

W.A. No.

NAME BEATRICE

SUBJECT REPORTS

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82KJLJ040-07
PROPERTY FILE

003924

file

BEATRICE MINE MILLING

ADDENDA: REPORT BY A.S. ASHTON, P.ENG.,
ON BEATRICE MINE, DATED OCTOBER 27, 1977

In discussions over the winter of 1977 and spring of 1978, it was decided that the basic philosophy of the operation should be changed. Instead of considering it as a 'salvage' operation, a season should be spent in trying to increase the potential by an exploration program designed to increase the tonnage.

This was necessitated because of the increase in estimated costs of improving the access road to the property. Currently it is usable by four-wheel drive vehicles to a capacity of approximately three-quarter tons. Before undertaking major improvements, it will be necessary to increase the tonnage in order to defray expenditures over a broader base.

With this in mind, a complete exploration program has been suggested to include surveying, geochemical surveying, stripping and rock trenching, and diamond drilling.

The main thrust will be on the Beatrice vein which has been explored in the upper adit over a distance of approximately 70 metres. The only surface showing is at the 'Glory' hole at the west part of the workings. Overburden does not appear to be deep and the potential surface exposure should be stripped and rock-trenched at convenient intervals,

S2K1UW040
PROPERTY FILE

particularly for the foot wall area.

Diamond drilling using BQ wire line equipment should be carried out from surface in order to test the Beatrice vein below the level of the old workings and to confirm the hanging wall values indicated in the area of the 'Glory' hole. Drilling will be carried out on approximately 15 metre centres and will be extended on strike as values and structure indicate.

The remainder of the claims will be covered by a geochemical survey and zones of interest will be investigated as conditions warrant.

Water samples will be taken from streams and old workings of the mine to provide a background for environmental purposes.

In conjunction with this program, it is recommended that a decline be driven to intersect the structure below the old workings. This will serve to explore the vein immediately below the number one level and also provide a means for recovering the back fill, which appears to have substantial values.


The program should be completed in a two to three month period.

Estimated costs are as follows:

COSTS

Property Road Rehab.	2,000.00
Camp and core storage	4,500.00
Transportation of Food & Supplies	2,000.00
Diamond drilling 1000 metres BQ wire line @ \$100/metre incl.	100,000.00
Stripping 100 hours @ \$40/hr	4,000.00
Trenching 200 hours @ \$55/hr	11,000.00
Assay Rock Samples 200 @ \$20/sample	4,000.00
Geochemical soils 15 km. @ \$150 Water 50 samples @ \$10	2,250.00 500.00
Picketing 15 km. @ \$65/km.	975.00
Decline 40 metres @ \$220/sq. metre	35,200.00
Consulting, Engineering, etc.	20,000.00
	<hr/>
	186,425.00
Contingency	13,575.00
	<hr/>
	<u>\$200,000.00</u>

Respectfully submitted,


A. S. Ashton, P. Eng.

June 23rd, 1978.

BEATRICE PROPERTY

near Camborne, B. C.

Revelstoke Mining Division

Lat. 50° Long. 117° N.E.

for

ARCH MINING & MILLING LTD.

Delta, B.C.

October 24th, 1977.

