

MAPS AND TRAVERSE NOTES

B.P. EXPL. CANADA LTD.

1980-1981

(Bickford et al.)

OPEN FILE CX-Comox 80(2)A

GEOLOGICAL BRANCH ASSESSMENT RPT 0055

APPENDIX A

TRAVERSE NOTES: The following notes were taken in the course of the 1980 Vancouver Island exploration programme. A brief discussion of traverse station numbering is warranted, as the system used in this programme has not been applied in previous programmes.

Typical Station Number

R 8042 X 17 J

Project area	Note series
Map section	Sequence no.

Explanation Of Coding

PROJECT AREA: This is intended to identify specific properties or areas within the area embraced by an exploration programme. Project area codes used during the 1980 programme were:

- A: Alberni property
- C: Cowichan study area
- D: Dash Creek property
- M: Moriarty Lake property
- P: Parksville property

Other project area codes could be devised as required.

**OPEN FILE** GEOLOGICAL BRANCH  
ASSESSMENT REPORT

**00 055**

(2) a

The numbers (8046, 8246 ....) are derived from the UTM easting and northing of the northeast corner of the map section. The 2 X 2 km size of a map section was chosen for convenience in the field; at 1:10,000 scale a 2 X 2 km section may be readily carried in a clipboard. A "Z" following the map section number refers to an area outside the area of 1:10,000 map coverage.

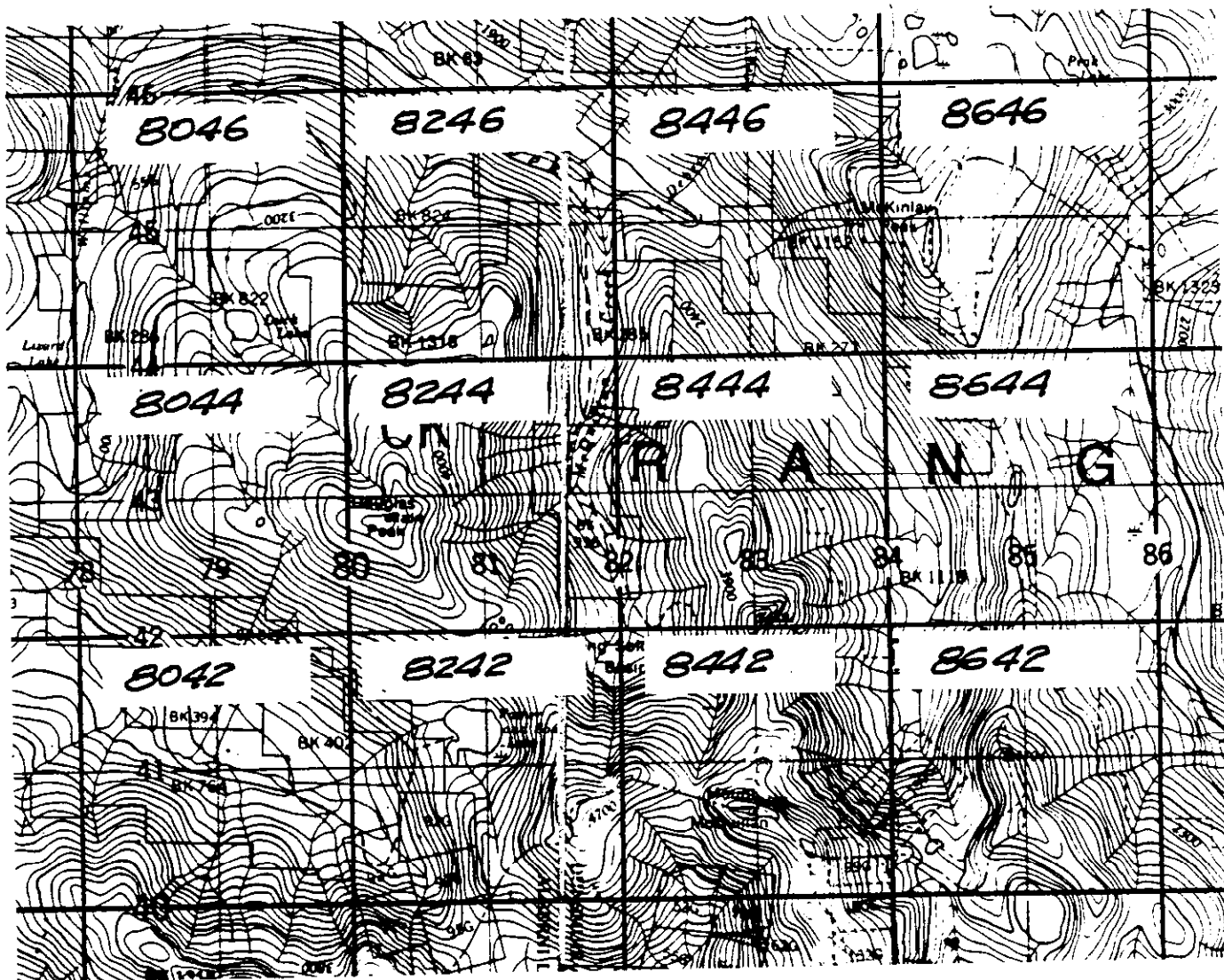
SEQUENCE NO.: This simply refers to the order in which points within each map section are occupied. Each section may contain points such as X1, X2.....X?, numbered as required. Point numbers are seldom very high using this system, and the starting-anew of the sequence for each map section helps prevent mis-numbering of points.

NOTE SERIES: Where more than one party is mapping in an area, this letter-code allows distinction of each party's work and permits independent numbering of points. Series codes used during the 1980 programme are:

(Blank)	C. Bickford and C. Langill
(D)	D. Standring
(DD)	D. Bömbeck
(R)	R. Melin

The 1:10,000 scale traverse station maps enclosed with this report were prepared from the original field cards, which are on file in Coal Division. Only the sequence number and note series parts of the station numbers are shown on the plan; reference to the UTM grid on the plan will allow the location of any station reported in the traverse notes.

MAP SECTION: This refers to a 2 X 2 km section of the area under study. The topographic map segment below shows the use of the UTM grid for the division of an area (here at 1:50,000 scale):



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VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

TRAVERSE NOTES

PROPERTY Alberni

GEOLOGIST C. Bickford

DATE May 20

SHEET 1

STATION	UNIT	DESCRIPTION	
A7452x1		Here junction of Bamfield Road and Cameron main line. No outcrop.	
A7450x1	J1	Here at bridge, outcrop of granodiorite, more mafic-rich than at Cowichan.	
A7452x2		SLP, here, no outcrop. Fire gate.	
x3		SLP, banks show till. Here junction with Bainbridge line, and fire gate.	
		No outcrop.	
x4		Here creek with gravel bed. No outcrop.	
x5		Here road to north and south. To north has locked fire gate. No outcrop.	
x6		Here in creek, rusty brown (probably oxidised) coarse-grained sand, looks	
		like Pleistocene although it is compacted and may be slightly cemented,	
		as it resists stream erosion to some extent.	

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 20SHEET 2

STATION	UNIT	DESCRIPTION	
A7452x7	KCxB	Here at west abutment of earth dam on Bainbridge Lake. Outcrop of CONGLOMERATE-illsorted, granules to large subangular to sub-rounded cobbles of volcanics, with some quartz. Matrix is very coarse sand to grit. Rock is dark green-typical Benson lithology. Dip slope (?) attitude here is 065/13 NW (poor).	
A7652x1	JI	From here to fire gate, hornblende granodiorite.	
x2	JI	Here in quarry, strongly jointed and weathered granodiorite.	
x3	KCxB & JI	Here in quarry face, the following section is exposed:  TOP OF SECTION  CONGLOMERATE-unsorted, framework is angular pebbles to boulders of volcanics, in a strongly calcareous dark green matrix of mud to coarse sand and granules. Very thick bedding (or joints) dipping 10 to 15° to NW. Pronounced shearing. Unit is brown-weathering. Erosional at base (1 m relief).	6 m+



VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

TRAVERSE NOTES

PROPERTY Alberni

GEOLOGIST C. Bickford

DATE May 20

SHEET 3

STATION	UNIT	DESCRIPTION	
		GRANODIORITE-deeply weathered, rusty; when fresh is greenish. At least top 2 m is weathered.	
A7652x4		Section exposed in bank above road:	
		TOP OF SECTION:	
	KCx,JI	SANDSTONE-coarse to very coarse-grained, massive, blocky, with scattered angular to sub-rounded granules of Karmutsen (?) volcanics, non-calcareous, erosional at base.	1 m+
		GRANODIORITE-deeply weathered (to at least 5 m). Top 1 m is weathered to a bright rusty-orange grus.	
		As the sandstone forms only a thin capping here, over the granodiorite, it probably is of limited uphill extent. This appears to be more the typical, Comox sandstone, suggesting that at least here the Benson is of limited lateral extent.	

