FLAT HOMO

Crowsnest 9768
882133
July '93

INTRODUCTION

This report presents the results of the 1991 work program completed on the Flathead claim block, Fort Steele Mining Division, British Columbia. The work concentrated on the Grid B target area centred on the Flathead 6, 8 and 12 claims and consisted of backhoe trenching, road construction and extensive rock and soil profile geochemical sampling.

Previous work was focused around the Line 83E area where a combined chargeability, VLF-EM and soil geochemical anomaly was spatially related to a major fault zone and high grade (gold) float samples. This early work failed to identify the source of the gold float. The current work program was successful in recognizing a glacial till source for the float samples and the related soil geochemical anomaly which in turn focuses future exploration in the up-ice direction at the northwest limits of the current grid.

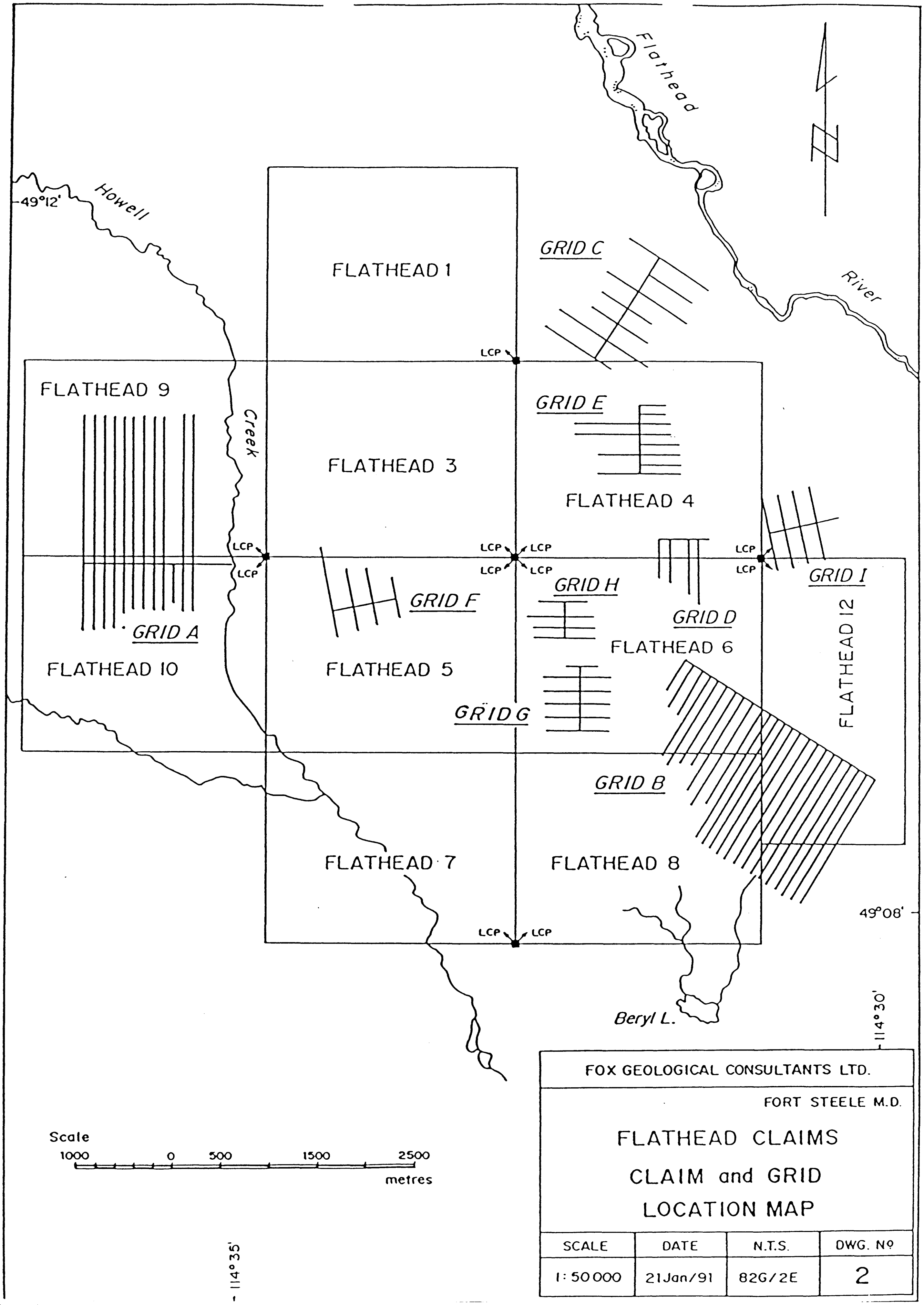
Results of the 1991 work program are presented and discussed herein and recommendations are made to further test the Grid B target by trenching, geophysics and sampling.

