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82F/14E

SURFACE GEOLOGY AND SOIL GEOCHEMISTRY

CORK-PROVINCE MINE

SLOCAN MINING DIVISION, B.C.

NTS 82F/14E

LATITUDE  $49^{\circ}54'30''$  LONGITUDE  $117^{\circ}04'30''$

ARCTEX ENGINEERING SERVICES

*Diagrams # 80-4*  
*NOTE*

LOCKE B. GOLDSMITH, P.ENG.  
CONSULTING GEOLOGIST  
OWNER, OPERATOR, CONSULTANT, AUTHOR

DECEMBER 1979

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SURFACE GEOLOGY AND SOIL GEOCHEMISTRY

CORK-PROVINCE MINE

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SUMMARY

A programme of surface prospecting, soil sampling, and geological mapping on claims of the Cork-Province mine did not locate definite targets for concentrated exploration. The limestone band at 21 + 00S, 2 + 00E may have potential for a replacement silver-lead-zinc deposit where the lode in the end of the 3 level crosscut crosses the formation.

A limited programme of underground geological mapping and sampling is recommended at a cost of \$11,400.00.

## INTRODUCTION

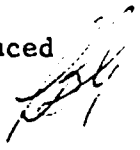
The Cork-Province property is situated on the south slopes of Keen Creek valley, approximately 5 miles southwesterly from the Kaslo-New Denver highway and 9 miles from Kaslo, B.C. Access is by paved road from Kaslo westerly to the junction of the Kokanee Glacier gravel road and thence southwesterly up Keen Creek. The road passes through the former millyard and within 60 metres (200 feet) of the portal of the main haulage level.

The author of this report and associates control 100% of the claims discussed herein. The property was acquired November 8, 1978 in a drawing for lapsed crown grants. Because the claims were drawn individually instead of as a unified mining property, the ownership was fragmented. Recently the Hub (L6331) claim was added to the group. Claims which now constitute the property are listed below:

|                |                               |
|----------------|-------------------------------|
| Province       | L5042                         |
| Rex            | L6330                         |
| Rex Fraction   | L6329                         |
| Slide          | L6332                         |
| Slide Fraction | L3627                         |
| Hub            | L6331 (acquired Nov. 9, 1979) |

Work was completed by the owner and associates as operators and consisted of grid preparation, soil geochemistry, prospecting and geological mapping on all of the claims which were controlled for the past year.

Early history is summarized by Cairnes (3), p. 206 - 209 and is reproduced below.



## CORK-PROVINCE MINE

*References:* Report of Zinc Commission, 1906, pp. 169-173.  
Ann. Repts., Minister of Mines, B.C., 1900-1928.  
Geol. Surv., Canada, Sum. Rept. 1925, pt. A, pp. 192-193.

The Cork-Province mine is owned and operated by Cork-Province Mines, Limited, % B. F. Palmer, Kaslo, B.C.

The property comprises thirteen surveyed and partly Crown-granted claims covering 479 acres. The mine is on the south side of Keen creek 9 miles by road from Kaslo and 4½ miles from Zwicky station.

The property is a consolidation of the Cork and Province groups of claims. The Cork group was acquired about 1900 by the Silver Star Mining Company, Limited, with headquarters at Lisle, France. By 1904 considerable development work had been done, including the lowest cross-cut with drifts for over 200 feet east and west. Raises had been started from each drift and a fair-sized body of ore developed in the western upper levels.

The adjoining Province group was being operated independently at this time and a promising ore-body had been developed on the eastern extension of the Cork lode, close to the eastern boundary of the Cork claim.

Both the Cork and Province mines were examined and reported on by Philip Argall of the Zinc Commission in 1905. At that time Argall considered that the Province "had a better shoot of zinc ore than anything yet developed in the Cork," although in the latter property there was one good showing of zinc ore west of the lower crosscut between levels 1 and 3. This showing was subsequently developed as No. 3 ore-body of the Cork-Province mine.

In the years 1906 to 1913, inclusive, the two mines continued to be worked independently. In this period the underground workings of the two properties were connected and in 1907 arrangements were made whereby the Province mine could use the lower main adit and mill of the Cork mine. Most of the development of this period, however, was done on the Cork property, in the eastern section of which important discoveries had been made and several thousand tons of ore mined. There is no record of any zinc production and the number of changes in management and ownership suggest that no real success had yet been achieved in its operation.

Consolidation of the Cork-Province groups was effected in 1914. Development work was renewed in the following year. In 1918 a flotation plant was added to the mill in the hopes of securing a better lead and also a zinc concentrate. The developments of this period were not, however, very satisfactory and in 1920 the property closed down. Operations were renewed in 1922 and a shaft was sunk to explore a lower level. These explorations proved that the ore-bodies continue to this depth and maintained their grade. Since this discovery production has been mainly from this lower or No. 4 level.

Production commenced in 1903 and shipments were made each year up to and including 1909. During this period nearly 16,000 tons of ore were mined, carrying an average of between 4 and 5 ounces in silver to the ton and 5 per cent lead. The next period of production extended from 1913 to 1919, during which time over 24,000 tons were shipped and averaged about 3 ounces in silver and over 4 per cent lead. The shipments of 1918 and 1919 contained 115,000 pounds of zinc. Production was resumed in 1923 and following years and included, to the end of 1926, nearly 18,000 tons carrying between 4 and 5 ounces of silver to the ton, over 5 per cent lead, and about 2½ per cent zinc. During 1929, the Cork-Province mill treated nearly 6,000 tons containing net recovered metals as follows: gold, 9 ounces; silver, over 20,000 ounces; lead, nearly 413,000 pounds; and zinc, over 518,000 pounds.

The workings of the Cork-Province mine lie entirely within Slocan sediments. The contact with the Nelson batholith lies 1,000 feet or so to the north of the mine on the opposite side of Keen creek. This contact plunges south and probably underlies the Cork-Province group at no great depth and the sediments in the vicinity of the mine are very considerably metamorphosed. The strata tend to dip away from the batholithic contact, thereby assuming a position almost at right angles to the general north-westerly trend. Their strike here varies from north 55 degrees east to nearly east and west and the dip is to the south at angles varying from 50 degrees to vertical and averaging 75 degrees. The sediments include a large proportion of argillaceous types mostly characterized by a greater or lesser amount of andalusite and commonly referred to as andalusite schists. Interbedded with these are some quartzitic beds and a number of crystalline limestone and other beds notably limy in composition. At the intersection of these limestone and limy strata by the main lode the principal ore-bodies have been developed. Consequently any information regarding the position or correlation of these beds is of prime importance. Unfortunately the paucity of outcrops and the irregularities in the attitudes of the sediments and variations in the sediments along their strike as indicated in the underground workings make correlation difficult.

