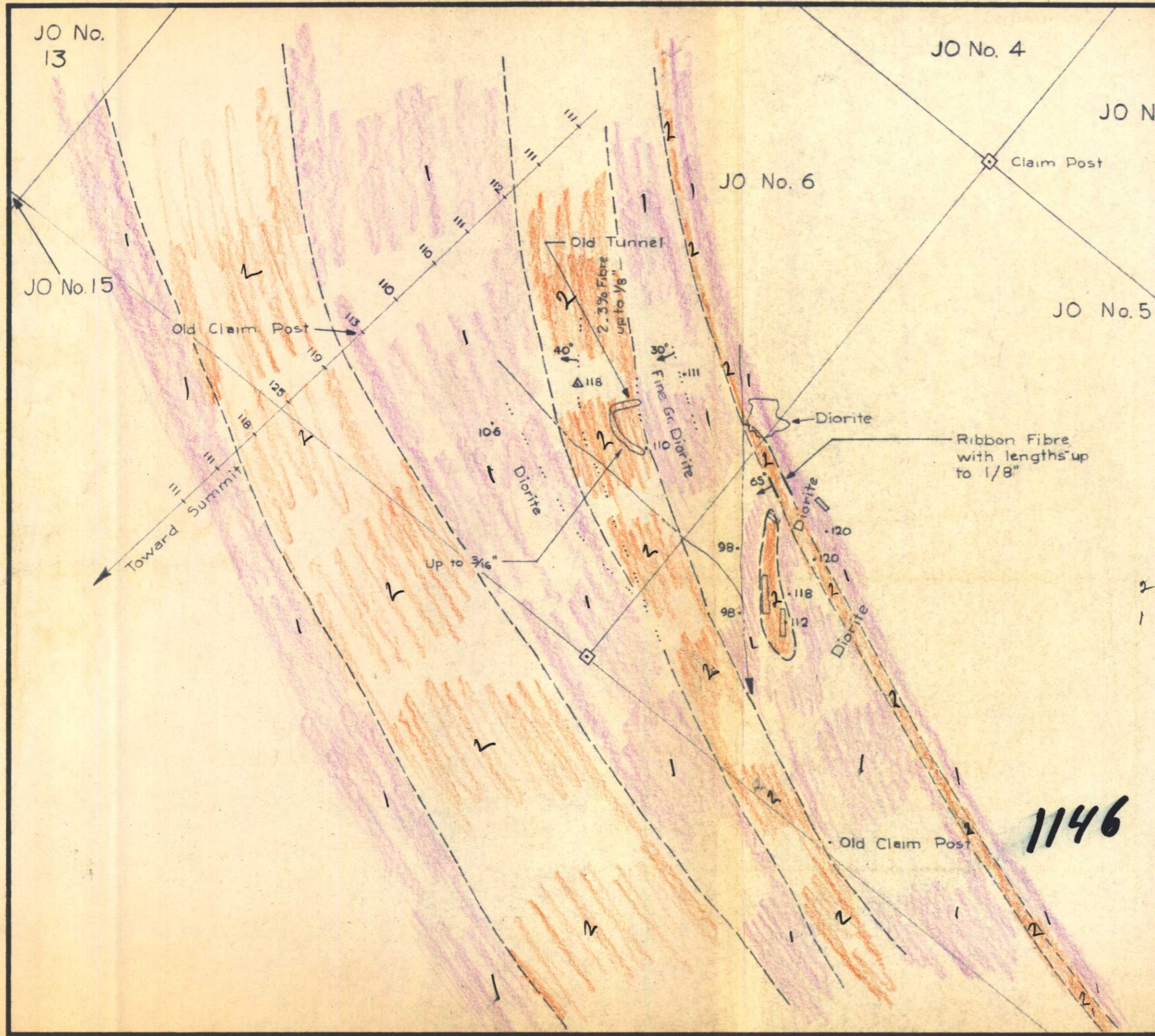
LEGEND

- 100 DIP NEEDLE READING
- 3 QUARTZ CARBONATE ROCK.
- 2 SERPENTINE
- INTRUSIVES
- 1 SEDIMENTS

APPENDIX "B" *W.G. Stevenson*

RIVIERA MINES LTD.
 CLINTON MINING DIVISION
 Geological & Geophysical Map
 SCALE 1" = 1,000' approx. May 1967
 W.G. Stevenson P. Eng.