A. S. ASHTON, P.ENG.

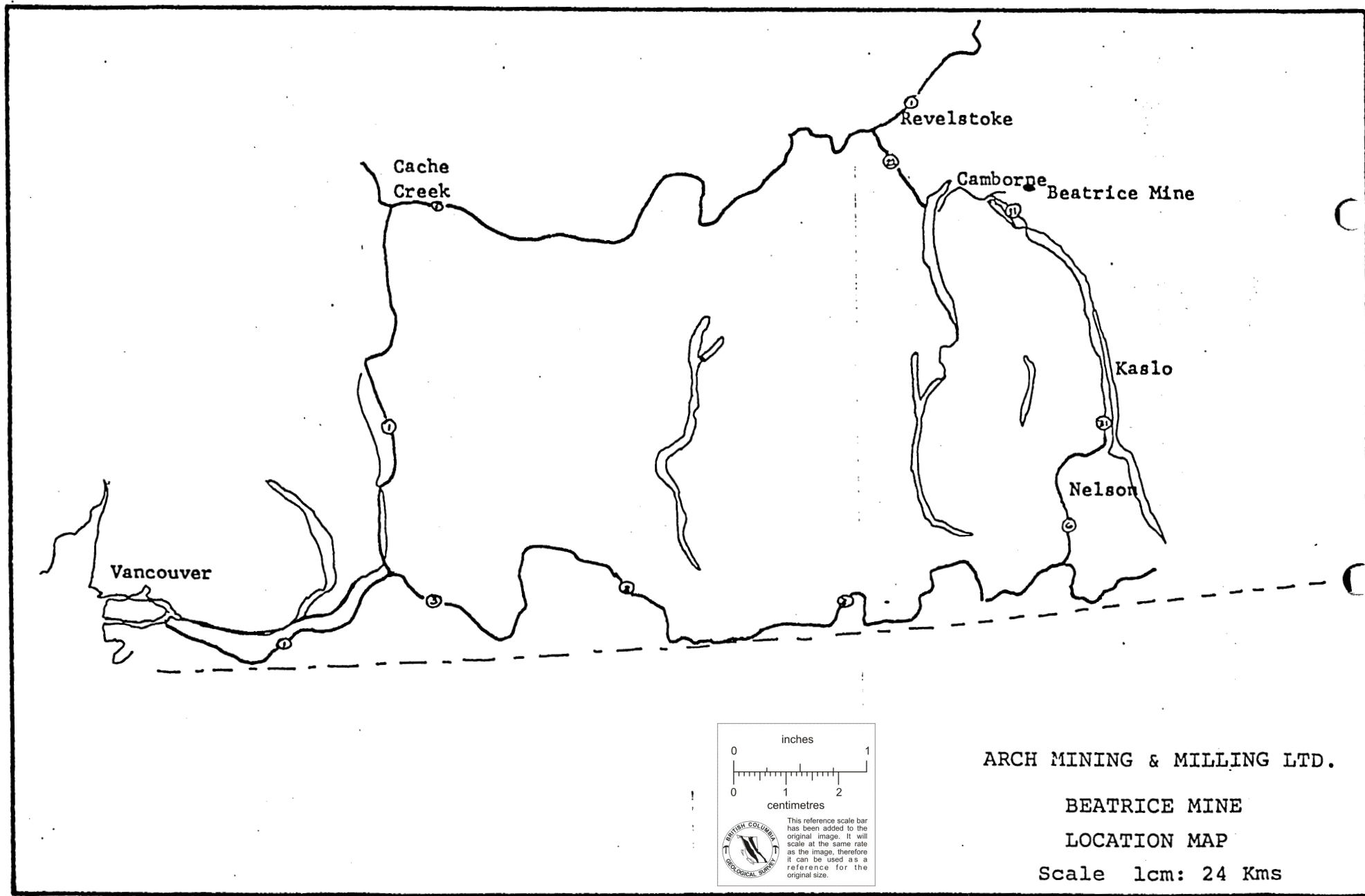
INDEX

PART I

LOCATION MAP	Frontpiece
INTRODUCTION	1
CONCLUSIONS	1
RECOMMENDATIONS	2
COSTS	3

PART II

LOCATION & ACCESS	4
CLAIMS	4
CLAIM MAP	4A
HISTORY	5
GEOLOGY	7
LOCAL GEOLOGY	8
SAMPLING	10
MAPS: #1 LEVEL	14
SUB LEVEL	15
#2 LEVEL	16
ASSAY SHEET	17
REFERENCES	19
CERTIFICATE	BACK



Vancouver

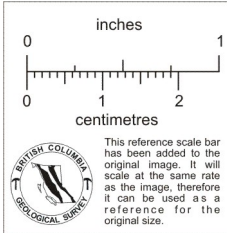
Cache
Creek

Revelstoke

Camborne
Beatrice Mine

Kaslo

Nelson



ARCH MINING & MILLING LTD.

BEATRICE MINE
LOCATION MAP

Scale 1cm: 24 Kms

BEATRICE MINE

REVELSTOKE MINING DIVISION

BRITISH COLUMBIA

PART I

INTRODUCTION

At the request of Mr. A. Graham, Arch Mining and Milling Ltd., the writer, in company with Mr. J. Zeigler and Mr. E. Empey, spent the period September 7-9 inclusive and September 11-14 inclusive, 1977, examining the Beatrice property. The adits were surveyed by compass and tape and some sampling carried out. Three "gossan" zones were examined on the property and magnetometer grids were carried out over these zones. Outcrop is limited in areas of interest and any old surface trenches are so badly caved that they could not be assessed.

The purpose of the examination was to assess the economic potential of the property and outline a program for further development.

CONCLUSIONS

The Beatrice Mine lies in the favourable environment of the central mineralized belt between two former producers, the True Fissure and the Spider Mine of Sunshine

Lardeau. Limited shipping has indicated good silver-lead values with good concentrations of zinc blende. Old workings could be relatively easily rehabilitated to provide working areas and drill stations for further exploration. The gossan zones were magnetically flat and did not indicate any metallic concentrations. Initially minor work would be required to make the access road usable by four-wheel drive vehicles. The values indicated in sampling make the property a prime exploration target.

RECOMMENDATIONS

It is recommended that a two-phase program be carried out on the property. Initially an exploration program should be carried out, including drilling and sampling, following (if values warrant it) a small milling program, that is 50 tons per day to offset further development costs.

Initially, the #1 adit should be rehabilitated and the underhand stope pumped out to facilitate sampling. Diamond drilling should be carried out simultaneously from surface in an attempt to sample the Beatrice vein below the current workings and indicate the possible mining width for mill feed. If preliminary drilling indicates good values and continuity of the structure, underground drilling should be carried out from the sub level and #2 level.