The best available section of the sediments is along the No. 3 crosscut. This adit commences at an elevation of 3,293 feet, is 1,230 feet long, and runs south 28 degrees east or about at right angles to the main lode. The crosscut exposed five important beds of crystalline limestone with which are associated other, impure, limy strata. The first three beds are crossed in the interval extending from 200 to 320 feet from the portal and have an aggregate thickness of nearly 90 feet. The fourth bed lies between 505 and 530 feet from the portal and is intersected by a narrow lamprophyre dyke. The fifth bed lies between 1,030 and 1,055 feet from the portal, or between 100 and 125 feet south of the intersection of the crosscut and the main lode. Other comparatively narrow limestone beds were observed. It seems likely that the fifth bed extends west to the ore-body west of the crosscut. It is less certain with which limestone beds the ore-bodies east of this crosscut are related because of irregularities in strike, the prevalence of faulting, and the varying width of individual beds. It appears probable, *however, that the zone including the three limestone beds intersected by the adit between 200 and 320 feet from the portal crosses the main workings east of the adit in the vicinity of the east end of No. 4 level and the ore-bodies developed there and in the upper levels. If this is so, then the fourth limestone bed crossed by the adit is probably represented at the ore-body lying farther west.*

A bed of crystalline limestone is exposed in the bed of Ben Hur creek about 1,000 feet east of the portal of the crosscut adit. It has a width of about 60 feet and may be the same limestone bed as that encountered near the eastern end of No. 3 drift.

A much thicker bed of crystalline limestone is exposed farther up Ben Hur creek, 800 feet vertically above the road and about 1,400 feet from the portal of the Province adit. This bed is at least 100 feet wide and, where observed, stands vertically and strikes west-northwest. If continuous to the northwest it should meet Cork-Province lode somewhere on the Dublin claim. The size of this bed renders it particularly worthy of exploration at those points where it is intersected by the main and Dublin vein-lode on this property.

The ore-bodies of the Cork-Province mine have been formed along a well-defined lode, designated the "main vein," that strikes about north 50 degrees east and dips southeast at an average angle of 65 degrees. This lode is a fault-fissure zone cutting obliquely across sedimentary beds of the Slocan series.

The ore-bodies in each case have their most pronounced development where this lode intersects beds of crystalline limestone or other notably limy strata. This characteristic has long been recognized and has had a considerable bearing on the course of exploratory and other work. The lode, however, follows the course of a fault and, consequently, the limestone beds are displaced, the hanging-wall section of the lode being offset, relatively to the foot-wall, about 80 feet to the west. The apparent displacement varies somewhat from one limestone bed to another, due to complications set up by numerous other faults of minor throw which angle across or run parallel with the main lode.

The shape of the ore-bodies and extent of ore deposition appear also to have been influenced by cross-fracturing running mostly in an east direction. These cross-fractures run either from wall to wall of the main lode or connect this lode with nearby faults. They have both directed and facilitated the upward course of ore-bearing solutions originating from the neighbouring batholithic intrusives. Where these solutions have come in contact with limestone or other limy strata they have effected an important replacement of these rocks for distances in places as great as 100 feet or more from the walls of the main lode, the distance being largely determined by the extent of cross-fracturing involving the limy beds.

Important ore-bodies have been discovered in three principal sections of the Cork-Province mine—two to the east and one to the west of No. 3 crosscut. The most extensively mineralized section falls on either side of the boundary between the Cork and Province claims and affords the principal reason for the consolidation of the Cork and Province properties. A number of limestone beds some 30 feet or more in thickness are included in this section within a zone 100 feet or more wide. This zone appears to correspond to that including the first three limestone beds encountered in No. 3 crosscut. Important ore-bodies, Nos. 1 and B, have been found in this section and a large production recorded from them. B ore-body has not been investigated below No. 3 level where it appears small and is composed chiefly of spathic iron carrying a little blende and less galena. No. 1 ore-body, however, has been stoped to No. 4 level where exceptionally good ore has been discovered and was being sunk on at the time visited.<sup>1</sup>

These two ore-bodies are particularly important in that they indicate the distance from the main lode at which important mineralization may occur when the necessary limestone beds and cross-fractures are present. No. 1 ore-body has also proved to carry equally good or better values at No. 4 level than higher up and has consequently encouraged exploration and development below this level.

No. 2 ore-body lies midway between No. 3 crosscut and No. 1 ore-body and has produced considerable ore between Nos. 4 and 2 levels. In 1927 a stope at the east end of this ore-body above No. 4 level showed between 2 and 3 feet of interbanded zinc blende and siderite and was referred to as the zinc stope. Quite a lot of stoping has also been done above No. 3 level between this ore-body and No. 3 crosscut, but the vein matter found in this section is bunched, carries a lot of iron pyrites, and is rather low grade.

West of No. 3 crosscut connexions have now been made between Nos. 3 and 4 levels below No. 3 ore-body, whose continuation to the lower level was proved. At No. 4 level the ore is low grade and though showing a width of several feet was composed chiefly of siderite associated with quite a high proportion of pyrite. This was the first ore-body developed on the property, an important chimney-shaped shoot of zinc ore extending from No. 3 to above No. 2 level.<sup>2</sup> During the winter of 1925-26, twenty-eight cars (about 1,120 tons) of crude ore were mined from this No. 3 ore shoot and netted from \$12 to \$15 a ton.

The ore at the Cork-Province mine consists of an intimate mixture of zinc blende and galena with minor proportions of pyrite and chalcopryrite in a gangue composed largely of siderite but including varying amounts of quartz and calcite associated with altered wall-rock.

When last visited (1927) work was being confined chiefly to the vicinity of No. 4 level. Ore was being extracted from the "Zinc stope" above No. 4 on the easterly extension of No. 2 ore-body. Near the east face of this level a shallow winze had been sunk on a width of from 3 to 4 feet of lead-zinc ore carrying better values than most of the ore found at higher levels.

In addition to the main lode there are two others on this property, one of which at least appears to be worthy of early consideration. This is the "Superior" or "Dublin" lode which outcrops on the Dublin claim some 1,900 feet south and 900 feet vertically above the portal of the No. 3 cross-

<sup>1</sup> Since visiting the property in 1927 the writer has been informed that the shaft commenced on the No. 1 ore-body below No. 4 level has been continued and that as much as 5 feet of nearly solid galena was encountered 125 feet below the level. The vein matter at this new or No. 5 level included over 20 feet of siderite carrying disseminated galena and blende.

