



Province of  
British Columbia

Ministry of  
Energy, Mines and  
Petroleum Resources

REPORT  
TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEY(S) FINANCIAL ASSISTANCE FOR MINERAL EXPLORATION	TOTAL COST *
--------------------------------------------------------------------------	--------------

AUTHOR(S) D. M. Fletcher SIGNATURE(S) *D.M. Fletcher*

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED Feb./March 1987 YEAR OF WORK 1986/87

PROPERTY NAME(S) STEMWINDER PROPERTY  
Listed in Minfile as Fairview Property

COMMODITIES PRESENT Gold Silver

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN MI 082 ESW 008

MINING DIVISION OSOYOOS NTS 82E/4E

LATITUDE 49° 12' N LONGITUDE 119° 38' W

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)]:

Mineral Claims, Crown Grants, Stemset Lot 21S, Gunsite Lot 25S,  
Stemwinder Lot #384, Brown Bear Lot #385, Wynn M. Lot #554

OWNER(S)  
(1) Fairview Mining Company  
c/o Asarco Incorporated  
12th Floor  
MAILING ADDRESS 350 Bay Street  
Toronto, Ontario  
M5H 2S6

**FILMED**

(2) **GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

OPERATOR(S) (that is, Company paying for the work)  
(1) Highland Valley Resources Ltd.  
MAILING ADDRESS  
P. O. Box 1977  
Grand Forks, B.C.  
V0H 1H0

(2) **15,770  
PART 1 OF 2**

SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):  
Northwest trending sedimentary belt 1,000 feet wide, 3 miles long,  
dipping 40-70 northeast, bounded to N.E. by Oliver granite and to S.W.  
by Fairview granite. Granites are of Jurassic age. Sedimentary belt  
hosts gold-bearing quartz veins positioned in quartzite unit sandwiched  
between underlying and overlying argillites.

REFERENCES TO PREVIOUS WORK  
Bibliography extensive - see Minfile

\*See Management Report - submitted separately

TECHNICAL REPORT

on

STEMWINDER PROPERTY

49° 12' N    119° 38' W  
N.T.S. 82E/4E

Highland Valley Resources Ltd.  
P. O. Box 1977  
Grand Forks, B.C.  
VOH 1H0

March 18, 1987

D. M. Fletcher, P.Eng.

15770

TABLE OF CONTENTS

	Page
PURPOSE AND SCOPE	1
INTRODUCTION	
Location	1
Ownership	1
History	2
PHYSICAL WORK DONE	2
PHYSICAL WORK RESULTS	3
CERTIFICATE	4
Appendix 1 - Man Days	5
Appendix 2 - Assay Results	7

ILLUSTRATIONS

Location Map	Plate 1	20
Property Map	Plate 2	21
Plan Brown Bear	Plate 3	22
Plan Progress Report	Plate 4	in pocket
Plan Brown Bear Claim	Plate 5	in pocket

## PURPOSE AND SCOPE

The purpose of this report is to fulfil the technical obligation required to receive financial assistance for mineral exploration completed under the Mineral Exploration Incentive Program, directed by the Ministry of Energy, Mines and Petroleum Resources, British Columbia.

The scope of this report includes a general introduction indicating a description of the property, location and access. A brief history of the property, current operator and abbreviated economic potential of the property is provided. The principal part of the report is a summary of the physical work completed to date and the results of this work. Financial statements including full disclosure of expenditures to complete the physical work, were filed separately.

## INTRODUCTION

### LOCATION

The Stemwinder Property consisting of five Crown Grant mineral claims -

<u>Mineral Claim</u>	<u>Lot No.</u>	<u>Acres</u>
Stemset	21 S	36.99
Gunsite	25 S	44.80
Stemwinder	384*	20.66
Brown Bear	385*	20.66
Wynn M.	554*	19.28
		<u>142.39</u>

is located in the Similkameen Division of the Yale Land District, British Columbia. The claims are positioned on map sheet N.T.S. 82E/4E in the Osoyoos Mining Division at Latitude 49° 12'N and Longitude 119° 38'W, approximately 5.5 miles west of the town of Oliver, B.C. Access to the property is by paved and good all-weather gravel road. The topography at the property is typical of the south Okanagan Valley, moderately dissected rolling terrain with steep slopes. The property is wooded with young alder, birch, pine and underlying brush. (See Plates 1 and 2)

### OWNERSHIP

The Stemwinder crown grants are under lease from the Fairview Mining Company Limited, which is a wholly-owned subsidiary of Asarco Incorporated. Highland Valley Resources Limited is operator.

\* These mineral rights, Lots 384, 385 and 554, also include surface rights.

## HISTORY

The Fairview Gold Camp, consisting of the Fairview, Stemwinder and Morning Star properties, was discovered in the 1890's. Accumulated production in the camp was 521,300 tons yielding an average grade of 0.122 oz. gold per ton and 1.42 oz. silver per ton. Diamond drilling (1982-84) footage at the Stemwinder property totals 14,000 feet in 33 holes, and has outlined an auriferous vein system comprised of the Main Vein, the H.W. Vein (North Vein) and the F.W. Vein (South Vein) which extend through the property and can be traced over a strike length of 4,400 feet. Drilling results suggest the presence of higher grade ore shoots positioned in this area between the Stemwinder Incline and the Centre Adit - North Drift. For example, Drill Hole 82-9 penetrated 11.0 feet yielding 0.268 oz. gold per ton and 0.547 oz. silver per ton; 82-8 cut 1.5 feet running 0.518 oz. Au and 9.64 oz. Ag; 83-5 intercepted 2.5 feet of 0.318 oz. Au, 3.68 oz. Ag; and 83-4 yields 2.5 feet of 0.445 oz. Au and 0.42 oz. Ag. These encouraging intercepts suggest that these higher grade auriferous shoots could have some recurrent order and could be of sufficient size and frequency to sweeten background auriferous quartz to milling or leaching grade. As a result of these favourable indications, further underground exploration work was recommended and is currently in progress. This work is being directed along the North Vein, northerly, to connect the old workings at the Centre Adit (Brown Bear claim) to the Stemwinder shafts (Stemwinder claim), a distance of approximately 2,000 feet. See Plate 3.

Additional details of drilling results, geology, and tonnage potential, see D. M. Fletcher Report dated June 28, 1986, submitted with Management's Report and Financial Statement on February 25, 1987, re Financial Assistance Application.

## PHYSICAL WORK DONE

During July and August, 1986, an exploration trailer camp was set up on the Brown Bear claim. Preparation to commence underground exploratory work on the North Vein (HW Vein) included: installation of hydro and telephone line connections, establishing water supply for both camp and underground usage, improve access road, construction of a powder magazine, workshop and waste dump area, all of which are located adjacent and perimeter to the Centre Adit portal. In addition, the portal was re-timbered, slashing of the old adit cross-cut commenced, and rail laid.

