Property File

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REPORT

ON THE GEOLOGY OF THE

R E N O M I N E

SALMO, B. C.

To

Mr. O. C. Thompson, Managing Director,
Reno Gold Mines Ltd.

By

Charles C. Starr,
July 30, 1930.

INTRODUCTION: The following report covers the geology of the workings of the Reno Mine and the adjacent parts of the property which are of interest to the future working of the property, but does not cover all parts of the ground owned by the Company.

LOCATION, and GENERAL: The mine is situated on the north side of Sheep Creek, some fifteen miles by road east of Salmo. The workings are at elevations between 6300 and 7100 feet.

The topography is steep but the slopes in the vicinity of the veins is generally smooth and covered with soil, except in the case of the Donnybrook vein which outcrops in part along a cliff. The Reno vein extends straight up the mountain side and has been exposed at intervals on the surface by open cuts and opened underground by four tunnels as follows:

No. 1 Tunnel, 150 feet long; mostly off the vein.

No. 2 Tunnel, 60 feet long; not on the vein.

No. 3 Tunnel, 970 feet long (crosscuts not included), all but 250 feet of which is on the vein.

No. 4 Tunnel, 510 feet long (crosscuts not included) of which about 200 feet is on the vein.

The two maps herewith show the development as well as the mine and surface geology. In the case of the mine map, the levels have been separated along a north-south line in order to allow detail to be shown without overlapping.

GEOLOGY:

Regional The rocks containing the veins on the Reno property are quartzites, argillites, and schists, with intermediate varieties, and some limestones which

belong to the Lone Star formation of the Summit Series, which is of pre-Cambrian age. The strike is generally a little east of north, and the dip nearly vertical. The thickness of the formation is approximately 1600 feet; it is the highest formation of the Series and is in contact on the west with the Pend d' Oreille series. At the Reno, this contact is along a northerly-southerly line about at the mill.

Local: The Reno and Donnybrook veins strike, on the average, N 75° E and dip a few degrees either way from the vertical. The formation through which they cut strikes, on the average, N 15° E and dips from 70° west to 50° east, averaging about 80° east throughout the mine.

The veins are quartz filled fissures with no gouge and no definite consistent walls; they vary in width from a mere crack to three feet and occasionally more.

Oxidation has been complete throughout most of the vein thus far mined, but at a few places pyrite, galena, and zinc blende occur. Gold apparently accompanies the sulphides, and remains after their oxidation.

The wall rocks are quartzites, argillites, mica-schists and gradations from one to the other, the various beds being anywhere from a fraction of an inch to fifty or more feet in thickness. In platting these beds on the mine map it was therefore necessary in many cases to group various thin beds together, naming them after the predominant kind of rock composing them. Both west of the portal of No. 4 tunnel, and east of the face of No. 3 tunnel,

There are beds of calcareous schists and limestones in which the vein has not yet been located. The rocks are cut by a strong series of joints striking almost due east and west and dipping about vertical; there is occasionally small mineralization along these.

Schisting of the rocks, while present in some of the softer ones, is not prominent. Only one fault is definitely known; it occurs a short distance east of the west end of the #302 stope, strikes with the strata, dips 65° east, and throws the vein 12 feet to the left on the No. 3 tunnel level. It cannot be seen on the surface near the vein on account of soil, but projects to a point just west of the portal of No. 1. tunnel. It also shows on the face of the cliff just east of the Donnybrook vein outcrop. A few lamprophyre dikes occur, generally coinciding with the formation in strike but dipping eastward much flatter than the strata. They are irregular in size and in general are typical of similar dikes in the Kootenay region.

Descriptions: Surface: A large number of surface cuts have been dug to trace the Reno and other possible veins, but most of them have caved in to such an extent that nothing in place can now be seen. The map shows the position of the cuts and indicates exposed veins and the presence of vein quartz on the dumps of caved cuts.

Just east of the portal of No. 3 tunnel, three cuts show, or indicate the presence of the vein worked in #301 stope. Fifteen feet further south quartz on the dump of

two caved cuts indicates that a vein was found there, although the right branch of No. 3 tunnel indicates it to be of little consequence. Probably the same vein is sparingly exposed in the cut just east of Sta. S-4, where a 2" stringer has about the right position.

Between No. 1 and No. 2 tunnels there is an unusual depth of soil and nothing is visible. The projected position of the fault in No. 3 tunnel passes through this section. The three long cuts above the portal of No. 2 tunnel show a good quartz vein which is undoubtedly the outcrop of the vein above #302 stope. Although the general dip of this stope would throw the indicated outcrop of the vein further north, it is straightening up at the top and may be expected to continue about vertical to the surface. What appeared to be a two foot quartz vein in a cut forty feet to the north has been shown by digging to have no continuity and is apparently of no consequence. Seventy feet south of the three long cuts, a one to four inch vein of good quartz, carring fair gold values, has been opened for some fifteen feet. This may represent the outcrop of the vein opened at Sta. 313 in No. 3 tunnel; considerable more work is required to prove this or to show whether it has any commercial width and value. The west boundary of the main belt of quartzites outcrops sparingly where co-ordinate 10680 E crosses the course of the vein; this quartzite extends beyond the eastern end of the surface work.

Between co-ordinates 10700 E and 10800 E caved cuts with a little quartz on the dumps indicate that the

main vein may have been found; these are almost directly above the position of the vein in No. 3 tunnel. Between co-ordinates 10800 E and 10900 E the vein is fairly well exposed in two long cuts, and again in the cut at co-ordinate 11000 E. Between these cuts the vein takes a sharp turn to the southeast; the same turn is indicated in the last work at the face of No. 3 tunnel. No work has been done to expose the vein east of the summit of the ridge.

