

To accompany Form 3- Application for Payment- Grant#10962E-89

FINANCIAL ASSISTANCE FOR MINERAL EXPLORATION.



Province of  
British Columbia

Ministry of  
Energy, Mines and  
Petroleum Resources

ASSESSMENT REPORT  
TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEY(S)	TOTAL COST
Exploration- underground development	To 31/1/87 \$758830.65

AUTHOR(S) W.W.. Cummings. .... SIGNATURE(S) .....

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED 23. Feb. 1987. .... YEAR OF WORK 86-87

PROPERTY NAME(S) Silver Queen ... (Owen Lake Project) .....

COMMODITIES PRESENT Au, Ag, Cu, Pb, Zn, Cd, Ga, Ge .....

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN .....

MINING DIVISION Omineca .....

NTS 93L/2 .....

LATITUDE 54°05' .....

LONGITUDE 126°44' .....

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property (Examples: TAX 1-4, FIRE 2 (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or Certified Mining Lease ML 12 (claims involved)):

Property list in report. Claims are held by HOUSTON Metals Corporation, New Nadina Exploration Ltd. and by Placer Development Ltd. (under option to New Nadina Exploration)

OWNER(S)

(1) ..... (2) .....

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

MAILING ADDRESS

Houston Metals Corporation  
Box 1300, Houston, B.C. V0J 1Z0

OPERATOR(S) (that is, Company paying for the work)

(1) Houston Metals Corporation ..... (2) .....

**15,742**

**PART 1 OF 2**

MAILING ADDRESS

910- 800 W. Pender St.  
Vancouver, B.C. V6C 2V6 .....

**FILMED**

SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):

Complex veins with polymetallic mineralization occur in upper Cretaceous volcanic assemblage of pyroclastic and extrusive rocks. Veins are very persistent, strike north-westerly and dip N.E. Metallic minerals seen- sphalerite, chalcopyrite, tetrahedrite, galena, pyrite, tennantite, specularite. Gangue minerals- "rhodocrosite", quartz (chalcedonic), calcite, barite. Propylitic alteration in vein walls.

REFERENCES TO PREVIOUS WORK Church, B.N. (1969) Geology of Owen Lake area and report on Silver Queen mine- G.E.M. in B.C. - 1969 Report M.E.M.P.R.

GEOLOGICAL (scale, area)

Ground

Photo

GEOPHYSICAL (line-kilometres)

Ground

Magnetic

Electromagnetic

Induced Polarization

Radiometric

Seismic

Other

Airborne

GEOCHEMICAL (number of samples analysed for ....)

Soil

Silt

Rock

Other

DRILLING (total metres; number of holes, size)

Core

Non-core

RELATED TECHNICAL

Sampling/assaying

Petrographic

Mineralogic

Metallurgic

PROSPECTING (scale, area)

PREPARATORY/PHYSICAL

Legal surveys (scale, area)

Topographic (scale, area)

Photogrammetric (scale, area)

Line/grid (kilometres)

Road, local access (kilometres)

Trench (metres)

Underground (metres)

Drift. 343.5 m. Raise. 24 m.  
+ rehabilitation of camp  
and mine

C.G. Lots- 6549, 6548, 6547, 7401, 7403, 6551. and  
Silver 4 M.C. Record #107  
To Jan 31

TOTAL COST \$758830.65

FOR MINISTRY USE ONLY

NAME OF PAC ACCOUNT

DEBIT

CREDIT

REMARKS:

Value work done (from report)

Value of work approved

Value claimed (from statement)

Value credited to PAC account

Value debited to PAC account

Accepted Date

Rept. No.

