

680992

92H

**SUMMARY REPORT ON**

**THE ELK PROPERTY**

Similkameen Mining Division  
British Columbia  
NTS: 92H/16W  
Latitude 49°50'N, Longitude 120°19'W

for

**FAIRFIELD MINERALS LTD.**

by

C. J. Westerman, Ph.D., F.G.A.C.  
Consulting Geologist

Vancouver, B.C.  
April 23, 1991

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## S U M M A R Y

The Elk property of Fairfield Minerals Ltd. covers an area of approximately 130 square kilometres, located in gentle terrain on an uplands plateau, roughly half way between Merritt and Westbank in southern British Columbia. A major highway extending between these two towns crosses the north end of the claims.

The Elk property is underlain by a Jurassic granitic batholith in contact with Triassic greenstones and sediments. Quartz-feldspar porphyry stocks and andesite dykes are common. Five newly-discovered gold occurrences on the property consist of quartz veins cutting altered granite, volcanics and andesite dykes.

The Siwash North vein system is at the most advanced exploration stage. A preliminary geological reserve of 211,884 tonnes grading 21.72 gm/t Au and 22.01 gm/t Ag has been calculated for this area based on the results of 70 diamond drill holes (5820 metres) and 590 metres of surface stripping and panel sampling. This reserve remains open to expansion both at depth and along strike.

The four other gold zones on the property have received various amounts of trenching and in one area four diamond drill holes (260 metres) were completed. Strong and extensive structures were indicated with local mineralized sections yielding significant gold assays.

The style of mineralization and the extent of high grade gold within the Siwash North vein system indicate good potential for locating moderate tonnage high grade vein deposits. An exploration drill program to expand the indicated reserve in the Siwash North zone is recommended at an estimated cost of \$1.2 million.

## I N T R O D U C T I O N

### PREAMBLE

Fairfield Minerals Ltd. holds 100% interest in the ELK property subject to a 10% net proceeds interest to a maximum of \$2.5 million held by Placer Dome Inc. The author, as an independent Consulting Geologist has been retained by the Directors of Fairfield Minerals Ltd. to review results of exploration on the property and to report his findings with recommendations for future action. Early exploration results on the property were documented in a report by the author dated February 23, 1987 and a field

examination was undertaken in October of that year. The author has not been able to conduct a recent personal field examination of the property due to snow conditions at this time of the year. This report, therefore, is based on a review of data in company files and upon extensive discussions with the staff of Cordilleran Engineering Ltd. who have undertaken exploration programs on the property every year from 1986 through 1990 on behalf of Fairfield Minerals Ltd. Exploration expenditures and technical work since March 1988 have been monitored by Placer Dome Inc. The author has no reasons to doubt the professional integrity of the staff of Cordilleran Engineering Ltd. who have been undertaking mineral exploration programs on other projects, for many years on behalf of major mining company and junior resource company clients.

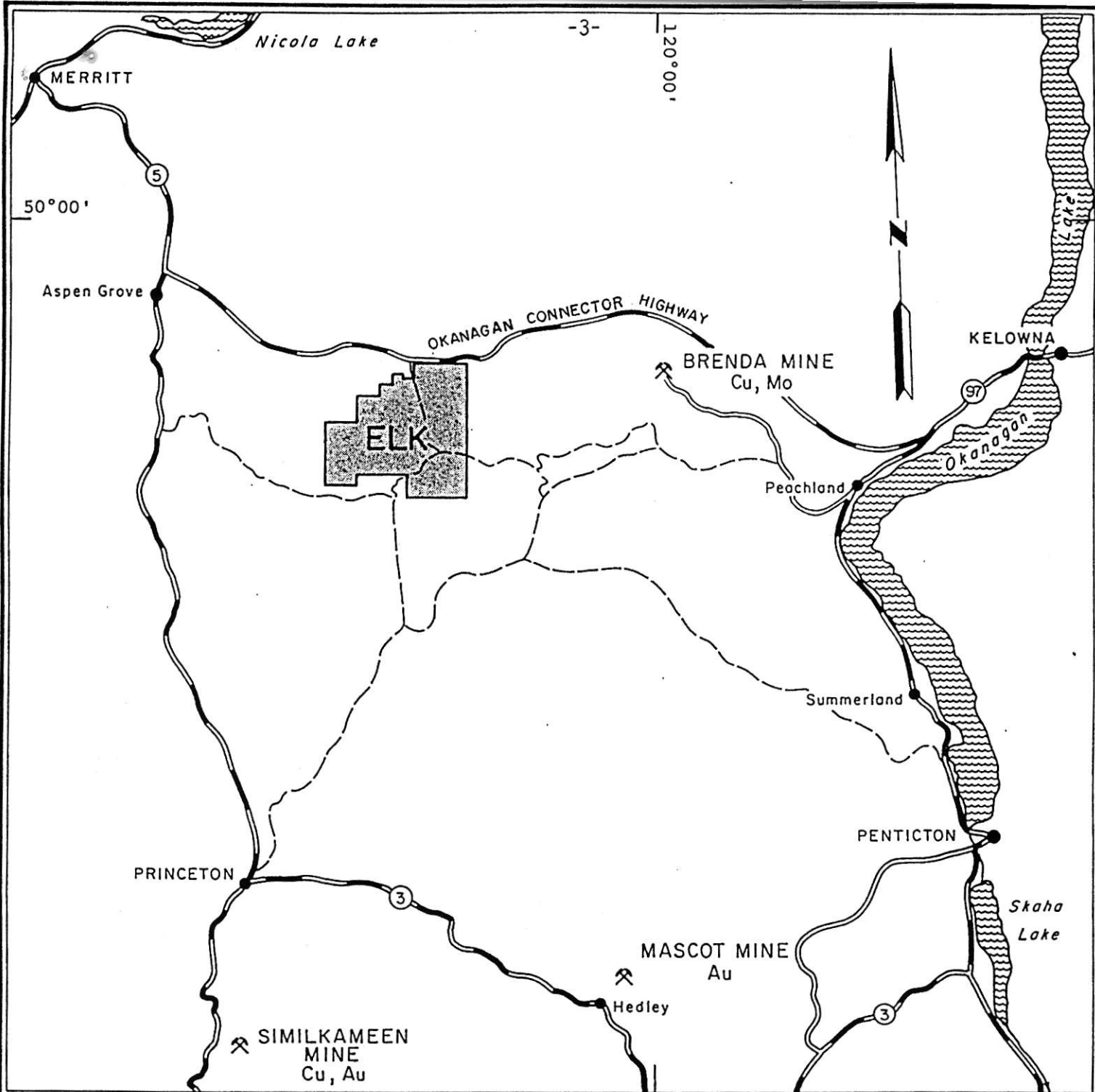
#### LOCATION AND ACCESS

The ELK property is located 42 kilometres west of Peachland and 45 kilometres southeast of Merritt in south-central British Columbia (Figure 1). It is centred on latitude 49°50'N and longitude 120°19'W within NTS map area 92/H-16W. The property is accessible via a major new highway which passes along the north boundary. The central, southeast and northeast parts of the property are easily accessible by gravel roads.

The claims cover an area of approximately 130 square kilometres in rolling, hilly terrain on a broad uplands plateau. Elevations range from 1300 m to 1750 m above sea level. Several small streams drain southward and northward off of the property. Siwash Lake, 1.2 km long, and several smaller ponds are located on the property. Outcrop exposures are moderately abundant except to the southeast where glacial gravel deposits are up to 10 metres thick. Mature stands of spruce, balsam and pine have been logged from several scattered plots in the area. Annual temperatures range from -20° C to 30° C and precipitation is low to moderate occurring mainly as snow. The area is basically snow-free from late June through October.

#### PROPERTY DEFINITION

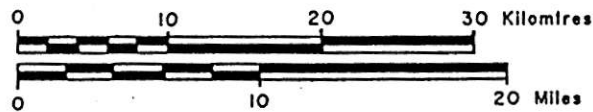
The Elk property consists of a contiguous block of 48 two-post mineral claims and 475 units in 36 M.G.S. mineral claims and 6 placer claims located in the Similkameen Mining Division of British Columbia (Figure 2). The claims are owned 100% by Fairfield Minerals Ltd. subject to a 10% Net Proceeds Interest to a maximum of \$2.5 million held by Placer Dome Inc. The 72 unit Agur Option Block is held 100% subject to a final cash payment of \$30,000 by October 1, 1991 and a 1% net smelter return from production to Mr. D. Agur of Summerland, B.C.



FAIRFIELD MINERALS LTD.