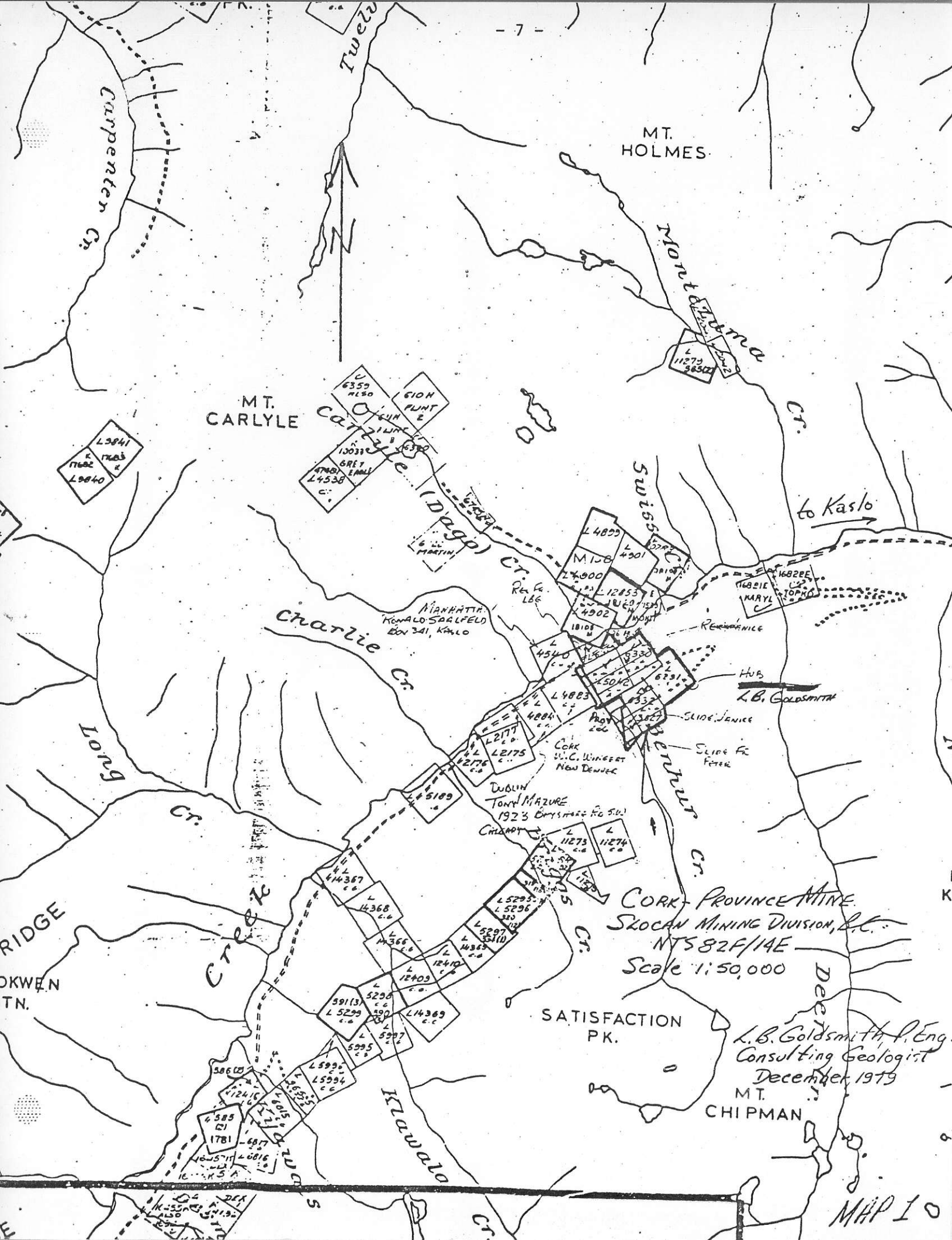
<sup>2</sup> Zinc Commission—4 feet solid zinc sampled—ran 6.7 ounces Ag; 13.7 per cent Pb; and 23.8 per cent Zn.

cut. A shaft and crosscut, 200 feet below, with short drifts in either direction, have opened up the lode. These workings are caved. They are credited with a small production in early days. The projection of No. 3 crosscut for an additional 300 feet or so should encounter this lode whose exploration at the intersection of limestone beds might be worth while.

A third lode, of doubtful importance, was encountered in No. 3 crosscut 200 feet north of the main drifts and a few feet of exploratory work was done on either side of the crosscut without revealing noteworthy mineralization.

Above No. 2 level most of the ore previously developed had been worked out, nor did it appear that anywhere in the mine had any important reserve been blocked out. On the other hand, and although the richer portions of the ore-bodies between levels 2 and 4 have been depleted, there still appeared to be possibilities in this section in the way not only of high-grade material but also of low grade, which a more efficient system of mining and milling might make pay. Stopping and crosscutting in the vicinity of No. 1 ore-body have opened up that section of the mine to easy exploration of the limestone bands, whose intersections with cross-fractures or with the main lode itself have not been thoroughly explored. Recent work below No. 4 level has been encouraging as indicating the strength and high-grade character of mineralization at these greater depths. Such discoveries should encourage prospecting the main lode at the extreme east end of No. 3 level where limestone is known to occur, and also investigating other parallel lodes where these may be expected to cross important limestone beds. In the meantime efforts might well be concentrated on blocking out a sufficient tonnage below No. 4 level where good ore has been discovered.





MT. CARLYLE

MT. HOLMES

to Kaslo

CORK PROVINCE MINE  
 SLOCAN MINING DIVISION, S.C.  
 NTS 82F/14E  
 Scale 1:50,000

SATISFACTION PK.

L.B. Goldsmith, P. Eng  
 Consulting Geologist  
 December, 1919  
 MT. CHIPMAN

MAP 10

The mine has been operated twice since the foregoing report (2). During the period 1950 - 1953 an internal shaft was deepened from 6 level to 8 level and the continuation on dip of one section of the vein was explored. Most of the millfeed was mined from above 6 level; the oreshoot below 6 level was not stoped. A large amount of underground diamond drilling was completed, partial record of which is in the possession of the author.

From 1964 to 1966 the mine was worked chiefly on 7 and 8 levels where ore which had been blocked out earlier was extracted. There is presently no machinery nor buildings on the property. The main haulage level adit portal has caved but could be reopened with a backhoe.

MINDEP computer files of the University of British Columbia (4) list the total production and grade as:

| <u>Tonnage</u> | <u>oz/ton Au</u> | <u>oz/ton Ag</u> | <u>% Pb</u> | <u>% Zn</u> |
|----------------|------------------|------------------|-------------|-------------|
| 210,996        | .0003            | 2.48             | 3.05        | 4.72        |

#### GEOLOGY

Overburden is heavy and outcrop is scarce except in the southern portion of the grid. Assumed contacts have been drawn in part upon the preponderance of angular rock fragments in soils. Argillites, with limy argillite and at least one narrow limestone band, are the chief rock type on the property. At least three areas have granite outcropping.

In the vicinity of the old mine workings, the argillites become sheared and somewhat schistose; the schistosity may be restricted to the wall rocks of the lode system.

*424*

## SOIL GEOCHEMISTRY

Approximately 7 km of grid was established by belt chain and compass, 200 soil samples were collected on lines 120 metres (400 feet) apart with stations at 30 metres (100 feet) spacing. Samples were collected from approximately 20 cm (8") below the organic layer.

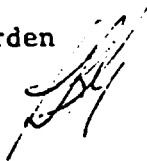
Analyses were performed by Loring Laboratories, 629 Beaverdam Road N.E., Calgary, Alberta. Lead and silver are determined by weighing 500 mg of -80 mesh material into test tubes. Aqua regia is added and digested in a water bath at 100°C for 3 hours. Test tubes are then bulked to the 10 ml level, mixed and allowed to settle overnight. The samples are then put through the atomic absorption with appropriate standards and reported in ppm.

Arithmetic averages for lead (excluding two high values which are probably contaminated) and silver are 14 ppm and 0.5 ppm respectively. Metal contents are lower over the areas which are interpreted as being underlain by granitic rocks.

Anomalous lead values of 220 ppm at 00, 1 + 00W and 560 ppm at 4 + 00S, 2 + 00E are attributed to contamination from mining operations. Otherwise lead values are near background values even immediately downslope from the mineralized lode which outcrops immediately south of line 8 + 00S near the base line. Three weakly anomalous results of 33 ppm at 4 + 00S, 21 + 00E, 24 ppm at 4 + 00S, 22 + 00E, and 41 ppm at 8 + 00S, 7 + 00E may reflect the extension of the Cork-Province load. Silver values are nowhere strongly anomalous.