LOCATION AND ACCESS

The Flathead mineral claims are situated in the extreme southeastern corner of B.C. approximately thirty kilometres southeast of Fernie, B.C. and twenty kilometres north of the British Columbia-Montana border at latitude 49°10'10"N and longitude 114°32'50"W (Figure 1). The area is within the MacDonald Range of the Rocky Mountains between elevations 1,400 metres and 2,200 metres in moderate to steep terrain. Much of the area is above treeline and ridges are generally rounded to flat upland plateaus.

Access to the claims is by logging roads leading from the locality of Morrissey, thirteen kilometres south of Fernie on Highway 3, for a distance of about 70 kilometres following Morrissey Creek, Lodgepole Creek, Harvey Creek and the Flathead River. Helicopters are necessary for access to the higher elevations and to all of the western half of the claims.

The Grid B exploration target is located in the southeastern portion of the claim block on claims Flathead 6, 8 and 12. Access to Grid B is via a seismic trail branching off the Flathead Road at Kilometre 72 and then via a series of drill roads leading up to the centre



Flathead
River
Howell
Creek
49°12'
49°08'
114°30'
114°35'
FLATHEAD 1
FLATHEAD 3
FLATHEAD 4
FLATHEAD 5
FLATHEAD 6
FLATHEAD 7
FLATHEAD 8
FLATHEAD 9
FLATHEAD 10
FLATHEAD 12
GRID A
GRID B
GRID C
GRID D
GRID E
GRID F
GRID G
GRID H
GRID I
LCP
Beryl L.
Scale
1000 0 500 1500 2500
metres
FOX GEOLOGICAL CONSULTANTS LTD.
FORT STEELE M.D.
FLATHEAD CLAIMS
CLAIM and GRID
LOCATION MAP
SCALE 1:50000
DATE 21Jan/91
N.T.S. 82G/2E
DWG. No 2

of the grid (Figure 2). Work in 1991 included extending the road to the northwestern end of the grid.

CLAIM INFORMATION

The Flathead mineral claims (Figure 2) consist of 198 units and are situated within the Fort Steele Mining Division on NTS mapsheet 82G/2E and 1W (Figure 2). Work performed in 1991 was on the "B" group of claims comprising the Flathead 4, 6, 7, 8 and 12 claims.

Table I
Claim Information

Claim Name	Record #	Units	Group	Expiry Date
Flathead 1	2253	20	A	September 20, 1997
Flathead 3	2255	20	A	September 20, 1997
Flathead 4	2256	20	B	September 20, 1993
Flathead 5	2257	20	A	September 20, 1997
Flathead 6	2258	20	B	September 20, 1994
Flathead 7	2259	20	B	September 20, 1994
Flathead 8	2260	20	B	September 20, 1994
Flathead 9	2261	20	A	September 20, 1997
Flathead 10	2262	20	A	September 20, 1997
Flathead 12	2264	18	B	September 20, 1994

