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REPORT
ON
COLUMBIA RIVER MINES
LIMITED

1965

MINING DIVISION

S. N. Charteris

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REPORT ON

COLUMBIA RIVER MINES LIMITED

GOLDEN, B.C.

Vancouver, B.C.
February 4, 1966

S. N. Charteris
Geologist

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INTRODUCTION

Interest in the development of the Columbia River Properties originated from our Moyie operations where a local motel owner is one of Columbia River's financial backers. In July, 1965 Columbia River acquired the old Ruth-Vermont lead-zinc-silver prospect about 16 miles northwest of our niobium placers on Bugaboo Creek. They extended the old adit and started an underground drilling program that has outlined a stratiform zone of lead-zinc-silver mineralization in limy argillites.

The Columbia River officers indicate at one moment they want to go-it-alone, at the next they seem anxious for outside backing and advice. Their treasury with over \$750,000 is adequate to cover an extensive development program which seems designed to detail the known mineralization rather than delineate the limits and determine the property's potential. We visited the property on January 24th to see evidence of the main structures in the existing workings, re-affirm their development plans, and discuss the exploration problems with their resident geologist.

SUMMARY & CONCLUSIONS

1. Columbia River Mines Limited acquired the old Ruth-Vermont property in the Bugaboo Range, 24 miles south of Golden, B.C., in June, 1965. They are the first to work the ground since Rio Tinto relinquished its option in 1958.
2. They extended the old drift and began a drilling program that has outlined a replacement lead-zinc deposit in Lower Cambrian argillites and slates. Significant mineralization is confined to a gently south-plunging, minor superimposed fold on the east limb of a north-plunging anticline.
3. To date, 219,000 tons with an average grade of 3.98 oz Ag, 4.65% Pb and 5.37% Zn have been indicated in a length of 586 feet. That is, 373 tons per lineal foot of plunge. Gross value of the mineralization is \$29.45 per ton; the net value after freight, marketing and smelting charges may be half this amount.
4. Current plans are to drive a cross cut and drift on the hanging wall, delineating the zone on 50-foot sections. They do not intend to explore for the continuation of the lens or for new lenses.
5. They speak vaguely of driving a lower adit - 500 feet below the present workings - and erecting an underground mill. This is difficult to envision without more tonnage in reserves.
6. Transportation up the narrow valley may be difficult. Grades are steep and snowslides common.
7. They are in need of better management. Current plans should maintain a market for the stock but will not improve the picture.
8. It is difficult to see how Falconbridge could enter the picture. They are adequately financed for the year and C. M. & S. is wooing them for future concentrates.

LOCATION & ACCESS

See the attached map from the 1936 B.C. Minister of Mines Report. The "tractor road" from Parsons is now a well graded lumber road to approximately the junction of Vermont Creek with Robbie Burns Creek. From the junction to the Columbia River camp, the road is the old tractor road widened to accommodate motor vehicles. It is rough and precipitous, and navigable by four wheel drive only, much of the year.

Vermont Creek valley is steep and narrow, snowslides are common and frequent, their scars obvious throughout the route. During the heavy snow period with mild temperatures - mid-February to April - Columbia River will close the road and service the camp by helicopter.

GEOLOGY

References: B.C. Minister of Mines Reports - 1957, 1936, 1930
G.S.C. Map 12-1957

The regional geology is shown on the photocopy of Map 12-1957, the Lardeau E/2 sheet. In the vicinity of the property, the Horsethief Creek Series (8) consists of dark grey to green shales and argillite showing good bedding and, locally, strong cleavage. The anticline to the southwest of the property is shown on the map to plunge to the north. The plunge of the minor folds on the property is to the south. Presumably regional folding is en echelon and, consequently, canoe shaped so both directions could be expected.

MINERALIZATION

The original workings were on a quartz-galena-sphalerite-boulangerite vein described as a prominent outcropping along the hillside. In the adit it is 6 inches to 2 feet wide, the sulphides disseminated in the quartz and in massive bands up to 2 inches wide. Its strike is north-south, the dip steep to the west.

Columbia River has been drilling a zone of galena-sphalerite-sulphosalt replacement mineralization immediately east of the vein deposit. Known as the "Nelson ore-body", the replacement zone is described in the 1930 B.C. Minister of Mines report as follows, "...a wide zone of mineralization known as the replacement ore-body, which occurs in highly

metamorphosed, pyritized and silicified calcareous rocks. The mineralization consists of iron, lead and zinc sulphides, the iron and zinc being the most abundant, though there are nice showings of galena in places." The statement about metamorphism is an error - none is in evidence. The mineralized zone consists of 50% fine sulphide, pyrite, sphalerite and galena in the ratio of 8:1:1 which faithfully replace the fine laminations of the calcareous shale. Galena increases in the more silicified sections.

STRATIFORM DEPOSIT

Its geometry can be seen in the accompanying diamond drill sections. The lozenge shaped mass is roughly crescentic in cross section, with minor secondary folds crossing the axis of the main fold. Its plunge from the sections is a plunge of 17 to 33 degrees to the south, minor structures in the adit plunge 10 degrees to the south. The regional dip observed in the cliffs is 42 degrees to the east. This structure seems to be a superimposed fold, plunging opposite to the plunge of the adjacent anticline. Minor folds shown in the adit plunge to the east; bedding of the shales in the underground workings conforms to the outline shown in the cross section, as does the bedding recorded in the Columbia River drill logs.

While the mineralization conforms to the bedding, its restriction to a tight minor structure would indicate an epigenetic rather than a syngenetic origin. As the fold becomes more open to the south, the widths of mineralization decrease. However, the possibility of another fold developing down plunge and en echelon should not be overlooked.

TONNAGE

Sections were planimetered and cross section projected halfway to the next section. Drill hole averages were weighted per section.