PHYSICAL WORK DONE (cont'd)

In September, underground work accelerated, slashing of old workings was completed, and drifting to follow the HW (North Vein) was initiated. By the end of February, 1987, over 1,200 feet advance was completed. (See Appendix listing man days of work as well as Plate 4 depicting advance.) Underground exploratory work continues.

RESULTS OF WORK TO FEBRUARY 28, 1987

The objective of exploratory underground work on the Stemwinder property is to assess, to delineate, and to evaluate the economic potential of gold bearing ore shoots on the HW Vein (North Vein). This work will explore those areas with higher grade diamond drill intercepts, determine continuity, frequency, size and regularity of precious metals (gold and silver) content. Information necessary to estimate mine development costs, to determine the dilution factor, and to assist in the metallurgical recovery of gold and silver is being provided. In addition, this exploratory work will provide access to auriferous ore shoots positioned on the Main and South Veins.

Plate 5 indicates the position, length and precious metal grade of samples taken on the North Vein by this writer. Appendix 2 is a listing of fire-assay results as well as an abbreviated summary of analytical techniques performed by the assayer.

Samples demonstrating the presence of higher grade precious metal content are listed.

<u>Samples No.</u>	<u>Interval (feet)</u>	<u>Fire Assay</u> <u>Ounces Per Ton</u>	
		<u>Au</u>	<u>Ag</u>
100353	6.0	1.75	0.62
100354	3.0	0.10	6.20
100355	2.0	0.338	4.86
100356	4.0	0.219	3.76
100370	2.5	0.037	0.65
100378	3.0	0.099	0.28
100382	6.0	0.243	0.15

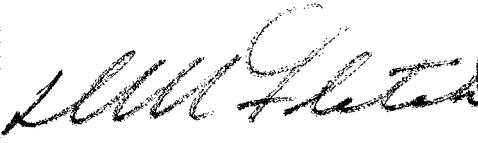
As underground exploratory work progresses, definition of the H.W. Vein system continues, and indicates those areas yielding background precious metal values and areas of higher grade. Subsequently, the results will assist in determining metallurgical treatment to estimate the cost effectiveness of milling and/or leaching to extract precious metal content.

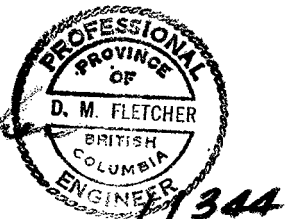
CERTIFICATION

I, D. M. Fletcher, of the City of Vancouver, Province of British Columbia, hereby certify as follows:

1. I am a geological engineer residing at 3908 West 31st Avenue, Vancouver, B.C.
2. I am a registered Professional Engineer in the Provinces of British Columbia and Ontario. I graduated from the University of British Columbia in 1956.
3. I have practiced my profession for thirty years.
4. I have no interest, direct or indirect, in the Stemwinder group of claims, or in the securities of Highland Valley Resources Limited, or its affiliates, nor do I expect to receive any interest.
5. The information in this report is derived from engineering data obtained from Fairview Mining Company files, the British Columbia Minister of Mines and Petroleum Resources Reports, and from examination of the claim group.

Dated at Vancouver, B.C., this 18th day of March, 1987.

  
D. M. Fletcher, P.Eng.



APPENDIX 1



OPERATOR - MAN DAYS

<u>1986</u>	<u>No. of Men</u>	<u>Man Days</u>
Sept. 13 - Oct. 3	2	42
Oct. 4 - Oct. 10	4	28
Oct. 11 - Oct. 18	3	21
Oct. 19 - Nov. 22	4	140
Nov. 23 - Dec. 20	6	168
 <u>1987</u>		
Jan. 4 - Jan. 17	2	28
Jan. 18 - Feb. 7	1	21
Feb. 8 - Feb. 28	5	105
	<u>Total</u>	<u>553</u>

SUPERVISOR - MAN DAYS

<u>1986</u>		
July 1 - July 31	2 +(1 for 2 days)	64
Aug. 1 - Aug. 31	1	31
Sept. 1 - Sept. 30	2	60
Oct. 1 - Oct. 31	2	62
Nov. 1 - Nov. 30	2	60
Dec. 1 - Dec. 31	2	62
 <u>1987</u>		
Jan. 1 - Jan. 31	2	62
Feb. 1 - Feb. 28	2	56
		<u>457</u>

APPENDIX 2

ACME ANALYTICAL LABORATORIES LTD.  
852 E. HASTINGS, VANCOUVER B.C.  
PH: (604)253-3158 COMPUTER LINE:251-1011

DATE RECEIVED MAR 3 1987

DATE REPORTS MAILED

*Mar 6/87*

**ASSAY CERTIFICATE**

SAMPLE TYPE : ROCK - CRUSHED AND PULVERIZED TO -100 MESH.  
AG\*\* AND AU\*\* BY FIRE ASSAY

ASSAYER *D. Toye* DEAN TOYE . CERTIFIED B.C. ASSAYER

HIGHLAND VALLEY FILE# 87-0558

PAGE# 1

SAMPLE	Ag** oz/t	Au** oz/t
100377	.09	.022
100378	.28	.099
100379	.26	.028
100380	.17	.028
100381	.02	.009
100382	.15	.243
100383	.07	.023

*Rec'd  
MAR 3/87*

ACME ANALYTICAL LABORATORIES LTD.  
852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6  
PHONE 253-3158 DATA LINE: 251-1011

DATE RECEIVED: FEB 20 1987

DATE REPORT MAILED: *Feb 25/87*

**ASSAY CERTIFICATE**

SAMPLE TYPE: ROCK CHIPS AU\*\* AND AG\*\* BY FIRE ASSAY

ASSAYER: *A. Toye* DEAN TOYE. CERTIFIED B.C. ASSAYER.

HIGHLAND VALLEY

FILE # 87-0428

PAGE 1

SAMPLE#	Ag** OZ/T	Au** OZ/T
100370	.65	.037
100371	.40	.024
100372	.14	.008
100373	.09	.021
100374	.35	.032
100375	.08	.011
100376	.21	.014

ACME ANALYTICAL LABORATORIES LTD.  
852 E. HASTINGS, VANCOUVER B.C.  
PH: (604)253-3158 COMPUTER LINE:251-1011

DATE RECEIVED DEC 18 1986

DATE REPORTS MAILED

*Dec 24/86*

### ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PULVERIZED TO -100 MESH.  
AG\*\* AND AU\*\* BY FIRE ASSAY

ASSAYER *D. Toye* DEAN TOYE , CERTIFIED B.C. ASSAYER

HIGHLAND VALLEY RES. FILE# 86-4014

PAGE# 1

SAMPLE	Ag** oz/t	Au** oz/t
100361	.06	.020
100362	.38	.076
100363	1.00	.071
100364	.09	.038
100365	.07	.015
100366	.15	.017
100367	.19	.049
100368	.05	.005
100369	.06	.010

ACME ANALYTICAL LABORATORIES LTD.

