

661^{c, D, + E.}

Owner: Royal Canadian Ventures Ltd.
Geological Report - C, D, E claims
URSUS PROSPECT
Marysville District 82F/9E
British Columbia, Canada
Chamberlain M.D. by 49° 15' N. W.
Virgil R. Chamberlain September, 1963.

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Department of Mines and Petroleum Resources	
ASSESSMENT REPORT	
NO. <u>661</u>	MAP



Adit Portal
Ursus Prospect

Geological Report
URSUS PROSPECT
Marysville District
British Columbia, Canada

by

Virgil R. Chamberlain September, 1963.

Introduction

The Ursus Prospect lies on the western slope of the rugged Purcell Mountains in southeastern British Columbia. It is located on the east side of Angus Creek which flows northerly into the St. Mary's River a few miles below St. Mary Lake. The Prospect is about 15 miles southeast of Kimberley, 24 miles slightly north of west from Cranbrook, and about 12 miles slightly south of west of Marysville. It was formerly known as the Leader or Wellington group of claims.

Numerous prospects occur in this general area, but the only producing mine of any consequence in the area is Consolidated Smelting and Refining Company's Sullivan mine, northeast of Kimberley. The principle ore from this mine is argentiferous galena. The closest smelter is C.S. & R's smelter at Trail, and there are currently no custom mills now active in this district.

The writer first examined this prospect in the Fall of 1962 in the course of examining other prospects here and in the Kootenai Lake district to the west. At this time the adit was examined and mapped and a general reconnaissance made of the various pits and workings. Tungsten fluorescence was noted along part of the back of the adit as well as in the face. Lead and copper minerals were also seen to occur in and along braided quartz veins. Values obtained from chip sampling the mineralized veins (and included gangue) at the face of this adit showed the vein to carry moderate tungsten and copper values, but to be surprisingly high in gold. The 6" footwall part of the vein carried slightly more than an ounce of gold per ton, the center 0.4 Ft of silicified gangue carried only a trace and the 0.5 Ft. of the hanging wall carried only 0.04 of an ounce of gold per ton. The weighted average of these samples would indicate a vein 1.4 Ft. wide carrying 0.40 ounces of gold per ton or \$14.00 ore. As reconnaissance had shown this vein to be continuous for a distance of at least 2,000 feet, additional work was warranted on this prospect.

During the summer of 1963 trails into the prospect were improved and the writer and Mr. Frank Brown of Royal Canadian Ventures made another trip to this prospect to map and sample additional pits and trenches on the various claims. This report is a summation of this and previous work done in the area with recommendations for future operations.

(2)

Method

This prospect lies along the west side of Angus Creek. A moderately good forest road leads up Angus Creek. This is a former logging road which is now partially closed by fallen timber. It originally extended up to the claim cabin site on Angus Creek but is now passable for a distance of only 8 miles from St. Mary Lake. A good pack trail can then be followed to the adit or to the upper cabin above the workings. The trail shown on the surface geology map leads to the upper cabin (See Figure 2). The main road is not shown on this map, but follows up the east side of Angus Creek, and crosses to the west side above the mine.

A tape and Brunton compass survey was made of the Adit and trenches above the adit. The vein was chip sampled where possible over the entire width of mineralized area. Where applicable a channel cut was made across the mineralized zone. These samples included apparent waste as well as possible ore. The workings mapped and examined cover approximately 980 feet horizontally or well over 1000 feet along the vein exposure. The surface exposure of the vein and vein material is often obscured by surface soil and mantle. However, there have been numerous small pits and trenches dug along its outcrop to expose it for visual examination. Numerous small pits exposing the vein from the adit down to the lower cabin have been dug, but were not mapped at this time. The surface mantle and soil are heavier in this area and the vein is not as well exposed. For this report it was thought best to examine the workings that might prove ore above the present adit level.

Geology

Stratigraphy

Strata cropping out in this area belongs to the Proterozoic Purcell group. The complete group is not present in our area of interest but is exposed in the general St. Mary Lake region. The surface geology is given in the Geological Survey of Canada's Preliminary Map 52-15A covering St. Mary Lake. Figure 2 is a blown up portion of this map on the scale of 1/20,000 (1 inch on the map equals 20,000 inches on the ground). The strata of the Purcell group are primarily varicolored dolomitic argillites, buff weathering dolomite, green and grey weathering argillaceous quartzite, quartzite, and rusty weathering grey quartzite plus grey weathering massive quartzite and mica schist.

Proterozoic dioritic dikes and sills cut this strata in the northern part of Figure 2. Mesozoic or Cenozoic granites and granodiorites have invaded this area and partially domed and altered the attitude of the invaded strata.

Legend

MESOZOIC OR (?) CENOZOIC

- 9 Granite, granodiorite

PALAEOZOIC

Cambrian

Lower Cambrian

- 8 Eger formation: dark argillite, grey argillite; brown weathering limy sandstone and sandy limestone.
- 7 Cranbrook formation: siliceous quartzite, grit, and conglomerate.

PROTEROZOIC

Purcell group

Upper Purcell

- 6 Dutch Creek formation: laminated black argillite, green argillite; quartzite.