The projected easterly limit of the quartzites lies about a hundred feet east of the summit; its nearest actual outcrop is nearly four hundred feet to the northward.

No. 1 Tunnel: The main vein is only exposed for a length of a few feet; near the portal it is covered by timbers, and it passes into the north wall of the east drift about fifteen feet east of the fork in the tunnel. A narrow offshoot from the vein has been followed to the face of the east drift; it is in part a narrow quartz vein and in part a mere seam. The northeast branch of the tunnel follows a strong vertical fracture along which there may have been a little movement; it shows no definite vein. This fracture should pass through No. 3 tunnel in the barren area between the stopes, but was not identified there. The rock formations are platted in this tunnel in more than usual detail and consist of the usual succession of quartzites, argillites and schists. A small anticline (probably local) is plainly shown.

No. 2 Tunnel: A small, rather poor appearing vein shows in the eastern half of the tunnel and may or may not be the main vein. The rocks are argillite and schist.

No. 3 Tunnel: As indicated on the map, two small slightly mineralized fractures were picked up about 80 feet from the portal of the tunnel, and the main vein was cut at the end of a short north crosscut. There is a small fault along this crosscut, coinciding with the strata in strike and dip, having a two or three foot throw.

From this point the vein has been followed by the drift, and stoped, for two hundred and ten feet eastward. It is a strong vein of fair width and a slight dip to the northward.

East of Sta. 307 the vein narrows to from 1 to 4 inches and passes into the wall of the crosscut at Sta. 308, where the width is about one inch. There is a slightly mineralized seam which diverges from the main vein and pinches out in the drift to the eastward. At the face of the crosscut at Sta. 308 there is ten inches of quartz which has an abnormal strike, and a character somewhat different from the usual vein quartz; it is somewhat of an unknown quantity. The prominent bed of dark quartzite which passes west of the portal of No. 2 tunnel appears in No. 3 tunnel at and west of Sta. 308.

For 210 feet eastward of Sta. 308 the drift is in barren ground, mostly schists and argillites, to the south of the vein. A crosscut south under a small outcropping vein shows nothing. North of Sta. 311 the vein, very narrow, was again found in a crosscut. The drift picks it up 60 feet further east but within a few feet it is cut and thrown twelve feet northward by a fault. Thirty feet beyond the fault the vein was again picked up and followed to the present face. Stopes show the vein

to be continuous, except for the break caused by the fault, from Sta 311 eastward through the stretches not opened by the drift. The main quartzite belt is encountered sixty five feet east of Sta 316, and the face of the drift is still in it. From 20 to 130 feet east of Sta. 316 the vein, while of average width and strength, is low grade; from 130 to 185 feet the values are good. From 140 feet east of Sta 316 to the face the quartz is banded with galena, blende, and pyrite, and is in some places high in gold. At Sta. 315 a spur vein about a foot wide diverges from the main vein to the westward. It also is shown in the stopes to dip slightly northward, while the main vein dips southward; the line of junction of the two is upward to the east. A crosscut was driven south at Sta. 312 to cut the extension of the spur but found a small stringer only which splits and nearly fades out by the time the fault is reached. This spur vein is nearly under a small stringer on the surface which carries values and should be prospected by a raise from the stope.

Nothing is known of the vein in the area between the crosscuts at Stations 308 and 311, but the rock formations seem slightly unfavorable. The veins, or parts of the vein, on the east and west of the section do not line up very well to be the same, and both strike and dip are somewhat different, so that it is uncertain whether or not they belong to the same or different veins. In spite of somewhat unfavorable conditions, a little work should be done in this section. Three lamprophyre dikes from a foot to three feet thick show on the level and in the stopes;

they are post mineral, and appear to have had no effect on the ore.

No. 4 Tunnel: Nothing of consequence was found in this tunnel until the 220 foot point was reached. Here, eight inches of quartz, containing some sulphides, is exposed in the north side of the drift; apparently it has no great extent. The main vein was met at 300 feet from the portal and followed for the remaining distance to the face. It is entirely similar to the vein in No.3 tunnel. It is in general oxidised but occasional bunches of sulphides were found. The level has not yet reached the section below No. 302 stope.

The rocks are the usual succession of quartzites, argillites, and schists. The rock near the portal of the tunnel is unusually decomposed, but is probably an impure argillite.

Donnybrook Vein: This vein is similar to the Reno vein, and has a similar strike and dip; it is a little larger, but is said to have lower values. It has been stripped or otherwise exposed on the surface for 230 feet near the tunnel. East of the stripping it outcrops along the side of a cliff; at the far edge of the cliff, where it passes under slide rock, it is a mere crack.

Other Veins: Veins or stringers have been reported in a number of places on the property, several of them near the Reno vein; many of the cuts where they were found are now caved so that they cannot be seen. It seems probable that there are only two veins on the property which are of commercial size, - the Reno and the Donnybrook -, and

that the other veins and stringers will prove to be very limited in length, depth, and width. In many cases at least two of the dimensions have been proven small.

DISCUSSION OF FUTURE: While admitting that many of the surface cuts are in such condition that their original showings cannot now be seen, it is very improbable that any of the supposed veins are more than offshoots from the main vein, and stringers of very limited extent. In corroberation of this is the known limited extent of some of the veinlets, as proven both on the surface and underground. Also some of the stopes show spurs leaving the main vein; it is said that the #301 stope was stopped near the surface after the vein split, going upward, neither part of it being large enough to work. This can not now be checked as the top of the stope is inaccessible.

From the top of #302 stope to the surface there is a considerable area which may be expected to contain ore.