<u>SECTION</u>	<u>TONS</u>	<u>OUNCES</u> Ag	<u>% Pb</u>	<u>% Zn</u>
1	33,500	.08	2.33	3.32
2	34,500	5.73	5.31	7.11
3	45,000	3.54	3.73	4.22
4	44,000	4.24	4.14	4.22
5	33,000	5.09	7.10	5.97
6	18,000	6.29	6.53	10.44
7	(11,000)	assays not received - assumed average		
TOTAL	219,000	3.98	4.63	5.37

Thus, for a strike length of 586 feet, this represents 373 tons per lineal foot of advance down the plunge. At current metal prices this represents a gross value of \$29.45. Net after smelter, treatment and marketing charges will be about one-half of this amount.

DEVELOPMENT PLANS

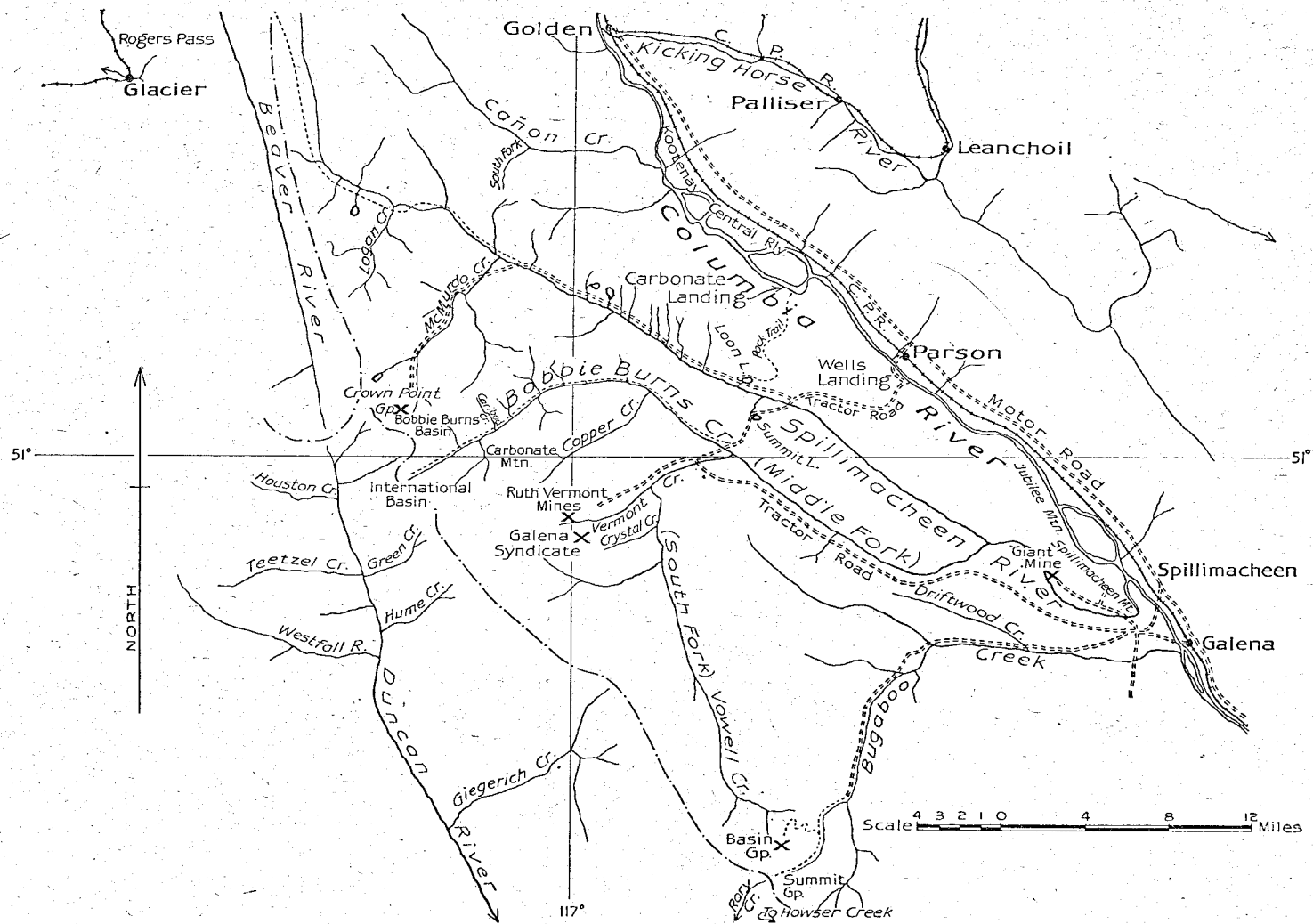
The proposed drifts are shown on the accompanying plan. Columbia River's management intends to detail the above tonnage with drill holes at 50-foot section but it does not plan any exploration for additional mineralization further to the south.

Two raises have been driven - on sections 3 and 5 - to provide a drilling base to detail the top of the ore zone. Since the structure seems to be a tight plunging fold, it is difficult to see how this will add much information.



Vancouver, B.C.
February 4, 1966

S. N. Charteris
Geologist.



Map of Spillimacheen-Bugaboo Area, showing Location of Properties.

