

10962-E223



FALCONBRIDGE LIMITED
701 - 1281 West Georgia Street
Vancouver, B.C. V6E 3J7

1987 GEOLOGICAL AND GEOCHEMICAL REPORT
ON THE CALLAGHAN PROPERTY AND NORTHAIR
OPTION. (NTS 92J/03E)

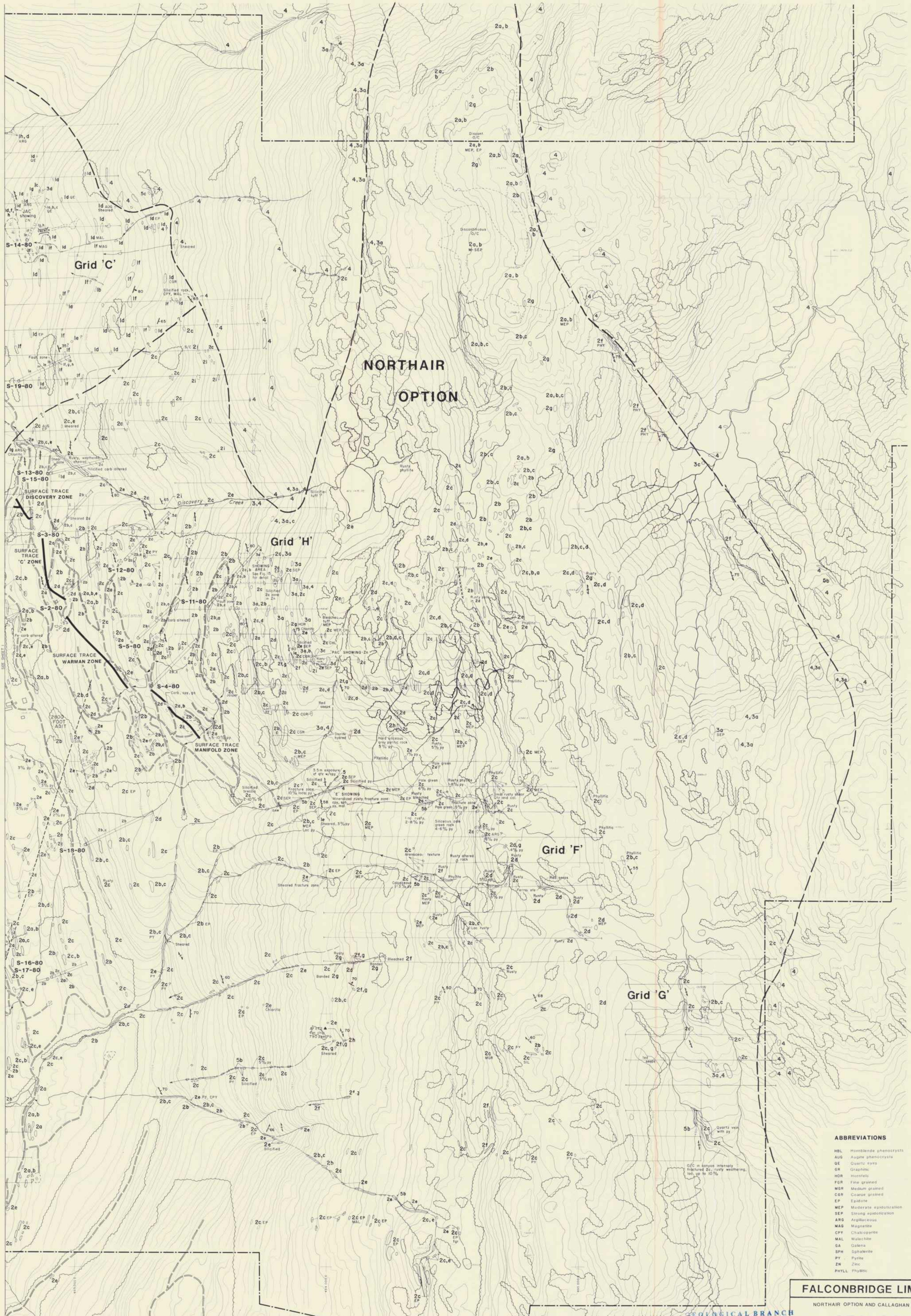
FIGURES 4 to 14, 16 to 27, 31, 32

February 1988

Volume 4 of 4

PART 4
OF 7

16709



LEGEND

LITHOLOGY

TERTIARY TO QUATERNARY

- 5a Valley basalt
- 5b Basalt dyke
- 5c Felsic dyke

CRETACEOUS TO TERTIARY

- 4 Diorite

LOWER CRETACEOUS

GAMBER GROUP

- 3a Epidotized hybrid rock
- 3b Silicified tuff
- 3c Chlorite schist
- 3d Biotite hornfels and schist

Upper Volcanic Unit

- 2a Feldspar crystal breccia
- 2b Feldspar crystal lapilli tuff
- 2c Feldspar crystal tuff
- 2d Fine grained feldspar crystal tuff
- 2e Ash tuff
- 2f Siltstone
- 2g Argillite
- 2h Siliceous siltstone
- 2i Greywacke

Lower Volcanic Unit

- 1a Porphyritic volcanic breccia
- 1b Feldspar crystal lapilli tuff
- 1c Massive feldspar porphyritic volcanic tuff
- 1d Tuff
- 1e Volcanic wacke
- 1f Greywacke
- 1g Siltstone
- 1h Argillite
- 1i Siliceous siltstone

SYMBOLS

- Geological contact
- Geological contact (uncertain)
- Outcrop
- Discontinuous outcrop
- Drill hole
- Cleavage
- Bedding
- Bedding (top)
- Mineralized zone

ABBREVIATIONS

- HBL Hornblende phenocrysts
- AUG Augite phenocrysts
- QE Quartz eyes
- GR Granitic
- HOR Hornfels
- FGR Fine grained
- MGR Medium grained
- CGR Coarse grained
- EP Epidote
- MEP Moderate epithermal
- SEP Strong epithermal
- ARG Argillaceous
- MAG Magnetite
- CPY Chalcopyrite
- MAL Malachite
- SA Galena
- SPN Sphalerite
- PY Pyrite
- ZN Zinc
- PHYL Phyllite

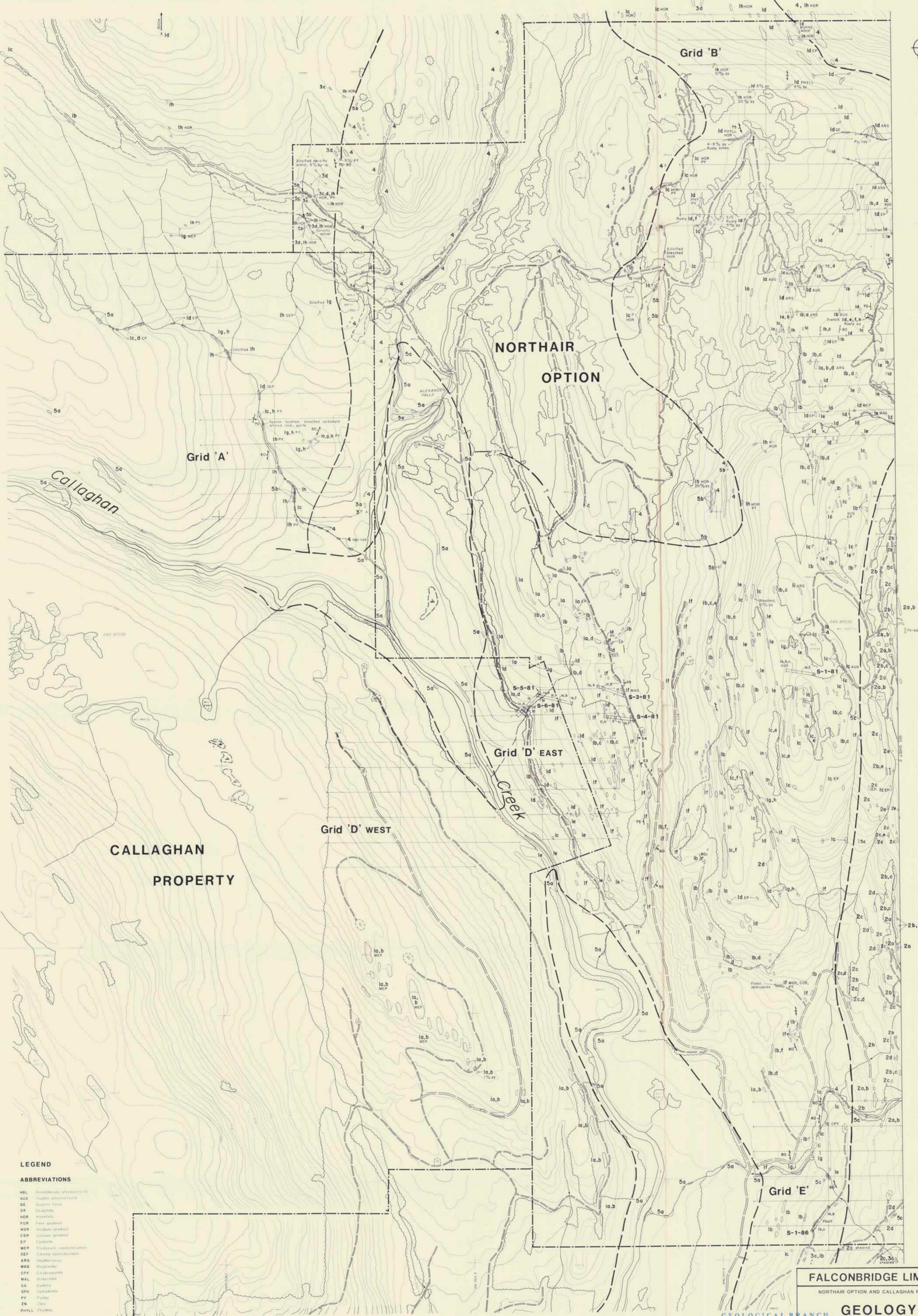
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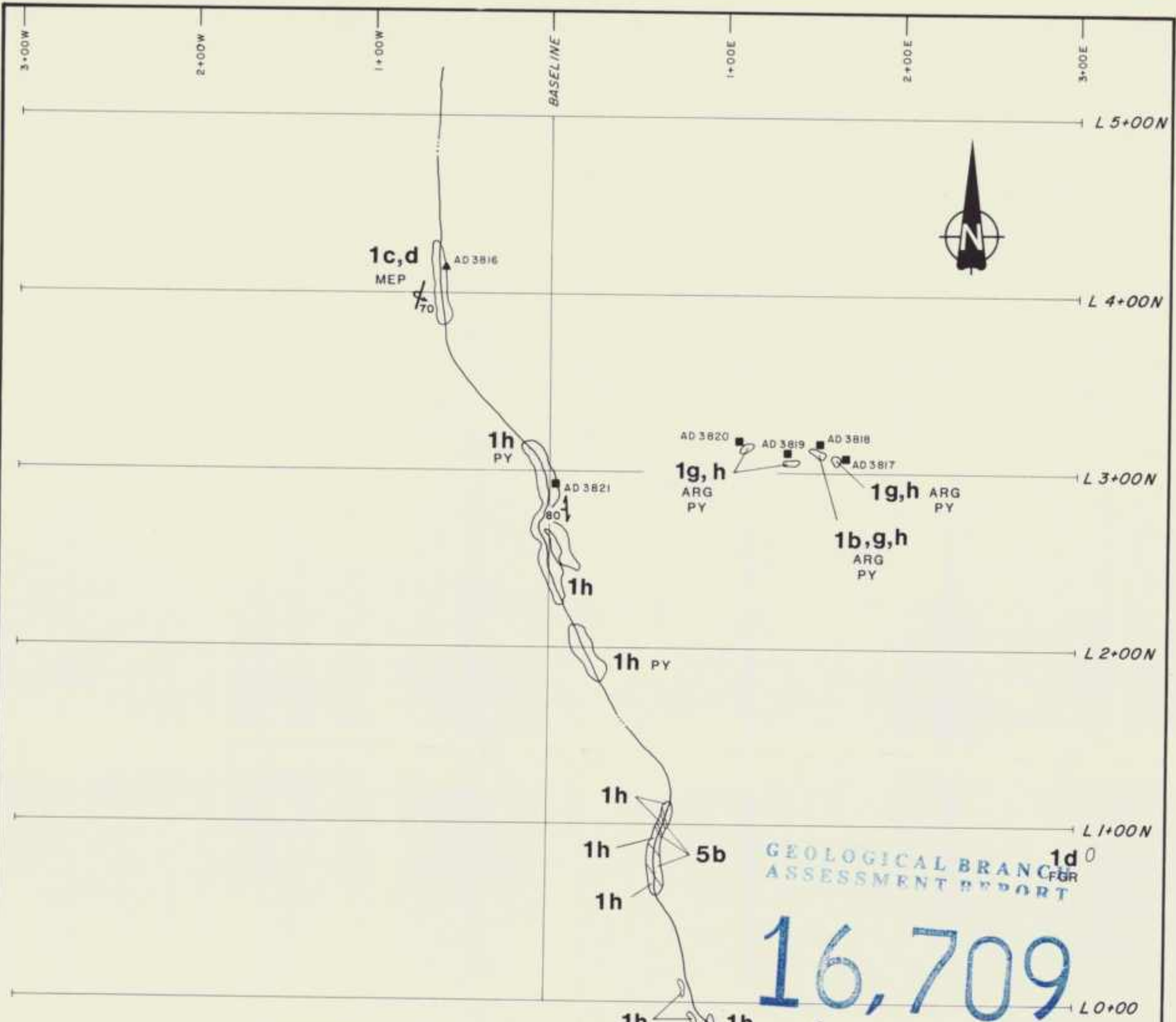
NORTH AIR OPTION AND CALLAGHAN PROJECT

