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ALBERT CREEK PROJECT
SHALE / CARBONATE-HOSTED
PB-ZN-AG-(AU)

Northern British Columbia
NTS 104P/13E

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February 7, 2000

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SUMMARY

The Albert Creek area should be evaluated and explored for carbonate-shale hosted deposits in a proposed new mineral district that has good access and logistics. Deposits similar to the Midway / Silvertip manto deposit that contains approximately 2,570,000 mt grading 8.8% Zn, 6.4% Pb, 325 g/t Ag and 0.63 g/t Au (Imperial Metals Corp., 1998) would be the focus.

Mapping has identified Devonian stratigraphy similar to that at the Midway / Silvertip deposit. Structurally, the Albert Creek area occurs at the junction of an interpreted north-east trending sub-basin (graben) and the north-west trending Kechika Trough – Selwyn Basin complex. An aeromagnetic survey has indicated a possible (buried) intrusive in an area with zinc-silver-lead mineralization as indicated by stream sediment and soil surveys and drilling. Sporadic drilling totalling 1682 metres has intersected major breccia zones with weak mineralization and thin laminated pyritic beds.

The Albert Creek area has the definite potential to host sedimentary style lead – zinc – silver (and gold) deposits.

INTRODUCTION

The purpose of the Albert Creek Project is for the exploration of shale and limestone – hosted Pb-Zn-Ag-(Au) deposits, similar to the Midway / Silvertip deposit. Previous work has indicated the presence of Devonian stratigraphy and lead, zinc and silver mineralization. Exploration at the Midway/Silvertip Property (Minfile 104O 038) approximately 20 kilometres west-north-west of Albert Creek since 1980 has identified mineralized zones both in Devonian limestone and shale. This property has been submitted to the BC Environmental Assessment Office (EAO) and the reader is referred to their website for more information concerning this deposit, and from which Figure 4 was taken.

LOCATION: Albert Creek area, northern B.C. near Yukon border, 60 km. WSW of Watson Lake, Yukon, Figure 1.
Liard Mining District
NTS 104P/14W,13E, McDame map sheet,
Latitude 59 53' N and Longitude 129 33' W.

ACCESS: 20 minute helicopter trip from Watson Lake, or by four-wheel drive vehicle road along 34 km of unmaintained forestry road west from the Stewart-Cassiar Highway 37 from a point approximately 15 km south of the Yukon border.
Topography: area occurs at western edge of Dease Plateau at 1150 meter elevation characterized by low to moderate relief, Figure 2.

CLAIMS ACE (20 units)and Jullian 1-3 (41 units),
staked September 1999, Figure 3.

HISTORY:
Metals: Ag-Pb-Zn-(Au)

Falconbridge Nickel Mines Ltd;
- 1979: claims staked claims originally staked on the basis of a 10 ppm Ag stream sediment sample from the GSC geochemical release,1979.

- stream sediment survey
- soil geochemical survey
- geological mapping
- trenching/access road building with D-6
- geophysical survey (VLF-EM16, magnetometer)
- fossils identified in limestones as Devonian conodonts by GSC,Calgary.
- Falconbridge put in an access road through the property from the

forestry road at One Ace Mtn

- 1980 Dighem geophysical airborne survey
 - drilling (Sept.- 5 DDH A1 to 5, totalling 461 metres (1366 ft.)
 - biogeochemical survey by Dr. John Fortescue

- 1981 reconnaissance mapping/prospecting/stream sediment survey
 - follow-up detail geophysical/soil geochemical survey
 - drilling (Nov - 3 DDH A6, A7, A8 totalling 467.5 metres (1534 ft.)
 - cat trenching,[assessment report 10413,1981]

- 1982 no interest for further work; claims allowed to lapse.

Newmont Exploration of Canada Ltd.

1985: 3 days (June 30-July 3) were spent prospecting/sampling some of the limestone outcrops for mineralization and collecting fossils for stratigraphic determination by the GSC. No interest in pursuing this project. (Downing & Boyle, 1986)

Jedway Enterprises

1986: trenching

Total Erickson Resources Ltd.

1988: diamond drilling program (January); 3 holes totalling 798 metres; Minor mineralization intersected, property dropped.

KRL Resources Corp.

1994: staked 61 units

1995: carried out detail stream sediment sampling, (Livgard, 1995),

1996 airborne magnetic survey of the area flown by Questor Surveys Ltd.

Logan Minerals

1999: staked 80 units

2000: interpretation of airborne magnetics by Larry Lebell, P.Eng.
project report by B.Downing, P.Geo.

DIAMOND DRILLING

Diamond drilling was carried out by Falconbridge in 1980 and 1981 and by Total Erickson Resources Ltd. in 1988. These scattered holes have tested a very small portion of the Albert Creek area, as there has been no systematic drilling program.

