

NORTH BLOCK PROJECT
GEODETIC LOCATION SURVEY, 1979
COAL LICENCE NOS.
264 to 276 Inclusive



00438

438

NORTH BLOCK PROJECT
GEODETIC LOCATION SURVEY, 1979
COAL LICENCE NOS.
264 to 276 Inclusive

KOOTENAY LAND DISTRICT
NTS: 82 J/2

50° 02' to 50° 08' NORTHERN LATITUDE
114° 45' to 114° 50' WESTERN LONGITUDE

CROWS NEST RESOURCES LIMITED
SHELL CANADA RESOURCES LIMITED
CALGARY, ALBERTA

SURVEY DONE BY: SHELLTECH LTD.
GENERAL CONTRACTOR

EXPLORATION PERIOD: OCTOBER, 1979

REPORT COMPILED BY: DAVE HANDY
GEOLOGIST
C.N.R.L.

REPORT DATE: JANUARY 31, 1980

SUBMITTED: APRIL 30, 1980

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APPENDIX

Location Survey 1979

North Block - Sparwood Area, S.E.B. - 4951 P
by Shelltech Canada Limited

ENCLOSURES

1	Location and Index Map	1:800,000	after text
2	Access Map	1:50,000	" "
3	Land Map	1:50,000	" "
4	B.C. Coal Licences Tenure Standing, North Block, Group #214		" "
5	Survey Traverse Map	1:5,000, 1:2,000 1:10,000	Appendix

1.0 INTRODUCTION

1.1 General Introduction

Enclosure 1: Location and Index Maps

Enclosure 2: Access Map

The North Block group of coal licences is located in the Fording River valley; in terms of distance, they are located 9 air-kilometres north-east of Elkford or 3 km south of Fording Coal Ltd. (Figure 2). Geographically the licences extend between:

50° 02' and 50° 08' of northern latitude, and
114° 45' and 114° 50' of western longitude

Locally the area includes all of Bare Mountain Ridge between Todhunter and Chauncey Creeks; part of the north slope of Lone Mountain; part of the north side of the lower Chauncey Creek valley and also a small segment of the southern extension of Green Hill Ridge on the west side of Fording River.

The west half of the project area is intersected by a paved road owned by Fording Coal Ltd. This paved access, originating at Elkford, is a north-east extension of District Highway 4. The distance from Elkford to the North Block is 22 kilometres. Parallel with the paved road on the east there is also a logging road. From the latter, good logging roads provide access to the eastern bounds of the property along the Chancey and Todhunter creeks. A poor logging road constructed in 1979 allows access into Coal Licences 274 and 271.

The Canadian Pacific spurline to Fording Coal Ltd. traverses the project area. Unit trains currently haul 3.0 million tons of coal annually a distance of 1100 km to the Roberts Bank port facility.

The North Block coal licences are the most northern coal holdings of Shell Canada Resources Limited in the Elk River Basin.

1.2 Summary

Enclosure No. 3: Land Map

Enclosure No. 4: B.C. Coal Licences Tenure Standing
North Block, Group #214

The North Block Coal Property consists of thirteen B.C. Coal Licences Nos. 264 to 276 inclusive, Group #214, covering approximately 3,173 hectares of Crown coal land:

held by Shell Canada Resources Limited,
operated by Crows Nest Resources Limited, a wholly -
owned subsidiary of the former.

The licences were transferred to Shell Canada Resources Ltd. in 1979 upon its acquisition of the previous licensee The Crows Nest Pass Oil and Gas Ltd. in 1978.

Only part of the block is underlain by the Coal Bearing Member of Kootenay Formation of early Cretaceous age. The property is in grass roots exploration stage with only preliminary geological mapping done in 1978. A detailed report of this work was filed with the B.C. Ministry of Energy, Mines and Petroleum Resources on April 30, 1979. Four target areas have been identified on the property with potential for a large volume of metallurgical and high-grade thermal bituminous coal, amenable for open pit and underground mining.

1.3 Summary of Work Done

1.3.1 Previous Work

No record is available on the six adits driven by Utah Mines at the S.E. corner of the property north of the logging road along the Todhunter Creek.

Geodetic ground control survey, photogrammetric mapping and preliminary geological mapping was carried out in 1978 by the Coal Division of Shell Canada Resources Limited which was incorporated as Crows Nest Resources Limited near the end of that year. A detailed report, on this work, quoted in the References, was filed with the B.C. Ministry of Energy, Mines and Petroleum Resources on April 30, 1979.

1.3.2 Work Done in 1979

Geodetic Location Survey was done for Crows Nest Resources Limited by Tronnes Survey, a subcontractor under the direction of Shelltech Canada (general contractor) to cover the following:

- the portal of the six old adits;
- eleven coal outcrop locations;
- several points on the logging road constructed in 1979.

This report is to account for work done in 1979 only.

1.4 List of Licences on Which Work was Actually Performed in 1979

Geodetic Location Survey

B.C. C.L. 271, 274, 275

2.0 REFERENCES

Horachek, J. (1979): Report on the North Block Project;
Fietz, D. Crows Nest Resources Limited



DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Coal Act (Sec. 19)

APPLICATION TO EXTEND TERM OF LICENCE

1. I, BOLTON AGNEW agent for CROWS NEST RESOURCES LIMITED
400 - 4th Ave. S.W. P.O. Box 2699 Stn. "M"
Calgary, Alberta T2P 0J4
Valid FMC No. 187621

hereby apply to the Minister to extend the term of Coal Licences No(s) 264 to 276 inclusive,
Group #214
for a further period of one year.

