

K - FORDING RIVER 83L#



328

FORDING RIVER OPERATIONS

SUMMARY REPORT

1983 EXPLORATION AND DEVELOPMENT PROGRAM

ON

COAL LICENCE NUMBERS 358, 559, 560, 511

AND

B.C. COAL LEASES #2 AND #5

MINING DISTRICT: Fort Steele
LAND DISTRICT: Kootenay
N.T.S. LOCATION: 82J2W
LATITUDE: 50° 10' 50° 13' ← more midway *BP*
LONGITUDE: 114° 52'
OWNER: Fording Coal Limited
Fording River Operations
Box 100
Elkford, B.C.
V0B 1H0
OPERATOR: Fording River Operations
Box 100
Elkford, B.C.
V0B 1H0
AUTHOR: K.A. Komenac, P. Eng.
Exploration Geologist
DATE OF THE WORK DONE: March to November, 1983
DATE REPORT SUBMITTED: May 9, 1984

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**
00 328
CONFIDENTIAL

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 - i) Bulk Washability Tests - Birtley Report *CONFIDENTIAL*
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NOTE:

None of the exploratory drillholes completed in 1983 intersected a coal seam which may be worked by underground methods, therefore, none of the drillholes required cementing.

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3	a. South Greenhills Area Program Scale 1:2,000 b. Geological Cross Section 145,800N Scale 1:2,000
4	a. Kilmarnock Creek Area Program Scale 1:2,000 b. Geological Cross Section 148,000N Scale - 1:2,000 c. Adit #21 & #22 Scale - 1:250
5	Brownie Creek Spoil Area Program Scale - 1:2,000

FORDING RIVER OPERATIONS
SUMMARY REPORT
1983 EXPLORATION AND DEVELOPMENT PROGRAM

I. INTRODUCTION

1. General Geography and History

The Fording Coal property is located in the Fording River and Upper Elk Valleys, approximately 25 kilometres north of Elkford, B.C. Access is by paved road north from Elkford along the Fording River Valley, or north along the Elk River Valley via the Forestry Service gravel road or the Kan-Elk Powerline road.

The Fording River minesite is situated within the front range of the southern Canadian Rocky Mountains. At least eight (8) major coal seams, generally greater than four (4) metres thick, are contained in the Mist Mountain Formation of the Kootenay Group.

The Elk River portion of the property was actively explored by the Canadian Pacific Railway Company in the period 1902-1908. Until 1947, the property was comprised of 10,276 hectares in forty (40) Crown Granted Lots. In that year, the holdings were reduced to 2,979 hectares in fifteen (15) Crown Granted Lots, which still form part of the Fording Coal Property. In 1967 and 1968, Canadian Pacific Oil and Gas re-acquired part of the coal lands which had been abandoned in 1947. At the present time, the Fording Coal Property consists of 19,637 hectares held on three (3) Coal Leases, fifteen (15) Crown Granted Lots, and sixty-seven (67) Coal Licences.

Mining operations, which commenced in 1972, have produced more than 31 million tonnes of cleaned metallurgical bituminous coal, primarily for export to Japan. Of this total, 2.8 million tonnes were produced in 1983.

1. General Geography and History (cont'd)

Reference: i) Illustration No. 1a: Index Map - Coal Properties

2. Geology

i) Stratigraphy

The general stratigraphic succession on the Fording River Property is summarized in the following table:

PERIOD	LITHO-STRATIGRAPHIC UNITS	PRINCIPAL ROCK TYPES	
Recent		Colluvium	
Quaternary		Clay, silt, sand, gravel, cobbles	
Lower Cretaceous	Major Unconformity		
	Blairmore Group	Massive bedded sandstones and conglomerates.	
	Disconformity		
Lower Cretaceous to Upper Jurassic	KOOTENAY GROUP	Elk Formation	Sandstone, siltstone, shale, mudstone, chert pebble conglomerate, minor coal
		Mist Mountain Formation	Sandstone, siltstone, shale, mudstone, thick coal seams.
		Moose Mountain Member	Medium to coarse grained quartz-chert sandstone.
		Weary Ridge Member	Fine to coarse grained, slightly ferruginous quartz-chert sandstone.
Jurassic ?	Fernie Formation Disconformity?	Shale, siltstone, fine-grained sandstone.	
Triassic	Spray River Formation	Sandy shale, shaley quartzite	
	Unconformity		
Mississippian	Rundle Group	Limestone	

2. Geology (cont'd)

The oldest rocks present on the Fording River property are the Rundle Group limestones, located on the west bank of the Fording River near the southern property boundary. It is in faulted contact with the Kootenay Group to the west, and unconformable contact with Spray River quartzites to the north. The latter are best exposed on the eastern slope of the Brownie Creek Valley.

The Fernie Formation shales occur throughout the area, generally along the sides of valleys on the lower flanks of the mountains. The shales are recessive and, therefore, very poorly exposed. The Fernie Formation is in conformable contact with the Morrissey, through the "Passage beds" which are a transitional zone from marine to non-marine sedimentation.

The Morrissey Formation, which is the "basal sandstone" of the Kootenay Group, is a prominent cliff-forming marker horizon in many locations. On the Fording River Property, the top of the Moose Mountain member (Morrissey Formation) is in sharp contact with #1 or A seam, the lower-most bed of the Mist Mountain Formation.

The Mist Mountain Formation contains all of the economic coal seams, and is the most widely occurring formation on Fording River property. This economically important formation is an interbedded sequence of sandstones, siltstones, silty shales, mudstones, and medium to high volatile bituminous coal seams. The volatile content of the coal increases up section, with decreasing rank. Lenticular sandstones comprise about 1/3 of the Mist Mountain sediments at Fording River, but very few laterally extensive sandstone beds exist.

The sandstone above and below seam #4 (B) and above 9 (F) are the most persistent units, and are often cliff-forming marker horizons.

2. Geology (cont'd)

The Mist Mountain Formation is conformably overlain by strata of the Elk Formation. On the Fording property, this formation is commonly a succession of sandstone, siltstone, shale, mudstone, chert pebble conglomerate and sporadic, thin, high volatile bituminous coal seams. The coal seams are characterized by a high alginite content and referred to as "Needle" Coal. The Elk Formation is observed near the tops of the Mountains, mainly on the east side of the Elk Valley on the Greenhills range and northward to the Mount Tuxford area.

The top of the Elk Formation marks the upward unit of the Kootenay Group, which is unconformably overlain by the basal member of the Blairmore Group. This thick bedded, cliff forming sandstone and conglomerate unit is observed on the upper slopes of Mount Tuxford.

ii) Structure

Subsequent to deposition, the sediments were involved in the mountain building movements of the late Cretaceous to early Tertiary Laramide orogeny. The major structural features of the Fording River property are the north-south trending synclines with near horizontal to steep westerly dipping thrust faults and only a few high angle normal faults. Some of the faults probably were folded, late in the tectonic sequence.

The formation of the major fold structures began early in the tectonic sequence. In the current mining area, two (2) asymmetric synclines are evident; the Greenhills Syncline to the west, and the Alexander Creek Syncline to the east of the Fording River.

The thrust faulting (i.e. the Ewin Pass and Brownie Ridge Thrusts), was probably contemporaneous with the later stages of folding. The intervening anticline was subsequently faulted (Ericson Fault), then eroded.

ii)

Structure (cont'd)

The Alexander Creek Syncline can be traced from the southern property boundary on Castle Mountain to the northern end of the property, on Weary Ridge. The strata of the west limb, on the west face of Eagle Mountain, dips easterly at 20 to 25°, decreasing gradually to zero (0) as the axis is approached. The east limb, however, attains a 20° westerly dip within a much shorter (500m) distance of the axis. This asymmetry is possibly due, at least in part, to the influence of the Ewin Pass Thrust which subcrops 600 to 800 metres east of the synclinal axis. Further to the east, on Brownie Ridge, the strata dips westerly at a mean dip of 42°. The Brownie Ridge Thrust, which subcrops near the crest of the ridge, probably contributes to this steepening.

Within the mining areas, the axis of the Alexander Creek Syncline plunges to the north at an average of 4°. Turnbull Mountain exhibits a localized series of en echelon fold structures, plunging both to the north and south. These subsidiary folds may be related to thrust faulting. From the south end of Mount Tuxford, the synclinal axis continued north-northwest along the base of Mount Veits and into the Elk River Valley, near Aldridge Creek.

On Mount Tuxford, the beds exposed are those of the Elk Formation and the overlying (non-coal bearing) Cadomin Formation. The area has not been extensively explored. The stratigraphic sequence of the east limb, in the more extensively explored Mist Mountain strata near Aldridge Creek (Elco property), closely resembles the east limb strata found on Henretta Mountain, 10 kilometres to the south.

On the north-west corner of Eagle Mountain, the lower Kootenay - upper Fernie section is the locus for a zone of near horizontal thrust faulting. The effect is to cause a double repetition of the lower coal seams and basal sandstone on the west synclinal limb. This fault zone is synclinal in form, and continuous with the Ewin Pass Thrust zone found on the east limb.

ii) **Structure (cont'd)**

The Greenhills Syncline in the mining area, is essentially a "mirror-image" of the Alexander Creek structure. The east limb of the asymmetric syncline dips westerly at 15° to 25° , except in areas near the Ericson Fault, where 45 to 55° dips are common. The west limb exhibits much steeper dips; commonly in the 35 to 45° range. The Greenhills Syncline plunges northward (340 to 350°), at less than 5° , then apparently dies out to the north, in the area of the Osborne Creek Depression.

The Ericson Fault, which locally runs along the base of the Greenhills Range west of the Fording River, is one of the major, through-going faults of the region. From south to north, this westerly dipping (40° to 70°) normal fault brings Mist Mountain strata progressively into contact with Rundle, Spray River, Fernie, and Morrissey strata. The downthrown block is to the west.

Near the south end of Lake Mountain, the Ericson Fault begins to "splay" into two (2) zones. The main fault runs along the eastern margin of Lake Mountain, and the subsidiary fault runs to the west, and appears to "die out" northward. The steep northward dip exhibited in the Lake Mountain strata could be due to influence from these flanking "splays" of the fault. The flat lying region to the north of Lake Mountain (Osborne Creek Depression area) is completely void of outcrop, and the Ericson Fault has not been traced either through or to the north of this area.

Reference:

i) Illustration No. 1b - General Geology Map

3. **Summary of Work Done in 1983**

Fifty-two (52) drillholes were completed in 1983 for a total of 6,648 metres: 5,830 metres in forty-six (46) 127mm diameter reverse circulation rotary drillholes, and 818 metres in six (6) 76.2mm diameter wireline core holes. The reverse circulation rotary drilling was done by SDS Drilling, using a Gardner-Denver 1700 rig, and by Western Hydro-Air drilling, using a Drill Systems CSR-1000 rig. Both rigs were equipped with a downhole hammer and 114.3mm O.D. CSR drill rods. The wireline core drilling was done by SDS Drilling, using the Gardner-Denver 1700 with a mud pump and Christianson core barrel.

All rotary holes were geophysically logged by BPB Instruments (Canada) Ltd., using the gamma-neutron method. Holes that remained open after pulling the drill rods were also logged for hole deviation.

All coal seams intersected in the rotary holes were sampled in 0.5 metre intervals. Representative composite samples for each major coal seam intersected in the hole were prepared at Fording's Process Plant laboratory and each composite sample was tested for Proximate Analysis, F.S.I., % Sulphur and calorific value. Samples from selected seam composites were sent to David E. Pearson and Associates Ltd. for petrographic analysis.

Core recovered from the wireline drill holes was screened, washed, then composited at Fording's laboratory, then sent to CANMET (Ottawa) laboratory for 12" moveable wall coke oven test plus other related tests.

