

SABINA INDUSTRIES LTD.
DUNGANNON EXPLORATIONS LTD.

GEOLOGY & ORE POTENTIAL
HEWITT-VAN ROI PROPERTY
SILVERTON AREA, B.C.

W.M.Sharp, P.Eng. September 1977

801300

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September 26, 1977

Mag. Deflect. N 21° E

British Columbia Securities Commission
Bank of British Columbia Building
756 Fort Street
Victoria, B.C.

Gentlemen:

RE: "REPORT - GEOLOGY, ORE POTENTIAL, & PRO-
POSED DEVELOPMENT OF THE HEWITT-VAN ROI
PROPERTY, SILVERTON AREA, SLOCAN MINING
DIVISION, BRITISH COLUMBIA"

The undersigned hereby gives his consent to the use of the full report, or of its initial sections "SUMMARY & CONCLUSIONS/ESTIMATED COSTS" by Sabina Industries Ltd./Dungannon Explorations Ltd. for the purpose of providing public information concerning the property, the currently recommended work program, and cost estimates relating to the latter.

In connection with the above, the writer would appreciate having the opportunity to review extracts and/or independent summaries or evaluations of the report by the client or other interested parties.

Yours truly,


W.M. Sharp, P.Eng.


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September 26, 1977

Sabina Industries Ltd. &
Dungannon Explorations Ltd.
c/o Mr. John K. Campbell
1275 Two Bentall Centre
555 Burrard Street
Vancouver, B.C. V7X 1J6

Gentlemen:

Pursuant to your instructions, the undersigned hereby transmits his "REPORT -- GEOLOGY, ORE POTENTIAL, & PROPOSED DEVELOPMENT OF THE HEWITT-VAN ROI PROPERTY, SILVERTON AREA, SLOCAN MINING DIVISION, BRITISH COLUMBIA."

The information contained in this report derives from the writer's January 6-9 examination, the writer's files on the Slocan area, Provincial and Federal government reports, and information provided by Mr. Frank Pho of New Denver, B.C.

With this, the writer thankfully acknowledges Mr. Pho's field assistance and general contributions in regard to the content of this report.

Yours truly,



W.M. Sharp, P. Eng.

REPORT
GEOLOGY, ORE POTENTIAL, &
PROPOSED DEVELOPMENT
OF THE
HEWITT-VAN ROI PROPERTY
SILVERTON AREA
SLOCAN MINING DIVISION
BRITISH COLUMBIA
(49°56'N, 117°18'W - N.T.S. - SHEET 82F/14W)

for

SABINA INDUSTRIES, LTD. &
DUNGANNON EXPLORATIONS, LTD.

of

TORONTO, ONT. & VANCOUVER, B.C.

by

W.M. SHARP, P.ENG.
NORTH VANCOUVER, B.C.

September, 1977

I N D E X

	<u>Page</u>
SUMMARY & CONCLUSIONS- - - - -	1
RECOMMENDATIONS- - - - -	2
ESTIMATED COSTS- - - - -	3
INTRODUCTION - - - - -	3
LOCATION, ACCESS & MINE WORKINGS - - - - -	4
PHYSICAL FEATURES & CLIMATE- - - - -	5
PROPERTY:- - - - -	5
(a) Claims - - - - -	5
(b) Title & Operating Agreements - - - - -	7
(c) Operating Facilities - - - - -	7
HISTORY & PRODUCTION RECORD- - - - -	7
GENERAL GEOLOGY- - - - -	9
DETAILED GEOLOGY:- - - - -	9
(a) Hewitt 10-West Adit- - - - -	9
(b) Hewitt Lower Easterly Workings - - - - -	10
CURRENT SAMPLING RESULTS - - - - -	12
CURRENT ORE RESERVES:- - - - -	13
(a) Lower East Hewitt- - - - -	13
(b) Hewitt-Van Roi Lode- - - - -	13
PRELIMINARY PRODUCTION ESTIMATES - - - - -	14
CERTIFICATE- - - - -	15

REPORT DRAWINGS:

Figure 1,	INDEX MAP- - - - -	bound with text
Figure 2,	PROPERTY, WORKINGS & GEOLOGY - -	" " "
Dwg. No. 1,	PLAN & LONGITUDINAL-VERTICAL SECTION, WORKINGS & ORE ZONES- - - - -	in pocket
Dwg. No. 2,	PLAN & LONGITUDINAL-VERTICAL SECTION: WORKINGS, GEOLOGY, & MINERALIZATION - - - - -	" "
Dwg. No. 2-A,	CROSS-SECTIONS ON VEIN SYSTEM- - - - -	" "

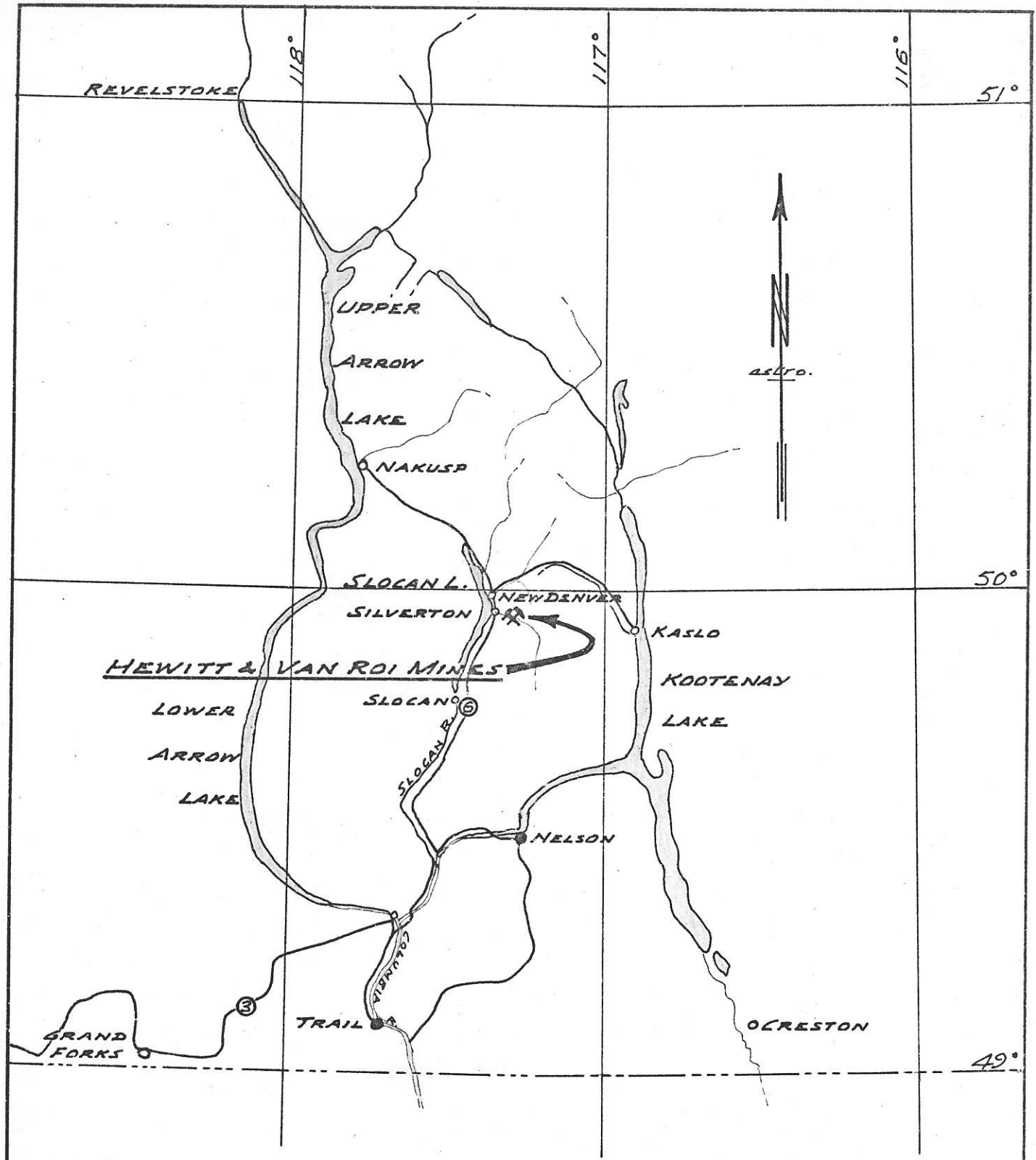


FIG. 1 - INDEX MAP

HEWITT & VAN ROI MINES

SILVERTON AREA - SLOCAN MIN. DIV., B.C.

1 IN. = 20 MI.

SEPT., 1977

W. M. SHARP, P. ENG



SUMMARY & CONCLUSIONS

The adjoining Hewitt and Van Roi ore deposits were discovered and staked prior to the year 1900. Since then both properties have undergone extensive underground development and have been important producers of silver-lead-zinc ore. Recorded production of the Hewitt mine is at least 120,000 tons of ore averaging 16.0 oz/ton Ag, 1.7% Pb, and 15.5% Zn; that from the Van Roi, principally as 'milling ore', amounted to some 300,000 tons averaging 7.6 oz/ton Ag, 2.5% Pb, and 2.2% Zn.

The properties locate about 3 air-miles southeast of Silverton, B.C. on the east shore of Slocan Lake, and are reached by 6 miles of well-graded secondary road.

The consolidated Hewitt and Van Roi properties, according to the writer's records, consist of 42 contiguous Crown-granted full-sized and fractional mineral claims; all appear to be in good legal standing. These comprise one claim block with an east-west extent of about 3 miles, and adequately cover the developed and potentially productive intervals of the through-going Hewitt-Van Roi Lode. The present focus of proposed development is on lateral and depth extensions of the Hewitt East ore zone -- principally below no's. 9 and 10 levels.