Lower Purcell

- 5 Kitchener-Siyeh formation: varicolored dolomitic argillites, buff weathering dolomite.

- 4 Creston formation: green and grey weathering, green, gray, and purplish, argillaceous quartzite, quartzite, and argillite.

3 Aldridge formation

Upper Division: rusty weathering, massive, grey, laminated quartzite, and argillaceous quartzite.

- 2 Middle Division: Grey weathering, massive, grey quartzite and argillaceous quartzite with argillite partings; brown weathering, argillaceous quartzite and argillite.

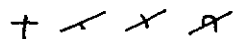
- 1 Lower Division: rusty weathering, grey quartzite, argillaceous quartzite, and argillite; grey weathering massive quartzite; mica schist.

PROTEROZOIC (?)

A Dioritic sills and dikes



Heavily drift covered area



Bedding (horizontal, inclined, vertical, overturned)



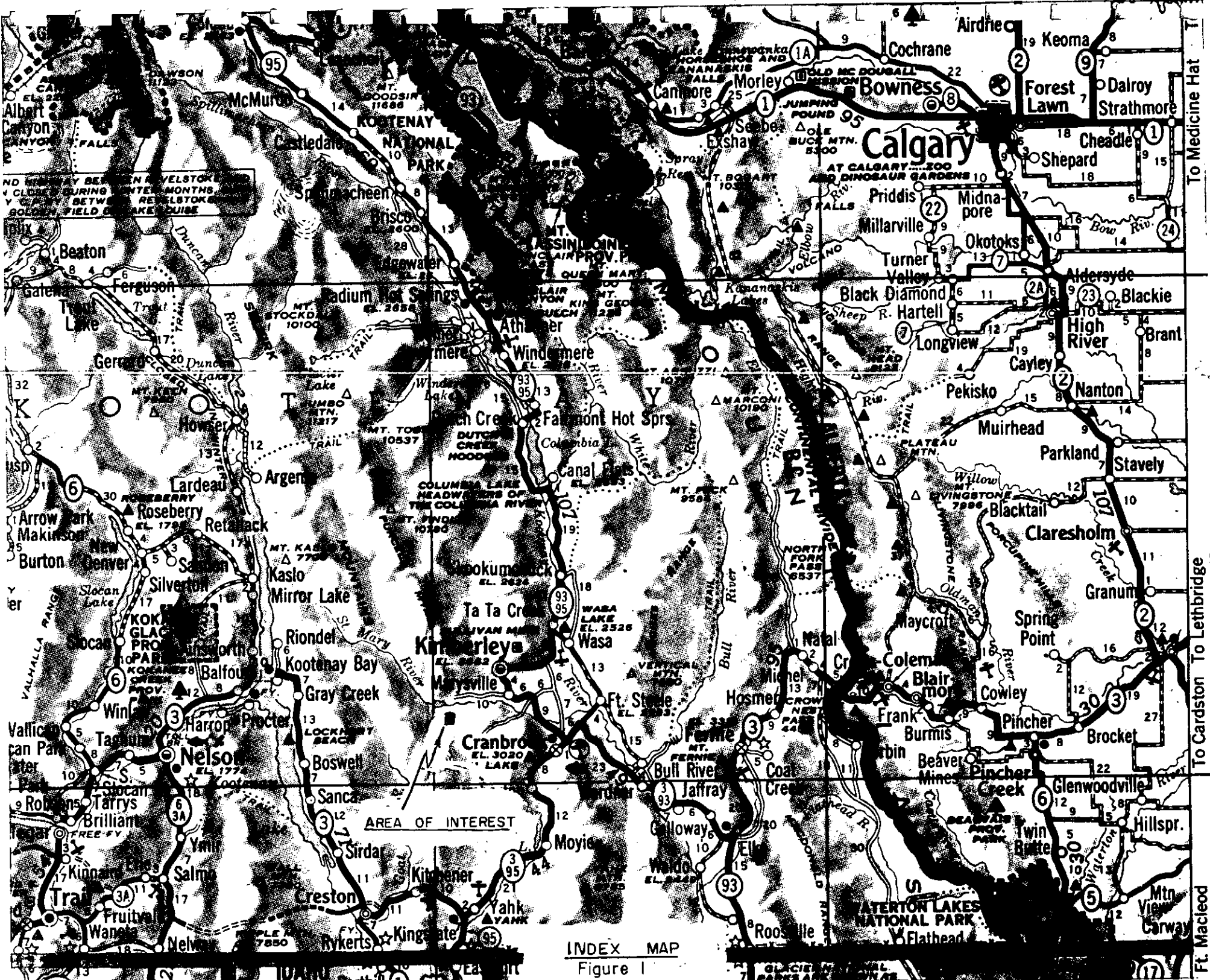
Bedding (direction of dip known, upper side of bed unknown)



Fissility (inclined, vertical)