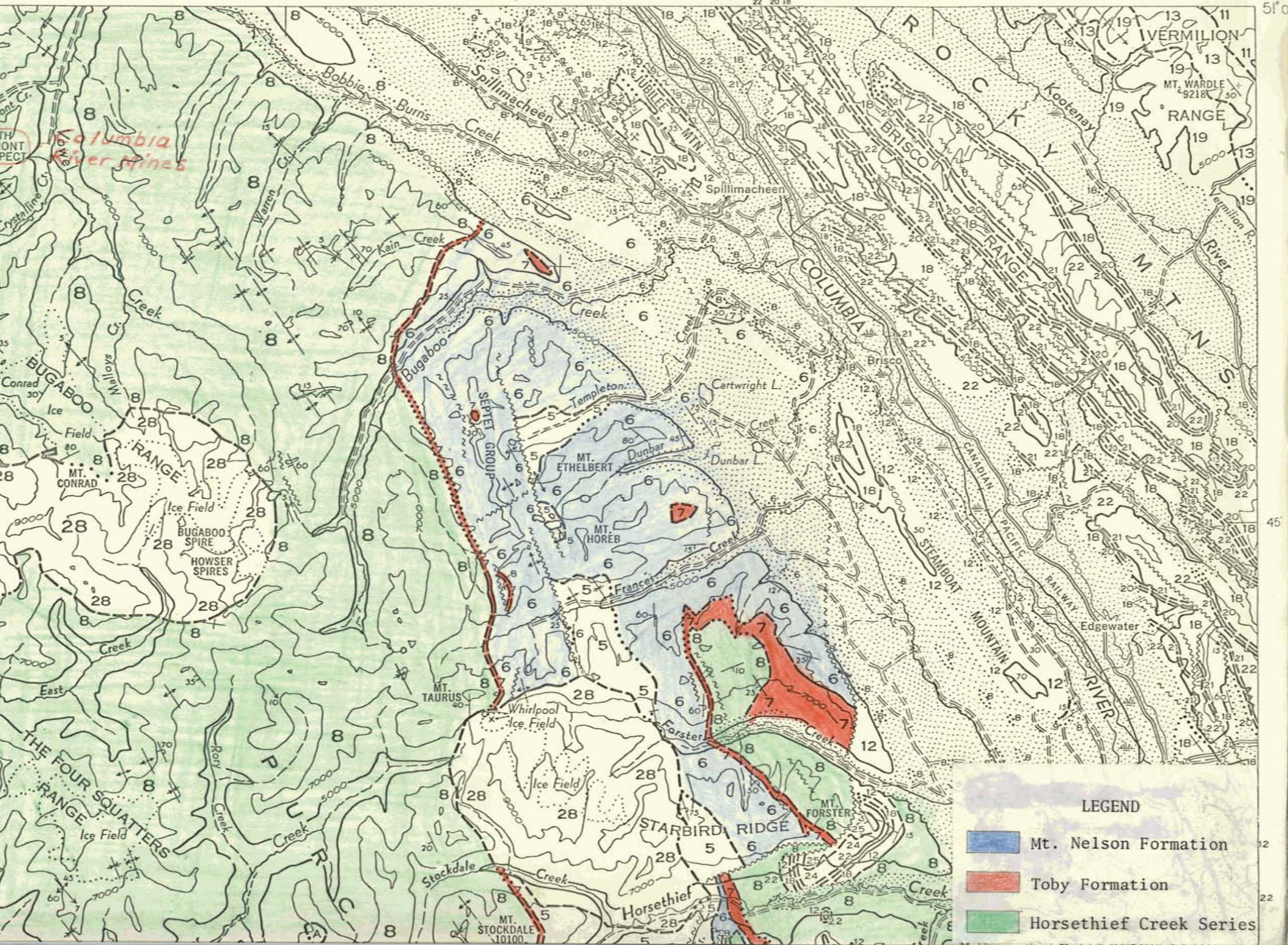
45'

30'

15'

116°00'

51°0'



LEGEND

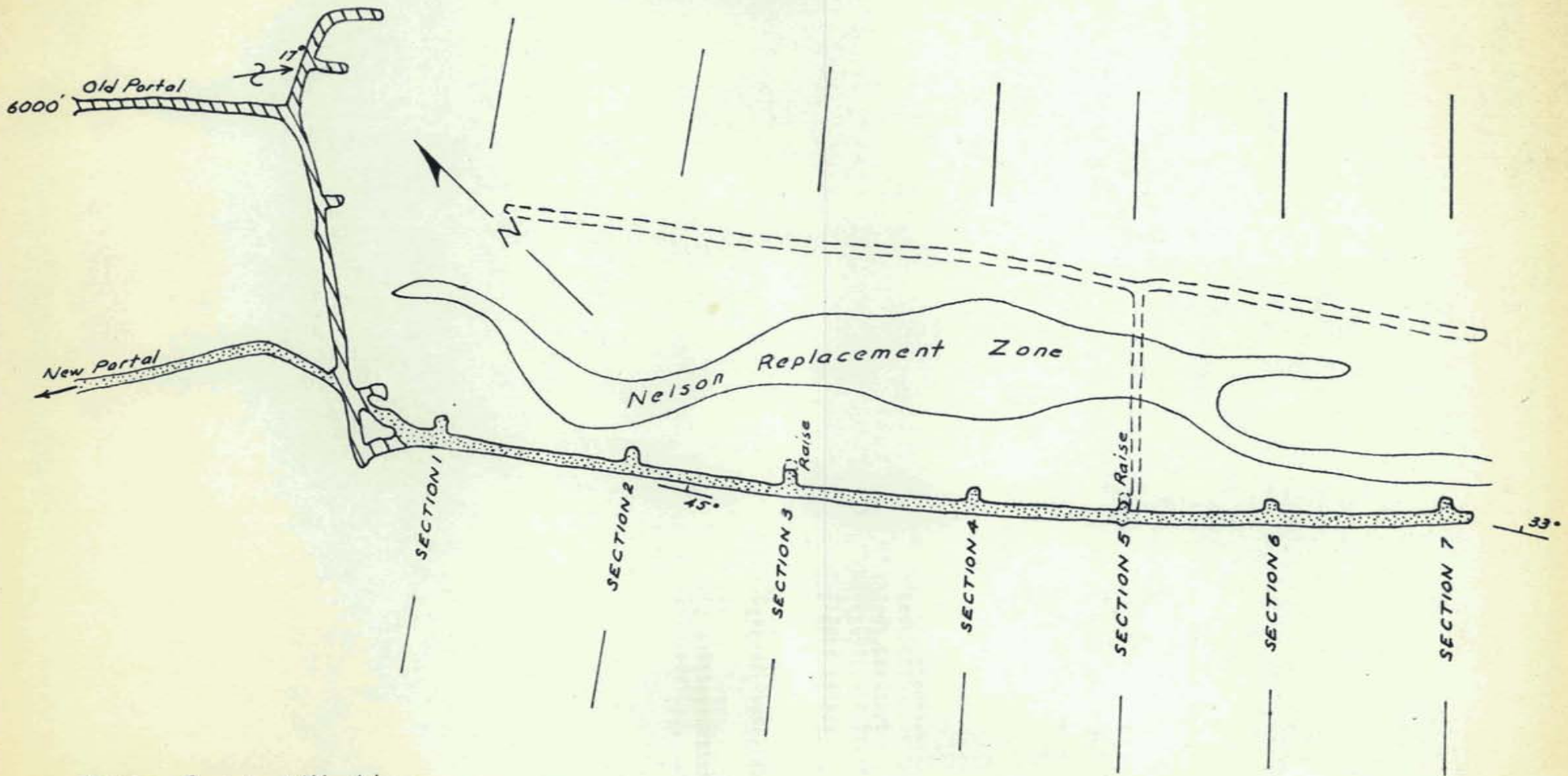
- Mt. Nelson Formation
- Toby Formation
- Horsethief Creek Series