The Hewitt-Van Roi Lode, comprising two to three and locally more fissure veins, trends easterly to northeasterly and dips at an average 70° north. The 'Main' vein of the lode has been mined over widths which generally range between 4-6 ft. and, locally, 20 ft. Ore minerals consist of argentiferous galena, sphalerite, and grey copper in a gangue of brecciated and silicified wall rocks, quartz, and minor siderite. The lode occurs in more-or-less contact-altered quartzites and argillites of the Slocan Series which bound the north contact of the Slocan batholith. The better ore sections occur within sinuously-striking vein segments --- particularly where they cut across folded bedding assemblages.

The writer's current estimate of ore reserves includes:

1. Lower East Hewitt Section:

(a) Indicated - 4370 tons @ 19.0 oz/ton Ag, 3% Pb, 7% Zn

(b) Possible - 5300 tons @ 15.0 oz/ton Ag, 2.3% Pb, 6.4% Zn

2. Hewitt-Van Roi Section:

Potential - 120,000 tons @ 12 oz/ton Ag, 2% Pb, 9% Zn.

Frank's who sees 5400 tons remaining in Lenningsham ore shoot (70' x 10')

The writer's preliminary production estimate, relating to the development and mining of an initial 2,000 ton block of ore from the Cunningham ore shoot is as follows:

Net Revenue per ton milled - - - - -	\$83.77	<i>after 22 milling charge</i>
Less Direct Production Costs - - - - -	<u>33.24</u>	
Net Cash Flow - - - - -	\$50.53	per ton
Less: Development costs/ton	\$13.55	
Admin., Eng., Taxes, etc.	<u>6.50</u>	<u>\$20.05</u>
Indicated Cash Flow - - - - -	<u>\$30.48</u>	per ton

The above estimate indicates that the proposed mining operation, efficiently conducted, could return a substantial profit. An increase of the currently estimated rate of production, if warranted by ore reserves, could result in reduced unit mining costs --- with a corresponding increase in the profit per ton produced. In view of the indicated profitability of even a small-scale mining operation, the writer believes that the program recommended below is fully warranted.

RECOMMENDATIONS

STAGE I - Continued

- (a) Winze sinking and timbering to Sta. 13+90' completed.
- (b) Drive access x-cut from Sta. 13+90' to vein.
- (c) Drive development drift on vein from Sta. 13+90'.
- (d) Excavate initial stope cut (raise).
- (e) Provide for sub-drift at Sta. 13+50'.
- (f) Mine and deliver 2,000 tons of ore to stockpile.
- (g) Load and haul 3,000 tons of development plus stope ore to mill.

STAGE II

Explore strike and dip extensions (9 Lev. - 14 Lev.) of Hewitt vein-system eastward of Cunningham ore shoot.

STAGE III

Explore 8 Lev. - 12 Lev. interval of West Ore Zone from 10-Lev. horizon.

*Milling cost not included because significant figure in net revenues.
 returns paid by Silvana Mines. Frank estimator milling
 cost @ approx \$2200/ton Dec/77*

ESTIMATED COSTS

STAGE I

(a)	Completed		
(b)	Cross-cut, untimbered	- 50' @ \$100/ft.- - - - -	\$ 5,000
(c)	Drift, "	- 80' @ \$100/ft.- - - - -	8,000
(d)	Raise, "	- 10' @ \$100/ft.- - - - -	1,000
(e)	Sub-drift, Min. timber	- 80' @ \$100/ft.- - - - -	8,000
(f)	Mine, tram and truck to s.p.	- 2,000 tons @ \$13.25/ton - -	26,500
(g)	Load and truck	- 3,000 tons @ \$ 5.00/ton - -	15,000
(h)	Provision for extras, overhead, and general contingency @ 20%	- - - - -	<u>12,700</u>
	TOTAL, STAGE I		<u>\$76,200</u>

STAGE II

Provision for d.d. drifts & x-cuts	- 400' @ \$80/ft.-	\$32,000
Provision for prep. of d.d. stations	- - - - -	2,000
Diamond drilling -- estimate	2,500' @ \$15/ft. gross	37,500
Provision for extras, overhead, and general contingency, 15% approx.		<u>10,500</u>
TOTAL, STAGE II		<u>\$82,000</u>

STAGE III

Provision for rehab. & mine services		\$ 5,000
Drift to, and through West Ore Zone	- 1,000' @ \$95/ft.	95,000
Dia. Drill x-cuts - estim.	2 @ 250' - 500' @ \$80/ft.	40,000
Dia. Drilling - estim.	1,500' @ \$15/ft.	22,500
Provision for extras, overhead, and general contingency, 15% approx.		<u>24,000</u>
TOTAL, STAGE III		<u>\$186,500</u>

Respectfully submitted,

W.M. Sharp
 W.M. Sharp, P. Eng.

INTRODUCTION

Since the year 1900 the adjoining Hewitt and Van Roi properties have undergone extensive underground development and become major Slocan producers of silver-lead-zinc direct smelting and milling ores. Small shipments of direct smelting ore have returned up to 600 oz. of silver per ton. Both properties situate on the same major through-going lode on which ore shoots have been mined or partly developed over a vertical range exceeding 1,500 ft.

The writer examined accessible workings on the Hewitt section of the consolidated properties during the period January 6-9, 1977. The examination included a preliminary general inspection of the workings, detailed mapping of the workings and underground geology, and chip-channel and grab-sampling of available vein exposures. Concurrent 'office work' included inspections, studies, and compilations of such background data and drawings as were available at New Denver. In all of the foregoing work the writer was willingly and ably assisted by Mr. Frank Pho of New Denver, B.C.

The following publications, which comprise the principal sources of information on the geology and mining properties of the Slocan mining camp, provided some of the general information in this report:

- G.S.C. Memoir 173, 1934, by C.E. Cairnes
- " " 184, 1935, " " "
- B.C.D.M. Bull. No. 29, 1952, by M.S. Hedley
- B.C. Department of Mines Annual Reports 1930-1960.

LOCATION, ACCESS, & MINE WORKINGS

The mean location of the properties is about three airmiles southeast of Silverton and approximately one mile south of Silverton Creek.

Hewitt 10 @ 3900' el. approx.

The Hewitt/Roi mine workings extend between elevations 3,500 and 5,400 ft. Hewitt 10-level and Van Roi 9-level are the present "working levels".

From Silverton and Highway 6 the west and east portals, respectively, of Hewitt 10-level are reached by 5-6 miles of well-located mine road. The portal of Van Roi 9-level is reached via a 1-mile continuation of this same road.

The Hewitt-Van Roi lode interval has been explored and developed from crosscuts and drifts driven at successively lower 'levels' of the structure. Most of the workings

above Hewitt 10-level and Van Roi 9-level are only partly accessible or totally inaccessible. The currently-proposed mining operation locates below Hewitt 10-level, and the exploration program would test the lode above and below this level of the mine.

PHYSICAL FEATURES & CLIMATE

The mine area is situated within a moderately rugged part of the Slocan section of the Selkirk Mtns. Over the claim group the gross topographic relief is nearly 3,000 ft.; however, ground slopes are only very locally too steep for foot travel. Patches of dense bush and brush probably comprise the most frequent and formidable obstacle to ground-based field work in the general mine area.

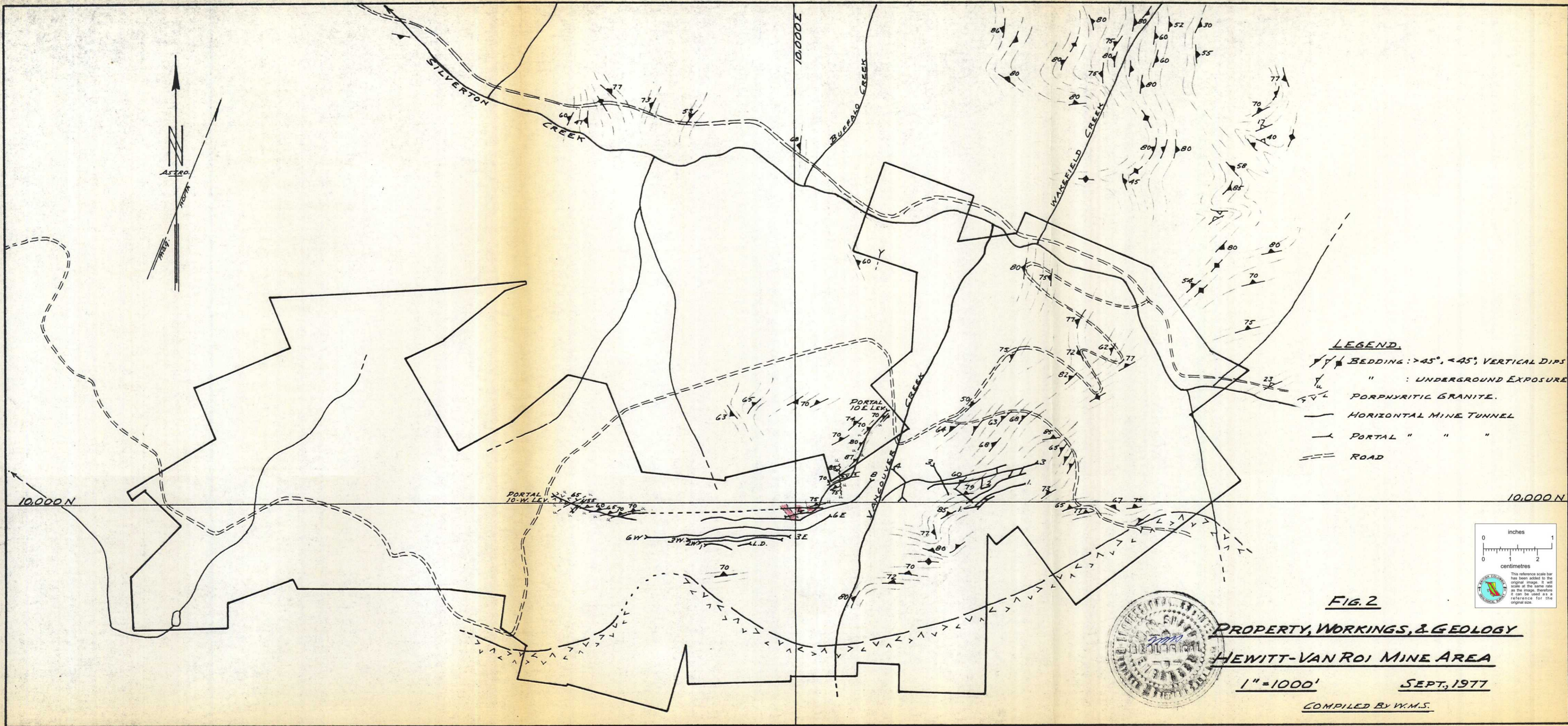
A heavy mantle of overburden is prevalent over this north-sloping part of the Silverton Creek valley, including the Hewitt-Van Roi claims area. It generally consists of a few feet to, locally, as much as 30 ft. of compressed clay-till, bedrock fragments, and a capping of raw and humic soil. In addition, most of the area is covered by relatively thick stands of marketable balsam, cedar, spruce, and tamarack -- mostly accompanied by dense growths of willow and alder underbrush.