Drilling by Falconbridge in September 1980 consisted of five holes (A1 to 5) totalling 416 metres to test soil and geophysical conductors. Unfortunately this data and report are not available. Drilling in November 1981 of three holes (A6 to 8) totalling 468 metres (1534 feet) was carried out to test coincidental soil and geophysical anomalies (Downing, 1982, Assessment report 10413). Core recovery was generally poor and some holes (A7 and 8) had to be abandoned due to caving. Drilling the shale (black clastics sequence) proved to be somewhat difficult using BQ core and no mud, and as a result some areas were not tested thoroughly due to incomplete holes.

Drilling by Total Erickson consisted of three holes (88-1 to 3) totalling 798 metres. These holes were designed to intersect the stratigraphic contact between the McDame Group carbonates and the Lower Sylvester Group black shales along an interpreted north-west-south-east trending structure, in the vicinity of a 10 ppm Ag stream sediment anomaly. Hole ACE 88-2 had to be abandoned.

The Falconbridge holes were generally less than 150 metres, with the longest being 259 metres (A6), whereas the Total Erickson holes were much deeper.

GEOPHYSICS

Airborne Survey

A helicopter EM survey was flown over Falconbridge's claim group by Dighem Survey Ltd. in 1980. Unfortunately this data and report are not available.

A fixed wing high resolution aeromagnetic survey of 350 linear kilometres was flown for KRL Resources over the Ace Mountain area by Questor Surveys Limited in July, 1996 (Sheldrake, 1996). Interpretation of the results, Figure 3, indicates six possible formational units interpreted on the basis of magnetic intensity and gradients. Most are differentiated by only minor variations in the magnetic intensity and likely reflect sedimentary units. One exception being a high susceptibility unit located along the south-west flank of the interpreted thrust fault. This trend dominates the magnetic contour maps and may be related to volcanics. Two dimensional modelling across this anomaly suggest that the zone (i.e. thrust fault) dips approximately 18 degrees to the south-west. A circular magnetic high centred approximately two km south-west of the thrust originates from a deep source, which could reflect an intrusive plug or basement high.

Ground Survey

A VLF ground geophysical survey using Cutler and Annapolis stations was conducted in 1981 over five separate grids within Falconbridge's claim group. This survey was carried out as a follow up of four Dighem airborne EM anomalies and delineation of possible anomalies in areas of favourable soil geochemical anomalies

resulting from reconnaissance work done in 1980. Several moderate to strong conductors were found. Several of the strong conductors occur in the vicinity of rather steep topography along major structural / topographical lineaments. Ground follow up resulted in no single conductor relating directly with any of the Dighem anomalies.

GEOCHEMISTRY

Falconbridge Survey (1979-80)

Stream sediment and soil geochemical surveys were conducted over the rather large claim area. A few water samples were also collected. Analysis consisted of Ag, Pb, Zn and Cd by atomic adsorption using an aqua regia digestion. Results indicate the use of cadmium as a good pathfinder element to distinguish shale areas from limestone. Several stream sediment samples with anomalous silver values occur in Albert Creek, especially in the vicinity of scattered (warm) springs. One silver-enriched stream sediment assayed 5.41 oz/ton silver.

Numerous soil samples contain multielement anomalous values of lead, zinc, silver and cadmium. The zinc and cadmium generally reflect the underlying shale.

A bio-geochemical survey was carried out by Dr. John Fortescue (Fortescue, 1983) in which vegetation (*Mimulus guttatus* DC or the monkey flower) associated with the silver-rich sediments was sampled. This study was conducted in order to examine the possible use of the plant as a geobotanical or bio-geochemical indicator. Results indicate that because of its bright yellow colour, this plant can be used to spot springs from a helicopter during May to September and once spotted these (mineralized) springs provide convenient sites for collection of stream sediments with anomalous silver values.

KRL Resources Survey (1995)

Stream sediment samples were taken from Albert Creek and all tributaries on the claim ground. Results indicate that the lower part of Albert Creek is highly anomalous in silver, lead and zinc.

Newmont Survey (1985)

Results of the rock geochemical survey indicate several anomalous samples (Pb, Zn). One of the samples is anomalous in Ag and another one in Ba and As. There are a few anomalous barium values, which may indicate that it could be used to map the barite-enriched horizons. Two samples are also anomalous in As and Au. The anomalous samples occur near a depression, which may be indicative of a karst structure.

GEOLOGY and MINERALIZATION

The regional geology has been described by Gabrielse, 1963. A recent report by Ferri et al (2000) describes the geology adjacent to the Albert Creek area. No detail mapping has been done in this area by either the Geological Survey of Canada or BC Geological Survey.

The Albert Creek area is covered by extensive glacial material. Outcrop is quite limited with overburden thickness up to approximately three meters. Detail mapping was carried out by Falconbridge, upon which subsequent maps by KRL Resources and Total Erickson were used for their interpretations.