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MORIARTY LAKE PROPERTY

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## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Moriarty LakeGEOLOGIST C. BickfordDATE June 7SHEET 1

STATION	UNIT	DESCRIPTION
M0050x1		Here at creek crossing, 5 m+ till.
M0250x1	TI	?DIORITE PROPHYRY-biotite-hornblende.
x2	TI	HORNBLLENDE DACITE-fine-grained but visibly crystalline, equigranular, tough, blocky, medium grey, brown-weathering. Abundant pyrite. Very siliceous-could be taken for a quartzite. At base of exposure along ditch is a finer-grained, dark violet, dark olive-weathering rock.
x3	TI	DACITE-finer-grained, slate grey to greenish grey, rusty-weathering, minor hornblende and pyrite.
x4	KH	SILTSTONE-dark grey to black, rubbly to blocky, tough, possibly recrystallised (cf. argillites of Mount Patlicant) Pyritic. At least 1m exposed along ditch. Notably softer at top. Attitude: 167/3 SW.
x5		Here junction. Road to SE is blocked by a low berm. SLP, ATP no outcrop.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriortyGEOLOGIST C. BickfordDATE June 7SHEET 2

STATION	UNIT	DESCRIPTION
M0250x6	KH	Here at junction of N40 line. SLP no outcrop. Here SILTSTONE- dark grey, sandy, rubbly to blocky, thin to medium-bedded, non-calcareous. Attitude 162/13 NE. At least 1.5 m thick.
M0048x1	KH	Here on logging road (not shown on original base map), 1 km inbye M9250x6. SLP no outcrop. There SILTSTONE-dark grey to black, rubbly to platy, laminated. Attitude: 054/4½ NW.
x2	KH	SANDSTONE-very fine-grained, silty, dark grey, non-calcareous, burrowed, rubbly, thin-bedded to massive, soft. Attitude: 155/20? NE. Outcrop extends 100 m outbye.
x3	TI	FELDSPAR DACITE PORPHYRY-light grey, massive, blocky-weathering, overlies
	KH	MUDSTONE-dark grey to black, slightly baked, with scattered nodules. The contact is irregular in detail, but is roughly parallel to the poorly developed bedding in the mudstones.
x4	KH?	Here till rich in chips and blocks of mudstone. Perhaps subcrop.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 7SHEET 3

STATION	UNIT	DESCRIPTION
M0048x5	TI	FELDSPAR DACITE PORPHYRY-light grey, some very rusty-weathering phases.
x6		Here at junction with N50 line. SLP, here, no outcrop.
x7	TI	FELDSPAR DACITE PORPHYRY-strongly jointed, with pale greenish grey groundmass. Jointing here at 135/70 SW. This unit forms quarry walls.
	KH	Floor of quarry is: SILTSTONE-baked, argillaceous, dark grey to black, pyrite. The contact here is nearly flat-lying. The siltstones contain some <u>chalcopyrite</u> .
x8	KH	HORNFELSIC SILTSTONE-dark greenish grey, very tough, blocky, jointing or bedding at 001/23E. Rusty-weathering.
x9	TI	BIOTITE-FELDSPAR PORPHYRY-pale green, rusty orange-weathering.
M0046x1		SLP no outcrop. Here till with blocks of weathered mudstone.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 7SHEET 4

STATION	UNIT	DESCRIPTION
M0046x2	TI	HORNBLLENDE-FELDSPAR DACITE PORPHYRY
x3	TI	FELDSPAR DACITE PORPHYRY-well-exposed in quarry. Forms bluff - appears to extend up to ridge line.
x4	TI	BIOTITE-HORNBLLENDE-FELDSPAR DACITE PORPHYRY-pale grey to grey-green.
x5	TI	PORPHYRY-as before. Large rounded outcrop.
x6	TI	FELDSPAR PORPHYRY-light green groundmass.
x7	TI	FELDSPAR PORPHYRY-as before. Here at end of road.
x8	TI	PORPHYRY-as before.
x9	TI	QUARTZ-FELDSPAR PORPHYRITIC DACITE-pale greenish groundmass.
x10	TI	HORNBLLENDE-FELDSPAR PORPHYRY-pale turquoise groundmass.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 7SHEET 5

STATION	UNIT	DESCRIPTION
x11	TI	HORNBLLENDE-FELDSPAR PORPHYRY-medium green, ?chloritic groundmass.
M0046x12	TI	Here in quarry, 4 m+ face of HORNBLLENDE QUARTZ DIORITE-dark green, coarse-grained, ?chloritic, blocky, with greenstone inclusions.
x13	TI	HORNBLLENDE GRANODIORITE-coarse-grained, greenish grey, with a 3 cm wide, near vertical aplite dyke.
x14	TI	HORNBLLENDE QUARTZ DIORITE-coarse-grained, greenish grey.
M0250x7	TI	HORNBLLENDE DIORITE-golden-weathering. In ditch.
x8	KH	SILTSTONE-argillaceous, dark grey to black, hard, strongly jointed, rusty-weathering, spheroidal-weathering, rubbly.
x9	TI	HORNBLLENDE FELDSPAR PORPHYRY
x10	TI	FELDSPAR PORPHYRY-golden brown-weathering.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 7SHEET 6

STATION	UNIT	DESCRIPTION
M0248x1	KH	ARGILLITE-dark grey, spheroidal, rubbly, rusty-weathering.
x2	TI	FELDSPAR PORPHYRY-olive green groundmass, golden-weathering.
x3	KH	MUDSTONE-dark grey, silty, rubbly, spheroidal-weathering, scattered shell fragments. Non-calcareous. Attitude: 005/13 E.
x4	TI	FELDSPAR PORPHYRY-golden-weathering, in road.
M0048x10	TI	PORPHYRY-as before.
x11	TI	HORNBLLENDE-FELDSPAR PORPHYRY-olive drab groundmass.
x12	TI	HORNBLLENDE-FELDSPAR PORPHYRY-as before.
x13	KH	ARGILLITE-dark grey, silty, blocky, tough, with occasional interbeds of medium grey rubbly siltstone or very fine-grained sandstone. A few small dark burrows. Stratigraphically below porphyry of x12. Est. 3 to 35 m thick.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 7SHEET 7

STATION	UNIT	DESCRIPTION	
		Attitude: 098/32N	
M0048x14	TI	HORNBLLENDE-FELDSPAR PORPHYRY-bone-white, underlying beds of x13.	
x15	KH	HORNFELSIC SILTSTONE-dark bluish to greenish grey, some chloritic-appearing phases. Blocky, tough, possible bedding at 133/4 NE.	
M0046x15		Here along road the following section is exposed:	
		TOP	
	KH	ARGILLITE-dark grey	
	TI	FELDSPAR PORPHYRY-golden-weathering-may be same as the porphyry exposed at M0048x14.	1m?
	KH	ARGILLITE-dark grey, very tough, blocky and splintery, attitude: 139/11 NE.	3m+
x16		ARGILLITE, dark grey/HORNFELSIC SILTSTONE, dark greenish-grey-thick bedded, blocky, rusty-weathering. 4m+ exposed in quarry. Attitude: 135/12 NE.	

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 7SHEET 8

STATION	UNIT	DESCRIPTION
M0046x17	TI	HORNBLLENDE PORPHYRY-pale green, underlies beds seen in quarry.
x18	TI	PORPHYRY-SLP and here.
x19	TI	PORPHYRY
to		
x26		PORPHYRY
x27	TI	FELDSPAR PORPHYRY-light greenish-grey groundmass.
x28	TI	QUARTZ DIORITE-coarse-grained, chloritic, medium green, cf. M0046x12.
x29	TI	HORNBLLENDE-FELDSPAR PORPHYRY-green, chloritic groundmass.
x30	TI	Here at junction, exposure of FELDSPAR PORPHYRY-coarse, green, chloritic groundmass.





## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 8SHEET 10

STATION	UNIT	DESCRIPTION	
M0248x5	KH	MUDSTONE (subcrop)-dark grey, silty, rubbly, orange-weathering.	
x6	TI	FELDSPAR PORPHYRITIC DACITE-golden brown-weathering.	
x7		Section exposed in northeast wall of pit:	
x8		TOP OF SECTION	
	TI	FELDSPAR PORPHYRITIC DACITE-golden brown-weathering, nearly equigranular, with a few small feldspar phenocrysts. Basal few cm of this unit is aphanitic, with feldspar phenocrysts, and immediate base is marked by a few mm to a cm of golden-weathering clay. Perhaps some movement here. The sill is generally concordant with the underlying beds although at one point it steps down 40 cm, and it varies by a few degrees from the bedding of the argillite below.	1.7 m+
		This sill extends without interruption for 50 m along the face, when to the west, it is abruptly "cut off". The main body of the sill is seemingly truncated by a narrow (few cm) sub-vertical shear zone, but at its base a small tongue (10 cm high, 30 cm long) of sill rock continues, without	

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 8SHEET 11

STATION	UNIT	DESCRIPTION	
		any apparent break, into the argillite. Thus, the truncation of the sill	
		here must reflect an original lateral limit of intrusion, rather than	
		faulting.	
	KH	ARGILLITE-dark grey or greenish-grey, very tough and hard, in uppermost	3.5 m+
		5 cm. Everywhere rusty-weathering. Some siltstone phases. Attitude:	
		157/13 SE. Common low-angle slips.	
		BASE OF SECTION (PIT FLOOR)	
M0248x8	KH	Section exposed along ditch:	
		TOP:	
		SILTSTONE-dark brown, rusty-weathering, rubbly, poorly exposed, with sandy	0.5 m+
		laminae towards base. Churned (bioturbated) appearance. Gradational.	
		SANDSTONE-fine to medium-grained, buff; buff to rusty-brown-weathering.	
		Well-sorted, thick-bedded, blocky; spheroidal-weathering at base. Basal	
		30 cm unlaminated, then next 10 cm planar laminated, then 10 cm low-angle	
		cross-laminated. Abrupt. Attitude: 090/7N.	

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 8SHEET 12

STATION	UNIT	DESCRIPTION	
		MUDSTONE-silty, dark grey to dark greenish-brown; rusty-weathering.	2 m+
		Strongly spheroidal-weathering.	
M0248x9	KH	SLP mudstones continue down-section along ditch. Here MUDSTONE-dark brownish-grey, silty, with disseminated (5%) fine sand. Abundant small dark burrows. Intensely bioturbated (cf. Sukunka beds). Spheroidal-weathering, rubbly. Non-calcareous. Attitude: 103/6N.	
x10	KH	MUDSTONE-spheroidal-weathering, brown, rubbly, dip still to N. 2 m+ thick.	
x11		Here is proposed drill site D, outbye washout. SLP till; no outcrop.	
x12		Here at junction with overgrown road. SLP, here no outcrop.	
x13		SLP, here no outcrop. Junction with F73A line.	
x14	KH	SLP no outcrop. Here SANDSTONE-chocolate brown, fine-grained, argillaceous, scattered large plant fragments, rare golf-ball sized concretions. Thick-	

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 8SHEET 13

STATION	UNIT	DESCRIPTION
		bedded, attitude: 062/11 NW.
		grades up to
		SILTSTONE-brown as before, thin-bedded, platy to rubbly, few scattered shell fragments and concretions. Total thickness (both units) about 1 m.
M0248x15	KH	SILTSTONE-dark grey, rubbly, devoid of lamination. Attitude: 115/14 NE. (fair). Outcrop continues up road.
x16	TI	FELDSPAR PORPHYRITIC DACITE-some hornblende. Brown.
x17	TI	QUARTZ-FELDSPAR PORPHYRY-green,? chloritic groundmass.
x18	TI	SLP continuous outcrop of porphyry. Here end of outcrop, and barely-passable tank trap in road.
x19	TI	HORNBLLENDE DACITE-pale green.
x20	KH	Here in bank is exposed SILTSTONE-blocky to rubbly, dark grey to black,

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 8SHEET 14

STATION	UNIT	DESCRIPTION
		rusty-weathering, pyritic, tough, baked. Attitude: 005/12 E. At base, approaches a hornfels. In road is exposed DACITE- yellow weathering.
M0248x21	KH	SILTSTONE-dark green, rusty-weathering.
x22	KH	SILTSTONE-sandy, dark green, massive to rubbly (at top). Flat-lying.
M0246x1	KH	SILTSTONE-dark green to black, rusty-weathering, pyritic, pyritised shell fragments. Some very fine sandy phases. Attitude: 012/6E.
x2	KH	Here at washout in F73AX line. Uphill along road is exposed approximately 5 m of SILTSTONE -dark green, some sandy phases, thinbedded, rubbly. Some small dark burrows. Interbeds of SANDSTONE-very fine to fine-grained silty, rubbly, medium greenish grey. One 40 cm bed near top, of SANDSTONE-medium-grained, clean, massive, quartz lithic, with abundant large dark-rimmed subhorizontal "Gates-type" burrows. Attitude: 132/5NE.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 8SHEET 15

STATION	UNIT	DESCRIPTION
M0246x3	KH	Here road partially washed out. Outcrop of SANDSTONE-very fine-grained, very silty, dark grey, devoid of lamination, burrowed.
x4	KH	Here a good exposure of SILTSTONE/SANDSTONE-very fine-grained - inter-laminated, intensely bioturbated, resulting in a general mixture of the sediments. Abundant burrows, some pyritised (spectacularly). Dark green, non-calcareous, thick-bedded and blocky, to thin-bedded and rubbly. Attitude: 082/10 N.
x5	TI	DACITE-fine-grained, light golden-weathering, pale green. Probably underlies rocks of x4. The light-weathering bluffs on the west side of the valley may also be correlative to x5.
x6	TI	FELDSPAR PORPHYRITIC DACITE-pale green groundmass.
x7	TI	QUARTZ-HORNBLende-FELDSPAR PORPHYRY-pale green groundmass.
M0246x8	TI	SLP and here, exposures of porphyry as at x7.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 8SHEET 16

STATION	UNIT	DESCRIPTION
M0246x9	TI	HORNBLLENDE QUARTZ-DIORITE-pale green.
x10	TI	HORNBLLENDE QUARTZ-DIORITE-pale green.
M0046x36	TI	HORNBLLENDE QUARTZ-DIORITE-pale green, slightly porphyritic (feldspar, minor quartz).
x37	TI	HORNBLLENDE QUARTZ-DIORTIE-as before.
x38	TI	QUARTZ-HORNBLLENDE-FELDSPAR PORPHYRY-pale green groundmass.
x39	TI	HORNBLLENDE QUARTZ-DIORITE-pale green.
x40		Here at end of road, and SLP, no outcrop.
M0248x23		Since x13, and here, no outcrop. Overgrown road goes to west from here.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 8SHEET 17

STATION	UNIT	DESCRIPTION
M0250x11	KH	Here in bank, MUDSTONE-dark grey, brown-weathering, rubbly, thin-bedded, spheroidal-weathering. Attitude: 130/5 NE.
x12	KH	Here a long exposure in bank, of MUDSTONE-dark brownish-grey, rusty brown-weathering, rubbly, slightly spheroidal-weathering, thin-bedded. Attitude: 034/16? NW.
x13	KH	Here end continuous outcrop of mudstone.
M0450x1	KH	Small exposure of MUDSTONE-as before. Attitude: 100/19 N. For 100 m further outbye, outcrops in ditch.
x2		Here at junction of F73 and F70 lines. SLP and here no outcrop.
M0448x1	KH	Here in ditch is MUDSTONE-dark grey to black, rubbly attitude: 101/3 NE.
x2		Here at junction of F70 and F74 lines, no outcrop F70 is ditched and blocked.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 8SHEET 18