The local climate is typically moderate, like that of the general West Kootenay region. Also, the annual precipitation is relatively heavy, with this mainly occurring as snow between late October and mid-April or early May. Individual snowfalls may amount to 2 or 3 ft., and during some relatively more severe winters frequent clearing of the mine roads and portal areas may be required. The depth of the snow cover during the writer's recent January visit amounted to less than 18 inches at the Hewitt 10-level, or 3,900 foot elevation.

PROPERTY

(a) Claims:

The property consists of 42 Crown-granted standard and fractional mineral claims. All are contiguous, and together comprise a block of sufficient area to cover any possible major strike and dip-extensions of the Hewitt-Van Roi lode-system beyond the existing workings. The east-west, or 'strike'-length of the block is about 3 miles. The constituent mineral claims, per Schedule "A", Indenture of Lease dated Dec. 31, 1976 between Arjan Pacific Ltd. and Frank Pho, are as follows:



LEGEND.

- BEDDING: >45°, <45°, VERTICAL DIPS
- UNDERGROUND EXPOSURE
- PORPHYRITIC GRANITE.
- HORIZONTAL MINE TUNNEL
- PORTAL " " "
- ROAD

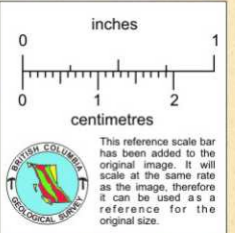


FIG. 2
PROPERTY, WORKINGS, & GEOLOGY
HEWITT-VAN ROI MINE AREA
 1" = 1000' SEPT., 1977
 COMPILED BY W.M.S.

(a)	Lots:	739	Vancouver No. (1)
		740	Mountain Boomer
		741	Zilor
		2297	Silver Star
		2298	Pelly
		2299	Napier
		2300	Ricardo
		2900	Vancouver Fraction
(b)	Lot	2617	Burnside
(c)	Lots:	6527	Moccasin Fraction
		6528	Mackinaw
		10051	Burr
		10052	El Camino No. 2
		10053	Tramway No. 2 Fractional
(d)	Lots:	1401	Lorna Doone
		1402	Prior
		3367	Penobscott
		4441	Lorna Doone Fractional
(e)	Lots:	1397	Hazard
		1398	New Park
		1399	Pembroke
		1400	Hazard Fraction
(f)	Lots:	14175	Edith Fraction
		14420	Sam Fraction
		14421	Bessie Fraction
		14422	Eliza Fraction
		14423	Lottie Fraction
		14424	S.O.B.
		14425	March
		14426	Desperation
		14427	Apex Fraction
(g)	Lot	10594	Van Rei Fractional
(h)	Lot	14428	Marjorie Fraction
(i)	Lot	2228	Humboldt
(j)	Lots:	3362	Ricon Fractional
		3363	Ricon
		3364	Mole
		3366	Tranquility
		4440	Hewitt
		3365	Crow Fractional
(k)	Lots:	14426	Desperation
		14427	Apex Fraction

All claims situate within the Slocan Mining Division, Kootenay District, British Columbia.

(b) Title & Operating Agreements:

No longer holds claims - Frank says J.C. group bought them.
Arjan Pacific Ltd. of Vancouver, British Columbia, a B.C.-incorporated company, holds title to the mining property and all appurtenances, free and clear of all encumbrances.

Arjan Pacific Ltd. granted a (direct) lease to Mr. Frank Pho, miner, of New Denver, B.C. in accordance with the conditions and stipulations noted in the 'Indenture' dated 31st day of December A.D. 1976. The principal conditions and stipulations involve tenure, property payments, and work commitments.

Sabina Industries Ltd./Dungannon Explorations Ltd. have assumed rights and responsibilities as specified in the lease granted to Mr. Frank Pho by Arjan Pacific Ltd.

(c) Operating Facilities:

The serviceable fixed plant comprises the track and pipe-equipped 10-level adits and shaft, compressor house, dry, and equipment repair shed at the Hewitt 10-E portal site, roads, and water rights. The portable mine plant, comprising the required mining machinery, equipment, and tools, are provided by Mr. F. Pho.

Ore trucks, loaders, and a modern flotation mill for hauling and concentrating the local ores are available, on a toll and/or contract basis, in the New Denver-Silverton area. Also, a good variety of supplies and services are locally available. Most of basic requirements in mining machinery and supplies may be obtained from Nelson, B.C. --- the latter at some 65 miles by paved highway from Silverton, B.C.

HISTORY & PRODUCTION RECORD

Mineralized outcrops of veins related to the same through-going lode were discovered and staked on both the Hewitt and Van Roi intervals of it in 1892. Since then, except during rather brief periods of amalgamation, the Hewitt and Van Roi properties were separately owned by a succession of mining groups who operated them -- mainly during periods of higher average metal prices.

Development of the Hewitt claims commenced in 1896, and shipments of hand-sorted ore commenced shortly thereafter --- some containing up to 600 oz/ton silver and 20% lead (zinc

not reported, some discarded). During 1901-02 shipments amounted to 2,670 tons which averaged about 59 oz/ton silver and less than 1% lead (zinc not reported).

To the end of 1926 production from the Hewitt section of the lode, based on incomplete production records, totalled 93,000 tons of ore averaging about 14 oz/ton silver, slightly over 1% lead, and 18% zinc. Total reported ore production from the 'Van Roi' section of the lode to the end of 1926 amounted to 262,000 tons with an average grade exceeding 8.02/ton silver, 2.6% lead, and 2% zinc --- including a major proportion of 'milling grade' ore.

The Hewitt mine was explored, developed, and mined by a succession of companies and leasers at intermittent periods until 1971. The operating and mining groups included the Victoria Syndicate (1926-30), various lessors (1935-46), Granby Company (1946-47), Van Roi Consolidated Mines Ltd. (1950-52), Slocan Van Roi (1958-59), followed by various leasers, including F. Pho until 1970. During 1926-70, gross ore production amounted to:

26,800 tons averaging 24 oz/ton silver, 4.2% lead, 6.8% zinc --- principally from the Main vein in the East ore zone, between no's. 9 and 13 levels.

Since late 1972 Arjan Pacific Ltd. have controlled the amalgamated Hewitt and Van Roi properties, and have granted leases to successive small leasing groups, including and most recently, F. Pho, between East Hewitt 10-13 levels.

Very little activity occurred at the Van Roi property between 1926 and 1947. In 1947 Van Roi Mines Ltd. became the operating company, and until 1950 developed and mined a modest tonnage of ore in the upper S.E. section of the workings. Following the consolidation of the Hewitt and Van Roi properties in 1950, the Van Roi ground was subjected to a more intensive program of exploration, development, and mining; also, a 100 t.p.d. flotation mill was constructed to handle the production from both properties. However, due to a combination of low ore grade and lower metal prices, full-scale operations were terminated in 1952. Between 1952 and 1960 leasers extracted a few thousand tons of higher grade ore at the Van Roi mine. Since 1960 no mining has been accomplished. During 1971, the Hewitt mapping program was extended into Van Roi ground. Gross ore production from the Van Roi since 1926 amounted to 38,300 tons averaging 5 oz/ton silver, 2.2% lead, and 3.5% zinc.

GENERAL GEOLOGY

Hewitt-Van Roi Lode System:

The lode system comprises one of the major ore structures of the district, in that it can be traced from the Galena Farm property on the west, through the Hewitt and Van Roi properties, thence east-northeastward through Granite Creek --- suggesting a total length of considerably more than 4 miles. The lode lies mostly within sediments of the Slocan series, close to the E-W trending northern contact of the Nelson batholith.

The Hewitt interval of the lode, amounting to about 3,000 feet, comprises a zone of shearing and fissuring over a width of about 100 feet. The Composite structure trends easterly and dips on the average, about 70° north. The lode contains at least three distinct fissure-veins. Of these the 'Main' vein, formerly designated the 'North' vein, has proved to be the most continuous and productive, and within the Hewitt workings has been mined over widths ranging from 4 to 20 feet.

The easterly, but locally cross fault and fold-interrupted extension of the lode into Van Roi ground is structurally similar to the Hewitt segment. However, over its 3,000 foot extent within the Van Roi mine it generally comprises two, rather than three productive members, trends east-northeasterly, and has an average dip of about 75° north. Within both mines the lode-filling consists of wall rock breccia in a matrix of quartz and, locally, minor siderite. The ore minerals, occurring in bands or scattered throughout the gangue, comprise galena, sphalerite, grey copper, and ruby silver.

Wall rocks are mostly an assemblage of compact but generally brittle quartzites and argillites and more-or-less limy intergradations of these rock types. The best vein mineralization appears to have been developed where the lode cuts across (folded) sections of bedding, rather than where it nearly parallels them. Within the East ore zone of the Hewitt mine ore has, to date, been stoped over a vertical range of 1,200 feet, and a significant extension of the ore shoot below the present bottom, or 13th level is expected. All ore shoots thus far mined within the Hewitt-Van Roi lode interval rake steeply westward.