The Midway deposit occurs in an area of several structural lineaments, notably bounded by thrust faults. The overburden masks similar structures in the Albert Creek area. At Midway, an overlying black clastic sequence (Earn Formation = lower Sylvester Group rocks) rests unconformably upon Mid-to-Late Devonian (McDame Group) limestone characterized by mineralized collapse and solution breccias. Hydrothermal solutions from the nearby Tertiary intrusives are believed to have moved through the limestone along zones of weakness and been deflected below the black clastics cap. Mineralization occurs in both shale and limestone, Figure 4.

At Albert Creek, a black clastic-shale-porcelanite sequence (Earn Group) overlies the McDame Group limestone. Fossils from an outcrop of limestone have been identified as being amphiopora, stromatopora and stringo- cephalus, indicating an upper middle Devonian (Givetian) age. In places, limestone breccia was mapped and logged at the base of the black clastics which indicates either an unconformity or karsting. A black substance, which may be an organic substance, was found in a limestone outcrop. Dolomite/dolomitized limestone is also prevalent in the area. Scattered outcrops of greywacke and conglomerate have also been mapped, and as well conglomerate was intersected in DDH ACE 88-3. The greywacke and conglomerate are probably of the upper Earn Group. Numerous quartz veins occur in the north-easterly part of the map-area.

Drilling by Falconbridge intersected weak Pb-Zn-Ag mineralization. The drilling done by Falconbridge tested only the shale as was designed. No economic mineralization was encountered, however, the pyritic shale was geochemically anomalous in Pb-Zn-Ag-Ba in several places. One hole was stopped in a limestone breccia. Dolomitization varies from weak to intense. Thin laminated pyrite beds occur in some of the shale horizons.

Drilling by Total Erickson did not appear to intersect the stratigraphic contact between the Lower Sylvester Group black clastic and the McDame Group carbonates. A weak silver anomaly (40.9 ppm over 1.3 metres) was intersected in 88-1 in brecciated dolomite. The mineralization occurs as dendritic sulphide coatings on

fracture surfaces. Weakly anomalous zinc and barite appear to be lithologically controlled. Zinc mineralization (300-2990) occurs in graphitic-pyritic argillites in 88-1 and 88-2. Barite (500-4490 ppm) occurs in 88-1 and in sandstones and argillites in 88-1 and 88-3. A porphyritic rhyolite boulder was intersected in the conglomerate in DDH ACE 88-3. All drill holes intersected breccia zones

A mineralogical study of two samples by Falconbridge identified in one of them "traces of fine grained pyrite and sphalerite disseminated throughout the highly siliceous sample."

Mineralization at One Ace Mt. consists of bornite and chalcopyrite/pyrite associated with quartz veins. No intrusive rocks have been found to date, though this does not preclude that they may exist at depth and be responsible for mineralization.

STRUCTURAL GEOLOGY

A regional integrated landsat study using Landsat MSS data was carried out in 1984-85 by Hunting Geology and Geophysics (Australia) Pty. Limited. There is an absence of linear interpretation in areas due to glacial drift coverage masking the linear features in the Albert Creek area. A compilation map of lineaments is shown in Figure 5. The Albert Creek – Midway/Silvertip area occurs at the intersection of two major regional tectonic features (NW-SE linears cut by NE-SW linears). Both the Albert Creek and Midway/Silvertip areas are also transected by N-S linears. There may also be an intrusive arch along which intrusives occur, as interpreted from the circular features. This area may represent a major tectonic pull-apart (extensional) structure.

Regional and detail mapping by Falconbridge indicates NW-SE trending broad open flexure folds with similar trends for the Devonian limestone and shale units in the Albert Creek area. Interpretation of the area by both Falconbridge and Total Erickson indicates NW-SE faults cut by NE-SW faults. This is also borne out by the Hunting survey. A major westerly dipping thrust fault separates the Cambrian One Ace Mt. rocks from the Albert Creek Devonian limestones and shales. Displacement along any of the faults is not known at this time.

INTERPRETATION

The proposed Albert Creek area has characteristics that have a high potential for mineralization. These include:

- occurs in a possible north-east trending sub-basin (graben?) transecting the larger north-west trending basin (Selywn Basin complex),
- Upper Devonian limestones overlain by a black clastic sequence (Eam

- Formation),
- presence of an unconformity,
 - presence of dolomitization,
 - presence of open flexures with possible mineralization on flanks which may reflect 1) structural deformation 2) draping or compaction due to a reef and/or 3) topographic relief on the surface of the Cambrian,
 - several springs (some warm) occur in the area which suggests faults, fractures and possibly permeable beds are present,
 - heat source may be an intrusive, as indicated by the aeromagnetic survey
 - the source(s) of the high Ag values (up to 100 ppm) in stream sediments have not yet been located,
 - the weak silver anomaly (40.9ppm/1.3m) intersected in DDH 88-1 indicates the potential of mineralizing fluids
 - occurrence of Tertiary basalt, may indicate the possible presence of buried Tertiary intrusives,
 - the Midway deposit may be at the western end of a major carbonate-hosted Pb-Zn-Ag district,
 - metal zoning within this basin may include proximal deposits being lead rich and distal deposits being zinc rich, and
 - ore deposition may be associated with paleoaquifers and related to groundwater movement on a local or basin-wide character.