Fault

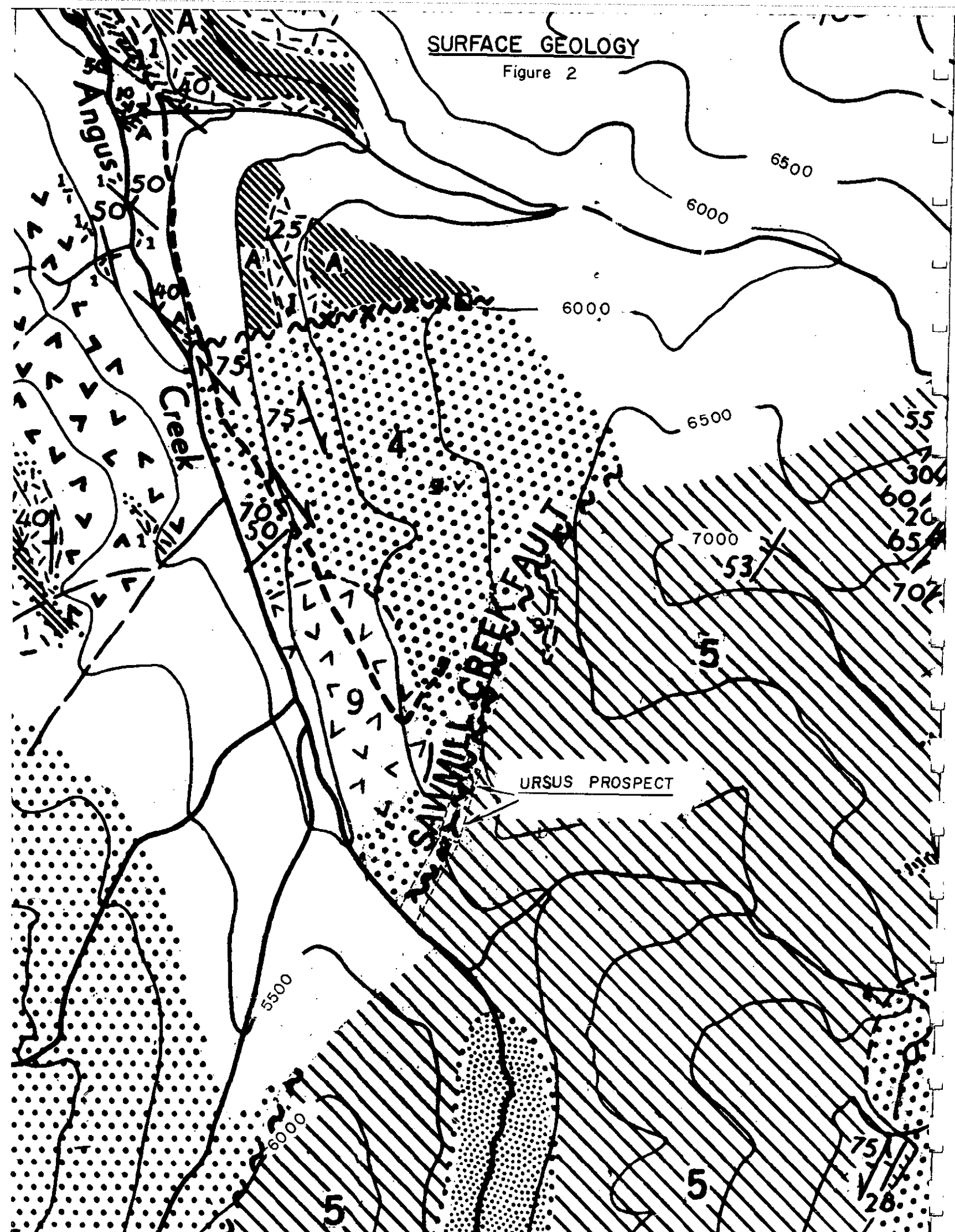


INDEX MAP
Figure 1

To Medicine Hat
To Cardston To Lethbridge
Ft. Macleod

SURFACE GEOLOGY

Figure 2



Structure

Regionally the St. Mary Lake area is on the crest and western flank of a regional anticline that strikes and plunges to the north. Our area of interest lies south of the St. Mary fault. Here the region is underlain by strata that dip to the west and are either synclinal or are partially repeated by steep northerly striking faults.

Two faults are shown on the Surface Geology map (Figure 2). The Sawmill fault with a north northeast strike lies to the northwest and north of the mine workings. A possible extension of the east-west St. Mary fault lies farther to the north. A small stock of granodiorite crops out immediately north of the Ursus adit. This outcrop lies approximately 1000 feet to the north with the initial corner post of the Ursus "A" and the final corner post Ursus "D" on or near the contact between the granodiorite and the Kitchner-Siyeh formation. At this point the latter formation appears to be predominantly a greenish gray, dolomitic argillite.

Surface dips of the vein in the trenches as well as underground appears to be to the east. The vein in the shaft dips to the east at the surface, changes to vertical near the bottom of the 50 foot shaft and at the bottom may even dip steeply to the west. A slight arcuate trend is noted to the strike of the vein and to its trace at surface. It is possible that this trend parallels the granodiorite-argillite contact. It also could be possible that the vein bends into the Sawmill fault and the change in strike is due to drag along the fault plane.