DETAILED GEOLOGY

(a) Hewitt 10-West Adit:

The initial 950 ft. of this tunnel bears E.S.E.; its inner 550 ft. starts on an E.N.E. bearing but finishes on an easterly bearing to parallel the strike of the local bedding

section and, presumably, the local trend of the lode. Its inner end (south branch) is blocked by a cave which, apparently, is the result of sluffing of gouge at either the actual hanging wall of the lode or from a flatly-dipping fault which may locally cut (and displace ?) it.

The initial part of the tunnel crosscuts sections of coarse-grained granodiorite and strongly bedded, but locally thinly-banded Slocan sediments. The latter, due to their proximity to the main batholith, have all been altered to some degree --- resulting in an assemblage of hard to firm-competent quartzitic to hornfelsic rocks. The general attitude of the innermost (lode) panel of bedding is fairly indicative of the attitude of the lode in this part of the mine. From this, the writer infers an easterly strike and 65° - 70° northerly dip for the lode both here and for at least part of its length within the 'West' ore zone. This particular strike and dip relate to productive areas of the Main lode within higher parts of the West ore zone and within the lower easterly section of the mine. Consequently, there is a fairly strong probability that significantly mineralized areas of the lode exist within the general 10-level horizon of the West ore zone.

(b) Hewitt Lower Easterly Workings:

No. 10 East adit was started in 1928. It was collared on the steep hillslope, at approximately 200 ft. west of Vancouver Creek, and at about 1,000 ft. north of the projected position of the lode at this elevation. From this point it was driven on a general southwesterly course to intersect the depth extension of the lode below 9-level. After an advance of some 1,800 ft., and some 60 ft. beyond an initial vein intersection, the crosscut intersected fracturing and veining which was interpreted as the dip-extension of the 'Main' vein from 9-level. From this point the adit was turned westward and driven for approximately 1,000 ft. As a result some excellent Ag-Pb-Zn ore, comprising the 200 ft. dip-extension of the Cunningham orebody below 9-level, was located. The strongest section of this was opened over a length of 110 ft. and widths ranging from 5 to 15 ft. As a result of a closure of the mine in 1930 a start on the development and mining of the 10-9 level part of the oreshoot did not take place until 1946.

Exploration and development of the Main vein below 10-level commenced in 1955. For this a hanging-wall lateral, collared on the initial vein intersection made by the 1,800 ft. crosscut, was driven on a $N 80^{\circ} W$ bearing for about 1,020 ft. From the inner end of this lateral the sub 10-level extension of the Cunningham ore shoot was located by diamond drilling. This was subsequently developed by means of a winze, with the necessary crosscutting and drifting done from shaft stations at approximate 100 ft. intervals. To the end of 1976 the ore shoot had been mined to the 13th level, and since then the

winze has been extended towards the 14th level. The available records indicate that production from the 10-13 level interval of the Cunningham ore shoots totals about 14,500 tons @ 15.8 oz/ton silver, 3.2% lead, and 5.1% zinc.

To date the strike extensions of the Main vein below 10-level, outside of the Cunningham orebody, have not been explored to any significant extent. Also, as the depth extensions of the Main lode below 8-level west and 9-level east are almost totally unexplored, it is apparent that some major exploration opportunities are present within both the Hewitt and Hewitt-Van Roi intervals of the structure.

A sparsely mineralized quartz vein at some 60 ft. north of the Main vein was exposed by the 1,800 ft. 10-E crosscut. This was well exposed by the 10 lev. hangingwall lateral over the initial part of its advance from the crosscut. This structure, currently designated as the 'North' vein, maintains a near-vertical dip throughout 10-level, and on its westerly course gradually bends into the south wall of the lateral. A 120 ft. easterly segment of it, investigated by a series of stub-crosscuts and raises, contains sparse to moderate amounts of pyrite, sphalerite, and galena. Bands, patches, and specks of the sulphides occur in fractured quartz which is more-or-less strongly veined by siderite. A fault which cuts across the lateral closely west of the innermost test raise apparently offsets the westerly continuation of the North vein some 20 ft. southward --- where it has been partly developed in the drift between the hangingwall lateral and Main drift. Limited stopping within this segment of the North vein strongly suggests that the better opportunities for finding ore-grade mineralization lie on its down-dip extensions. Its down-dip extensions, and to a lesser extent its extensions above 10-level and westward, present a particularly favourable drill target within the Hewitt East ore zone.

On its course through and beyond the E. Hewitt mine workings the lode bends from an easterly to east-northeasterly strike, and continues on this course up to and through the Van Roi workings. Within this interval the lode probably makes acute to oblique intersections with complexly folded panels of its sedimentary wall rocks -- these comprising favourable structural situations for ore deposition, as illustrated by lode/bedding/ore relationships in the vicinity of the Cunningham ore shoot. The development of the existing pattern of lode fractures appears to have developed as a result of an eastward and downward displacement of footwall ground relative to that on its hangingwall. As a result of this favourable open-space conditions may be expected to occur, as gash-fractured and/or brecciated zones, where the lode bends north from its generally easterly trend and extends east-northeastward across Hewitt-Van Roi interval of the structure.

The rock types and bedding structures mapped, in such detail as was permitted by the time available, along the 1,800 ft. length of the 10-E crosscut apparently relate to a wide panel of complexly folded mixed sediments. Although it has not been explored to date, this 1,500 ft. long interval of the lode, because of the indicated lode/bedding relationships, comprises a favourable major exploration target.

CURRENT SAMPLING RESULTS

The following refer to the writer's sampling of Hewitt East zone vein exposures, as shown on Dwg. No. 2:

<u>No.</u>	<u>Location</u>	<u>Type</u>	<u>True Width feet</u>	<u>Ag, Oz/Ton</u>	<u>Pb, %</u>	<u>Zn, %</u>
1.	North vein, Sta. 2+80'W	Cut	3.3	2.32	0.63	5.45
2.	North vein, Sta. 3+20.5'W	Cut	3.0	2.70	0.10	5.54
3.	North vein, Sta. 8+27'E	Cut	3.0	18.05	2.05	13.40
4.	North vein, Sta. 10+40'E	Grab	10.0	10.60	3.10	6.15

Samples 1 and 2 are indicative of the average grade of mineralization of the (faulted) easterly segment of the 'North' vein. Based on a visual appraisal, the writer infers that the mineralization weakens up-dip, but strengthens down-dip. There is a good possibility that the mineralization strengthens sufficiently in the down-dip direction to comprise ore at a relatively short distance below 10-level.

Samples 3 and 4 are approximately representative of material comprising the westerly (faulted) segment of the North vein. On the basis of the recorded grade of ore recently mined and shipped from the property, samples 3 and 4 represent ore-grade material. It is expected that the ore and generally mineralized vein material within the sill of the working at 10-level will extend to, and possibly through 11-level.

CURRENT ORE RESERVES(a) Lower East Hewitt:

- (1) Cunningham Ore Shoot, 13-13½ level block:
Firmly-Indicated Ore @ 80'x8'x50' @ 12 cu.ft. per ton @ estim. average mined grade in 1976 from 12-13 level block:
2,700 tons @ 22 oz/ton Ag, 3.2% Pb, 5.8% Zn
- (2) Cunningham Ore Shoot, 13½-14 level block:
Possible Ore, @ above tonnage & grade,
2,700 tons @ 22 oz/ton Ag, 3.2% Pb, 5.8% Zn
- (3) West Segment, North Vein, block 10-10½ level.
Indicated Ore @ 80'x5'x50' @ 12 c.f./ton @ cut-avg. of sampled grade:
1,670 tons @ 14 oz/ton Ag, 2.5% Pb, 8.5% Zn
- (4) East Segment, North Vein, block 10-11 level or equivalent.
Possible Ore @ 80'x4'x100' @ 12 c.f./ton @ geol.-indic. grade:
2,600 tons @ 8.0 oz/ton Ag, 1.5% Pb, 7.0% Zn

Summary:

Indicated Ore: 4,370 tons @ 19.0 oz/ton Ag,
3.0% Pb, 7.0% Zn

Possible Ore: 5,300 tons @ 15.0 oz/ton Ag,
2.3% Pb, 6.4% Zn

(b) Hewitt-Van Roi Lode:

The following estimates comprise the writer's tentative assessment of the residual ore potential within the Hewitt and Van Roi lode intervals --- with more definitive estimates pending the completion of the exploratory work recommended in this report. The current estimates are based on the assumption that the following ratios generally apply to the long vertical projection of the Hewitt-Van Roi lode:

$$\frac{\text{Tons Potential Ore}}{\text{Tons Produced to Date}} = \frac{\text{Area of Potential Ore}}{\text{Area Stopped to Date}}$$

and,

Above

=

$$\frac{50}{100}$$

Potential Ore Reserve - Hewitt Mine @ 50% of Past Production
= 60,000 tons @ 16 oz/ton Ag, 1.7% Pb, 15.5% Zn.

Potential Ore Reserve-Van Roi Mine @ 20% of Past Production
= 60,000 tons @ 7.6 oz/ton Ag, 2.5% Pb, 2.2% Zn

On the basis of the tentative estimates of grade the main ore potential would appear to reside in the Hewitt interval of the lode.

PRELIMINARY PRODUCTION ESTIMATES

The following estimates are based on the net returns received from the custom milling of 641.8 tons of ore mined from the 12-13 level block of the Cunningham orebody during 1976; the ore was milled at the Kam Kotia plant at Sandon, B.C.