The fundamental control of ore localization is collapse breccias, probably developed during regional faulting/folding with associated fracturing, continuing with solution collapse and mineralization. In summary, ore controls are 1) overall alignment of bedded orebodies along fractures that run parallel to a major fault, 2) local control by fractures, joints and bedding planes, 3) a stratigraphic concentration near the base of the black clastics, and 4) localization in open spaces in solution collapse breccias where these are possibly intersected by late, steep fractures. There are no visible alteration halos associated with the ore zones, but vertical fractures and bedding plane partings may be filled with sparry dolomite, which may be a useful indicator of proximity to bedded ores.

CONCLUSIONS

This area is interpreted as a new district, occurring at the junction of two major regional tectonic features. The concepts of paleophysiography and sedimentation are very important in evaluating the potential of the area. Geologically, this area is shown as Cambrian and Permian on published maps, as very few people are aware of the presence of Devonian limestones/black clastics.

The presence of mineralization encountered in stream sediments, soils and drill holes indicate the potential for ore grade mineralization in this area.

Logistically, the project area is located in an area accessible by two major highways and is close to the town of Watson Lake with a population approximately 3,000 inhabitants and a major airport.

RECOMMENDATIONS

- Fly the area from Albert Creek to Midway/Silvertip with airborne geophysics in order to identify priority targets within the drift covered area.
- Conduct ground geophysical survey such as Induced Polarization over the airborne targets.
- Carry out a lineament study using Landsat 7 data (see Figure 2) and use this as a basis for a major map compilation consisting of geology, structure, stream sediment geochemistry, geophysics and mineral occurrences (i.e. MinFile data).
- Create a drill hole database and input data from previous drilling in order to help with data presentation and interpretation.
- Drilling:
 - Proposed drill holes are shown in Figure 6. One hole will be to test the interpreted buried intrusion, which may require a hole up to 400 metres in depth. Another hole will be to test the north-west trending magnetic high, approximately 300 metres in depth. A ground geophysical survey must be carried out prior to drilling in order to better define the target area.
 - One should be prepared to do some geological reconnaissance/fence and deep drilling. Geophysics and geochemistry may not be helpful in some instances where the deposits have a random distribution in the plane of bedding or are stacked.

note: Albert Creek occurs at the corner of four map sheets (as does the Midway deposit), therefore, according to the general geological axiom... there must be a mine here !

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STATEMENT OF QUALIFICATIONS

I, Bruce W. Downing, do hereby certify that:

1. I am a graduate of Queen's University with an honours B.Sc. in geology and pedology received in 1970, and a graduate from the University of Toronto with a M.Sc. in geology received in 1974.
2. I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia.
3. I am a Fellow of the Geological Association of Canada in good standing, a member of the Association of Exploration Geochemists and a member of the Canadian Institute of Mining.
4. I have practiced my profession continuously from 1974, based in western Canada.
5. I do not own or have owned any shares in Donegal Developments Ltd.

Bruce W. Downing, M.Sc., P.Geo.
Downing and Associates
1049 Habgood Street
White Rock, B.C., V4B 4W7

February 7, 2000.



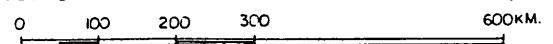
DONEGAL RESOURCES CORP.

ACE CLAIMS

LOCATION MAP

N.T.S. 104 P-13

LIARD M.D., B.C.



SCALE AS SHOWN
DRAWN BY: E.L.