LOCATION MAP  
ELK GOLD PROPERTY

SOUTH OKANAGAN AREA, B.C.



Scale 1: 500,000

CORDILLERAN ENGINEERING LTD.  
1980-1055 W. HASTINGS STREET  
VANCOUVER, B.C. V6E 2E9

FIGURE 1



MAP AREA



APRIL 1991

Table 1

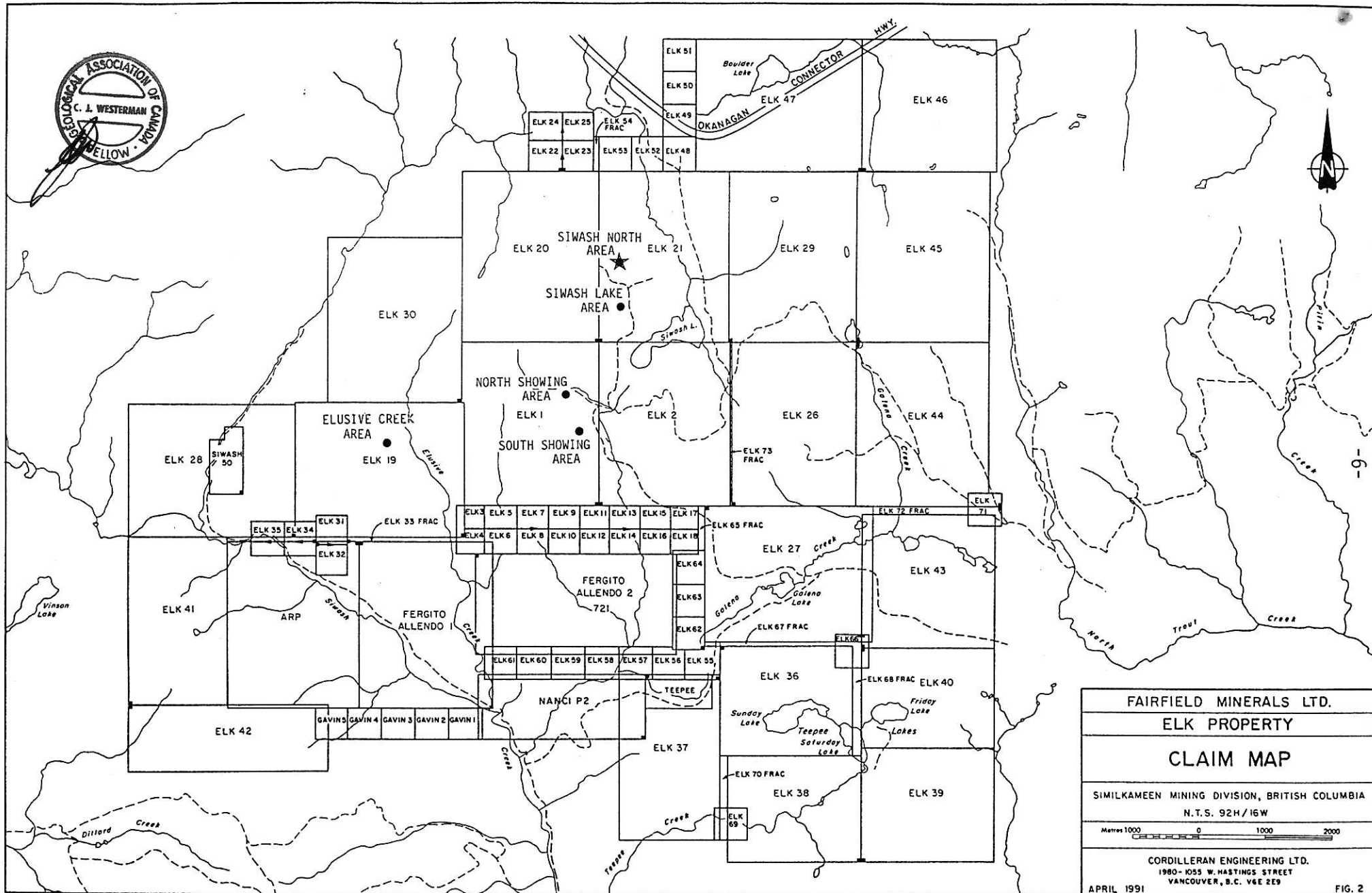
PROPERTY CLAIM STATUS

<u>CLAIM</u>	<u>UNITS</u>	<u>RECORD NO.</u>	<u>EXPIRY DATE</u>
ELK 1	20	2737	28 NOV 2000
ELK 2	20	2738	28 NOV 1999
ELK 3	2-post	2744	28 NOV 2000
ELK 4	2-post	2745	28 NOV 2000
ELK 5	2-post	2746	28 NOV 2000
ELK 6	2-post	2747	28 NOV 1996
ELK 7	2-post	2748	28 NOV 2000
ELK 8	2-post	2749	28 NOV 1996
ELK 9	2-post	2750	28 NOV 2000
ELK 10	2-post	2751	28 NOV 1996
ELK 11	2-post	2752	28 NOV 2000
ELK 12	2-post	2753	28 NOV 1996
ELK 13	2-post	2754	28 NOV 2000
ELK 14	2-post	2755	28 NOV 1996
ELK 15	2-post	2756	28 NOV 2000
ELK 16	2-post	2757	28 NOV 1996
ELK 17	2-post	2758	28 NOV 2000
ELK 18	2-post	2759	28 NOV 1996
ELK 19	20	2739	28 NOV 1996
ELK 20	20	2740	28 NOV 1999
ELK 21	20	2741	28 NOV 2000
ELK 22	2-post	2760	28 NOV 1999
ELK 23	2-post	2761	28 NOV 1999
ELK 24	2-post	2762	28 NOV 1999
ELK 25	2-post	2763	28 NOV 1999
ELK 26	20	2742	28 NOV 1998
ELK 27	20	2743	28 NOV 1996
ELK 28	20	3033	24 SEP 2000
ELK 29	20	3034	24 SEP 1999
ELK 30	20	3035	24 SEP 1999
ELK 31	2-post	3164	17 AUG 2000
ELK 32	2-post	3165	17 AUG 1996
ELK 33 FR	1	3202	28 SEP 2000
ELK 34	2-post	3211	29 SEP 2000
ELK 35	2-post	3210	29 SEP 1996
ELK 36	12	3242	2 NOV 2000
ELK 37	15	3243	31 OCT 2000
ELK 38	16	3333	7 MAY 2000
ELK 39	16	3334	7 MAY 1993
ELK 40	12	3335	7 MAY 1993
ELK 41	20	3337	9 MAY 2000
ELK 42	12	3338	9 MAY 2000
ELK 43	16	3336	7 MAY 1998
ELK 44	20	3373	6 JUN 1998
ELK 45	20	3374	6 JUN 1999
ELK 46	16	3375	5 JUN 1999
ELK 47	20	3376	6 JUN 1999

Table 1 PROPERTY CLAIM STATUS Continued

	<u>CLAIM</u>	<u>UNITS</u>	<u>RECORD NO.</u>	<u>EXPIRY DATE</u>
	ELK 48	2-post	3377	4 JUN 1999
	ELK 49	2-post	3378	4 JUN 1999
	ELK 50	2-post	3379	4 JUN 1999
	ELK 51	2-post	3380	4 JUN 1999
	ELK 52	2-post	3381	6 JUN 1999
	ELK 53	2-post	3382	6 JUN 1999
	ELK 54FR	1	3383	6 JUN 1999
	ELK 55	2-post	3411	5 JULY 2000
	ELK 56	2-post	3412	5 JULY 1996
	ELK 57	2-post	3413	5 JULY 1996
	ELK 58	2-post	3414	5 JULY 1996
	ELK 59	2-post	3415	5 JULY 1996
	ELK 60	2-post	3416	5 JULY 1996
	ELK 61	2-post	3417	5 JULY 1996
	ELK 62	2-post	3418	6 JULY 2000
	ELK 63	2-post	3419	6 JULY 2000
	ELK 64	2-post	3420	6 JULY 2000
	ELK 65FR	1	3421	6 JULY 2000
	ELK 66	2-post	3422	7 JULY 2000
	ELK 67FR	1	3423	7 JULY 2000
	ELK 68FR	1	3424	7 JULY 2000
	ELK 69	2-post	3425	7 JULY 2000
	ELK 70FR	1	3426	7 JULY 2000
	ELK 71	2-post	3427	7 JULY 1998
	ELK 72FR	1	3428	7 JULY 1998
	ELK 73FR	1	3749	20 AUG. 2000
	( ARP	20	719	13 SEP 1997
	( FERGITO ALLENDO 1	20	720	13 SEP 1996
Agur	( FERGITO ALLENDO 2	18	721	13 SEP 1996
Option	( NANJI P2	10	691	13 AUG 1996
	( TEEPEE	2	695	13 AUG 1996
	( SIWASH 50	2	1770	10 NOV 2000
	SNP 1	PLACER CLAIM	179	19 AUG. 1991
	SNP 2	PLACER CLAIM	180	19 AUG. 1991
	SNP 3	PLACER CLAIM	181	19 AUG. 1991
	SNP 4	PLACER CLAIM	182	19 AUG. 1991
	SNP 5	PLACER CLAIM	183	19 AUG. 1991
	SNP 6	PLACER CLAIM	184	19 AUG. 1991
	GAVIN 1	2-post	3523	26 SEP 1996
	GAVIN 2	2-post	3524	26 SEP 1996
	GAVIN 3	2-post	3525	26 SEP 1996
	GAVIN 4	2-post	3526	27 SEP 1996
	GAVIN 5	2-post	3527	27 SEP 1996