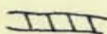

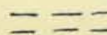
COLUMBIA RIVER MINES LIMITED

Plan of Nelson Zone Development

Scale: 1" = 100'

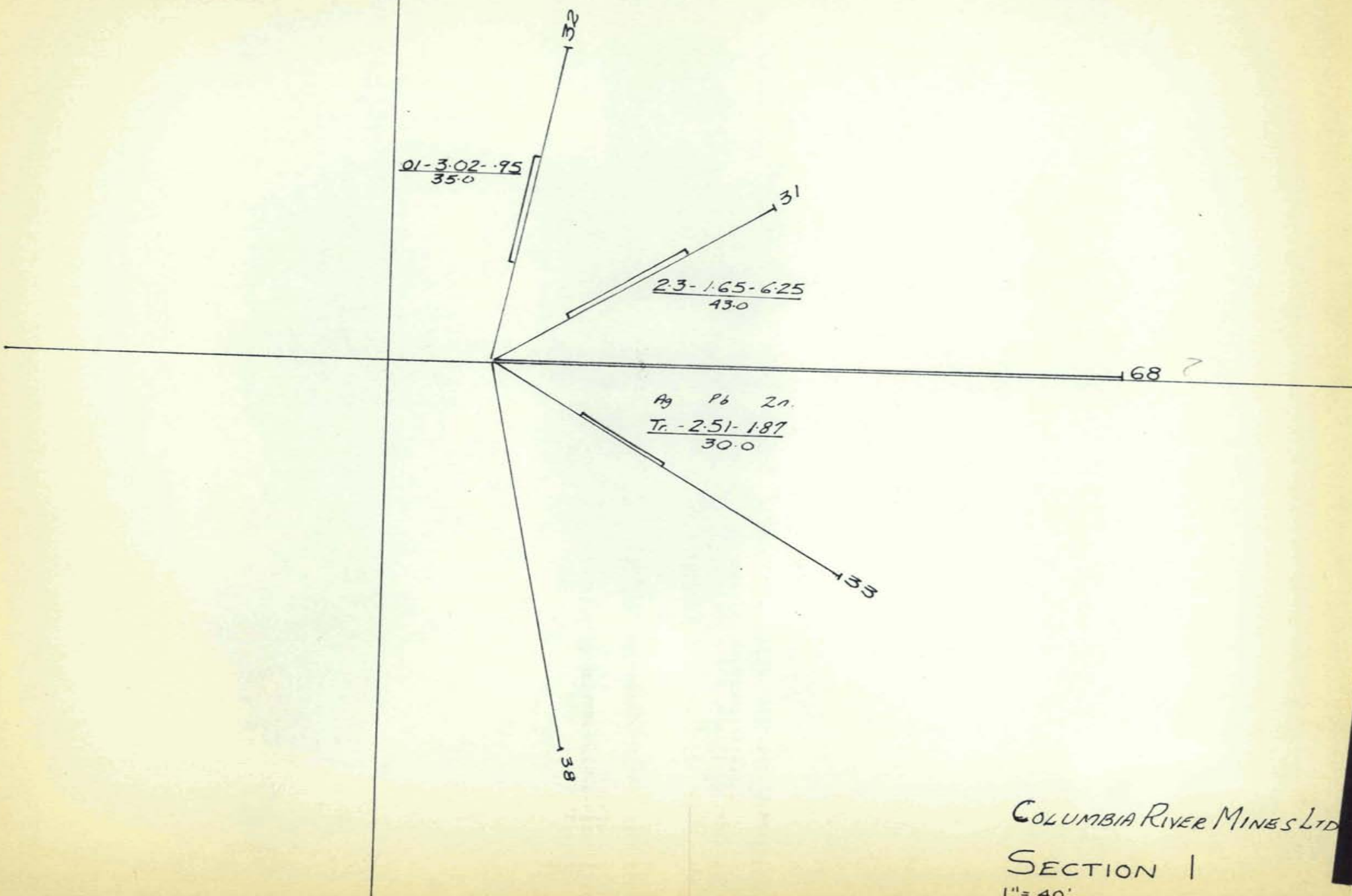
Feb. '66



-  Original Workings
-  Extension by C.R.M.
-  Proposed development - Jan. 1966.