GEOLOGY
- EAST SHEET -

16,709
Part 4 of 7

NTS: 92/J2 Project 140/118
 WORK BY: SC DRAWN BY: DATE: Jan 1988
 SCALE IN METRES: 1 : 5 000
 CONTOUR INTERVAL: 10m
 SHEET NO.: 2 of 2
Figure: 4





LEGEND

LITHOLOGY

TERTIARY TO QUATERNARY

GARIBALDI GROUP

- 5a Valley basalt
- 5b Basalt dyke
- 5c Felsic dyke

LOWER CRETACEOUS

GAMBIER GROUP

Lower Volcanic Unit

- 1a Porphyritic volcanic breccia
- 1b Feldspar crystal lapilli tuff
- 1c Massive feldspar porphyritic volcanic
- 1d Tuff
- 1e Volcanic wacke
- 1f Greywacke
- 1g Siltstone
- 1h Argillite
- 1i Siliceous siltstone

SYMBOLS

- Outcrop
- Discontinuous outcrop
- Drill hole
- Cleavage
- Bedding
- Bedding (tops)
- Whole rock sample
- Geochemical rock sample

ABBREVIATIONS

- MEP Moderate epidotization
- SEP Strong epidotization
- ARG Argillaceous
- PY Pyrite

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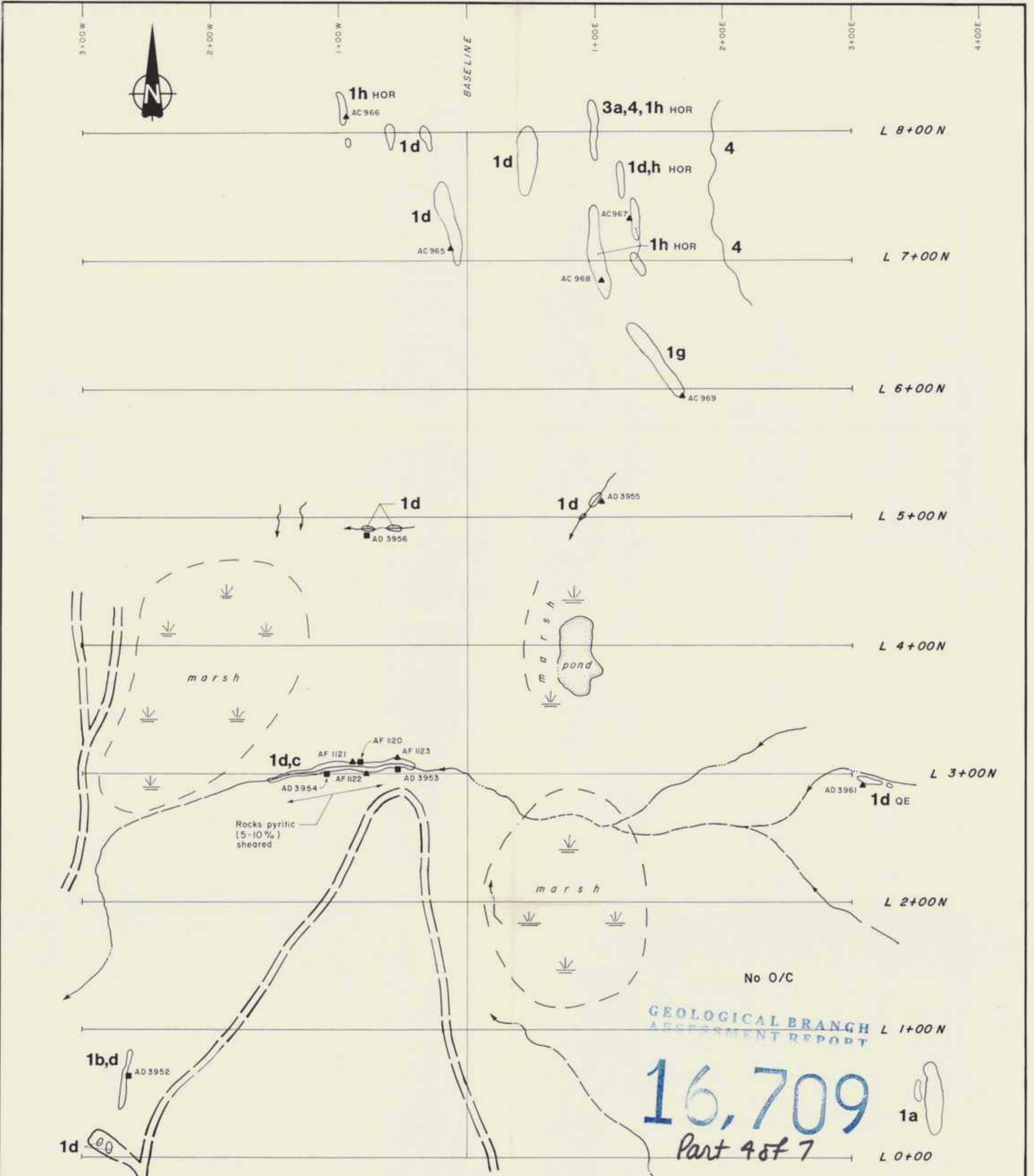
CALLAGHAN PROPERTY

GEOLOGY
GRID 'A'

Proj. 140

WORK BY	DRAWN BY	DATE
SC	VJG	Jan 1988
SCALE IN METRES 1 : 2 000		

Figure: 6



LITHOLOGY

CRETACEOUS TO TERTIARY

COAST RANGE INTRUSIVE COMPLEX

4 Diorite

LOWER CRETACEOUS

GAMBIER GROUP

Hybrid Contact Rocks

3a Epidotized hybrid rock
 3b Silicified tuff
 3c Chlorite schist
 3d Biotite hornfels and schist

LEGEND

Lower Volcanic Unit

1a Porphyritic volcanic breccia
 1b Feldspar crystal lapilli tuff
 1c Massive feldspar porphyritic volcanic
 1d Tuff
 1e Volcanic wacke
 1f Greywacke
 1g Siltstone
 1h Argillite
 1i Siliceous siltstone

SYMBOLS

○ Outcrop
 ○ Discontinuous outcrop
 ● Drill hole
 / Cleavage
 / Bedding
 / Bedding (tops)
 ▲ Whole rock sample
 ■ Geochemical rock sample

ABBREVIATIONS

HOR Hornfels

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NORTHAIR OPTION

GEOLOGY

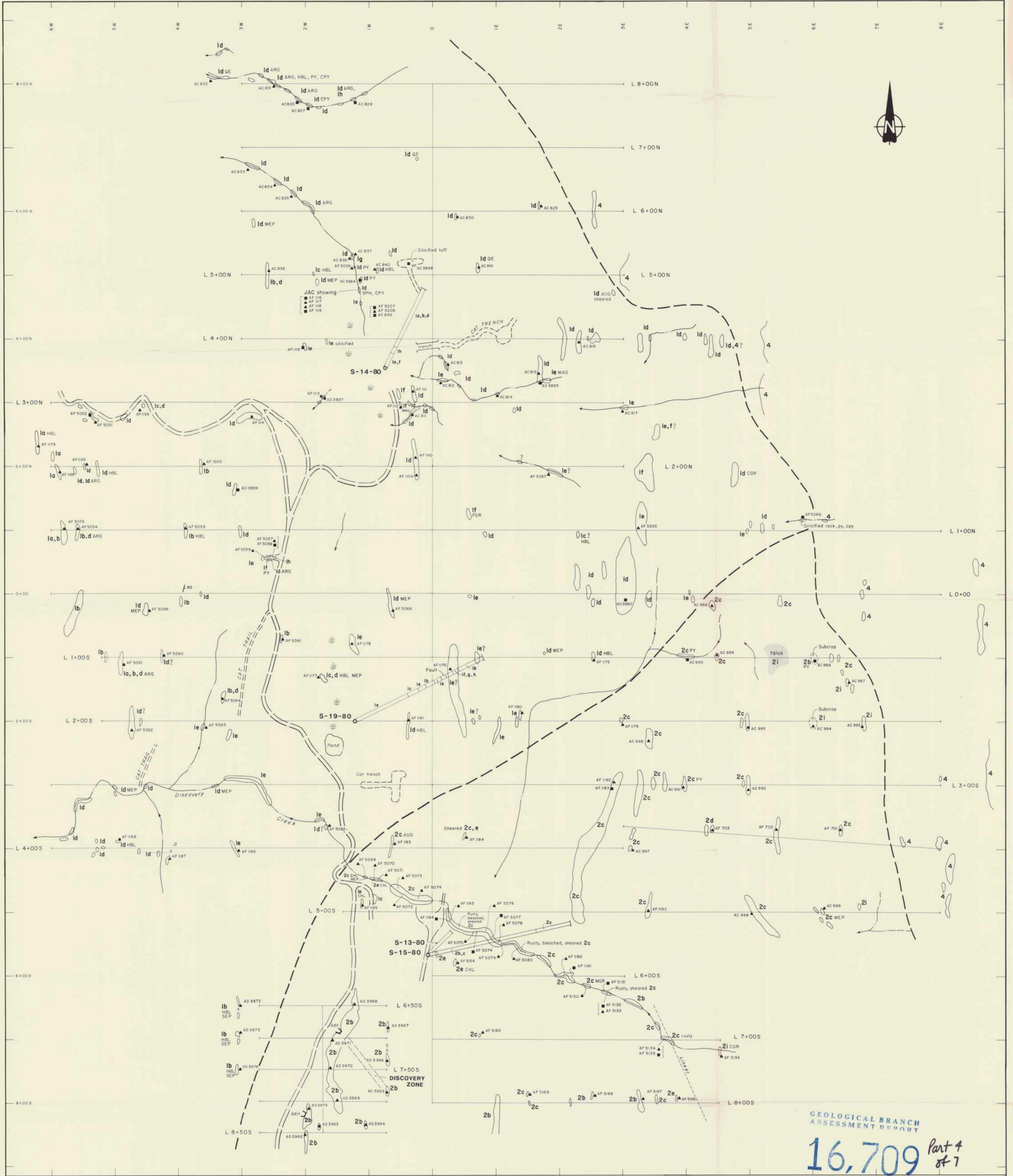
GRID 'B'

PROJ. 140

WORK BY	SC	DRAWN BY	VJG	DATE	Jan 1988
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SCALE IN METRES 1:2000

Figure: 7



GEOLOGICAL BRANCH
 ASSESSMENT REPORT
16,709 Part 4
 of 7

LEGEND

LITHOLOGY

TERTIARY TO QUATERNARY

- 5a Valley basalt
- 5b Basalt dyke
- 5c Felsic dyke

CRETACEOUS TO TERTIARY

- 4 Diorite

LOWER CRETACEOUS

GAMBER GROUP

- 3a Hybrid Contact Rocks
- 3b Epidotized hybrid rock
- 3c Silicified tuff
- 3d Chlorite schist
- 3e Biotite hornfels and schist

Upper Volcanic Unit

- 2a Feldspar crystal breccia
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- 2c Feldspar crystal tuff
- 2d Fine grained feldspar crystal tuff
- 2e Ash tuff
- 2f Siltstone
- 2g Argillite
- 2h Siliceous siltstone
- 2i Greywacke

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- 1d Tuff
- 1e Volcanic wacke
- 1f Greywacke
- 1g Siltstone
- 1h Argillite
- 1i Siliceous siltstone

SYMBOLS

- Geological contact
- Geological contact (uncertain)
- Outcrop
- Discontinuous outcrop
- Drill hole
- Cleavage
- Bedding
- Bedding (tops)
- Whole rock sample
- Geochemical rock sample

ABBREVIATIONS

- HBL Hornblende phenocrysts
- AUG Augite phenocrysts
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- GR Granitic
- HDR Hornfels
- FGR Fine grained
- MSR Medium grained
- CGR Coarse grained
- EP Epilite
- MEP Moderate epidotization
- SEP Strong epidotization
- ARG Argillaceous
- MAG Magnetite
- CPY Chalcopyrite
- MAL Malachite
- GA Galena
- SPH Sphalerite
- PY Pyrite
- ZN Zinc
- PHYL Phyllic