90 Claims                    475 Units  
+ 48 2-post Claims  
+ 6 Placer Claims



FAIRFIELD MINERALS LTD.	
ELK PROPERTY	
CLAIM MAP	
SIMLKAMEEN MINING DIVISION, BRITISH COLUMBIA	
N.T.S. 92H/16W	
CORDILLERAN ENGINEERING LTD. 1980-1055 W. HASTINGS STREET VANCOUVER, B.C. V6E 2E9	
APRIL 1991	FIG. 2



## HISTORY

Prior to 1986 the area of the Elk property had been subjected to sporadic mineral exploration programs which had failed to discover an economically significant mineral deposit. Sometime during the early part of this century an adit was driven on quartz vein-hosted lead-zinc-silver-gold mineralization in the area of the Elk 31 claim. An occurrence of disseminated chalcopyrite and pyrrhotite on the northern extension of the property was explored by soil geochemical, magnetometer and VLF-EM surveys during 1972 by Orequest Exploration Syndicate. Phelps Dodge Corporation of Canada Ltd., Utah Mines Ltd. and Brenda Mines Ltd. carried out copper exploration between 1972 and 1981 which included mapping and soil geochemistry, trenching, geophysics and diamond drilling in the area currently covered by the western Elk claims. Exploration for molybdenum was undertaken by Cominco Ltd. during 1980 on what is now the eastern Elk claims.

The lower Siwash Creek area south of the Elk property contains several mineral occurrences which have been explored intermittently since the early 1900's. Minor placer gold has also been recovered from this section of Siwash Creek. Bedrock mineralization consists of quartz veins with pyrite, sphalerite, galena, and rare chalcopyrite, arsenopyrite, tetrahedrite and hematite. Substantial silver and gold values have been reported. Many of these occurrences have been explored by open cuts, shallow shafts and adits, and some by later diamond drilling, geochemical and geophysical surveys.

The Elk claims were staked in stages from 1986 through 1989 by Fairfield Minerals Ltd. to cover new showings of gold-silver mineralization hosted in pyritic quartz veins. Exploration programs undertaken each year from 1986 through 1990 included; extensive grid soil geochemistry in excess of 16,000 samples, 105 line-kilometres of magnetometer and VLF-EM surveys, excavation of 63 trenches totalling 7690 linear metres in five target areas and diamond drilling of 6180 metres (74 holes) in two areas. Following are summaries of the trenching and drilling conducted in each area:

### Siwash North

Trenching: 3720 metres in 30 trenches  
Drilling: 5920 metres in 70 holes

### Siwash Lake:

Trenching: 800 metres in 9 trenches  
Drilling: 260 metres in 4 holes

### North Showing:

Trenching: 550 metres in 5 trenches

### South Showing

Trenching: 1490 metres in 14 trenches

### Elusive Creek:

Trenching: 1130 metres in 5 trenches

REFERENCES

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## G E O L O G Y

The Elk property is located within the Quesnel Terrane of the Intermontane belt at the northwest margin of the Osprey Lake Batholith (Figure 3). Coarse grained granite and granodiorite underlying the eastern part of the property constitute the bulk of the batholith and have been assigned a Late Jurassic age by Monger (1989). The western part of the property is underlain by Upper Triassic Nicola Group rocks consisting of intercalated andesitic to basaltic flows, volcanoclastic rocks, argillite and local limestone. These rocks trend roughly north-south with dips of about 60° to the west. A small stock of porphyritic granite in the southern part of the property is related to the Otter Intrusions of early Tertiary age. Irregular andesitic dykes of similar age are scattered throughout the area.

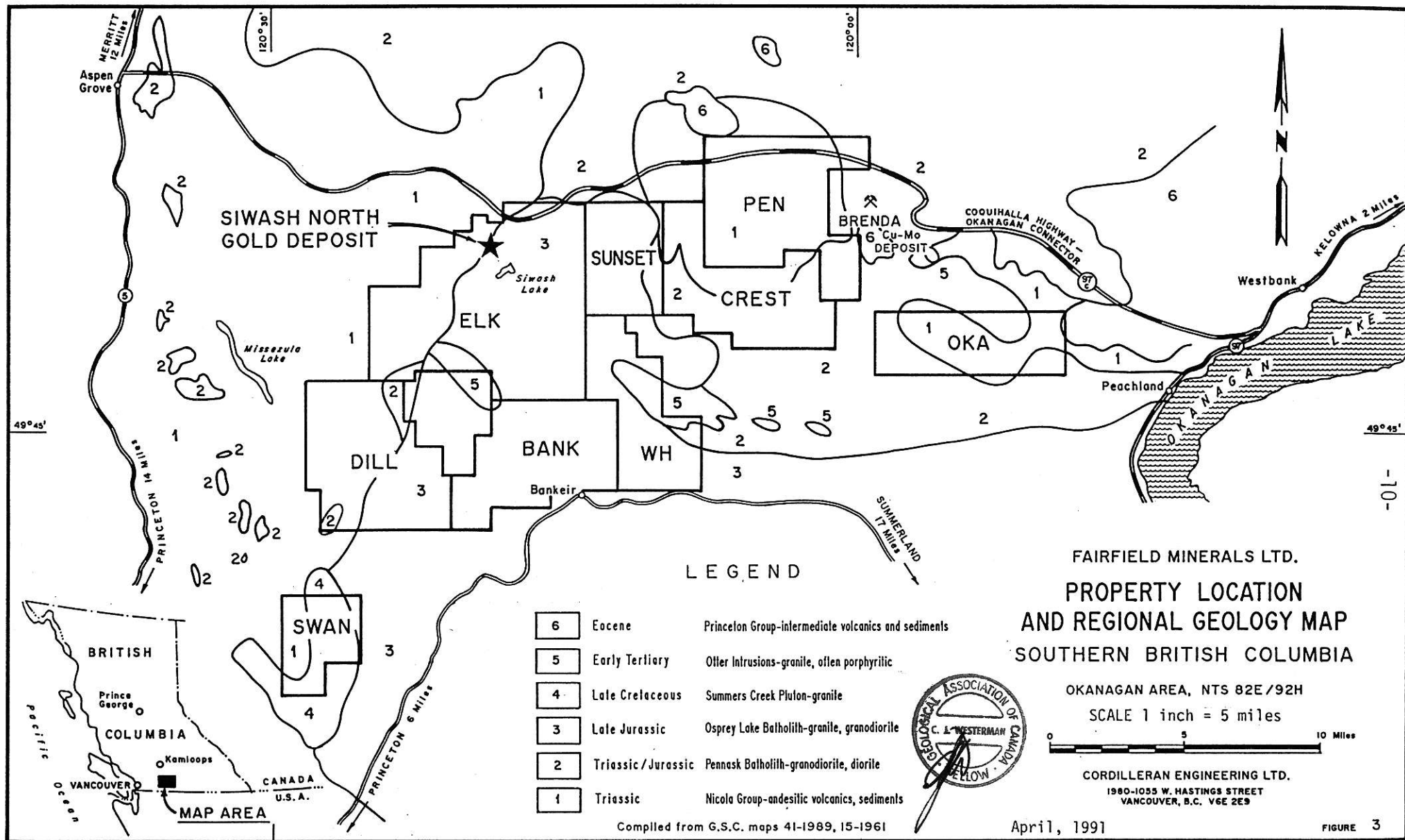
Most of the Elk property is blanketed by extensive glacial deposits of various types and thickness and consequently rock outcrop is not abundant. Topography reflects several linear structures, the most prominent being the north to northeast trending valleys occupied by Siwash Creek, Elusive Creek and a parallel creek 2.5 kilometres to the east. Subtle east to northeast trends are evident on aerial photographs and are commonly associated with mineralization.