W

E



01-3.02-.95
35.0

23-1.65-.625
43.0

Ag P6 21.
Tr. -2.51-1.87
30.0

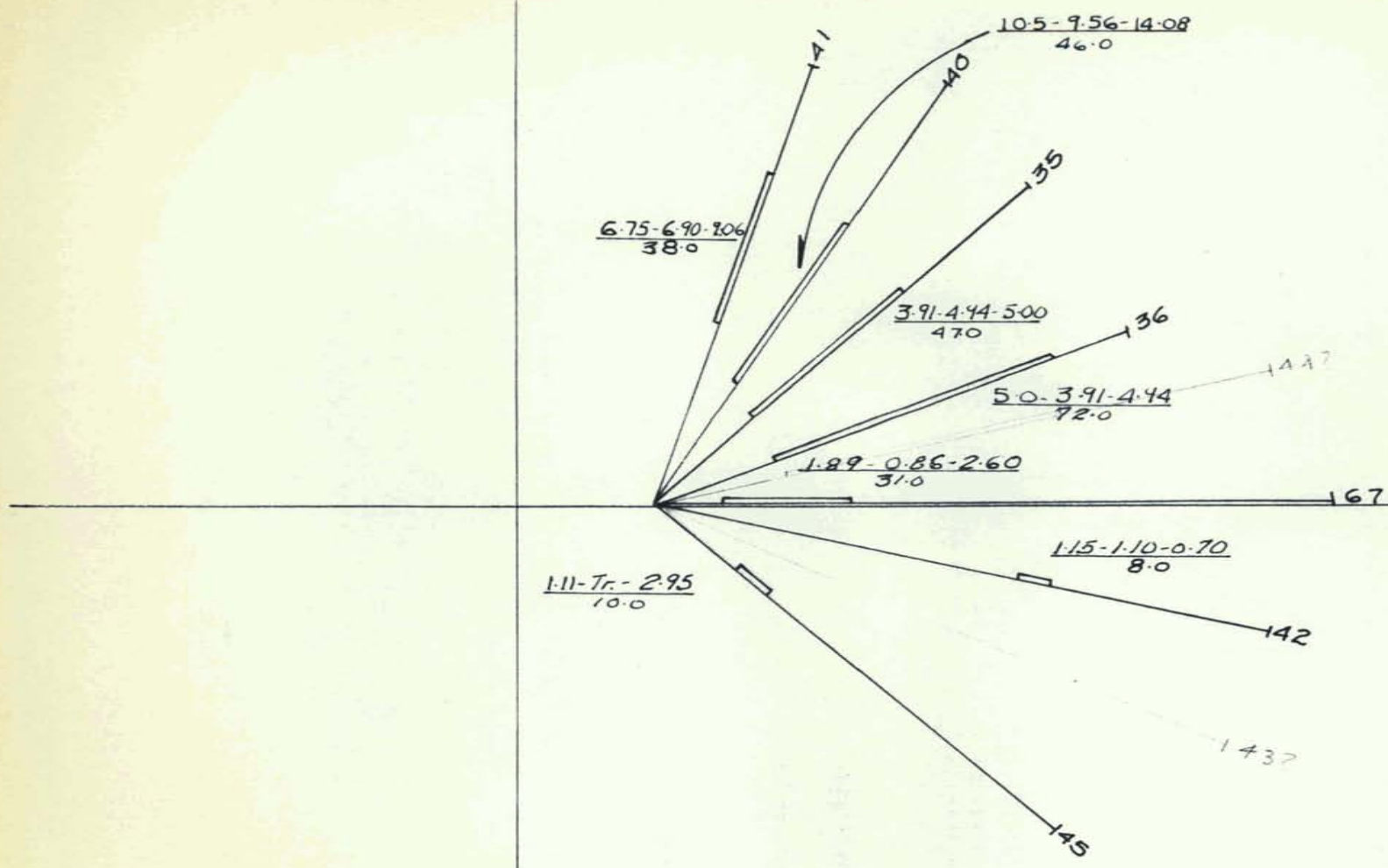
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SECTION 1

1" = 40'