Two (2) adits were driven by Target Tunnelling Ltd. for a total driveage, including cross-cuts, of 83 metres. Tunnel size is approximately 2.5 metres wide by two (2) metres high. Five (5) tonne bulk samples from each adit (Seam 7 for Adit #21 and Seam #9 for Adit #22) were sent to Birtley Coal and Minerals Testing for pilot plant washability tests. Recombined samples of cleaned coal were then sent to CANMET's Ottawa facility for coke oven tests.

3. Summary of Work Done in 1983 (cont'd)

Twenty-six (26) backhoe test pits and three (3) hand excavated test pits were completed in the Brownie Creek Spoil area. Test pits were excavated by Elkford Industries Ltd.'s backhoe and the overburden was mapped and sampled by geotechnical engineers from Fording and from Golder Associates, the project consultant. Sample analyses (sieve analysis, shear tests, etc.) and foundation stability evaluation was done by Golder Associates.

Pre-logging of access roads, drillsite locations and adit platform sites in timbered areas was undertaken prior to their construction. All merchantable timber was recovered and sold. Non-merchantable material was slashed and buried. Pre-logging was done on contract by A. Latka Contracting, and the road and site construction by Rudy A. Johnson Contracting Limited, Elkford Industries Limited, and Fording Coal Limited.

Staff surveyors provided the required mapping control, located the drillholes and test pits, and surveyed the adits.

Fording geologists mapped the various outcrop and road cut exposures, installed piezometers in selected drillholes, and mapped the adits.

The following table shows the drillholes, test pits, and adit site locations with respect to Lease and Coal Licence boundaries.

Lease, LicenceDrillhole, Adit, Test Pit

B.C. Coal Lease #2

RH #1949, 1950, 1952, ⁶1952B, 1952C, 1952D, 1952E, 1952F, 1952G, 1953, 1954, 1955, 1956, 1958, 1959, 1962, 1963, 1964, 1965, 1967, 1968, 1969, 1971, 1972, 1973, 1974, 1975, 1977, 1978, 1979, 1980, 1981, 1982 and 1983.

Adit #21, and Adit #22.

B.C. Coal Lease #5

RH #1951, 1957, 1960, 1961, 1966, 1970, 1976.

Coal Licence #358

RH #1860, 1861, 1863 and 1865.

Coal Licence #511

RH #1859, 1862, 1864, 1866, 1867, 1868 and 1869.

Coal Licence #559

Test Pits #83 - 1,2,3,4,5,6,7 and C.

Coal Licence #560

Test Pits #83 - 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 19A, 20, 21, 22, 23, 24, 25, A and B.

Reference: Illustration No. 2 - 1983 Exploration and Development Program

II. INDIVIDUAL AREA PROGRAMS

1. South Greenhills Area

i) Objectives

The objective of the rotary drilling program in this area was to provide the geological and coal quality information necessary to:

- a) evaluate the potential for dragline mining; and
- (b) if mining is feasible, complete the final pit design.

ii) Summary of Work Done

Eleven (11) reverse circulation rotary holes were completed, for a total of 1,311 metres.

iii) Results and Conclusions

The program area is located on the east limb of the Greenhills Syncline. The eastern boundary of the area is marked by the westerly dipping (40°) Erickson Fault, which brings Rundle Group limestone into contact with Mist Mountain strata.

Four (4) drillholes (RH #1864, #1866, #1867 and #1869) intersected the Erickson Fault zone and terminated in Rundle limestone. The remaining holes were in Mist Mountain strata for their entire length.

Seams from the J to F seam horizon were encountered within 150m of surface. Inconsistent thickness and steep dips (45 - 50°W), however, make dragline mining impractical for this area. Small tonnage truck/shovel pits may be feasible in selected, lower strip ratio areas.

References:

- i) Illustration No. 3a - South Greenhills Area Program
- ii) Illustration No. 3b - Geological Cross Section 145,800N.
- iii) Appendix 1 - Cost Details
- iv) Appendix 2 - Drillhole Logs
- v) Appendix 3 - Drillhole Sample Analyses

iv) Itemized Cost Statement

SCHEDULE B

<u>Category of Work</u>	<u>Dimensions</u> (where applicable)	<u>Unit Cost</u> (where applicable)	<u>Cost</u>
<u>Geological Mapping</u>			
<u>Reconnaissance</u>			
Detail - Surface	_____	_____	_____
- Underground	_____	_____	_____
- Other (specify)	_____	_____	_____
<u>Geophysical/Geochemical</u>			
<u>Surveys</u>			
<u>Method</u>			
Grid	_____	_____	_____
Topographic	_____	_____	_____
*Other (specify)	_____	_____	_____
<u>Road Construction</u>			
On licence Nos. 511,358	_____	_____	\$ 7,174
Access to	_____	_____	_____
<u>Surface Work</u>			
<u>Trenching</u>			
Seam tracing	_____	_____	_____
Crosscutting	_____	_____	_____
*Other (specify)	_____	_____	_____
<u>Underground Work</u>			
<u>Test adits</u>			
*Other workings	_____	_____	_____
<u>Drilling</u>			
<u>Core: Diamond</u>			
Wireline	_____	_____	_____
<u>Rotary: Conventional</u>			
Reverse Circulation	_____	_____	\$49,779
*Other (specify)	_____	_____	_____
<u>Contractor:</u>			
Where core stored	SDS Drilling & Western Hydro-Air Drilling		_____
	N/A		_____
<u>Logging</u>			
	_____	_____	\$2,500
<u>Sampling</u>			
	_____	_____	_____
<u>Testing</u>			
	_____	_____	\$2,140
<u>*Other work:</u>			
(specify details)	_____	_____	_____
Reclamation work (Permit NO.)	Room & Board		\$4,829
	C-102		
ON PROPERTY COSTS	\$ 66,422		
OFF PROPERTY COSTS	\$ _____		
TOTAL EXPENDITURES	\$ 66,422		

Ken Kornev, P. Eng
May 9, 1984

II. INDIVIDUAL AREA PROGRAMS (cont'd)

2. Kilmarnock Creek Area

i) Objectives

Preliminary evaluation, based on drillhole information obtained in 1981 and 1982, shows the Kilmarnock valley bottom area to be topographically and geologically favourable for dragline mining.

The objective of the 1983 Exploration Program in this area was to obtain all of the geological, geotechnical, hydrological, and coal quality information required to fully evaluate the area and to design a dragline mining scheme.

ii) Summary of Work Done

Forty-one (41) drillholes were completed for 5,337 metres; 4,519 metres in thirty-five (35) reverse circulation rotary holes, and 818 metres in six (6) wireline core holes. Eleven (11) piezometers were installed in six (6) of the rotary holes.

Two (2) adits were completed (Adit #21 - Seam 7, and Adit 22 - Seam 9), for a total drivage of eighty-three (83) metres.

Coal seam and rock exposures on new access roads were geologically and geotechnically mapped and surveyed.

iii) Results and Conclusions

The Kilmarnock valley bottom in the vicinity of the 1983 Exploration Program is underlain by Mist Mountain strata from the east limb of the regional Alexander Creek Syncline. The subcrops are covered by up to twelve (12) metres of unconsolidated alluvial and glacial material.

Three (3) major westerly dipping thrust faults separate the east limb sediments into four (4) distinct fault blocks.

II. INDIVIDUAL AREA PROGRAMS (cont'd)**iii) Results and Conclusions (cont'd)**

To facilitate computerization, the fault blocks have been designated from west to east (uppermost to lowermost), as the 210, 217, 220 and 230 blocks.

The uppermost (210) and the lowermost (230) fault blocks on the Kilmarnock valley bottom, contain only seams #2 and #1, and are, therefore, of little economic importance. The economically important coal seams are contained in the 217 and 220 fault blocks. These blocks, which are separated by the regional Ewin Pass Thrust, contain section from the #9 to #1 seam horizon.

In the #217 fault block, the strata dips to the west at 25 to 30°, except near the Ewin Pass Thrust fault, where the sediments have been folded into an anticlinal structure. This anticline appears to be a large scale drag fold. In the vicinity of the fold axis, the coal seams have been structurally thickened, often to more than twice the normal thickness. For example, #4 seam, which averages 12 - 13 metres thick in the area, reaches thicknesses of 25 to 30 metres near the fold axis.

In the 220 fault block, the bedding dips to the west at 40 to 50°. Seam thicknesses, particularly of #4 seam, are very erratic in this block. The variability appears to be mainly depositional in origin, particularly in areas outside of the influence of the Ewin Pass Thrust. In drillholes near the fault, (RH #1956), thickening may be a result of the thrust fault.

Coal quality, for the most part, is similar to that on Brownie Ridge and other areas on the east limb.

References:

- i) Illustration No. 4a - Kilmarnock Creek Area Program
- ii) Illustration No. 4b - Geological Cross Section 148,000N.
- iii) Illustration No. 4c - Adit #21 and #22.
- iv) Appendix 2 - Drillhole Logs
- v) Appendix 3 - Drillhole Sample Analyses
- vi) Appendix 4 - Bulk Sample Analyses

3. Brownie Creek Spoil Area**i) Objectives**

The objective of the Brownie Creek test-pit program was to investigate the subsoil, in the foundation area of the proposed Brownie Spoil dump. This program will supplement previous assessments of the spoil stability.

ii) Summary of Work Done

Three (3) hand dug test pits and twenty-six (26) backhoe test-pits were excavated in 1983. All of the backhoe pits were logged.

Representative samples were subjected to various laboratory tests, including determination of natural moisture content, Atterberg limits, particle size distribution, and shear strength characteristics.

iii) Results and Conclusions

The results of the 1983 investigations confirm that foundation conditions over the proposed Brownie spoil area are suitable for development of the dump. A detailed description of the test results and overall conclusions is contained in the Golder Associates' "Letter Report to Fording Coal Limited re Supplementary Geotechnical Investigations - Brownie Spoil." (Appendix 5).

References:

- i) Illustration No. 5 - Brownie Creek Spoil Area Program
- ii) Appendix 1 - Cost Details for Work Done on Coal Licences
- iii) Appendix 5 - Geotechnical Report - Golder Associates

iv) Itemized Cost Statement

SCHEDULE B

<u>Category of Work</u>	<u>Dimensions</u> (where applicable)	<u>Unit Cost</u> (where applicable)	<u>Cost</u>
<u>Geological Mapping</u>			
<u>Reconnaissance</u>			
Detail - Surface	_____	_____	_____
- Underground	_____	_____	_____
- Other (specify)	_____	_____	_____
<u>Geophysical/Geochemical</u>			
<u>Surveys</u>			
<u>Method</u>			
Grid	_____	_____	_____
Topographic	_____	_____	_____
*Other (specify)	_____	_____	_____
<u>Road Construction</u>			
On licence Nos. 559,560	_____	_____	\$28,754
Access to	_____	_____	_____
<u>Surface Work</u>			
<u>Trenching</u>			
Seam tracing	_____	_____	_____
Crosscutting	_____	_____	_____
*Other (specify) Test Pits	_____	_____	\$ 9,368
<u>Underground Work</u>			
<u>Test adits</u>			
*Other workings	_____	_____	_____
<u>Drilling</u>			
<u>Core: Diamond</u>			
Wireline	_____	_____	_____
<u>Rotary: Conventional</u>			
Reverse Circulation	_____	_____	_____
*Other (specify)	_____	_____	_____
<u>Contractor:</u>			
Where core stored	_____	_____	_____
<u>Logging</u>			
<u>Sampling</u>			
<u>Testing</u>			
*Other work:			
(specify details)	Geotechnical reports.		\$15,487
Reclamation work (Permit NO.)	C-102		
ON PROPERTY COSTS	\$ 53,609		
OFF PROPERTY COSTS	\$ _____		
TOTAL EXPENDITURES	\$ 53,609		

*Ken Kowal, P. Eng.
May 9, 1984.*

APPENDIX 1

COST DETAILS OF WORK DONE ON COAL LICENCES

i) **List of Invoices**

<u>Contractor, Supplier</u>	<u>Service</u>	<u>Invoice Numbers</u>
BPB Instruments	Geophysical Logging	C0158
Fording Coal Limited	Labour, Supplies Equipment	Cost Statement WO62601 and 3211.
Golder Associates	Geotechnical Work	59130, 59023, 59340
Rudy A. Johnson	Road Construction	#372
National Caterers	Room & Board	01124, 01130
David E. Pearson	Petrography	230, 234
SDS Drilling	Rotary Drilling	2216
WHA Drilling	Rotary Drilling	1026, 1027

ii. COPIES OF INVOICES

INVOICE No. C0158



BPB INSTRUMENTS (CANADA) LTD

~~REG. NO. 5638, STN. A • CALGARY • ALBERTA • CANADA~~

5915C - 36 ST. S.E. • CALGARY, ALBERTA • T2C 2J1

To Fording Coal Limited
Fording River Operations
P.O. Box 100
Elkford, B.C.