COSTS


PHASE I

Road rehabilitation	\$ 5,000.00
Camp	5,000.00
600 metres drilling at \$60/metre	36,000.00
Rehabilitation of adits	5,000.00
Engineering, surveying, etc.	6,000.00
Stake additional claims (20)	2,000.00
Contingencies	9,000.00
	<u>\$ 68,000.00</u>

PHASE II

50 ton/day Flotation Mill	\$ 100,000.00
Mine Equipment and supplies	50,000.00
Contingency	25,000.00
	<u>\$ 175,000.00</u>

Respectfully submitted,


A. S. Ashton, (P. Eng)

PART II

LOCATION AND ACCESS

The property is situated at the head of the south-east fork of Mohawk Creek in the Lardeau District of the Revelstoke Mining Division. The camp is reached by a seven mile mine access road from Camborne and is at an elevation of approximately 2,103 metres (6900 feet).

Camborne is some 480 miles ENE of Vancouver and can be reached by road from Revelstoke, on the Trans Canada Highway south to the Galena Bay Ferry and hence to Beaton and Camborne or from the south through Nelson, Kaslo and Trout Lake.

Access is good, although a four-wheel drive vehicle is now advisable for the last seven miles to the camp.

CLAIMS

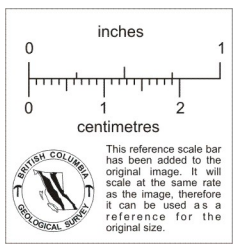
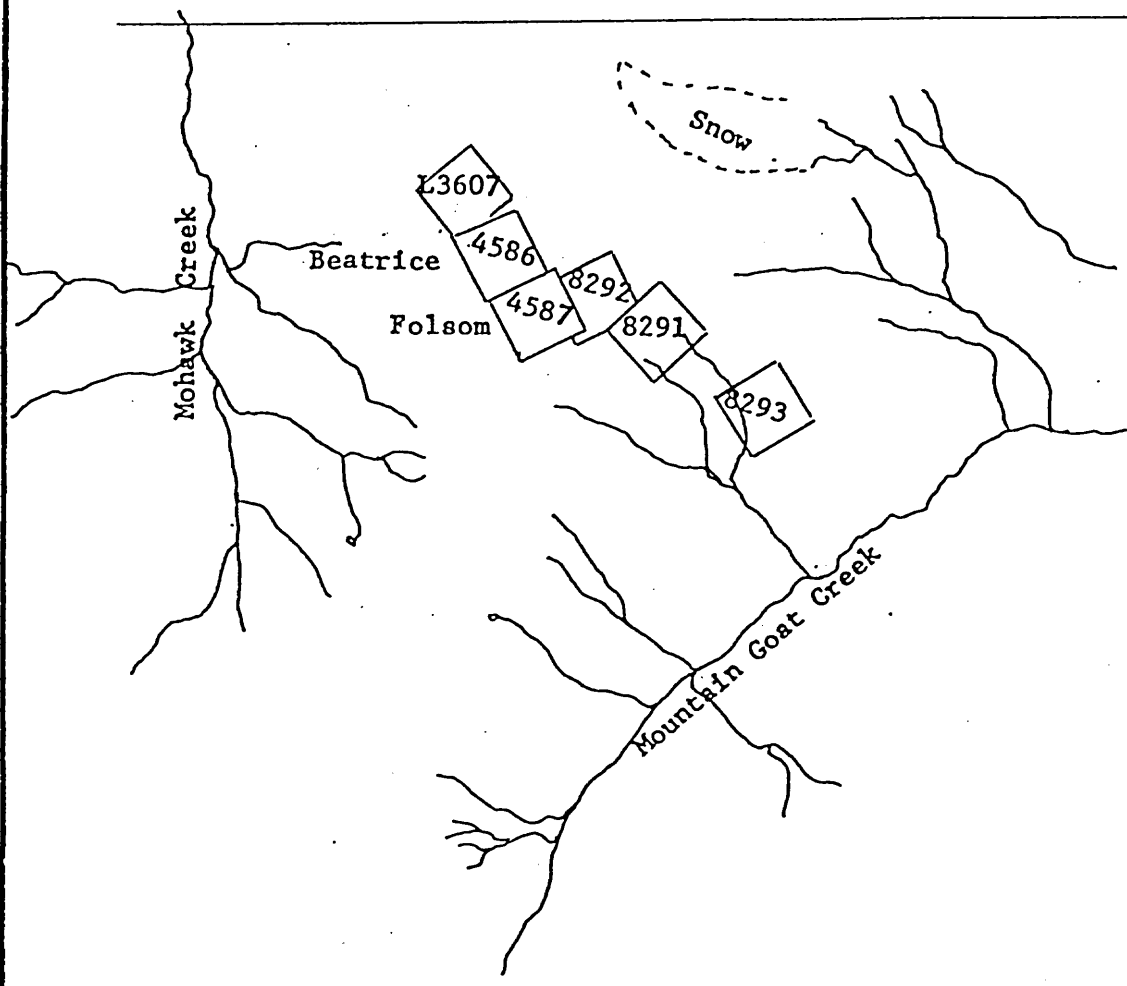
As presently constituted, the property consists of two optioned Crown Grants and four Mineral Leases.