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NORTHAIR OPTION

GEOLOGY

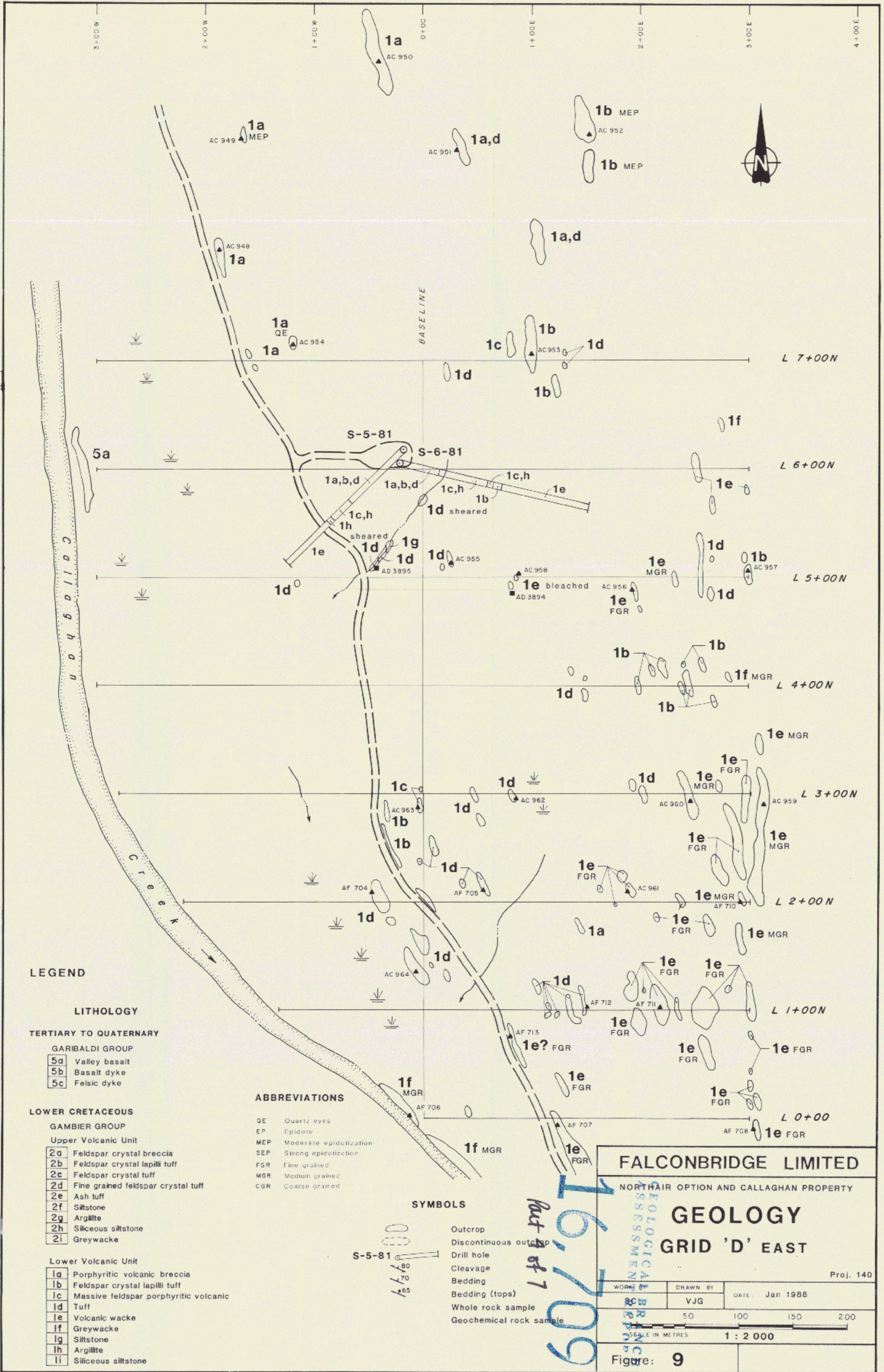
GRID 'C'

Proj. 140

WORK BY	DRAWN BY	DATE
SC	VJG	Jan 1988

SCALE IN METRES 1 : 2 000

Figure: 8



LEGEND

LITHOLOGY

TERTIARY TO QUATERNARY

GARIBALDI GROUP

- 5a Valley basalt
- 5b Basalt dyke
- 5c Felsic dyke

LOWER CRETACEOUS

GAMBIER GROUP

Upper Volcanic Unit

- 2a Feldspar crystal breccia
- 2b Feldspar crystal lapilli tuff
- 2c Feldspar crystal tuff
- 2d Fine grained feldspar crystal tuff
- 2e Ash tuff
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- 2h Siliceous siltstone
- 2i Greywacke

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- 1d Tuff
- 1e Volcanic wacke
- 1f Greywacke
- 1g Siltstone
- 1h Argillite
- 1i Siliceous siltstone

ABBREVIATIONS

- QE Quartz eyes
- EP Epidote
- MEP Moderate epidotization
- SEP Strong epidotization
- FGR Fine grained
- MGR Medium grained
- CGR Coarse grained

SYMBOLS

- Outcrop
- Discontinuous outcrop
- Drill hole
- Cleavage
- Bedding
- Bedding (tops)
- Whole rock sample
- Geochemical rock sample

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NORTH HAIR OPTION AND CALLAGHAN PROPERTY

**GEOLOGY
GRID 'D' EAST**

Proj. 140

WORKED BY	DRAWN BY	DATE
SC	VJG	Jan 1988

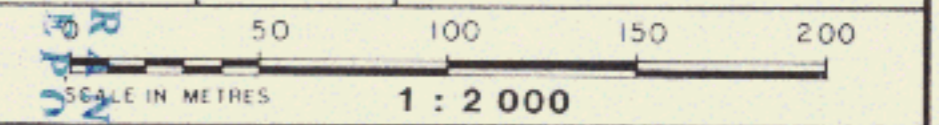


Figure: **9**

16,709
Part 4 of 7



GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,709
Part 4 of 7

LEGEND

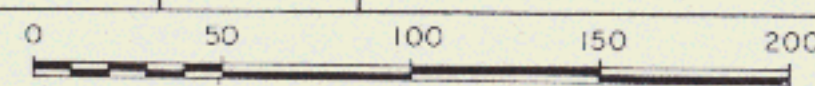
LITHOLOGY

TERTIARY TO QUATERNARY

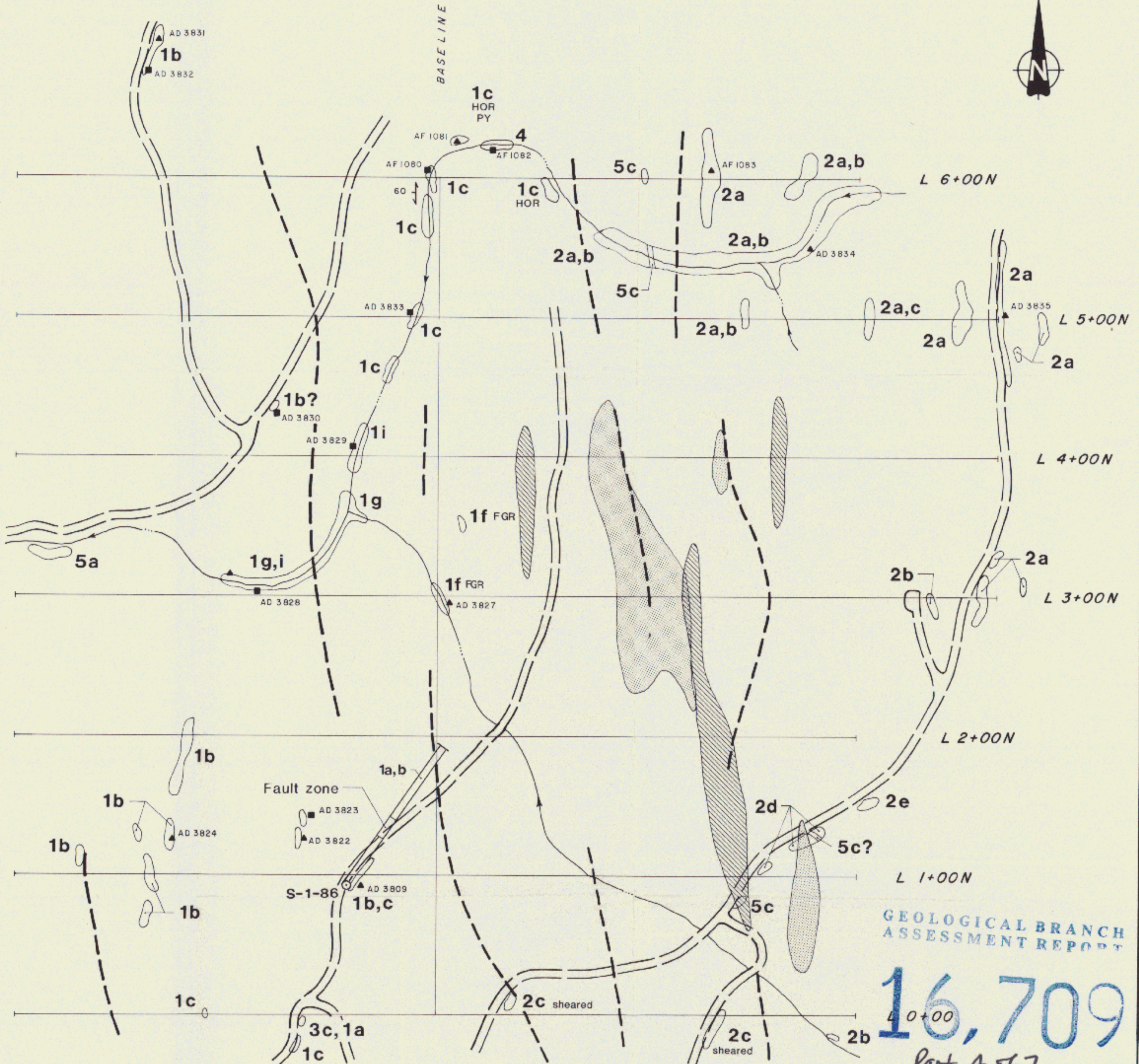
- GARIBALDI GROUP
- 5a Valley basalt
- 5b Basalt dyke
- 5c Felsic dyke

SYMBOLS

-  Outcrop

FALCONBRIDGE LIMITED		
CALLAGHAN PROPERTY		
GEOLOGY		
GRID 'D' WEST		
Proj. 140		
WORK BY	DRAWN BY	DATE: Jan 1988
SC	VJG	
		
SCALE IN METRES 1 : 2 000		
Figure: 10		

3+00 W 2+00 W 1+00 W 0+00 1+00 E 2+00 E 3+00 E 4+00 E



16,709
Part 4 of 7

LITHOLOGY

TERTIARY TO QUATERNARY

GARIBALDI GROUP

- 5a Valley basalt
- 5b Basalt dyke
- 5c Felsic dyke

CRETACEOUS TO TERTIARY

COAST RANGE INTRUSIVE COMPLEX

- 4 Diorite

LOWER CRETACEOUS

GAMBIER GROUP

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- 2g Argillite
- 2h Siliceous siltstone
- 2i Greywacke

Lower Volcanic Unit

- 1a Porphyritic volcanic breccia
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- 1c Massive feldspar porphyritic volcanic
- 1d Tuff
- 1e Volcanic wacke
- 1f Greywacke
- 1g Siltstone
- 1h Argillite
- 1i Siliceous siltstone

SYMBOLS

- Outcrop
- Drill hole
- Cleavage
- Whole rock sample
- Geochemical rock sample
- VLF anomaly trace
- Chargeability > 32ms
- Resistivity < 600 ohm-m

ABBREVIATIONS

- HOR Hornfels
- FGR Fine grained
- PY Pyrite

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NORTHAIR OPTION

GEOLOGY

GRID 'E'

Proj. 140

WORK BY: SC DRAWN BY: VJG DATE: Jan 1988

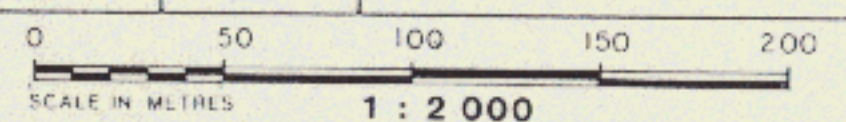
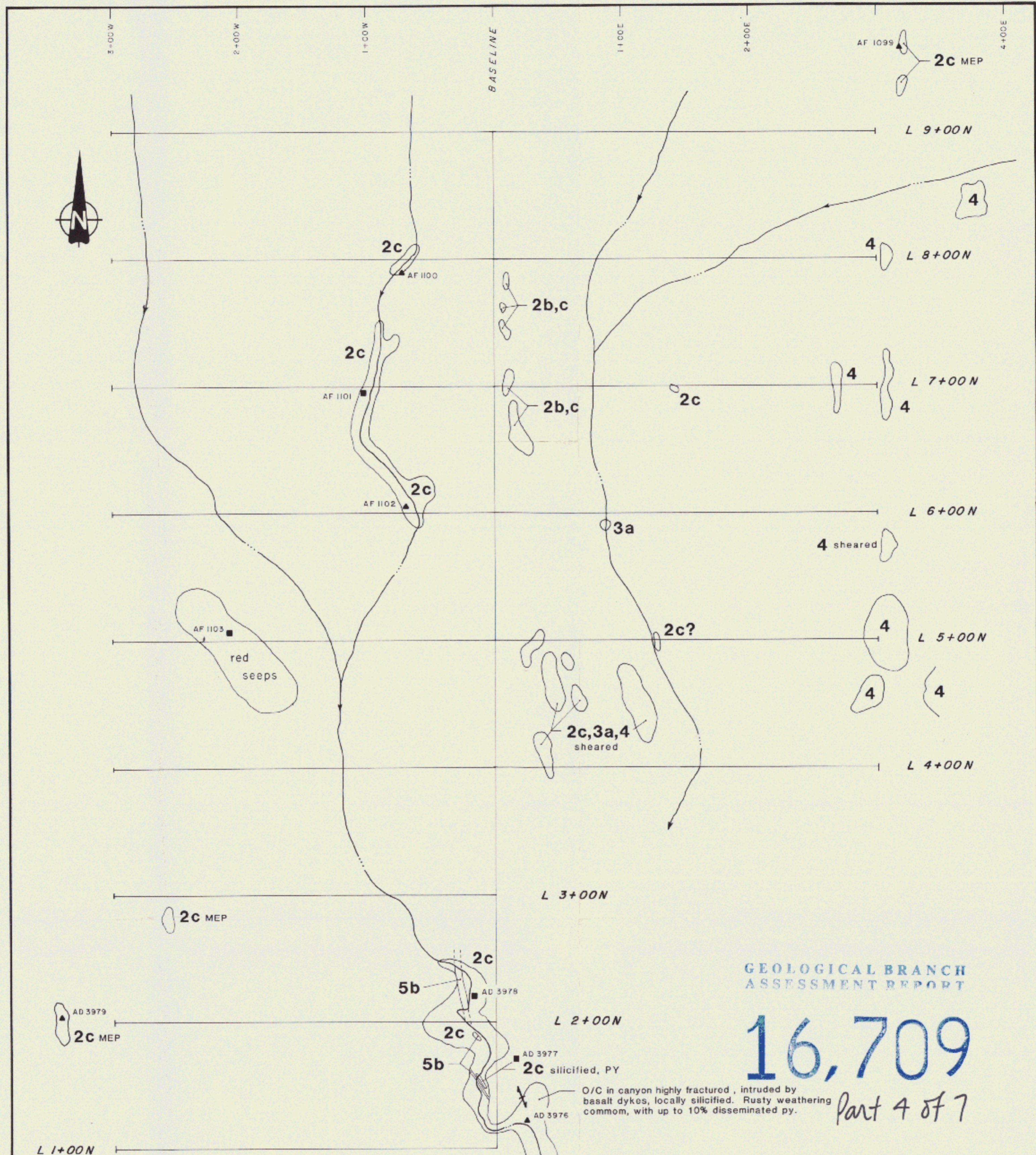