.....March 25th.....1983.....

.....ATTENTION: Mr. Ken Komenac

TOTAL

\$ ¢ \$ ¢

RE: Geophysical Well Logging Services performed
At Fording River Operations Site - During
March 1983 Purchase Order #FC37378

Logging Unit Rental

March 7th to 26th, 1983.

19½ days @ \$425.00 per day
(½ days only charged for March 7th, 1983)

\$8,287 50

paid Apr. 22.

TOTAL

\$8,287 50

E.W. Hulatt
Edgar W. Hulatt
Manager

W# 62601 2,500 ^{KL}/₂₀ ✓
W# 62701 5,787 ⁵⁰/₂₀ ✓

** ACCOUNT	01100			W062601	FR911	264.40	
S	P01143	01506	Labour	W	W062601	FR911	264.40
S** ACCOUNT	01506			W	W062601	FR911	847.26
							1,423.95
S	P01143	03805	Welders	W	W062601	FR912	2,271.21
S** ACCOUNT	03805						1,332.00
							2,271.21
S	P01143	06950	Heavy Equip	W	W062601	AL971	1,332.00
S** ACCOUNT	06950						808.20
							1,332.00
S	P01143	51100	Main Prod	W	W062601	FR917	808.20
S** ACCOUNT	51100						12.00
							808.20
S	P01143	51506	Eng. Lab.	W	W062601	FR917	12.00
S** ACCOUNT	51506						80.00
							48.00
							128.00
S	P01143	52805	Welders	W	W062601	FR918	48.00
S** ACCOUNT	52805						27.00
							75.00
S	P01143	53950	Op hrs	W	W062601	FR916	11.00
S** ACCOUNT	53950						11.00
** S/L ACCT	W062601						11.00
S	P01143	01505	Env Serv	W	W062701	FR911	4,901.81
S** ACCOUNT	01505		Lab.				432.15
							432.15
							4,901.81

Verified - Ken Kenward, P. Eng.

* BASED ON TOPO MAPS ONLY - NO FIELD CHECKS



ENVIRONMENTAL SERVICES

C636 1110

PROJECT NAME: BROWNIE G/O Teck Rd

WO#: Chg 60 3311

END CHARGE: C636 0213 * PMS

BUDGET * <small>Based on 40 hr week</small>					Date Prepared: <u>FEB 17 1983</u>					ACTUAL									
					Start Date: <u>April 11 1983</u>										Start Date: <u>Aug 22 1983</u>				
					Date Finished: <u>June 17 1983</u>										Date Completed: <u>Sept 28 1983</u>				
EQUIPMENT	TYPE	HOURS	RATE	DOLLARS	EQUIPMENT	TYPE	HOURS	RATE	DOLLARS										
Dozers (Rental)	D8	400	145.00	58,000.00	Dozer (FCL)	D8	225	82.00	18,450.00										
* Backhoe (")	225	80	119.00	9,520.00	Backhoe (Rental)	225	52	119.00	6,188.00										
* INCLUDES Teck Pits					TOTAL					TOTAL									
67,520.00					24,638.00														
LABOUR					LABOUR														
	TYPE	HOURS	RATE	DOLLARS		TYPE	HOURS	RATE	DOLLARS										
	Labourer	40	25.00	1,000.00		Survey	120	30.00	3,600.00										
						Supervision	76	30.00	2,280.00										
						Misc	16	30.00	480.00										
						DOZER OPERATOR	225	25.00	5,625.00										
TOTAL					TOTAL														
1,000.00					11,985.00														
MATERIALS					MATERIALS														
	TYPE	AMOUNT	COST	DOLLARS		TYPE	AMOUNT	COST	DOLLARS										
	Culvert		527	4,000.00		Culvert		527	4,000.00										
						Misc			500.00										
TOTAL					TOTAL														
4,000.00					1,500.00														
Approval: _____					SUB TOTAL <u>72,520.00</u>					Comments: MAJOR VARIANCE IS USE OF FCL EQUIPMENT INSTEAD OF RENTAL. CULVERT WAS ALSO LESS THAN BUDGET BECAUSE MOST WAS SALVAGED FROM USED CULVERT YARD.									
Revision: <input type="checkbox"/> yes <input type="checkbox"/> no					CONTINGENCY <u>20</u> % <u>14,504.00</u>										FINAL TOTAL <u>87,024.00</u>				
					FINAL TOTAL <u>87,024.00</u>										Verified: <u>Ken Rowland, P. Eng.</u>				



Golder Associates
CONSULTING GEOTECHNICAL AND MINING ENGINEERS

INVOICE 59130

PROJECT NO. 812-1258

DATE OCTOBER 29, 1983

TO
FORDING COAL LTD.
BOX 100
ELKFORD, B. C.
V0R 1H0

ATTENTION: PURCHASING DEPT.

DIRECT DISBURSEMENTS

G. KING PHOTO-COLOUR LTD.
XEROX CHARGES

HANDLING CHARGE

34.11	
12.45	
<hr/>	46.56 ✓
2.33	
<hr/>	2.33 ✓
<hr/>	<hr/>
TOTAL THIS INVOICE	\$8,426.39 ✓

FORDING PURCHASE ORDER

D. T. OSWALD C6360261

DATE: _____

BY: _____

APPROVAL: _____

F. O. S. POINT

PLEASE RETURN ONE COPY OF THIS INVOICE WITH YOUR REMITTANCE

GOLDER ASSOCIATES (WESTERN CANADA) LTD.
224 WEST 8TH AVENUE, VANCOUVER, BRITISH COLUMBIA, CANADA V6Y 1N5



Golder Associates
CONSULTING GEOTECHNICAL AND MINING ENGINEERS

INVOICE 59130

PROJECT NO. 812-1258

DATE OCTOBER 29, 1983

TO FORDING COAL LTD.
BOX 100
ELKHORND, B. C.
VOB 110



ATTENTION: PURCHASING DEPT

EIGHTH PROGRESS BILLING FOR PROFESSIONAL SERVICES DURING OCT. 1983
IN CONNECTION WITH STABILITY ANALYSIS PREPARATION
OF REPORT RE STABILITY OF PROPOSED BROWNIE SPOIL P. O. #FC 30291 GOL
0020-110

ENGINEERING SERVICES

PRINCIPALS

D. CAMPBELL 18.00 HRS. @ \$80.00 \$1440.00 ✓

ENGINEERS

A. KENT 22.00 HRS. @ \$53.50 1177.00 ✓

DRAUGHTPERSONS/TECHNICIANS

R. F. DICK 3.00 HRS. @ \$35.50 106.50 ✓

L. R. LEE 4.50 HRS. @ \$44.00 198.00 ✓

D. T. TOOHEY 9.00 HRS. @ \$21.00 189.00 ✓

REPORT PROCESSING/PREPARATION

S. E. KERBER 4.50 HRS. @ \$29.00 130.50 ✓

3,241.00 ✓

LABORATORY SERVICES

31 MOISTURE CONTENT @ 3.50 108.50 ✓

10 ATTERBERG LIMITS @ \$55.00 PER TEST 550.00 ✓

17 SIEVE ANALYSIS 3" MAX. @ \$50.00 PER TEST 850.00 ✓

7 HYDROMETER ANALYSIS @ \$52.00 PER TEST 364.00 ✓

9 DIR. SHEAR STR. GENERAL @ \$340.00 PER PNT 3060.00 ✓

5,136.50 ✓

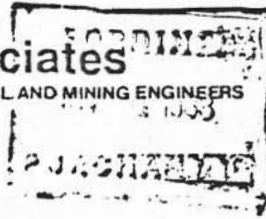
FORDING PURCHASING	
D'IST.	
DATE THIS INVOICE IF PROV. TAX APPLIES	DATE PAID
<i>[Signature]</i>	<i>[Signature]</i>

PLEASE RETURN ONE COPY OF THIS INVOICE WITH YOUR REMITTANCE

GOLDER ASSOCIATES (WESTERN CANADA) LTD.
221 WEST 5TH AVENUE, VANCOUVER, BRITISH COLUMBIA, CANADA V5Y 1N5
TELEPHONE (604) 979-9255, TELEEX 04-503800



Golder Associates
CONSULTING GEOTECHNICAL AND MINING ENGINEERS



INVOICE 59023

PROJECT NO. 812-1258

TO FORDING COAL LTD.
BOX 100
ELKFORD, B. C.
VOB 1HO

DATE OCTOBER 01, 1983

Approved NOV 7/83
sent out NOV 7/83

ATTENTION: PURCHASING DEPT.

SEVENTH PROGRESS BILLING FOR PROFESSIONAL SERVICES DURING SEPT. 1983
IN CONNECTION WITH STABILITY ANALYSIS PREPARATION
OF REPORT RE STABILITY OF PROPOSED BROWNIE SPOIL P. D. #FC 30291 GOL
0020-110

37396

ENGINEERING SERVICES

PRINCIPALS

D. CAMPBELL 6.00 HRS. @ \$80.00 \$480.00 ✓

ENGINEERS

A. KENT 30.50 HRS. @ \$53.50 1631.75 ✓
2,111.75

DIRECT DISBURSEMENTS

P. LAWSON TRAVEL (B. C.) LTD. 356.40 ✓

EMPLOYEE EXPENSE ACCOUNTS 272.76 ✓

A. KENT 31.46 ✓
629.16 ✓

HANDLING CHARGE 31.46 ✓
31.46 ✓

TOTAL THIS INVOICE \$2,772.37 ✓

FORDING PURCHASING	
DIST. 05112/06360261	
DATE THIS INVOICE IF P.W.V. TAX EXEMPT	DATE OF INVOICE
DATE THIS INVOICE IF P.W.V. TAX EXEMPT	DATE OF INVOICE
	APPROVAL

OK ER.

PLEASE RETURN ONE COPY OF THIS INVOICE WITH YOUR REMITTANCE

GOLDER ASSOCIATES (WESTERN CANADA) LTD.
224 WEST 8TH AVENUE, VANCOUVER, BRITISH COLUMBIA, CANADA V5Y 1N5
TELEPHONE (604) 879-9266 TELEFAX 04-508900

Billed to Golder 1/19

EXCLUSIVE



Golder Associates

CONSULTING GEOTECHNICAL AND MINING ENGINEERS

INVOICE 59340

PROJECT NO. 812-1258

DATE DECEMBER 03, 1983

FORDING
JAN 10 1984
PURCHASING

TO FORDING COAL LTD.
BOX 100
ELKFORD, B. C.
VOB 1H0

ATTENTION: PURCHASING DEPT.