East of the present face of No. 3 tunnel the massive quartzites continue for an estimated distance of 280 feet; while this distance may not be all in ore, it is distinctly favorable ground. Beyond that point calcareous schists and limestones may be expected and what the condition of the vein and values may be in these rocks cannot be foreseen. At one other property in the district, a vein carrying good gold values passes into limestone, widens out and carries more values in lead, zinc, and silver than gold.

West of the No. 4 tunnel portal the vein has not been found; it may enter the limestones and schists occuring

there, or may pinch out, - there is nothing to indicate which. In other parts of the district oxidation of the veins extends to depths of a thousand feet or more, and values are fair, though slightly diminishing.

There may be expected to be a considerable part of the area above and ahead of No. 4 tunnel which will be oxidised, but sulphides are coming in in places near the face of the No. 3 tunnel, and may be expected in increasing, and possibly predominating quantity, eastward from the face of Nor 4 tunnel.

The sulphides recently opened near the face of No.3 tunnel are high grade, but it is probable that in general the gold content of the sulphide ore will be somewhat lower than that of the oxidised ore.

Ore occurs in the vein between walls of argillite, quartzite, and schist; however there seems to be a slight tendency for the vein to be larger, and possibly better values, where the walls are quartzite, of at least where the rock is hard and brittle.

RECOMMENDATIONS: The vein should be followed on No. 3 and No. 4 tunnel levels to the end of the quartzite belt at the east, and one level should be continued, if the vein persists in the calcareous schists, until the limestones are reached.

The spur vein near Sta. 315 should be further explored by raising.

The main vein should be followed westward from the crosscut at Sta. 311.

A crosscut should be driven northward on No. 3 level from the center of each of the stopes for exploration purposes.

CONCLUSION: Favorable ground continues for nearly 300 feet east of the No. 3 tunnel face, and from the face of No. 4 tunnel to a point somewhat beyond that.

The presence of good values in the sulphides near the face of No. 3 tunnel is a very favorable sign, however it is to be expected that in general the sulphide ore will be lower in grade than the oxidised ore, and that considerable sulphides will be found in the further extension of No. 3 and No.4 tunnels.

There is no evidence noted that would discourage the expectation of a considerable continuation of workable values below No. 4 tunnel.

Respectfully submitted,

Chas. C. Starr

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NOTES AND MEMORANDA

ON THE GEOLOGY OF THE RENO MINE

To W. S. Ellis, Gen. Superintendent,
Reno Gold Mines Ltd.

By C. C. Starr,
Salmo, B. C.
January 25,1937.

STRUCTURAL GEOLOGY

As noted last September, the theory advanced in my notes of December 1935 of an anticline whose axis passed through the center of the mine, has had to be given up on account of the distinct evidence against such an anticline on the cliffs of the Hidden Creek slope. This evidence is much more decisive than the rather vague indications in the mine which are in favor of a local anticline, even though these may be bolstered up by the known anticline in the Queen mine.

A revision of the platting of the geology on the longitudinal section of the mine has been made, with more careful note being taken of my detailed field notations, and using the map of T. E. Norman (1934) as a check on doubtful points. This section, while differing in some details,,and showing minor discrepancies, gives in general the same picture.

There is a broken, crumpled,zone accompanied by dikes extending through the center of the mine, (roughly through 302 and 805 stopes)with strata dips below the middle of the mine diverging downward from this line. This evidence is favorable to the anticline theory, but is sufficiently indefinite to be conclusive.

The theory of structure checking best with all observed data, and which I believe to be probably the true one, is illustrated in Fig. 1 which only differs in minor details from Dr. Walker's section (Salmo Map Area). In this Fig. the mine is sketched approximately to scale. I see no data definitely contradicting this theory, and considerable confirmatory evidence.

Divergence of the strata dips in the lower part of the mine is apparently caused by the bulging of the strata to the eastward along and near the axis of the syncline. (Similar structures in miniature occur on level 11).

This theory also offers a plausible explanation for the apparent increase in minor fractures in the lower levels and the increased silicification of the wall rocks below the 6th level, since the increased bending and crushing of the strata due to the minor syncline has afforded more widespread opportunity for the access of the silicifying solutions.

Assuming the theory of the syncline, as sketched, to be correct there is no very definite inference to be drawn regarding the future of the mine in depth. It is probable that below the axis of the syncline, likely at no great further depth, fissures would tend to become somewhat more definite than near the axis. Beyond this I do not see that any valuable conclusions can be drawn.

VEIN FISSURES

The vein fissures seem rather typical of tension cracks with little lateral movement in comparatively homogeneous rock. Viewed as a whole, there is a suggestion of a flat "S" shape to the vein between the eastern and western limestones, as if shearing and friction had torn the quartzites apart. See Fig. 2.

So far, this structure is not definitely indicated, but it may be true and the changes if strike of the main part of the vein which accompany this structure should be borne in mind as development progresses toward the limestone.

In more detail the vein consists of a series of slightly overlapping, or sometimes forking, fractures, each of no great length or depth, but following a general system and strike. This is shown in Figs. 3 and 4, which are drawn to scale.

The various levels of the mine fall into a remarkably close agreement on the plan. This indicates more or less connected fissures forking to the eastward, although in detail the fissures in plan are entirely similar to those shown in the sections which would be true, locally, as plans.

There seems to be a tendency for the fissures to weaken toward the ends of the present mine workings. Whether this means that the individual fissures being developed are weakening, and that new fissures , if found, have not yet developed to their full strength, or whether the fissure zone as a whole is weakening both eastward and westward is not clear. I am inclined to believe that both are partially true,- that individual fissures and the zone as a whole are weakening, or perhaps more truly dissipating into a greater number of smaller unimportant (from the standpoint of ore) fissures, east, west, and in depth.