Group A - 100 units
Group B - 98 units

PREVIOUS WORK

The Flathead project was generated by Fox Geological Consultants Limited who sold the exploration concept to Dome Exploration (Canada) Limited, the exploration arm of the Dome Mines Group. Silt sampling of streams draining Trachyte Ridge in 1984 returned anomalous values in gold from several drainages and led to the staking of the Flathead 1 to 12 claims. Subsequent soil sampling programs over various areas of the property narrowed the principle targets down to two areas, Grid A on the western edge of the property and Grid B on the southeastern portion of the claims. A helicopter supported drill program on Grid A was completed in 1987. Anomalous gold values were encountered within quartz filled fracture zones within a syenite intrusion but over-all tenor of the rocks was low. Emphasis was switched to the Grid B area where soil sampling had outlined a linear gold in soil anomaly some two kilometres long. An induced polarization survey and magnetometer VLF-EM survey outlined low level chargeability and conductivity anomalies in part coincident with the soil geochemical anomaly. Extremely high grade float samples up to 524 grams gold per tonne were collected within the area of these combined anomalies. A drill program in 1989 comprising six diamond drill holes totalling 866.4 metres failed to discover the source of the gold.

Exploration Summary

1984 - silt sampling and staking
1985 - soil sampling, prospecting, mapping Grid A, B, C
1986 - soil sampling, prospecting on Grid A, B, D, E, F
1987 - soil sampling, prospecting Grid B, G, H, I with 1261 metres of helicopter supported BQ diamond drilling on Grid A
1988 - soil sampling, 10 km. IP on Grid B, soil sampling on Grid I, J, trenching
1989 - additional soil sampling and a MAG/VLF survey on Grid B, 866.4 metres of NQ drilling in six holes.

REGIONAL GEOLOGY

The Flathead claim block is located in the Southern Main Range subdivision of the Canadian Rocky Mountains. The area is geologically unique within the Canadian Rocky Mountains and is more closely related to the structural styles encountered to the south in Montana. Regional geology is presented on Figure 3 and the list of formations in Table II.