NINTH PROGRESS BILLING FOR PROFESSIONAL SERVICES DURING NOV. 1983
IN CONNECTION WITH PREPARATION OF REPORT RE STABILITY OF PROPOSED
BROWNIE SPOIL P.O. #FC 30291 GOL-0020110

37396

ENGINEERING SERVICES

PRINCIPALS			
D. CAMPBELL	44.50 HRS.	@ \$80.00	\$3560.00
ENGINEERS			
A. KENT	3.50 HRS.	@ \$53.50	187.25
DRAUGHTPERSONS/TECHNICIANS			
R. F. DICK	2.00 HRS.	@ \$35.50	71.00
I. D. TEMPLEMAN	3.00 HRS.	@ \$41.50	124.50
B. DAVIDSON	1.50 HRS.	@ \$18.50	27.75
REPORT PROCESSING/PREPARATION			
S. E. KERBER	4.00 HRS.	@ \$29.00	116.00
			<u>4,086.50</u>

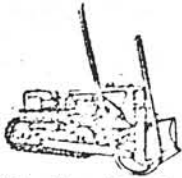
DIRECT DISBURSEMENTS

BLACK TOP CABS LTD.	FORDING PURCHASING	6.80
RAYE M. FRASER	CASH	18.69
LOOMIS COURIER SERVICE LTD.	CASH	30.75
VANCAL REPRODUCTIONS LTD.	CASH	14.33
NORMAN WADE COMPANY LTD.	CASH	15.05
XEROX CHARGES	CASH	83.85
TELEPHONE CHARGES	CASH	22.74
		<u>192.21</u>
HANDLING CHARGE		9.61
		<u>9.61</u>

TOTAL THIS INVOICE \$4,288.32

PLEASE RETURN ONE COPY OF THIS INVOICE WITH YOUR REMITTANCE

GOLDER ASSOCIATES (WESTERN CANADA) LTD.
224 WEST 8TH AVENUE, VANCOUVER, BRITISH COLUMBIA, CANADA V5Y 1N5
TELEPHONE (604) 879-9266, TELEX 04-508800



INVOICE

#372

Rudy A. Johnson
Contracting Ltd.


Date March 16/83

XkRx1bSparwood, B.C. V0B 2G0 Telephone 425-2424
P.O. Box 1977

Order No. FC36531

Fording Coal Ltd.
P.O. Box 100,
Elkford, B.C.

Job No.	Description	Price
W062601	Rental D8K at \$142.00 per hr. South Greenhills March 1--8 hrs. 2--8 hrs. Total 16 hrs.	✓ \$2272.- 00
W062701	Killmarnock ck. March 14--8 hrs. 15--8 hrs. Total 16 hrs.	✓ \$2272. 00
TOTAL		\$4544 00

OK 
Processed
March 21/83

paid Apr. 15



DATE: March 16, 1983
 INVOICE No.: 01124
 DUE DATE: March 31, 1983

RECEIVED
 MARCH 17 1983
 PURCHASING

NATIONAL CATERERS LTD.
 837 EAST CORDOVA ST., VANCOUVER, B.C. V6A 3R2 • PHONE: 251-4771 • TELEX: 04-53293

FC 37385

Fording Coal Ltd.
 P. O. Box 100,
 Elkford, B. C., V0B 1H0

To invoice for meals and accomodation at Elkford Lodge as per attached Board Bill March 1 - March 15, 1983.

Meals	105 @ \$ 28.03	\$ 2943.15
Rooms	105 @ 11.25	1181.25
Rooms Tax	105 @ .67	70.35
Early and Late Meal Charge:		
	7 @ \$212.00	<u>1484.00</u>
TOTAL THIS INVOICE		<u>\$ 5678.75</u>

FORDING PURCHASING

DIST. See *Receipt*

APPROVAL

RB

*paid Apr 15
 travel charges
 out*

	Code	Dr.	Cr.
Inter-Office Account	08-15800	\$	\$ 5,678.75
B.C. Sales Tax Payable	08-15900		
	05800 02 62 001	1,703 63	
	05800 02 62 101	3,475 12	

NATIONAL

DATE: MARCH 31, 1983

INVOICE No.: 01130

DUE DATE: April 15/83

NATIONAL CATERERS LTD.

837 EAST CORDOVA ST., VANCOUVER, B.C. V6A 3R2

PHONE: 251-4771

TELEX: 04-53293

Fording Coal Ltd.
P.O. Box 100
Elkford, B.C.



To invoice for meals and accomodation at Elkford Lodge as per attached Board Bill March 16 - 31/83

Meals	174	@	\$ 28.70	\$ 4,993.80
Rooms	174	@	11.25	1,957.50
Rooms Tax	174	@	.68	118.32

Phone extebtion hook-up
re: E.P.B. Instruments 62.50

Early and late meal charges 15 1/2 @ 212.00 3,286.00

TOTAL THIS INVOICE \$10,418.12

2
at my request
K.K.

Paid Apr. 22

FORDING COAL LTD.	
DEPT.	See below
NO.	
IF P.P.S.	
F.O.D. POINT	
044	
TOTAL	

	Code	Dr.	Cr.
Inter-Office Account	08-15800	\$	\$ 10,418.12
B.C. Sales Tax Payable	08-15930		
	05800 120 62601	3,125.44	v
	05800 120 62701	7,292.68	v
<i>K.K. K...</i>			
Total			

Posted

David E. Pearson & Associates Ltd.
 Consulting Coal Geologists & Petrographers

804 Leota Place, Victoria, B.C. V8Y 1H2 (604) 658-5963

June 30, 1983

FORDING
 JUL 07 1983
 PURCHASING

234

INVOICE

Reflectance & maceral analysis of five
 coals (FCL #704, 728, 729, 730, 731).
 Preparation of report.

Five coals @ \$300 each.....\$1500

Work done on Purchase Order FC 37405, Vendor #DAV0010-110

* \$300⁰⁰ to
 South Greenhills

Ms. Heidi Rector,
 Fording Coal Limited,
 P.O. Box 100,
 Elkford,
 British Columbia.
 VOB 1H0.

FORDING PURCHASING	
DIST. 05800/wp 62701	
MAKE THIS CHECK IF PROV. TAX EXEMPT	CASH CHECK
MAKE THIS CHECK IF FED. TAX EXEMPT	IMPR. ED. PAY
APPROVAL	

OK
Ken Kinnear

id E. Pearson & Associates Ltd.
Mining Coal Geologists & Petrographers

804 Leota Place, Victoria, B.C. V8Y 1H2 (604) 658-5963

June 13, 1983

FORDING
JUN 20 1983
PURCHASING

230

INVOICE

Reflectance & maceral analysis on ten
coals; reflectance analysis only on
twenty six coals. Preparation of report.

Ten coal @ \$300 each.....	\$3000
Twenty six coals @ \$80 each.....	\$2080

Total	\$5080

Work done on Purchase Order FC 37405, Vendor #DAV0010-110

Ms. Heidi Rector,
Fording Coal Limited,
P.O. Box 100,
Elkford,
British Columbia.
VOB 1H0.

05800/wf 62601 = \$1,840⁰⁰
05800/wf 62701 = \$3,240⁰⁰
OK. *[Signature]* 5080



SDS DRILLING

DIVISION OF SDS INDUSTRIES LTD.
 4636 FIRST STREET S.E.
 CALGARY, ALBERTA T2G 2L3
 PHONE (403) 287-1460

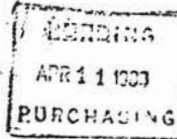
Invoice No 2216

Date March 31, 1983

Client - Project No FC 37376

SDS - Job No Project 288
 Rig 601-20

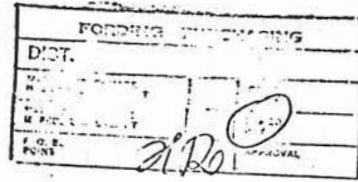
Fording Coal Ltd.
 P.O. Box 100
 Elkford, B.C.
 V0B 1H0



Billing Period March 10, 1983 To March 25, 1983 Location Eagle Mtn. & Greenhills

Mobilization - Lump Sum	\$ 1,200.00
Drilling as per Attached Summary:	
2661.8 meters @ \$45.50/meter	121,111.90
6 Daywork Hours @ \$168.00/hour	1,008.00
28.0 Standby Hours @ \$155.00/hour	4,340.00
Crew Travel Time in Excess of 1 Hour	
Per Day - March 10 - 15 12 hours	
March 16 - 25 9.5 hours	
21.5 hours @ \$65.00/hour	1,397.50
<u>Consumables</u>	
1 Odex Pilot Bit @ \$1,586.00	\$1,586.00
1 Odex Reamer @ \$985.00	985.00
10 Odex Casing Shoes @ \$69.00	690.00
216' Casing - Russellsteel Invoice 1014009	1,522.80
Plus 6% B.C. Tax	287.03
Plus 10% Handling	507.07
TOTAL	\$134,635.30

PAID APR 22

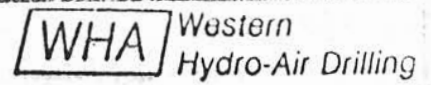


Terms:
 Payment due 30 days from receipt
 Interest charged at 2% per month over 30 days
 Make cheques payable to above address

	Code	Dr.	Cr.
Inter-Office Account	08-15800	\$	\$
B.C. Sales Tax Payable	08-15930		
	05800 / W462601	20,610.00	
	05800 / W462707	114,025.30	
			134,635.30
	Total		

Posted

INVOICE



TO: Fording Coal Ltd.
 Box 100
 Elkford, B.C.
 V0B 1H0

59 Midbend Crescent S.E. 24-Hr Answering
 Calgary, Alberta Bus (403) 2
 T2X 1L1 Res. (403) 2

P.O. FC37377

ATTENTION: Mr. Ken Komenac

INVOICE NUMBER 1027

INVOICE DATE			JOB NO	WELL LOCATION	CONTRACTOR	RIG NO	CLIENT AUTHORIZATION
M	D	Y					
04	4	83			W.H.A. Drilling	1	

For Billing Period March 15, to 30/83

For Holes 1863, 1862, 1972, 1971, 1967, 1968, 1959, 1964, 1974, 1965, 1977,
 as per attached break down sheet.

Total Meterage @ \$31.00 X 1202 ----- \$37,262.00
 @ 38.00 X 12 ----- 456.00
 \$37,718.00

Set Casing 4 X 165.00 ----- 660.00

Standby for Logging & Orders 21 3/4 hours ----- 2,827.50

Return to Discharge Point 1 hr. X 100.00 ----- 100.00
 \$ 3,587.50

101 ft. of 6 5/8 Wall Casing 101 X 7.35 ----- 742.35

3 - 6 5/8 Drive Shoes 3 X 54.75 ----- 164.25

1 - 5 9/16 Drive Shoe 1 X 46.64 ----- 46.64
 953.24

10 % Handling Charge ----- 93.32
 1,046.56

Paid May 6

TOTAL INVOICE ----- \$42,352.06

Wd \$ 2601 \$ 7,700.00
Wd 62701 34,652.06

INTEREST RATE OF 2% PER MONTH (24% PER ANNUM)
 CHARGED ON ALL OVERDUE ACCOUNTS

INVOICE

WHA Western
Hydro-Air Drilling

TO:

Fording Coal Limited
Box 100
Elkford, B.C.
VOB 1H0

59 Midland Crescent S.E.
Calgary, Alberta
T2X 1L1

24-Hr Answer
Bus. (403)
Res. (403)

P.O. # FC377

ATTENTION: Ken Komenac

INVOICE NUMBER **1026**

INVOICE DATE			JOB NO	WELL LOCATION	CONTRACTOR	RIG NO	CLIENT AUTHORIZATION
M	D	Y					
03	18	83			W.H.A Drilling	1	

For billing period March 10/83 to March 15/83

Mobilization	\$500.00	-----	500.00
Move to 1867 from discharge point 3 hrs. X 100.00	\$300.00		300.00
Meterage hole 1867 - 82 X 31.00	2,542.00		
Logging 1 hr. X 130.00	130.00	-----	2,672.00
Hole 1868 156.2 X 31.00	4,842.00		
Logging 2 hrs. 130.00	260.00	-----	5,102.00
Hole 1869 151 X 31.00	4,684.00		
Logging 2 hrs. X 130.00	260.00	-----	4,944.00
Hole 1866 76.2 X 31.00	2,362.00		
Logging 2.5 hrs. X 130.00	325.00	-----	2,687.00
Hole 1865 150.1 X 31.00	4,653.00		
Logging 1.5 X 130.00	195.00	-----	4,848.00
Invoice for above		-----	\$21,053.00

Third Party Charges

61 ft. of 5 9/16 Casing .188 wall @ \$6.20 per. ft.	378.20		
10% handling	37.82		
	416.02		416.02

Total Invoice ----- \$21,469.02

Paid Mr...