2. I have performed, or caused to be performed, during the period February 1, 1979 to
January 31, 1980, work to the value of at least \$ 15,279
on the location of coal licences as follows:

CATEGORY OF WORK

Table with 3 columns: Category of Work, Licence No(s), and Appropriated Cost. Includes rows for Geological mapping, Surveys (Geophysical, Geochemical, Other - Geodetic), Road construction, Surface work, Underground work, Drilling, Logging, sampling, and testing, Reclamation, and Other work (specify).

3. I wish to apply \$ 15,279 of this value of work on Coal Licence(s) 264 to
276 inclusive

4. I wish to pay cash in lieu of work in the amount of \$ on Coal Licence(s)
No(s)

5. I wish to apply \$ of this value of work to claim a refund of cash in lieu of work in
the amount of \$ which was paid to extend the term of Coal Licence(s) No(s)
from
to, 19 Mining Receipt No.
for prior payment of cash in lieu of work is attached for adjustment.

6. The work performed on the location(s) is detailed in the attached report entitled North Block
Project, Geodetic Location Survey, 1979 (to be submitted within
ninety days)

January 28, 1980
(Date)

[Signature]
(Signature and position)

* Applications to group licences may be filed to appropriate costs on a maximum of 10 licences.

(FORMS TO BE SUBMITTED IN DUPLICATE)

Land Supervisor

FOR DEPARTMENTAL USE ONLY

Value of work reported \$ Value of work applied on licences \$
Value of work approved \$ Value of credit remaining \$

Work performed. Yes No

The program of operations detailed hereunder was carried out during the period from February 1, 1979 to January 31, 1980. Total costs are \$ 15,279, an average of \$ 4.81 per HECTARE

GEOLOGICAL MAPPING Yes No Cost \$ _____
Area (Acres) Scale Time
Reconnaissance _____
Detail: Surface _____
Underground _____
Other (specify) _____

GEOPHYSICAL OR GEOCHEMICAL SURVEYS Yes No Cost \$ _____
Method _____ Line miles _____

OTHER SURVEYS Yes No Cost \$ 8780
Grid _____ Topographic _____ Other Geodetic Location Survey

ROAD CONSTRUCTION Yes No Cost \$ _____
Length: On Licences _____ Access (off licences) _____

SURFACE WORK Yes No Cost \$ _____
Length Licence Number(s)
Benching _____
Seam tracing _____
Crosscutting _____
Other _____

UNDERGROUND WORK Yes No Cost \$ _____
Test adits: Number _____ Average length _____ Total footage _____
Other workings: Area _____ Total footage _____

DRILLING Yes No Cost \$ _____
Hole Size Number of Holes Total Footage
Core: Diamond Wireline _____
Rotary: Conventional _____
Reverse circulation _____
Other _____
Contractor _____ Where core stored _____

LOGGING, SAMPLING, AND TESTING (check) Yes No Cost \$ _____
Lithology: Drill samples Core samples Bulk samples
Logs: Gamma-Neutron Density Other
Testing: Prox. analysis FSI Washability
Carbonization Petrographic Plasticity Other

OTHER WORK (specify details) _____ Cost \$ _____

REPORTS:
Reclamation work (Permit No. _____) Detail of work* _____
_____ Cost \$ _____

OPERATIONS: David Handy Geologist
Work was supervised by Frank Martonhegyi Position Senior Staff Geologist
Is this person a registered or licensed Professional Engineer in British Columbia? Yes No

NOTE—Where the licensee intends to perform, during the extended term of his licence, work not set out in the plan of operations filed under section 15 (2) (c), a supplemental plan of operations is to be attached.

* If reclamation work reported in separate report give details of report identification.

VALUATION OF WORK: COST STATEMENT
(Sec. 27, B.C. Reg. 436/75)

ON-PROPERTY COSTS: For period from February 1, 1979 to January 31, 1980

1. OPERATOR'S FEES, SALARIES, AND WAGES:

	Average Number of Employees	Average Rate	Average Number of Days	Amount
Professional and technical				
Machine operators and support				
Miners				
Other				

Total operator's costs \$ _____

2. CONTRACTORS AND CONSULTANTS:

Name	Service	Contract Amount
<u>Shell Canada Resources Ltd.</u>	<u>Geodetic Location Survey</u>	<u>8,780</u>
<u>Surveying Dept. and its subcontractors Tronnes & Midwest Surveys</u>		

Total contractor and consultant costs \$ 8,780

3. EQUIPMENT AND INSTRUMENTS USED: Owned _____ Rented _____

Type	Rented From	Amount

Total equipment and instrument rentals \$ _____

4. FIELD CAMP COSTS:

	Amount
Food <u>surveyors & helicopter personnel</u>	<u>1,920</u>
Accommodation _____	
Fuel and Lubricant for helicopter _____	<u>878</u>
Other <u>Communications</u>	<u>180</u>

Total field camp costs \$ 2,978

5. SAMPLING, ANALYSIS, AND TESTING:

Service	Performed by	Amount

Totals, samplings, analysis, and testing \$ _____

6. SUPPLIES AND MATERIALS COSTS:

	Amount
Process supplies _____	
Operating and maintenance supplies _____	
Office and technical supplies _____	
Other supplies and materials _____	

Total, supplies and materials \$ _____

7. TRANSPORTATION COSTS (Ground transportation details):

Vehicle	Owner	Rental Rate	Amount

Air support details:

Aircraft Type	Owner	Charter
Helicopter 206B	Kenting Helicopters	\$3521
_____	_____	_____
_____	_____	_____
		Total transportation costs \$ 3521