STATION	UNIT	DESCRIPTION
M0448x3	KH	MUDSTONE-dark grey to black, rubbly.
x4	KH	MUDSTONE-dark brownish-grey, rusty orange-weathering rubbly.
M0450x3	KH	MUDSTONE-exposures continue to here.
x4	KH	MUDSTONE-dark grey, rubbly, some spheroidal-weathering. Attitude: 030/5 SE.
x5	TI	QUARTZ-FELDSPAR PORPHYRY-green groundmass.
M0250x14	TI	HORNBLLENDE-QUARTZ-FELDSPAR PORPHYRY-light greenish-brown groundmass.
M0248x24		Here at 4-way junction, no outcrop.
x25	KH	MUDSTONE-dark grey, rubbly. Attitude: 063/15 NW.
x26	KH	SLP to here, nearly continuous outcrops of mudstone along road. Here is till.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 8SHEET 19

STATION	UNIT	DESCRIPTION
M0248x27		Here at junction of F74 and F74D lines, no outcrop. Till here is at least 1.5 m thick.
x28	TI	FELDSPAR PORPHYRY-golden-weathering.
x29	TI	FELDSPAR PORPHYRY-brown, hornblende-rich groundmass.
x30	KH/TI	Here in quarry, a 15 m face of ARGILLITE/DACITE (80:20)-sheared and crumpled dark grey argillites, mostly rusty-weathering although a few patches weather to a peculiar light grey, with ? sills and pods of white soft, rotten, rusty dacite.
M0248x31	TI	In middle of quarry FELDSPAR PORPHYRY-golden-weathering.
x32	TI/KH	At south end of quarry, porphyry overlying and underlying argillite.
x33	KH	Here in bank is ARGILLITE.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 10SHEET 21

STATION	UNIT	DESCRIPTION
M0248x37	KH	SILTSTONE/SANDSTONE-very fine-grained intensely bioturbated, thick-bedded, strongly spheroidal-weathering, dark greenish-brown. Attitude (poor) 130/10 NE?
M0246x13	TI	Here in bank, abundant blocks of HORNBLLENDE-FELDSPAR PORPHYRITIC DACITE-green. Above road, talus apron and bluffs probably dacite as seen in bank. KH/TI contact may be at base of bluffs.
M0248x38	KH	ARGILLITE-dark grey, tough, rubbly, light grey-weathering. Attitude: 067/17 SW?
x39	KH	MUDSTONE-dark grey to black, silty, rubbly. Olive-weathering.
x40	KH	MUDSTONE-slightly silty, dark greenish grey, green and brown-weathering, blockily jointed, rubbly, a few concretions, flat-lying.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 10SHEET 22

STATION	UNIT	DESCRIPTION
M0246x14	TI/KH	Here in bank is exposed contact of: FELDSPAR-HORNBLLENDE PORPHYRY-light green groundmass, overlying ARGILLITE-tough, dark grey, rusty-weathering.
		Contact is undulatory, with tongues of porphyry projecting 2 cm down into the argillite. Contact: 006/32 E.
M0246x15	TI	FELDSPAR-PORPHYRITIC HORNBLLENDE QUARTZ-DIORITE-green.
x16	TI	QUARTZ DIORITE-as before, green.
x17	TI	QUARTZ DIORITE or DACITE-as before, green, but fine-grained.
x18		Here at end of road and SLP no outcrop.
x19	TI	FELDSPAR PORPHYRITIC DACITE-green.
M0248x39A	TI	ARGILLITE-dark grey, tough, splintery, blocky, strongly jointed. Rusty or pale olive-weathering.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 10SHEET 23

STATION	UNIT	DESCRIPTION
M0248x40A	KH	ARGILLITE-as before.
x41	KH	ARGILLITE-as before, but more blocky. Bedding (?) 018/20 N.
x42	TI	HORNBLLENDE-FELDSPAR PORPHYRITIC DACITE-light olive-brown groundmass. Appears to overlie beds of x41, but contact not exposed.
x43	TI	FELDSPAR-PORPHYRITIC HORNBLLENDE QUARTZ-DIOTIRE-fine-grained, green.
x44	TI	QUARTZ DIORITE-as before.
x45	TI	QUARTZ DIORITE-as before, but more hornblende, and darker green.
x46		SLP no outcrop. Now across to other spur.
x47	TI	HORNBLLENDE-FELDSPAR PORPHYRITIC DACITE-golden-green-weathering.
M0248x48	TI	FELDSPAR-PORPHYRITIC HORNBLLENDE QUARTZ-DIORITE-green.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 11SHEET 24

STATION	UNIT	DESCRIPTION
M0248x49		Here at junction, no outcrop.
M0448x5	KH	SLP no outcrop. Here ARGILLITE-dark grey, tough, blocky, rusty-weathering Attitude: 038/15 W.
x6	TI	SLP no outcrop. Here FELDSPAR PORPHYRITIC DACITE-green groundmass.
M0446x1	KH	MUDSTONE-dark grey, blocky, jointed; rubbly, slightly baked, rusty- weathering, spheroidal-weathering, <u>one shell fragment noted</u> . Attitude: 068/9 NW.  Large outcrop on cliff face above here, possibly of TI.
x2		SLP and here at junction no outcrop.
x3	KH	ARGILLITE-dark grey, tough, blocky. Attitude: 151/8 W.
x4	TI	Here small exposure of FELDSPAR-PORPHYRITIC HORNBLENDE QUARTZ-DIORITE- green, light-weathering.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 11SHEET 25

STATION	UNIT	DESCRIPTION
M0446x5	TI	HORNBLLENDE-FELDSPAR PORPHYRITIC DACITE-dark green-grey. Tan-weathering.
M0246x20	TI	FELDSPAR-PORPHYRITIC HORNBLLENDE QUARTZ-DIORITE-fine-grained, green.
x21	TI	HORNBLLENDE-FELDSPAR PORPHYRITIC DACITE-grey.
x22	TI	DACITE-as before.
x23	TI/KH	Here on corner is exposed dacite as before, overlying argillite. Contact at 145/87 SW, seemingly concordant. 20 m outbye: argillite lies at 125/81 S 25 m outbye: argillite lies at 116/54S.
M0048x16	KH?	Possible subcrop of ARGILLITE-dark grey, rubbly to platy.
M0448x7	TI	HORNBLLENDE-FELDSPAR PORPHYRITIC DACITE-dark green. SLP, no outcrop. Road nearly washed out.
x8	KH	ARGILLITE-tough, dark grey.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 11SHEET 26

STATION	UNIT	DESCRIPTION
M0448x9		Here at junction and SLP no outcrop.
x10	TI	FELDSPAR PORPHYRITIC DACITE.
M0248x50	TI	PORPHYRY
x51	TI	Here at end of road, HORNBLLENDE-FELDSPAR PORPHYRY-bone-white groundmass.
x52	TI	PORPHYRY-as at x28
x53	TI	Here HORNBLLENDE-FELDSPAR PORPHYRY-light olive groundmass. Below is possible KH subcrop.
x54	TI	Here at end of spur, on landing, small outcrop of HORNBLLENDE-FELDSPAR PORPHYRITIC DACITE.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 12SHEET 27

STATION	UNIT	DESCRIPTION
M0450x6		No outcrop. Junction of spur road and F70 line.
M0450x7	KH	SLP no outcrop. Here MUDSTONE-silty, dark brownish-grey, brown-weathering rubbly. Attitude: 111/19 NE.
M0448x11		Here and since M0248x24, no outcrop.
x12		Here and SLP still no outcrop.
x13		Here at end of road still no outcrop. Nothing in creek.
x14		Here at end of spur, still no outcrop.
M0248x55	KH	Here in bank is MUDSTONE-dark grey, rubbly, attitude: 036/3 W.
x56	KH	MUDSTONE-dark grey, rubbly, slightly baked. Beds here apparently crumpled.
x57	KH/TI	SLP argillite or mudstone subcrop. Here HORNBLENDE-FELDSPAR PORPHYRITIC