Wd 62601

▶ INTEREST RATE OF 2% PER MONTH (24% PER ANNUM)
CHARGED ON ALL OVERDUE ACCOUNTS

iii)

Pro-rated Cost Per Individual Licence

<u>Coal Licence Group</u>	<u>Coal Licence</u>	<u>Pro-Rated Cost</u>
195	559	\$ 14,433
	560	<u>\$ 39,176</u>
Sub-Total L.G. 195		\$ 53,609
196	511	\$ 43,660
199	358	<u>\$ 22,762</u>
TOTAL		<u>\$120,031</u>

K - FORDING RIVER 83(2)A



328

LIST OF ILLUSTRATIONS

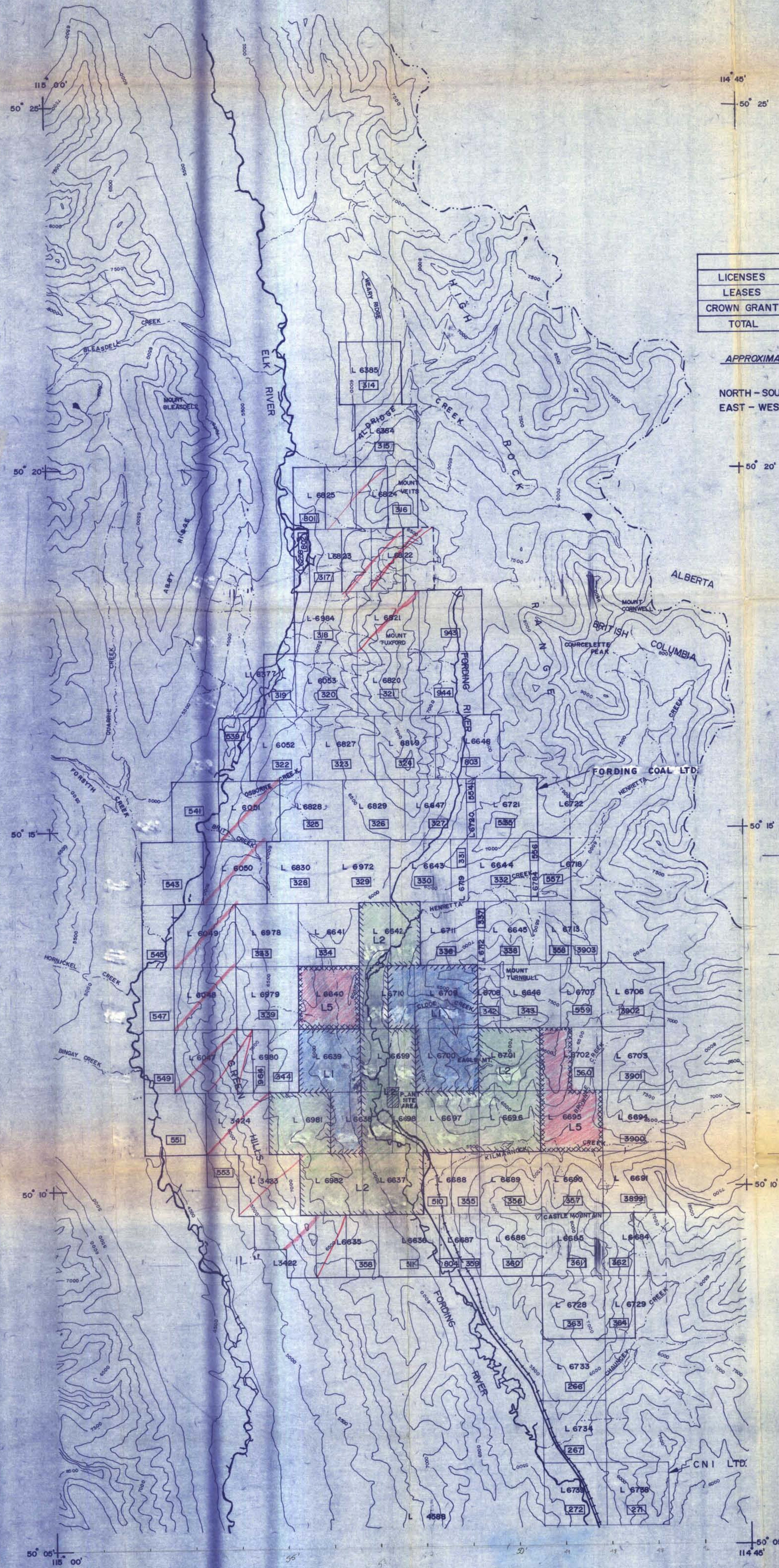
ILLUSTRATION NO.

DESCRIPTION

- | | |
|---|---|
| 1 | a. Index Map - Coal Properties Scale - 1:50,000
b. General Geology Map Scale - 1:25,000 |
| 2 | 1983 Exploration and Development Program
Scale - 1:10,000 |
| 3 | a. South Greenhills Area Program Scale 1:2,000
b. Geological Cross Section 145,800N Scale 1:2,000 |
| 4 | a. Kilmarnock Creek Area Program Scale 1:2,000
b. Geological Cross Section 148,000N Scale - 1:2,000
c. Adit #21 & #22 Scale - 1:250 |
| 5 | Brownie Creek Spoil Area Program Scale - 1:2,000 |

328

CONFIDENTIAL



LAND TENURE

	NO.	AREA - ACRES	AREA - HECTARES
LICENSES	67	31,529	12,766
LEASES	3	9,638	3,903
CROWN GRANTS	15	7,333	2,968
TOTAL		48,500	19,637

APPROXIMATE MAXIMUM PROPERTY DIMENSIONS

NORTH-SOUTH 15.9 MILES ; 25.5 KILOMETRES
 EAST-WEST 8.4 MILES ; 13.5 KILOMETRES

LEGEND

COAL LEASES (NOS. , OWNERSHIP)

L 2 FORDING COAL LTD.

COAL LICENSES (NOS. , OWNERSHIP)

547 COMINCO LTD.

CROWN GRANTS (LOT NOS. , OWNERSHIP)

L 6048 COMINCO LTD.

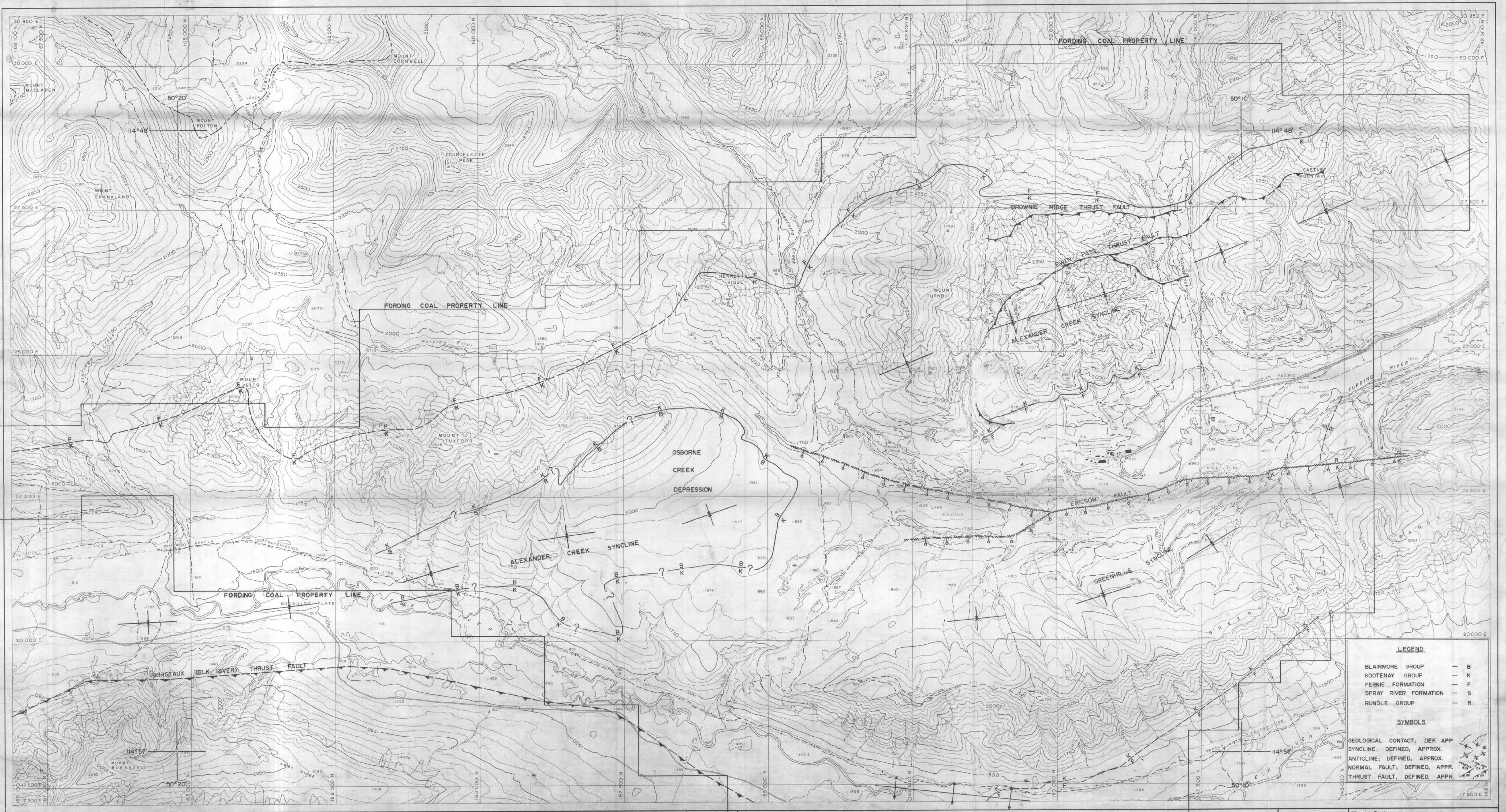
RAILROAD
 EXISTING HIGHWAYS

328

ILLUSTRATION 10

DRAWN BY		CHECKED BY		DATE	
RK		RK		JULY 78	
				JUNE 83	

FORDING RIVER OPERATIONS K-Fording River 83/2A
COAL PROPERTIES
 FORDING COAL LIMITED
 Scale: 1 : 50,000 Date: OCT. 31, 1972
 0 500 1000 1500 2000 2500



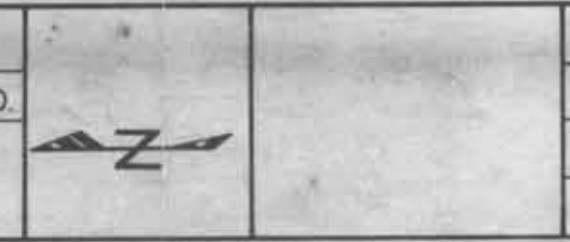
LEGEND

BLAIRMORE GROUP	— B
KOOTENAY GROUP	— K
FERNIE FORMATION	— F
SPRAY RIVER FORMATION	— S
RUNDLE GROUP	— R

SYMBOLS

GEOLOGICAL CONTACT; DEF. APP.	
SYNCLINE; DEFINED, APPROX.	
ANTICLINE; DEFINED, APPROX.	
NORMAL FAULT; DEFINED, APPR.	
THRUST FAULT; DEFINED, APPR.	