8. RECLAMATION WORK:

_____ \$ _____

9. TRAVEL EXPENDITURES (operator's costs only):

Number of Personnel	Number of Trips	Amount
_____	_____	_____
		Total travel expenditures \$ _____
		Total costs \$ 15,279

(Secs. 28 and 29, B.C. Reg. 436/75)

N.A. OFF-PROPERTY COSTS: Period from _____ to _____, 19 _____

- (a) Logistics and field support _____ \$ _____
- (b) Technical and feasibility studies _____
- (c) Preparation of reports _____
- (d) Supplies and services _____
- (e) Mobilization and demobilization of equipment _____
- (f) Travelling expenses _____

Supporting Cost Statements Attached

Total \$ _____

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Total supporting costs \$ _____

SUMMARY

On-property costs _____ \$ 15,279

Off-property costs _____ \$ _____

Total costs \$ 15,279

Statement of costs verified by

W.S. Kowalski

Jan 29/80

(Date)

W.S. Kowalski

(Signature and position)

Chief Accountant

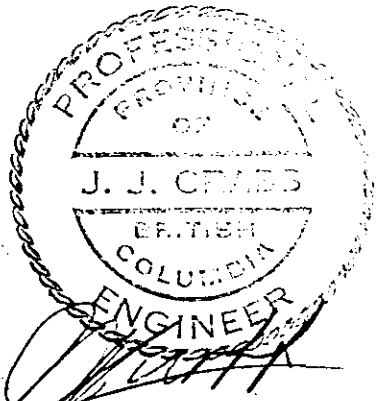
PROFESSIONAL VERIFICATION OF REPORT

Geodetic Ground Control Survey for Crows Nest Resources Ltd. on Coal Licences 271, 274 and 275 was done by Tronnes Surveying; Surveying subcontractor under the direction of Shell Canada Resources Surveying Department (Shelltech Canada); General Survey Contractor.

I verify that both companies are in the commercial surveying business, have full facilities, competent staff and have carried out the work professionally according to prevailing standards under my general direction and to my satisfaction.

Mr. David L. Handy, Geologist (B.Sc. 1977, University of Waterloo) employed by Crows Nest Resources Limited in my department furnished the report of Shelltech Canada with information and attachments to fulfill Coal Act Regulations, 1979.

The report given by Shelltech Canada and the supplementary information compiled by Mr. Handy are true accounts of the work done and of the property.



A circular professional seal for J. J. Crabb, a Professional Engineer in British Columbia. The seal features the text "PROFESSIONAL ENGINEER" around the top and "BRITISH COLUMBIA" around the bottom. In the center, it reads "J. J. CRABB". Below the seal is a handwritten signature.

J.J. Crabb, P. Eng.

April 30, 1980

INTER-OFFICE CORRESPONDENCE

DATE NOVEMBER 13, 1979

TO CROWSNEST RESOURCES LIMITED (C.N.R.L.)

FROM SHELTECH CANADA

SUBJECT LOCATION SURVEY
NORTH BLOCK - SPARWOOD AREA
S.E. BRITISH COLUMBIA 4951P


Three stations (Banner, North, 401) were positioned in the North Block - Mount Banner area. They were tied to Geodetic Control Stations 'North-west' and 'Tornado' by a closed traverse with 3rd order accuracy.

Conventional survey methods using a 6" theodolite and electronic distance measuring equipment were used to obtain co-ordinates and elevations for the geological reference points.

Six abandoned adit sites and 11 coal outcrops were located in the North Block area.

Calculations were done using the U.T.M. system with distances and bearing converted to plane and results were reported to C.N.R.L. in tabular form for plotting, a copy of which is enclosed.

The survey cost attributed to the North Block was approximately \$8,780.



Dave Poulson

Enclosure

DP:rm1

NORTH BLOCK GEOLOGICAL REFERENCE
AND ROAD TRAVERSE POINTS

U.T.M. COORDINATES R.M.117⁰

STATION NO.	NORTHING	EASTING	ELEVATION
BANNER 1	5544454.1	660782.3	2097.1
BM 2	5544658.6	660995.2	1946.0
BM 3	5544713.6	661071.1	1881.3
BM 501	5444744.4	660513.7	2033.08
BM 502	5544891.9	660129.6	1848.03
<u>NORTH BLOCK</u>			
SEAM 1	5551117.28	657683.50	1780.80
SEAM 2	5551015.26	657605.81	1763.40
SEAM 3	5550869.10	657731.96	1746.95
SEAM 4	5550780.70	657823.93	1743.49
SEAM 5	5550726.56	657767.68	1741.94
SEAM 6	5550660.14	657679.46	1734.22
SEAM 7	5550533.78	657701.70	1723.25
SEAM 8	5550365.46	657762.19	1704.25
SEAM 9	5549923.36	657768.74	1669.80
SEAM 10	5549923.72	657688.51	1628.91
SEAM 11	5549614.50	657677.08	1619.10
<u>DETAIL A</u>			
ROAD TRAVERSE NORTH BLOCK			
STA. 10A	5549868.55	657690.88	1628.34
STA. 9A	5550091.95	657670.20	1641.61
STA. 8A	5550246.62	657759.75	1695.37
STA. 7A	5550450.91	657755.98	1710.31
STA. 6A	5550619.36	657662.03	1732.37
STA. 5A	5550707.04	657712.37	1738.83
STA. 3A	5550795.68	657780.61	1743.91
STA. 2A	5550940.69	657611.71	1756.94
STA. 1A	5551112.14	657666.78	1777.56