STUDY OF SPECIMENS

A number of specimens from the middle and lower part of the mine were carefully examined under magnifications from 12 to 60. In many cases surfaces were roughly polished to aid in bringing out the structure. The results of this study should roughly parallel results from the microscopic study now going on.

From 711 Stope Pyrite and pyrrhotite occur in replacement quartz which has been well fractured. There is a minimum of quartz of the same age as the sulphides. The sulphides seem to favor association with incompletely replaced and silicified rock remnants. Rare mica (biotite ?) is associated with the ore. Polished surfaces show pyrite, pyrrhotite, sphalerite, and rare biotite, with scant quartz cementing well brecciated silicified rock and replacement quartz.

From 815 Stope Pyrite, pyrrhotite, and a very little quartz occur in medium brecciated replacement quartz, partly associated with incompletely replaced rock, with a very little mica. Traces of chlorite on fractures.

From 830 Stope Pyrite, pyrrhotite, sphalerite, a very little galena, and a little mica and quartz occur cementing a breccia of mostly quartz-replaced rock, accompanied by a very little dark glassy quartz and occasional quartz crystals. Part of the sulphides are in contact with incompletely replaced rock.

From 907 Stope About as 815 Stope.

From 1002 Drift, about 50 feet from main XC. Pyrite, pyrrhotite, and quartz occur together cutting silicified rock. Pyrite also occurs sparingly disseminated in the highly silicified rock. A little biotite is with the sulphides. Fairly clean sulphides assayed 0.14 Oz. gold.

From 10 Level, east Pyrite with little pyrrhotite tending to occur in parallel fractures and w ith little repla cement into the repla cement quartz from cracks. Very small breccia of silicified quartzite along fractures along fra ctures in silicified quartzite, hea led by pyrite with very scanty quartz.

From 11 Level Drift Pyrite occurs in walls, disseminated, and concentrated in second-stage fractures with very little vein quartz in replacement-quartz. Pyrrhotite occurs very sparingly with pyrite. Brecciation along fractures is much more limited than in the middle level stopes. The rock within the vein has generally been completely replaced.

Clean galena from short streak near main XC assays 0.22 Au.
" sphalerite " " " " " " 0.15 "
" pyrite " " " " " " 0.80 "

(There is probably a little pyrrhotite with the pyrite, which was from cross fractures in the vein)

Changes in Mineralization from Middle to Bottom Levels:-

Pyrite - Considerable increase (also increase from middle to upper levels).

Pyrrhotite - Considerable decrease; is scarce in bottom.

Sphalerite - Considerable decrease; rare in bottom levels.

Galena - " " " " "

Biotite - Present, but perhaps a little less in the bottom.

Chlorite - Apparently present throughout, including with the ore, but more noticeable in the bottom where it occurs in fracture planes in white quartz.

Replacement quartz - Much in the middle levels, more in the bottom.

Vein quartz - Very little in the middle levels and less in the bottom.

Unreplaced rock in the vein - Decreased to almost none in the bottom.

General rock silicification - At the bottom there seems to be a slight decrease from levels 7, 8, and 9 where it is stronger than in other parts of the mine.

In depth, the secondary brecciation and fracturing in the vein seem less intense and more confined to a few clean cut fractures. The proportion of pyrite to other sulphides is notably increased in depth.

There are two stages of mineralization --

1st - An intense replacement of the wall rock along the vein fracture, and somewhat in the adjoining rock, with a small amount of quartz deposited in cavities. With this there was deposited a small amount of pyrite.

2nd - The fissures were re-opened with some brecciation of the quartz and silicified rock along them, especially in the areas now ore, followed by further deposition from solutions strong in sulphides and gold, and comparatively weak in quartz. These minerals deposited largely in crevices and in the interstices of the breccia, and in a minor way by further replacement of the already partly replaced rock.

An apparent reason for the lower grade of the vein-matter in the lower levels is a cleaner cut second stage fracturing with less brecciation confining the ore minerals to a comparatively small section of the vein. There is also a notable decrease in sulphides, except pyrite, with which gold is associated. The reason for this is not clear but there is a strong suggestion that precipitation of these minerals was aided by contact with incompletely replaced rock, which is almost lacking in the bottom levels.

WORK RECOMMENDED

Some of the work recommended is now under way, and much of it has been suggested to me by others. Only a small part of the work can be done at present but the rest should be done in the course of time, subject in a few cases to the results of work that has been done in the meantime. Items marked "*" should be done as soon as possible.

Examine and sample sides and tops of stopes and raises above tunnel 4. A few old assays indicate some ore may be left. This ground was worked when gold was $20 and few assays were taken in the stopes.

Tunnel 1
- Drill short hole southerly from Sta. 110
- Drill two short holes northerly from Sta. 110
- Drill NE from furthest SE face.

Tunnel 3.
- Drill southerly from a little easterly of Sta. 318.
- Drill southerly from Sta. 321. (In 434 stope a strong stringer was left to the south).
- Drill northerly near Sta. 309 for possible continuation of known ore-shoots.
- Drill NE at east face to cut stringer just north of drift. (This stringer shows assays of $1 to $15)

Tunnel 4.
- Drill northward at Sta. 405 for continuation of ore to west.
- Drill northward at Sta. 440 for stringer.
- Drill at east face east-northeast for stringer.
- Drill at east face southeast for stringer.

514 Sub-level.
- *Drive east from east face to limestone. Drill walls of drift as work progresses. Drive N 65 E if there is no stringer to follow.