Information Class

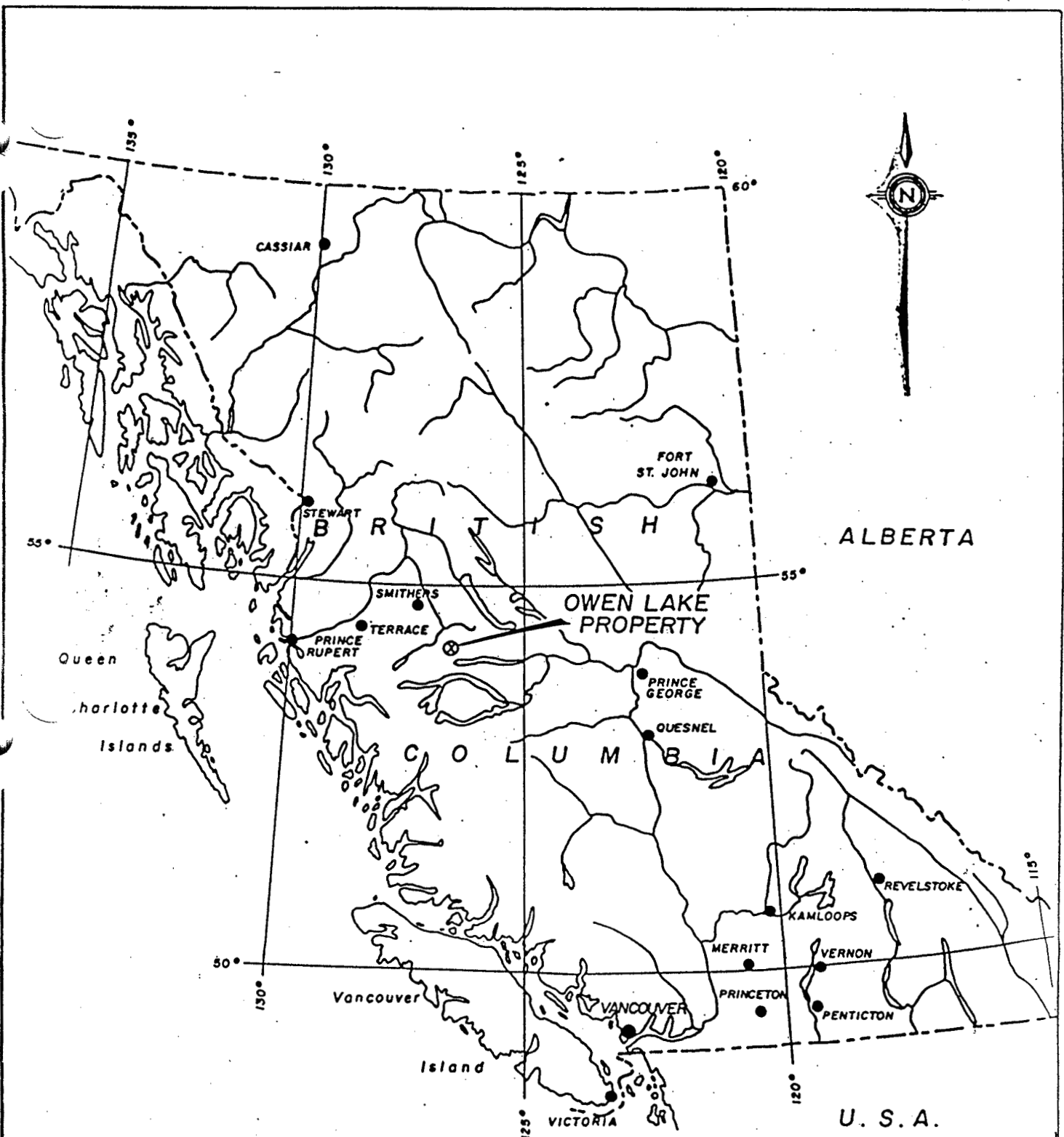
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## ILLUSTRATIONS

Figure	Scale	Description	Location
1	1cm =87 km.	Location map	Page 1
2	1:240(1"=20'	Assay plan-#5 Vein	8
3	" "	Geology-26No.2 Subdr.	9
4	" "	Geology-26 S. F.W.Vein	11

APPENDIX A -- Certificate



HOUSTON METALS CORP.	
LOCATION MAP	
OWEN LAKE PROPERTY	
Scale: 1cm = 87 km.	Feb. 1987
Dr.: W.W.C.	Figure 1

## INTRODUCTION

The Silver Queen mine at Owen Lake, south of Houston B.C. was staked in 1912 and explored at intervals, mainly in the late 20's and early 40's. Nadina Explorations Ltd. acquired the Crown-granted claims under an option with Canadian Exploration Ltd. and began exploration with an agreement in 1971 with Bralorne Can-Fer Resources and Pacific Petroleum. As the Bradina Joint Venture, the property was put into production with a 500 ton concentrator in 1972. Due to problems in both mine and mill, the operation was not profitable and closed in September 1973.

Programs carried out by New Nadina since 1973 began to show precious metal content of the ore increasing at depth and to the south, and that there was considerable ore to be explored in other veins on the property. During these later years, Frontier Explorations and its successor, Bulkley Silver explored the Cole Lake series of veins. In 1986, Gallium and Germanium were found in samples from the veins and a sampling program confirmed the first results. This led to a major exploration program which was funded by the First Exploration Fund, starting in Nov. 1986. The program was initiated after an agreement between Houston Metals Corporation (successor to Bulkley Silver) and New Nadina Exploration combined the two properties into one for the first time.

PROPERTY DESCRIPTION

The property consists of seventeen Crown-granted claims held by New Nadina Exploration under an option with Placer Development, and Claims held by location by New Nadina and Houston Metals. A list of claims is attached with expiry dates and ownership.

The property is in open rolling ranch land east of Owen Lake. Sufficient water is available from Wrinch Creek for mining, and from Owen Lake for operating a concentrator. Maximum relief from Owen Lake to the top of the Mine Hill is about 500 feet.