Job No: 06333-7 Date Flown: August 1977
 MELHANNAY SURVEYING & ENGINEERING LTD.



Function:
 Activity:
 Section:
 Job:

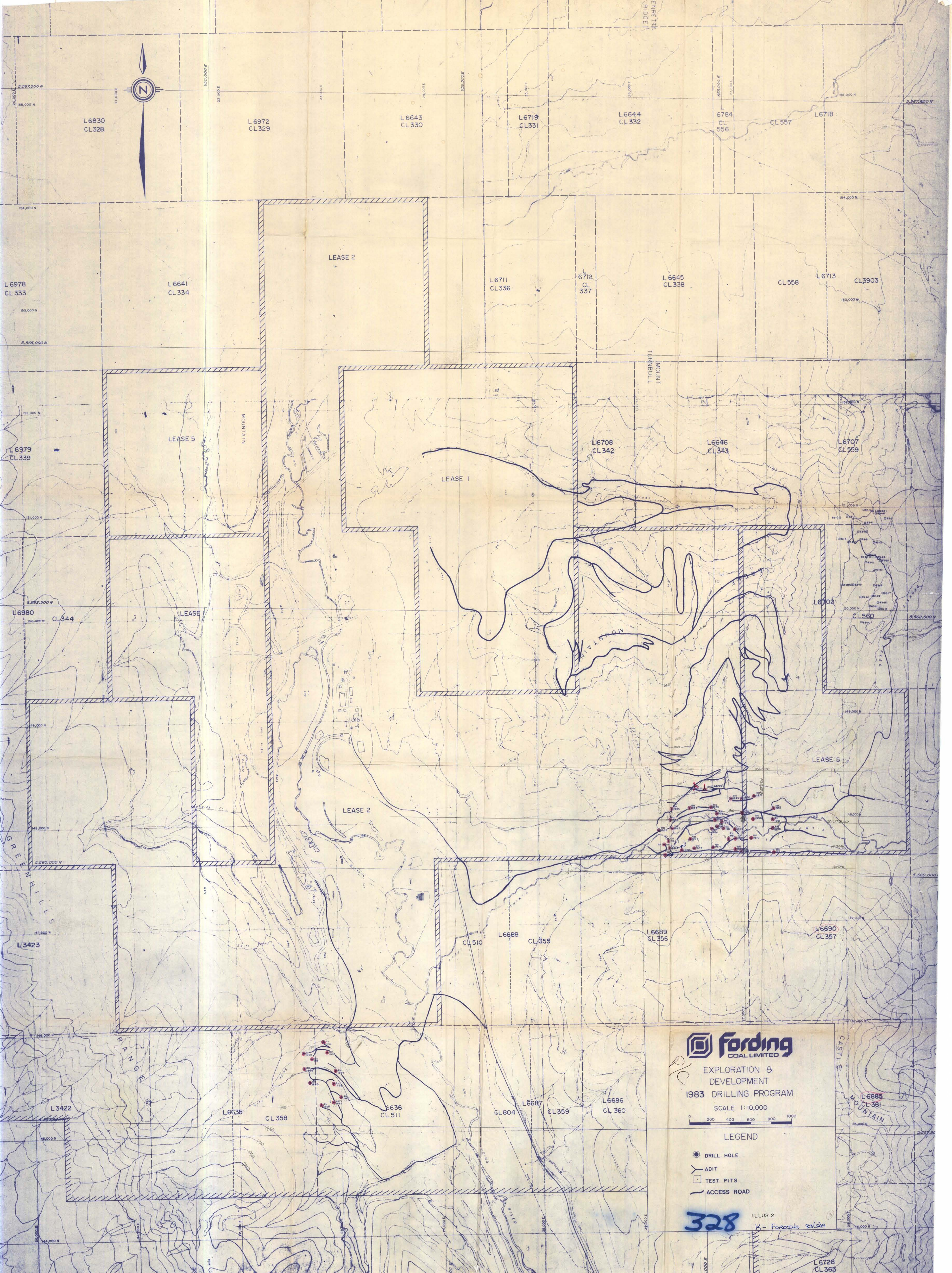
Revisions	No.	Made by	Date	Description

Drawn by: J.S. JUNE 1983
 Checked by:
 Design Eng.
 Proj. Eng. Approved:

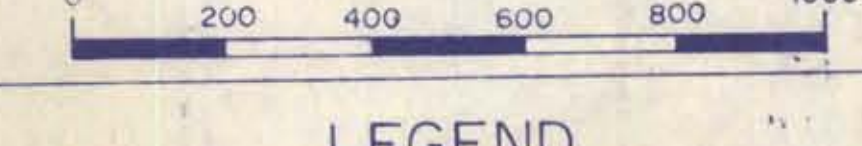
GEOLGY MAP — ILLUSTRATION 1b
 K-Fording River 33(2) 328



Metric Scale 1:25000
 0 200 400 600 800 1000
 Co-ordinates and Elevations on this Map are in METRES



EXPLORATION &
DEVELOPMENT
1983 DRILLING PROGRAM
SCALE 1:10,000



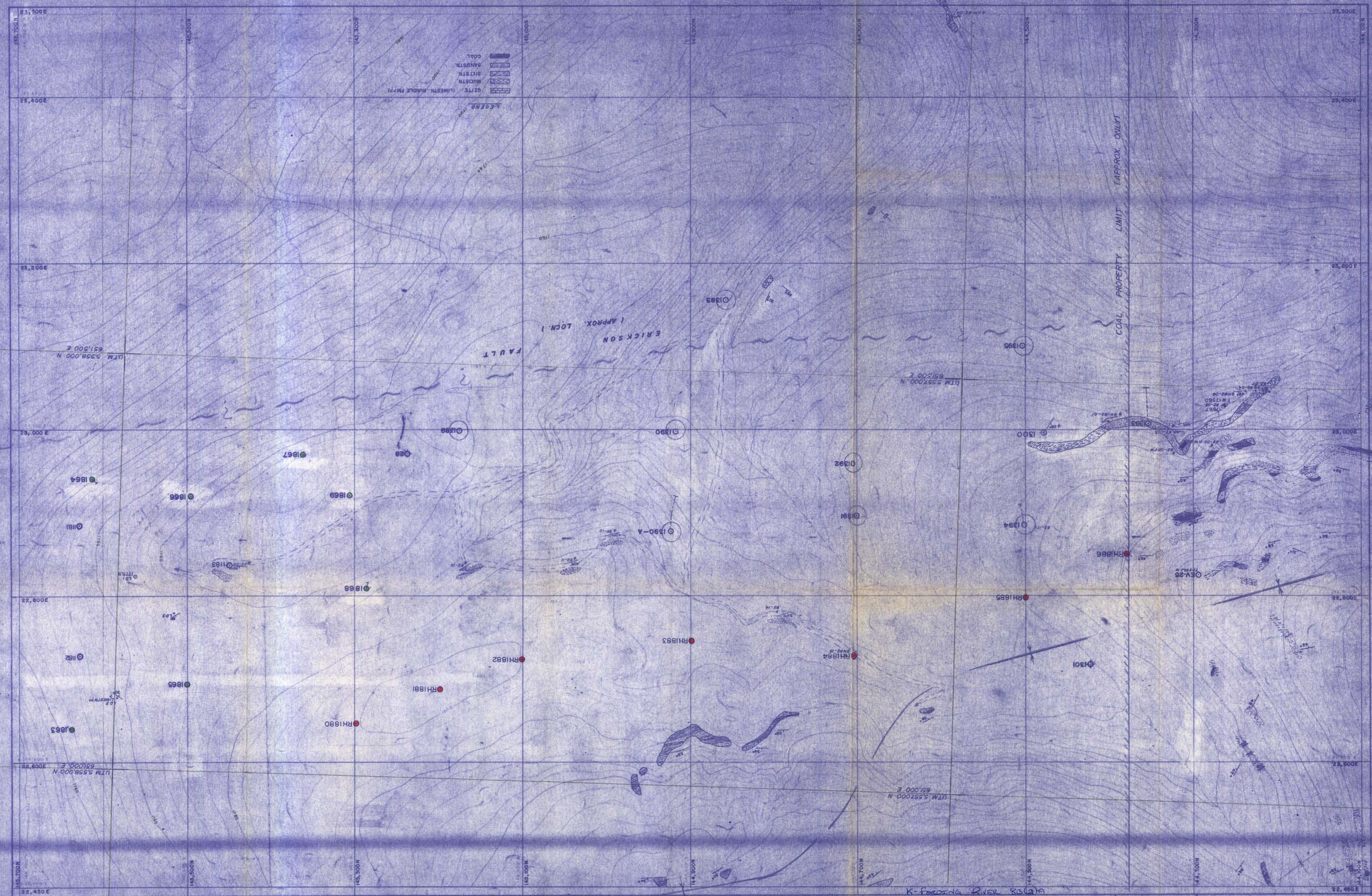
LEGEND

- DRILL HOLE
- ADIT
- TEST PITS
- ACCESS ROAD

328

ILLUS. 2
K - FORDING 83/84

L6728
CL363



Job No 06333-4 Date Plwn: August, 1977.
 McELHANEY SURVEYING & ENGINEERING LTD.

Metric Sheet Index	
1-25	1-25
1-25	1-25
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Function	
Activity	
Section	
Job	

Revisions	
No.	Made by Date Description

Drawn by	R.K.	JAN 80
Checked by		
Design Eng		
Proj. Eng		
Approved		

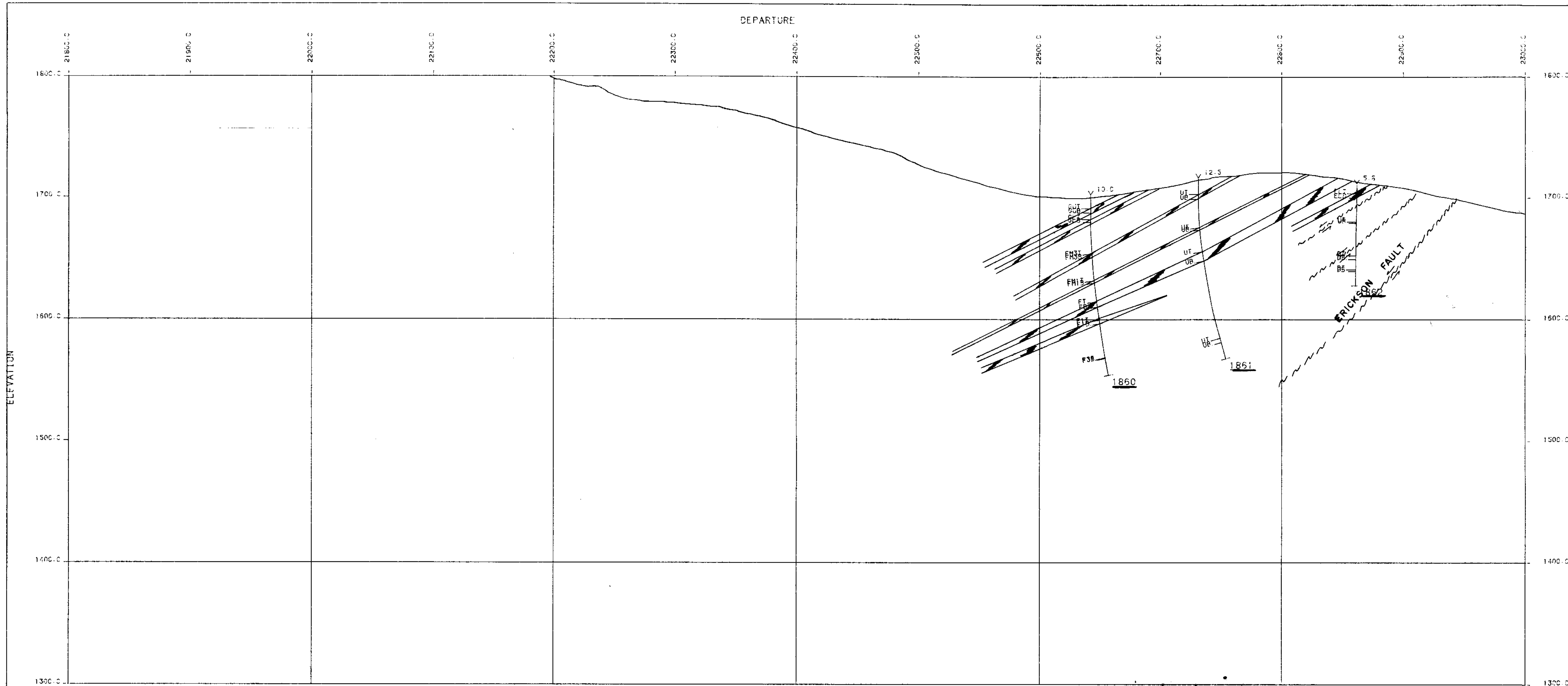
SOUTH GREENHILLS
 BOUNDARY AREA
 ILLUSTR - 3a