Mineralization

Mineralization in the St. Mary Lake area falls into three categories:

- I. Quartz-calcite veins and lenses in Proterozoic diorite sills.
Associated minerals -- Chalcopyrite, pyrite, pyrrhotite,
and less abundantly, galena and sphalerite.
Valuable minerals - copper
- II Fillings and replacements along faults and shear zones and not
confined to one rock type or formation
Associated Minerals -- Galena, sphalerite, pyrite, pyrrhotite,
chalcopyrite, arsenopyrite, and hematite.
Valuable minerals - Lead, zinc, silver and gold with some tungsten.
- III Lenticular replacement deposits
Associated minerals -- Pyrite, galena, tetrahedrite, and minor chalcopyrite
Valuable minerals - copper

(4)

The most promising mineral deposits of the St. Mary Lake area belong in Group II. The Ursus claims belong in this group. Here shearing associated with the Sawmill fault contains quartz mineralized by galena, pyrite, chalcopyrite, with some good gold and silver values. Sphalerite, scheelite, hematite, and stolzite (lead tungstate) have also been reported.

The vein in the mapped cuts, pits, and adit is primarily mineralized quartz 6" to 30" wide. Quartz veins often occur along both a well defined foot as well as hanging wall. Silicified and often chloritized gangue separate the foot and hanging wall veins. This gangue is often laced with fine quartz veins imparting a somewhat braided appearance to the overall vein structure.

No petrographic study was made of any ore specimen, but it appears from visual study that there are two ages of quartz mineralization. It would further appear the order of recognizable mineralization was quartz, pyrite, chalcopyrite, scheelite (?), galena, and quartz. No free gold was noted and it is possible that it is combined with the pyrite. The silver values are probably contained with the galena.

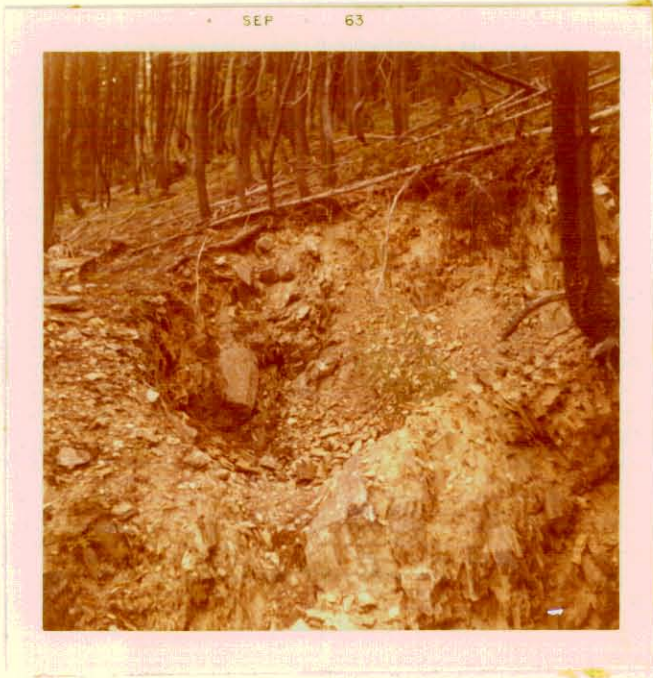
No tests have been run to determine the milling properties of this type of ore. From its general appearance it would appear to be readily adaptable to a flotation process. A preliminary concentration could be made by grinding and jigging.

Ore Reserves

While more sampling and more work will be needed to accurately forecast reserve figures preliminary work indicates that some ore has already been developed. A plan view of the geology of the mapped cuts as well as the adit is given on the maps in the back of the report. All of the geology of the workings together with the assay values of the ore sampled are given on the map titled Geology of the Workings. A longitudinal section in the plane of the vein was made by direct projection and then rotated this section to make this view more readable. Both the vertical and horizontal scales of all maps are 40 feet to the inch.

The second map in the back of the report again shows a plan view of the workings under which are shown profile sections through the vein and a plan for proposed diamond drill holes.

Samples used in calculations of the ore grades were limited, but should be fairly representative. The shaft on the property is open but the ladders are old and unsafe to use without a safety rope.



Picture of vein in second Pit north of Adit Portal. Vein dips into slope.

Picture of trench south of shaft. Some braiding of vein can be noted.





Looking east down shaft near north
end of workings. Note vein in upper
center of picture.

(5)

It had been reported that "rock" running a half-ounce per ton had been mined in this shaft. A grab sample of the ore dump ran 0.42 ounces per ton. All values used in computing grades are weighted averages. Similar methods were used in calculating tonnages. From this data the following ore reserve was computed.

<u>Type Reserve</u>	<u>Tons</u>	<u>Oz Au</u>	<u>Oz Ag</u>	<u>%Pb</u>	<u>Dollar Value / Ton</u>
Proven ore	0				
Probable ore	730	0.41	2.51	2.85	\$22.466 /Ton
Possible ore	1720	0.41	2.62	4.09	\$24.997 /Ton

This would give the probable ore a gross value of \$16,400.18 and the possible ore a gross value of \$42,994.84.