STATION NO.	NORTHING	EASTING	ELEVATION
-------------	----------	---------	-----------

DETAIL B

STA. 10	5549173.74	658534.95	1623.70
STA. 11	5549273.74	658523.84	1641.96
STA. 12	5549350.25	658528.41	1655.65
STA. 13	5549475.61	658571.25	1680.74
STA. 14	5549555.58	658583.81	1695.14
STA. 15	5549605.85	658624.95	1702.32
STA. 16	5549662.70	658618.68	1705.07
STA. 16A	5549711.15	658599.79	1704.15
STA. 17	5549731.43	658579.56	1703.63
STA. 18	5549758.66	658529.82	1714.07
STA. 19	5549812.69	658507.58	1712.03
STA. 12A	5549447.97	658564.66	1671.32
STA. 12B	5549541.76	658628.20	1674.22

DETAIL C

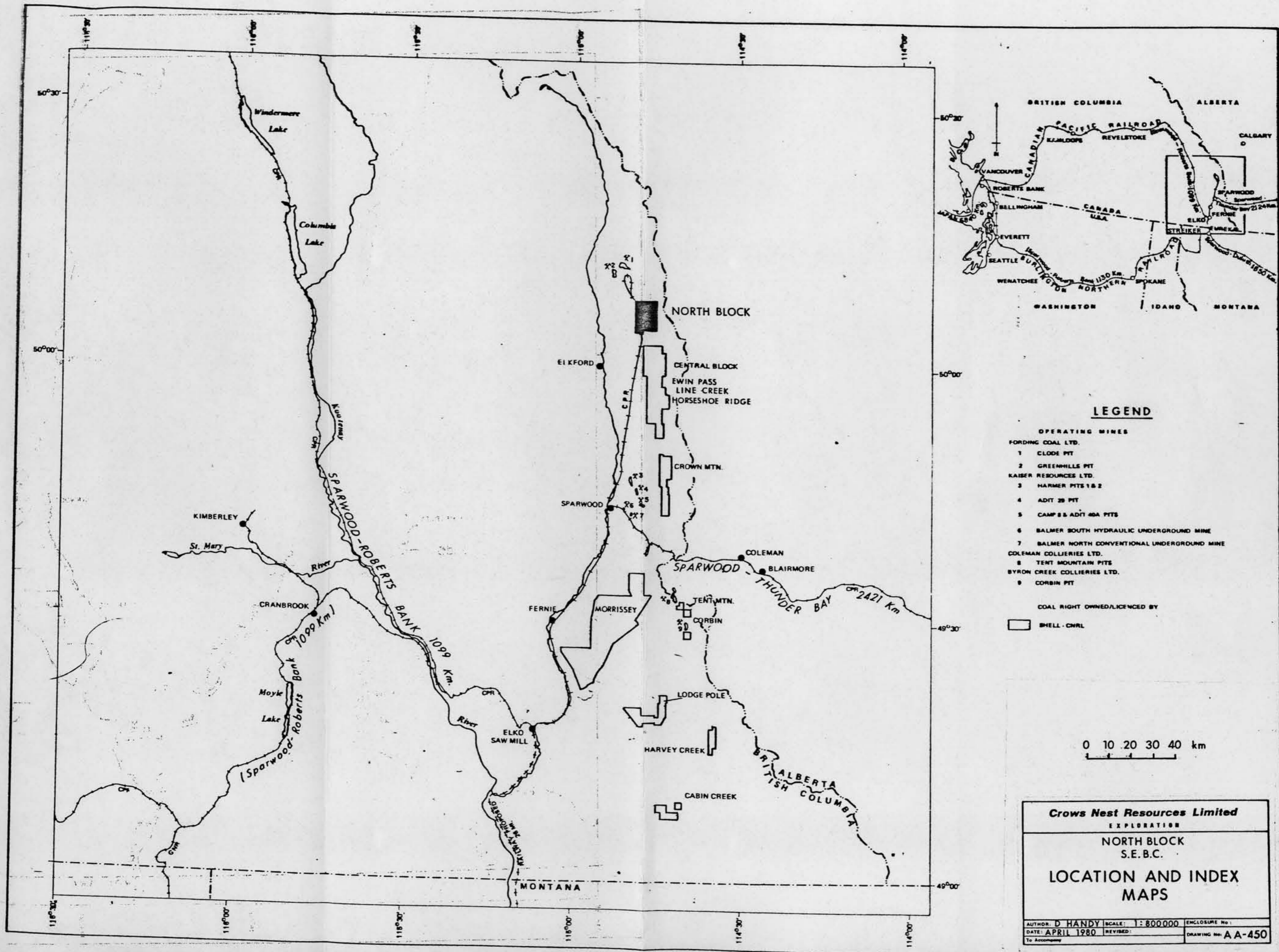
STA. 0	5550102.62	659228.13	1655.25
STA. 1	5550134.16	659251.71	1658.63
STA. 2	5550096.51	659157.93	1674.16
STA. 3	5550061.50	659027.18	1697.59
STA. 4	5550017.30	658949.45	1710.57
STA. 5	5550011.92	658902.46	1712.82
STA. 6	5550055.27	658846.56	1726.07
STA. 4A	5550091.06	659047.64	1705.23

CONTROL CO-ORDINATES

<u>STATION</u>	<u>NORTHING</u>	<u>EASTING</u>	<u>ELEVATION</u>
Northwest	5539195.15	645451.46	2416.15
North	5549566.05	655530.65	2133.85
Banner	5544512.78	659285.31	2376.95
401	5552638.18	658866.22	2360.41