Crown Grants	Beatrice	Lot 4586
	Folsom	Lot 4587
Mineral Leases	3607	11306
	8291	11307
	8292	11308
	8293	11309

The claims are contiguous with the exception of L 8293, which lies approximately a claim length south-east of the main group.

117°30' W

50°45' N



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BEATRICE MINE

CLAIM MAP

82K 12E

Scale 1:50,000

The claims are shown on Department of Mines and Petroleum Resources Claim Map 82K/12E. They are in good standing at the present time.

HISTORY

The Beatrice and Folsom claims were staked in 1897 and Crown Granted about 1902. They were originally part of the Beatrice Group. During 1898 approximately 200 tons of ore, argentiferous galena, grey copper and sphalerite, were hand mined. Arrangements were made to raw hide this to Camborne. The mineralized outcrop was reported as 9 feet in width as indicated in the Minister of Mines' report of 1898.

The Minister of Mines' Report for 1900 reports that in the upper adit there is a continuous body of 'ore', galena and grey copper over an average width of 18 inches. Some 70 tons of this ore was shipped to Trail but much is scattered along the trail to Camborne.

Between 1901 and 1907 the property was operated by Beatrice Mines Limited and it is reported that 225 tons of ore had been shipped since the commencement of operations. During the period it was found that the fine grained intimately associated galena and sphalerite made a poor concentrate by cobbing, as the smelters extracted a heavy penalty for the zinc content.

From 1907 to 1910 there appear to have been no operations. In 1914, Newton Emmons, examining mining properties in the Lardeau for the Provincial Government stated "There are two veins on the Beatrice - one from 2 to 5 feet wide carrying fine grained sulphide ore consisting of an intimate mixture of galena, zinc blende, pyrite and grey copper assaying gold 0.25 oz/ton, silver 120.72 oz/ton, lead 17.42% and zinc varying from 10% to 23%."

During 1916 some further work was carried out on the property and in 1918 New Era Mines did some additional work. The complexity of the ore with its high zinc content made marketing difficult at that time and consequently discouraged further work.

In 1954 a private company, Beatrice Mines Ltd., rehabilitated the mine and during the next few years rebuilt the road but did little else.

In 1964 the property was optioned by Dakota Silver Mines Ltd. (N.P.L.). During this and the following year, limited work was carried out but the property seems to have been abandoned rapidly because of equipment left at the face and on the property.

Since 1964, the property has been dormant.

GEOLOGY

The Beatrice property lies in the central belt of the Lardeau District. The Lardeau District extends from the main line of the C.P.R., east of Revelstoke, southeast to the north end of Kootenay Lake. The belt is some twenty miles wide and seventy miles long. The regional structure of the district is a tightly folded major syncline striking north west. It is marked by the Badshot formation which is traceable on both flanks of the syncline. The syncline is flanked by granitic intrusions.

The sedimentary rocks of the central block are Precambrian age and consist of a series of metamorphosed sediments, schists, phyllites, slates, quartzites and limestones. Folding is isoclinal and intense with much associated shearing and minor faulting.

Mineralized belts or zones have been found along the strike of synclinal axis and associated with both limbs of the syncline. Ore zones are generally vein types cutting the formation at either low angles or right angles to the structures. Generally the veins are variable in strike and depth and consist of lead-zinc-silver zones or pyrite-gold quartz veins.

Replacement deposits of lead-zinc and low silver are generally found associated with limestone formations on the flanks of the syncline.

LOCAL GEOLOGY

Rock exposures on the Beatrice property, particularly in the "Mine" area consist of a reddish-brown weathering grit and a graphitic and/or carbonaceous schist formerly probably an original argillite.

Within the mine workings two veins are recognized which are designated as the Beatrice vein and the Main vein.

The Beatrice vein, which was the original discovery, strikes N 50°E and dips approximately 65° to the south east, which is across the Main strike of the controlling syncline.

The wall rocks in the upper section are of the grit formation and a massive vein 52 cm wide of primarily ZnS is exposed in the Glory Hole. The hanging wall is a siliceous zone approximately 2.35 metres wide, carrying disseminated sulphides of galena, sphalerite and pyrite.

The number one adit has been cross-cut to the Beatrice vein and extensive mining has been carried out. Above the level the vein appears to have been mined for a vertical distance of about 18 metres over a horizontal distance of approximately 20 metres. The mineralization appears to have been hand cobbled in the stope and backfilled with good grade zinc rock, while the high galena ore was shipped. A further section 12 metres long has been underhand stoped a depth of about 2 metres. This underhand stope is water-filled and

consequently no examination could be carried out.