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Department of
 Mines and Petroleum Resources
ASSESSMENT REPORT
 NO. 1146 MAP 3

LEGEND

- 120 Dip Needle reading
- Quartz Carbonate Dike
- 2 Serpentine
- 1 Intrusives
- Sediments
- ~ Fault

APPENDIX C

W.G. Stevenson

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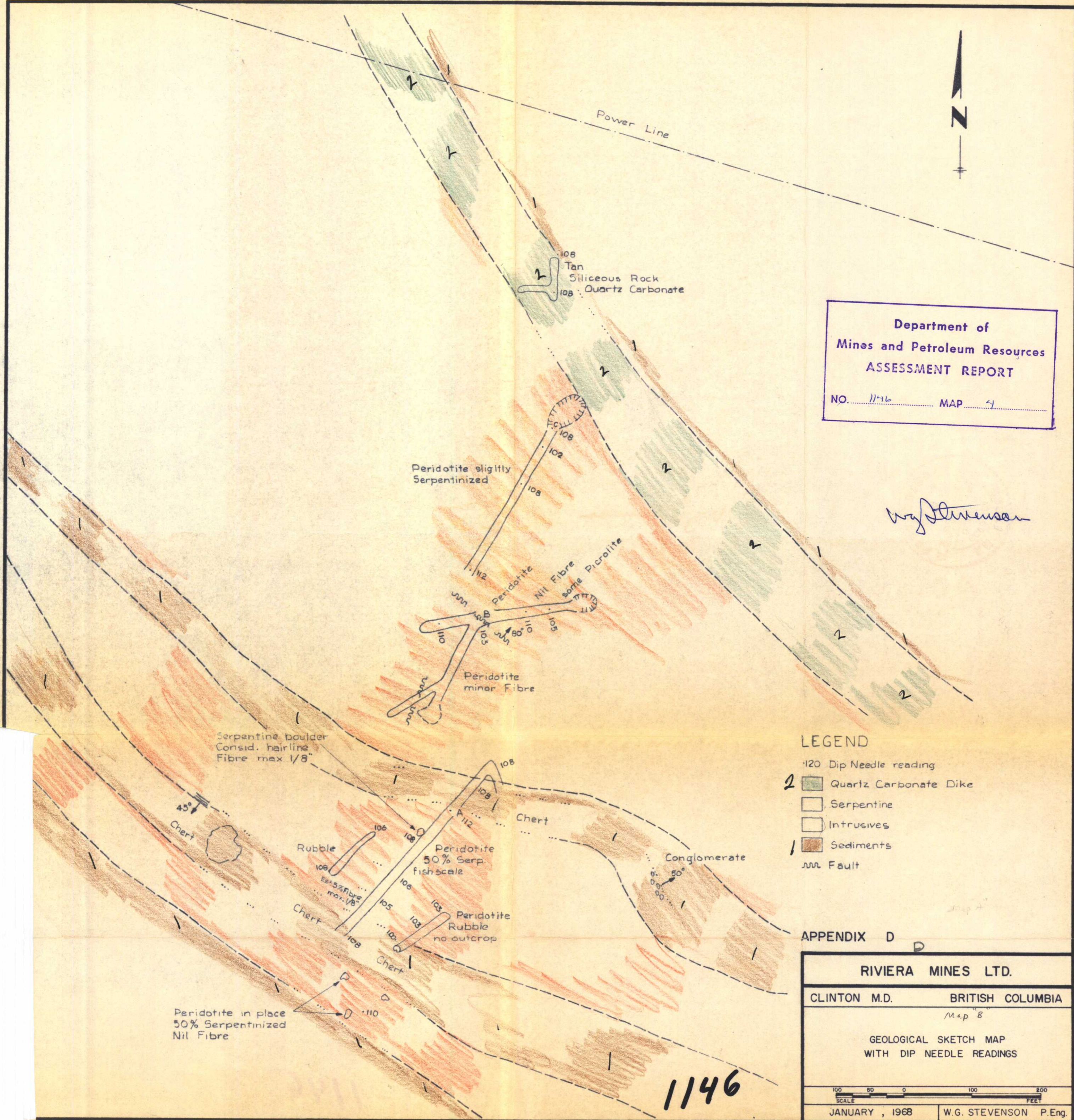
RIVIERA MINES LTD.	
CLINTON M.D.	BRITISH COLUMBIA
Map "A"	
GEOLOGICAL SKETCH MAP WITH DIP NEEDLE READINGS	
JANUARY, 1968	W.G. STEVENSON P. Eng.



Power Line

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 1146 MAP 4

W.G. Stevenson



LEGEND

- 120 Dip Needle reading
- 2 Quartz Carbonate Dike
- Serpentine
- Intrusives
- Sediments
- SUN Fault

APPENDIX D

RIVIERA MINES LTD.	
CLINTON M.D.	BRITISH COLUMBIA
Map 8	
GEOLOGICAL SKETCH MAP WITH DIP NEEDLE READINGS	
JANUARY, 1968	W.G. STEVENSON P.Eng.

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