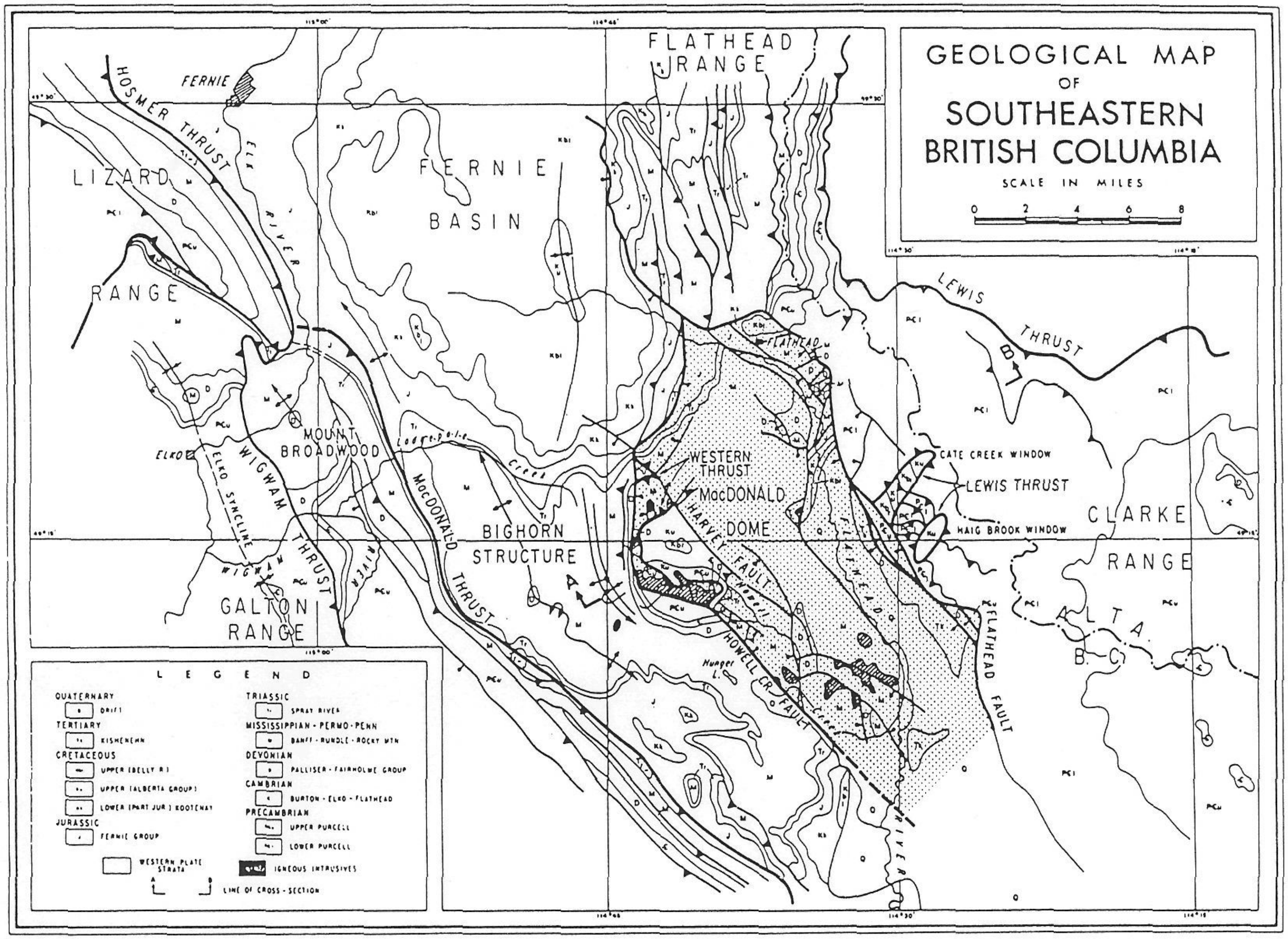


FIGURE 3
REGIONAL GEOLOGY

Table II
Table of Formations

AGE	FORMATION	PRINCIPAL LITHOLOGY	THICKNESS (ft.)
Tertiary	Kishenehn	Conglomerates, mudstones and marls	0 - 6600?
Upper Cretaceous	Alberta Group	Marine grey shale, sandstone	5000'
Upper Cretaceous?	Crowsnest	Volcanic, agglomerate and tuff	0 - 1000
	Alkalic Intrusives	Syenite, tinguaite, intrusion breccia	
Lower Cretaceous	Blairmore	Non-marine sandstone, shale and conglomerate	1000 - 2200
Lower Cretaceous-Jurassic	Kootenay	Non-marine sandstone, shale and coal	600 - 2400
Jurassic	Fernie	Marine black shale	480 - 1500
Triassic	Spray River	Marine laminated siltstone	0 - 1800
Permo-Penn	Rocky Mountain	Orthoquartzite and arenaceous dolomite	100 - 1000
Mississippian	Rundle Group (Trachyte Ridge)	Limestone	2000
	Banff	Dark, argillaceous cherty limestone	800
Mississippian?	Exshaw	Black, fissile shale	15 - 40
Devonian	Palliser	Cliff-forming mottled limestone	900 - 1000
	Fairholme	Dark grey limestone	1600
Cambrian	Elko	Limestone	300
	Shale Unit	Green shale, limestone	215
	Flathead	Light yellowish grey quartzite	140 (à la Montana)
Precambrian	Purcell Group Roosville Fmn (uppermost)	Red and green argillite and quartzite, dolomite	4000

Syenitic intrusions ~ 100 Ma!

Analogy: Gilt Edge, Idaho

The geology of the Flathead area is that of standard Laramide structures, stacked thrust faults and broad scale folds that have been modified by Tertiary extensional faulting, listric normal faults and low angle reverse faults. Cretaceous intrusive activity comprising alkalic stocks, dykes and sills are almost wholly restricted to the area of Tertiary faulting. Strata exposed in the Flathead area include Proterozoic Purcell Group clastics, Paleozoic carbonate and clastic rocks, Mesozoic clastic dominant sequences with associated coal beds and Tertiary fault scarp units related to the Tertiary normal faulting.