Figure: 11



GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,709

Part 4 of 7

LEGEND

LITHOLOGY

TERTIARY TO QUATERNARY

GARIBALDI GROUP

5a Valley basalt
5b Basalt dyke
5c Felsic dyke

CRETACEOUS TO TERTIARY

COAST RANGE INTRUSIVE COMPLEX

4 Diorite

LOWER CRETACEOUS

GAMBIER GROUP

Upper Volcanic Unit

2a Feldspar crystal breccia
2b Feldspar crystal lapilli tuff
2c Feldspar crystal tuff
2d Fine grained feldspar crystal tuff
2e Ash tuff
2f Siltstone
2g Argillite
2h Siliceous siltstone
2i Greywacke

SYMBOLS

S-5-81

80
70
65

▲ Whole rock sample
■ Geochemical rock sample

ABBREVIATIONS

MEP Moderate epidotization
PY Pyrite

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NORTHAIR OPTION

GEOLOGY

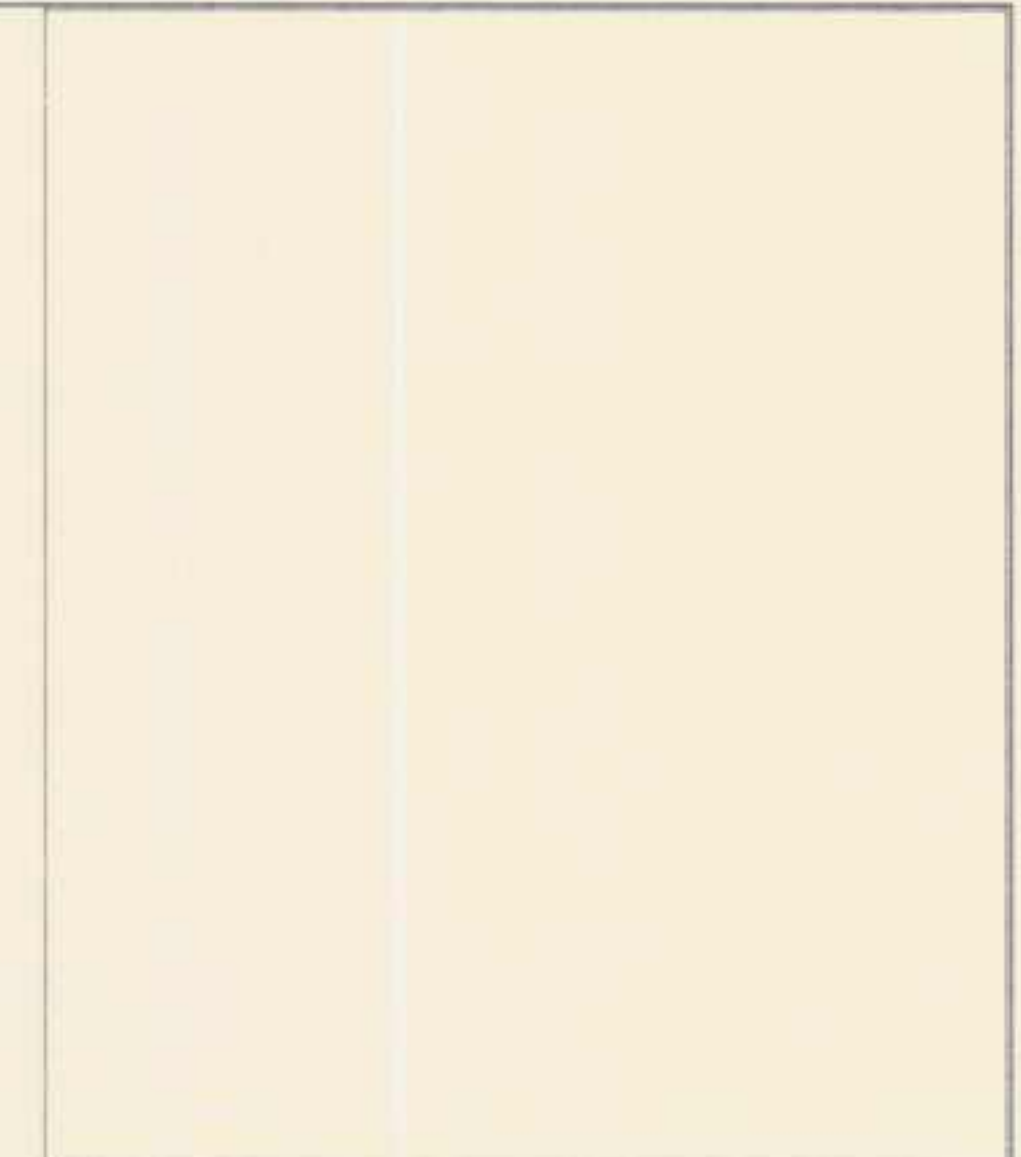
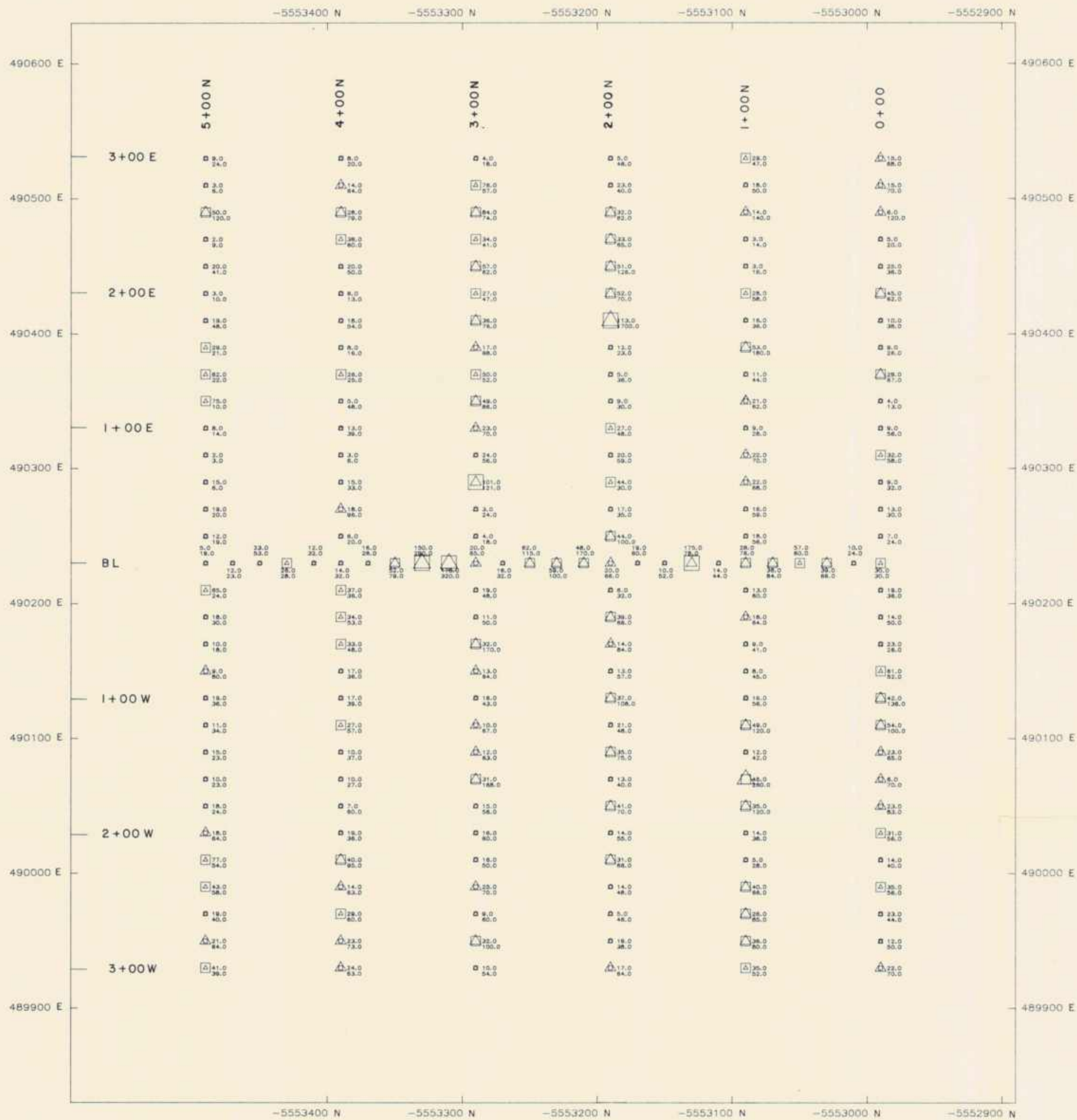
GRID 'G'

PROJ. 140

WORK BY SC	DRAWN BY VJG	DATE Jan 1988
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SCALE IN METRES 1:2000