## PROSPECTING

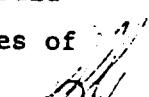
Traverses approximately 30 metres (100 feet) apart between grid lines were prospected. Nearly all the rock which was examined was dug from overburden



or was on surface as boulders or talus. An angular fragment of float 5 cm x 2 cm x 2 cm, found near 22 + 70 S, 9 + 50 E, contains 1 - 2% galena in a bleached carbonate matrix. No other sulphide-bearing float could be found nearby. The occurrence is of interest because it lies on the projected strike of a limestone bed which outcrops 210 metres (700 feet) westerly. Replacement of limestone by sulphides is suggested. However, the soil geochemistry does not indicate anomalous lead-silver contents. Reference is made (1) to an extension of the main haulage crosscut on 3 level, 900 feet southerly from the main workings to intersect two fissures "one 8" wide, one 4' wide, each containing milling ore". This mineralization if projected to surface would fall near the westerly trace of the limestone bed.

#### UNDERGROUND

Examination of mine plans and stope sections indicates that mineralization may not have been explored in several localities.

1. The occurrence near the end of 3 level crosscut which was described in the section on Prospecting was never drilled nor drifted upon.
  2. Indications of mineralization in the eastern end of the 3 level drift have not been evaluated. This would lie in the east central portion of the Province claim.
  3. Not of immediate interest at this time, but of potential to add to reserves is a block of unmined material between 6 level and 8 level below what had been the 603 stope. Dimensions are 40 metres (130 feet) long x 67 metres (220 feet) on the 65° dip of the vein x 1.5 metres (5 feet) wide. Using a tonnage factor of 11, 13,000 tons are calculated. Grade is estimated at 2 oz/ton Ag, 1% pB and 4.5% Zn. Access would necessitate dewatering of all the workings and driving 150 metres of drift on the 8 level.
- 

RECOMMENDATIONS

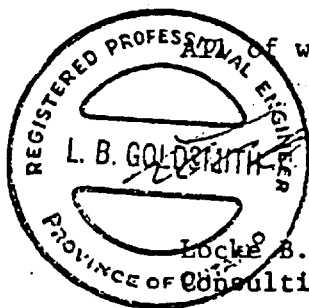
1. The portal of the 3 level main haulage adit should be reopened. Workings on this horizon should be geologically mapped and sampled with the object being to locate ore in unmined areas.

CONCLUSIONS

The Cork-Province mine has produced a considerable tonnage with moderate grades of silver-lead-zinc. Prospects of additional ore on the 3 level should be investigated.

COST ESTIMATE

|                           |                    |
|---------------------------|--------------------|
| Reopening of portal       | \$ 500.00          |
| Geological mapping        | 3,000.00           |
| Sampling                  | 3,000.00           |
| Assays, 50 @ \$20/each    | 1,000.00           |
| Supervision and reporting | <u>2,000.00</u>    |
|                           | 9,500.00           |
| Contingency @ 20%         | <u>1,900.00</u>    |
| TOTAL                     | <u>\$11,400.00</u> |



of which is respectfully submitted,

*L. B. Goldsmith*

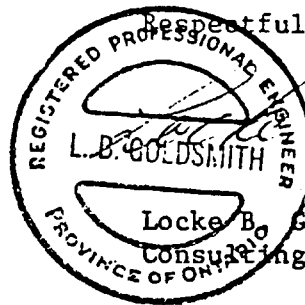
Silverton, B.C.  
December 4, 1979

Locke B. Goldsmith, P.Eng.  
Consulting Geologist

ENGINEER'S CERTIFICATE

1. I, Locke B. Goldsmith, am a Registered Professional Engineer in the Province of Ontario and a Registered Professional Geologist in the State of Oregon. My address is Box 29, Silverton, B.C.
2. I have a B.Sc. (Honours) degree in Geology from Michigan Technological University and have done postgraduate study in Geology at Michigan Tech, University of Nevada and University of British Columbia. I am a graduate of the Haileybury School of Mines and am a Certified Mining Technician. I am a member of the Society of Economic Geologists, the AIME, and the Australasian Institute of Mining and Metallurgy.
3. I have been engaged in mining exploration for the past 21 years.
4. I have written the report entitled "Surface Geology and Soil Geochemistry, Cork-Province Mine, Slocan Mining Division, B.C." The report is based upon field work conducted by the author.
5. I control, with associates, 100% interest in the property.
6. I consent to the use of this report in a prospectus or in a statement of material facts related to the raising of funds.

Respectfully submitted,



*L. B. Goldsmith*

Silverton, B.C.  
November 30, 1979

Locke B. Goldsmith, P.Eng.  
Consulting Geologist

REFERENCES

1. BCDM Annual Report, 1928, p. 305.
2. BCDM Annual Reports, 1951, 1952, 1953, 1964, 1965, 1966.
3. Cairnes, C.E., Description of Properties, Slocan Mining Camp, B.C., GSC Memoir 184, 1935, p. 206 - 210.
4. University of British Columbia, MINDEP computer files.

ITEMIZED COST STATEMENT

1. Wage Scales:

|                  |  |               |
|------------------|--|---------------|
| L. B. Goldsmith: | June ½12, 14, July 17, 18, 19, 20, 21,<br>Aug. ½20, 22, 23, Oct. 17, 20, 21, 23,<br>Nov. 15, 16, 18, 19, 20, 21, Dec. 1,<br>2, 3, 4. Total 23 days @ \$200/day:                      | \$4,600.00    |
| G. Bennett:      | June ½12, 14, 15, 16, 18, 19, 22,<br>23, 24, 25, 27, 28, 29, July 5, 6, 7,<br>10, 11, 14, 17, 18, 19, 20, 21, 29,<br>30, 31, Aug. 2, 3, 5, 6, 7, 8, 10.<br>Total 33½ days @ \$80/day | 2,680.00      |
| N. Stacey:       | Aug. 19, 20. Total 2 days @ \$110/day  | <u>220.00</u> |
|                  |  | \$7,500.00    |

2. Transportation:

42 trips to the property, 70 miles round trip from  
New Denver, B.C. @ \$0.20/mile \$588.00

3. Surveys:


Grid: 11 man days, 7 km, cost \$1,229.74 = \$175.68/km.  
Geology & reporting: 16 man days, cost \$3,104.88 = \$194.06/day.  
Geochemical: 17 man days, 7 km, cost \$1,563.70 = \$223.39/km.

4. Analyses:

200 soil geochemical determinations, \$430.00 = \$2.15/sample.

5. Report:

10 days @ \$200/day = \$2,000.00.