The geology of the workings indicate the veins appear to hold their width and possibly widen slightly with depth. Assays appear to indicate an increase in gold values with depth. As the gold values appear to be unassociated with the silver values it is believed that the gold content is also independent of the lead content. The lead-silver ratio also is not constant indicating there is probably some argentiferous galena as well as non-argentiferous galena present in the mineralized zone.

While this reserve is considerable for a prospect of this type more exploration work is needed before this prospect could be considered a workable mine.

EXPLORATION PROGRAM

The Ursus vein is exposed for some thousand feet along the strike above the adit workings. The Longitudinal section shows the position of potential ore blocks in respect to the adit level. Block I is roughly 650 feet ahead and 200 feet above the face of the adit level. All potential ore blocks with the exception of Blocks 4C and 4D are above adit level. If this adit were extended or driven ahead in the vein it would be developing ore all the way. Such ore could then be mined from the adit and this adit converted to a haulage level. Raises could be driven from the adit level to the surface to block out the ore and establish good ventilation.

Before going to the expense of moving in mining equipment into this prospect a diamond drilling program should be instituted to prove the presence and grade of ore ahead of the proposed adit drift and to establish the presence of mineral values with depth. It is proposed that a minimum of six initial holes be drilled prior to the beginning of any mining program.

(6)

The position, strike, and angle of inclination of the proposed diamond drill holes are shown on the program map in the back of this report. This program involves about 1100 feet of diamond drilling with the longest hole contemplated being 230 feet. A similar program could be used in exploring the vein between Angus Creek and the adit. This would prove an additional 1000 feet of vein length and approximately another 250 feet of "Backs" or vein depth. If ore could be proved in this future block a second adit could be driven from near Angus Creek in vein material northeastward to develop this Angus Creek block and the lower levels of Blocks 1 through 4.

There appears to be enough water for drilling coming from a small spring near the upper cabin approximately 1500 feet northeast of the surface workings of Block 1. This spring appears to run all year. In the Spring and early Summer nearly all small gulches carry water, and of course, Angus Creek flows a large supply of water the year around. There is a suitable timber supply for all mining purposes on all claims.

Conclusions

The Ursus Prospect at this stage of development contains 730 tons of probable ore with a gross value of \$16,400 and 1720 tons of possible ore with a gross value of \$42,995. Only minor development has been done on this group of claims. The upper 1000 feet of vein exposure has received the most attention. The vein can be followed from Angus Creek to the adit, but only minor exploration has been done in this area. As far as has been determined there has been little or no attempt made to follow this vein to the southwest although the Sawmill fault can again be mapped after an approximate half mile gap. Timber and surface mantle in this gap area makes prospecting difficult, but it is possible that a vein extension could be found in this direction.

Additional ore could be developed by diamond drilling. Drilling should first be done to explore vein extensions ahead of the present adit. This could result in considerable ore being developed above the adit and above a potential haulage level. The second stage of exploration would be to develop ore by drilling between the vein trace near Angus Creek and the adit portal.

Once ore bodies are established ahead of the present adit face, drifting should be started to prove up additional ore reserves. Raises could also be driven both to block out ore, and to establish good ventilation for the workings.


(7)

Should ore be found by drilling the Angus Creek Adit block, another adit drift should be commenced to further explore the vein and block out additional ore.

It would be advisable to prospect for the southwestern extension to this vein during the next Spring and Summer. It is probable that any vein occurring in this area will be covered by thick surface mantle and soils.

The Ursus prospect is promising, but will require additional exploration work to make it a workable mine. It is not often that one finds a vein that can be traced for 2,000 feet and contain relatively good gold assays. More sampling and more assaying should be done, but from the data gathered to date it would appear that this prospect has a good chance of becoming a workable mine. The present lack of transportation and mills can be overcome if sufficient ore reserves can be developed.

Respectfully submitted,



Virgil R. Chamberlain
P. Eng. and P. Geol.