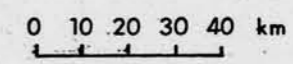
NORTH BLOCK ADITS

<u>STATION</u>	<u>NORTHING</u>	<u>EASTING</u>	<u>ELEVATION</u>
Adit 1	5549476.05	658583.48	1671.63
Adit 2	5549605.85	658624.95	1702.32
Adit 3	5550013.57	658916.93	1711.80
Adit 4	5550109.36	659079.61	1702.83
Adit 5	5550126.77	659107.79	1702.10
Adit 6	5550147.16	659144.91	1705.33



LEGEND

- OPERATING MINES**
- FORDING COAL LTD.
 - 1 CLODE PIT
 - 2 GREENHILLS PIT
 - KAISER RESOURCES LTD.
 - 3 HARMER PITS 1 & 2
 - 4 ADIT 2B PIT
 - 5 CAMP 8 & ADIT 40A PITS
 - 6 BALMER SOUTH HYDRAULIC UNDERGROUND MINE
 - 7 BALMER NORTH CONVENTIONAL UNDERGROUND MINE
 - COLEMAN COLLIERIES LTD.
 - 8 TENT MOUNTAIN PITS
 - BYRON CREEK COLLIERIES LTD.
 - 9 CORBIN PIT
- COAL RIGHT OWNED/LICENCED BY**
- SHELL - CNRL

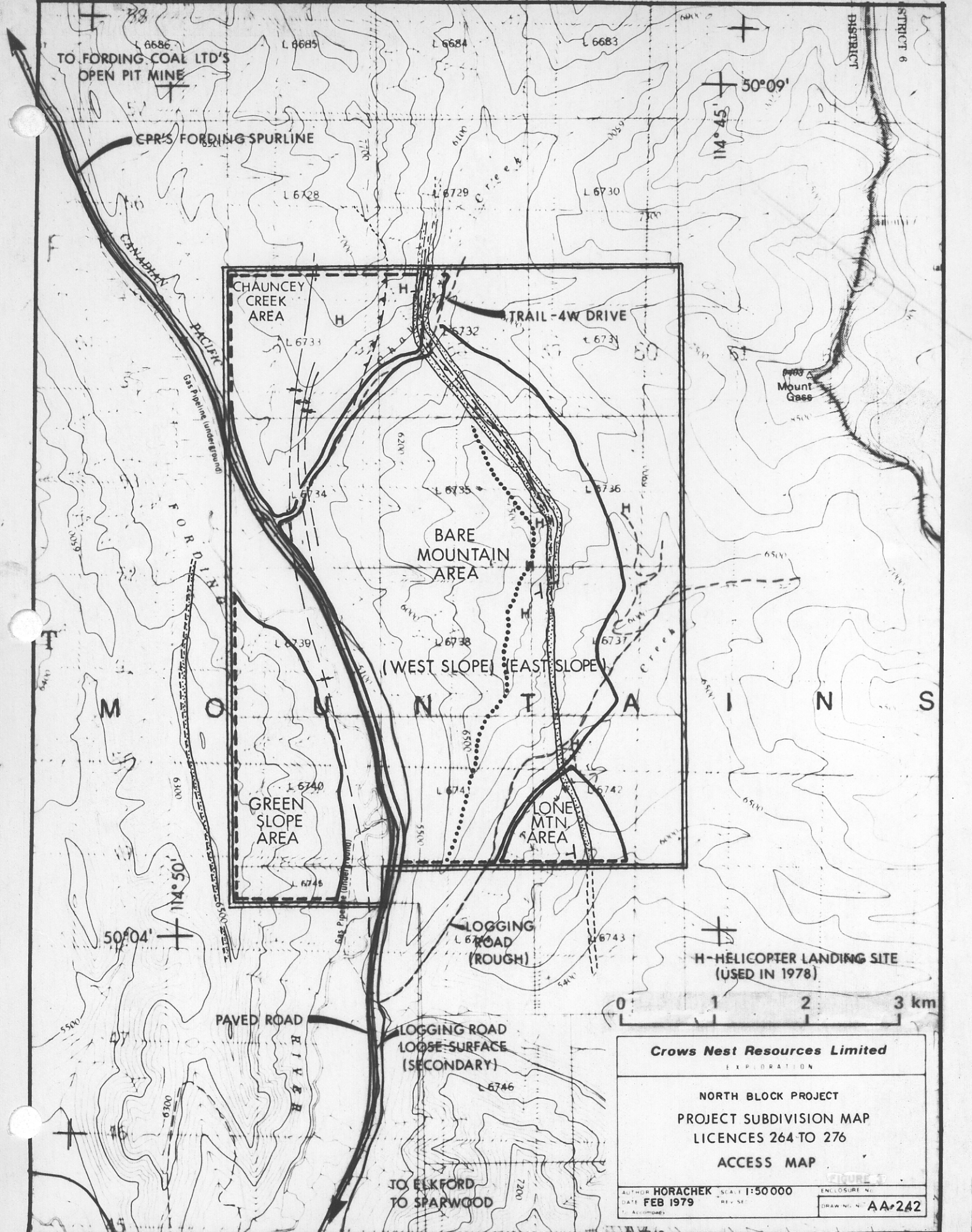


Crows Nest Resources Limited
EXPLORATION

NORTH BLOCK
S.E.B.C.