852 E.HASTINGS ST.VANCOUVER B.C. V6A 1R6

PHONE 253-3158

DATA LINE 251-1011

### GEOCHEMICAL ICP ANALYSIS

.500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.  
THIS LEACH IS PARTIAL FOR MN.FE.CA.P.CR.MG.BA.TI.B.AL.NA.K.W.SI.ZR.CE.SN.Y.NB AND TA. AU DETECTION LIMIT BY ICP IS 3 PPM.  
- SAMPLE TYPE: ROCK CHIPS

DATE RECEIVED: DEC 18 1986 DATE REPORT MAILED: *Dec 24/86* ASSAYER: *D. Toyne*..DEAN TOYE. CERTIFIED B.C. ASSAYER.

HIGHLAND VALLEY RES. FILE # 86-4014

PAGE 1

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	%	PPM	PPM	%	PPM	%	%	%	%	%	PPM
100365	21	21	207	32	2.0	9	2	84	1.45	27	5	ND	1	6	1	2	2	2	.12	.009	2	3	.05	18	.01	2	.04	.01	.02	2

ACME ANALYTICAL LABORATORIES LTD.

DATE RECEIVED DEC 9 1986

852 E. HASTINGS, VANCOUVER B.C.

PH: (604)253-3158 COMPUTER LINE:251-1011

DATE REPORTS MAILED

*Dec 18/86*

## ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PULVERIZED TO -100 MESH.

AG\*\* AND AU\*\* BY FIRE ASSAY

ASSAYER

*D. Toye*

DEAN TOYE . CERTIFIED B.C. ASSAYER

HIGHLAND VALLEY RESOURCES FILE# 86-3934

PAGE# 1

SAMPLE	Ag** oz/t	Au** oz/t
100357	.01	.001
100358	.01	.001
100359	.01	.001
100360	.01	.001

CME ANALYTICAL LABORATORIES LTD.  
 852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6  
 PHONE 253-3158 DATA LINE: 251-1011

DATE RECEIVED: NOV 4 1986

DATE REPORT MAILED: *Nov 13/86*.....

### ASSAY CERTIFICATE

SAMPLE TYPE: ROCK CHIPS AU\*\* AND AG\*\* BY FIRE ASSAY

ASSAYER: *D. Toye* DEAN TOYE. CERTIFIED B.C. ASSAYER.

HIGHLAND VALLEY RES FILE # 86-3524

PAGE 1

SAMPLE#	Ag** OZ/T	Au** OZ/T
100351	.23	.069
100352	.15	.040
100353	.62	1.750
100354	6.20	.100
100355	4.86	.338
100356	3.76	.219



## WHOLE ROCK ICP ANALYSIS

A .1000 GRAM SAMPLE IS FUSED WITH .60 GRAM OF LiBO2 AND IS DISSOLVED IN 50 ML5 5% HNO3.

- SAMPLE TYPE: ROCK CHIPS

DATE RECEIVED: NOV 4 1986 DATE REPORT MAILED: *Nov 13/86* ASSAYER: *D. Toye* DEAN TOYE, CERTIFIED B.C. ASSAYER.

HIGHLAND VALLEY RES FILE # 86-3524

PAGE 1

SAMPLE#	SiO2 %	Al2O3 %	Fe2O3 %	MgO %	CaO %	Na2O %	K2O %	TiO2 %	P2O5 %	MnO %	Cr2O3 %	Ba PPM	Loi %	Sum
100351	92.30	1.95	1.63	.31	.41	.15	.80	.09	.03	.02	.01	428	1.8	99.57
100352	88.77	3.35	2.44	.67	.93	.15	1.10	.16	.05	.03	.01	781	2.0	99.79
100353	78.34	2.33	8.63	.41	.57	.15	.85	.12	.07	.02	.01	648	5.8	97.41
100354	93.00	1.64	2.02	.31	.61	.15	.65	.08	.04	.02	.01	402	1.2	99.80
100355	88.68	1.28	3.14	.16	3.60	.15	.35	.05	.02	.04	.01	282	.9	98.43
100356	79.83	.67	10.25	.28	2.99	.10	.25	.02	.01	.06	.01	134	5.4	99.89
STD SO-4	67.95	10.23	3.39	.97	1.62	1.35	2.05	.54	.20	.07	.01	770	11.3	99.81



## ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B.C. V6A 1R6

Telephone : 253 - 3158

1986

Acme Analytical continues to update with mass spectrographic analysis which is now operational. In general, mass spec offers detection limits which are at least 100-fold lower than ICP or flame AA. These limits are comparable to graphite furnace AA, but the mass spec can analyze up to 60 elements simultaneously.

Acme has pioneered low cost multi-element ICP which has better detection and precision than AA. Mass spec will further expand the range of elements and isotopes available to mineral exploration programs.

### SPACE

Total laboratory, sample preparation and sample storage has been expanded to 12,000 square feet.

### EQUIPMENT

1. Our ICP system has been expanded, and a fourth unit has been purchased which will allow us to determine up to 45 elements simultaneously.
2. AA spectrophotometers have been increased to 8.
3. Sample preparation, weighing and dissolution facilities have been increased.
4. A LECO Induction Furnace has been installed for determining Carbon and Sulfur simultaneously in geological and metallurgical samples.
5. An UA3 Laser Fluorometer from Scintrex is now used for determination of U in water to .01 ppb.
6. Two ICP mass spectrographs.

### TECHNOLOGY

1. Fire Assay for Ag, Au, Pt, Pd, the precious metal bead can be analysed by gravimetric, AA, ICP or Mass spec.
2. ICP multi element packages for water, geochem and assay programs have been developed.
3. Lower detection limits for some elements have been achieved by graphite furnace AA.

### TECHNICAL ACHIEVEMENTS

1. Background corrected Atomic Absorption analysis of Ag and Au since 1971.
2. Best proven precision, accuracy and price for MoS<sub>2</sub> assays in North America.
3. Pioneered geochemical analysis by ICP at or to better detection limits than AA, including Ag, As, U, Th and W.
4. First to offer Mass spectrographic scan analysis.

### PROVEN PERFORMANCE

Our logistical and technical performance for our clients has been demonstrated on the Gambier, Capoose Lake, Trout Lake, Blackdome, Red Mountain, Carolin, Cirque, Minago River, Quesnel River, Terra Swede, Musto and other major projects.





## ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B.C. V6A 1R6

Telephone : 253 - 3158

### GEOCHEMICAL LABORATORY METHODOLOGY - 1986

#### Sample Preparation

1. Soil samples are dried at 60°C and sieved to -80 mesh.
2. Rock samples are pulverized to -100 mesh.

#### Geochemical Analysis (AA and ICP)

0.5 gram samples are digested in hot dilute aqua regia in a boiling water bath and diluted to 10 ml with demineralized water. Extracted metals are determined by :

##### A. Atomic Absorption (AA)

Ag\*, Bi\*, Cd\*, Co, Cu, Fe, Ga, In, Mn, Mo, Ni, Pb, Sb\*, Tl, V, Zn  
 (\* denotes with background correction.)

##### B. Inductively Coupled Argon Plasma (ICP)

Ag, Al, As, Au, B, Ba, Bi, Ca, Cd, Co, Cu, Cr, Fe, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, Th, Ti, U, V, W, Zn.

##### C. Mass Spec

Same as above except delete As, and add Li, Ga, Ge, Rh, Pd, In, Te, Re, Os, Ir, Hg, Tl.

#### Geochemical Analysis for Au\*

10.0 gram samples that have been ignited 4 hours at 600°C are digested with 30 mls hot dilute aqua regia, and 75 mls of clear solution obtained is extracted with 5 mls Methyl Isobutyl Ketone.

Au is determined in the MIBK extract by Atomic Absorption using background correction (Detection Limit = 1 ppb).

#### Geochemical Analysis for Au\*\*, Pd, Pt, Rh

10.0 - 30.0 gram samples are subjected to Fire Assay preconcentration techniques to produce silver beads.

The silver beads are dissolved and Au, Pd, Pt, and Rh are determined in the solution by graphite furnace Atomic Absorption. Detections - Au=1 ppb; Pd, Pt, Rh=5 ppb

#### Geochemical Analysis for As

0.5 gram samples are digested with hot dilute aqua regia and diluted to 10 ml. As is determined in the solution by Graphite Furnace Atomic Absorption (AA) or by Inductively Coupled Argon Plasma (ICP).

#### Geochemical Analysis for Barium

0.10 gram samples are fused .6 gm LiBO<sub>2</sub> and dissolved in 50 ml 5% HNO<sub>3</sub>, (Same as Whole Rock).

Ba is determined in the solution by ICP or M.S.

#### Geochemical Analysis for Tungsten

0.50 gram samples are fusion Na<sub>2</sub>O<sub>2</sub> and dissolved in 20 ml H<sub>2</sub>O.  
 W in the solution determined by ICP with a detection of 1 ppm.



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Telephone : 253 - 3158

Geochemical Analysis for Selenium

0.5 gram samples are digested with hot 3 ml of 50%  $\text{HNO}_3$  dilute to 10 ml with  $\text{H}_2\text{O}$ . Se is determined by M.S.

Precious Metal Mass Spec - analysis 41 elements (listed above.)  
5.0 gm samples are digested with 30 ml aqua regia and diluted to 100 mls then analysed by M.S.

Geochemical Analysis for Fluorine

0.25 gram samples are fused with sodium hydroxide and leached with 10 ml water. The solution is neutralized, buffered, adjusted to pH 7.8 and diluted to 100 ml.

Fluorine is determined by Specific Ion Electrode using an Orion Model 404 meter.

Geochemical Analysis for Tin

1.0 gram samples are fused with ammonium iodide in a test tube. The sublimed iodine is leached with 5 ml of dilute hydrochloric acid.

The solution is determined by Atomic Absorption.

Geochemical Analysis for Chromium

0.1 gram samples are fused with  $\text{Na}_2\text{O}_2$ . The melt is leached with HCl and analysed by AA or ICP. Detection 1 ppm.

Geochemical Analysis for Hg

0.5 gram samples is digested with aqua regia and diluted with 20% HCl.

Hg in the solution is determined by cold vapour AA using a F & J Scientific Hg assembly. An aliquot of the extract is added to a stannous chloride / hydrochloric acid solution. The reduced Hg is swept out of the solution and passed into the Hg cell where it is measured by AA.

Geochemical Analysis for Ga & Ge

0.5 gram samples are digested with hot aqua regia with HF in pressure bombs.

Ga and Ge in the solution are determined by graphite furnace AA or M.S. Detection 1 ppm.

Geochemical Analysis for Tl (Thallium)

0.5 gram samples are digested with 1:1  $\text{HNO}_3$ . Tl is determined by graphite AA or by M.S. Detection .1 ppm.