Intrusive activity is concentrated in the valleys of Twenty-Nine Mile Creek and Howell Creek (Howe/Howell claims) and on Trachyte Ridge (Flathead claims) with a few outlying bodies in the Clark Range and on Shepp Creek. Intrusive bodies may vary from equidimensional stocks and plugs from 100 metres to over 1,200 metres in size to irregular dykes and sills. Although the character of the intrusive complex is that of a hypabyssal subvolcanic centre, no extrusive rocks are present so a plutonic nomenclature is used to describe their composition. Rocks vary from alkali feldspar micro-syenite to nepheline micro-syenite. Intrusions are distinctly porphyritic with up to 60% euhedral zoned orthoclase from 5mm to 2 cm in size. Accessory phenocrysts include albite, melanite, aegirine augite, aegirine, analcite and nepheline. The nepheline bearing intrusives are often light green coloured and form sills with textures including acicular aegirine surrounding nepheline and orthoclase phenocrysts (tinguaitic texture). A common association with the intrusive plugs are subjacent or enclosed irregular diatreme breccias. These intrusive breccias are variable and include rock fragments and intrusive clasts of variable proportions in a carbonate-rich matrix. Alteration effects are widespread and include pyritization and carbonatization of the intrusives, silicification and argillization of wall rocks, quartz vein stockworks, adaleria quartz veining and barite-fluorite veining. Adularia Anomalous concentrations of gold, silver and base metals are associated both with the intrusions and the altered wall rocks.

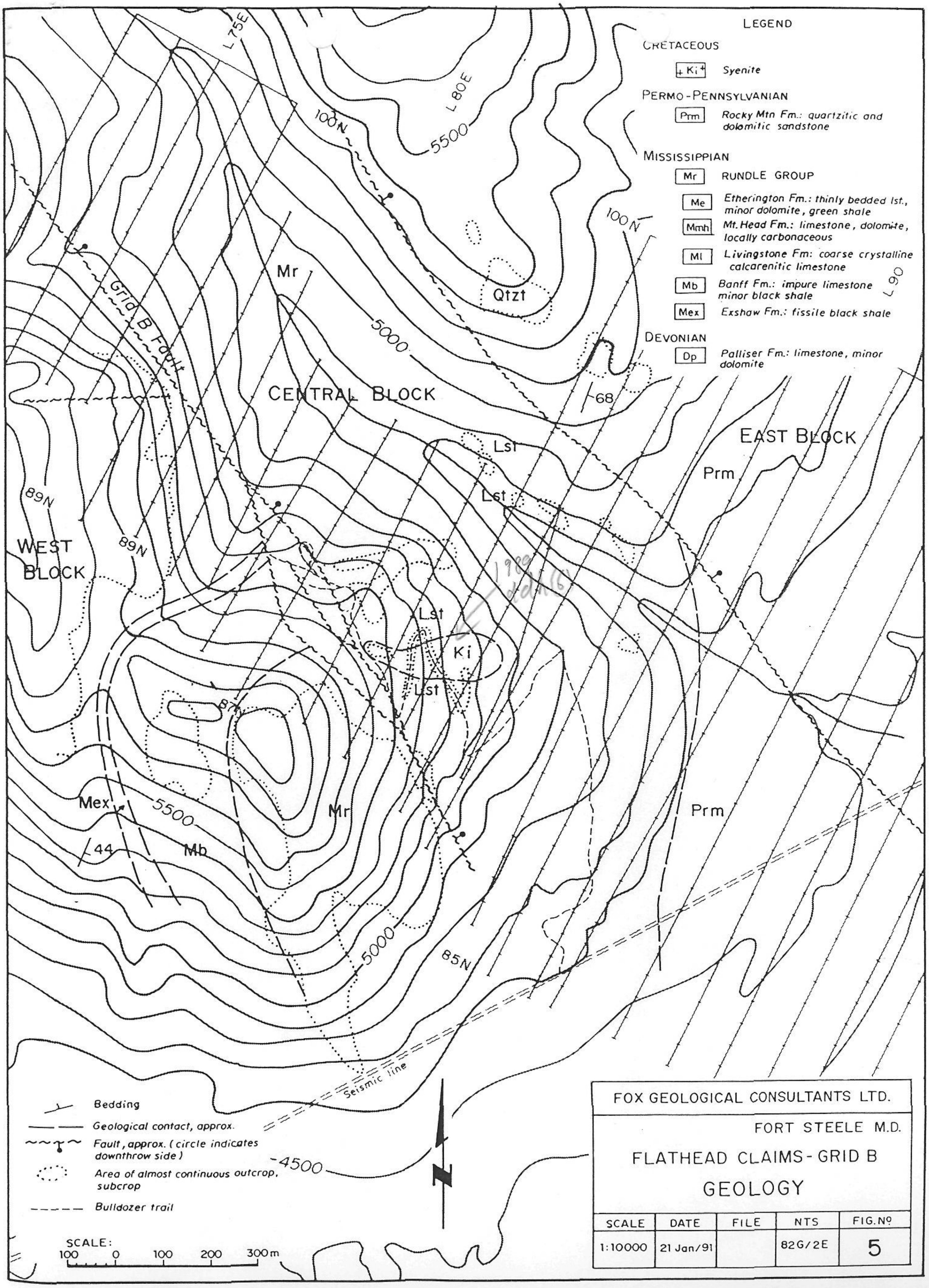
Exploration and mining activity in the Flathead region has largely focused on coal. The Flathead claims immediately adjoin the Sage Creek Coal Deposit to the south. The Clark Range which comprises Upper Purcell Group rocks has been explored intermittently for sediment-hosted copper-silver deposits and locally the Spray River Formation has been the focus of phosphate exploration. Oil and gas exploration dates from the turn of the century. Lately Shell and Chevron have undertaken a major exploration program to explore for carbon dioxide reservoirs in the Flathead Valley. Their numerous seismic roads and trails provide access to the Flathead claims including the Grid B target area.