- 4 -

OWEN LAKE, B. C.  
CLAIMS LIST - JUNE 24, 1986

claim name	R. NBR.	units	TYPE	NEW EXPIRY	OWNER
STA FRACTION	Lot #7543	1	CG	Taxes Paid	PLACER DEVELOP
BELL #1	24929	1	L	06/15/88	BULKLEY SILVER
BELL #1 FR.	24932	1	L	06/15/88	BULKLEY SILVER
BELL #2	24930	1	L	06/15/88	BULKLEY SILVER
BELL #2 FR.	24933	1	L	06/15/88	BULKLEY SILVER
BELL #3	24931	1	L	06/15/88	BULKLEY SILVER
BELL #3 FR.	24934	1	L	06/15/88	BULKLEY SILVER
BELL #4 FR.	24935	1	L	06/15/88	BULKLEY SILVER
BELL #5 FR.	24936	1	L	06/15/88	BULKLEY SILVER
BLACK BEAR	1685	1	L	07/02/88	BULKLEY SILVER
COLE #1	636	2	L	07/08/89	NEW NADINA EXP
DIAMOND BELLE	1684	1	L	07/02/88	BULKLEY SILVER
EARL NO 1	Lot #7399	1	CG	Taxes Paid	CANEX
EARL NO 1 FR	Lot #7401	1	CG	Taxes Paid	CANEX
EARL NO. 2	Lot #7400	1	CG	Taxes Paid	PLACER DEVELOP
EARL NO. 3	Lot #7402	1	CG	Taxes Paid	PLACER DEVELOP
ETHEL	7363	1	L	07/04/88	BULKLEY SILVER
I X L	Lot #6551	1	CG	Taxes Paid	PLACER DEVELOP
I X L NO. 3	Lot #7403	1	CG	Taxes Paid	PLACER DEVELOP
IVAN FR	40867	1	L	06/20/88	BULKLEY SILVER
LILY FRACTION	Lot #7541	1	CG	Taxes Paid	PLACER DEVELOP
LUCY	Lot #7404	1	CG	Taxes Paid	PLACER DEVELOP
MAE	Lot #7545	1	CG	Taxes Paid	PLACER DEVELOP
MAE NO. 1	Lot #7544	1	CG	Taxes Paid	PLACER DEVELOP
MARY	Lot #7540	1	CG	Taxes Paid	PLACER DEVELOP
MARY FRACTION	Lot #7542	1	CG	Taxes Paid	PLACER DEVELOP
SILVER #2	637	10	L	07/08/89	NEW NADINA EXP
SILVER #3	106	18	L	08/25/90	NEW NADINA EXP
SILVER #4	107	12	L	08/26/89	NEW NADINA EXP
SILVER 1	104	20	L	08/25/90	NEW NADINA EXP
SILVER 5 M.C.	108	20	L	08/26/90	NEW NADINA EXP
SILVER 6	101	12	L	09/02/89	NEW NADINA EXP
SILVER 7	102	2	L	09/02/89	NEW NADINA EXP
SILVER KING	Lot #6547	1	CG	Taxes Paid	CANEX
SILVER QUEEN	Lot #6549	1	CG	Taxes Paid	PLACER DEVELOP
SILVER TIP	Lot #6550	1	CG	Taxes Paid	PLACER DEVELOP
TIP TOP #1	635	8	L	07/08/89	NEW NADINA EXP
TYEE	Lot #6548	1	CG	Taxes paid	CANEX
VAN #1 FR	35244	1	L	02/23/89	BULKLEY SILVER
VAN #1.	35245	1	L	02/23/89	BULKLEY SILVER
VAN #2	35246	1	L	02/23/89	BULKLEY SILVER
VAN #3	35247	1	L	02/23/89	BULKLEY SILVER
VAN #4	35248	1	L	02/23/89	BULKLEY SILVER
VAN #5	35249	1	L	02/23/89	BULKLEY SILVER
VAN #6	35250	1	L	02/23/89	BULKLEY SILVER
VAN #7	35251	1	L	02/23/89	BULKLEY SILVER
VAN #8	35252	1	L	02/23/89	BULKLEY SILVER
VAN #9	35253	1	L	02/23/89	BULKLEY SILVER
VAN 2 FR	87987	1	L	06/08/88	BULKLEY SILVER

GR Record count = 49

ACCESS

The property is 43 Km from Highway 16 just west of Houston on an all-weather gravel road. The road follows the Morice River for 27 Km, then branches off south-easterly to Owen Lake and eventually to Francois Lake. The road is maintained for heavy logging traffic.



HISTORY

The development of the Silver Queen mine has been a slow process, starting with discovery of the main vein in Wrinch Creek canyon in 1912. Other veins were found, such as the Chisholm group of veins southwest of the Silver Queen mine and the Cole vein system at Cole Lake east of the mine. These veins were explored near surface before 1924, and in 1928 the Owen Lake Mining and Development Co., sank the Cole shaft and drove the Earl Adit - now the main haulage crosscut to intercept the main veins known as No. 1, No. 2 and No. 3 over 2500 feet from the portal. This level is at 2600 feet elevation, about 280 feet below the levels collared in Wrinch canyon, or about 500 feet below the outcrop of the No. 3 vein on top of the hill.

Canadian Exploration Ltd. acquired the Crown-granted claims covering the Silver Queen and Chisholm veins in 1941 and carried out exploration until 1947. In 1963 an option was granted to Nadina Explorations and the company or its successors have held and explored the property to this date. There were several exploration programs carried out by Nadina, Kennco and Northgate, up until the Bradina Joint Venture was formed in 1971. This group, consisting of Nadina Explorations, Bralorne Can-Fer Resources and Pacific Petroleum took the property into production in 1972 with a 500 ton per day concentrator. Due to poor production, mining and concentrator problems, the operation shut down in 1973.