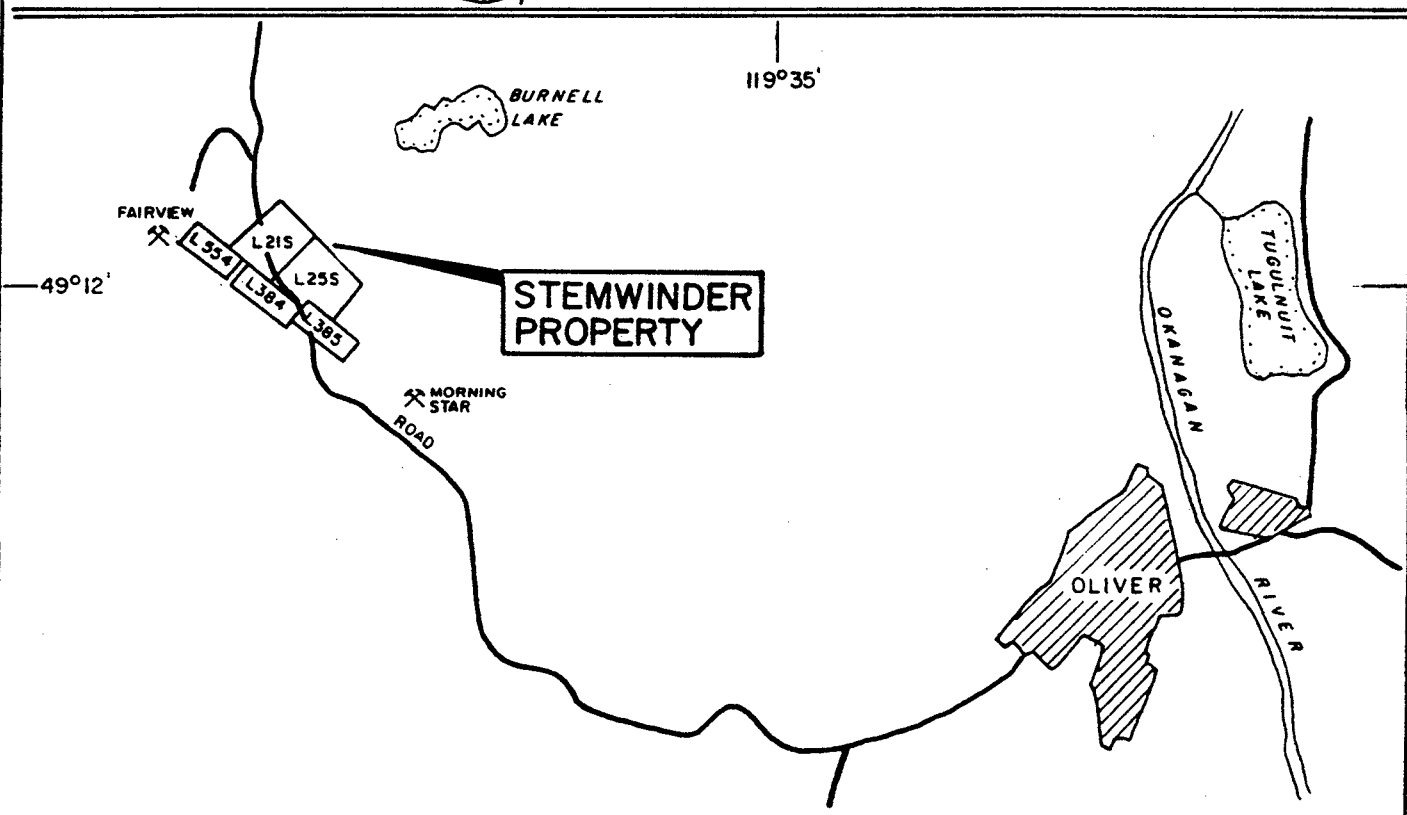
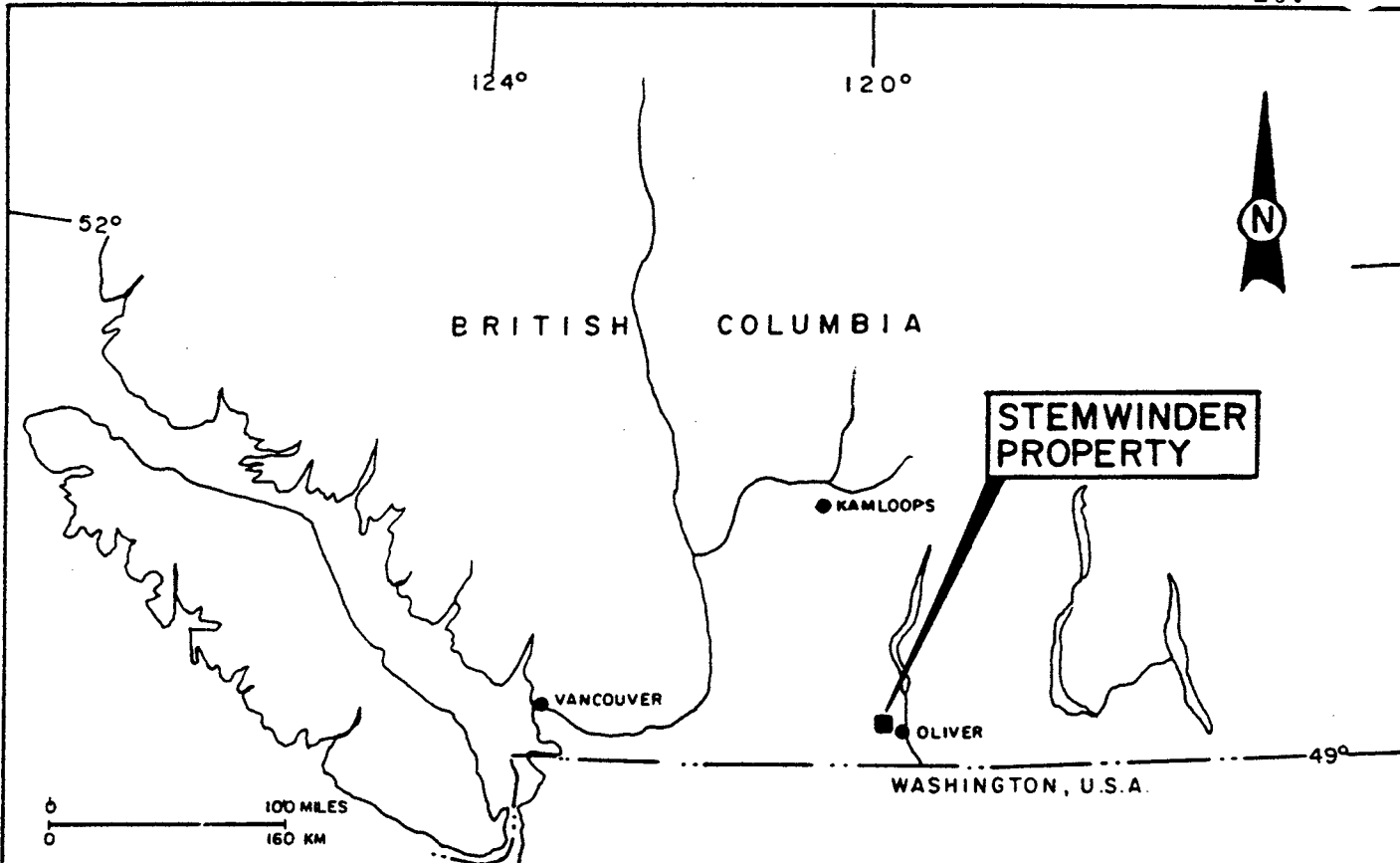
Geochemical Analysis for Te (Tellurium)

0.5 gram samples are digested with hot aqua regia. The Te extracted in MIBK is analysed by AA graphite furnace or analysed by M.S. Detection .1 ppm.

Geochemical Whole Rock

0.1 gram is fused with .6 gm  $\text{LiBO}_2$  and dissolved in 50 mls 5%  $\text{HNO}_3$ . Analysis is by ICP gives excellent precision for major components. The M.S. can analyze for up to 50 elements with lower detection limit but lower precision.

I L L U S T R A T I O N S



HIGHLAND VALLEY RESOURCES LTD.

STEMWINDER PROPERTY  
LOCATION MAP

N.T.S. 82E - 4E OSOYOOS M.D., B.C.