W

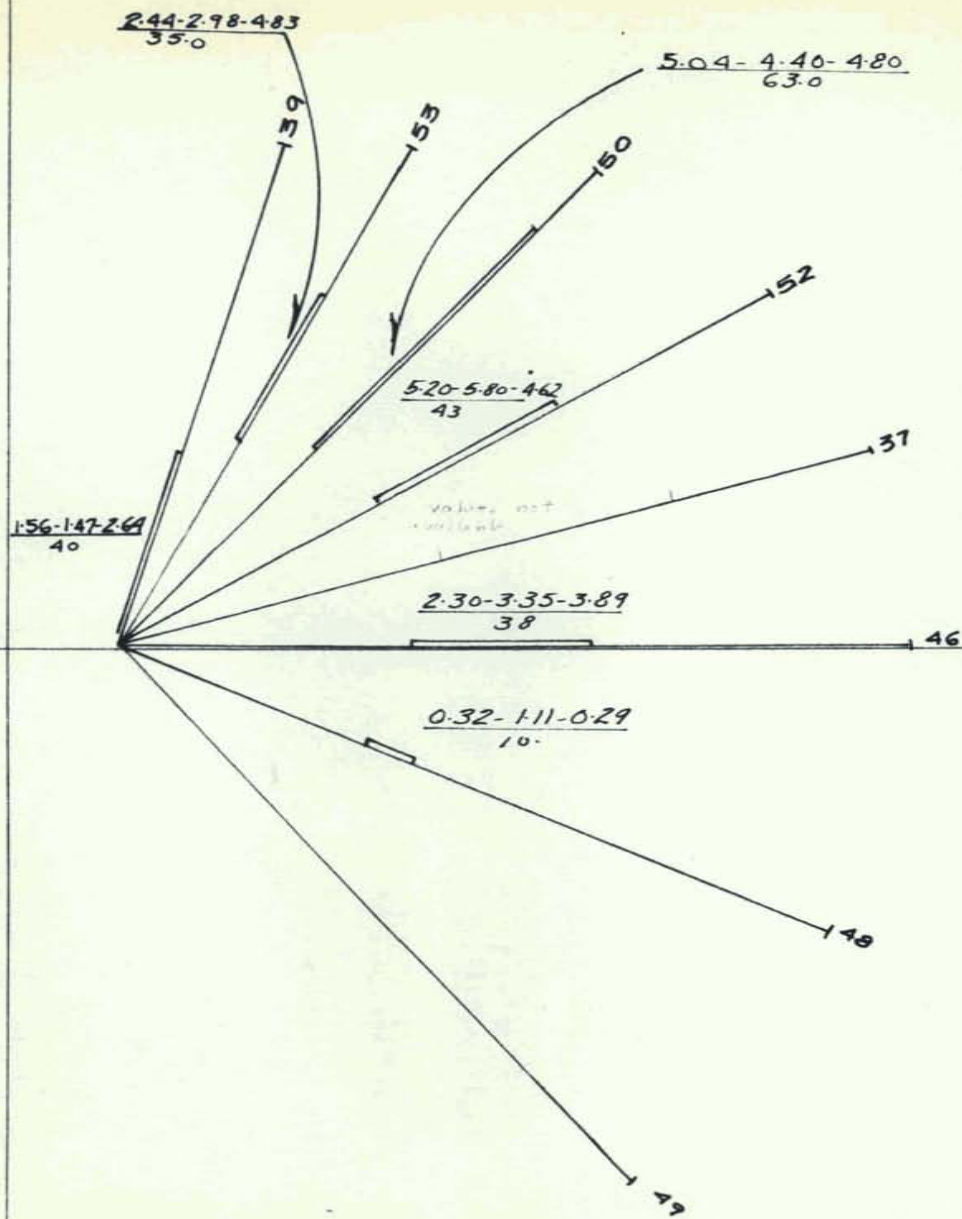
E



COLUMBIA RIVER MINES LTD
SECTION 2
1" = 40'

W

E



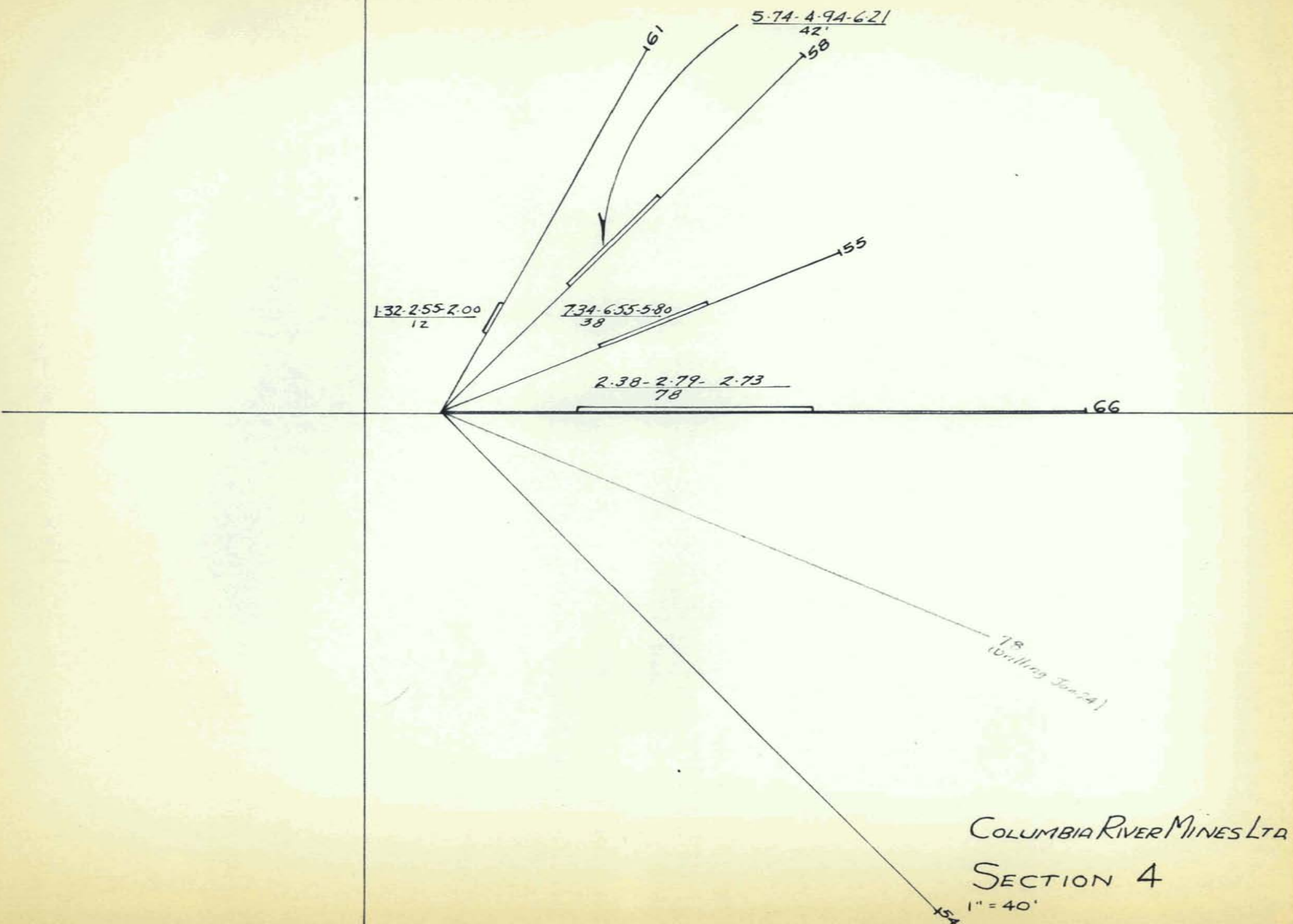
COLUMBIA RIVER MINES LTD.