COST STATEMENT FOR M.E.I.P., CONTRACT #8  
CORK-PROVINCE PROPERTY, 1979 PROGRAMME

1. Grid:

|                     |  |    |               |
|---------------------|--|----|---------------|
| L.B. Goldsmith:     | June ½12, 14.                                    |    |               |
|                     | Total 1½ days @ \$200/day                        | \$ | 300.00        |
| G. Bennett:         | June ½12, 14, 15, 16, 18, 19,<br>22, 23, 24, 25. |    |               |
|                     | Total 9½ days @ \$80/day                         |    | 760.00        |
| Expenses (prorated) |  |    | 29.74         |
| Mileage (prorated)  |  |    | 140.00        |
|                     |  |    | <u>140.00</u> |
|                     |  |    | \$ 1,229.74   |

2. Prospecting:

|                     |   |  |               |
|---------------------|---|--|---------------|
| L.B. Goldsmith:     | July 17, 18, 19, 20, 21,<br>Aug. ½20, 22, 23. |  |               |
|                     | Total 7½ days @ \$200/day                     |  | 1,500.00      |
| G. Bennett:         | July 29, 30, 31, Aug. 6,<br>7, 8, 10.         |  |               |
|                     | Total 7 days @ \$80/day                       |  | 560.00        |
| Expenses (prorated) |   |  | 44.63         |
| Mileage (prorated)  |   |  | 210.00        |
|                     |   |  | <u>210.00</u> |
|                     |   |  | 2,314.63      |

3. Geology:

|                     |  |  |              |
|---------------------|--|--|--------------|
| N. Stacey:          | Aug. 19, 20  |  |              |
|                     | Total 2 days @ \$110/day                                     |  | 220.00       |
| L.B. Goldsmith:     | Oct. 17, 20, 21, 23.   |  |              |
|                     | Total 4 days @ \$200/day                                     |  | 800.00       |
| L.B. Goldsmith:     | Nov. 15, 16, 18, 19, 20, 21,<br>(Reporting) Dec. 1, 2, 3, 4. |  |              |
|                     | Total 10 days @ \$200/day                                    |  | 2,000.00     |
| Expenses (prorated) |  |  | 14.88        |
| Mileage (prorated)  |  |  | 70.00        |
|                     |  |  | <u>70.00</u> |
|                     |  |  | 3,104.88     |

4. Geochemical Survey:

|              |  |  |          |
|--------------|--|--|----------|
| G. Bennett:. | June 27, 28, 29, July 5, 6,<br>7, 10, 11, 14, 17, 18, 19, 20, 21,<br>Aug. 2, 3, 5. |  |          |
|              | Total 17 days @ \$80/day   |  | 1,360.00 |

*[Handwritten signature]*

|                     |               |                   |
|---------------------|---------------|-------------------|
| 4. cont'd.          |               |                   |
| Expenses (prorated) | 35.70         |                   |
| Mileage (prorated)  | <u>168.00</u> | 1,563.70          |
| 5. <u>Assaying:</u> |               | <u>430.00</u>     |
| TOTAL               |               | <u>\$8,642.95</u> |

Maximum M.E.I.P. Commitment: \$2,880.98

Notes:

(a) Supplies and gas total: \$124.95.

(b) Mileage: 42 trips @ 70 miles return @ \$0.20/mile (42 x 70 x .2) = \$588.00

The author certifies that the financial statement is true in every respect.



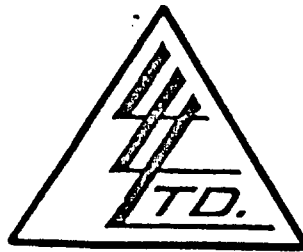
*L. B. Goldsmith*

Loke B. Goldsmith, P.Eng.  
Consulting Geologist

**APPENDIX**

To: LOCKE B. GOLDSMITH  
 P.O. Box 95  
 Silyerton, B.C.  
 VOG 2B0  
 cc: G. Bennett

File No. 17643  
 Date Aug. 31, 1979  
 Samples Soil



Certificate of  
 ASSAY OF  
 LORING LABORATORIES LTD.

Page 1

| SAMPLE No.          | PPM<br>Pb | PPM<br>Ag |
|---------------------|-----------|-----------|
| <u>SOIL SAMPLES</u> |           |           |
| OOS+01E             | 15        | 0.6       |
| 02E                 | 15        | 0.6       |
| 03E                 | 14        | 0.4       |
| 04E                 | 13        | 0.5       |
| 05E                 | 11        | 0.6       |
| 06E                 | 15        | 0.3       |
| 07E                 | 14        | 0.5       |
| 08E                 | 14        | 1.2       |
| 09E                 | 24        | 0.8       |
| 10E                 | 16        | 0.5       |
| 11E                 | 16        | 0.4       |
| 12E                 | 26        | 1.5       |
| 13E                 | 28        | 0.3       |
| 14E                 | 28        | 1.0       |
| 15E                 | 20        | 0.6       |
| 16E                 | 20        | 0.7       |
| 17E                 | 20        | 0.6       |
| 18E                 | 17        | 0.7       |
| 19E                 | 13        | 0.5       |
| 20E                 | 18        | 0.9       |
| 21E                 | 15        | 0.7       |
| 22E                 | 22        | 0.7       |
| 01W                 | 220       | 1.0       |
| 02W                 | 19        | 0.3       |
| 1+OOS B/L           | 15        | 1.1       |
| 2                   | 15        | 0.5       |
| 3                   | 18        | 0.6       |
| 4                   | 62        | 0.7       |

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE  
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

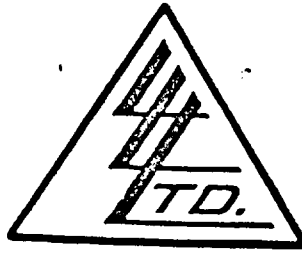
Rejects Retained one month.

Pulps Retained one month  
 unless specific arrangements  
 made in advance.

*A. M. J. A. O.*  
 Licensed Assayer of British Columbia

To: LOCKE B. GOLDSMITH  
 P.O. Box 95  
 Silverton, B.C.  
 VOG 2B0  
 cc: G. Bennett

File No. 17643  
 Date Aug. 31, 1979  
 Samples Soil



Certificate of  
 ASSAY of  
 LORING LABORATORIES LTD.

Page 2

| SAMPLE No. | PPM<br>Pb | PPM<br>Ag |
|------------|-----------|-----------|
| 5+00S B/L  | 21        | 0.9       |
| 6          | 25        | 0.6       |
| 7          | 13        | 0.4       |
| 8          | 19        | 0.3       |
| 9          | 48        | 0.6       |
| 10         | 15        | 0.2       |
| 11         | 15        | 0.8       |
| 12         | 13        | 0.4       |
| 13         | 19        | 0.4       |
| 14         | 19        | 0.6       |
| 15         | 15        | 0.5       |
| 16         | 11        | 0.5       |
| 0+ 00 B/L  | 18        | 0.7       |
| 20+00S B/L | 15        | 0.6       |
| 24         | 11        | 1.2       |
| 28         | 12        | 0.5       |
| 32         | 14        | 0.7       |
| 04S+01E    | 13        | 0.5       |
| 02E        | 560       | 1.5       |
| 03E        | 18        | 0.4       |
| 04E        | 14        | 0.3       |
| 05E        | 11        | 0.5       |
| 06E        | 21        | 0.7       |
| 07E        | 24        | 0.5       |
| 08E        | 17        | 0.5       |
| 09E        | 23        | 0.7       |
| 10E        | 32        | 0.5       |
| 11E        | 21        | 0.4       |
| 12E        | 28        | 0.5       |
| 13E        | 20        | 0.4       |

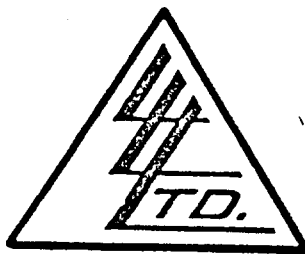
I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE  
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.  
 Pulps Retained one month  
 unless specific arrangements  
 made in advance.