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 12SHEET 28

STATION	UNIT	DESCRIPTION
		overlies ARGILLITE-dark grey or green. Contact is stepped, and entire outcrop is blockily jointed, but chilled margins are locally evident in the dacite, hence this is likely a normal intrusive contact, approximately concordant to argillite's bedding (165/47 W). Only 2 to 3 m of dacite are exposed, followed by argillite subcrop. Probably only a thin body here.
M0248x58	KH	MUDSTONE-dark grey, blocky to rubbly. Attitude: 150/27 SW?
x59	KH	MUDSTONE-dark grey, strongly jointed, blocky. Attitude: 155/54 N?
M0250x15	KH	MUDSTONE-dark grey, blocky. Attitude: 025/32 E.
M0448x15		Since junction with F74 line, no outcrop. Here road has been replanted: no outcrop.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 14SHEET 29

STATION	UNIT	DESCRIPTION
M0048x16		Here at end of spur. No outcrop anywhere along spur since main line.
M0048x17	KH	SILTSTONE-sandy, dark green, rusty-weathering, rubbly, intensely bioturbated, thin to medium-bedded, abundant small burrows. Attitude 095/12 N. (Replaces x 23D).
M0048x18		Here at junction. SLP no outcrop, looks like till or colluvium.
M0046x41		SLP and here at end of line, no outcrop.
M0048x19		Here at junction, no outcrop.
x20		Along spur is stony sandy till. Here at end of spur, no outcrop.
x21	KH	MUDSTONE-dark grey, slightly silty, thin-bedded, platy to rubbly, some orange-weathering. Attitude: 110/15 N. (Replaces x5D).

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 14SHEET 30

STATION	UNIT	DESCRIPTION
M0048x22	KH	Here in bank is SILTSTONE-medium grey, soft, argillaceous, with rare muddy lenticles or ?burrows. Some coarse silt phases, dark green, bioturbated. One lens, 0 to 40 cm, of SANDSTONE-medium to coarse-grained quartz-lithic, clean, buff-weathering, non-calcareous, light grey. Probable channel-fill. Also a sandstone dyke, consisting of sandstone, fine to medium-grained, argillaceous, light greyish-brown, 25 to 30 cm wide, attitude: 098/88 N.
		General attitude of outcrop is difficult to assess, given its gently warped nature. Say, 000/10 N. (Replaces x9D).
M0048x23	KH	MUDSTONE-silty, black, rubbly, argillaceous. SLP nearly continuous outcrop or subcrop of rubbly beds similar to those of x22. (Replaces X10D, X11D).
x24	KH	MUDSTONE-dark grey, silty, rubbly, soft, some ferruginous-weathering bands and silty phases. In places appears bioturbated. One small (20 cm deep by 60 cm wide) channel filled with sandstone, clean, medium to coarse-grained Attitude: 120/3 N. (Replaces x12D).

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 14SHEET 31

STATION	UNIT	DESCRIPTION
M0048x25	KH	SILTSTONE-argillaceous, sandy, dark grey to grey-green, bioturbated, tan-weathering, rubbly. Attitude: 150/12 NE. (Replaces x13D).
M0048x26	KH	SILTSTONE-dark grey to greenish-grey, argillaceous, rubbly, passing upto SANDSTONE-illsorted, fine-grained, silty with scattered coarse sand grains. Buff-weathering, blocky, not well-exposed. Attitude 147/10 NE. (Replaces x14D).
M9848x1		SANDSTONE-medium to coarse-grained, brown, light brown-weathering, scattered sharp grit and rare more rounded small pebbles. Massive, with large-scale low-angle cross-lamination. Tops up. Moderately sorted, soft weathering, appears to be composed of quartz and feldspar with minor chert. Approximately 1 m thick. Attitude: 190/5 E? Underlain by:
		MUDSTONE-dark grey, silty, rubbly, hackly fractured, possibly bioturbated. Attitude: 061/9 N.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 15SHEET 32

STATION	UNIT	DESCRIPTION
M0252x16R		Attitude here 160/19 NE?
M0250x1R	KCx/TI	Here in quarry, sandstone overlies porphyry: SANDSTONE-fine to medium-grained, possibly hornfelsed, dark grey-green, rusty-weathering, blocky, massive. 3 m+ -- Intrusive contact -- HORNBLLENDE-FELDSPAR PORPHYRY-white-weathering, forms basal 1.5 m of high-wall. Est. total thickness of this unit: 5 m.
M0250x6D	TI/KCx	Here in quarry, porphyry overlies SANDSTONE-fine-grained, hornfolsic, dark green, tough, blocky, rusty-weathering. Attitude 040/5 SE. The porphyry/sandstone contact is generally conformable, but steps down at least 3 m in the north end of the quarry.
M0250x10D	KCx/D	The "carbonaceous debris" described by Standring is in part either mud-filled burrows or rootlets.
M0250x16	KCx	Here on overgrown spur road, SANDSTONE-medium to coarse-grained, quartz

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 15SHEET 33

STATION	UNIT	DESCRIPTION
		feldspathic, brown, light tan-weathering scattered rootlets, a few large burrows. Thick-bedded to massive. Attitude: 085/14 S.
M0050x2	KCx?	SANDSTONE-very fine to medium-grained, silty, green, abundant carbonaceous streaks and finely broken plant fragments; rare shell fragments. Rusty-weathering, thick-bedded, blocky. Uppermost comox?, appears to underlie porphyry of M0050x6D. Attitude: 027/11 SE. (Replaces x5D).
M0050x3	TI	HORNBLLENDE-FELDSPAR PORPHYRY-golden-weathering, light golden brown, underlies beds of x2.
M0050x4	KCx?	SANDSTONE-very fine-grained, silty, dark bluish-to greenish-grey, hornfelsic, rusty-weathering, pyritic, burrowed (some burrows spectacularly pyritised), thick-bedded, blocky. Could be uppermost Comox. Attitude: 047/14 SE.
M9850x1	KH	MUDSTONE/SILTSTONE/SANDSTONE, very fine-grained - intensely bioturbated, dark grey, orange-weathering, rubbly.





## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 16SHEET 35

STATION	UNIT	DESCRIPTION
M0050x5	KH/TI	In bank: SILTSTONE-dark green to black, hornfelsic, rusty-weathering, blocky, tough, with pyritised burrows. Overlying (in road):
		HORNBLLENDE-FELDSPAR PORPHYRY-golden-weathering, probably no more than 1 m thick.
x6	KH	SLP in bank: SANDSTONE, very fine-grained/SILTSTONE-intensely bioturbated, rubbly, dark grey to black, vaguely burrowed, strongly spheroidal-weathering. Attitude: 105/17 NE.
x7	KH	Here ends continuous outcrop.
x8	KH	Here at creek: SILTSTONE-burrowed, dark green, rusty-weathering, spheroidal-weathering, rubbly. Attitude: 060/5 SE.
x9	KH	SLP continued outcrop of KH beds; dark and rubbly.
M9850x4	KH	Here at landing, possible subcrop. SLP scattered subcrop and outcrop of dark, rubbly beds.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 16SHEET 36

STATION	UNIT	DESCRIPTION
x5	KH	Here at gully, SILTSTONE-argillaceous, burrowed, occasional sandy lenticles; dark green, rubbly, concretionary. Attitude: 029/12 E.
M9850x6	KH	Here at end of road, and BOP scattered outcrops: MUDSTONE-silty, dark green, with thin lighter laminae of siltstone. Rubbly, rusty-weathering Attitude: 038/5 E.
M0050x10	KH	Here along bank is subcrop of SILTSTONE-dark green, rubbly, argillaceous.
x11		Here junction with spur to NW, blocked by tank trap.
x12		MUDSTONE-dark green to black, very silty, rubbly to platy. Concretionary, with some silty or sandy phases.
x13		Here at junction and SLP, no outcrop.
x14	TI	Here at junction, and for 20 m outbye, HORNBLLENDE-FELDSPAR PHORPHYRY- golden-green groundmass, gold to white-weathering. If fault present,