The mineralization appears to consist of a solid streak of fine grained massive sulphides, galena, sphalerite and grey copper, with some disseminated sulphides flanking both sides of the streak. The massive sulphides apparently vary from a few centimetres in width to in excess of 50 centimetres.

The massive zones appear to pinch and swell both on strike and dip.

The Main vein which is found on the #2 level and the sub-level between the #1 and #2 levels, does not appear to outcrop. This structure which represents a small break across the strike of the formation appears to strike approximately N 40° W and dip about 65° north-east. The vein is in a graphitic shear and consists of both a solid streak of sulphides plus some disseminations to the sides. The vein or rather mineralized structure could be up to 10 feet in width but grade would probably be erratic. Sampling was difficult due to the dirty nature of the walls and backs and consequently it was almost impossible to trace zones with any degree of accuracy.

A third vein, known as the Gold vein, according to old reports, has been traced over several hundred feet by open cuts. These cuts have since sloughed and caved and consequently no examination could be made. They lie roughly

parallel to the incoming road and below it. It is believed it may be part of the Gillman vein complex. No recent work has been carried out on this vein and at present no program is recommended.

SAMPLING

GLORY HOLE

Massive sulphide streak

		<u>Au</u>	<u>Ag</u>	<u>Pb</u>	<u>Zn</u>	
Sanders	1.8'	0.02	14.01	0.37	20.06	1964
McDougall	grab		80.7	13.70	28.80	1954
Ashton	52 cm		20.9	2.1	43.0	1977
Graham	grab		5.6		41.0	

Hanging Wall - disseminated sulphides

Sanders	12.0'	0.04	13.4	2.56	14.99	1964
McDougall	8.0'		18.9	3.95	12.70	1954
Ashton	2.3m(7.5')		7.0	0.4	9.7	1977

Footwall of massive streak

Ashton	0-80 cm		0.3	0.2	0.1	1977
	80-110 cm		1.7	0.2	0.1	1977

FACE #1 ADIT

Sanders	2.8'	0.02	14.2	3.08	12.18	1964
Ashton	81 cm		12.2	1.6	9.9	1977
Graham	2.0'	0.01	13.3	5.2	7.8	1977

DUMP #1 ADIT

			<u>Ag</u>	<u>Pb</u>	<u>Zn</u>	
McDougall	grab		17.30	4.10	18.65	1954
Ashton	7 sample average		18.58	3.04	12.27	1977

STOPE MUCK & BACK FILL #1 ADIT

McDougall	grab		42.55	6.55	33.30	1954
Sanders	grab	0.04	75.8	27.82	14.39	1964
Graham	grab #3 chute	0.01	0.5	0.7	0.5	1977
	grab #3 stope	0.02	15.7	4.9	10.3	1977
	grab above shaft	0.01	17.8	9.9	23.3	1977
Ashton	1st chute		29.8	6.0	21.9	1977
	above shaft		5.6	0.3	11.2	1977
	3rd chute (cave?)		0.8	0.1	0.4	1977

SUB LEVEL

McDougall	1.6'		44.00	15.60		1954
	1.3'		46.65	22.40		1954
	1.3'		25.00	9.05		1954
	car grab		61.00	30.30	22.40	1954
Sanders	2.8'	0.02	32.4	12.74	12.50	1964
Graham	#1		1.6		0.8	1977
	#2		18.5	13.4	35.5	1977

SUB LEVEL (contd.)

		<u>Au</u>	<u>Ag</u>	<u>Pb</u>	<u>Zn</u>	
Ashton	75 cm near face		20.02	3.6	26.8	1977
	35 cm		35.3	9.1	13.7	1977
	car grab		31.3	7.6	6.8	1977

#2 LEVEL - MAIN VEIN

Sanders	2.0	0.02	3.6	0.94	8.23	1964
	3.2	0.02	8.0	3.39	6.51	1964
McDougall	composite	0.01	6.60	1.90	5.40	1954
Ashton	1 m.		0.3	0.1	0.1	1977
	grabs		11.3	2.1	4.5	1977
	1 m.		0.3	0.1	0.1	1977
	3 m.		0.3	0.1	0.6	1977
	1 m.		2.8	0.4	0.8	1977

From the sampling results, it appears that the Beatrice vein, where it can be sampled and from the dumps and backfill, should warrant the first priority in a further exploration and development program. It appears that certainly in the Glory Hole area the hanging wall would provide mill feed up to a width of between 3 and 4 metres.

The hanging walls in the first level should be cleaned and sampled. The face of the #1 adit indicates mill grade material across a width of at least 81 centimetres and possibly

farther into the hanging wall. The back fill in the stope above the #1 level from random sampling would average 23.5 oz/Ag, 7% Pb and 14% Zn.