DRAWN BY	DATE	SCALE	DRAWING NO.	PLATE NO.
D.M.F.	JUNE 1986	AS SHOWN	86-001	1



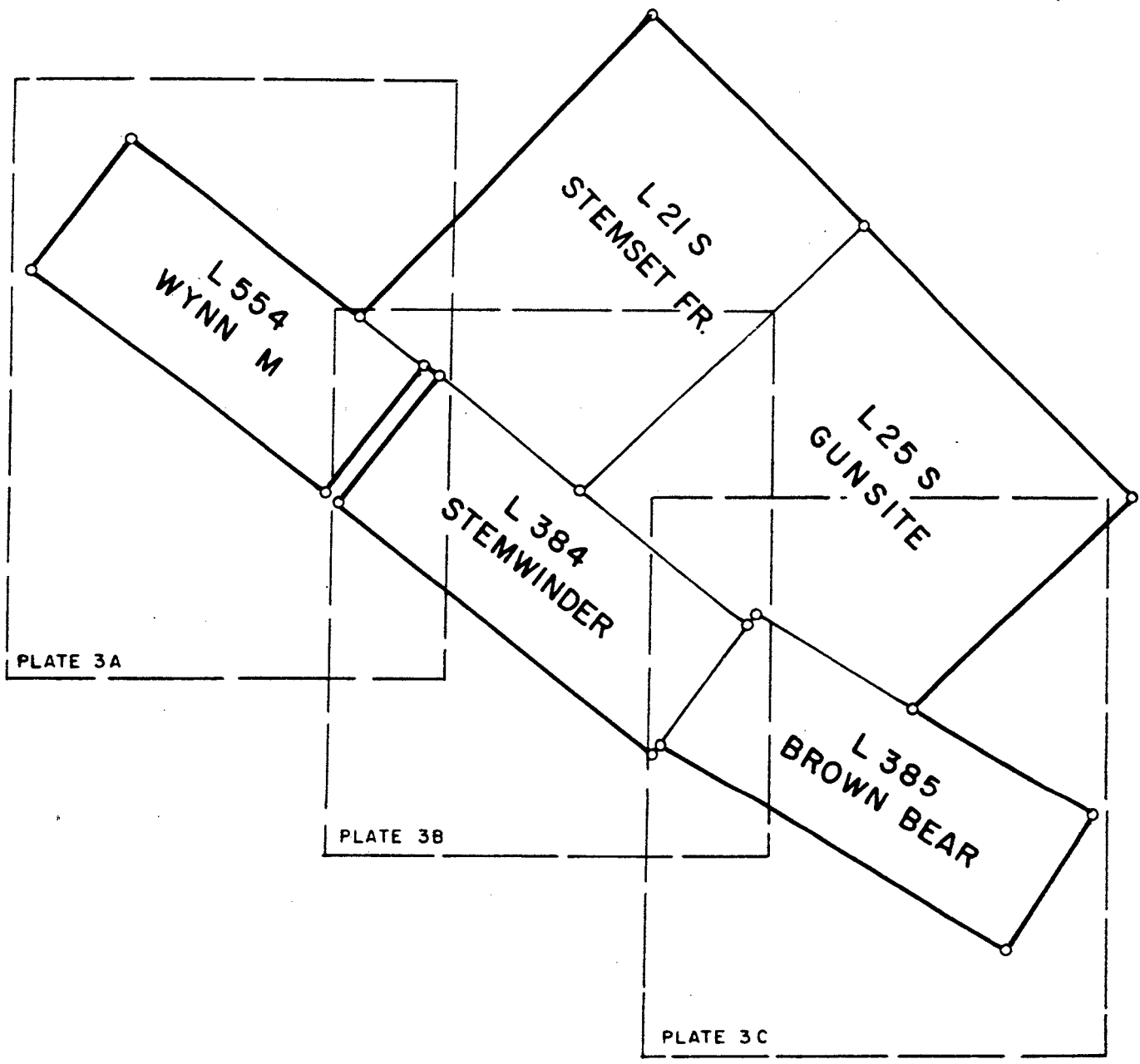


PLATE 3A

PLATE 3B

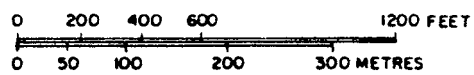
PLATE 3C

HIGHLAND VALLEY RESOURCES LTD.

STEMWINDER PROPERTY  
PROPERTY MAP  
(INDEX PLATES 3A-C)