Frontier Exploration Ltd. acquired the Cole Lake property in 1960 and carried out surface programs at intervals, proving up a series of veins very much like the veins north of Wrinch Creek in the Silver Queen property. This company was succeeded in 1977 by New Frontier Petroleum Ltd. and in 1980 by Bulkley Silver Resources Ltd. This latter company optioned the New Nadina property and, after reorganization as Houston Metals Corporation, began the present program in November 1986.

The B.C. Ministry of Energy, Mines and Petroleum Resources mapped the area in 1969 and the report by B. N. Church forms part of the Annual Report in 1969.

PROGRAM OBJECTIVES

The program as outlined in the report by Cummings to Bulkley Silver Resources Inc - June 1986 - was aimed at a production decision in three phases, with appraisal in between phases. The program objectives were:

- 1) to bring as much possible ore into proven or probable categories as possible.
- 2) to emphasize the precious metal potential of the ore bodies.
- 3) to advance the metallurgical studies for the recovery of precious metals, gallium and germanium.

PROGRAM REPORT

Due in part to the reorganization of the company and the nature of the financing, the program was late in starting. The camp and plant had to be rehabilitated, at a cost above the budget due to their condition and the onset of winter. By the third week of November, the camp was usable and rehabilitation of the 2600 level began. Major caves were encountered in the timbered stoping areas and the south face of the 2600 level was not reached until Jan 10th. This rehabilitation involved mucking, replacing rotten timber, replacing damaged rail, ditching and replacement of 2100 feet of two-inch water line and 1440 feet of four-inch airline. The total length of rehabilitation on the No. 3 vein drift was 4100 feet. In addition three raises, including the Alimak raise, were rehabilitated by replacing ladders, pipe and timber to meet Ministry requirements.

Since a diamond drill was not immediately available, the objectives of the program in terms of proving ore and providing ore for metallurgical testing were met by development of ore which was drill-indicated. These areas are shown on the mine plan at the scale of 1 to 2400 which accompanies this report and detailed plans in the report. The veins were surveyed, sampled and mapped, and a total of about 2000 lbs sent to Bacon and Donaldson for metallurgical testing, representing ore from the Rhodocrosite veins. No. 5 Vein and footwall vein.

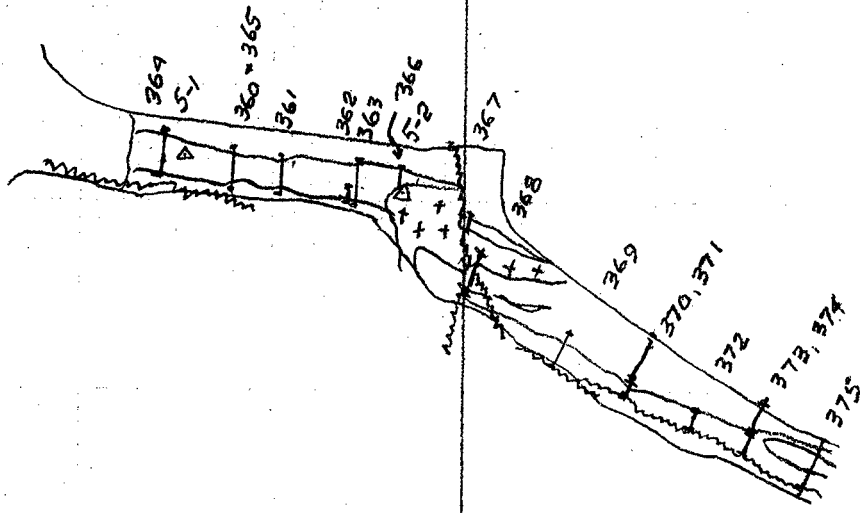
(1) No. 5 Vein - 80 feet of Adit from surface. The first half followed a high zinc, fair copper vein, then the vein became high copper, fair zinc. Silver values fluctuate with the chalcopyrite content, and gallium-germanium fluctuate without obvious reason from lows of 16ppm germanium to highs of over 100ppm. The average for 80 feet of length and width of 3.64 feet: 0.034 oz Au/ton, 9.72 oz Ag/ton, 1.13% Cu, 0.40% Pb, 11.12% Zn, 0.07% Cd, 1.25 ppm Ga and 51 ppm Ge.

(2) No. 2 Vein - this vein outcrops or has been trenched for about 1000feet and showed good Ga-Ge values in samples taken during the sampling program in May 1986. The vein was only known underground from diamond drill intersections. Starting in late December, a crosscut was driven 190 feet into the footwall of No. 3 vein, Crossing the No. 2 vein. The vein (or veins) here consisted of a