LOCATION AND INDEX
MAPS

AUTHOR: D HANDY	SCALE: 1:800,000	ENCLOSURE No: 1
DATE: APRIL 1980	REVISED:	DRAWING No: A A-450
To Accompany		

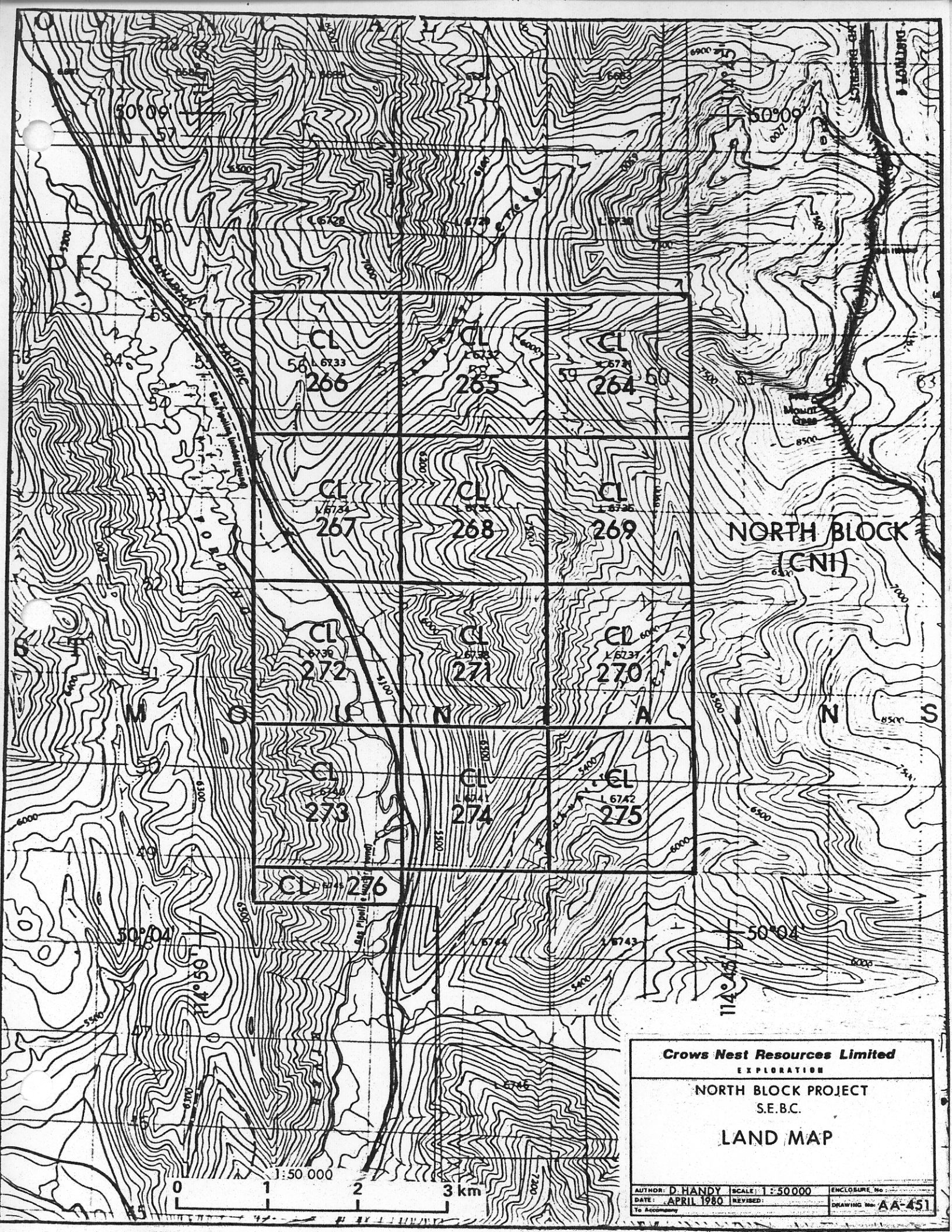


Crows Nest Resources Limited
EXPLORATION

NORTH BLOCK PROJECT