PROPERTY GEOLOGY

The Flathead claims are centred on Trachyte Ridge and extend from the Flathead River in the east to just west of Howell Creek. The claims are dominated by Paleozoic Strata extending from Devonian Palliser Formation to Permo-Pennsylvanian Rocky Mountain Formation (Table II, Figure 4). Strata is dominantly carbonate with local shaley and sandy units. Intrusive activity is widespread throughout the property consisting mostly of equidimensional micro-syenite plugs and related dykes. Intrusion breccias are locally present near the larger intrusive bodies and typically comprise heterolithic breccias dominated by siliceous sedimentary fragments and syenite clasts. Large displaced blocks of Rocky Mountain Formation quartz arenite are present adjacent to the syenite bodies. Alteration effects are variable and include intense advanced argillic alteration, silicification and pyritization (Grid E) to development of weak stockworks of quartz pyrite veining (Grid A). Tertiary normal faulting related to the Flathead Fault system divides the property into rotated down-dropped blocks, repeating strata in adjacent blocks.

The Grid B target is located on the southern end of Trachyte Ridge. Outcrop exposure is limited to the higher elevations, road-cuts and small exposures in the valley floor of the main creek draining Trachyte Ridge. The normal faults subdivide the area into three blocks (Figures 5 and 6). The most western block comprises Palliser Formation cliff-forming limestones, Exshaw Formation black carbonaceous shale, Banff Formation shaley limestone and Lower Rundle Group coarse grained calcarenite.

The central block comprises Upper Rundle Group limestone which correlates with the Etherington Formation and a remnant of the Rocky Mountain Formation adjacent to the west-bounding fault. The Etherington Formation is comprised of cherty microcrystalline limestone, rare green shale beds and a zone of dissolution breccia containing banded fragments of silty dolomite in a carbonate cement. Elsewhere, this dissolution breccia has been attributed to anhydrite beds. Adjacent to the west bounding fault, called the Grid B fault, the Etherington Formation dissolution breccia grades into a shattered dolomitic quartz arenite which represents the base of the Rocky Mountain Formation. Locally within the fault zone the dolomite cement is missing leaving a fine quartz sand. A large sill-like syenite body is present from line 83E to line 86E and appears to be truncated by the Grid B fault. It is locally massive, medium grained porphyritic with blocky orthoclase feldspar and acicular black hornblende. Fractures are locally limonitic and the intrusion is weakly to strongly magnetic. A small limonitic syenite dyke is exposed in a trench at line L87E.