Proposed initial production		
= 2,000 tons mined ore		
<u>1,000 tons develop. ore</u>		
3,000 tons based on 1976 ore grade		
Returns, Pb Conc. from 641.8 tons ore		\$ 49,775.00
" , Zn " " " " "		<u>15,788.00</u>
Estim. Gross Returns Pb+Zn Conc./641.8 tons ore =		\$ 65,563.44
" " " Pb+Zn "/3,000 " " =		\$ 306,414.00
Estim. Total Deductions/3,000 tons ore:		
Milling, conc. haul, assaying		\$ <u>55,110.00</u>
Estim. Net Mill Returns/3,000 tons ore		\$ 251,304.00
" " " " /unit ore		83.77/ton
Less - Production Costs:		
Mining	\$15.00/ton	
Handling & Trucking	6.00/ "	
Tot. Royalties, @ 8% N.M.R.	6.70	
Contingencies, @ 20% of above	<u>5.54</u>	\$ <u>33.24/ton</u>
Estim. Gross Operating Profit		\$ 50.53/ton
Less: Develop. Costs: \$1,500-54,400	\$13.55/ton	
Admin., Engineering, Taxes, etc.	<u>6.50/ "</u>	\$ 20.05/ton
Indicated Net Operating Profit		\$ 30.48/ton ore

Respectfully submitted,


W.M. Sharp, P. Eng.

September 26, 1977
North Vancouver, B.C.

C E R T I F I C A T E

I, WILLIAM M. SHARP, with business and residential addresses in North Vancouver, British Columbia, DO HEREBY CERTIFY THAT:

- 1) I am a graduate of the University of British Columbia with a M.A.Sc. (1950) degree in Geological Engineering.
- 2) I am a registered Professional Engineer in the Province of British Columbia, Reg. No. 2164.
- 3) I have practiced my profession since 1950 and, as a geological consultant, since 1964.
- 4) I personally examined and sampled the accessible underground showings at the Hewitt mine during January, 1977 for Sabina Industries Ltd. and Dungannon Explorations Ltd.
- 5) This report is based on my personal examinations, personal files, public geological reports and maps, and general and technical data provided by Mr. F. Pho of New Denver, B.C.
- 6) I have no direct or indirect interest in the property or securities of Sabina Industries Ltd. or Dungannon Explorations Ltd., nor do I expect to acquire any such interests.

North Vancouver, B.C.
September 26, 1977



10 - E ore zone

Cumingham Slope - Below 10 - level

TEL: BUS. 987-5322
RES. 987-9520

WILLIAM M. SHARP, M.A.Sc., P.Eng.
CONSULTING GEOLOGICAL ENGINEER
1680 LLOYD AVENUE
NORTH VANCOUVER, B.C. V7M 1R6

Cumingham ore sheet

Year	Recorded Production	Ag.	Pb.	Zn.
1950	333 20,49 tons @	42,43 26,200 oz	354.32 123,055 #	445.52 191,520 #
1957	6,500 tons w	83,172	397,000	608,000
1961 -	282 " @	9,123	27,853	48,861
1962 -	625 " "	16,252	43,572	84,673
1964 -	1,372 " "	35,374	105,100	155,878
1965 -	422 " "	6,503	29,855	37,090
1966 -	329 " "	5,070	23,277	28,918
1967 -	5 " "	136	730	484
1970 -	2,243 " "	33,343	149,120	250,760
1976 -	642	13,455	20,253 T. 40,506	(36,842 T.) 73,684
Gross	14,469 tons	228,633 oz	942,068 # 471.03 T	1,479,868 739.93 Ton
	14,469 tons	15.8 oz/ton	3.2 %	5.1 %

appear to be relatively less competent than those

Ag.	Pb.	Zn.
2700 x 22.0 = 59,400	x 3.2 = 8640	x 5.8 = 15,660
1670 x 14.0 = 23,380	x 2.5 = 4175	x 8.5 = 14,195
<u>4370 tons</u>	<u>12,815</u>	<u>29,855</u>
82,780	2.9%	6.8%
19.0 oz	3.0%	7.0%

Hewitt 10-W N.C.

- 0+00 (portal) polyphytic granitic, med ground, pinkish felds.
 - 1+00 " " " " " "
 - 2+60 " " " " " "
 - 3+00 - 1/2" ct argill. band contact / contact w 2nd Tt granitic
N65E, 60W.
 - 3+20, (3+00-3+20) Sill Tt granitic.
 - 3+20-2E, Thin-bedded grey & brown st. argill @ N22°E, 55°W
 - 4+00, Contact act arg / Tt granitic.
 - 4+20 - Contact Tt granitic / act. argill. @ N45E, 52°W.
 - 5+00 (hard & L) act impure (ls?) argill brown, @ N80E, 55°N.
Strongly bedded
 - 6+00 -, Thick layered locally blocky contact act argill @ N65E, 45°N
 - 7+00 E, Contact act (blue & cherty) argill @ N77°E, 60°N
 - 8+00 - " " " " " " @ N80E, 60°N
 - 9+00, Thin to med bedded (well layered) argillites, etc @ N75E, 45°N
 - 10+00, N75E, 65°N, Finely bedded thin to med bedded, blue grey and bluish argill
 - 11+00 E N80E, 60°N - Contact act (bi) argill, etc., generally layered, locally thinly
 - 12+00 N70E, 70°N, " - " " " " " " " " " "
 - 13+00 N80E, 65°N, " ditto -
 - 14+00, N85E, 70°N; Thin to med bedded blocky blue argill
 - 15+00 N80E, 60°N
- * @ much pit (left) on last round by 1965 1975
all + knitted.

Plotted

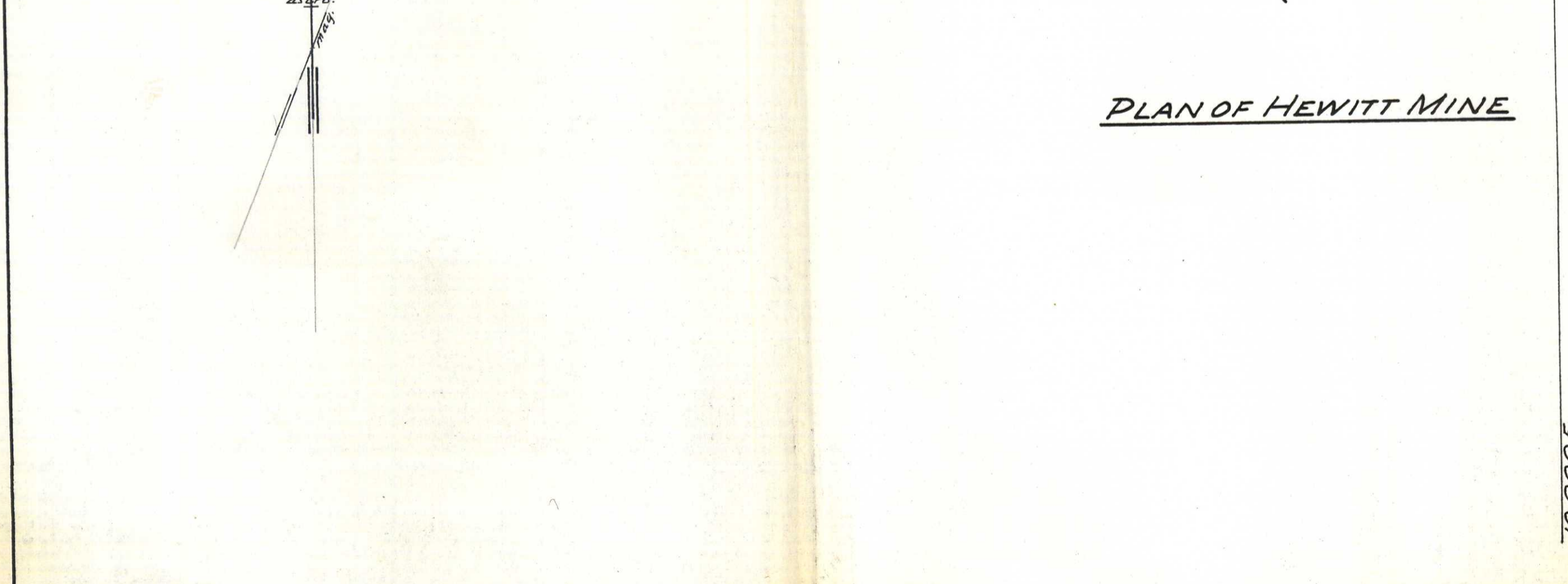
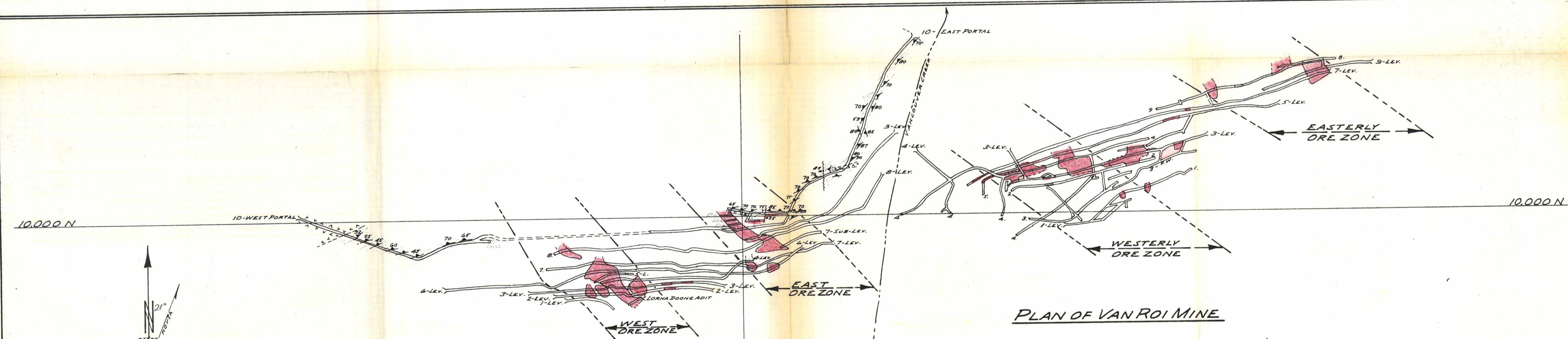
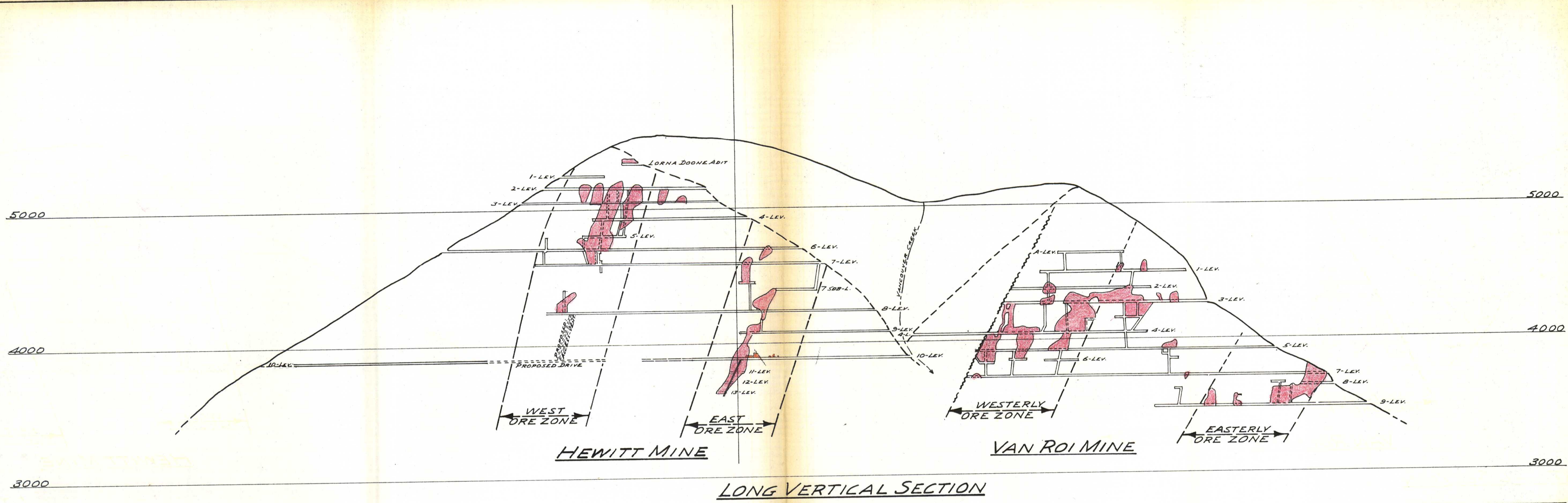
Hewitt 10-W, N-Cat
Sta Survey Bedding
at contact.
granitic facies D.D.
Jan 9/77, W.S. Y.F.P.