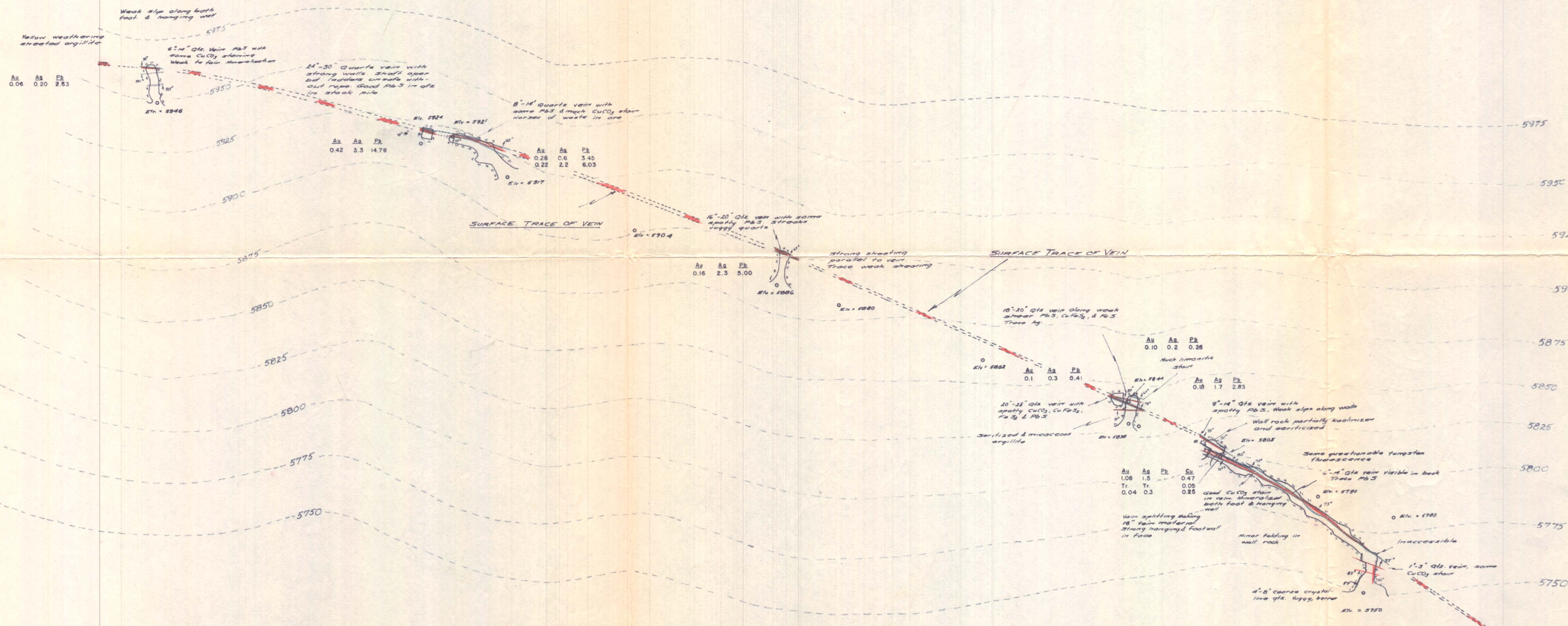
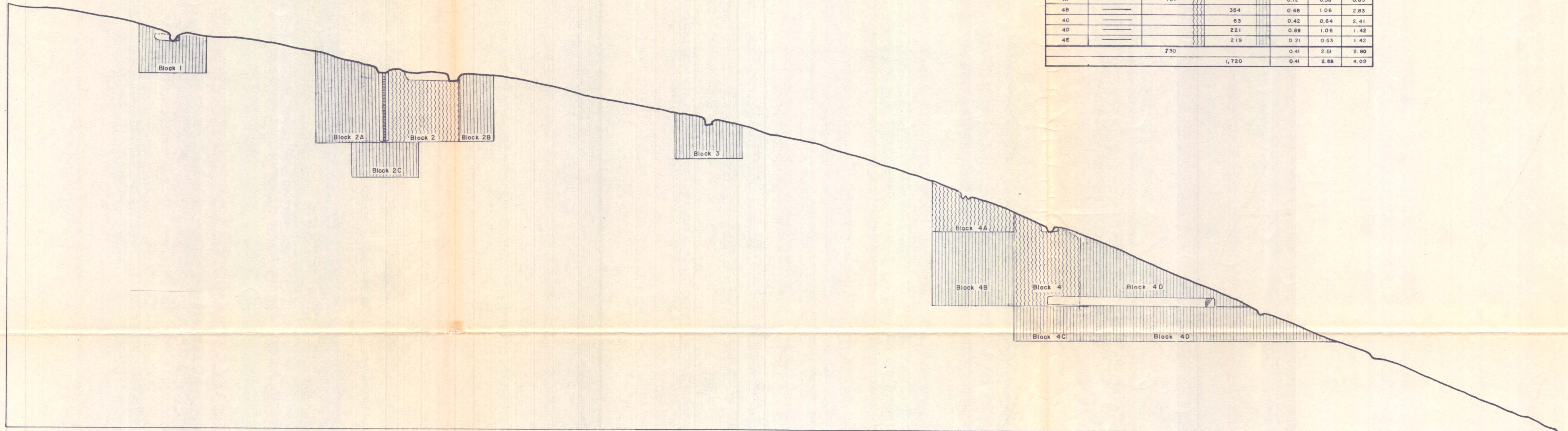
URSUS PROSPECT

Marysville District, B. C., Canada

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 661 MAP 1

LONGITUDINAL SECTION Plane of Vein Scale 1" = 40'

BLOCK NO.	PROVEN ORE TONS	PROBABLE ORE TONS	POSSIBLE ORE TONS	GOLD OZ.	SILVER OZ.	LEAD %
1			102	0.15	2.08	2.85
2		310		0.36	4.73	3.83
2A			432	0.25	6.16	5.82
2B			51	0.35	4.49	3.55
2C			111	0.42	3.30	14.76
3			167	0.16	2.30	5.00
4		253		0.88	1.08	2.83
4A		167		0.12	0.58	0.83
4B			354	0.68	1.04	2.83
4C			63	0.42	0.64	2.41
4D			221	0.68	1.06	1.42
4E			219	0.21	0.53	1.42
	730			0.41	2.51	2.80
		1,720		0.41	2.68	4.05