Figure: 13



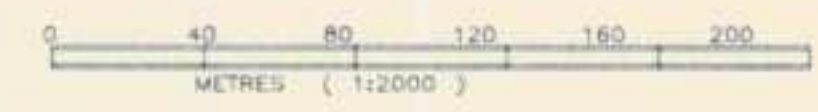
KEY MAP



GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,709

Part 4 of 7



PROJ. #	140
WORK BY	EGG
DRAWN BY	COMPUTER
DATE:	19-NOV-87



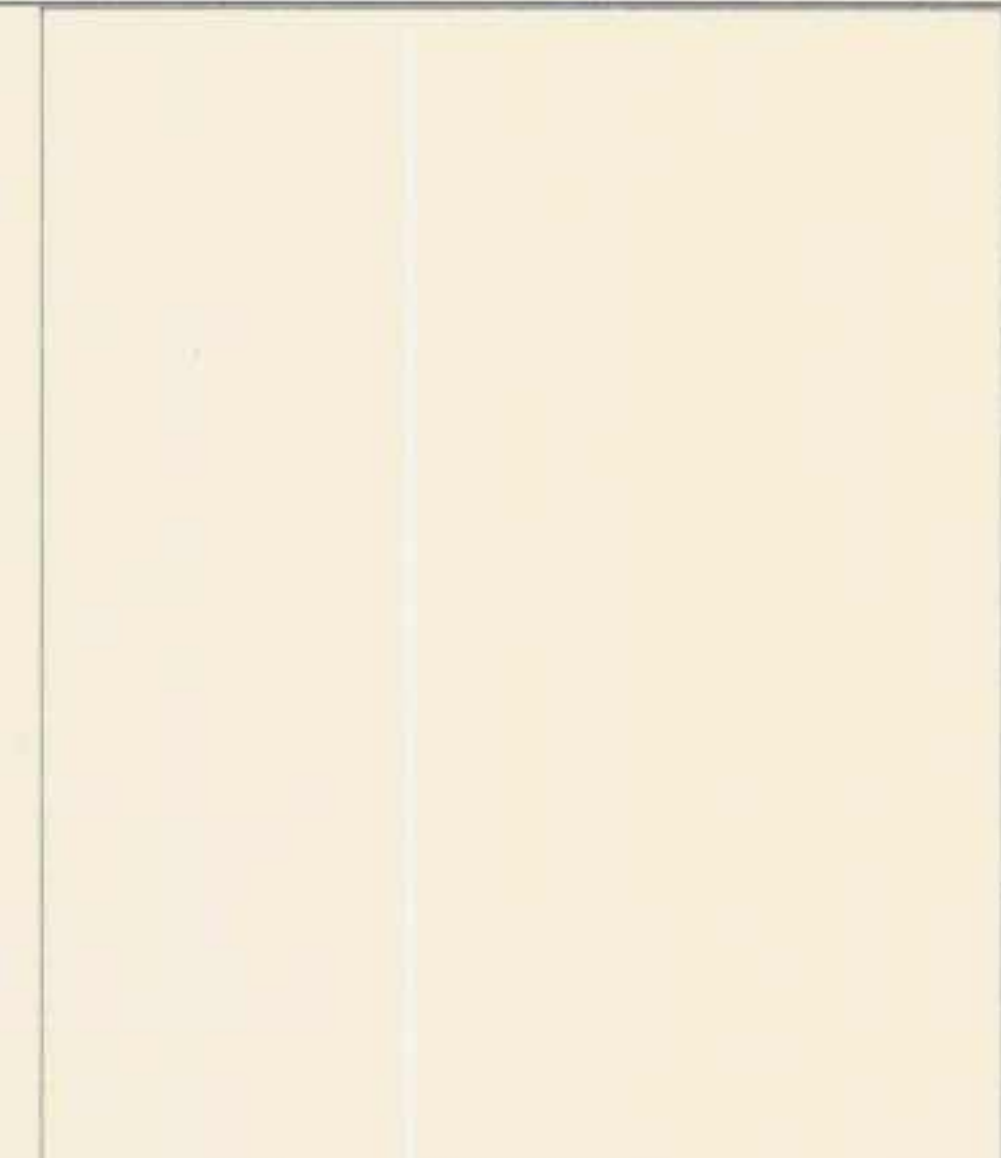
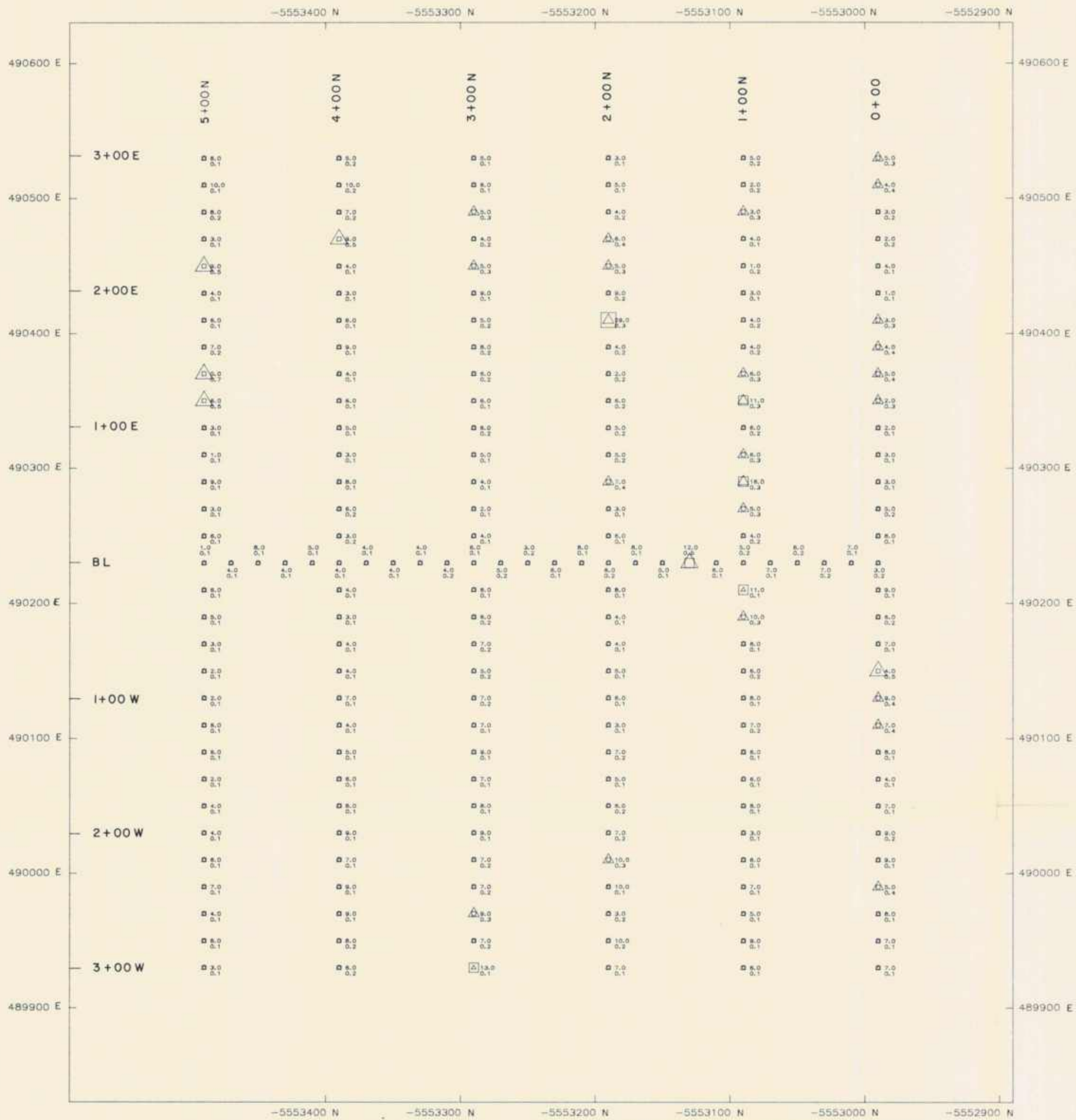
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PLAN
NORTHAIR OPTION, 1987
GRID A SOIL GEOCHEMISTRY
CU, ZN

SCALE 1:2000

NTS 92/ JE

Fig 17

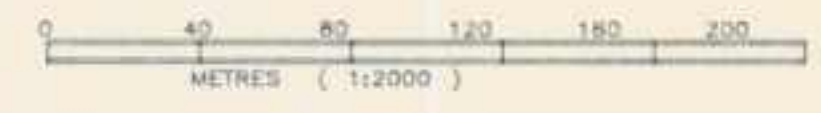
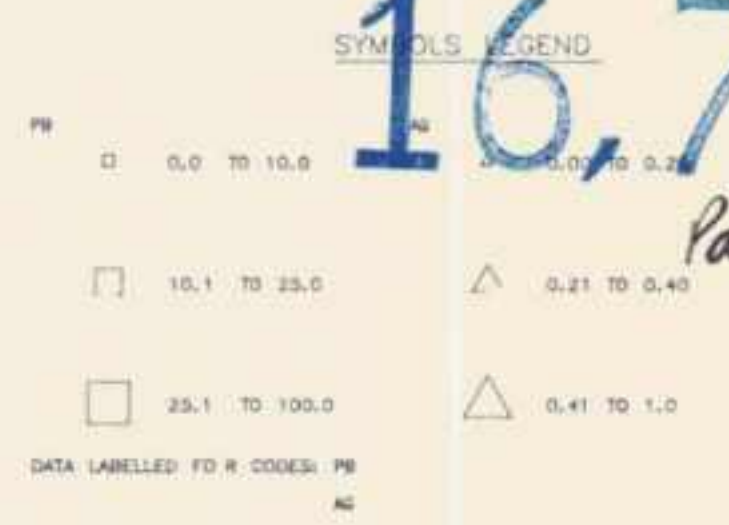


KEY MAP



GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,709
Part 4 of 7



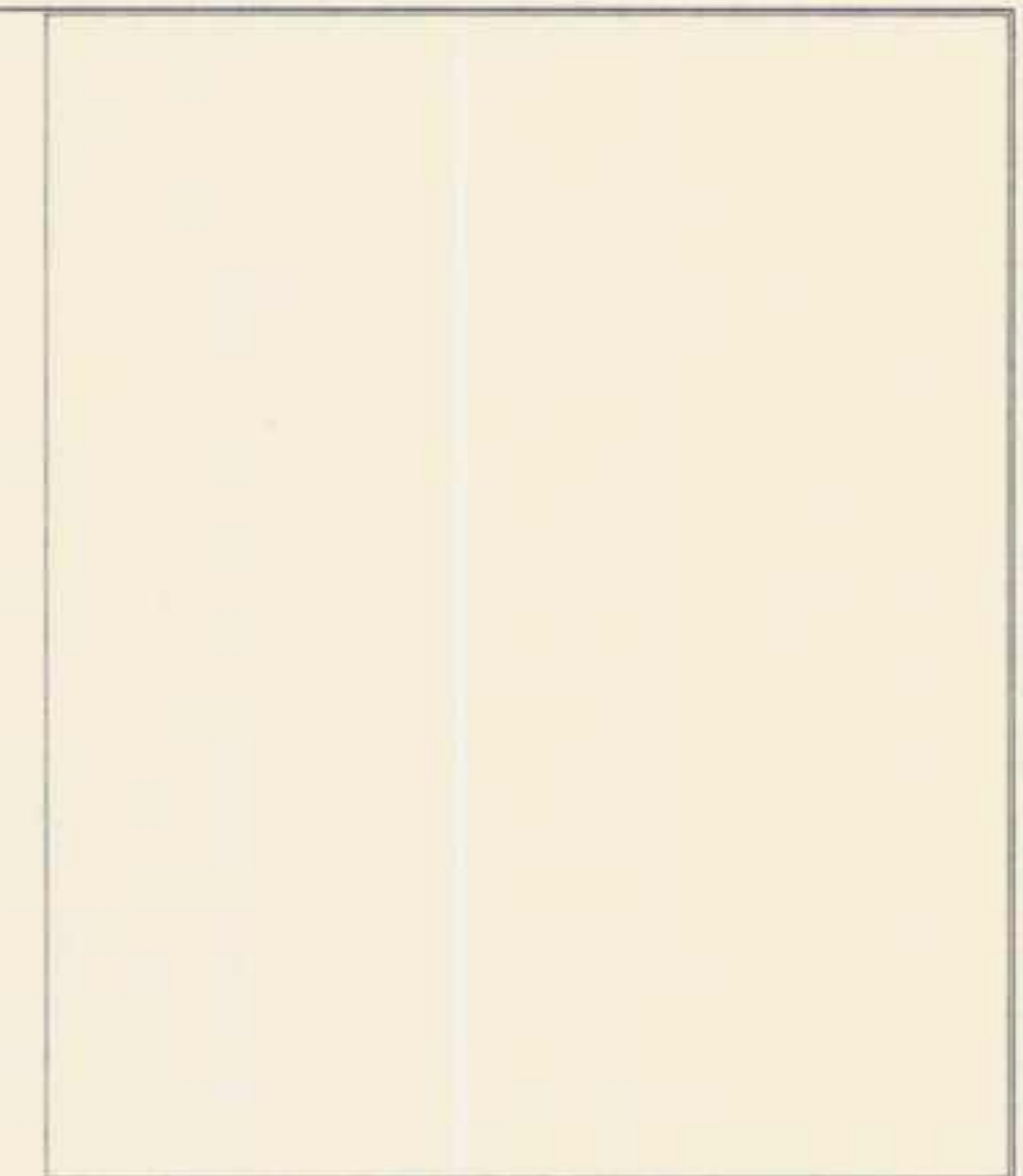
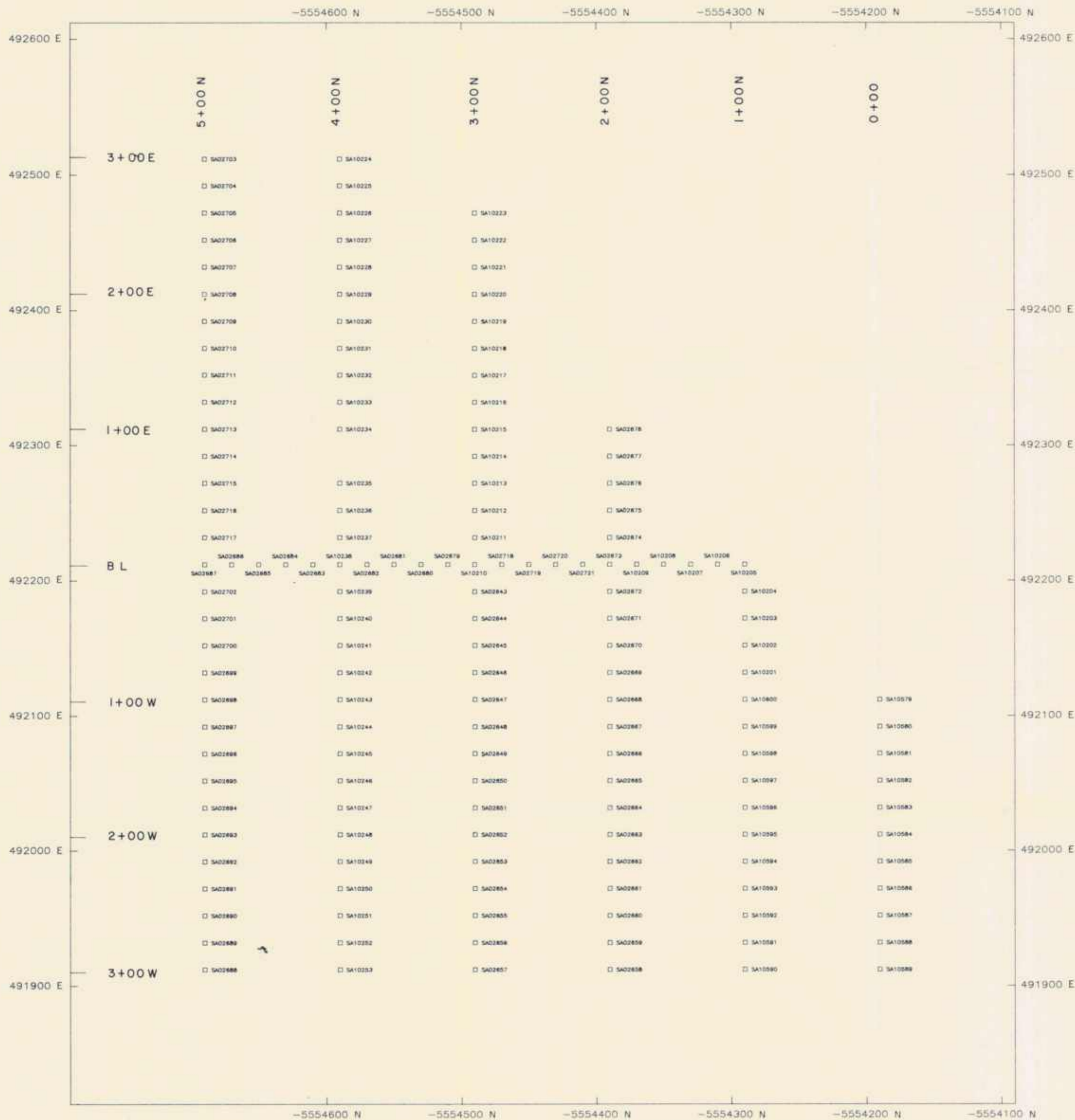
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WORK BY	EGG
DRAWN BY	COMPUTER
DATE:	18-NOV-87