328




Metric Scale 1:2,000
 L25

Co-ordinates and Elevations on this Map are in Metric



plc

K-FOROTING RIVER 83(2)A

SECTION 145800 N 

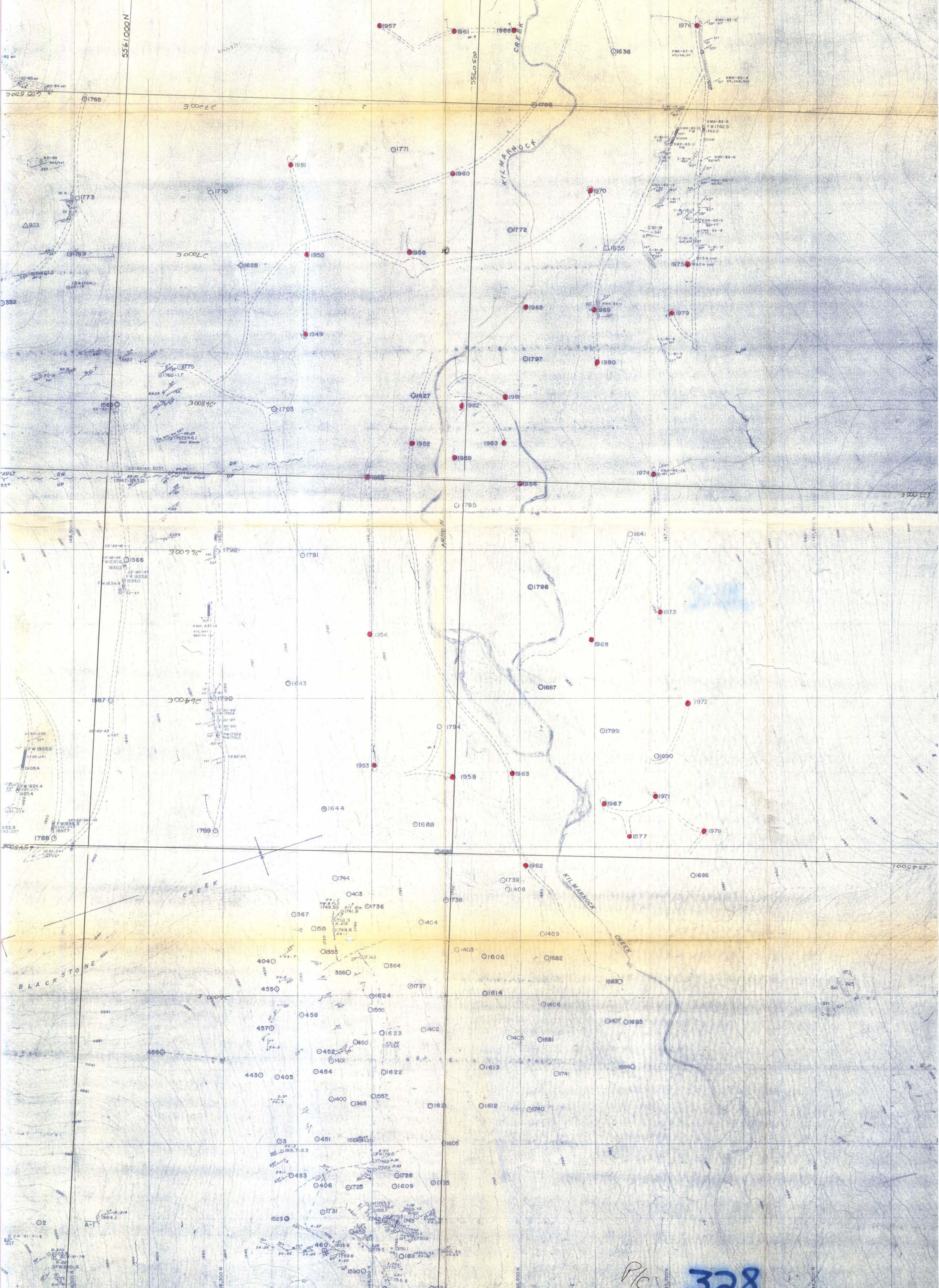
SOUTH GREENHILLS ILLUSTRATION 3B

328

SCALE: 1:2000 DATE: 09/05/84

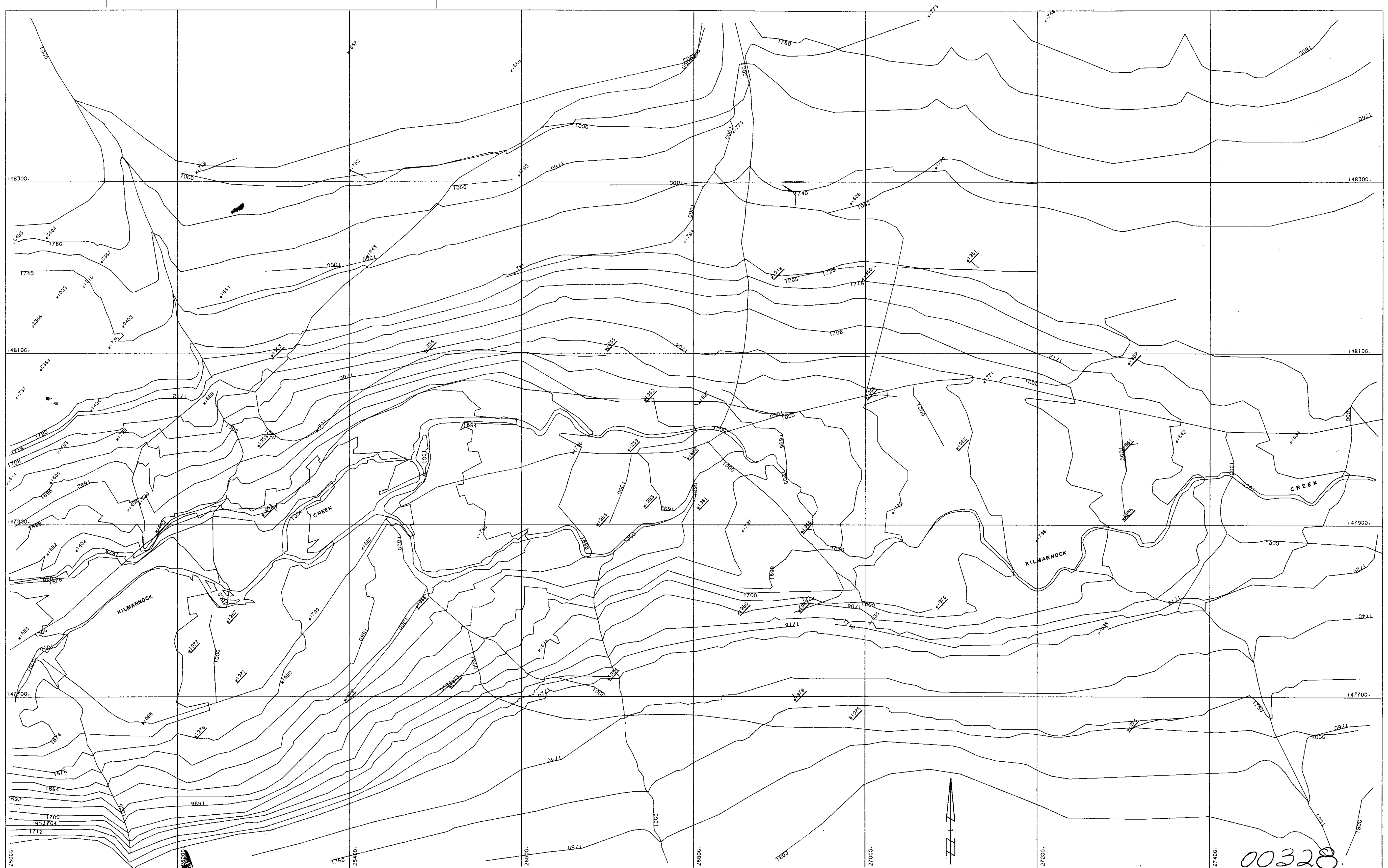
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APPROVED:	DATE:	APPROVED:	DATE:



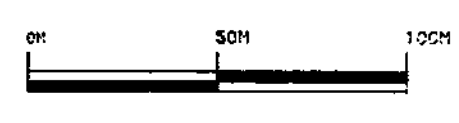
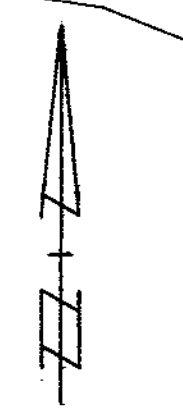


PK 328
K-FIELD 83/2A

Index	Function	Drawn by: DUB RK	AUG-SEPT 79	KILMARNOCK CREEK AREA	ILLUS 4A	
Activity		Checked by: Design Eng		EAGLE MT. S. FACE		
Section		Proj. Eng	Approved:	GEOLOGY - DRILL HOLES/SEAM OUTCROP		
Job		No. Made by Date	Description			Metric Scale 1:2,000