X Hewitt 10-E X-Cut.

- 0+00 - part N43E, 70°N Strongly bedded arg / qtz 6"-8"
- 1+00 N42E 70°N " " " " "
- 2+00 N45E 80°N Well bedded (2"-6") black arg / ^{thinner} pale sandy arg.
- 3+00 N40E 80°N " " " " "
- 4+00 N45E 70°N Well bedded (4"-6") pale siliceous / ^{thinner} black arg.
- 5+00 ^(some loc. E-W floor) N35E 85°N Well bedded & siliceous arg / brown arg / blue clay.
- 6+00 L.M. N30E, 80°N - Panel broken - thin bedded black / grey arg.
R.M. N43E 70°N Strongly bedded quartzite arg + arg. w. small flint
- 7+00 N35E 53°N. & broken med broken sil arg + arg.
- 8+00 L.M. N20°W, 85°W. & broken thin bedded sil & little sandy arg.
R.M. N30°W, 80°W. " " " " " "
- 9+00 N45E 87°N, Well layered thin bedded soft grey to hard grey arg.
^(+ loc. white brown - pale green calc. banking)
- 10+00 N45E - 80-90°W (red) well layered thin bedded grey to brown arg. + arg. significant streaks & flouring
- 10+70 - 11+60 Pure gneiss, granitic rock, w. 5 x p texture - bi alt @ cx.
- 12+00 N80E, 75°N. little cx-alt arg, all in browned loc to pale siliceous
- 13+00, Shear N 5°W, 85°W, 2'-4' crushed & broken.
beds on 'part' side = contact thin bedded lt + dk arg.
- 14+00 E-W, 70°N. thin bedded sandy grey & black graph arg.
- 15+00 N70E, 70-75°N., thin to med (inter) bedded black, grey & arg & brown to red
- 16+00 (9. since 15+50) broken contact black / grey arg w. granitic N60E, 75°N
- 16+50, slip. shear. med. siliceous looking laterally in section
- 17+00, N80E, 70-80°N, mixed broken to contact thin to med bedded grey, black, & brown to soft sandy butth to hard cherty / qtz arg.
@ 18' part side of survey S.P.
(or 10' to 20' X-Cut A.)



Plotted
 Hewitt 10-East X-C
 Churn road bedding
 Adit side Part - In
 Hewitt Van Ave
 Jan 9/27
 W.S., with P. the



- LEGEND**
- ON PLAN: DRIFTS & CROSSCUTS: VEIN SEGMENTS SHADED.
 - ON VERT. SECTION: RAISE.
 - EXISTING SLOPE.
 - BEDDING, WITH STRIKE AND DIP: INCL. AREILLACEOUS, QUARTZIC, LIMY, AND MIXED WALL ROCKS.
 - FAULT: WITH STRIKE & DIP.
 - PORPHYRITIC GRANODIORITE.

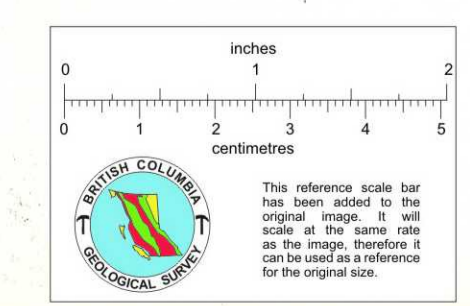
W. M. SHARP, P.Eng. CONSULTING GEOLOGICAL ENGINEER
NORTH VANCOUVER, B.C.

SABINA INDUSTRIES LTD. & DUNGANNON EXPLORATIONS LTD.
HEWITT & VAN ROI MINES
SILVERTON AREA — SLOCAN M.D.

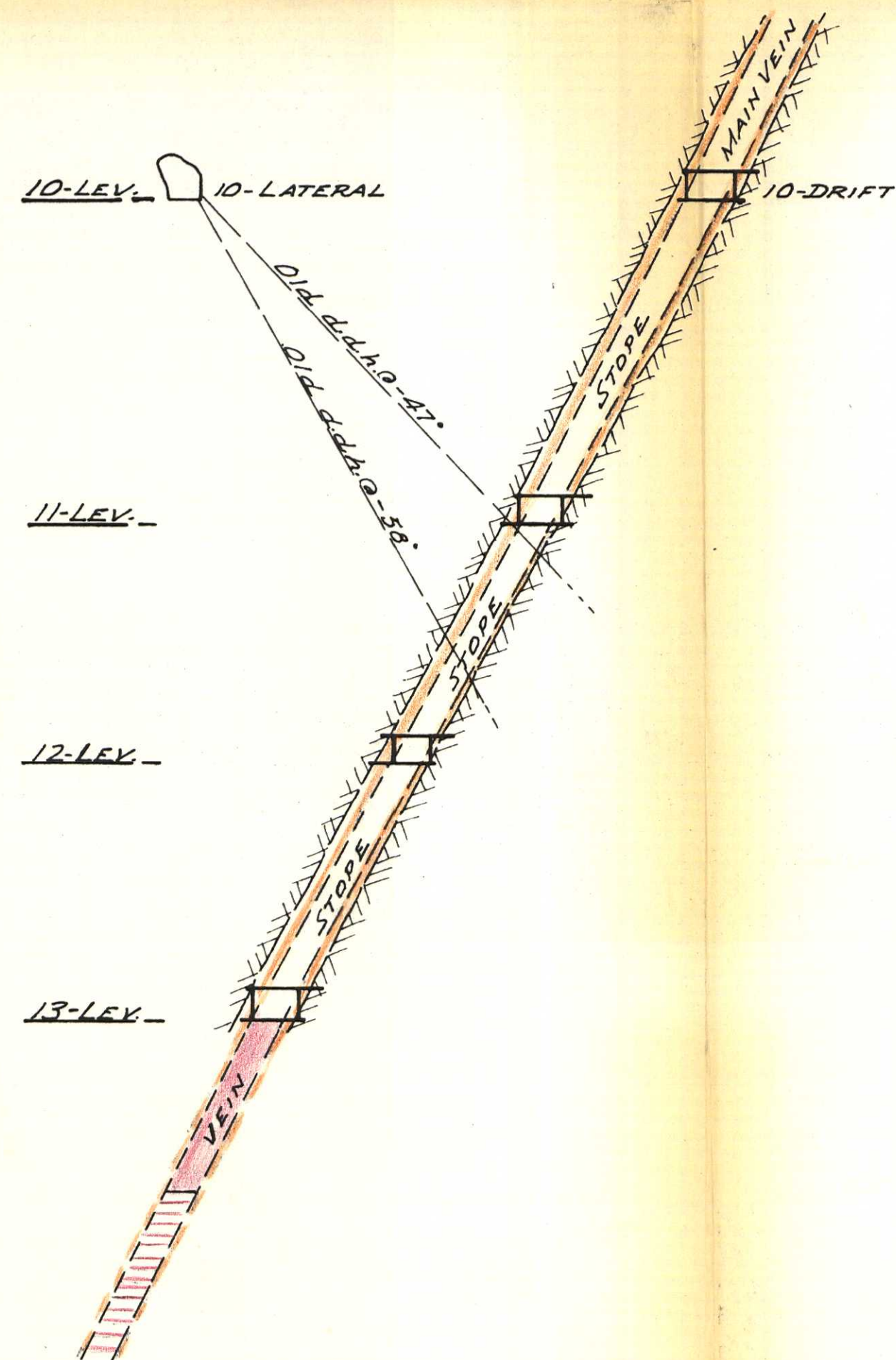
PLAN & LONGITUDINAL-VERTICAL SECTION WORKINGS & ORE ZONES