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PLAN
NORTHAIR OPTION, 1987
GRID A SOIL GEOCHEMISTRY
PB, AG

SCALE	1:2000
NTS	92J JE
Fig 18	



KEY MAP



GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,709
Part 4 of 7



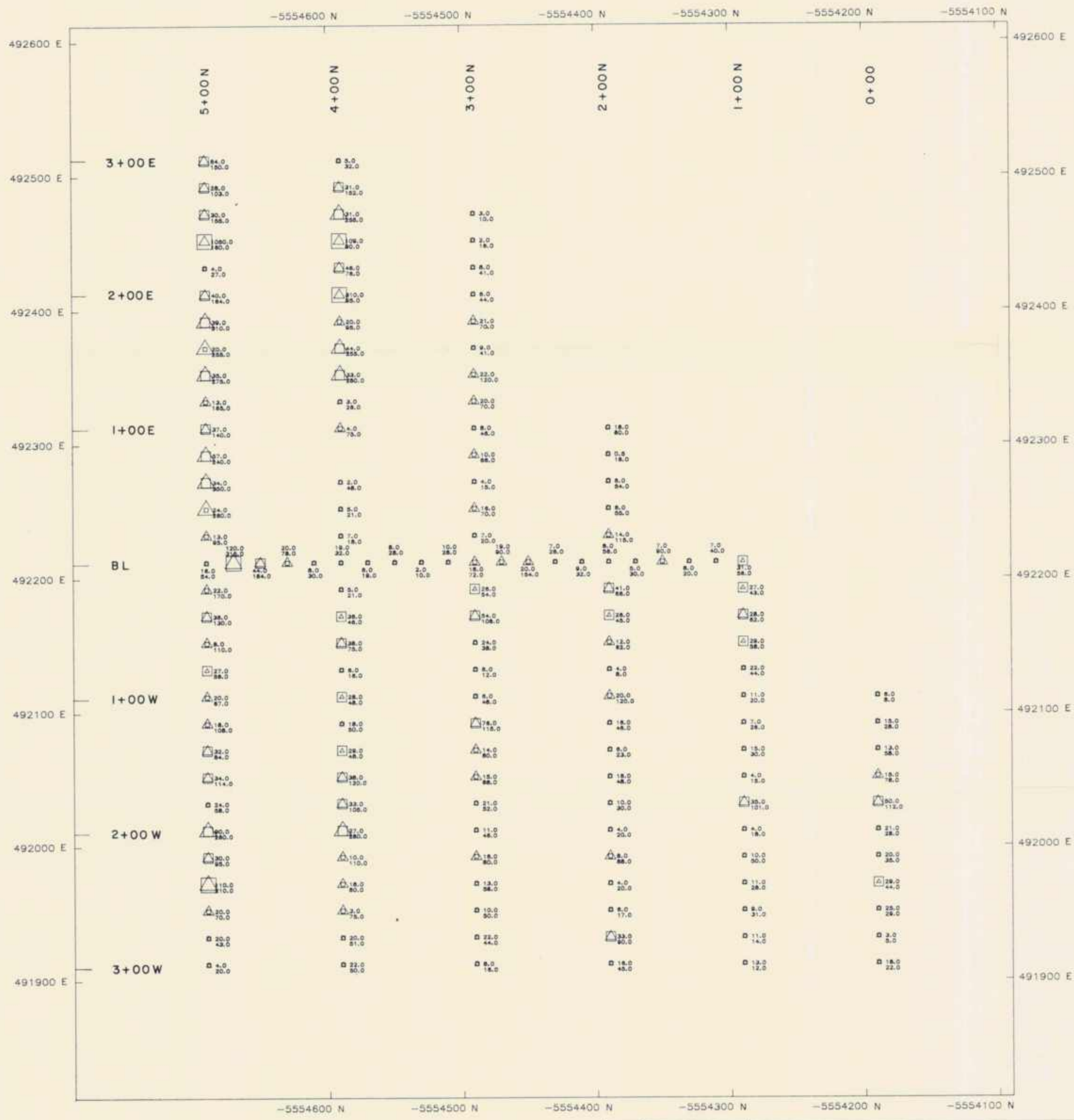
PROJ. #	140
WORK BY	EGG
DRAWN BY	COMPUTER
DATE	18-NOV-87



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PLAN
NORTHAIR OPTION, 1987
GRID B
SOIL SAMPLE LOCATIONS

SCALE 1:2000
NTS 92/ JE
Fig 19

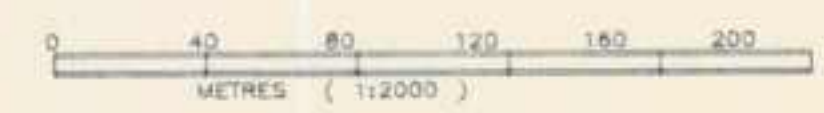


GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,709 *Part 4 of 7*

- SYMBOLS LEGEND
- 25.1 TO 100.0
 - △ 60.1 TO 200.0
 - 100.1 TO 1100.0
 - △ 200.1 TO 2000.0

DATA LABELLED FOR CODES: CU
Zn



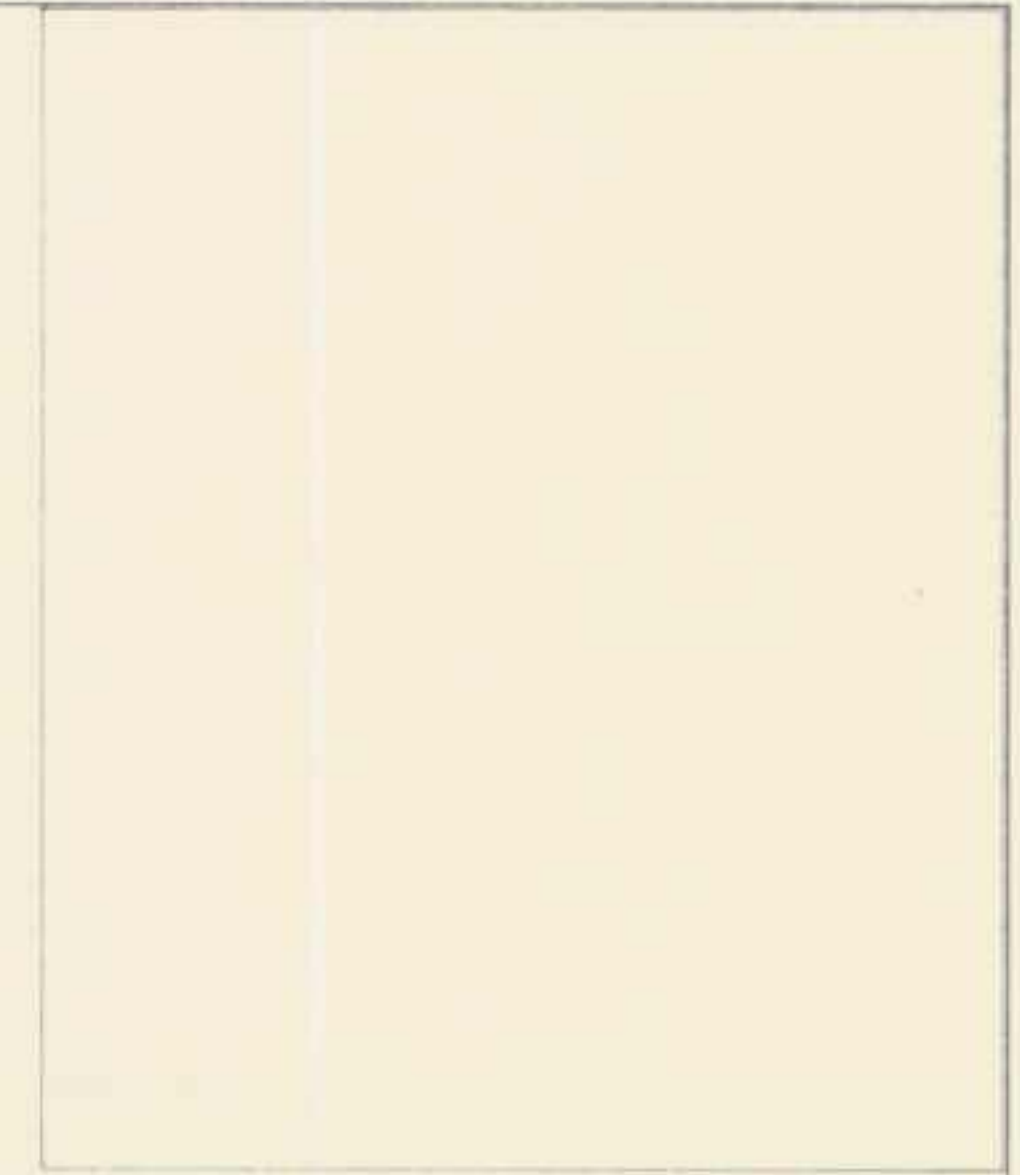
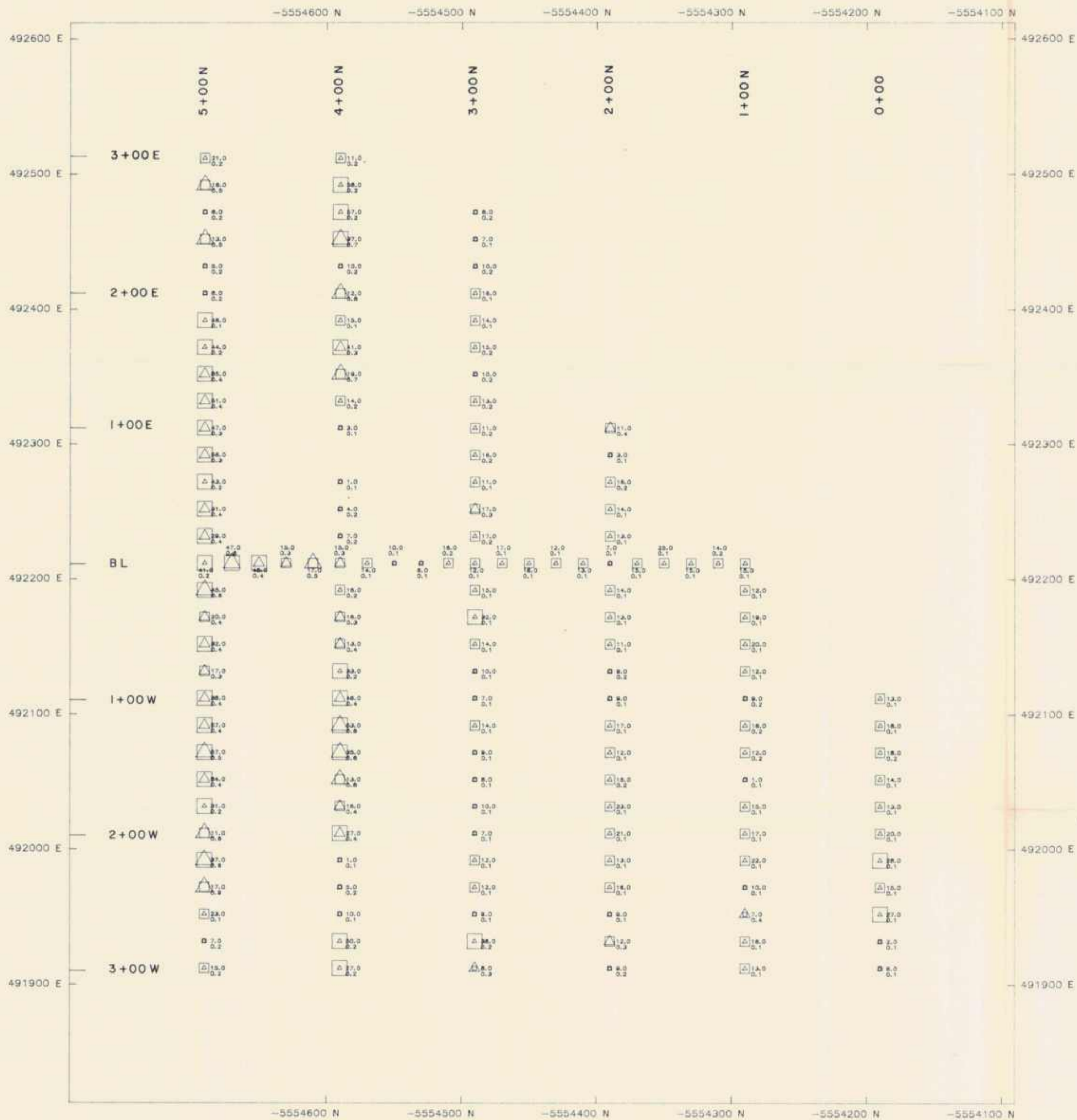
PROJ. #	140
WORK BY	EGG
DRAWN BY	COMPUTER
DATE:	20-NOV-87