PROJECT SUBDIVISION MAP
LICENCES 264 TO 276
ACCESS MAP

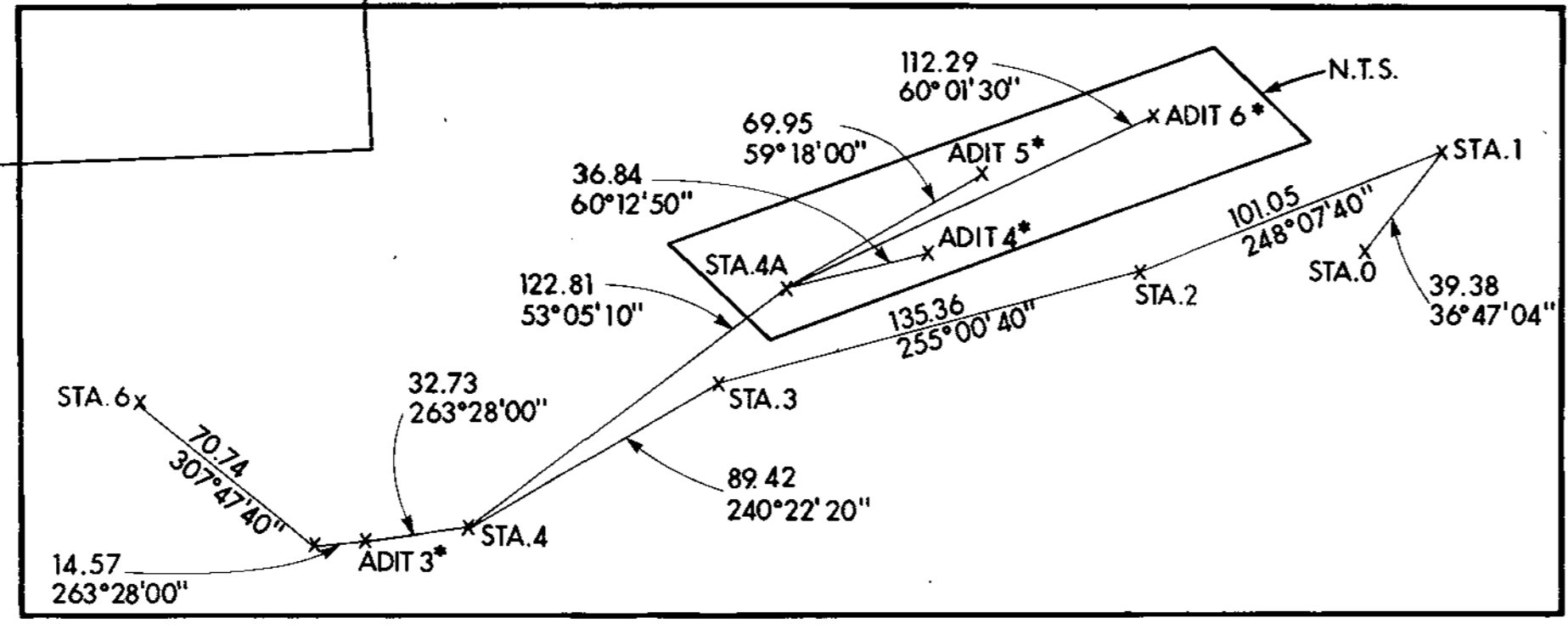
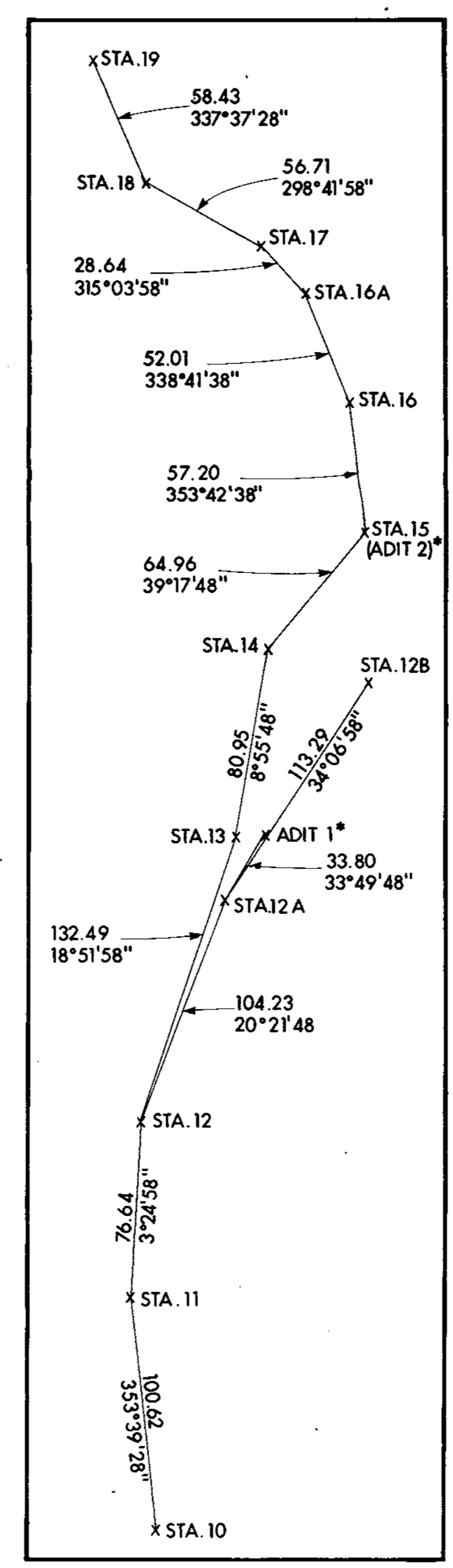
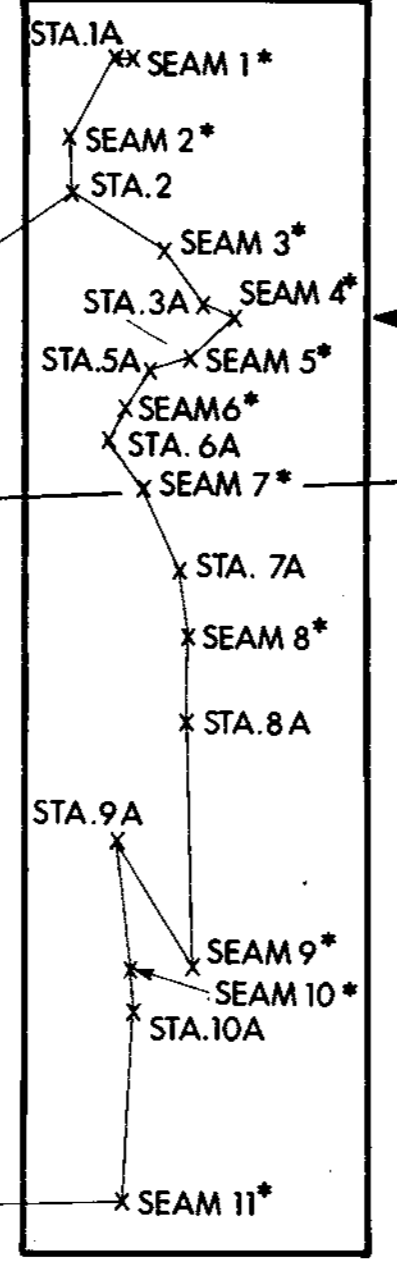
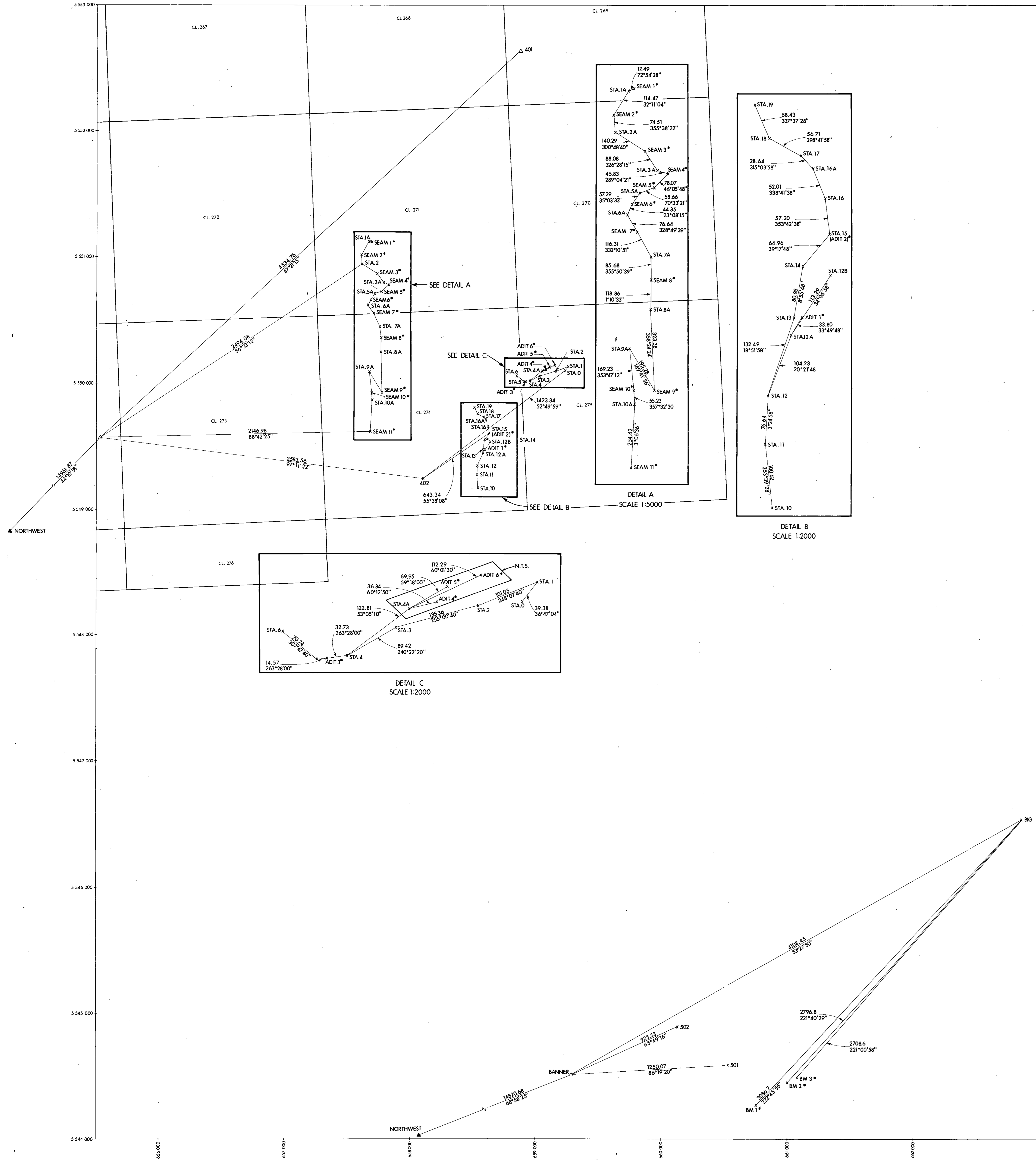
FIGURE 1