## M I N E R A L I Z A T I O N

Gold-silver mineralization on the Elk property is hosted primarily by quartz veins and stringers in altered granitic, and less frequently, volcanic rocks. Cross-cutting relationships indicate that the veins are Tertiary in age and that they may be related to Tertiary Otter intrusive events. Several target areas have been defined on the property by soil geochemistry and five of these have been explored by trenching. The Siwash North area has been tested by 70 diamond drill holes and the Siwash Lake area by 4 diamond drill holes.

### SIWASH NORTH

The main region of interest on the property at present is the Siwash North area where a significant gold deposit has been indicated by trenching and diamond drilling. In this area gold occurs in veins which are 5cm to 70cm thick, hosted by strongly sericitic to phyllic altered granitic and volcanic rocks at an intrusive contact. In



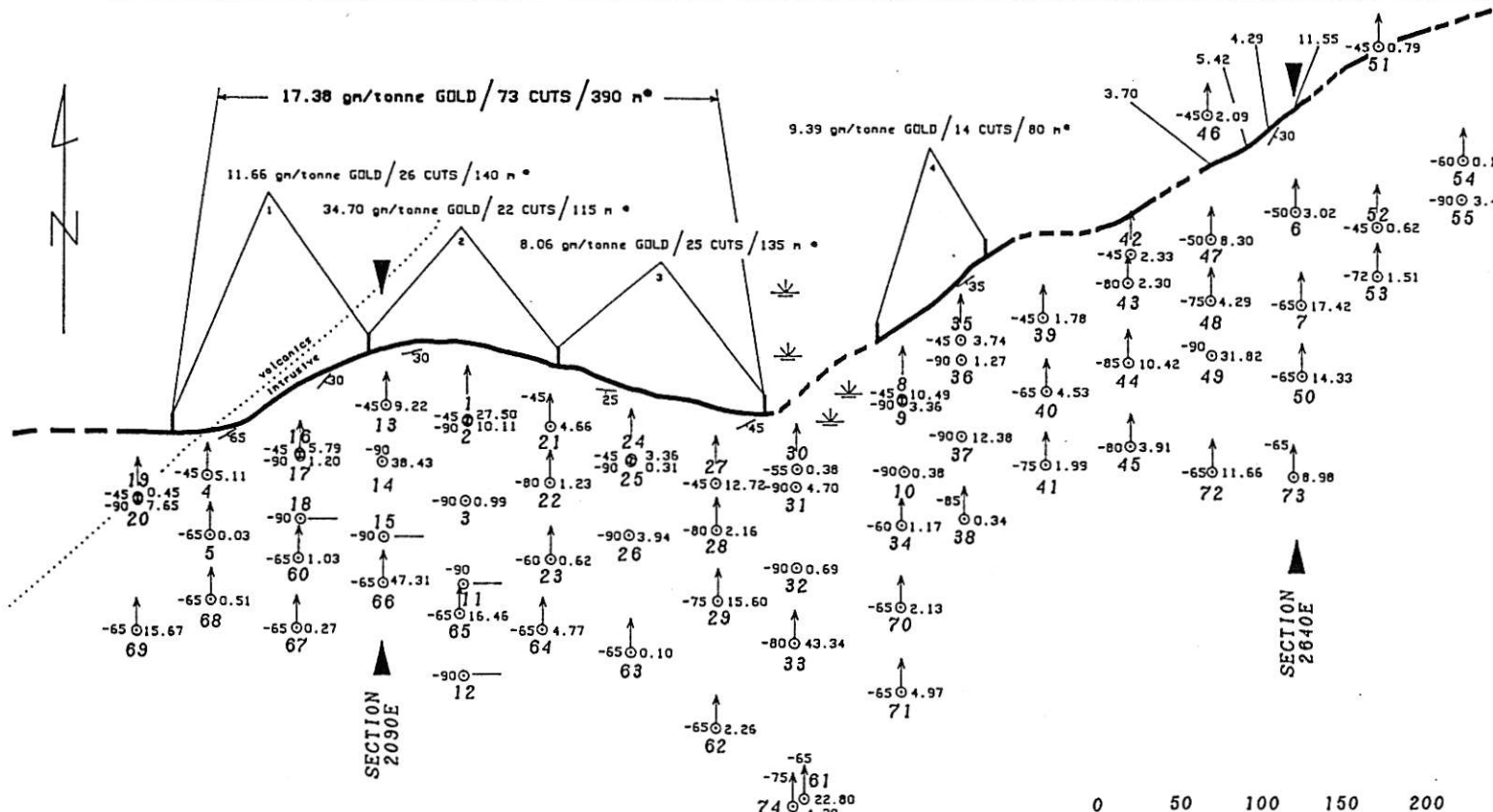
general, the mineralized veins trend  $080^{\circ}$  with southerly dips from  $20^{\circ}$  to  $80^{\circ}$ , and appear to be related to minor shearing. In the eastern part of the area up to four sub-parallel zones occur.

Supergene alteration at surface has leached out most of the sulphides with some pyrite and chalcopyrite remaining. Mineralization occurs primarily as native gold, occasionally as spectacular aggregates of coarse flakes, in frothy quartz (strong pyrite boxwork) or in fractures in the vein. Electrum has been noted in one area as very coarse-grained flakes associated with strong manganese staining. Gold is found rarely in boxworks in phyllic altered wallrock. Sulphide minerals in drill core have not been affected by supergene processes. Gold is closely associated with pyrite. Minerals seen in the core include pyrite, chalcopyrite, sphalerite, galena, tetrahedrite, pyrrhotite and native gold (in order of decreasing abundance). Gangue mineralogy consists primarily of quartz and altered wallrock fragments. Ankerite is commonly present with lesser amounts of calcite.

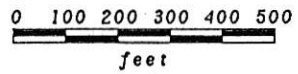
The vein structure has been traced by stripping and cross trenching along a strike length of 760m. Rock chip panel samples were collected at five metre intervals by Cordilleran Engineering Ltd. within stripped areas along a 588m strike length. Panel samples measured 0.5m by 0.5 to 1.0m long and weighed an average of 15 kg. They were shipped to Acme Analytical Labs in Vancouver where they were crushed, split to 1 kg, pulverized, sieved at -100 mesh and fire assays conducted on the coarse and fine fractions to give total gold content. The high grade vein ranges from 5 cm to 70cm wide and hence the vein assays were diluted for reporting purposes with assays of adjacent wallrock to give a weighted average gold grade over 2.0 metres true width. A 390 metre length cut by 73 panel samples averaged 17.38 gm/t gold over 2.0 metres true width. Centered within this section is a very consistent high grade interval averaging 34.70 gm/t gold over a 115 metre length (Figure 4).

Seventy (70) HQ diamond drill holes have been completed on 17 north-south fences at roughly 50m centres to test the mineralized quartz vein system to 250m down dip. The targeted zones were intersected in all but five holes, four of which were stopped short. Table 2 lists significant vein assays as well as check assay results for some of the samples. True widths were calculated based on interpretation of drill section plots and on measured vein contact angles observed in drill core. Assays were conducted by Acme Analytical Labs in Vancouver on samples of the entire HQ drill core across the vein zone and altered wallrocks. Gold content was determined by fire assay with additional metallics assay, as described previously for rock chip samples. All vein intercepts were diluted with values of adjacent wallrock samples to 2.0 metre true width, believed to be a realistic width required for future mining.

The mineralized structures vary in character and thickness from a sulphide-bearing vein up to 70cm thick to a group of veins hosted in phyllic-argillic altered granite or andesite. Locally, three subparallel zones (A,B,C) were defined in drill sections (Figure 5). Each zone consists of one or more veins within an elevation range of 5 to 10m that can be correlated as a group to the adjacent drill hole. The main mineralized zone (B) is consistent across the entire drill grid. It has better depth persistence in the western part of the grid and the A and C zones are better defined to the east of section 2340E. On the west side of the drill grid the B vein was found to steepen abruptly at depth and it is thought that all of the structures may do the same to the east. It is also believed that most of the drill holes on the west side may have stopped short of intersecting the C vein which could be subparallel to the overlying B vein.