Length - 80'  
Average uses  
samples marked X

Sample No	Width (ft)	Au oz/t	Ag oz/t	Cu %	Pb %	Zn %	Cd %	Gr ppm	Ge
M 360	4.0	0.036	14.64	2.00	0.35	19.80	0.102	1	38
M 361	3.0	0.034	15.43	0.73	0.50	27.40	0.230	2	130
M 362	1.0	0.090	35.98	4.95	0.23	34.90	0.172	2	86
M 363	4.0	0.014	7.06	1.12	0.12	12.50	0.063	1	32
M 364	3.5	0.113	35.00	2.98	0.57	28.90	0.162	2	36
M 365	4.0	0.047	10.73	1.52	0.21	22.30	0.122	1	100
M 366	1.5	0.024	13.13	1.52	0.31	34.95	0.310	1	16
M 367	1.0	0.263	27.71	3.64	0.36	2.43	0.012	2	42
M 368	4.0	0.075	14.58	1.61	0.40	2.42	0.014	2	111
M 369	3.0	0.018	3.03	0.96	0.44	7.90	0.038	1	69
M 370	1.0	0.007	2.68	0.245	2.18	4.17	0.023	1	79
M 371	4.0	0.007	0.43	0.046	0.15	0.74	0.004	1	63
M 370-371	5.0	0.007	0.88	0.086	0.56	1.42	0.008	1	66
M 372	1.5	0.025	5.80	0.423	0.57	8.10	0.040	2	74
M 373	2.0	0.120	29.17	4.190	0.70	5.41	0.023	3	18
M 374	3.0	0.008	1.02	0.28	0.09	1.03	0.006	1	24
M 373-374	5.0	0.049	12.28	1.84	0.33	2.78	0.02	1.8	22
M 375	5.5	0.025	4.43	1.10	1.00	5.90	0.035	2	69
AVERAGE	3.64'	0.034	9.72	1.13	0.40	11.12	0.07	1.25	51

23600N



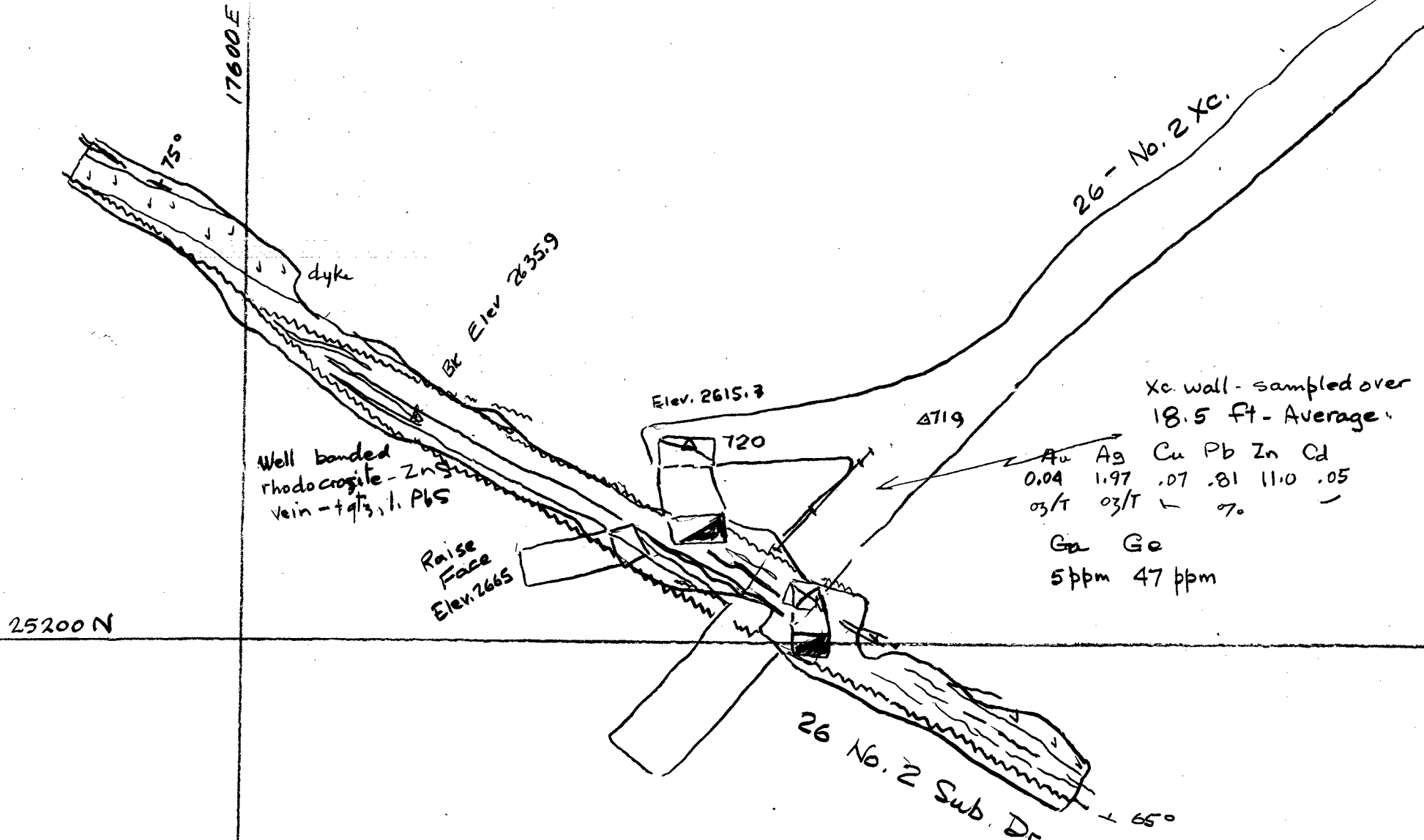
23500N

16600E

HOUSTON METALS CORP.