DATE: AUG. 1995

FIGURE: 1

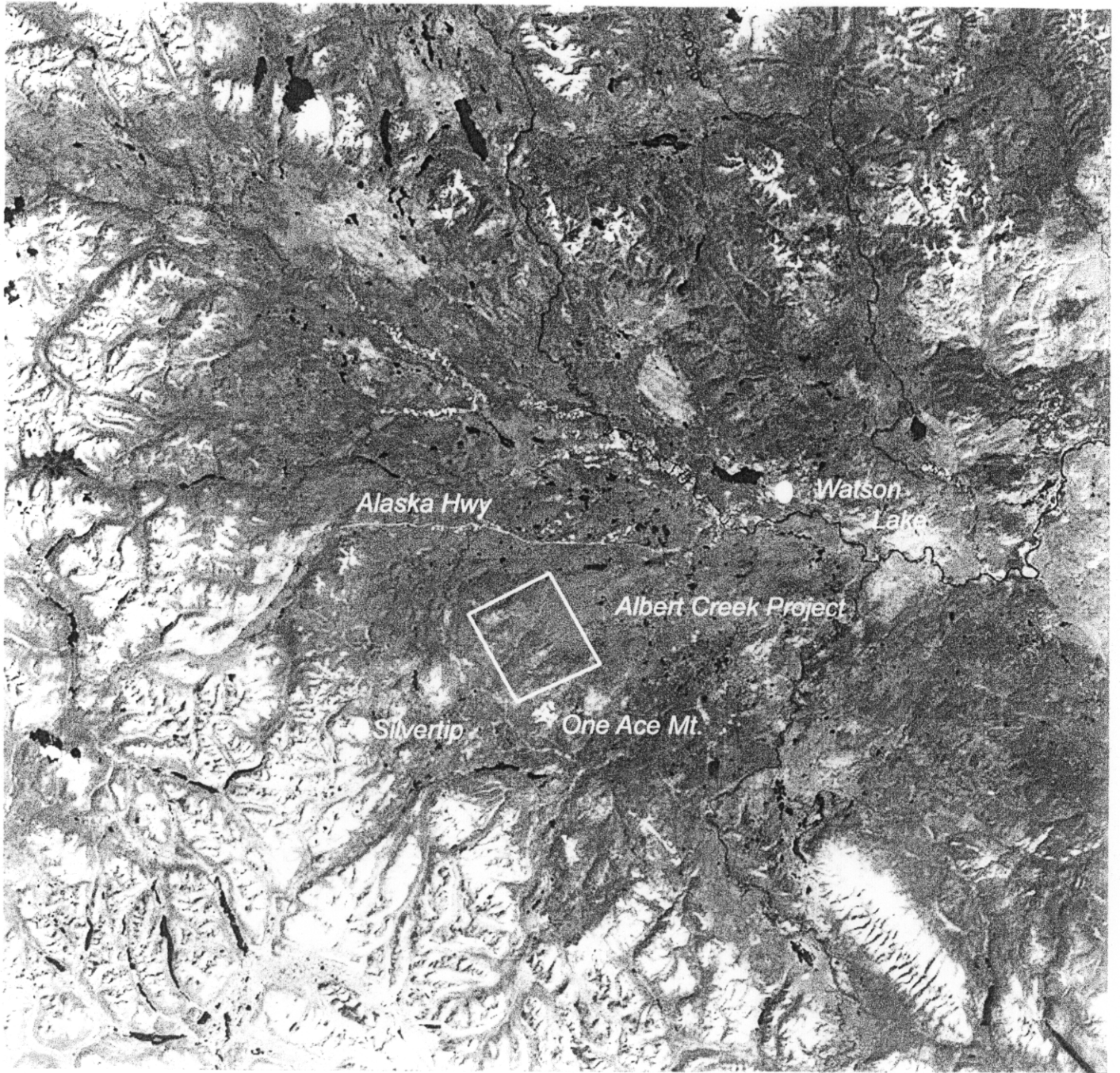
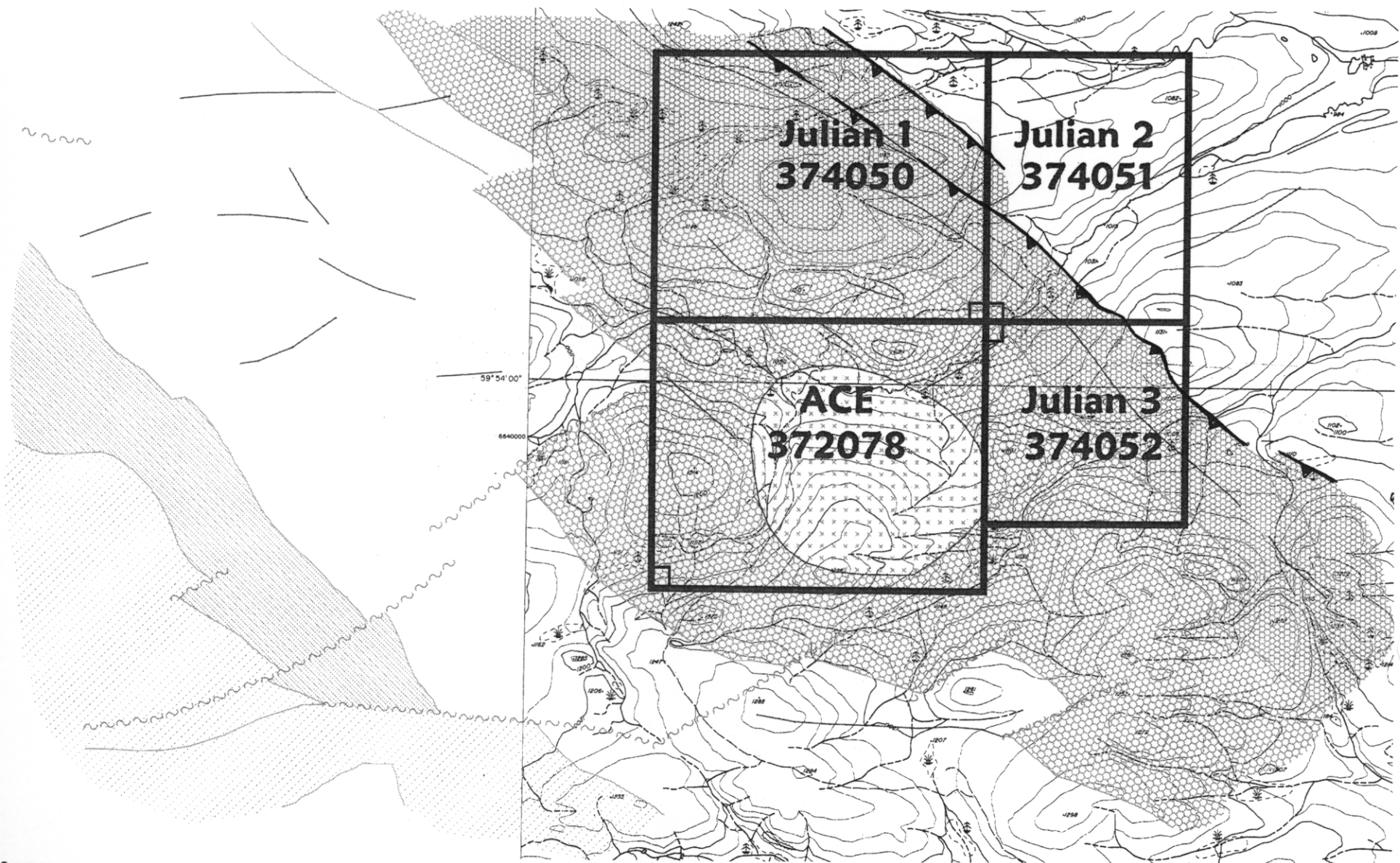