LEGEND
CRETACEOUS
Ki Syenite
PERMO-PENNSYLVANIAN
Prm Rocky Mtn Fm.: quartzitic and dolomitic sandstone
MISSISSIPPIAN
Mr RUNDLE GROUP
Me Etherington Fm.: thinly bedded lst., minor dolomite, green shale
Mmh Mt. Head Fm.: limestone, dolomite, locally carbonaceous
Ml Livingstone Fm: coarse crystalline calcarenitic limestone
Mb Banff Fm.: impure limestone minor black shale
Mex Exshaw Fm.: fissile black shale
DEVONIAN
Dp Palliser Fm.: limestone, minor dolomite
L 75E
L 80E
L 90
100N
5500
5000
4500
Mr
Qtzt
Grid B Fault
CENTRAL BLOCK
EAST BLOCK
WEST BLOCK
68
Lst
Prm
89N
85N
Ki
87
Mex
44
Mb
Seismic line
Bedding
Geological contact, approx.
Fault, approx. (circle indicates downthrow side)
Area of almost continuous outcrop, subcrop
Bulldozer trail
SCALE:
100 0 100 200 300m
FOX GEOLOGICAL CONSULTANTS LTD.
FORT STEELE M.D.
FLATHEAD CLAIMS - GRID B
GEOLOGY
SCALE 1:10000
DATE 21 Jan/91
FILE
NTS 82G/2E
FIG. No 5

This dyke is non-magnetic. Extensive syenite float throughout the grid suggest numerous other small syenite bodies may be present buried beneath the colluvium and till.

The eastern block is dominated by massive quartz arenite of the Rocky Mountain Formation. Outcrops are tan to rusty and are often banded by rhythmic solution staining referred to as liesegang banding.

South-facing and higher slopes are covered by a mix of residual soils and colluvial material. The latter includes abundant limestone talus and associated fines transported in the down-slope direction. Locally, buried soil profiles are present beneath successive talus slumps. Northwest of line 83E and down-slope form the Grid B fault a compact clay-rich lodgement till lies perched on colluvial material. This till sheet varies from 0 metres to over five metres in thickness and was previously much more extensive as evidenced by the soil geochemistry and presence of remnant transported float boulders. Source direction for this till was probably to the northwest.