BASED ON W.M.S. MAPPING & ARIAN PACIFIC DETAIL

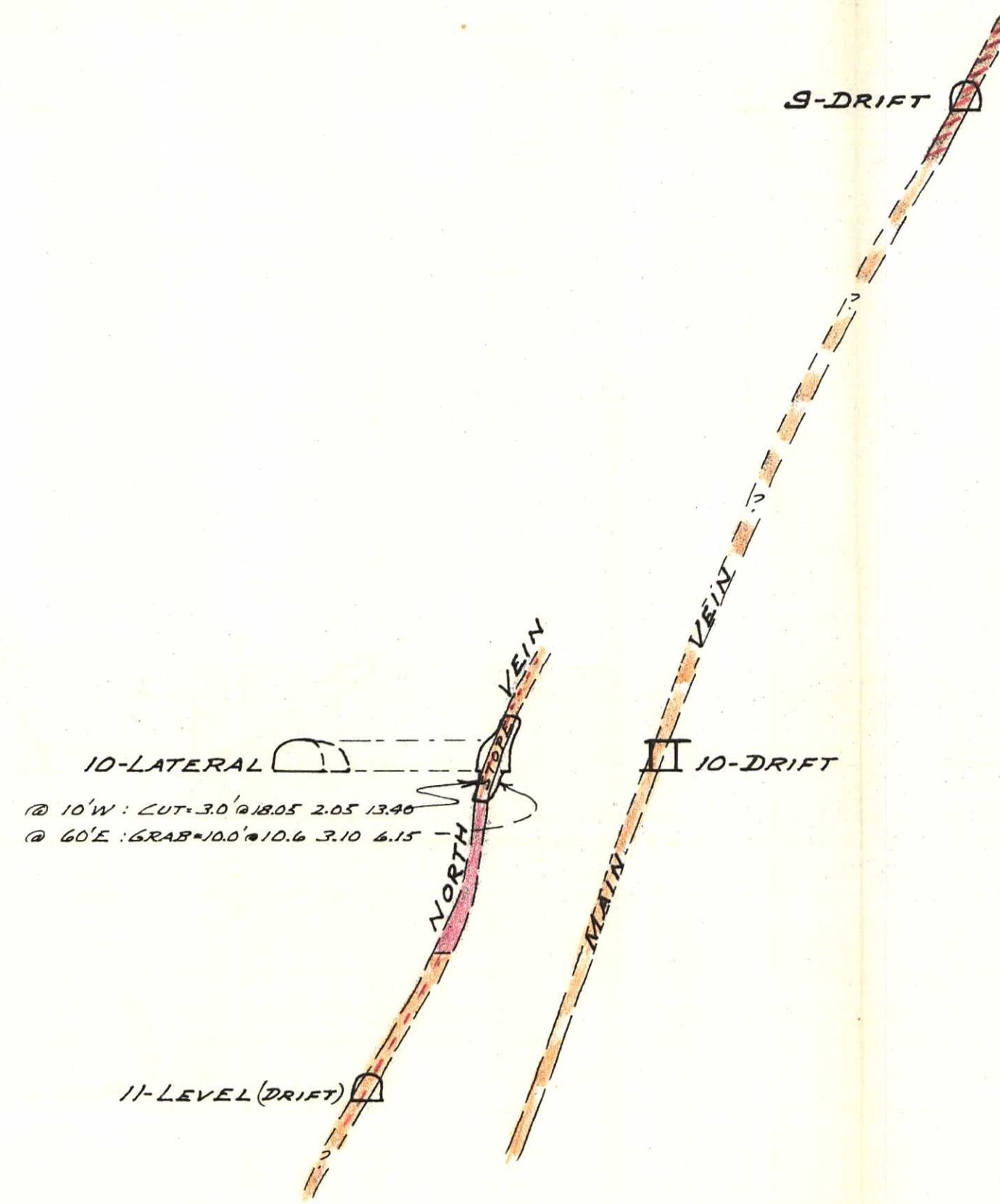
Scale: 1"=400' Date: SEPT., 1977



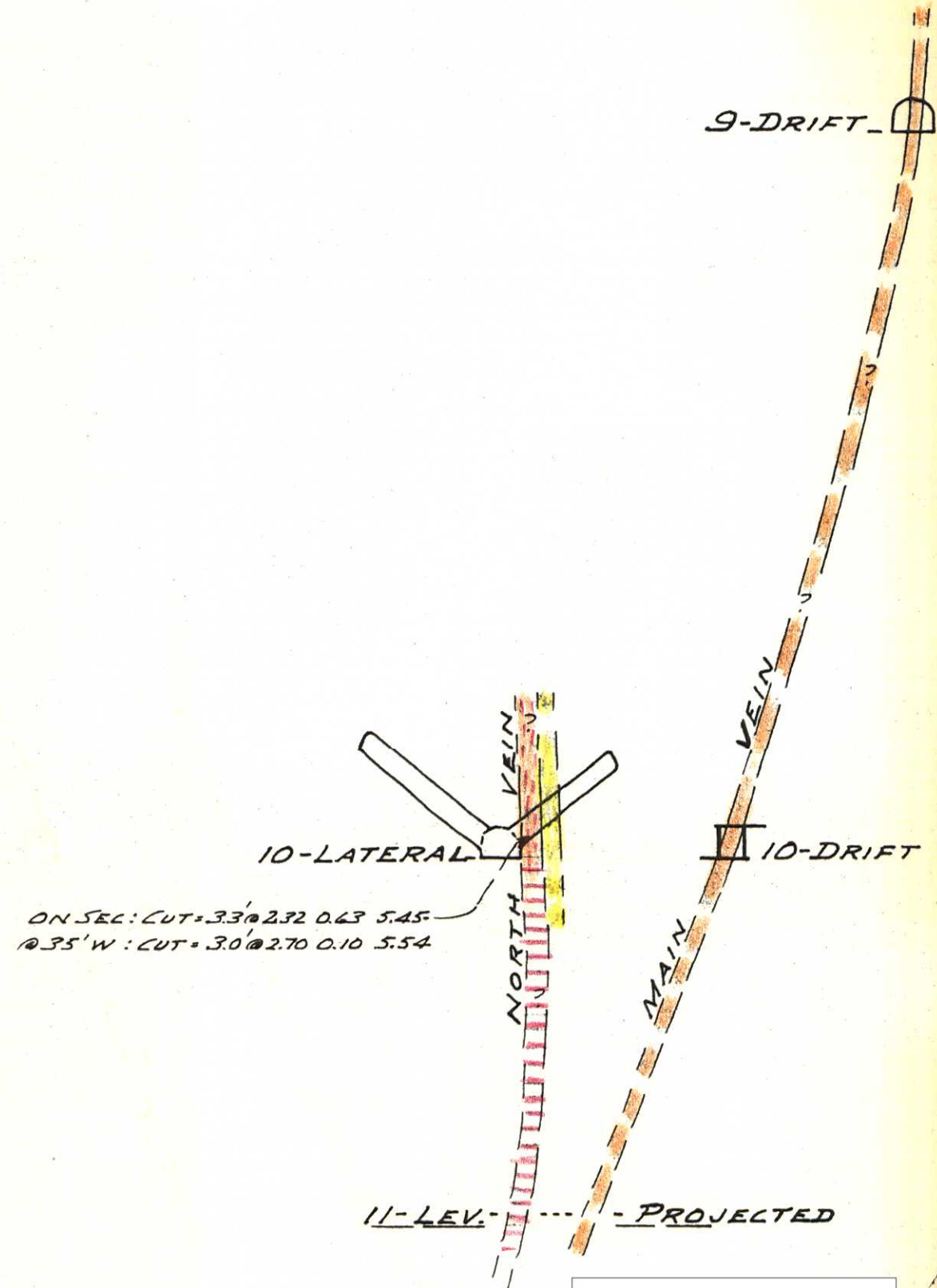
SECT. A-A



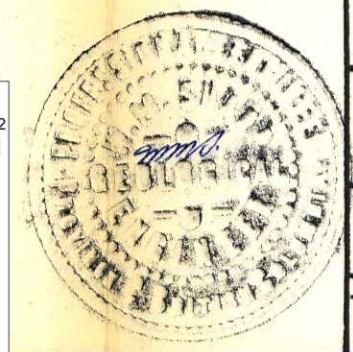
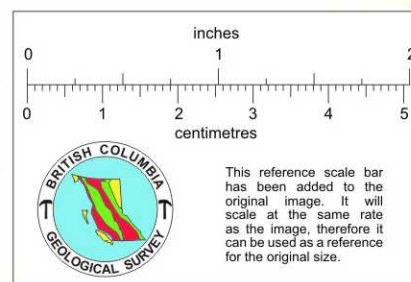
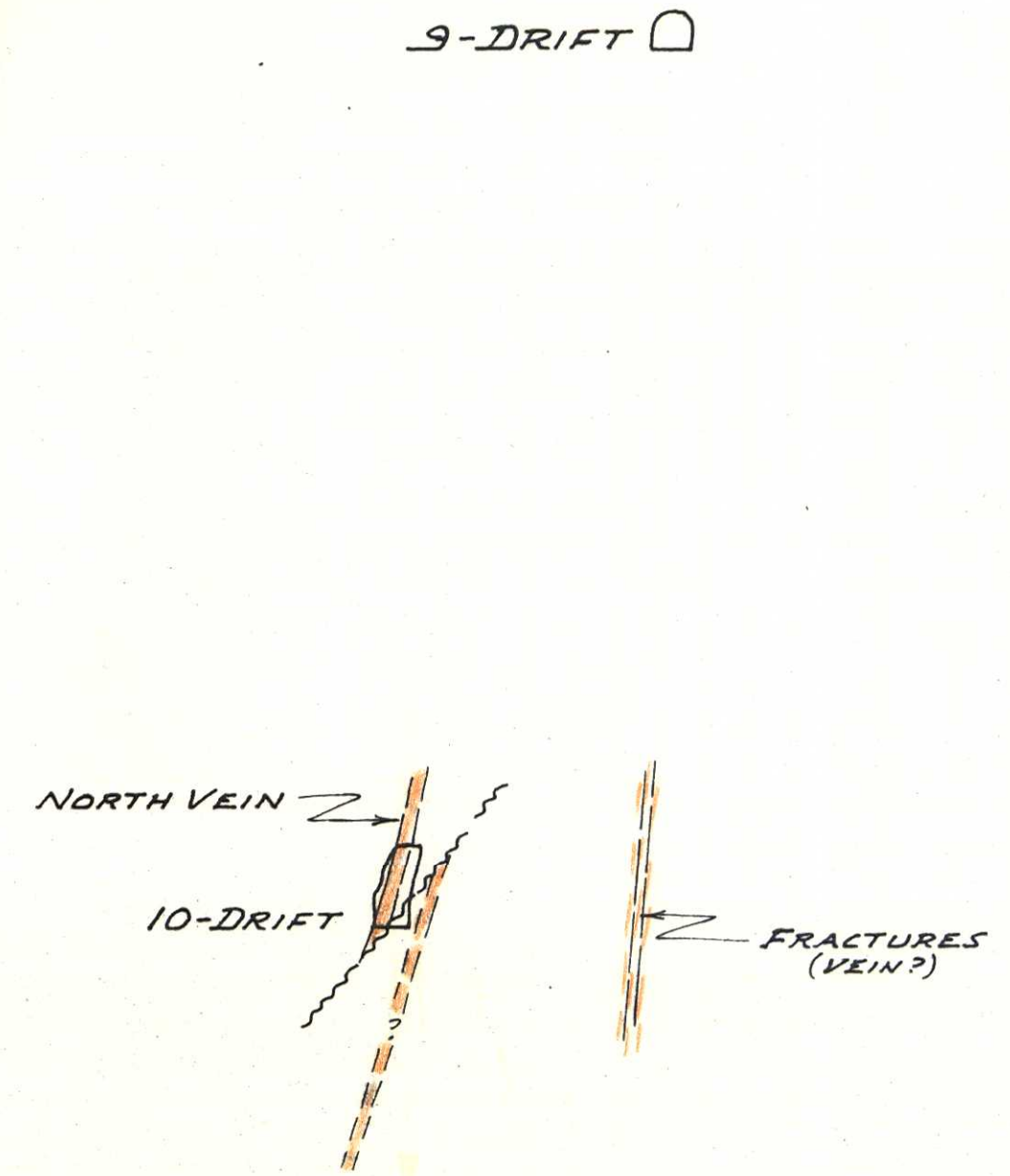
SECT. B-B



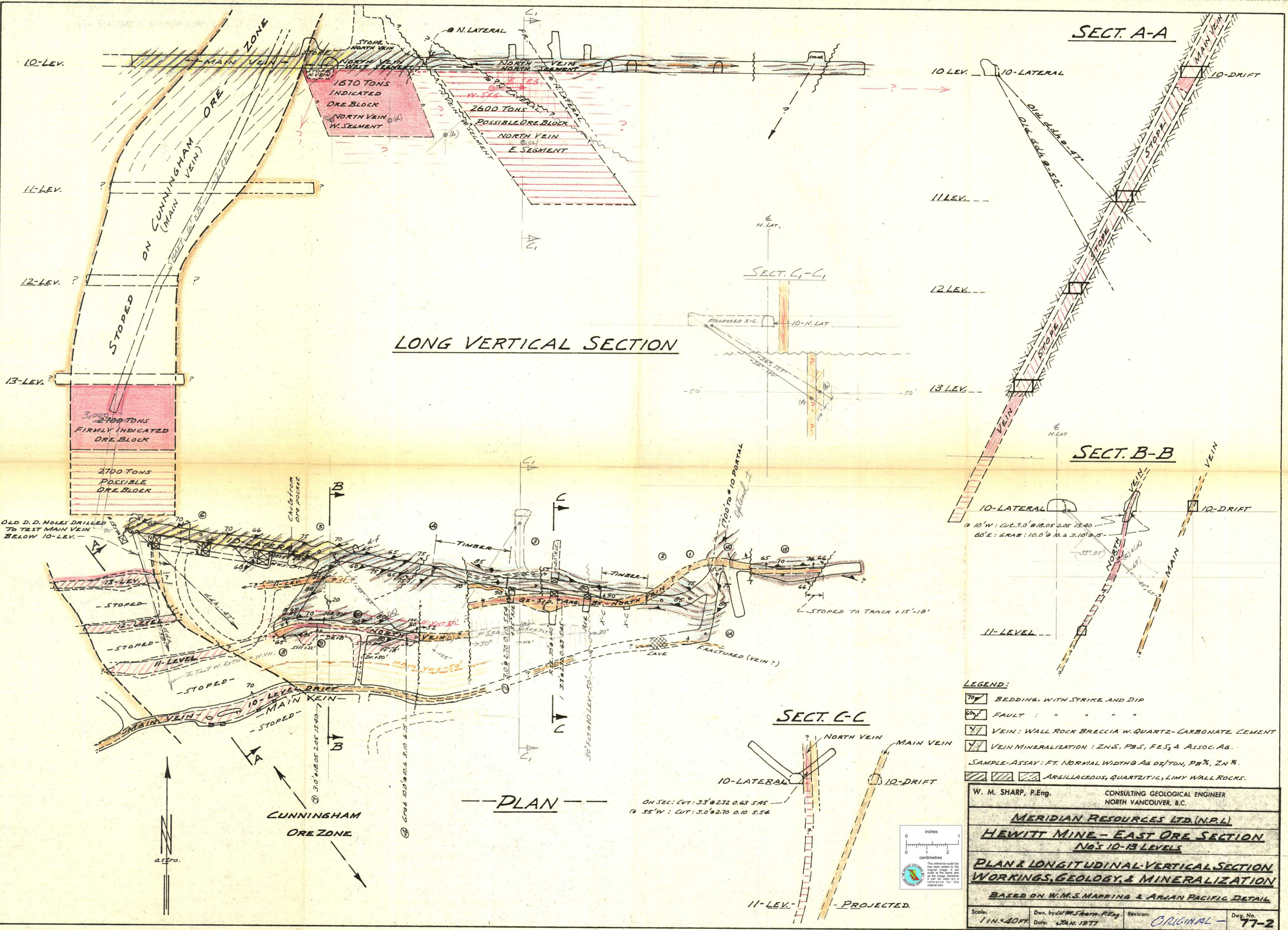
SECT. C-C



SECT. D-D



W.M. SHARP, P. ENG. CONSULTING GEOLOGICAL ENGINEER NORTH VANCOUVER, B.C.	
SABINA INDUSTRIES LTD. & DUNGANNON EXPLORATIONS LTD.	
HEWITT MINE - EAST ORE SECTION	
<u>CROSS-SECTIONS ON VEIN-SYSTEM</u>	
FOR LEGEND: SEE DWG. NO. 2	
SCALE: 1 IN. = 40 FT.	DWN. BY: W.M. Sharp, P. Eng. DATE: SEPT., 1977
REVISIONS:	DWG. NO. 2-A



LONG VERTICAL SECTION

SECT. A-A

SECT. B-B

SECT. C-C

PLAN

- LEGEND:**
- BEDDING, WITH STRIKE AND DIP
 - FAULT: " " " "
 - VEIN: WALL ROCK BRECCIA W. QUARTZ-CARBONATE CEMENT
 - VEIN MINERALIZATION: ZNS, PbS, FeS₂ & ASSOC. AG.
 - SAMPLE-ASSAY: FT. NORMAL WIDTH @ AS OZ./TON, Pb%, Zn%
 - ARGILLACEOUS, QUARTZITIC, LIMY WALL ROCKS.

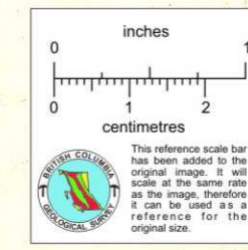