Level 5.
- *Drill north and south near east face.
- Drill northwest 250 feet from Sta 521 for vein of Holes 4,6 & 7.
- *Drive easterly to get possible north vein (550 drift), drilling N and S at intervals.

Level 6.
- Drive west face westerly a minimum of 175 feet for downward continuation of ore on level 5 west of 510 XC. If no ore found drill north and south.
- Drill south at Sta 609 and west of Sta 611 for stringer below on levels 7 & 8.
- Drill north at Sta 636 (say 125 feet) for possible offset orebody.

Level 7.
- *Drive east face eastward, along fissure if possible, if not in a N 70 E direction to the limestone, drilling both sides at intervals.

Level 7, continued
*Drill 100 feet north and 300 feet south from about the present face for general exploration.
Drill south at Sta 712 to test for spur vein and stringers.
Level 8.
*Drive west on vein (or S 80 W) 250 feet. Drill both sides at intervals. Drill N 70 W from face to limestone (100 ft. ?)
Level 9.
Drill south from Sta 920, 300 feet, to cut stringers known on other levels and for exploration.
*Drill NE from 920 Sta. for stringer in XC.
Drill south near Sta 913 for stringers noted to east.
Level 10.
*Drive west face ahead along the vein.
*Drive 1002 drift eastward and drill both sides thoroughly as the work progresses.
*Drill northeast st the face of the southeast face of the SE spur drift for stringers cut on level 10 in holes #81 & 82.
Level 11.
Drill at, or eastward of Sta 1104.
*Drive east on stringer at Sta 1102.
*Drive west face of level ahead.
Later, the southeast face should be extended as far as there is anything to follow to eliminate any chance of this apparent spur being the main ore-fissure.

INFERENCES FROM GEOLOGICAL DATA

Individual ore-bearing fissures are comparatively limited in length and depth, and probably will continue so. There is however a well defined system of inter-connected fissures. There is thus far no evidence that they continue to be strong up to the bordering limestones, but theoretically they should, with possibly changes of strike more southeasterly at the east end and northwesterly near the west end. In depth, theory suggests rather weak but numerous fissures for a few hundred feet. Whether they will again strengthen to definite veins is not, so far as I can see, indidated. Since the structure is changing any prophecy is dangerous.

As for the mineralization of the fissures - there is a change from the middle to the lower parts of the mine, both mechanically affecting the secondary fracturing and brecciation, that is the space for the ore, and chemically affecting the secondary deposition in the fissures and breccia.

Apparently there was also a more diffused fissuring and greater silicification of the vein and the adjoining rocks in the lower levels during the primary stage. I see no evidence that the weak mineralization in the lower levels is caused by an increase of heat and pressure during mineralization, but there is some indication that more complete replacement of the rocks in the lower levels by quartz has prevented the

contact of the mineralizing solutions with incompletely replaced rock which appears to have had a precipitating effect.

To summarize, a somewhat changed condition of fissuring may be expected after a few hundred feet of greater depth; whether this will be favorable or not is undetermined.

Chemical conditions may possibly improve somewhat with further depth when the axis of the syncline is passed, but it is decidedly uncertain.

To the east and west of the present productive zone it would seem that there are good chances for further ore, but there is little evidence that there is ore there.

On the whole, I consider the outlook for any considerable bodies of ore at greater depth quite discouraging, although I fully anticipate that some profitable ore will be found. The outlook is, however, not so bad but that I would unqualifiedly recommend sinking a winze on the vein for at least 250 feet, and exploration on two levels below the 11th. I believe it imperative that this work be undertaken as soon as it is possible to determine the point at which sinking should be done, and with this in view I would urge intensive development of the 10th and 11th levels.

These conclusions regarding ore in depth seem fully borne out by developments at some other mines of the district which have apparently been developed geologically deeper than the Reno.

The microscopic examination of Reno ore should tend to confirm or negate some of these conclusions.

ADDED:

On east Level 9 especially, and to a considerable extent on 10 and 11, there are a greatly increased number of small stringers without sulphides running at all angles, indicating a pre-second stage mineralization in a highly broken area.

Recent work in the lower east part of the mine has encountered many spurs and stringers, some of them very strong having a strike approximately S 60 E. These suggest the possibility that they may be an important vein well out in that area to which the spurs and stringers are connecting links.