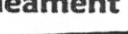


Figure 2. Landsat Scene 55-18, 5-Aug-1999



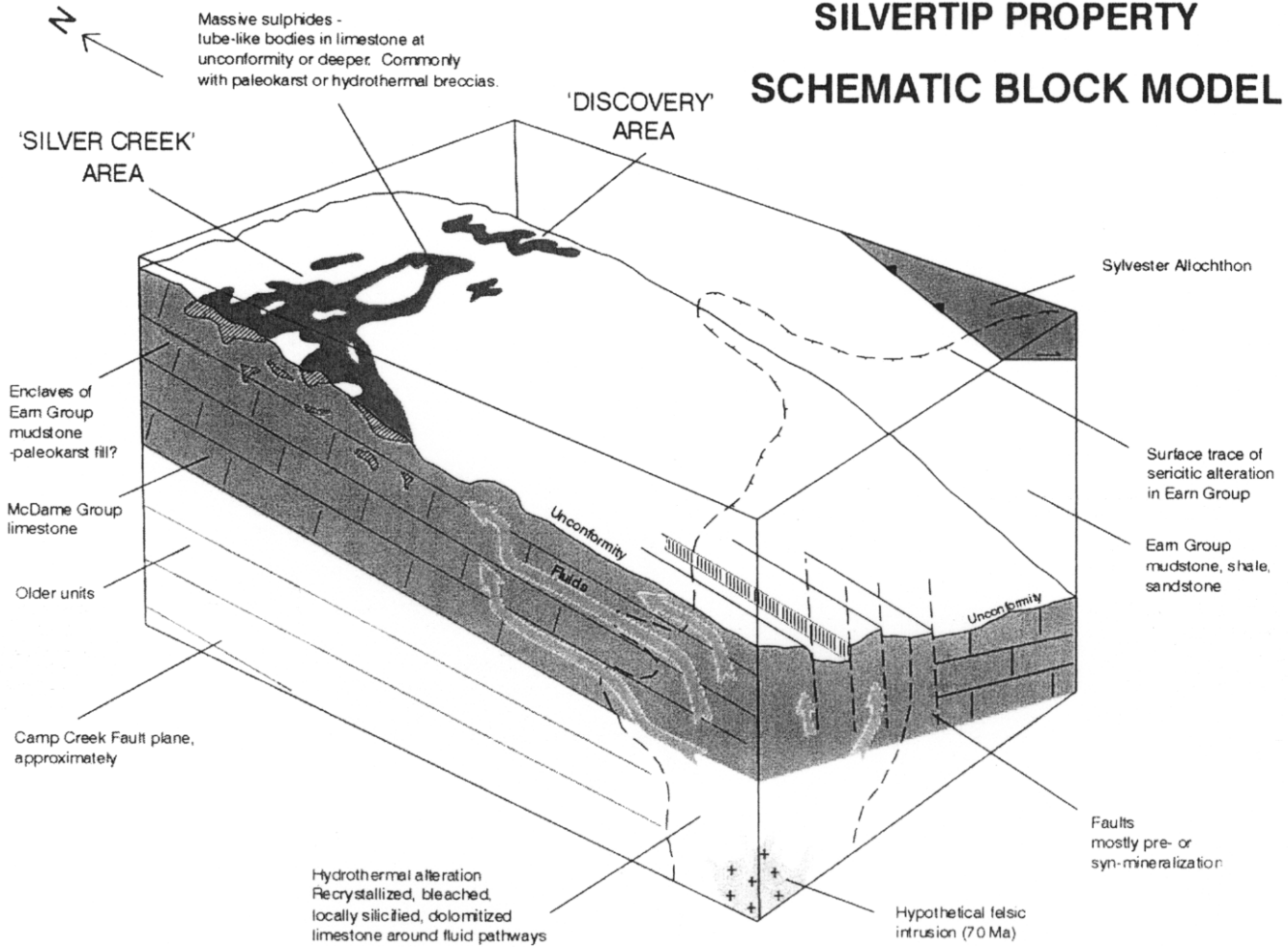


Interpreted Fault ~ ~ ~
 Thrust Fault 
 Interpreted Lineament 



Donegal Developements Ltd.
Claim Map and Geophysical Interpretation
Albert Creek Project