From the back fill above the #1 level there would be approximately 1500 tons of mill feed and from the dump at #1 level another approximately 600 tons with an overall grade of approximately 20 oz/ton Ag, 4% Pb, 14% Zn plus minor gold and cadmium.

The sub level where the main vein has been intersected indicates an average grade 31 oz/ton Ag, 13% Pb and 16% Zn over a width of up to 70 centimetres with an exposed length of approximately 10 metres. This zone warrants further examination and could possibly provide further mill feed.

The second level where the Main vein has been exposed grades much lower and consequently should be of a lower priority in further work.

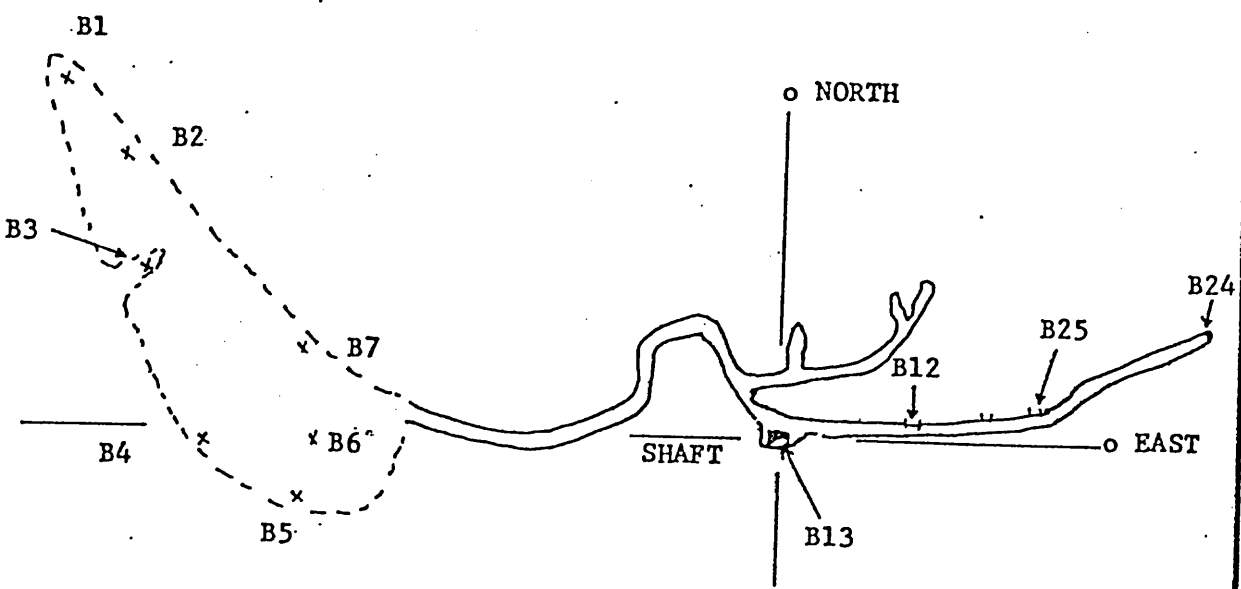
The zones of mineralization appear such that one should work carefully from the known to the unknown and consequently steps of more than 15-20 metres in drilling should not be taken.

The property is a very good exploration project.

Respectfully submitted,



A. S. Ashton (P. Eng)



		<u>Ag oz/T</u>	<u>Pb %</u>	<u>Zn %</u>
B 1	grab	15.3	5.0	5.0
B 2	grab	14.0	3.2	2.6
B 3	grab	21.0	8.3	7.7
B 4	grab	0.9	0.3	0.4
B 5	grab	2.1	0.2	0
B 6	grab	57.2	0.5	34.4
B 7	grab	19.6	3.8	35.2
B12	grab/chute	29.8	6.0	21.9
B13	grab	5.6	0.3	11.2
B24	85 cm	12.2	1.6	9.9
B25	grab/chute	0.8	0.1	0.4