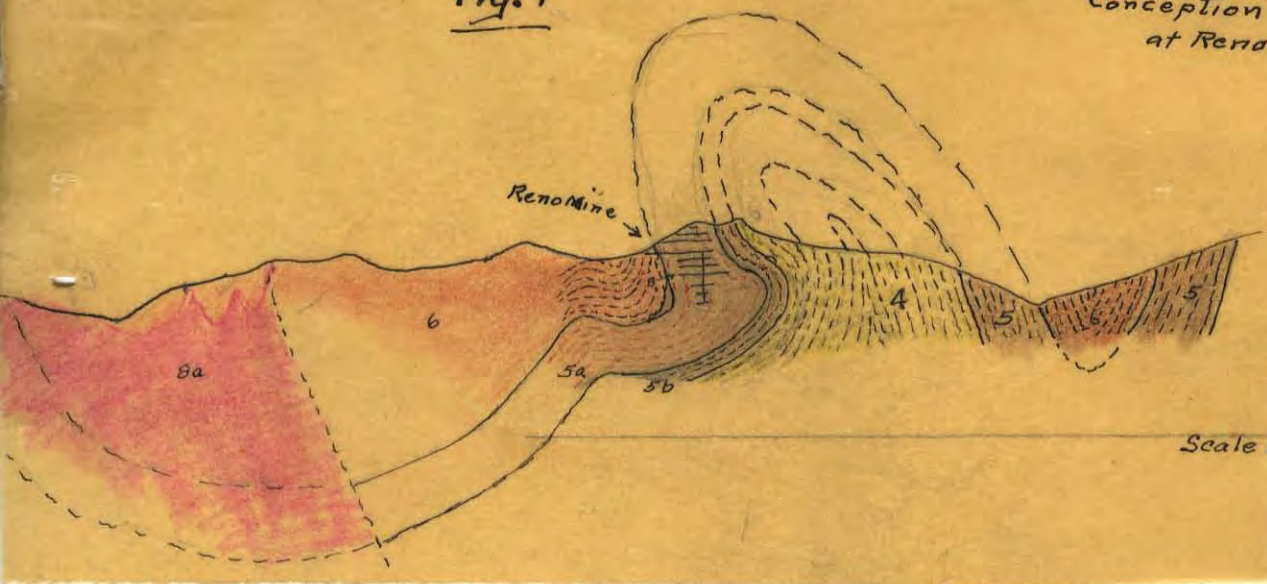
Chas. C. Starr

Fig. 1

Conception of Structure at Reno Mine.

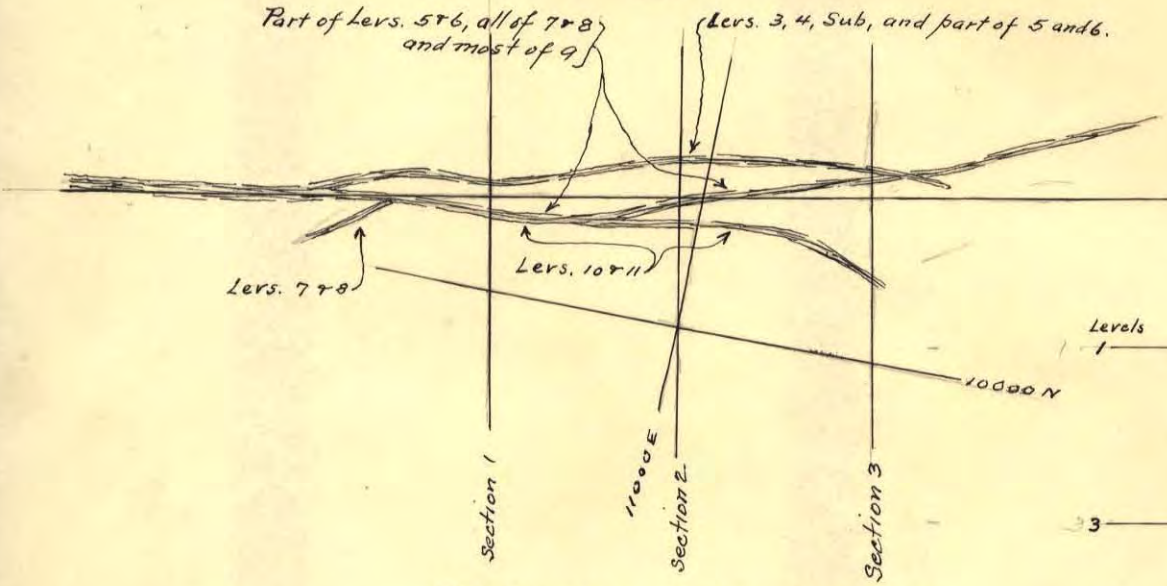
Jan. 1, 1937

Chas. C. Starr



Scale: 1" = 5000' (approx.)