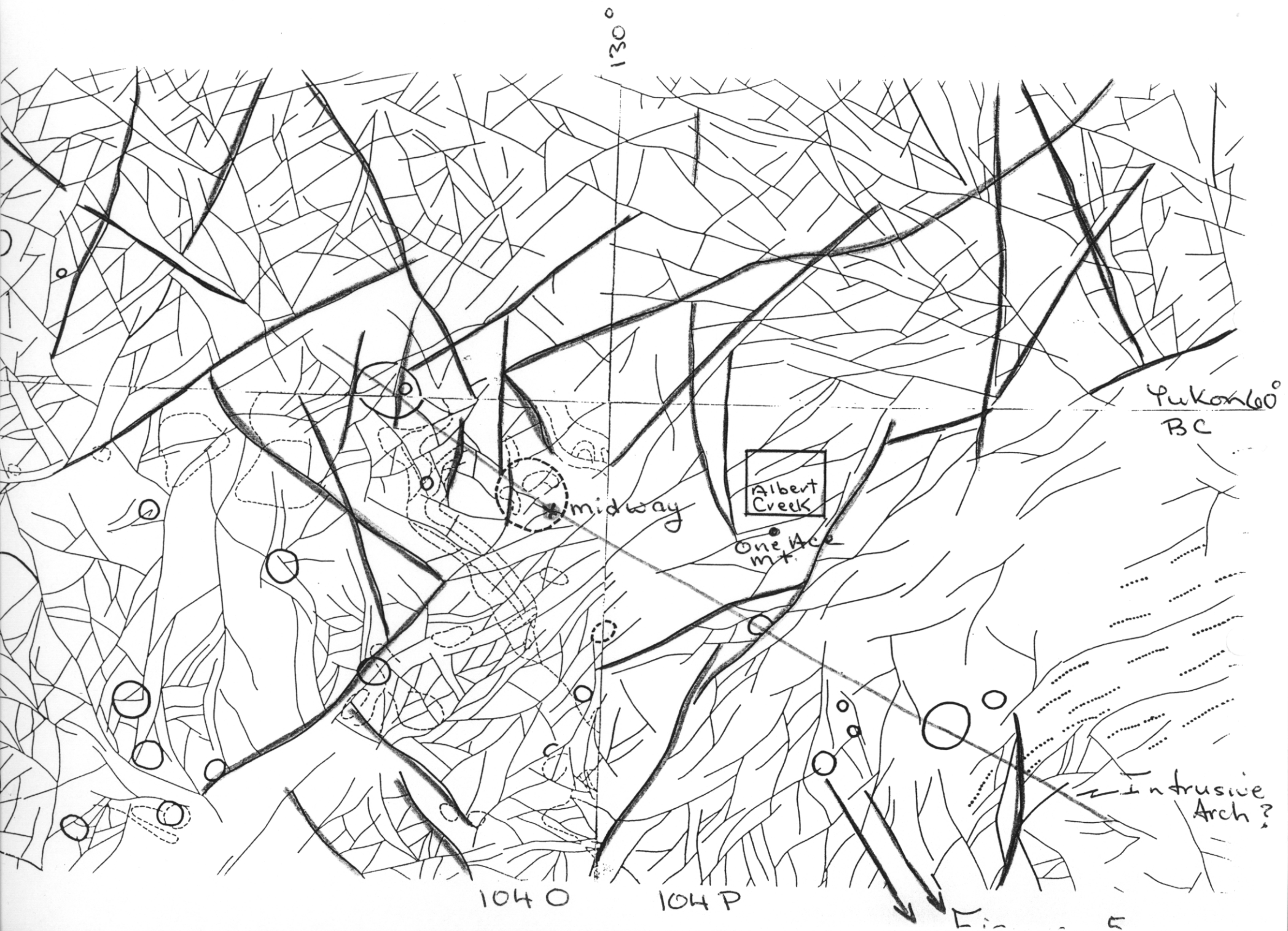
Figure 3

SILVERTIP PROPERTY SCHEMATIC BLOCK MODEL



Source: Application for a Project Approval Certificate, EAQ, Silvertip Mining Corporation

 DONEGAL DEVELOPMENTS LTD.			
SILVERTIP PROPERTY SCHEMATIC BLOCK MODEL			
Drawn:	Checked:	Mining Division: Liard	Drawing: ALBERT_FIG5.DWG
Revised:	Scale:	Province: British Columbia	NTS: 104P /13
			Figure: 