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 16SHEET 37

STATION	UNIT	DESCRIPTION
		probably trace is at base of slope below here. Hills to south appear to
		be all KH subcrop.
M0050x15	TI?	Here on reverse slope, probable subcrop.
M9850x7	KH	Since M0050x13, subcrop of rubbly dark beds, along spur.
x8	KH	Here near end of spur, SILTSTONE-dark green, rusty-weathering, argillaceous, rubbly. Attitude: 110/7 NE. SLP subcrop of rubbly dark beds of KH.
x9		Here at end of spur, no outcrop. Near beginning, subcrop of rubbly dark beds of KH.
M9848x3	TI	Here PORPHYRY-this ridge appears to be formed from an east-dipping sill.
x4	KCxB?	Here and for 50 m outbye, SANDSTONE-fine to very coarse-grained, with abundant sharp granules and small pebbles of chert and quartz. Grey-green,

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST C. BickfordDATE June 16SHEET 38

STATION	UNIT	DESCRIPTION
		tan-weathering, massive, parallel-laminated and large-scale low-angle cross-bedded. Quartz-feldspathic; minor chert, Attitude 145/11 NE.
M9848x5	KCxB?	Here at end of spur, along skidder trail, is long bedding-plane exposure of SANDSTONE-fine to very coarse-grained with abundant granules. Attitude: 028/13 SE.
x6	TI	HORNBLENDE-FELDSPAR PORPHYRY-pale green groundmass, apparently underlies beds of x5 but overlies beds of x4. 2 m thickness exposed.
x7	KH?	SANDSTONE-very fine-grained, dark green, silty, splintery, rusty-weathering. Contains <u>pelecypod shells</u> . Attitude: 163/27 NE.
M0050x16	TI	Since N20 line, along spur, but no outcrop. In creek here is HORNBLENDE-FELDSPAR PORPHYRITIC DACITE-green-grey, medium-grained.
x17	TI?	(Viewed from x14D)-white, blocky outcrops.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. BombackDATE June 15SHEET 40

STATION	UNIT	DESCRIPTION
M0052x1DD		Here at junction of N10 & N10A.
M0052x2DD		SANDSTONE-medium to coarse-grained. Rusty weathering with a tan fresh break colour. Massive. Many rootlets. Very calcareous.
M0052x3DD		SLP, no outcrop. Here SANDSTONE-fine to medium-grained, brown-black, weathering, buff fresh surface. Massive. Non-calcareous.
M9852x1DD		SLP some sandstone outcrop. Here SANDSTONE-light brown-weathering, light yellow break. Attitude: 129/9 NE. Thinly-bedded, non-calcareous.
M9852x2DD		SLP sandstone outcrops to here: SANDSTONE-fine to medium-grained, buff-weathering, light yellow fresh. Thinly-bedded, non-calcareous. 099/8 N.
M9852x3DD		Here junction with short spur. SLP some outcrops of sandstone.
M9852x4DD		Here junction with short spur. SLP no outcrop.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. BombackDATE June 15SHEET 41

STATION	UNIT	DESCRIPTION
M9852x5DD		SLP no outcrop. Here MUDSTONE-rusty-weathering, black fresh, thinly-bedded, rubbly, some small pebbles between beds, non-calcareous.
		Attitude: 102/17 SW.
M9852x6DD		SLP same. Here at pit, MUDSTONE-very rubbly.
M9852x7DD		SLP no outcrop. Here SANDSTONE-buff-weathering, grey-blue fresh, massive fine to medium-grained. Slightly calcareous due to shell fragments.
M9852x8DD		SLP outcrop of same sandstone. Here SANDSTONE-buff-weathering, with buff fresh break. Thin-bedded, very coarse-grained, non-calcareous.
M9852x9DD		GRANITE-some biotite in minor quantities. Buff-weathering, pink fresh break.
M9852x10DD		SLP granite. Here GRANODIORITE-with 10% biotite present. Green/white weathering with green fresh break.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. BombackDATE June 15SHEET 42

STATION	UNIT	DESCRIPTION
M9852x11DD		Here at end of road, rock is white-weathering, pale green fresh, mostly quartz, some biotite present.
M9852x12DD		GRANODIORITE-very faint pink weathering, pink tinge fresh, minor biotite.
M9852x13DD		Here on N10 C line, MUDSTONE-rusty-weathering, black fresh. Attitude 045/15 NW. Many concretions 10 to 15 cm in length; continues horizontally for 50 m. 1 m exposed, 2 m height possible.
M9852x14DD		MUDSTONE-orange weathering, dark grey to black fresh break. A few concretions. Attitude: 103/9N.
M9850x1DD		SLP no outcrop; bad washout which is just passable. Here SANDSTONE-very coarse-grained, rusty-weathering, dark brown fresh. Massive.
M9850x2DD		SLP no outcrop. Here SANDSTONE-fine-grained, thinly-bedded, buff-weathering, green fresh break.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. BombackDATE June 15SHEET 43

STATION	UNIT	DESCRIPTION	
M9850x3DD		SANDSTONE-coarse-grained.	
M9850x4DD		SANDSTONE-fine-grained.	

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. BombackDATE June 16SHEET 44

STATION	UNIT	DESCRIPTION
M0050x1DD		Junction of roads.
M0050x2DD		Road blocked by tree, 200 m in. Here SANDSTONE-dark brown-black-weathering medium brown fresh. Medium-grained, massive, some rootlets.
M0050x3DD		SLP no outcrop. Here MUDSTONE-dark rusty-weathering, dark grey to black fresh, thinly-bedded. Attitude: 040/19 SE.
M0050x4DD		SLP no outcrop. Here SILTSTONE-dark brown to orange-weathering, grey fresh break. Attitude: 105/13 E.
M0050x5DD		SILTSTONE continues 50 m SLP. Here MUDSTONE-rusty orange-weathering, light brown to black fresh, thinly-bedded. Attitude: 062/7 S.
M0050x6DD		SLP mudstone continues. Here SANDSTONE-fine to medium-grained, buff-rusty weathering, dark brown fresh, appears to be flat-lying; massive, 0.5 m high.
M9850x1ADD		MUDSTONE above SANDSTONE-orange-weathering, dark grey fresh break, thinly bedded. Attitude: 085/2 N.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 2SHEET 45

STATION	UNIT	DESCRIPTION
M0052x1D		MUDSTONE-silty mudstone, dark grey to black, buff-weathering, rubbly, abundant concretions, some Mg staining. Strike: 230/11 E.
M0052x2D		MUDSTONE-as above.
M0252x1D		PORPHYRY-feldspar porphyry, brown to light brown background, light grey to tan-weathering, feldspar crystals are less than 0.1 cm to 0.4 cm.
M0252x1A-D		PORPHYRY-large outcrop of above.
M0252x2D		PORPHYRY-feldspar porphyry, brown to light brown background, buff to grey weathering, crystals less than 0.1 cm, rock is becoming equi-granular, minor biotite flecks throughout, some (very few) quartz crystals.
M0252x3D		PORPHYRY-feldspar porphyry, grey to light brown background, buff-weathering, equi-granular, 10% hornblende, 10% quartz, with minor biotite.
M0252x4D		PORPHYRY-feldspar porphyry, light grey to light brown background, buff

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 2SHEET 46

STATION	UNIT	DESCRIPTION
		weathering, equi-granular, minor hornblende.
M0252x5D		PORPHYRY-feldspar porphyry, dark grey background, tan-weathering, equi-granular, 30% hornblende.
M0252x6D		PORPHYRY-feldspar porphyry, light brown background, tan-weathering, crystals less than 0.1 cm to 0.15 cm, minor biotite crystals evident.
M0252x7D		PORPHYRY-feldspar porphyry, light brown background buff-weathering, equi-granular, minor biotite.
M0252x8D		PROPHYRY-feldspar porphyry, as above.
M0252x9D		VOLCANIC, grey green, tan-weathering, feldspar and quartz scattered throughout, minor biotites. This rock is verging on a porphyry.
M0250x1D		VOLCANIC-grey green, tan-weathering, 10% biotite, minor quartz crystals to 0.6 cm.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 2SHEET 47