ASSAY PLAN  
Adit - No. 5 Vein

Scale 1" = 20' WWC JAN/87



Houston Metals Corporation

GEOLOGY PLAN

26 - No. 2 Sub - drift

Scale: 1 = 240 W.W.C. Feb. /87

PROGRAM REPORT cont

series of narrow veins and stringers with 5 to 7 feet of banded sphalerite-rhodocrosite on the footwall. Over the total width of 18.5 feet, the zone ran: 0.04 as Au/ton, 2.62 oz Ag/ton, 0.07% Cu, 1.50 % Pb, 12.43 % Zn, 0.06 % Cd. 9.8 ppm Ga and 86.5 ppm Ge.

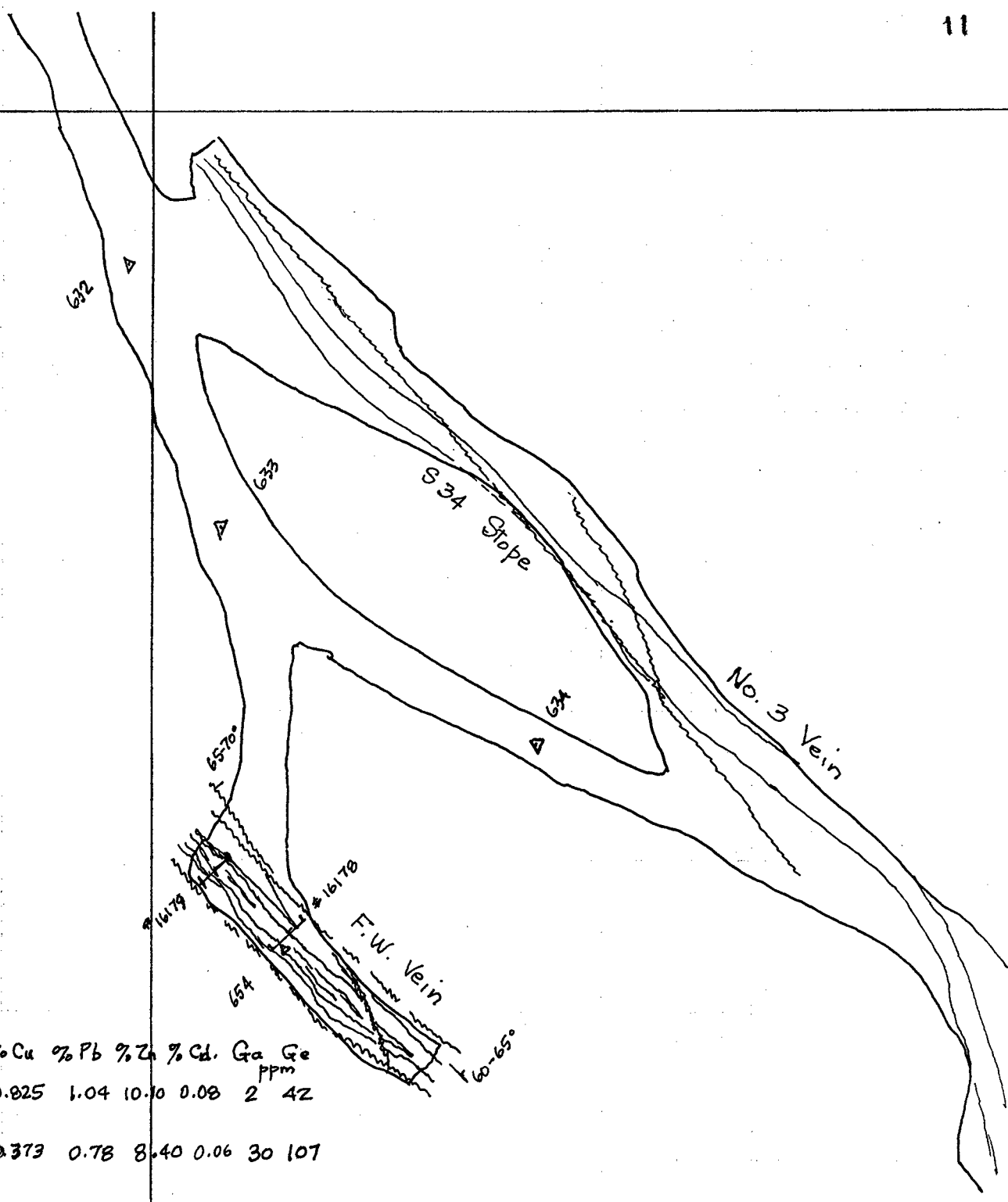
Raises were driven and a subdrift driven on the footwall vein 15 feet above the level. The vein was squeezed out by a dyke 70 feet north of the crosscut and was good to the face of a 30 foot raise. South of the cross-cut, the vein broke into stringers. The subdrift was surveyed, mapped and sampled, but assays have not been received yet. The walls will be drilled by a bazooka-type diamond drill to see if the width shown in the cross-cut continues.