SECTION 3

1" = 40'

W

E



132-255-2.00
12

734-655-5.80
38

2.38-2.79-2.73
78

5.74-4.94-6.21
42'

166

78
(Drilling Jan 24)

COLUMBIA RIVER MINES LTR

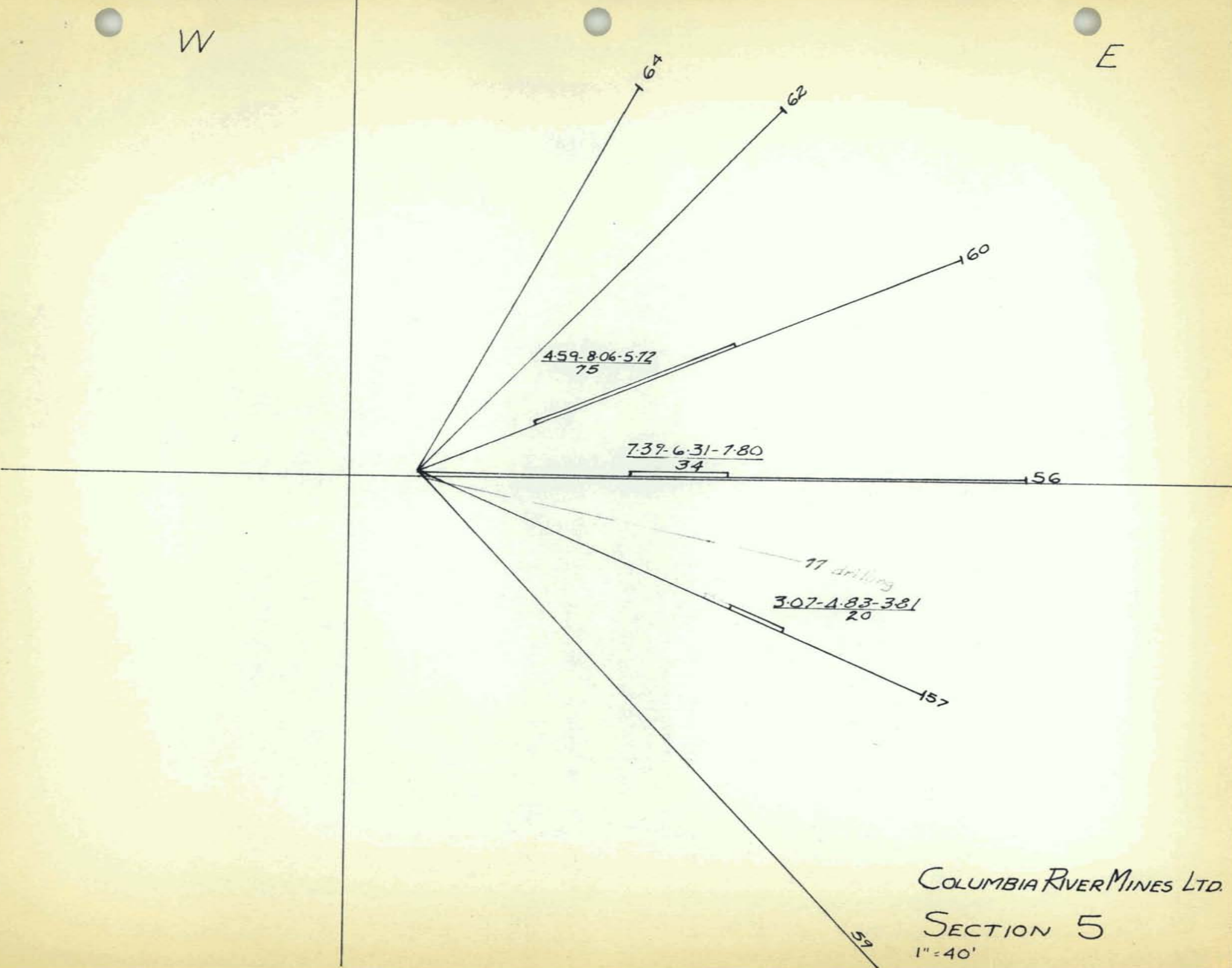
SECTION 4

1" = 40'