*[Handwritten Signature]*

To: LOCKE B. GOLDSMITH  
 P.O. Box 95  
 Silverton, B.C.  
 VOG 2BQ  
 cc: G. Bennett

File No. 17643  
 Date Aug. 31, 1979  
 Samples Soil



Certificate of  
 ASSAY OF  
 LORING LABORATORIES LTD.

Page 3

| SAMPLE No. | PPM<br>Pb | PPM<br>Ag |
|------------|-----------|-----------|
| 04S+14E    | 21        | 0.6       |
| 15E        | 19        | 0.5       |
| 16E        | 15        | 0.4       |
| 17E        | 12        | 0.4       |
| 19E        | 14        | 0.4       |
| 20E        | 15        | 0.5       |
| 21E        | 33        | 0.7       |
| 22E        | 24        | 0.7       |
| 23E        | 13        | 0.5       |
| 02W        | 14        | 0.5       |
| 01W        | 11        | 0.5       |
| 08S+01E    | 36        | 0.6       |
| 02E        | 17        | 0.3       |
| 03E        | 13        | 0.5       |
| 04E        | 16        | 0.5       |
| 05E        | 17        | 0.2       |
| 06E        | 18        | 0.3       |
| 07E        | 41        | 0.5       |
| 08E        | 14        | 0.4       |
| 09E        | 11        | 0.3       |
| 10E        | 14        | 0.7       |
| 11E        | 17        | 0.6       |
| 12E        | 13        | 0.5       |
| 13E        | *         | *         |
| 14E        | 12        | 0.5       |
| 15E        | 15        | 0.5       |
| 16E        | 17        | 0.5       |
| 18E        | 13        | 0.5       |
| 19E        | 12        | 0.5       |
| 20E        | 12        | 0.4       |

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE  
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.

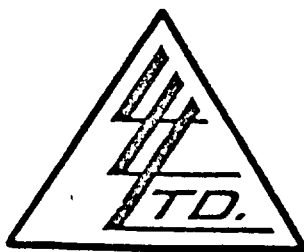
Pulps Retained one month  
 unless specific arrangements  
 made in advance.

*adm Isaac*

Licensed Assayer of British Columbia

To: LOCKE B. GOLDSMITH  
 P.O. Box 95  
 Silverton, B.C.  
 VOG 2BQ  
 cc: G. Bennett

File No. 17643  
 Date Aug. 31, 1979  
 Samples Soil



Certificate of  
**ASSAY** of  
**LORING LABORATORIES LTD.**

Page 4

| SAMPLE No. | PPM<br>Pb | PPM<br>Ag |
|------------|-----------|-----------|
| 08S+21E    | 15        | 0.4       |
| 22E        | 11        | 0.4       |
| 23E        | 15        | 0.5       |
| 24E        | 17        | 0.5       |
| 01W        | 12        | 0.5       |
| 02W        | 19        | 0.3       |
| 12S+01E    | 11        | 0.4       |
| 02E        | 9         | 0.5       |
| 03E        | 16        | 0.5       |
| 04E        | 17        | 0.7       |
| 05E        | 18        | 0.7       |
| 06E        | 21        | 0.8       |
| 08E        | 11        | 0.5       |
| 09E        | 14        | 0.5       |
| 10E        | 12        | 0.7       |
| 11E        | 12        | 0.5       |
| 12E        | 12        | 0.5       |
| 13E        | 12        | 0.5       |
| 14E        | 13        | 0.3       |
| 15E        | 10        | 0.3       |
| 16E        | 12        | 0.3       |
| 17E        | 11        | 0.3       |
| 18E        | 9         | 0.3       |
| 19E        | 9         | 0.3       |
| 20E        | 11        | 0.3       |
| 21E        | 12        | 0.3       |
| 22E        | 10        | 0.3       |
| 23E        | 12        | 0.4       |
| 24E        | 9         | 0.4       |
| 25E        | 15        | 0.5       |

**I Hereby Certify** THAT THE ABOVE RESULTS ARE THOSE  
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

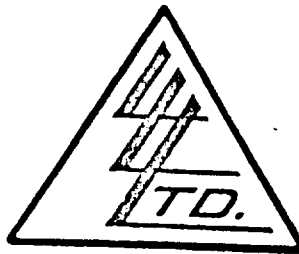
Rejects Retained one month.

Pulps Retained one month  
 unless specific arrangements  
 made in advance.

*Ed McJannet*  
 Licensed Assayer of British Columbia

To: LOCKE B. GOLDSMITH  
 P.O. Box 95  
 Silvertown, B.C.  
 VOG 2B0  
 cc: G. Bennett

File No. 17643  
 Date Aug. 31, 1979  
 Samples Soil



Certificate of  
 ASSAY OF  
 LORING LABORATORIES LTD.

Page 5

| SAMPLE No. | PPM<br>Pb | PPM<br>Ag |
|------------|-----------|-----------|
| 16S+01E    | 11        | 0.5       |
| 02E        | 15        | 0.5       |
| 03E        | 13        | 0.5       |
| 04E        | 15        | 0.2       |
| 05E        | 22        | 0.9       |
| 06E        | 17        | 0.5       |
| 07E        | 14        | 0.3       |
| 08E        | 16        | 0.3       |
| 09E        | 12        | 0.5       |
| 10E        | 13        | 0.4       |
| 11E        | 15        | 0.5       |
| 12E        | 12        | 0.5       |
| 13E        | 15        | 0.3       |
| 14E        | 12        | 0.4       |
| 15E        | 11        | 0.3       |
| 16E        | 12        | 0.3       |
| 17E        | 11        | 0.5       |
| 01W        | 12        | 0.4       |
| 20S+01E    | 11        | 0.4       |
| 02E        | 12        | 0.5       |
| 03E        | 13        | 0.5       |
| 04E        | 15        | 0.3       |
| 05E        | 17        | 0.5       |
| 06E        | 12        | 1.0       |
| 07E        | 14        | 0.7       |
| 08E        | 3         | Nil       |
| 09E        | 16        | 0.7       |
| 10E        | 12        | 0.4       |
| 11E        | 13        | 0.6       |
| 12E        | 12        | 0.5       |

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE  
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

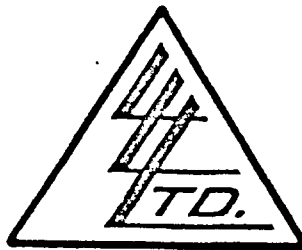
Rejects Retained one month.

Pulps Retained one month  
 unless specific arrangements  
 made in advance.

*Edm J. J. J. J. J.*



To: LOCKE B. GOLDSMITH  
 P.O. Box 95  
 Silverton, B.C.  
 VOG. 2B0  
 cc: G. Bennett



File No. 17643  
 Date Aug. 31, 1979  
 Samples Soil

Certificate of  
 ASSAY OF  
 LORING LABORATORIES LTD.