130°

Yukon 60°
BC

midway

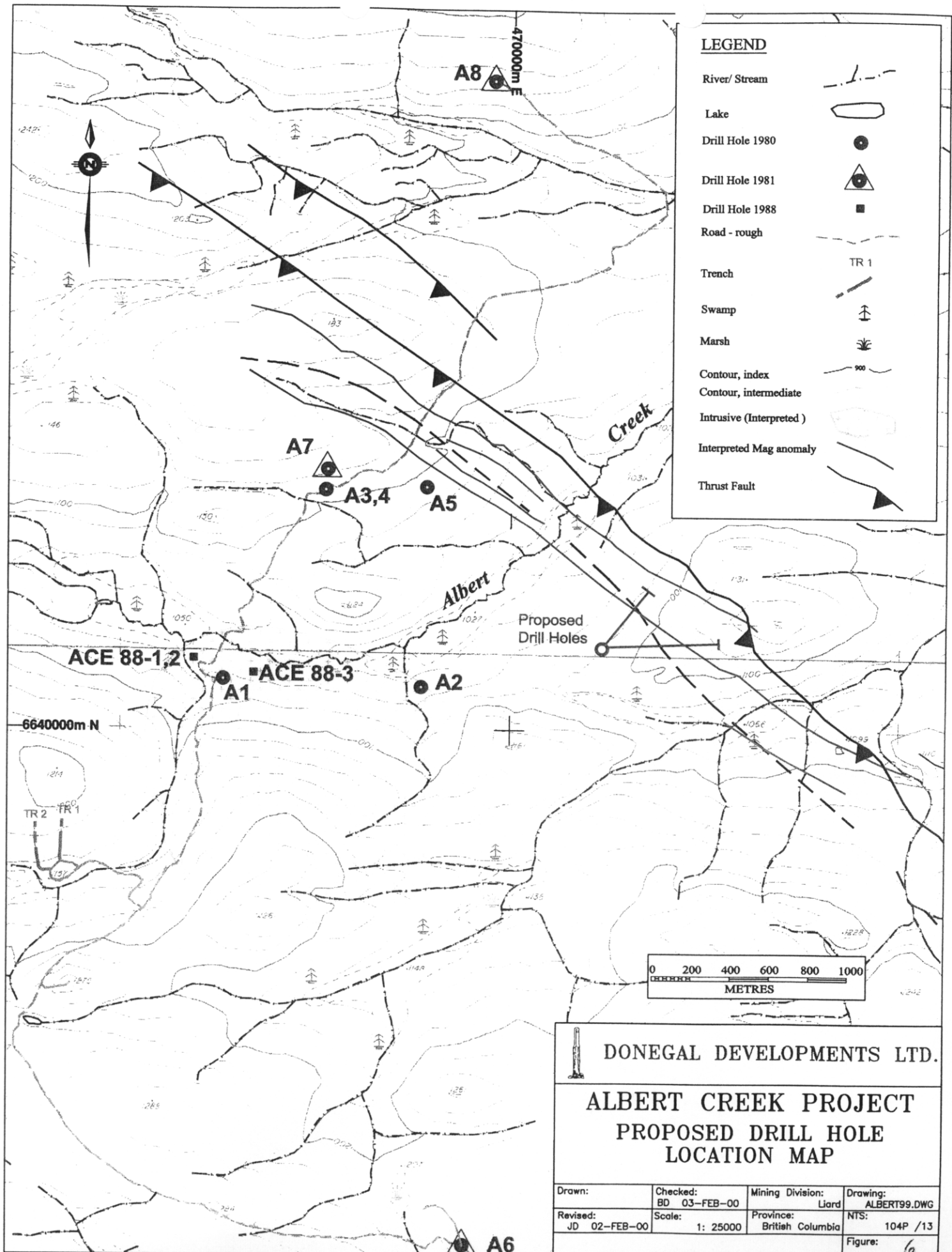
Albert
Creek

One Ace
mt.

Intrusive
Arch?

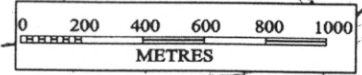
104 O

104 P



LEGEND

- River/ Stream
- Lake
- Drill Hole 1980
- Drill Hole 1981
- Drill Hole 1988
- Road - rough
- Trench
- Swamp
- Marsh
- Contour, index
- Contour, intermediate
- Intrusive (Interpreted)
- Interpreted Mag anomaly
- Thrust Fault



DONEGAL DEVELOPMENTS LTD.

**ALBERT CREEK PROJECT
PROPOSED DRILL HOLE
LOCATION MAP**

Drawn:	Checked: BD 03-FEB-00	Mining Division: Liard	Drawing: ALBERT99.DWG
Revised: JD 02-FEB-00	Scale: 1: 25000	Province: British Columbia	NTS: 104P /13
			Figure: 6