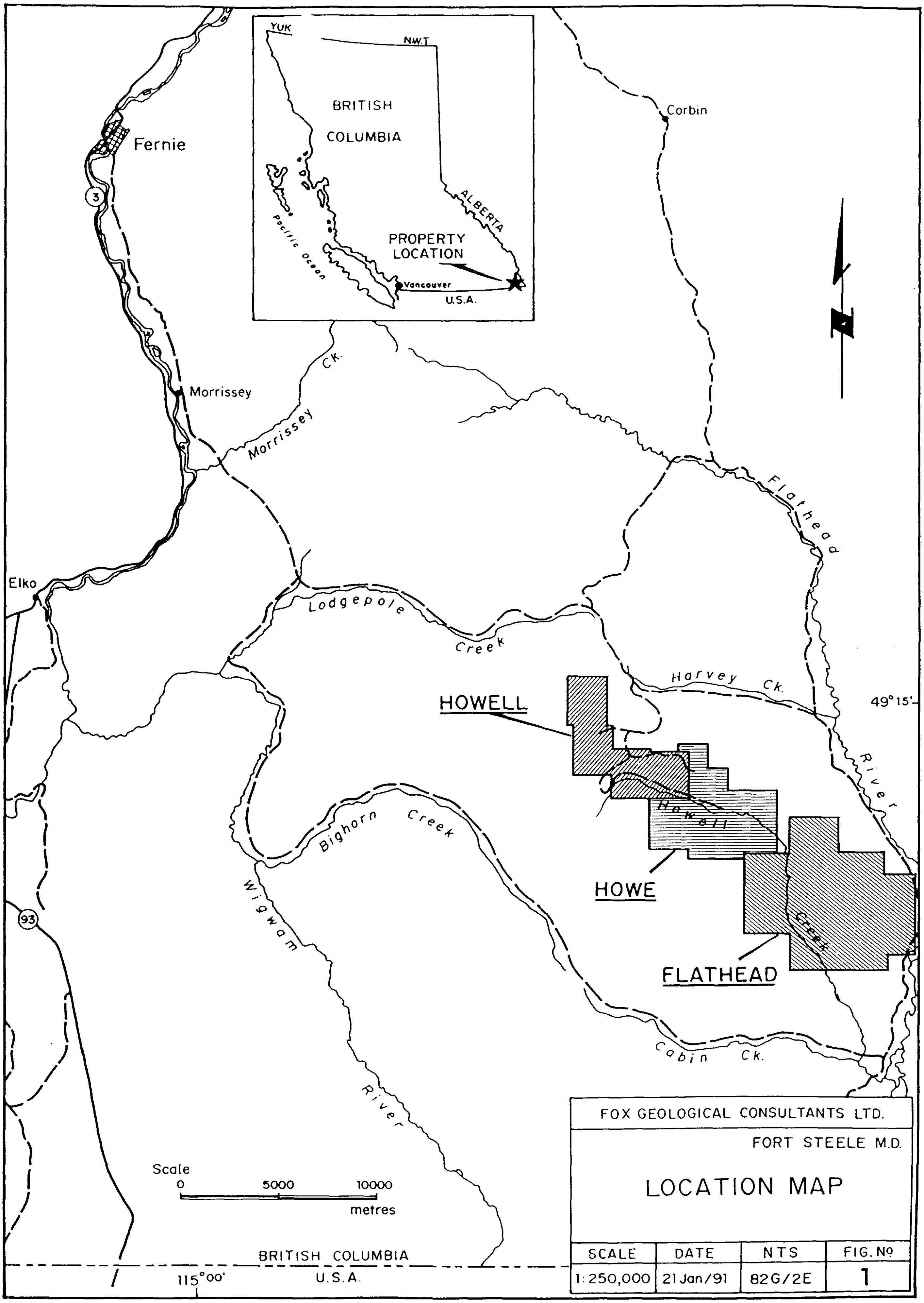
1991 WORK PROGRAM

The 1991 work program took place from September 20 to October 12, 1991. Crews were based in Fernie, a distance of 72 kilometres by road from the property. Travel time was approximately one hour each way.

The purpose of the 1991 work program was to re-assess the gold soil geochemical anomaly that had been outlined by previous work programs. Follow-up exploration that included trenching, geophysics, prospecting and diamond drilling had failed to identify the source of the gold soil anomaly or the high grade float boulders. Previous work is summarized in Figure 7. The current program was designed to test for up-slope sources by trenching and soil profile sampling and to assess the relatively untested northwestern end of the soil anomaly by additional soil sampling and backhoe trenching.

Reclamation guidelines are strictly enforced in the area and an on-going program of road reclamation, back-filling, slashing and re-seeding was an integral part of the 1991 program.

Trenching was accomplished by a Cat 225 hoe. Bedrock exposures in trenches were continuously chip-sampled at two-metre intervals. "B" horizon soil material exposed in trench walls and is road cuts were sampled at five- or ten-metre intervals.



YUK
N.W.T.
BRITISH COLUMBIA
ALBERTA
Pacific Ocean
PROPERTY LOCATION
Vancouver
U.S.A.
Fernie
3
Corbin
Morrissey
Morrissey Ck.
Flathead River
Elko
Lodgepole Creek
Harvey Ck.
HOWELL
Howell Creek
HOWE
FLATHEAD
Bighorn Creek
Wigwam River
Cabin Ck.
93
49°15'
Scale
0 5000 10000
metres
BRITISH COLUMBIA
U.S.A.
115°00'
FOX GEOLOGICAL CONSULTANTS LTD.
FORT STEELE M.D.
LOCATION MAP
SCALE 1:250,000
DATE 21 Jan/91
NTS 82G/2E
FIG. No 1