\*34.70 gm/tonne GOLD / 22 CUTS / 115 m - GRAMS PER TONNE GOLD OVER 2.0 m. TRUE WIDTH / NUMBER OF SURFACE PANEL CUTS TAKEN ACROSS ZONE EVERY 4 m. - 6 m. ALONG STRIKE / LENGTH OF ZONE SAMPLED



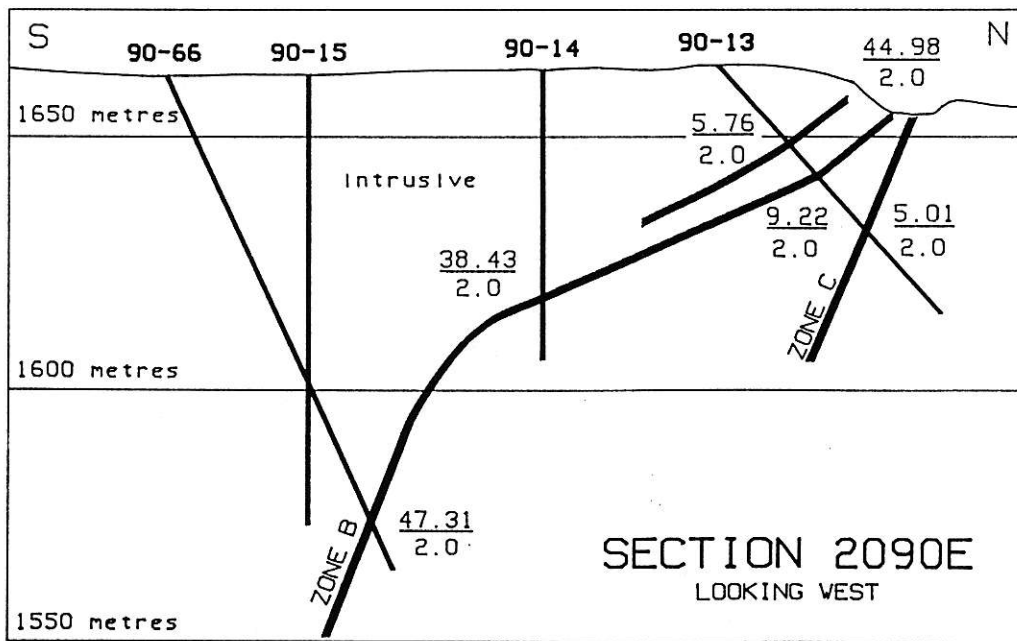
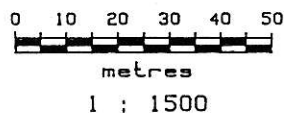
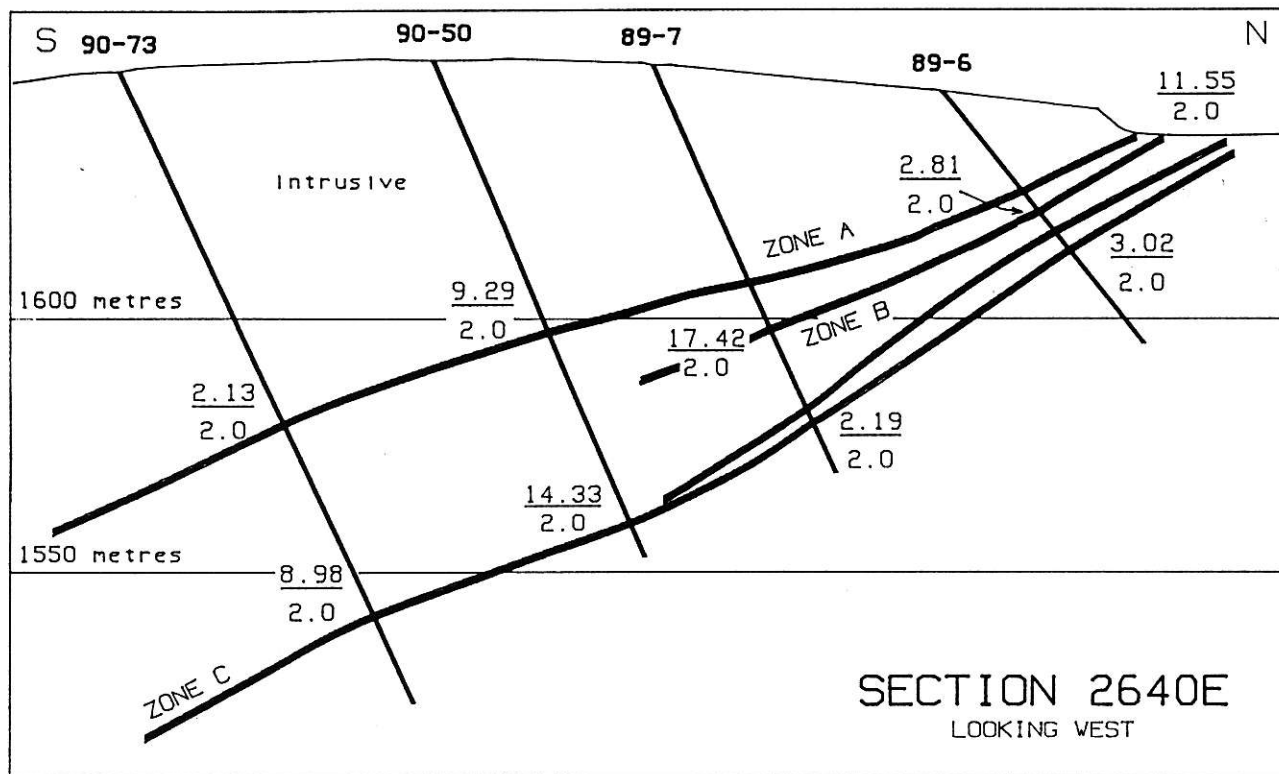
- DIAMOND DRILL HOLE  
 gm/tonne GOLD over  
 2.0 m TRUE WIDTH
- TRACE OF MINERALIZED  
 STRUCTURE  
 gm/tonne GOLD over  
 2.0 m TRUE WIDTH
- SWAMP

FAIRFIELD MINERALS LTD.  
 ELK PROPERTY  
 SIWASH NORTH DIVISION, BRITISH COLUMBIA  
 MTS 924 18V

**SIWASH NORTH  
 GOLD DEPOSIT  
 SURFACE PLAN**

COPPELLERAN ENGINEERING LTD.  
 1908 - 1855 V. HASTINGS STREET  
 VANCOUVER, B.C. V6E 2E3

APRIL 1991 FIGURE 4



$\frac{17.42}{2.0}$  gm/tonne GOLD  
true width, metres

— trace of mineralized structure

FAIRFIELD MINERALS LTD.
ELK PROPERTY SIWASH NORTH DIVISION, BRITISH COLUMBIA NTS 92H 16V
SIWASH NORTH DRILL SECTIONS
CORDILLERAN ENGINEERING LTD. 1988 - 1855 V. HASTINGS STREET VANCOUVER, B.C. V6E 2E9
APRIL 1991 <span style="float: right;">FIGURE 5</span>

The distribution of high grade gold intercepts in the B vein indicates the existence of five steeply raking mineralized shoots, all of which are open down plunge. One shoot has been identified in the C vein, also open at depth and along strike. More drilling is warranted to test these potential extensions.

Table 2: SIWASH NORTH - SIGNIFICANT DIAMOND DRILL VEIN INTERCEPTS

DDH #	Vein Sample		Vein Sample Assay				Diluted to 2.0m True Width	
	True Width		Original		Check		Weighted Average	
	m	(ft)	gm/t	(oz/T)	gm/t	(oz/T)	gm/t/2.0m	oz/T/6.6 ft
89-1	0.27	(0.9)	189.70	(5.533)			27.50	(0.802)
89-2	0.73	(2.4)	27.67	(0.807)			10.11	(0.295)
89-7	0.45	(1.5)	77.35	(2.256)			17.42	(0.508)
89-8	0.56	(1.8)	40.25	(1.174)			10.49	(0.306)
90-13	0.66	(2.2)	27.67	(0.807)			9.22	(0.269)
90-14	0.38	(1.25)	201.19	(5.868)			38.43	(1.121)
90-20	0.23	(0.75)	31.17	(0.909)	32.88	(0.959)	7.65	(0.223)
90-27	0.47	(1.5)	53.31	(1.555)	63.84	(1.862)	12.72	(0.371)
90-29	0.44	(1.4)	60.07	(1.752)	55.30	(1.613)	15.60	(0.455)
90-33	0.49	(1.6)	175.44	(5.117)	159.94	(4.665)	43.34	(1.264)
90-37	0.47	(1.5)	52.22	(1.523)	55.61	(1.622)	12.38	(0.361)
90-44	0.47	(1.5)	44.26	(1.291)	15.22	(0.444)	10.42	(0.304)
90-47	0.49	(1.6)	33.77	(0.985)	66.24	(1.932)	8.30	(0.242)
90-49	0.48	(1.6)	130.60	(3.809)	69.70	(2.033)	31.82	(0.928)
90-50	0.49	(1.6)	30.99	(0.904)	40.05	(1.168)	14.33	(0.418)
90-61	0.62	(2.0)	40.39	(1.178)	30.89	(0.901)	22.80	(0.665)
90-65	0.68	(2.2)	48.38	(1.411)	61.65	(1.798)	16.46	(0.480)
90-66	0.34	(1.1)	273.40	(7.974)	335.87	(9.796)	47.31	(1.380)
90-69	0.43	(1.4)	84.24	(2.457)	67.68	(1.974)	15.67	(0.457)
90-72	0.49	(1.6)	33.77	(0.985)	26.50	(0.773)	11.66	(0.340)
90-73	0.50	(1.6)	32.47	(0.947)	52.46	(1.530)	8.98	(0.262)