*1/4 = 50
50 x 12 = 600*

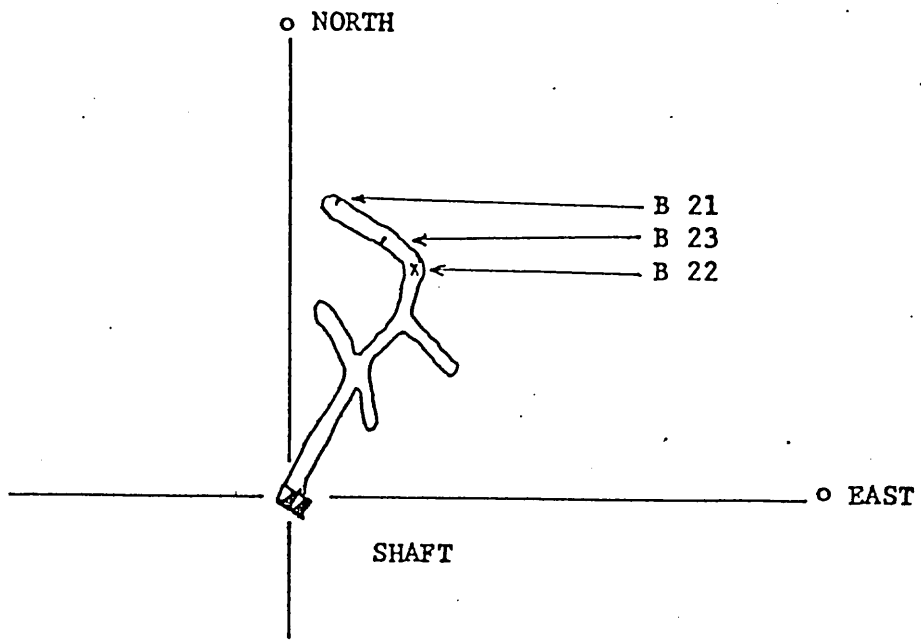
ARCH MINING & MILLING LTD.

BEATRICE MINE

1ST LEVEL

Elevation 2213 m.

Scale 1:600



		<u>Ag.oz/T</u>	<u>Pb %</u>	<u>Zn.%</u>
B 21	75 cm.	20.2	3.6	26.8
B 22	Car grab	31.3	7.6	6.8
B 23	35 cm.	35.3	9.1	13.7

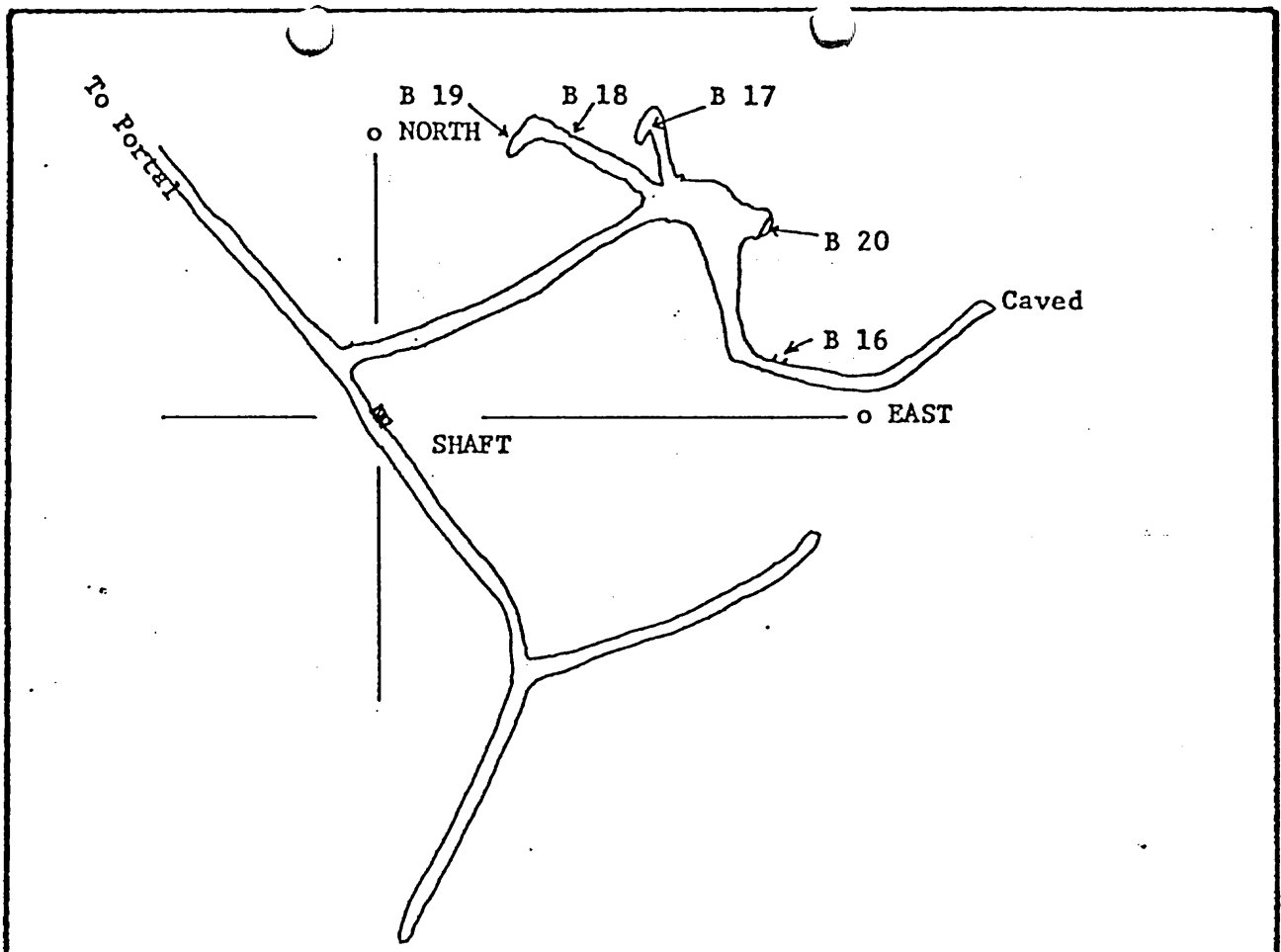
ARCH MINING & MILLING LTD.