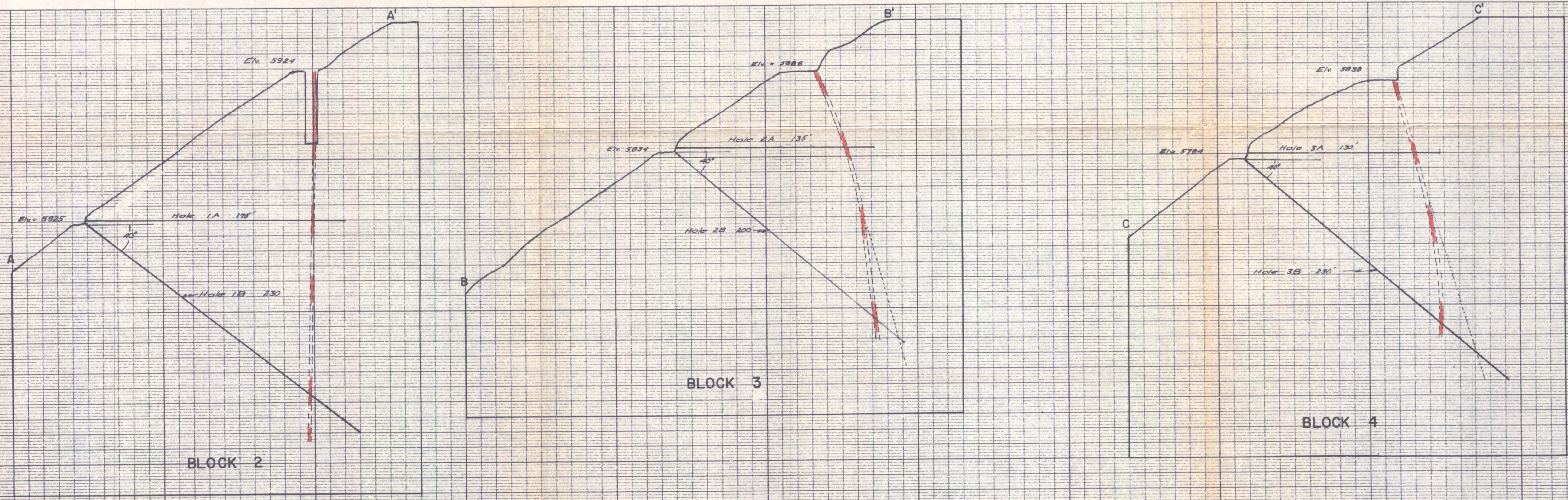
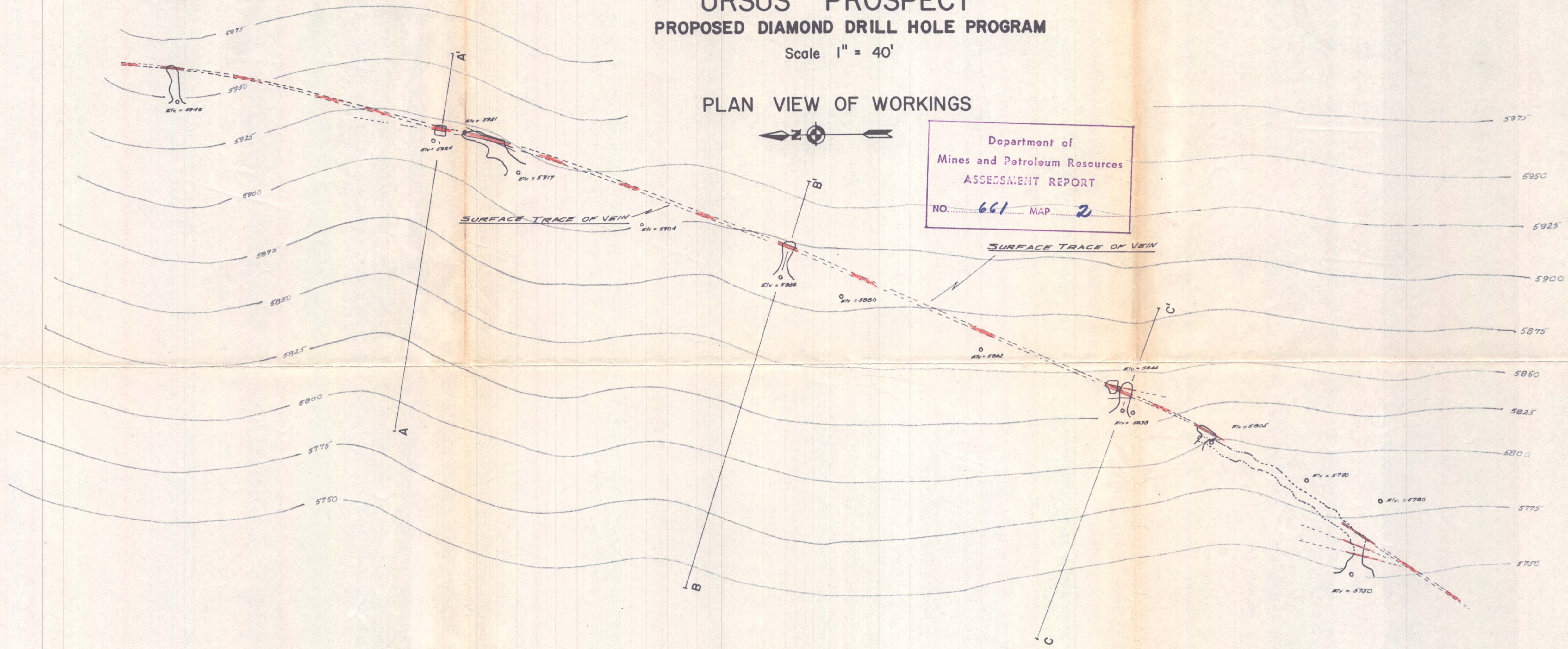