OTHER MINERALIZED AREAS

In the Siwash Lake area 900 metres south of Siwash North, mineralization occurs mainly in quartz stringers and vein up to 35cm thick, hosted by strongly argillic to phyllic altered granitic rocks, closely associated with an andesite dyke. The zone trends east-west and dips about 50° to the south. At surface and in drill core, the gold is associated with pyrite, chalcopyrite and locally high concentrations of galena and sphalerite. Tetrahedrite and sulfosalt minerals(?) are also locally present. Silver values are much higher than in Siwash North and are probably associated with the greater galena content of the veins. The gangue mineralogy is similar to Siwash North.

Trenching has exposed granitic rocks cut by dykes, alteration zones and quartz stringers. An argillically altered pyritic andesite dyke with quartz veining returned values up to 12.69 gm/tonne Au, 106.89 gm/tonne Ag over a true width of 0.86 metres. This mineralized zone was stripped for 17 metres along strike and panel sampled at five metre intervals returning values up to 30.69 gm/tonne Au, 108.5 gm/tonne Ag over a true



width of 0.34 metres. A second trench 150 metres to the west exposed the same zone which assayed 59.93 gm/tonne Au from a grab sample. Four drill holes on two fences 150 metres apart intersected the strongly altered zone and sulphide-rich quartz vein to a depth of 75 metres. The intersected vein width varied from 7 to 34cm. Assay values were relatively low, the best being 5.69 gm/tonne Au, 97.72 gm/tonne Ag over 0.46 metres.

In the North Showing area trenching has exposed the vein over a distance of 35 metres at an orientation of  $055^{\circ}$ , closely associated with an altered andesite dyke. The quartz vein varies in width from 15cm to 80cm and averages roughly 25cm. The quartz is medium to light grey in colour and contains up to 20% disseminated pyrite with minor chalcopyrite and galena. Chip sampling across the vein returned values of 45.26 gm/tonne Au and 196.46 gm/tonne Ag over 0.27 metres and 8.71 gm/tonne Au and 43.89 gm/tonne Ag over 1.10 metres. The vein was also exposed to the northeast giving it a projected length of 78 metres.

In the South Showing area mineralization occurs mainly in quartz stringers in altered granitic rocks in association with a breccia or with intensely argillized andesite dykes. Gold is rarely visible and is associated with pyrite and base-metal sulphides. Significant gold mineralization has been found in quartz veins associated with a northeast trending breccia. Results from sampling include 23.35 gm/tonne Au over 0.85 metres. The breccia has been traced over a strike length of 800 metres although mineralization is erratic within this zone on surface.

In the Elusive Creek area trenching exposed Nicola Group andesites cut by east-northeast trending intermediate to felsic dykes. Mineralized quartz veins in fractured granite dyke returned values up to 5.90 gm/tonne Au over 0.5 metres. The granite dykes were found to contain higher gold levels than the other rocks. A 1.5 metre section of silicified granite returned 2507 ppb Au. The Elusive Creek trench rock sampling did not clearly define the sources of the anomalous gold soil geochemistry and further sampling is required.

## R E S E R V E S

A preliminary geological reserve has been calculated for the Siwash North Area by Cordilleran Engineering Ltd. The reserve is based on results from 70 diamond drill holes with vein intersections spaced at approximately 50 metre centres. The reserve was calculated as follows:

- (1) Sections in the plane of the vein were produced for the B and C veins (Figures 6 and 7) by rotating each drill intercept to the horizontal along the north-south plane of its respective drill section. The surface exposure of the vein was used as the origin and all intercepts were rotated to that elevation.

- (2) Using a cutoff grade of 10 grams per tonne gold over a 2.0 metre true width, polygons were drawn around those drill intercepts above the cutoff grade on the plane of the vein sections. The B vein is the most continuous and contains the bulk of the high grade intersections. Fifteen intercepts in the B vein and two in the C vein were used for the reserve calculations. The area of each polygon was calculated by matrix reduction, then multiplied by 2.0 metres true width to obtain the volume and multiplied by a specific gravity of 2.65 tonnes/cubic metre to give a metric tonnage for the block.
- (3) The block was assigned the uncut, calculated two metre weighted average gold and silver values from the drill hole intersection.

Table 3 details results of the reserve calculation by block and vein. The total drill indicated geological reserve to a down dip extent of 250 metres is:

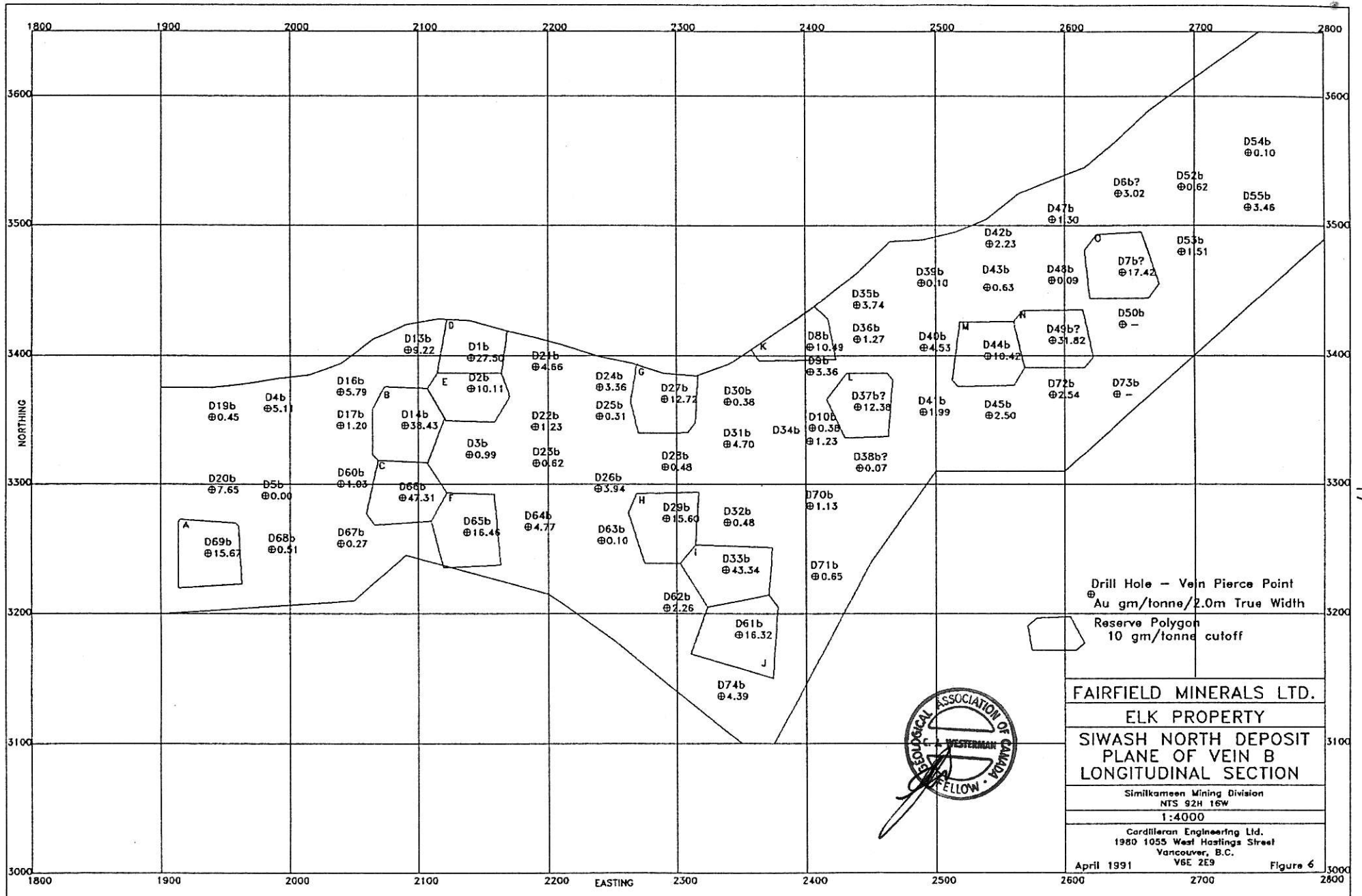
211,884 tonnes at an average grade of 21.72 gm/t Au and 22.01 gm/t Ag.  
 [233,558 tons at an average grade of 0.633 opt Au and 0.64 opt Ag].