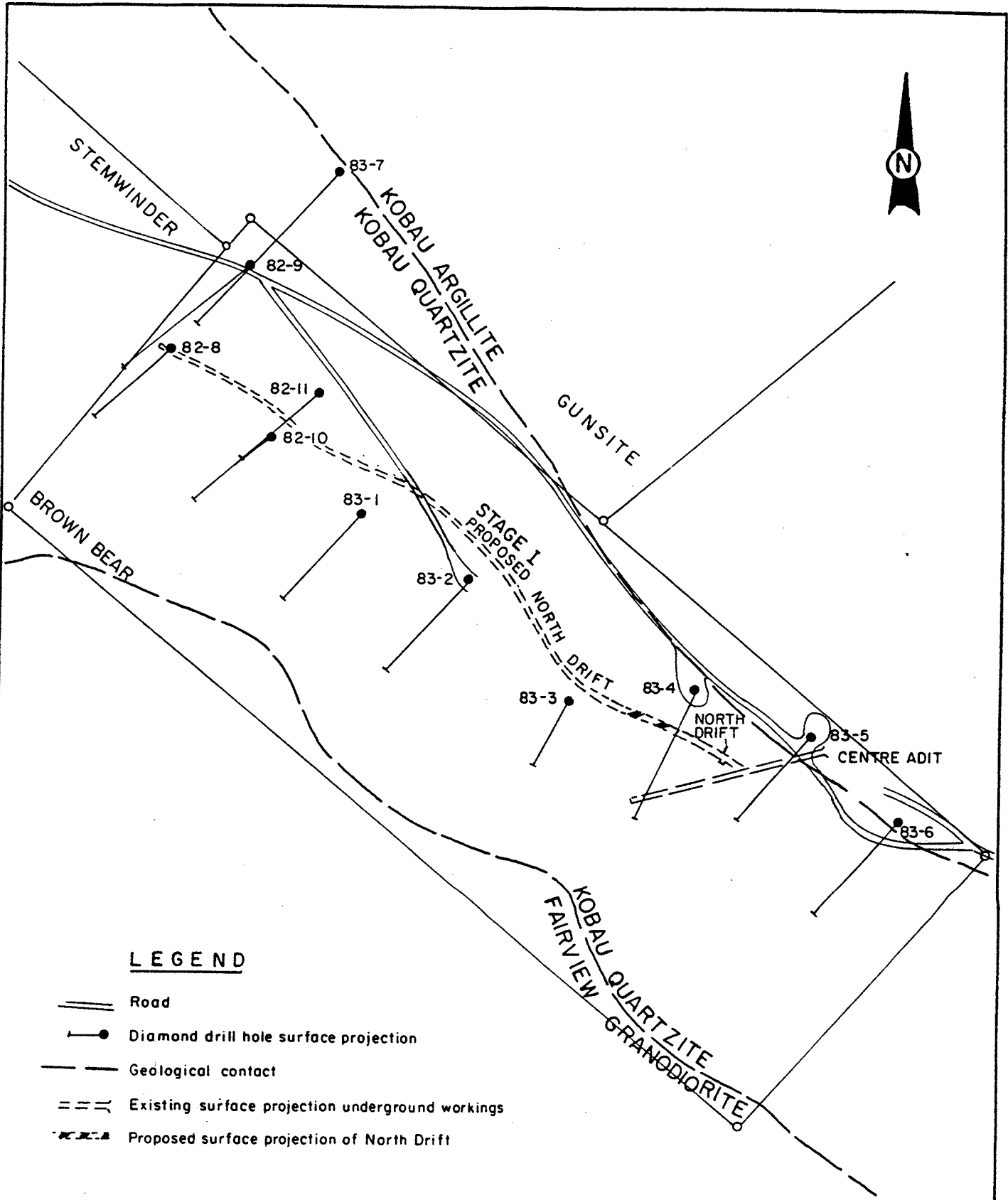
N.T.S. B2E-4E

OSOYOOS M.D., B.C.



DRAWN BY	DATE	SCALE	DRAWING NO.	PLATE NO.
D.M.F.	JUNE 1986	1:7200	86-002	2

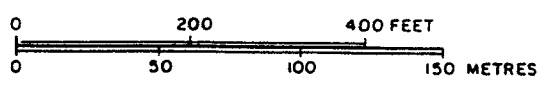




**LEGEND**

- Road
- Diamond drill hole surface projection
- Geological contact
- Existing surface projection underground workings
- Proposed surface projection of North Drift

( After Cominco / Asarco 1984 )



HIGHLAND VALLEY RESOURCES LTD.

STEMWINDER PROPERTY  
**PLAN - BROWN BEAR**

N.T.S. 82E-4E OSOYOOS M.D., B.C.

DRAWN BY	DATE	SCALE	DRAWING N <sup>o</sup>	PLATE N <sup>o</sup> .
D.M.F.	JUNE 1986	1:2640	86-005	3

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (IN METRIC UNITS)	ON WHICH CLAIMS	COST APPORTIONED
<b>GEOLOGICAL (scale, area)</b>			
Ground			
Photo			
<b>GEOPHYSICAL (line-kilometres)</b>			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
<b>GEOCHEMICAL (number of samples analysed for ....)</b>			
Soil			
Silt			
Rock			
Other			
<b>DRILLING (total metres; number of holes, size)</b>			
Core			
Non-core			
<b>RELATED TECHNICAL</b>			
Sampling/assaying	SAMP 32; A4, A9	Brown Bear, Stemwinder	
Petrographic			
Mineralogic			
Metallurgic			
<b>PROSPECTING (scale, area)</b>			
<b>PREPARATORY/PHYSICAL</b>			
Legal surveys (scale, area)			
Topographic (scale, area)			
Photogrammetric (scale, area)			
Line/grid (kilometres)			
Road, local access (kilometres)			
Trench (metres)			
Underground (metres)	UNRV 365.8 m		
			<b>TOTAL COST</b> 143,763.29

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 Feb. 23/88 Rept. No. 15770			Information Class (2)

KAMLOOPS

FAME REPORT (E244)

15770



Province of British Columbia

Ministry of Energy, Mines and Petroleum Resources

ASSESSMENT REPORT  
TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEYS: **PHYSICAL; GEOCHEMICAL**  
TOTAL COST: **143,763.29**

AUTHOR(S): **J.W. Carson** SIGNATURE(S):  
**O.M. Fletcher**

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED: **Feb. 27/87** YEAR OF WORK: **1986**

PROPERTY NAME(S): **STEMWINDER**

COMMODITIES PRESENT: **Au**

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN: **8ZE/SW-7**

MINING DIVISION: **0504005** NTS: **8ZE/4E**

LATITUDE: **49°12'** LONGITUDE: **119°38'**

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property. (Examples: T.A.K. 1-4, F.R.B. 1-11, or ex: F.H.D.E.N.I.X. (Lot 1706), Mineral Lease M 123, Mining or Carried Mining Lease M.L. 12 (or any other No.))

**Stemset, Gunsite, Stemwinder, Brown Bear, Wynn M.**

OWNER(S): **Fairview Mining Company**

MAILING ADDRESS

OPERATOR(S) (that is, Company paying for the work):  
**Highland Valley Resources Ltd.**

MAILING ADDRESS

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

A northwest trending sedimentary belt 305 metres wide, 4.8 kilometres long, dipping 40-70 degrees northeast, is bounded to the northeast by Oliver granite and to the southwest by Fairview granite. The granites are of Jurassic age. The sedimentary belt hosts gold bearing quartz veins positioned in a quartzite unit sandwiched between underlying and overlying argillites.

REFERENCES TO PREVIOUS WORK: **A.R. 12646, 11364, 10205**

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

# 15,770

PART 1 OF 2

SAMPLES	FT	OPT Au	AG Ag
100354	3.0 FT	0.10/6.20	
100355	2.0 FT	.538/1.86	
100356	4.0 FT	.219/3.76	

SAMPLES	FT	OPT Au	AG Ag
100377	SLUDGE	0.022	0.09
100378	3.0	0.077	0.26
100379	3.0	0.028	0.26
100380	4.0	0.028	0.17
100381	6.0	0.007	0.02
100382	6.0	0.243	0.15
100383	6.0	0.023	0.07

SAMPLES	FT	OPT Au	AG Ag
100361	CAN	.020	.06
100362	3.0 FT	.076	.38
100363	3.0 FT	.071	1.00
100364	2.0 FT	.038	.09
100365	3.0 FT	.015	.07
100366	ROUND	.017	.15
100367	2.0 FT	.049	.19
100368	3.0 FT	.005	.05
100369	7.0 FT	.010	.06

- LEGEND**
- 82-7 DIAMOND DRILL HOLE WITH PROJECTED VEIN INTERCEPT AND ASSAY
  - DRIFTING COMPLETED
  - DRIFTING PLANNED
  - CROSS-CUT PLANNED
  - GOLD/SILVER FIRE ASSAY OUNCES PER TON