BEATRICE MINE

SUB LEVEL

Elevation 2182 m.

Scale 1:600



		<u>Ag oz/T</u>	<u>Pb%</u>	<u>Zn %</u>
B16	grabs/chute	11.3	2.1	4.5
B17	1 metre	0.3	0.1	0.1
B18	grabs	2.2	0.7	3.0
B19	1 metre	2.8	0.4	0.8
B20	3 metre	0.3	0.1	0.6

ARCH MINING & MILLING LTD.

BEATRICE MINE

2ND LEVEL

Elevation 2164 m.

Scale 1:600



A. A. DETECTAMETAL

LABORATORIES LTD.

BOX 3690, STATION B, CALGARY, ALBERTA T2M 4M4

Calgary, Oct.11,1977

Arch Mining & Milling

BEATRICE PROPERTY

Page 1 of 2

- ANALYSTS AND CONSULTANTS FOR
- GEOCHEMISTRY
 - HYDROLOGY
 - MINERALOGY
 - POLLUTION

SAMPLE	Au oz/t	Ag oz/t	Pb %	Zn %	Fe %	Cd %
B- 1	0.00	15.3	5.0	5.0	5.0	0.030
2		14.0	3.2	2.6	4.7	0.018
3		21.0	8.3	7.7	3.6	0.040
4		00.9	0.3	0.4	4.4	0.002
5		2.1	0.2	0	5.6	0
6		57.2	0.5	34.4	6.3	0.172
7		19.6	3.8	35.2	6.0	0.176
8		20.9	2.1	43.0	5.8	0.220
9		0.3	0.2	0.1	2.6	0
10		1.7	0.2	0.1	3.0	0
11		7.0	0.4	9.7	15.8	0.056
12		29.8	6.0	21.9	5.4	0.110
13		5.6	0.3	11.2	4.0	0.062
14		0	0	0	4.8	0.006
15		7.8	1.1	2.9	3.6	0.018
16		11.3	2.1	4.5	4.8	0.028
17		0.3	0.1	0.1	4.4	0.012
18		2.2	0.7	3.0	6.0	0.022
19		2.8	0.4	0.8	6.0	0.012
20	0.00	0.3	0.1	0.6	4.1	0.010

A. A. DETECTAMETAL



LABORATORIES LTD.

BOX 3690, STATION B, CALGARY, ALBERTA T2M 4M4

- ANALYSTS AND CONSULTANTS FOR
- GEOCHEMISTRY
 - HYDROLOGY
 - MINERALOGY
 - POLLUTION

Calgary, Oct.11,1977

Arch Mining & Milling

BEATRICE PROPERTY

Page 2 of 2

SAMPLE	Au oz/t	Ag oz/t	Pb %	Zn %	Fe %	Cd %
B- 21	0.00	20.2	3.6	26.8	8.1	0.140
22		31.3	7.6	6.8	4.8	0.048
23		35.3	9.1	13.7	5.4	0.078
24		12.2	1.6	9.9	6.6	0.060
25	0.00	0.8	0.1	0.4	5.2	0.014

REFERENCES

1. McDougall, B.W.W. P.Eng. - Examination Report on Beatrice Mine - 1954.
2. Sanders, K.G. P.Eng. - Examination Report on Beatrice Mine - 1964.
3. Gunning, H.C. Lardeau Map Area GSC. Mim 161 1929.
4. Minister of Mines Reports

<u>Year</u>	<u>Page</u>	<u>Year</u>	<u>Page</u>
1898	1063	1899	674
1900	813	1901	1022
1902	121	1903	107
1905	156	1906	136
1907	214	1914	266
1916	194	1917	449
1918	190	1919	140
1920	128-143	1921	128

Brief mention is also made in reports of
1954 - 58 inclusive
and 1964 - 65

CERTIFICATE OF QUALIFICATIONS

I, Arthur Sydney Ashton, do hereby certify that:

1. I am a practising geological engineer with a residence at 5441-7B Avenue, Delta, B.C.
2. I am a graduate of the University of Toronto and have been granted the degree of Bachelor of Applied Science.
3. I have been practising my profession as a geological engineer for twenty-eight years.
4. I am a member of the Association of Professional Engineers of British Columbia and a member of the Association of Professional Engineers of Ontario.
5. The report is based on an examination of the property between September 7-14 inclusive, 1977.
6. I have no interest directly or indirectly in Arch Mining and Milling Ltd., nor in the mining property.


A. S. Ashton, P.Eng.

24th October, 1977.

Delta, B.C.