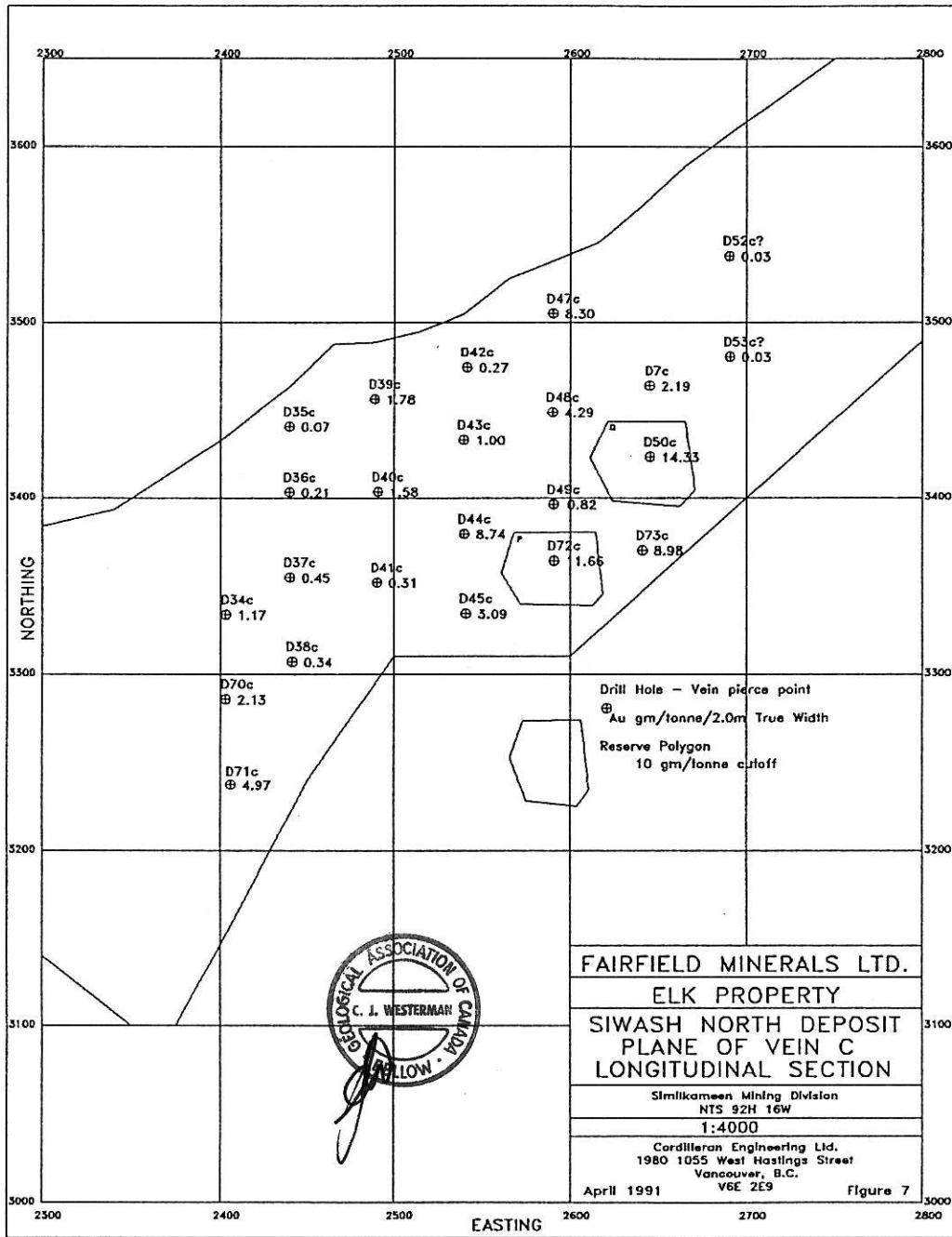
This calculation is referred to as a "geological" reserve because no allowance has been made for specific mining methods and a universal dilution factor to a 2.0 metre true width has been applied. Cutting of assay values has not been undertaken because there is no accumulated experience relating drill intersection values to bulk sample values for this deposit at this time. The reserve is open to expansion by further drilling at depth and along strike.

**Table 3: SIWASH NORTH RESERVE BLOCKS - GOLD + SILVER CONTENT**

Cutoff grade: 10.0 gm/t Au; True width: 2.0 m; Specific gravity: 2.65 t/m<sup>3</sup>

<u>Block</u>	<u>Hole</u>	<u>Vein</u>	<u>Area (m<sup>3</sup>)</u>	<u>Tonnes</u>	<u>Au Grade (gm/t)</u>	<u>Grams Au</u>	<u>Ag Grade (gm/t)</u>	<u>Grams Ag</u>
A	69	B	2,398.21	12,710.51	15.67	199,173.74	29.78	378,519.08
B	14	B	2,738.68	14,515.00	38.43	557,811.60	21.98	319,039.79
C	66	B	2,428.47	12,870.89	47.31	608,921.85	46.64	600,298.36
D	1	B	1,893.75	10,036.88	27.50	276,014.06	11.22	112,613.74
E	2	B	1,999.71	10,598.46	10.11	107,150.46	17.71	187,698.78
F	65	B	2,596.51	13,761.50	16.46	226,514.34	28.70	394,955.14
G	27	B	2,287.76	12,125.13	12.72	154,231.63	10.62	128,768.86
H	29	B	2,511.83	13,312.70	15.60	207,678.10	19.43	258,665.74
I	33	B	2,611.33	13,840.05	43.34	599,827.72	48.41	669,996.77
J	61	B	2,983.73	15,813.77	22.80	360,553.93	39.84	630,020.56
K	8	B	1,662.00	8,808.60	10.49	92,402.21	11.71	103,148.71
L	37	B	2,101.52	11,138.06	12.38	137,889.13	5.52	61,482.07
M	44	B	2,446.08	12,964.22	10.42	135,087.21	15.09	195,630.14
N	49	B	2,366.65	12,543.25	31.82	399,126.06	22.70	284,731.66
O	7	B	2,484.68	13,168.80	17.42	229,400.57	5.41	71,243.23
P	72	C	2,084.45	11,047.59	11.66	128,814.84	9.31	102,853.02
Q	50	C	2,382.71	<u>12,628.36</u>	<u>14.33</u>	<u>180,964.44</u>	<u>12.94</u>	<u>163,411.02</u>
Total:				211,884 tonnes		4,601,562 gm		4,663,077 gm
Grade:					21.72 gm/t Au		22.01 gm/t Ag	
Imperial:				233,558 tons	0.633 opt Au	147,941 ounces	0.642 opt Ag	149,919 ounces





## METALLURGY

In February, 1990 four 300 kg bulk surface samples from the Siwash North vein system were tested at the Placer Dome Inc. Metallurgical Research Centre in Vancouver. Gravity concentration and cyanidation tests were performed in a limited, first pass effort to determine preliminary extractions and head grades.

Very high grade final concentrates were produced by gravity separation, which were considered to be a direct smelt product. Wilfley table concentrates accounted for 15-20% of total gold in three samples but only 4% gold recovery in a fourth sample. Large losses were noted in the spiral concentrate tailings, probably caused by poor gold liberation and the presence of fine gold. No particle size classification was performed. Direct cyanidation of rod mill ground head samples resulted in gold recoveries varying from 90 to 98% in 24 hour bottle roll tests with acceptable reagent consumptions. Rapid dissolution and high extractions of gold (87-97%) were also achieved by cyanidation of tailings from the gravity circuit.

It was recommended that further testing investigate the optimum grinding size, reagent levels and cyanidation times. It appears at present that excellent recoveries will be achieved by a combination of gravity and direct cyanidation techniques.