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PLAN
NORTHAIR OPTION, 1987
GRID B SOIL GEOCHEMISTRY
CU, ZN

SCALE 1:2000
NTS 82J JE
Fig 20

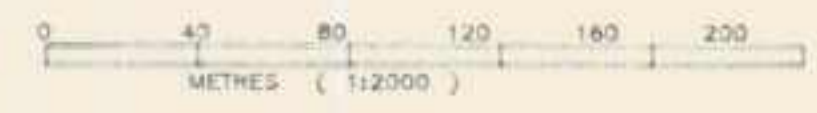


KEY MAP



GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,709 *Part 4 of 7*



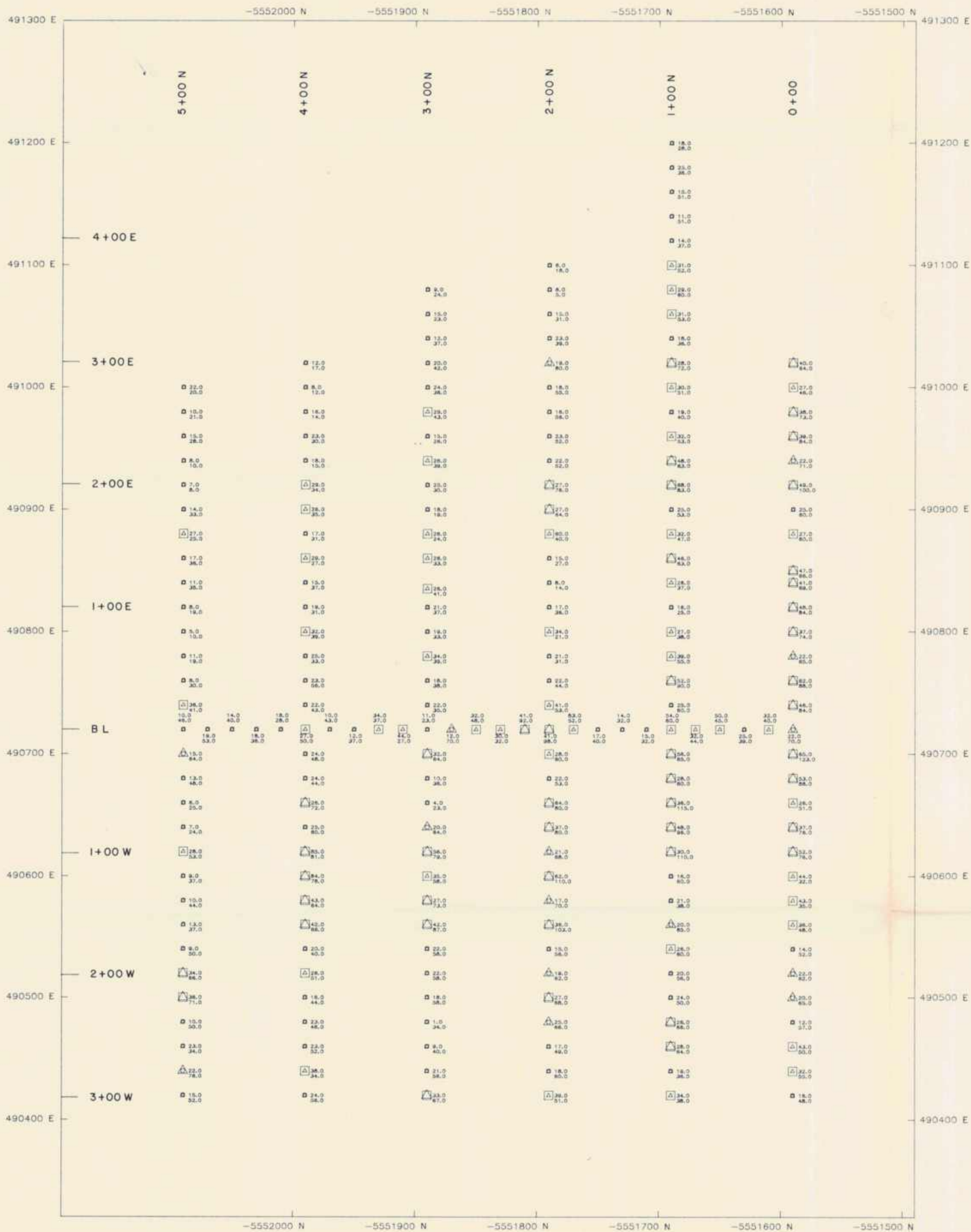
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WORK BY	EGG
DRAWN BY	COMPUTER
DATE	20-NOV-87



FALCONBRIDGE LIMITED

PLAN
NORTHAIR OPTION, 1987
GRID B SOIL GEOCHEMISTRY
PB, AG

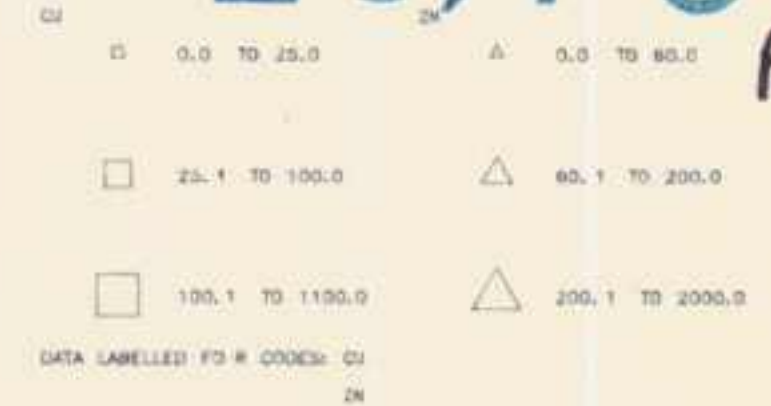
SCALE	1:2000
NTS	92J JE
Fig 21	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,709

SYMBOLS LEGEND



PRD. # 140
WORK BY ECG
DRAWN BY COMPUTER
DATE: 19-NOV-87



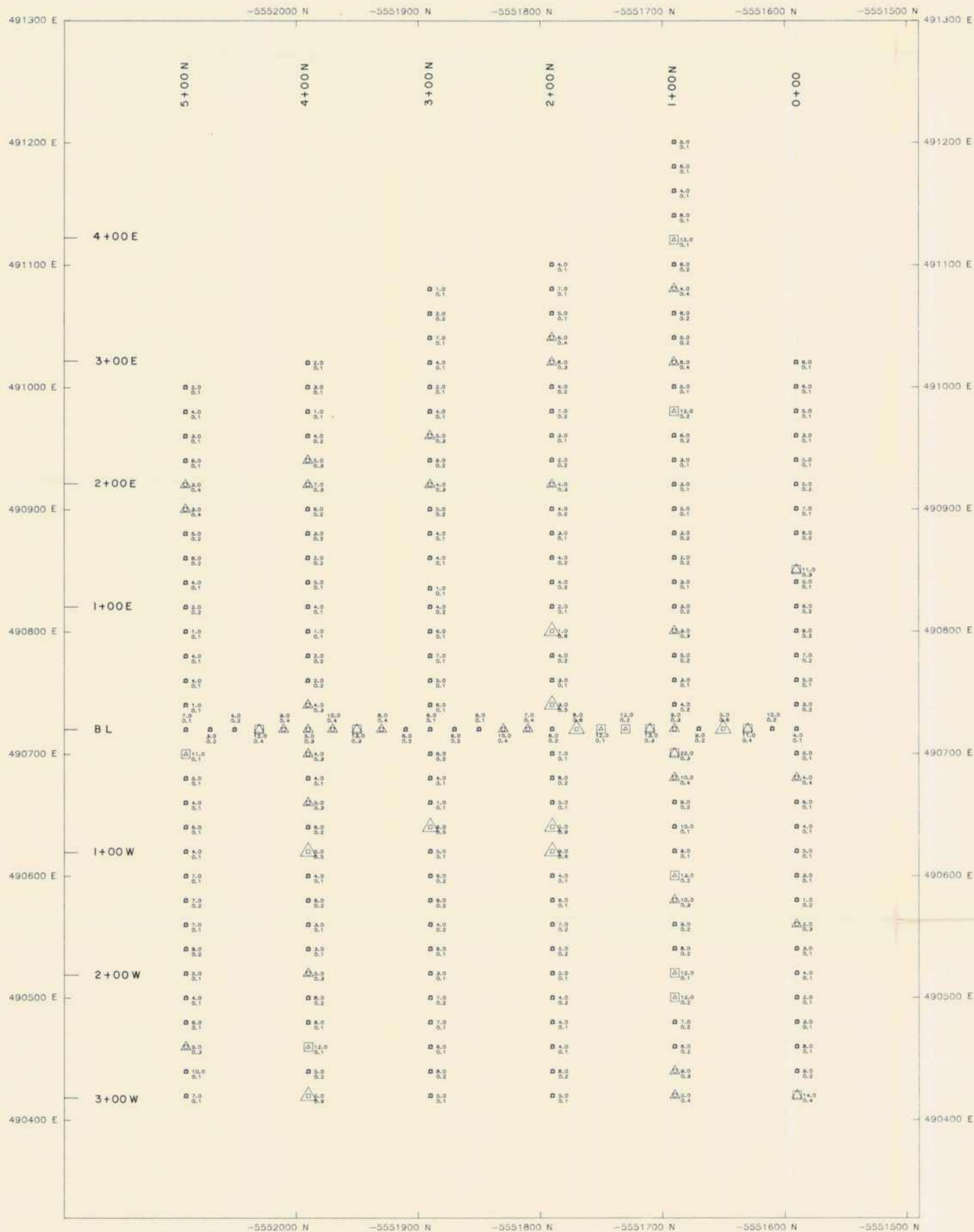
FALCONBRIDGE LIMITED

PLAN
NORHAIR OPTION, 1987
GRID D WEST GEOCHEMISTRY
CU, ZN

SCALE 1:20000

NTS 92J JE

Fig 23



KEY MAP



GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,709

SYMBOLS LEGEND	
□	0.0 TO 10.0
△	0.00 TO 0.20
□	10.1 TO 25.0
△	0.21 TO 0.40
□	25.1 TO 100.0
△	0.41 TO 1.0

DATA LABELLED TO R CODES PB
AG



PROJ. # 140
WORK BY ECG
DRAWN BY COMPUTER
DATE: 19-NOV-87



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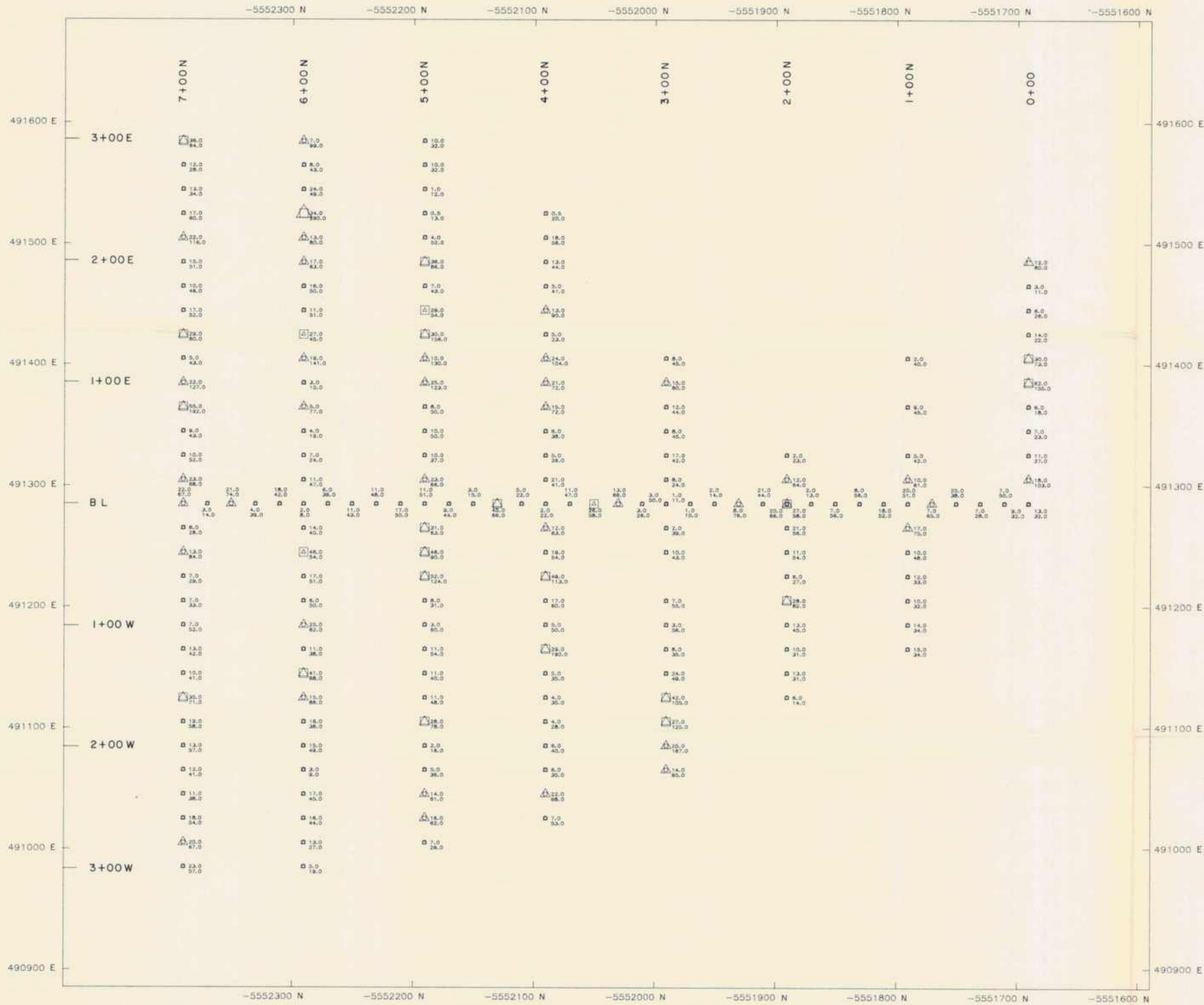
PLAN
NORTHAIR OPTION, 1987
GRID D WEST GEOCHEMISTRY
PB, AG