STATION	UNIT	DESCRIPTION
M0250x2D		SANDSTONE-light brown to tan, tan-weathering, medium-grained, non-calcareous, rust stained.
M0250x3D		SANDSTONE-grey to light brown, medium-grained, tan-weathering, no visible bedding at this outcrop, non-calcareous, some scattered carbonaceous debris.
M0250x4D		SANDSTONE-grey to light brown, medium-grained, tan to light grey-weathering, non-calcareous, rust stained, minor carbonaceous debris.
M0050x1D		SANDSTONE-brown, very coarse grained, tan to brown-weathering, uneven bedding, non-calcareous, rust and Mg stained, minor carbonaceous debris.
M0050x2D		SANDSTONE-dark grey, medium to coarse-grained, minor pebbles, tan-weathering, non-calcareous, generally massive with some thin interbeds, many large concretions, horizontally lying.
M0050x3D		SANDSTONE-dark grey, coarse-grained, tan-weathering, Mg stained, non-calcareous.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 2SHEET 48

STATION	UNIT	DESCRIPTION
M0050x4D	TI	PORPHYRY-feldspar porphyry, very weathered, light to medium-grey, no crystals evident, appears to be tuff like.
M0050x5D		METAMORPHIC MUDSTONE-dark grey, very hard, rust to buff-weathering.
M0050x6D		PORPHYRY-feldspar porphyry, equi-granular, tan to light grey-weathering, tan background, minor biotites.
M0050x7D		VOLCANIC-grey to grey-green, equi-granular, tan-weathering, minor quartz and feldspar crystals.
M0050x8D		PORPHYRY-feldspar porphyry, grey background, tan-weathering, equi-granular, scattered large feldspar crystals.
M0052x3D		MUDSTONE-silty mudstone, dark grey to black, grey to tan-weathering, rubbly, non-calcareous, abundant concretions, rust and Mg staining, badly sheared. Strike: 251/10 SE.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 2SHEET 49

STATION	UNIT	DESCRIPTION
M0052x4D		MUDSTONE-continuous outcrop of above from 3D to 4D.
M0052x5D		MUDSTONE-as in 0052x1D, shearing not as evident. Strike: 253/9 SE.
M0052x6D		MUDSTONE-slightly silty, dark grey to black, grey to tan-weathering, rubbly, non-calcareous, rust stained, concretions.
M0052x7D		SILTSTONE-dark grey, grey-weathering, non-calcareous, scattered concretions, Mg and rust staining, badly sheared. Strike: 342/8 SE.
M0052x8D		PORPHYRY, badly weathered feldspar porphyry, tan background, tan to light grey-weathering, scattered unweathered feldspar crystals up to 0.2 cm.
M0250x5D		PORPHYRY-feldspar porphyry, light grey to brown-weathering, 15% hornblende minor biotite, some small quartz crystals.
M0250x6D		ARGILLITE-dark grey, rust to grey weathering, some concretions still visible, as well as possible bedding. Strike: 190/20 E. questionable to



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 7SHEET 50

STATION	UNIT	DESCRIPTION
		metamorphic reworking. This is overlain by:
		PORPHYRY-feldspar porphyry, light grey-weathering, feldspar crystals
		uniform at 0.1 cm, 10% hornblende.
M0250x7D		SANDSTONE-grey-green, buff to rust-weathering, medium to coarse-grained, thin to massive bedding, minor mudstone interbeds, abundant carbonaceous debris 1-1.5 m exposed.
M0250x7A-D		SANDSTONE-grey green, coarse to very coarse-grained buff to rust-weathering, massive bedding, very abundant carbonaceous debris, Strike: 346/19 NW.
M0250x8D		SANDSTONE-grey green to buff, buff-weathering, medium to coarse-grained, appears to be massive, scattered carbonaceous debris.
M0250x9D		SANDSTONE-grey green, grey-weathering, medium-grained, uneven bedding, rust staining.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 7SHEET 51

STATION	UNIT	DESCRIPTION
M0250x10D		SANDSTONE-grey green, buff-weathering, medium-grained, medium to massive bedding, the medium beds are concretionary and rubbly with abundant muddy, carbonaceous debris, 7 m exposure.
M0050x9D		MUDSTONE-dark grey to black, dark grey to rust-weathering, rubbly, some Mg staining, abundant concretions.
M0050x10D		MUDSTONE-as above. Strike: 265/4 N.
M0050x11D		SILTSTONE-dark grey to black, dark grey to black weathering, many concretions.
M0050x12D		SANDSTONE-tan, buff to tan-weathering, fine to medium grained, thin to massive bedding, 3 m exposure exhibits intense shearing and jointing. Strike: 300/14 NE.
		NOTE: This creek could follow a fault, this would explain how the sandstone came to be out of order in the overall section.

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## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 7SHEET 52

STATION	UNIT	DESCRIPTION
M0052x12 A-D		PORPHYRY-feldspar porphyry, light brown background, light grey-weathering, feldspar crystals 0.1 cm to 0.4 cm, minor biotite.
		NOTE: The contact between the Sandstone and Porphyry is at 730 m elev. approximately 20 m above creek bed.
M9850x1D		MUDSTONE-silty mudstone, dark grey to black, black-weathering, rubbly, minor concretions, *very much like 0050x110. Strike: 105/6 NE.
M9850x2D		MUDSTONE-silty mudstone, dark grey to brown, tan-weathering, rubbly.
M9850x3D		MUDSTONE-as above.
M9850x4D		MUDSTONE-silty mudstone, dark grey, rust weathering, rubbly, Mg staining, exhibits parallel shearing.
M9850x5D		MUDSTONE-silty mudstone, dark grey, tan-weathering, rubbly, Mg staining.
M9850x6D		MUDSTONE-silty mudstone, as above, shows severe jointing and shearing.

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## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 7SHEET 53

STATION	UNIT	DESCRIPTION
M9850x7D		MUDSTONE-silty mudstone, dark grey, tan to rust-weathering, abundant concretions, again is sheared and jointed severely.
M9850x8D		MUDSTONE-silty mudstone, dark grey, tan-weathering, rubbly but well cemented, non-calcareous, *subcrop shows horizontal bedding.
M9850x9D		MUDSTONE-silty mudstone, dark grey, tan-weathering, rubbly, non-calcareous, 3 m exposure. Strike: 138/14 NE.
M9850x10D		MUDSTONE-silty mudstone, as above, non-calcareous. Strike: 107/4 NE.
M9850x11D		PORPHYRY-feldspar porphyry, light grey background, tan-weathering, feldspar crystals 0.1 cm to 0.3 cm minor biotites also observed.
M9850x12D		PORPHYRY-feldspar porphyry, light grey background tan-weathering almost equi-granular, minor biotites.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 7SHEET 54

STATION	UNIT	DESCRIPTION
M9850x13D		MUDSTONE-silty mudstone, dark grey, dark grey to tan-weathering, rubbly some concretions.
M9850x14D		MUDSTONE-silty mudstone, dark grey, tan to brown-weathering, rubbly minor concretions. Strike: 174/8 E.
M9850x15D		MUDSTONE-silty mudstone, dark grey, tan to brown weathering, rubbly, large and small concretions evident, one 0.3 m bed of sandstone, coarse- grained, buff-weathering. Strike: 323/16 E. (taken on the Sst)
M9850x16D		CONGLOMERATE-clean very coarse-grained sand matrix, light grey to tan- weathering, pebbles 0.5 cm to cobbles 15 cm, cherta, quartz, and granidiorites, the outcrop appears to have graded beds of sandstone and conglomerate, all clasts are well-rounded.
M9850x17D		CONGLOMERATE-same as found in 9850x16D.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 7SHEET 55

STATION	UNIT	DESCRIPTION
M9850x18D		CONGLOMERATE-ill-sorted, very coarse-grained sand matrix, tan-weathering, pebbles 0.1 cm to cobbles 15 cm+, well-rounded, again seems to interbed with sandstone, very coarse-grained.
M9848x1D		CONGLOMERATE-dirty green to buff, matrix consists of fine conglomerate, clasts are well-rounded, pebbles 0.1 cm to cobbles 10 cm+, consisting of greenstone, cherts and quartz, with scattered granidiorite.
M9848x2D		CONGLOMERATE-very coarse-grained sand matrix, light grey-weathering, graded beds of fine pebbles 0.2 cm to beds of pebbles 0.8 cm.
M9848x3D		PORPHYRY-generally very coarse, with uniform feldspar crystals, large quartz crystals scattered throughout, tan-weathering.
M9848x4D		SANDSTONE-brown, rust-weathering, medium to coarse-grained, thin to massive bedding.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 7SHEET 56