Page 6

| SAMPLE No. | PPM<br>Pb | PPM<br>Ag |
|------------|-----------|-----------|
| 20S+13E    | 16        | 0.5       |
| 14E        | 16        | 0.5       |
| 15E        | 16        | 0.6       |
| 16E        | 14        | 0.5       |
| 17E        | 14        | 0.5       |
| 18E        | 12        | 0.3       |
| 24S+01E    | 11        | 0.6       |
| 02E        | 15        | 0.5       |
| 03E        | 11        | 0.5       |
| 04E        | 12        | 0.5       |
| 05E        | 13        | 0.7       |
| 06E        | 11        | 0.5       |
| 07E        | 8         | 0.6       |
| 08E        | 9         | 0.5       |
| 09E        | 12        | 0.5       |
| 10E        | 11        | 0.5       |
| 11E        | 13        | 0.7       |
| 12E        | 9         | 0.5       |
| 13E        | 11        | 0.6       |
| 14E        | 9         | 0.5       |
| 15E        | 11        | 0.8       |
| 16E        | 17        | 0.6       |
| 17E        | 10        | 0.7       |
| 18E        | 22        | 0.9       |
| 19E        | 16        | 0.8       |
| 28S+01E    | 9         | 0.5       |
| 02E        | 9         | 0.8       |
| 03E        | 12        | 0.7       |
| 04E        | 12        | 0.5       |
| 05E        | 12        | 0.5       |

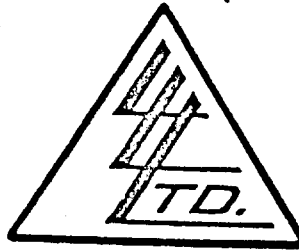
I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE  
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.  
 Pulps Retained one month  
 unless specific arrangements  
 made in advance.

*Edm Isaac*  
 Licensed Assayer of British Columbia

To: LOCKE B. GOLDSMITH  
 P.O. Box 95  
 Silverton, B.C.  
 VOG 2BQ  
 cc: G. Bennett

File No. 17643  
 Date Aug. 31, 1979  
 Samples Soil



Certificate of  
**ASSAY** of  
**LORING LABORATORIES LTD.**

Page 7

| SAMPLE No. | PPM<br>Pb | PPM<br>Ag |
|------------|-----------|-----------|
| 28S+06E    | 11        | 0.6       |
| 07E        | 17        | 0.6       |
| 09E        | 13        | 0.7       |
| 10E        | 16        | 0.6       |
| 11E        | 15        | 0.5       |
| 12E        | 11        | 0.5       |
| 13E        | 16        | 0.5       |
| 14E        | 10        | 0.5       |
| 15E        | 11        | 0.5       |
| 16E        | 11        | 0.5       |
| 17E        | 13        | 0.5       |
| 18E        | 11        | 0.5       |
| 19E        | 12        | 0.5       |
| 32S+01E    | 15        | 0.6       |
| 02E        | 18        | 0.6       |
| 03E        | 19        | 0.6       |
| 04E        | 13        | 0.7       |
| 05E        | 9         | 0.6       |
| 06E        | 11        | 0.5       |
| 07E        | 12        | 0.5       |
| 08E        | 13        | 0.4       |
| 09E        | 18        | 0.9       |
| 10E        | 17        | 0.6       |

-\* Missing

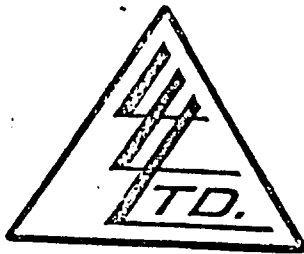
**I** Hereby Certify THAT THE ABOVE RESULTS ARE THOSE  
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.  
 Pulps Retained one month  
 unless specific arrangements  
 made in advance.

*E. J. McFarlane*  
 Licensed Assayer of British Columbia

To: LOCKE B. GOLDSMITH  
P.O. Box 95  
Silverton, B.C. V0G 2E0

cc: G. Bennett



File No. 17643  
Date August 31, 1979  
Samples Soil

Certificate of  
ASSAY OF  
LORING LABORATORIES LTD.

| SAMPLE No.                                  | PPM<br>Pb | PPM<br>Ag  |
|---|-----------|------------|
| <p><u>"SOIL SAMPLES"</u></p> <p>125+07E</p> | <p>19</p> | <p>0.6</p> |

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE  
ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

*Edm J. ...*

Rejects Retained one month.  
Pulps Retained one month  
unless specific arrangements  
made in advance.

12S

16S

20S

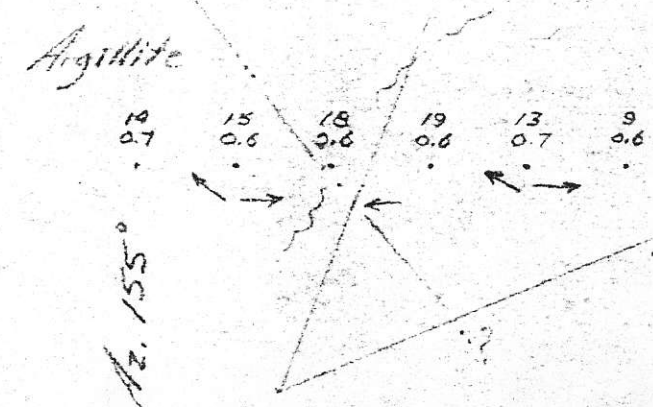
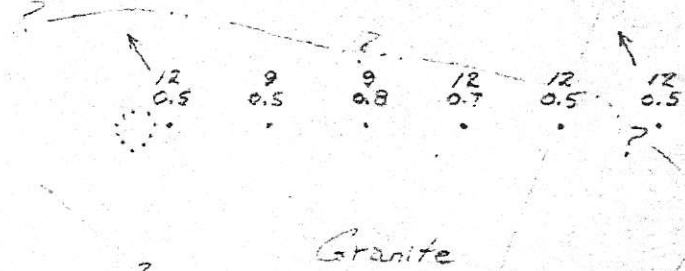
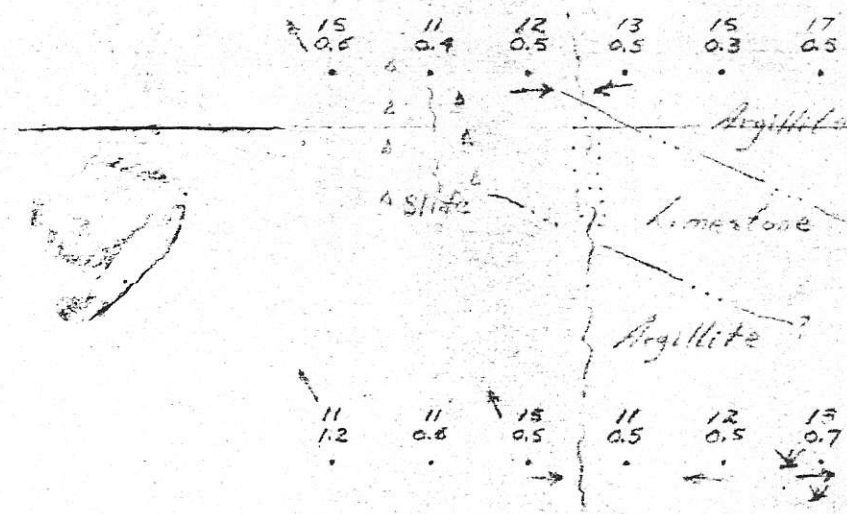
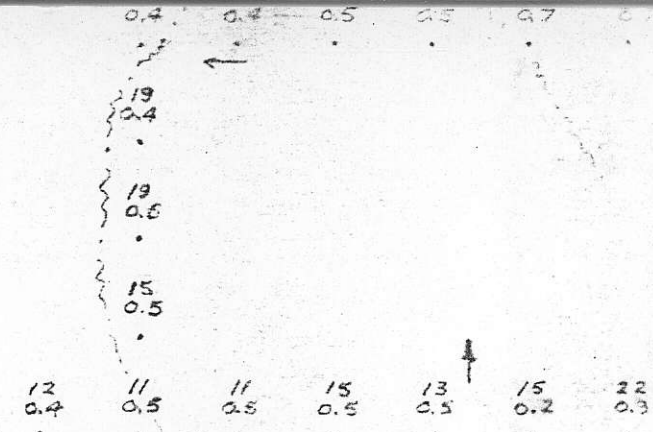
24S

28S

32S

lot of arrow points downslope

from  
No  
d.