00328



KILMARNOCK AREA PROGRAM
1983

MAP INDEX NUMBER SCALE DRAWING NUMBER
1 : 2000

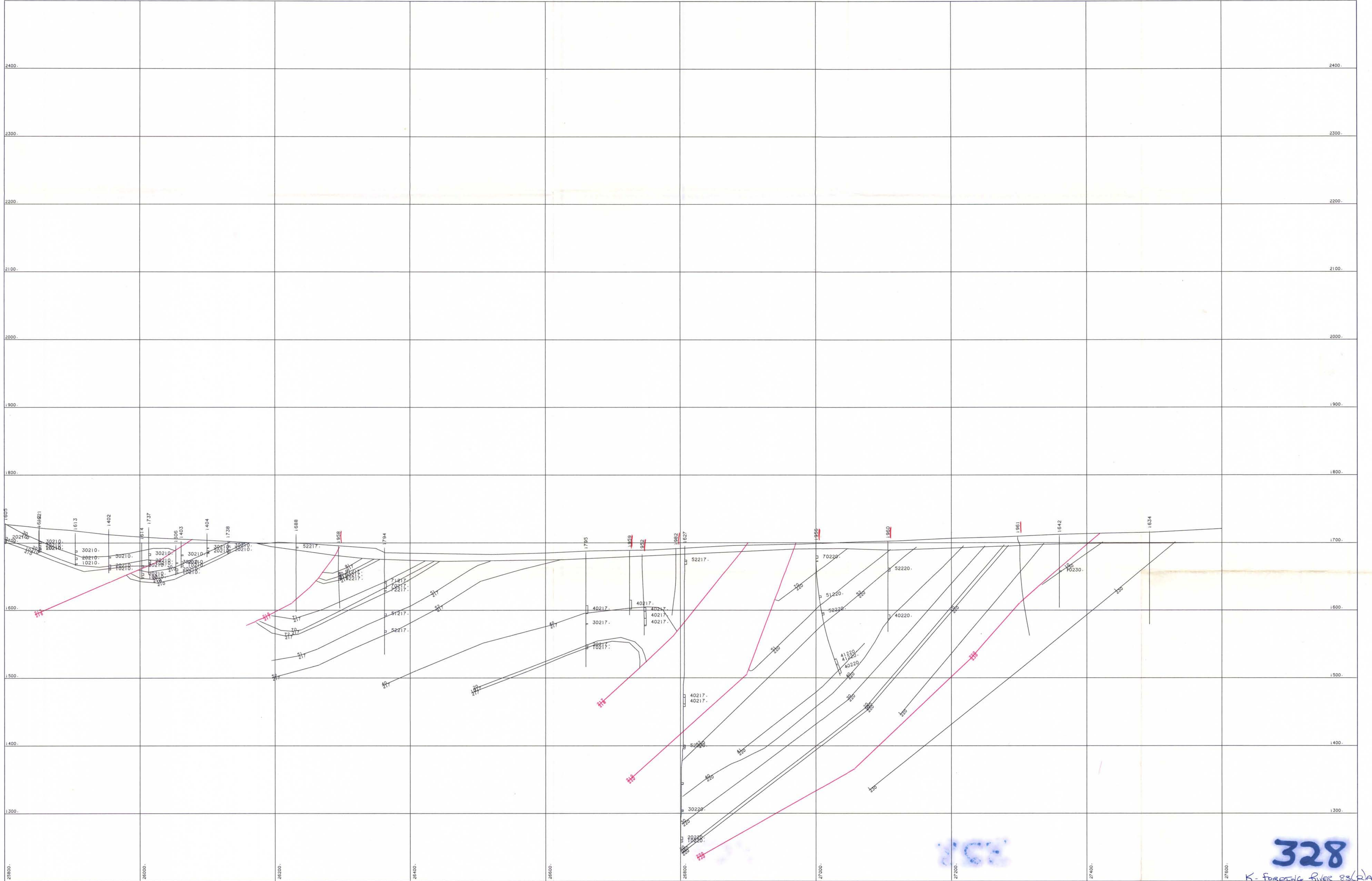
FORDING RIVER OPERATIONS

NO.	MADE BY	DATE	DESCRIPTION	NO.	MADE BY	DATE	DESCRIPTION	DRAWN BY / DATE

FORDING RIVER OPERATIONS

ILLUSTRATION 4A
1983

MAP INDEX NUMBER SCALE DRAWING NUMBER
1 : 2000

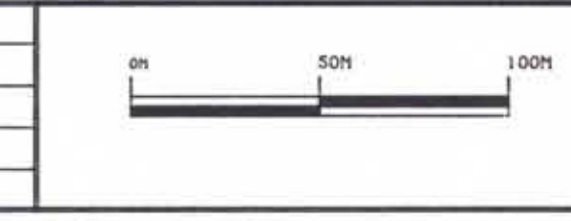


GEOLOGICAL SECTION 148000 N
EAGLE MTN.

FORDING RIVER
OPERATIONS

NO.	DATE	DESCRIPTION

NO.	DATE	DESCRIPTION



FORDING RIVER
OPERATIONS

ILLUSTRATION 4B 148000 N
EAGLE MTN.

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K-Fording River 83/2A

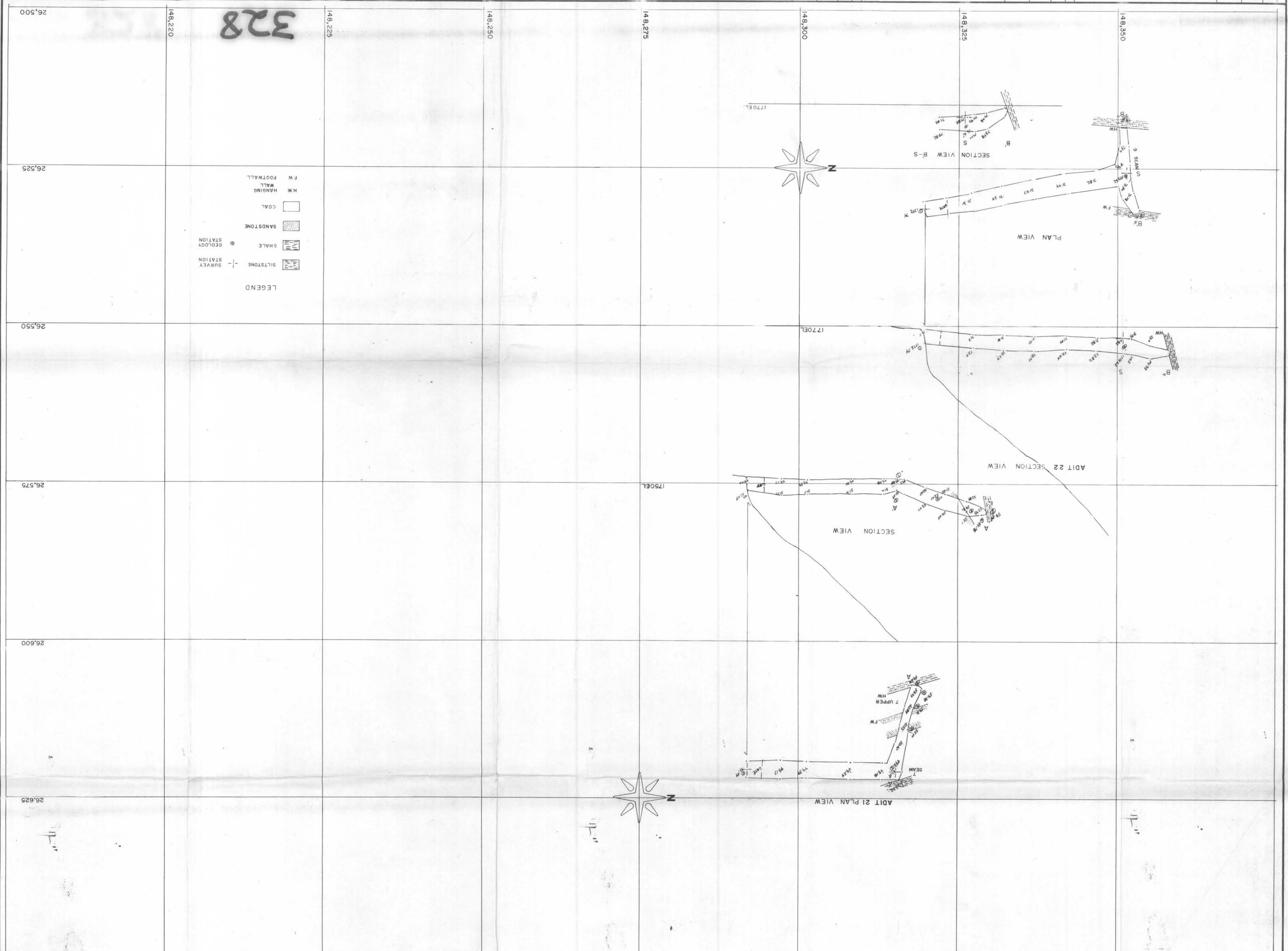
REVISIONS				REVISIONS				REVISIONS			
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Fording River Operations ENGINEERING



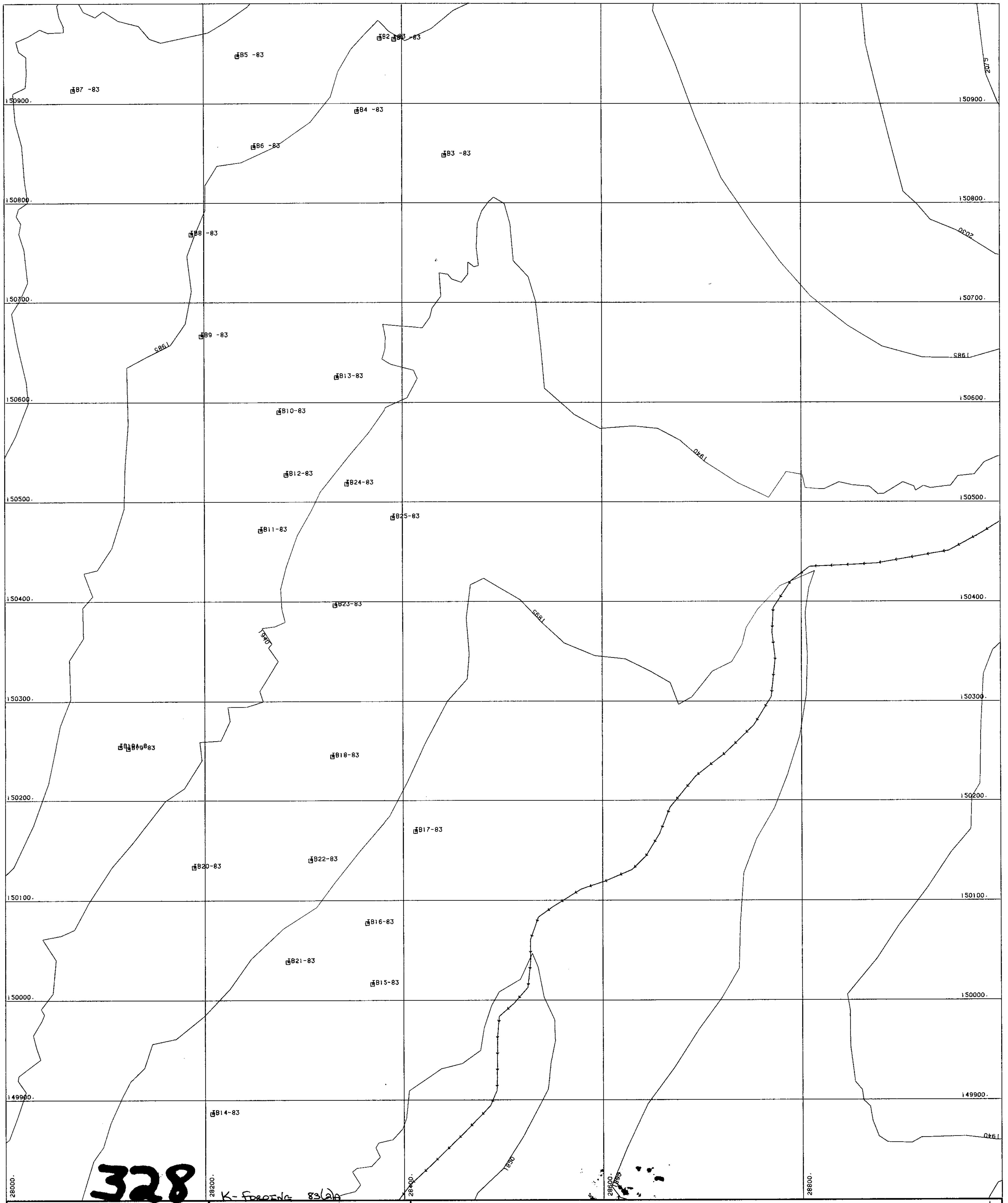
ADITS 21 & 22 K. FORDING 83 (2) 1983 EXPLORATION PROGRAM I/83 4c

METRIC SCALE 1:250



- LEGEND
- SURVEY STATION
 - ⊕ GEOLOGY STATION
 - ▨ SILTSTONE
 - ▨ SANDSTONE
 - COAL
 - ▨ H.W. WALL
 - ▨ F.W. FOOTWALL

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BROWNIE TEST PITS
 ILLUSTRATION 5

FORDING RIVER
 OPERATIONS



MAP INDEX NUMBER SCALE DRAWING NUMBER
 1 : 2000

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K-FORDING 83(2A)

28200

28200

28800

28000

149900

150000

150100

150200

150300

150400

150500

150600

150700

150800

150900

149900

150000

150100

150200

150300

150400

150500

150600

150700

150800

150900