AUTHOR HORACHEK SCALE 1:50 000 ENCLOSURE NO.
DATE FEB 1979 REF. SE
DRAWING NO. AA-242



Crows Nest Resources Limited
 EXPLORATION
 NORTH BLOCK PROJECT
 S.E.B.C.
 LAND MAP

AUTHOR: D. HANDY	SCALE: 1:50000	ENCLOSURE No.
DATE: APRIL 1980	REVISED:	DRAWING No. AA-451
To Accompany		



NOTE: SURVEY PERFORMED BY SHELLTECH CANADA, OCTOBER 1979
 U.T.M. PROJECTION REFERRED TO 117° WEST LONGITUDE
 ELEVATIONS AND DISTANCE ARE IN METRES AND DECIMALS THEREOF
 ELEVATIONS ARE REFERRED TO SEA LEVEL
 GEOLOGICAL REFERENCE POINTS ARE INDICATED BY A * BESIDE STATION NAME

- ▲ MONUMENTS FOUND
- △ MONUMENTS PLANTED
- x 12" SPIKE PLANTED



Crows Nest Resources Limited ENGINEERING		
NORTH BLOCK AND MOUNT BANNER EAST SE. B.C.		
ROAD, OUTCROP & ADIT TRAVERSE SURVEY		
AUTHOR: SHELLTECH	SCALE: 1:10000	ENCLOSURE No. 5
DRAWN: APRIL 1980	REVISED:	DRAWING No. NH-51

NOTE
 THE LOT BOUNDARIES HAVE
 BEEN TRANSFERRED GRAPHICALLY
 FROM FOREST COVER MAP'S 1514, 140
 THEREFORE THEIR POSITION IS
 APPROXIMATE ONLY.