W. M. SHARP, P.Eng. CONSULTING GEOLOGICAL ENGINEER
NORTH VANCOUVER, B.C.

MERIDIAN RESOURCES LTD. (N.P.L.)
HEWITT MINE - EAST ORE SECTION
No's 10-13 LEVELS

PLAN & LONGITUDINAL-VERTICAL SECTION
WORKINGS, GEOLOGY, & MINERALIZATION

BASED ON W.M.S. MAPPING & ARJAN PACIFIC DETAIL

Scales: 1" = 40 FT. Dwn. by W.M.S. Sharp, P.Eng. Date: JAN. 1977 Revision: ORIGINAL Dwg. No. 77-2



ON SEC. CUT: 3.5' @ 2.32 0.63 5.45
@ 35' W: CUT: 3.0' @ 2.70 0.10 5.54

11-LEV. - PROJECTED.

OLD D.D. HOLES DRILLED TO TEST MAIN VEIN BELOW 10-LEV.

2570.

CUNNINGHAM ORE ZONE

3,000 TONS
2,700 TONS
FIRMLY INDICATED
ORE BLOCK

1670 TONS
INDICATED
ORE BLOCK
NORTH VEIN
W. SEGMENT

2600 TONS
POSSIBLE ORE BLOCK
NORTH VEIN
E. SEGMENT

10' W: CUT: 3.0' @ 18.05 2.05 13.40
60' E: GRAB: 10.0' @ 10.6 3.10 @ 15'

STOPPED TO TRACK +15'-18'

30' FILTER LEV. - 50'

10-LATERAL

10-DRIFT

11-LEV.

- PROJECTED.

11-LEVEL

13-LEV.

12-LEV.

11-LEV.

10-LEV.

10-LEV.

11-LEV.

12-LEV.

13-LEV.

ON CUNNINGHAM VEIN
STOPE

STOPE

STOPE

STOPE

STOPE

STOPE

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