(3) 2600 South -Footwall vein - this vein, 60 feet into the footwall from the No. 3 Vein, was drilled in 1973 as the Bradina operation was closing down, and was never developed. It has been drilled at random intervals by surface drilling and is not usually good grade above the 2600 level. Below the level, most drill holes were not extended far enough to intersect the footwall vein, and values are probably better there, as indicated by intersections in the No. 3 Vein itself.

Assays received to date are plotted on the plan attached and indicate moderate Ag and Au values, fair Zinc and good Ga-Ge over a good mining width of 5 to 6 feet.

(4) 2600 South Crosscut - This heading is advancing through dacite or rhyolite fragmental volcanic rock with pervasive pyrite toward the NG 3 vein. This vein has been outlined by drain and drilling only, and has good precious metal values below the 2600 level. Pyrite stringers intersected near the start of the crosscut (and near the assumed projection of No. 3 Vein) carried low values only. A vein of pyrite-quartz-sphalerite in the cross-cut at 300 feet (200 feet or more into the hanging wall from No. 3 Vein) had the highest Ga-Ge values recorded to date on the property. A check sample on the south wall was lower but still good. The average assay over 12 inches is: 0.115 oz Au/ton, 15.31 oz Ag/ton, 0.68 % Cu, 1.47 % Pb, 7.56 % Zn, 0.059 % Cd, 48.5 ppm Ga, 251 ppm Ge.

This vein has not been correlated with other known veins but is worth investigation. It also indicates that the NG3 vein which is similar, may have good Ga-Ge content



Assays

#	As <sub>4</sub>	Ag <sub>4</sub>	%Cu	%Pb	%Zn	%Cd	Ga	Ge
	ppm	ppm						
# 16178	0.033	6.77	0.825	1.04	10.10	0.08	2	42
# 16179	0.06	4.08	0.373	0.78	8.40	0.06	30	107

HOUSTON METALS CORPORATION

Geology and Assay Plan  
2600 South - Footwall Drift

PROGRAM REPORT cont

(5) Other current developement not completed:

(a) 2750 Sub drift-- intended to develop ore above the stoped areas in the south part of No. 3 Vein. The cross-cut should reach the vein Feb 22nd.

(b) 2870 Adit - collared at this elevation to drift on the switchback vein toward the 2880 Level. The vein should be reached Feb 22nd.

Total development footage to Feb 15th/1987

	Drift	Raise
No. 5 Adit	80'	
26 - No. 2 -xc	190'	
-muck drift	30'	
-slash equivalent	40.5'	
-sub-drift & raise	168'	79
2750 Sub Dr.	54'	
2600 S. -Footwall Dr.	68'	
2600 S. Xc	436.5'	
D D Station (slash)	<u>58.5'</u>	<u>      </u>
	1125.5	79



## CONCLUSIONS

The program met its objectives, with the exception of diamond drilling. Drilling was planned for No. 2 Vein, the Switchback Vein, the NG 3 Vein, No. 5 Vein and the 84-15 Area (a diamond drill indicated zone south west of the mine). Development in ore in the No. 2 Vein, No. 5 Vein and the footwall vein puts this ore into the proven category, and has also supplied fresh unoxidized ore for metallurgical testing.

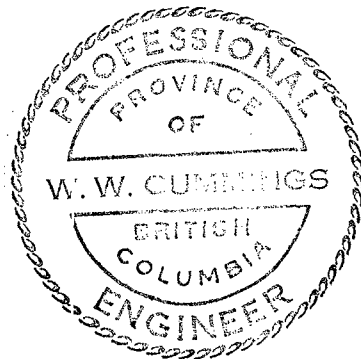
With regard to the distribution of Ga-Ge, assays to date indicate that all known types of ore carry Ga-Ge, including the high pyrite veins found in the south end of the mine. It is highly possible that the NG 3 Vein which is the target for the 2600 South Cross-cut will also carry Ga-Ge.

Drilling will be the prime objective of the next program, with some changes in emphasis as a result of this present program. Many of the operating problems - such as ventilation, haulage locomotives and equipment were solved quite late in this program, but will be a great advantage for the next program.

Respectfully submitted



W. W. Cummings P. Eng



CERTIFICATE

I, W.W. Cummings, of New Denver in the Province of British Columbia, hereby certify that :