## CONCLUSIONS

A gold deposit contained within a narrow, high-grade vein system has been identified in the Siwash North area on the Elk property. Relatively wide-spaced (50m) grid drilling has shown strong continuity of one main vein (B zone) with potential for other significant parallel structures. Diamond drill intersections of the veins, diluted to 2 metre mining widths, have returned some excellent gold values. Distribution of these high-grade intercepts has indicated the presence of possibly continuous shoots which may be amenable to underground mining techniques. A preliminary geological reserve of 211,884 tonnes grading 21.72 gm/t Au and 22.01 gm/t Ag to 250 metres down dip has been calculated from these drill results. This could be considerably increased since all of the higher grade mineralized shoots are open down dip. Preliminary metallurgical test work on surface samples of vein material indicated acceptable recovery of gold using simple gravity and cyanidation processes. Four other exploration areas on the Elk property which have undergone various trenching programs hold considerable promise to contain additional gold reserves in similar high-grade vein systems.

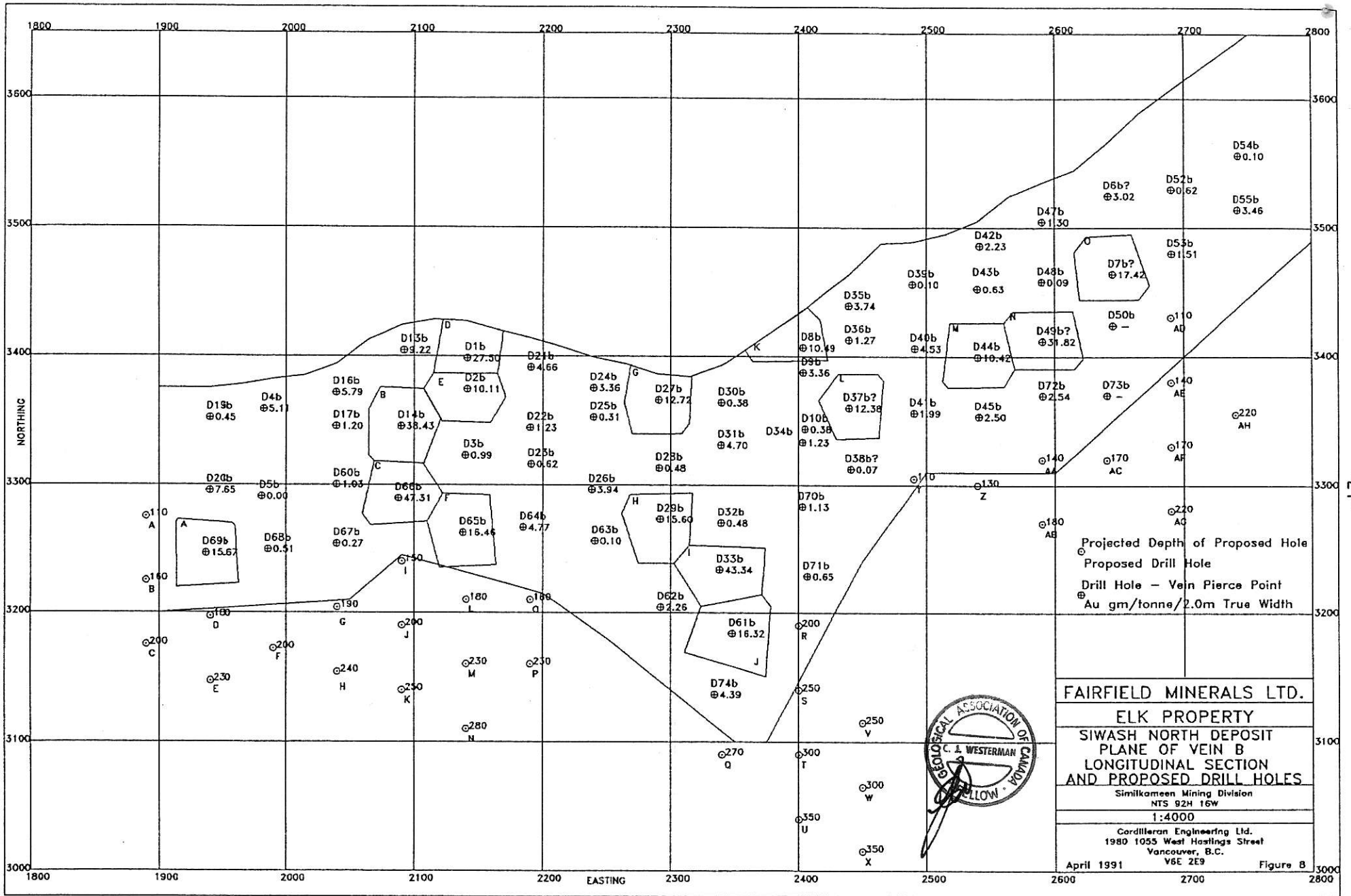
**R E C O M M E N D A T I O N S**

A diamond drilling program at an estimated cost of \$1.2 million is recommended to test extensions of known higher grade mineralized shoots within the B and C vein zones of Siwash North. The proposed program of 38 holes totalling 8500 metres would test the system to 400 metres down dip and would also explore potential strike extensions of two of the higher grade shoots (Figure 8). The objective of this program is to increase the drill indicated "geologic reserve" to a size which would more fully justify significant expenditures on an underground bulk sampling and exploration program.



C. J. Westerman, Ph.D., F.G.A.C.  
Consulting Geologist

April 23, 1991  
Vancouver, British Columbia



**FAIRFIELD MINERALS LTD.**  
**ELK PROPERTY**  
 SIWASH NORTH DEPOSIT  
 PLANE OF VEIN B  
 LONGITUDINAL SECTION  
 AND PROPOSED DRILL HOLES

Similkameen Mining Division  
 NTS 92H 16W

1:4000

Cordilleran Engineering Ltd.  
 1980 1055 West Hastings Street  
 Vancouver, B.C.  
 V6E 2E9

April 1991 Figure B

**C O S T   E S T I M A T E**

**FAIRFIELD MINERALS LTD.**

**ELK PROPERTY**

1.	Salaries .....	\$272,500
2.	Project Engineering & Consulting Services .....	50,000
3.	Diamond Drilling - HQ 8500 m x \$61/m .....	518,500
4.	Assays and Geochemical Analysis: 1100 core samples for Au .....	18,000
5.	Environmental Baseline Study .....	45,000
6.	Excavator Roads & Drill sites .....	19,000
7.	Logging .....	6,000
8.	Camp and Equipment Rentals: 5 months .....	47,000
9.	Supplies and Construction .....	17,000
10.	Food .....	27,000
11.	Travel, Freight .....	12,000
12.	Drafting, Printing .....	7,000
13.	Office & Communication .....	15,000
14.	Government Fees .....	<u>9,000</u>
	Sub Total	1,063,000
15.	10% Contingency .....	<u>107,000</u>
		1,170,000
16.	Option Payment .....	<u>30,000</u>
	<b>TOTAL</b>	<b><u>\$1,200,000</u></b>



C. J. Westerman, Ph.D., F.G.A.C.  
Consulting Geologist

April 23, 1991  
Vancouver, British Columbia



C E R T I F I C A T I O N

I, Christopher John Westerman, hereby certify that:

1. I am an independent Consulting Geologist with an office at 1010-470 Granville Street, Vancouver, British Columbia, V6C 1V5.
2. I am a graduate of London University, England with the degree of Bachelor of Science in Geology (1967); of the University of British Columbia with the degree of Master of Science in Geology (1970) and of McMaster University, Ontario with the degree of Doctor of Philosophy in Geology (1977).
3. I am a Fellow of the Geological Association of Canada (F.525) and a member of the Canadian Institute of Mining and Metallurgy.
4. I have practised my profession in North America since 1967, having worked as employee and consultant for several International Mining Corporations and Junior Resource Companies.
5. I have not, directly or indirectly, received or expect to receive any interest, direct or indirect, in the properties of Fairfield Minerals Ltd. or any affiliates or of any property within a radius of ten kilometres of subject property, or beneficially own, directly or indirectly, any securities of the company or of any affiliates.
6. This report is based upon careful examination of all available data and reports relevant to the ELK property and upon extensive discussions with the staff of Cordilleran Engineering Ltd. I examined the Elk property in October of 1987 prior to discovery of the Siwash North zone. Adverse snow conditions currently preclude a personal field examination.
7. I consent to the use of my report entitled "Summary Report on The Elk Property" and dated April 23, 1991 in, or associated with, the filing of a Statement of Material Facts by Fairfield Minerals Ltd.

C. J. Westerman, Ph.D., F.G.A.C.  
Consulting Geologist

April 23, 1991  
Vancouver, British Columbia