154

W

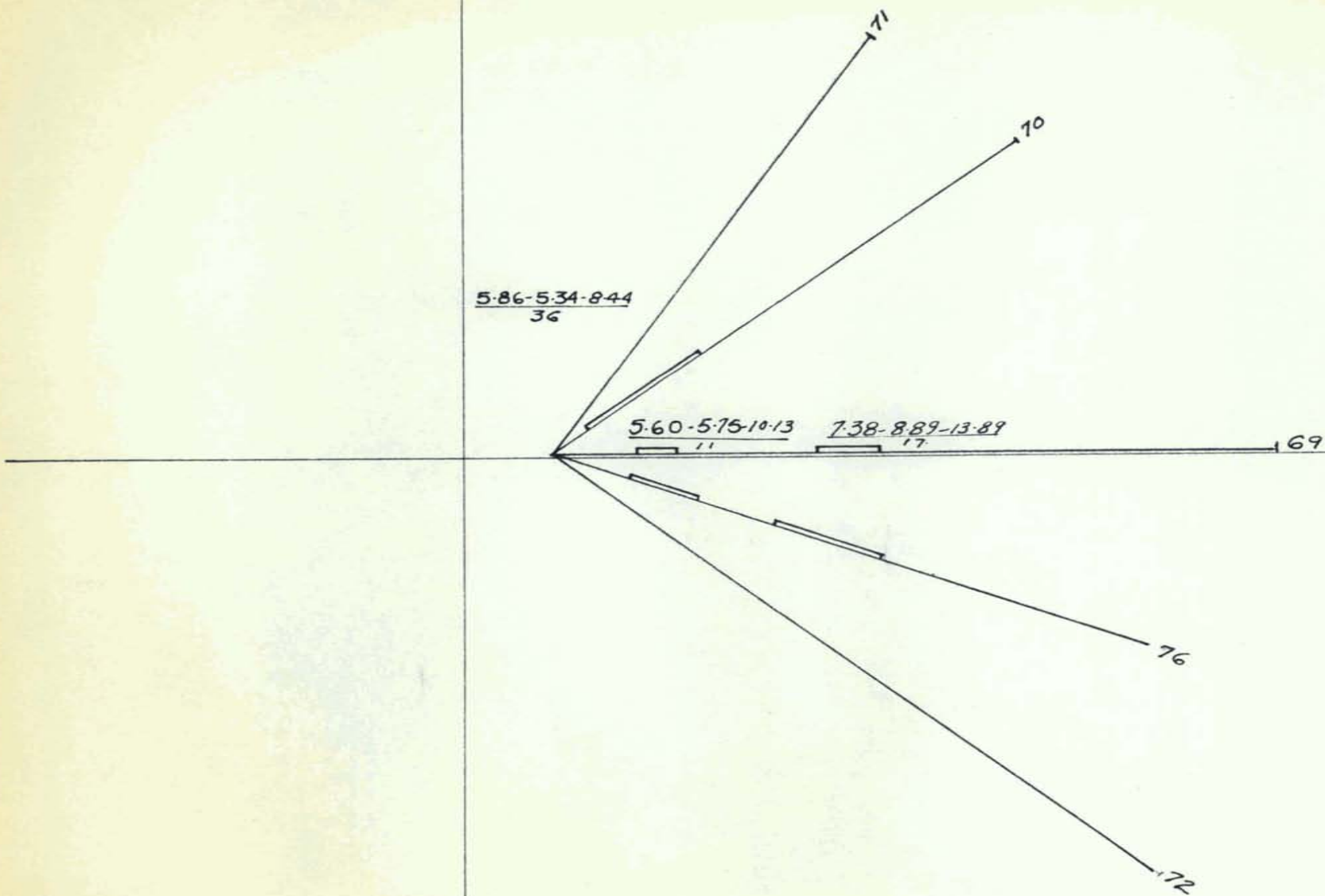
E



COLUMBIA RIVER MINES LTD.
SECTION 5
1" = 40'

W

E



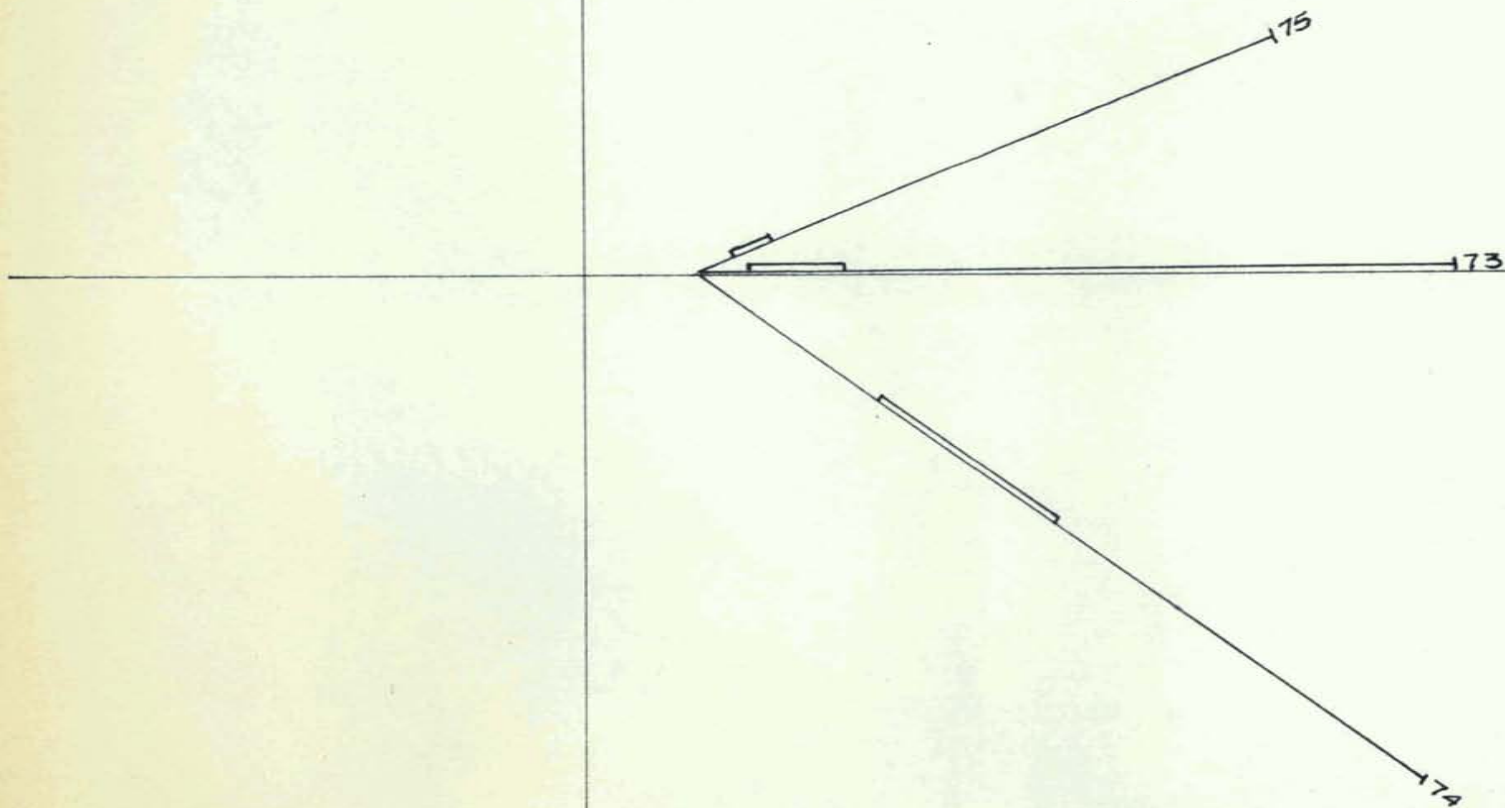
COLUMBIA RIVER MINES LTD

SECTION 6

1" = 40'

W

E



COLUMBIA RIVER MINES LTD.
SECTION 7
1"=40'