SCALE 1:2000

NTS 92J JE

Fig 24

Part 4
of 7



KEY MAP



GEOLOGICAL BRANCH
ASSESSMENT REPORT
SYMBOLS LEGEND

16,709 Part 9 of 7

□ 100.1 TO 1100.0 △ 200.1 TO 2000.0
DATA LABELLED FOR CODES: CU
ZN



PROJ. #	140
WORK BY	EGG
DRAWN BY	COMPUTER
DATE:	18-NOV-87



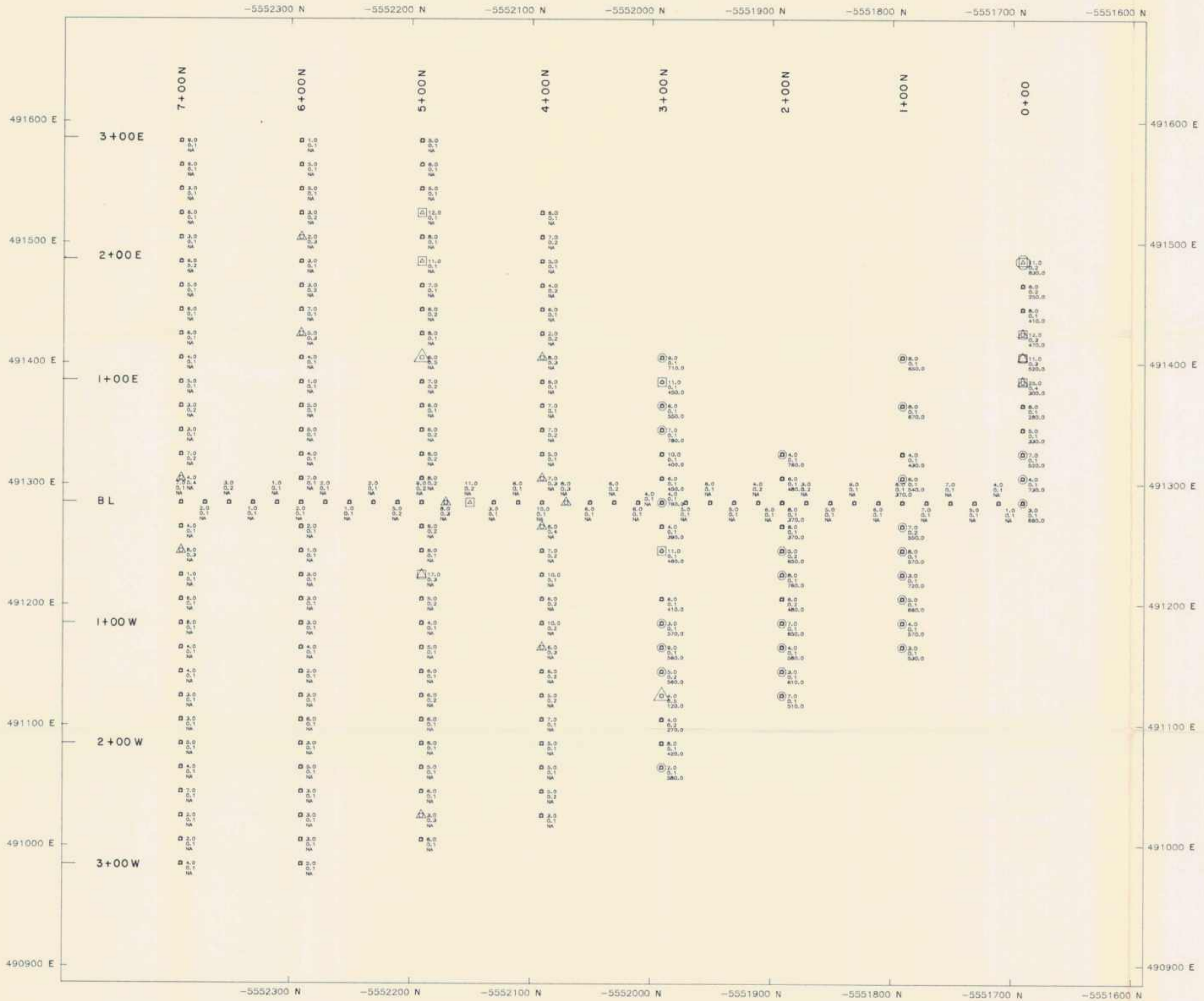
FALCONBRIDGE LIMITED

PLAN
NORTHAIR OPTION, 1987
GRID D EAST GEOCHEMISTRY
CU, ZN

SCALE 1:2000

NTS 92J JE

Fig 26



KEY MAP

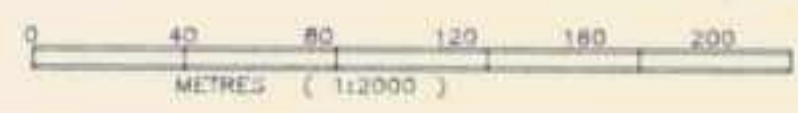


SYMBOLS LEGEND

- | | | | |
|---|---------------|---|--------------|
| □ | 0.0 TO 10.0 | △ | 0.00 TO 0.20 |
| □ | 10.1 TO 25.0 | △ | 0.21 TO 0.40 |
| □ | 25.1 TO 100.0 | △ | 0.41 TO 1.0 |
 - | | |
|---|-----------------|
| ○ | 0.0 TO 300.0 |
| ○ | 300.1 TO 800.0 |
| ○ | 800.1 TO 2000.0 |
- DATA LABELLED FOR CODES: PW, AG, BA

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

16,709
Part 4 of 7



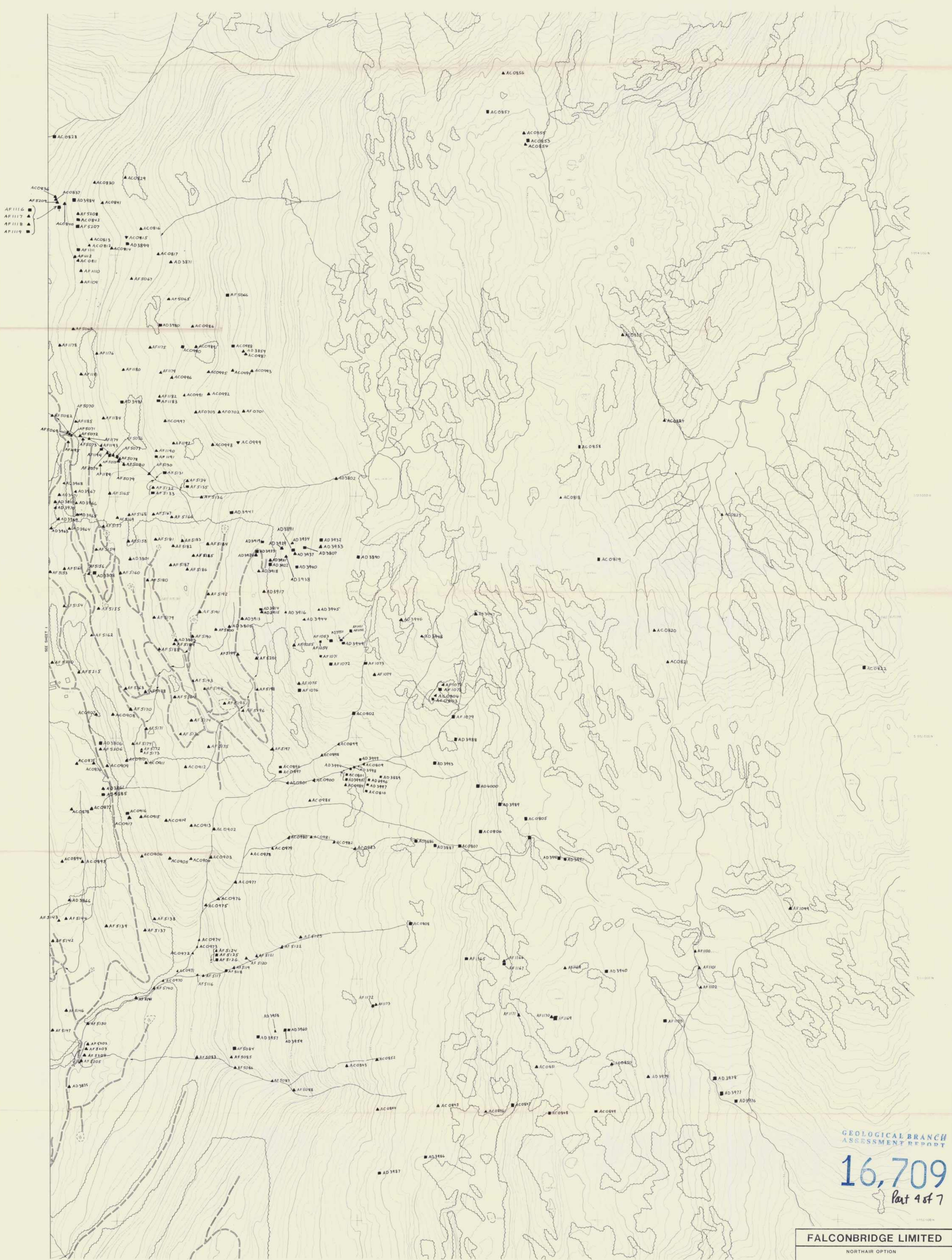
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DRAWN BY	COMPUTER
DATE:	19-NOV-87



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PLAN
NORTHAIR OPTION, 1987
GRID D EAST GEOCHEMISTRY
PB, AG, BA

SCALE	1:2000
NTS	92J JE
Fig 27	



GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,709
Part 4 of 7

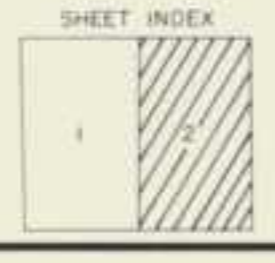
FALCONBRIDGE LIMITED
NORTH AIR OPTION
ROCK SAMPLE LOCATIONS
EAST SHEET

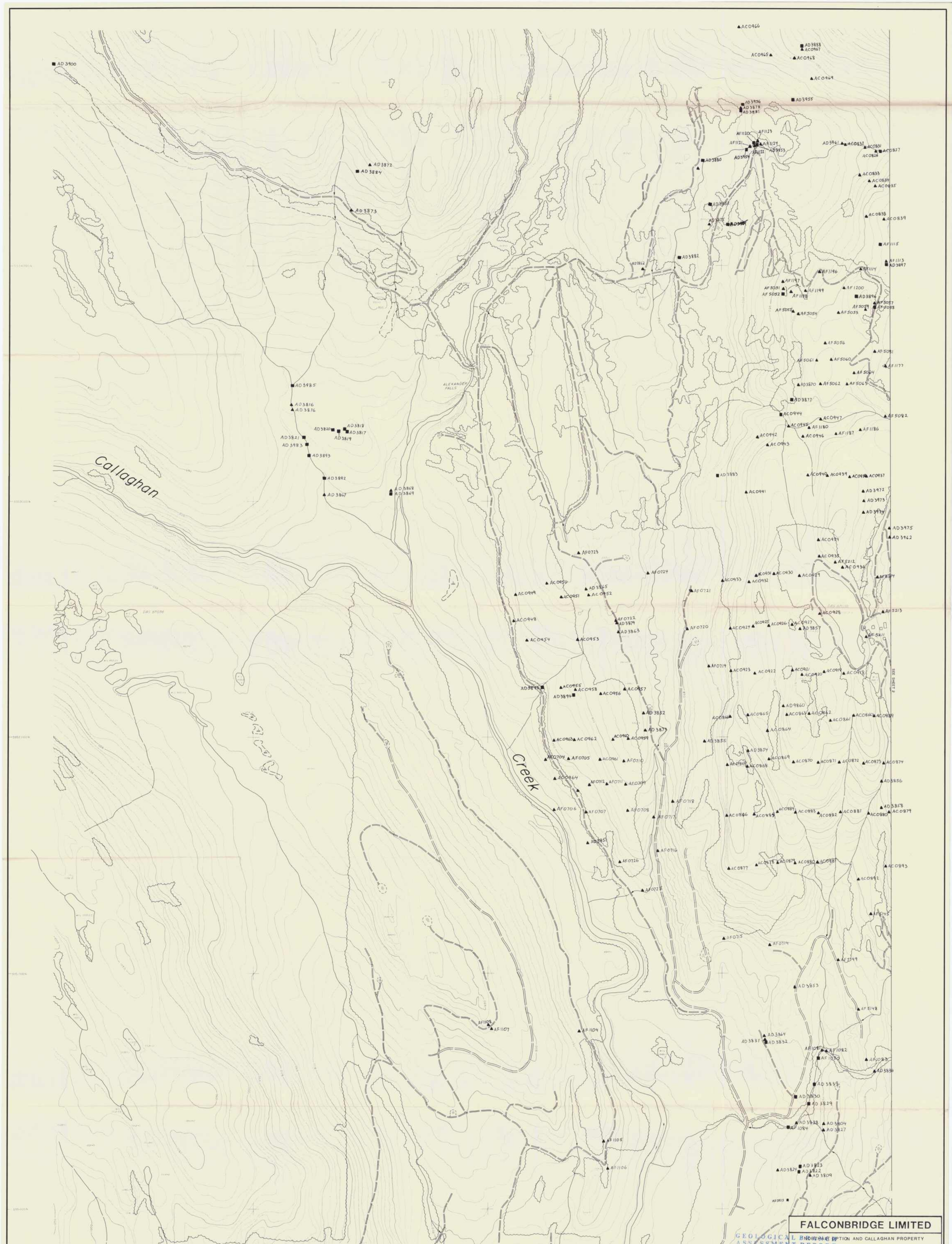
WORK BY	DRAWN BY	DATE	Jan 1988
SC			
SCALE IN METRES		1 : 5,000	

Figure: 31

LEGEND

- ▲ Whole rock sample
- Geochemical rock sample





LEGEND

- ▲ Whole rock sample
- Geochemical rock sample



FALCONBRIDGE LIMITED
 GEOLOGICAL ENGINEERING AND CONSULTING
 ASSESSMENT REPORT

ROCK SAMPLE LOCATIONS
 WEST SHEET

16,709
 Part 4 of 7

WORK BY	DRAWN BY	DATE
SC		Jan 1988
SCALE IN METRES 1:5,000		