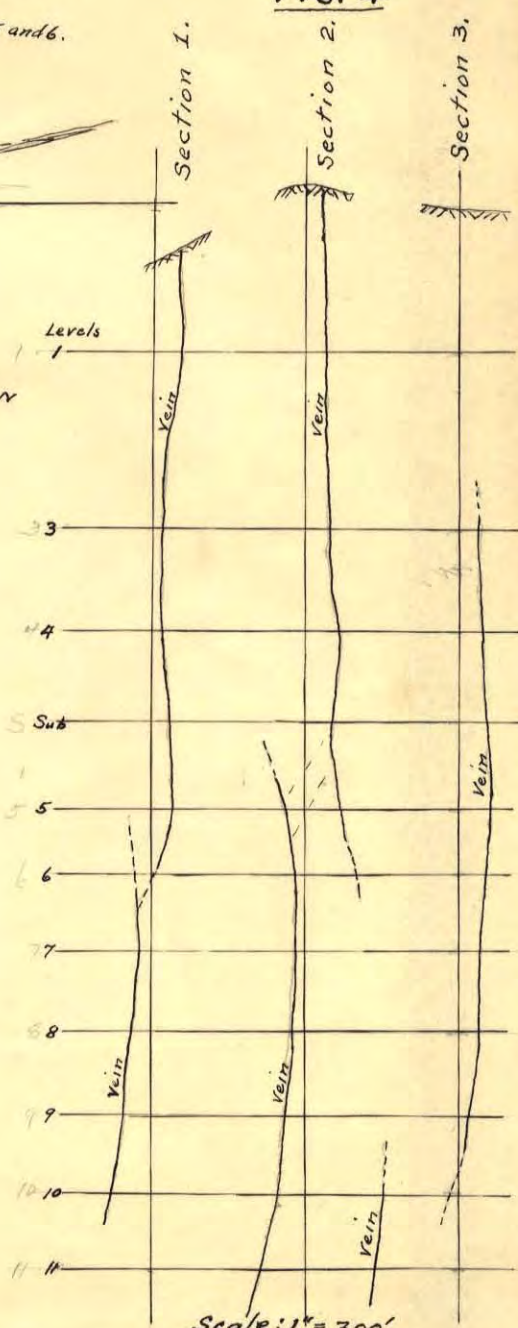
Fig. 3



COMPOSITE PLAN OF LEVELS

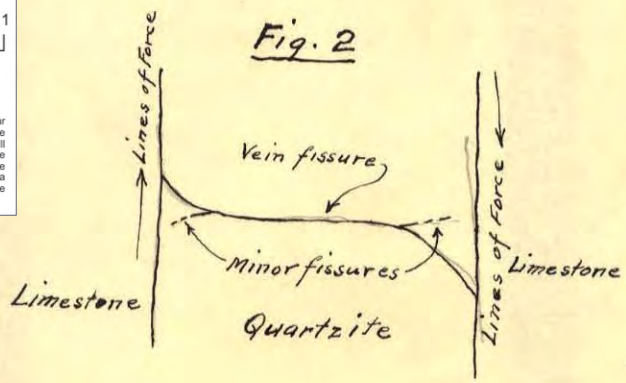
SCALE: 1" = 300'.

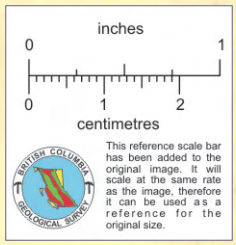
Fig. 4



Scale: 1" = 300'.

Fig. 2





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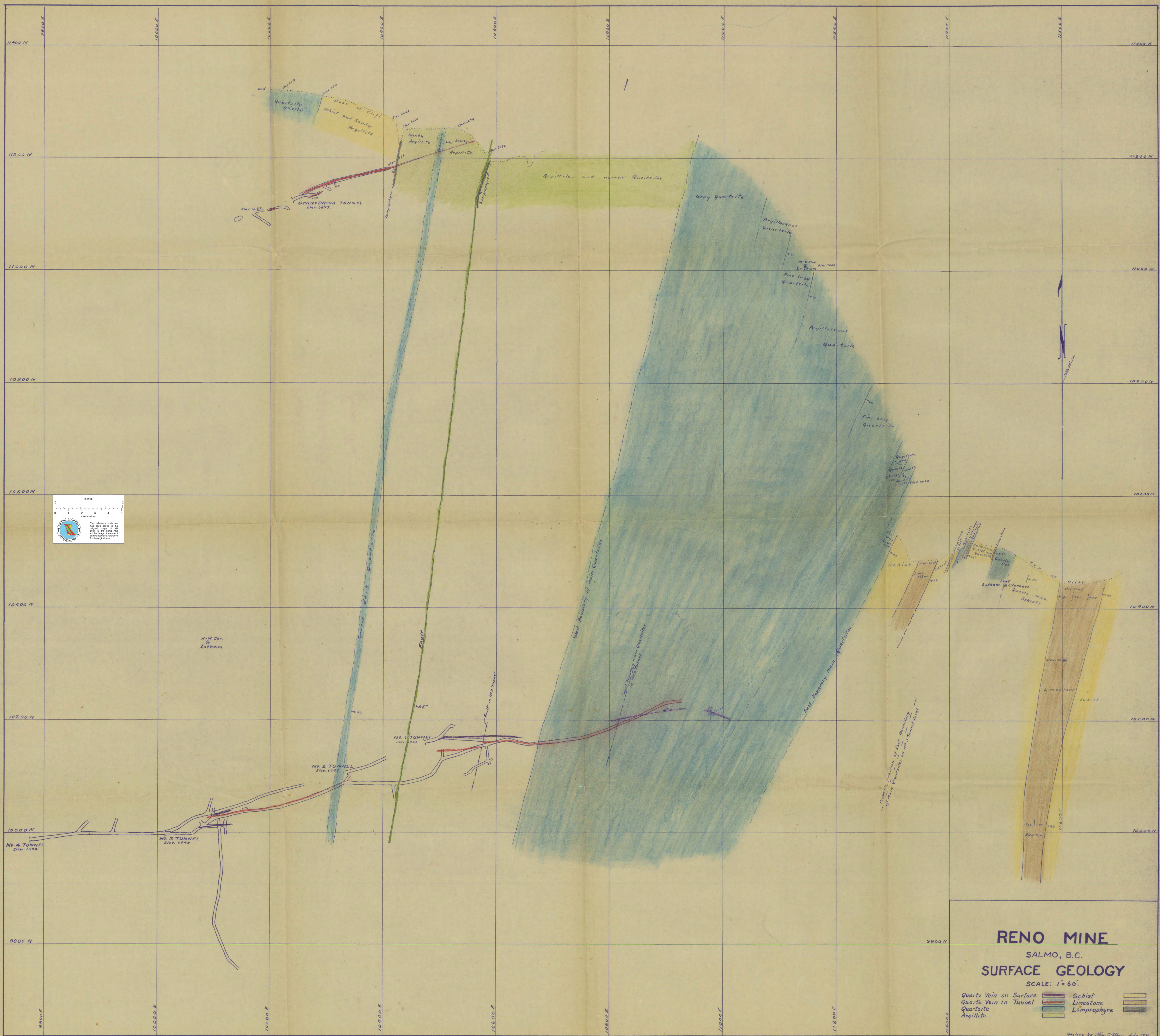
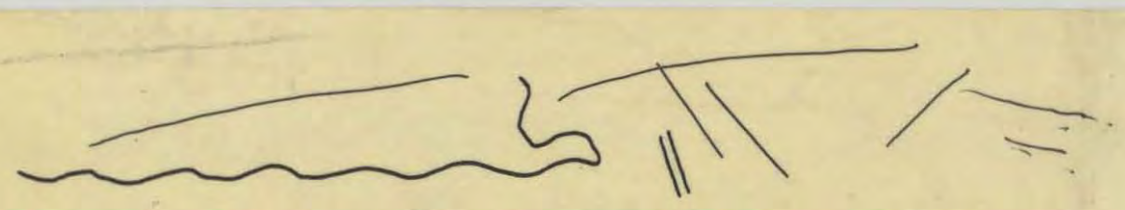
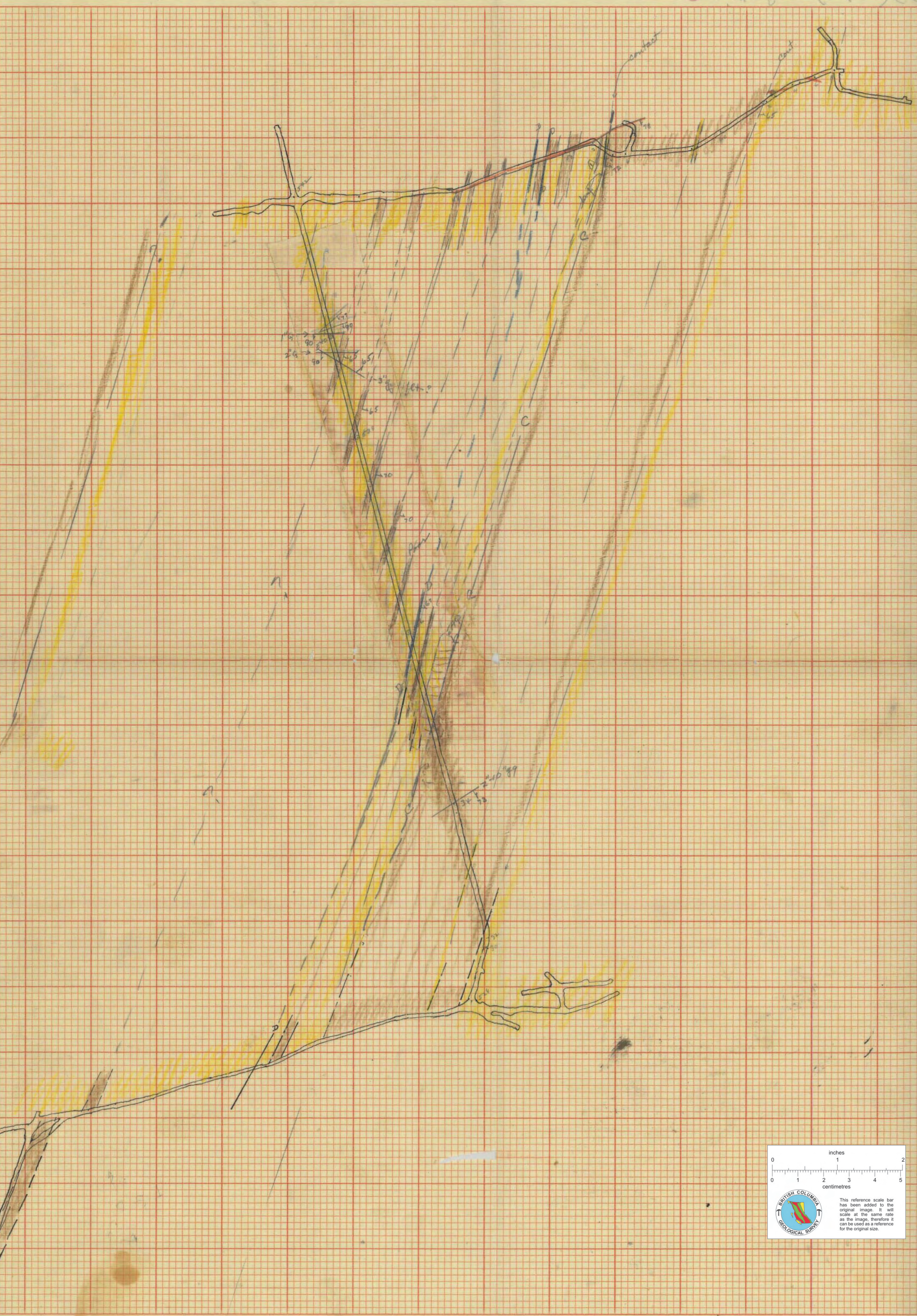