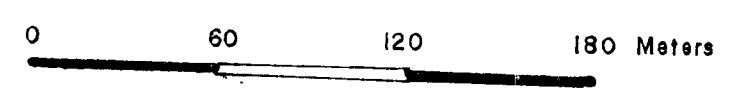
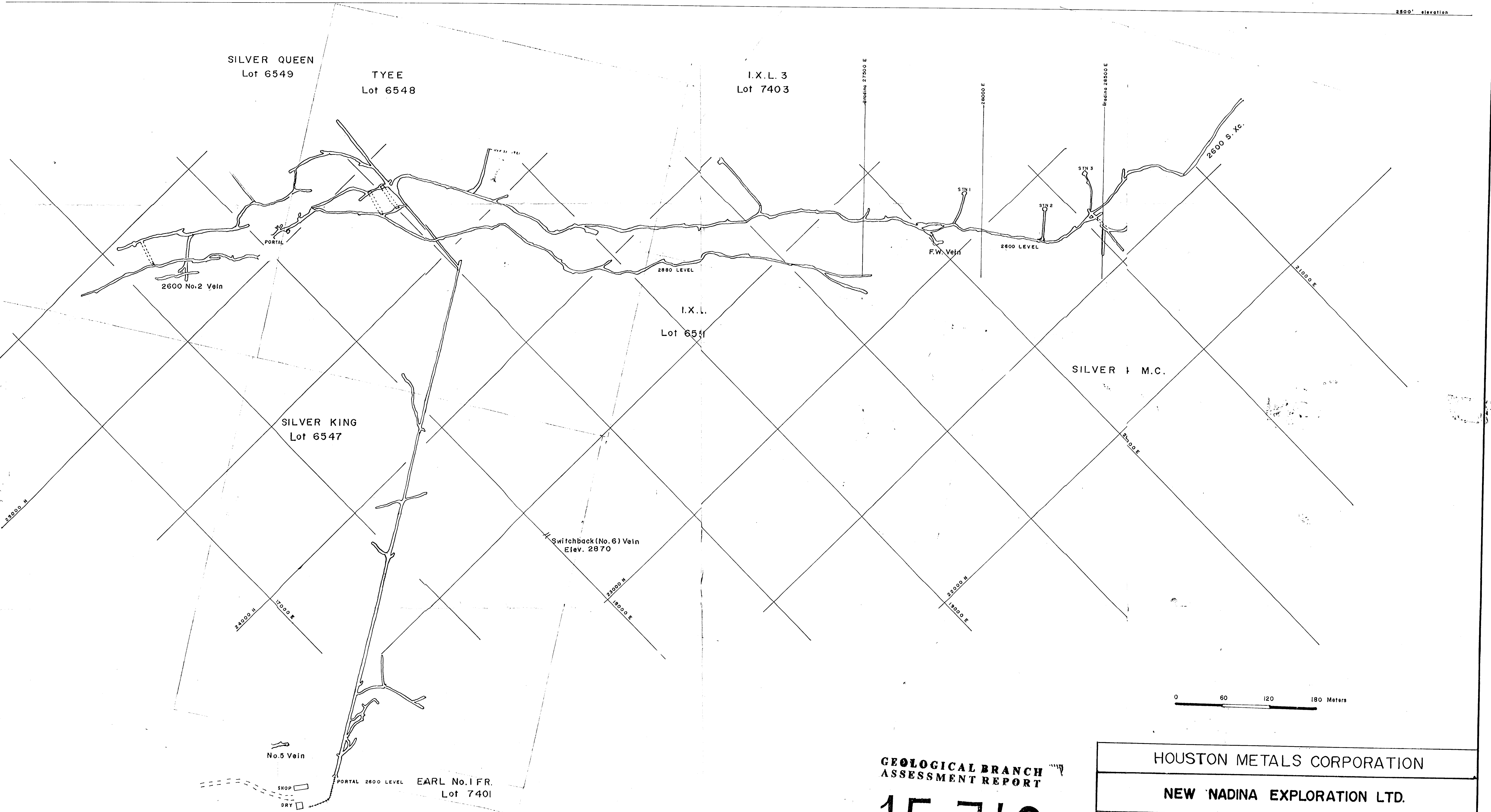
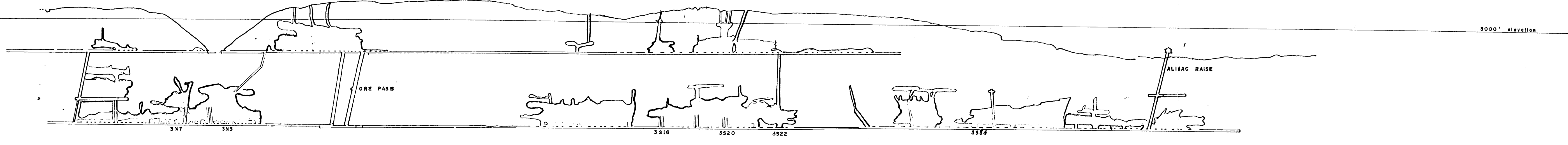
- (1) I am a geological engineer with office and residence at New Denver, B.C. and mailing address of P.O. Box 57.
- (2) I am a graduate of Queen's University, Kingston, Ont. with a B.A.Sc. in Geology.
- (3) I am a member of the Association of Professional Engineers, Province of British Columbia.
- (4) I have practised as a mine geologist, engineer and manager since 1949.
- (5) I have previous knowledge of this property since 1973, and have been resident as project engineer for this program.



W.W. Cummings, P.Eng.

Houston, B.C.  
22 Feb. 1987.





**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**15,742**

**PART 1 OF 2**

HOUSTON METALS CORPORATION	
NEW NADINA EXPLORATION LTD.	
REID EXPLORATION SERVICES LTD.	
SILVER QUEEN MINE OWEN LAKE, B.C.	
<b>MINE PLAN</b>	
DRN. BY ÷ R.E.R.	DATE ÷
REV. WWC.	FEB. 1987
N.T.S. ÷ 93L2	SCALE ÷ 1:2400 (1"=200')