Base line Az. 155°

AE

18 21 19 11 14 12 12 12 12 13 10 12 11 9 8 7  
0.7 0.8 0.6 0.5 0.5 0.7 0.5 0.5 0.5 0.3 0.3 0.3 0.3 0.3 0.2 0.2

Argillite

22 17 14 15 12 13 15 12 15 12 11 12 11  
0.3 0.5 0.3 0.3 0.5 0.9 0.5 0.5 0.3 0.4 0.3 0.3 0.5

SLIDE  
L6332

17 12 14 3 16 12 13 12 16 16 16 14 14 12  
0.5 1.0 0.7 Nil 0.7 0.4 0.6 0.5 0.5 0.5 0.6 0.5 0.5 0.3

1-2% Gypsum in  
quartzite float

13 11 8 9 12 11 13 9 11 9 11 17 10 22 16  
0.7 0.5 0.6 0.5 0.5 0.5 0.7 0.5 0.6 0.5 0.8 0.6 0.7 0.9 0.8

SLIDE  
FRACTION  
L3627

Granite

12 11 17 13 16 15 11 16 10 11 11 13 17 12  
0.5 0.6 0.6 0.7 0.6 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5

Slide

Argillite

9 11 12 13 18 17  
0.6 0.5 0.5 0.4 0.9 0.5

Slide



87E

12E

16E

20E

125

165

205

## LEGEND

- 36 : Pb, ppm in soils
- 0.6 : Ag, " " "
- △ △ : Slide area
- ← : Slope direction; head of arrow points downslope
- ∨ ∨ : Marsh
- == : Road
- ~ ~ ~ : Stream
- ..... : Outcrop
- : Assumed contact

245

285

Claim boundaries scaled from  
1:50,000 topographic map. No  
corner posts were located.

325



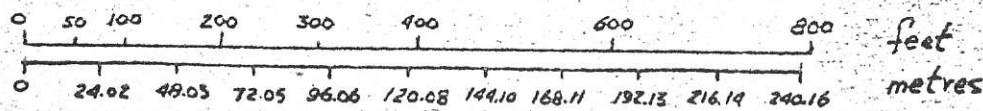
Hub  
L6331

CORK - PROVINCE PROPERTY  
SLOCAN MINING DIVISION, B.C.  
NTS. 82 F/14E

SURFACE GEOLOGY & SOIL GEOCHEMISTRY

Scale: 1" = 200'

1cm = 24.016 metres



ARCTEX ENGINEERING SERVICES

LOCKE B. GOLDSMITH, P.ENG.

CONSULTING GEOLOGIST

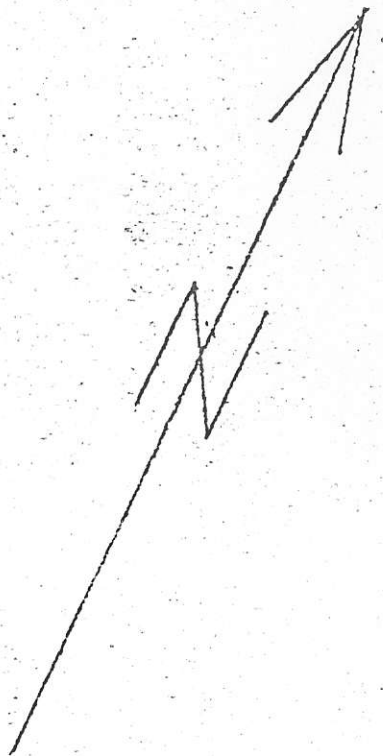
NOVEMBER, 1979

20E

24E

MAP 2

Base line Az. 155°



REX FRACTION  
L 6329

ZW

00

4E

00

|           |            |           |           |           |           |           |           |           |           |
|-----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 19<br>0.3 | 230<br>1.0 | 18<br>0.7 | 15<br>0.6 | 15<br>0.6 | 14<br>0.4 | 13<br>0.5 | 11<br>0.6 | 15<br>0.3 | 14<br>0.5 |
|-----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|

Cl. 4  
flint

13  
1.1

15  
0.5

18  
0.6

4S

|           |           |           |           |            |           |           |           |           |           |
|-----------|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
| 14<br>0.5 | 11<br>0.5 | 13<br>0.7 | 13<br>0.5 | 500<br>1.5 | 18<br>0.4 | 14<br>0.3 | 11<br>0.5 | 21<br>0.7 | 24<br>0.5 |
|-----------|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----------|-----------|

PROVINCE  
L 5042

21  
0.9

25  
0.6

13  
0.4

Trail

Cl. 2  
flint

19  
0.3

8S

|           |           |           |           |           |           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 19<br>0.3 | 12<br>0.5 | 19<br>0.3 | 36<br>0.6 | 17<br>0.3 | 13<br>0.5 | 16<br>0.5 | 17<br>0.2 | 18<br>0.3 | 41<br>0.5 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|

Open slope  
Argillite + schist

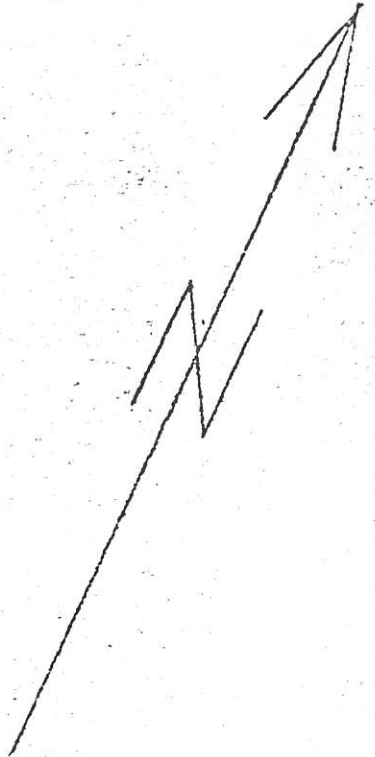
48  
0.6

15  
0.2

15  
0.8







00

4S

CORK  
L4883

8S

Over slope  
Arg. 11.2. + etc.



20E

24E

18  
0.5

18  
0.3

15  
0.7

22  
0.7

Qty  
float

14  
0.4

15  
0.5

33  
0.7

24  
0.7

13  
0.5

12  
0.5

12  
0.4

15  
0.4

11  
0.4

15  
0.5

17  
0.5

Qty  
float

9  
0.3

11  
0.3

12  
0.3

10  
0.3

12  
0.4

9  
0.4

15  
0.5