Property File 082F SW036


SURFACE
No. 1 TUNNEL
No. 2 TUNNEL
No. 3 TUNNEL
No. 4 TUNNEL
Main Ex. Stope
10100 N
10000 N
RENO MINE
SALMO, B.C.
GEOLOGY
SCALE: 1" = 30'.
Quartz Vein
Quartzite
Argillite
Schist
Lamprophyre
Faults and Slips
Strata strike
Quartz on dumps
Caved cuts
Geology by Chas. C. Starr July 1938
Property File 082FSW036
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.
BRITISH COLUMBIA GEOLOGICAL SURVEY






LONGITUDINAL SECTION
RENO MINE
SALMO, B.C.
0 50 100
SCALE OF FEET
LEGEND
ORE
QUARTZITE
ARGILLACEOUS QUARTZITE
ARGILLITE and SCHIST
LIMESTONE
LIMESTONE, SCHIST, & QUARTZITE BEDS
MUD (Residual from Limestone)
LAMPROPHYRE DYKES
DIPS OF STRATA
Geology copied from map by Chas. C. Starr dated Jan. 1st 1937.
C.C.S. Jan. 1st 1938
Reno Formation (5a of Walker.)
Contact
Reno Formation (5b of Walker.)
Dyke & Fault
Reno Formation
Contact
Pend d'Oreille Series
No. 1
No. 2
No. 3
No. 4
No. 5
Shaft
Contorted
inches
centimetres
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.