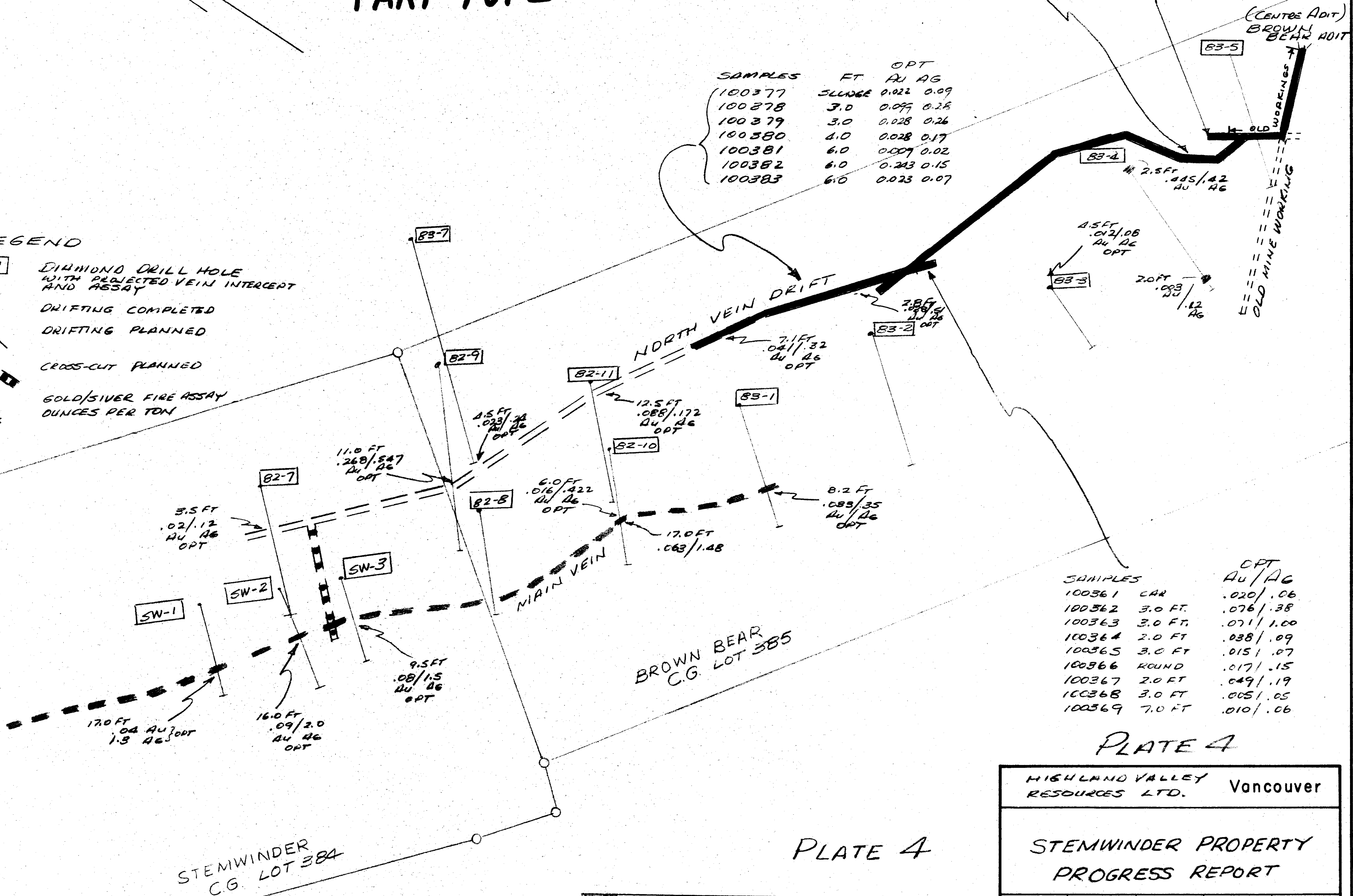
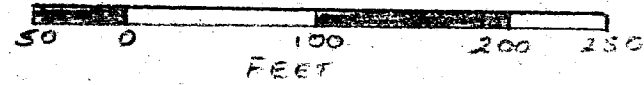


PLATE 4

HIGHLAND VALLEY RESOURCES LTD.		Vancouver	
<b>STEMWINDER PROPERTY PROGRESS REPORT</b>			
Drawn by	Date	N.T.S.	SCALE
D.M.F.	FEB. 28/87	82E/AE	100 FT = 1 INCH



83-1

MAR 23/87  
 100377 7.1' 0.04/0.32  
 100378 3.0' 0.04/.28  
 100379 3.0' 0.18/.26  
 100380 0.22/.17  
 100381 6.0' 0.09/.02  
 100382 6.0' 0.24/.15  
 100383 6.0' 0.07/.023  
 12600 E

10076 2.0' Au/Ag 0.04/0.21  
 10075 2.5' 0.01/0.03  
 100372 2.8' 0.38/.51  
 100374 4.0' 0.032/0.35  
 100373 6.5' 0.021/0.09  
 100371 3.0' 0.024/0.40  
 100370 2.5' 0.037/0.65

SAMPLES  
 Au Ag  
 100361 0.22/.06  
 100362 0.28/.28  
 100363 0.31/1.20  
 100364 0.15/1.07  
 100365 0.17/1.15  
 100366 0.22/1.19  
 100367 0.22/1.05  
 100368 0.10/1.26  
 100369

83-3  
 4.5' 0.012/0.08  
 2.3' 0.02/0.18

SAMPLES  
 100357 6.0' 0.01/.001  
 100358 6.0' 0.01/.001

SAMPLES  
 100359 1.0' 0.01/.001  
 100360 2.0' 0.01/.001

20' 0.003/0.12

83-4  
 2.5' 0.155/0.42

GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

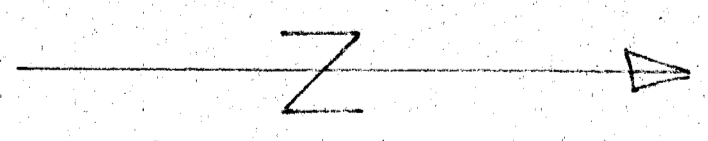
15,770  
 PART 1 OF 2

SAMPLE 100354 3.0 0.10/6.20

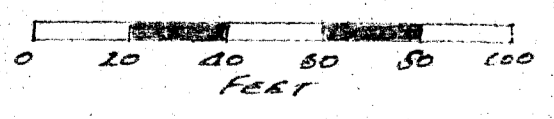
SAMPLES  
 100355 2.0' 0.338/1.8  
 100356 2.0' 0.219/3.0

SAMPLES  
 100351 3.0 0.069/0.23  
 100352 2.0 0.046/1.12  
 100353 6.0 1.76/1.52

83-5  
 2.5' 0.318/3.68



SCALE 1 INCH = 40 FEET



HIGHLAND VALLEY  
 RESOURCES LTD  
 BROWN BEAR CLAIM

D.M. FLETCHER

DEC 18/86  
 MAR 4/87

PLATE 5

BROWN BEAR ADIT