GEOLOGY OF WORKINGS Plan View Scale 1" = 40' Contour Interval = 25'

URSUS PROSPECT PROPOSED DIAMOND DRILL HOLE PROGRAM

Scale 1" = 40'

PLAN VIEW OF WORKINGS



PROFILE SECTIONS

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ROYAL CANADIAN VENTURES LTD.

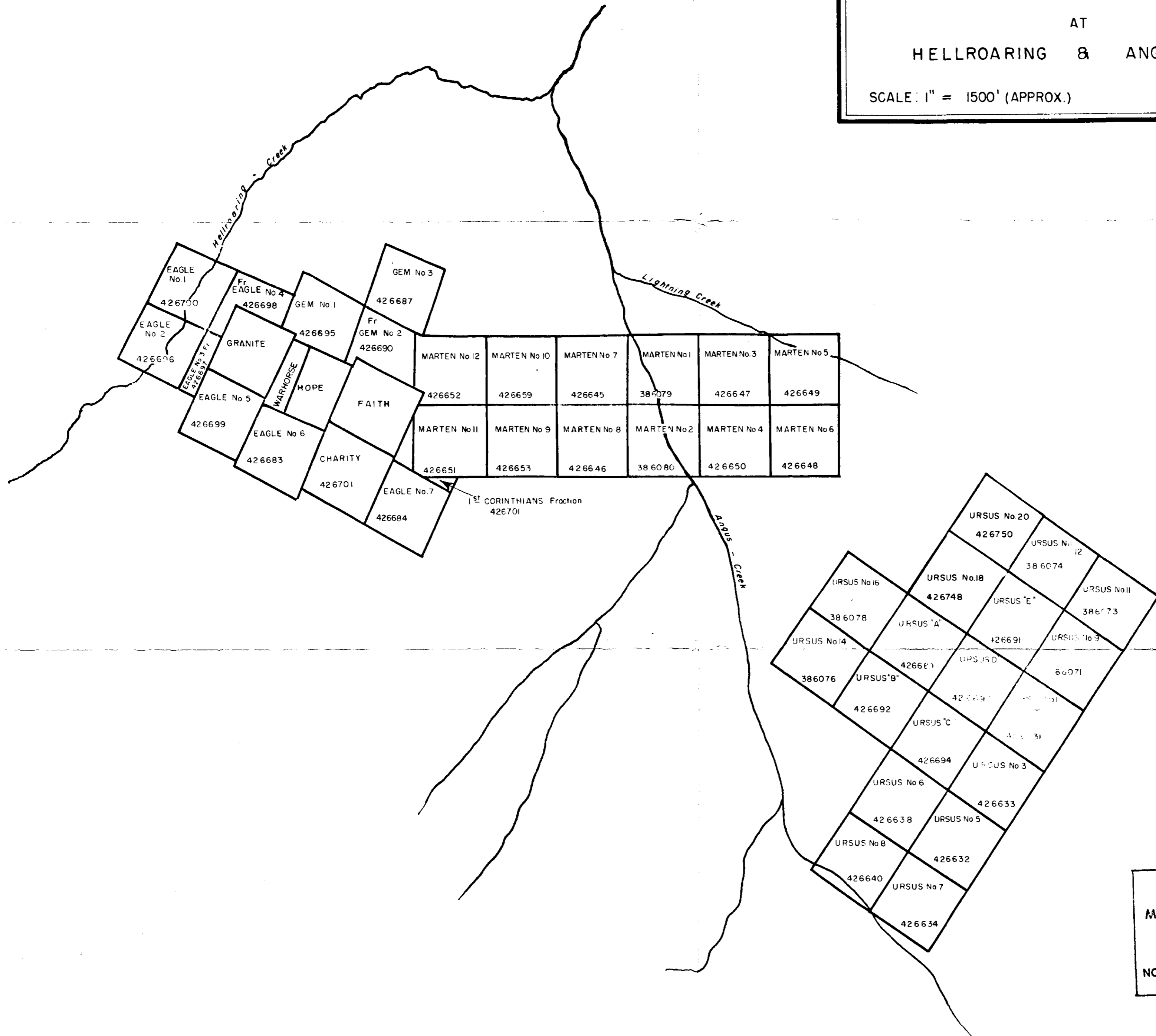
MINING PROPERTIES

AT

HELLROARING & ANGUS-CREEK

SCALE: 1" = 1500' (APPROX.)

OCT./1962



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Department of
Mines and Petroleum Resources
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