STATION	UNIT	DESCRIPTION
M9848x5D		CONGLOMERATE-dirty green to buff, matrix of very coarse sand, pebbles 0.1 cm to cobbles 10 cm plus, generally ill-sorted, consisting of greenstone, granodiorite cherts all well-rounded.
M0050x13D		SILTSTONE-dark grey to brown, rust to tan-weathering, rubbly, many large concretions.
M0050x14D		SILTSTONE/PORPHYRY contact, Siltstone as above has been metamorphized into almost slate, the porphyry is equi-granular, light brown background, buff-weathering, crystals are all around 0.1 cm.
M0050x15D		SILTSTONE-dark grey, tan to dark grey-weathering, rubbly many concretions interbeds of Sandstone, buff, buff-weathering, thin bedded. Strike: 072/24 SE. (taken on the Sst.)
M0048x1D		SILTSTONE-dark grey, tan to rust weathering, rubbly, abundant concretions.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 7SHEET 57

STATION	UNIT	DESCRIPTION
M0048x2D		MUDSTONE-silty mudstone, dark grey, tan to rust-weathering, many concretions, rubbly, non-calcareous. Strike: 090/21 N. This comprises the top 3 m of the exposure the lower 7 m is comprised of:
		SILTSTONE-dark grey, dark grey to black-weathering, the rock weathers into large rounded blocks, with calcareous staining is evident, the rock is calcareous itself so the staining could be the cement.
M0048x3D		SANDSTONE-buff, tan to buff-weathering, fine-grained, rubbly.
M9848x6D		SANDSTONE-light brown, light brown-weathering, coarse-grained with scattered pebbles, underlain by: MUDSTONE-dark grey, rust-weathering, rubbly non-calcareous.
M9848x7D		MUDSTONE-silty mudstone, dark grey, tan to rust-weathering, rubbly, minor concretions.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 7, 8SHEET 58

STATION	UNIT	DESCRIPTION
M9848x8D		SANDSTONE-light grey, light grey to orange-weathering, very coarse-grained, scattered pebbles (cherts).
M9848x9D		PORPHYRY-feldspar porphyry, greenish background, tan to buff-weathering, feldspar crystals large but poorly developed up to 0.5 cm, minor biotites present.
M9848x10D		SILTSTONE/SANDSTONE-grey to green grey, tan-weathering, very fine-grained, concretions evident, Mg staining.  Overlain by:
		SANDSTONE-green grey, tan to buff weathering, very coarse-grained, massive contains some biotite (could be due to some metamorphic reorganization).
M9848x11D		ARGILLITE-dark grey to green grey, tan-weathering, rubbly but well cemented, Mg staining evident.
M9848x12D		Outcrop exhibits graded beds of: SANDSTONE-grey, buff-weathering, very coarse-grained, non-calcareous. CONGLOMERATE-very coarse-grained, grey

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 8SHEET 59

STATION	UNIT	DESCRIPTION
		matrix, pebbles well-rounded, 0.75 cm to 3 cm.
M9848x13D		MUDSTONE-dark grey, rust-weathering, rubbly, minor concretions, Mg staining, exhibits parallel shearing.
M9848x14D		PORPHYRY-green grey background, tan to buff-weathering, feldspar crystals 0.1 cm to 0.3 cm, minor hornblende.
M9848x15D		PORPHYRY-green grey, as above.
M9848x16D		PORPHYRY-as in 9848x14D.
M9848x17D		PORPHYRY, green grey, tan-weathering, feldspar crystals are large and scattered 0.5 cm to 0.8 cm.
M9848x18D		PORPHYRY-as above.
M9848x19D		PORPHYRY-same as in 9848x17D.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 8SHEET 60

STATION	UNIT	DESCRIPTION
M9848x20D		PROPHYRY-green grey background, tan to light grey weathering feldspar crystals 0.1 cm to 0.3 cm.
M0048x4D		MUDSTONE-silty mudstone, dark grey, tan to rust weathering rubbly, minor concretions.
M0048x5D	See x21	MUDSTONE-silty mudstone, as above, *horizontal bedding.
M0048x6D		Continuous outcrop of above since M0048x5D.
M0048x7D		SILTSTONE-dark grey to dark brown, rust-weathering, rubbly, minor concretions, non-calcareous. Strike: 320/6 NE.
M0048x8D	See x22	SANDSTONE-brown, rust to brown-weathering, coarse-grained, mud or silt-stone laminae evident, some scattered pebbles.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 8SHEET 61

STATION	UNIT	DESCRIPTION
M0048x9D	See x22	SANDSTONE-brown, tan-weathering, coarse-grained, sheared and jointed, non-calcareous, in association with:
		MUDSTONE-silty-mudstone, dark grey, dark to brown-weathering, rubbly, some concretions, non-calcareous. (See Sketch Below). No Strike and Dip.
M0048x10D	See x23	SANDSTONE-light grey, buff-weathering, very fine-grained, rubbly, but well cemented, non-calcareous, some mud laminae.
M0048x11D	See x23	SANDSTONE-as above, without mud laminae.
M0048x12D	See x24	SANDSTONE-as above, minor concretions.
M0048x13D	See x25	SANDSTONE-badly weathered, (into sandy mud), appears to be rubbly.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 8SHEET 62

STATION	UNIT	DESCRIPTION
M0048x14D		SANDSTONE-light grey, buff weathering, very fine-grained, rubbly non-calcareous.
M9848x21D		PORPHYRY-feldspar porphyry, green grey, rust to buff weathering, generally very coarse, feldspar crystals, 0.3 cm and scattered.
M9848x22D		PORPHYRY- as above.
M9846x1D		PORPHYRY-feldspar porphyry, green grey background, tan to rust-weathering feldspar crystals up to 0.4 cm.
M0048x15D		SANDSTONE-dark grey, tan to rust-weathering, very fine-grained, rubbly.
M0048x16D		Continuous outcrop of SANDSTONE as in M0048x15D, ATP porphyry badly weathered, feldspars 0.1 cm to 0.5 cm.
M0048x17D		MUDSTONE-silty mudstone, dark grey, rust-weathering, rubbly minor concretions.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 8SHEET 63

STATION	UNIT	DESCRIPTION
M0048x18D		MUDSTONE-as above, *horizontally lying.
M0048x19D		PORPHYRY-greenish matrix, light grey to tan weathering, 15% hornblende, feldspar to 0.2 cm.
M0048x20D		PORPHYRY-feldspar porphyry, greenish matrix, very coarse, large feldspar crystals up to 0.8 cm, minor hornblende, large exposure up to 5 m.
M0048x21D		PORPHYRY-as above, 3 m exposure.
M0048x22D		SILTSTONE-dark grey, tan to rust-weathering, rubbly, many concretions, 1 badly sheared and jointed, large exposure 8-10 m. joints $190^{\circ}$ /Dip $63^{\circ}$ D Bedding 120/15 NE. to $170^{\circ}$ /74 <sup>o</sup> E
M0048x23D		SANDSTONE-dark grey to brown, tan to rust-weathering, fine-grained, rubbly, thin to medium bedded, Mg staining, * horizontal.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST D. StandringDATE June 8, 10, 11 SHEET 64

STATION	UNIT	DESCRIPTION
M0048x24D		SILTSTONE-dark grey to black, rust to dark grey-weathering, rubbly but well cemented, slightly calcareous. Strike: 081/8 N.
M024x1D		ARGILLITE/chilled margin (porphyry) contact.
		ARGILLITE-dark grey, dark grey to rust weathering, badly eroded, very hard.
		PORPHYRY-grey to grey blue, tan-weathering, very fine, minor pyrite flecks throughout.
M0248x2D		PROPHYRY-as in M0248x1D, glacially striated.
M0246x1D		PORPHYRY(Dacite)-grey green, buff to tan-weathering very fine background, scattered feldspar crystals up to 0.3 cm, glacially straited.
M0246x2D		Dacite porphyry, grey green, tan to light grey weathering, 25% hornblende medium grained background mass.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R. MelinDATE June 1SHEET 65

STATION	UNIT	DESCRIPTION
M9652x1R	Basement	GRANODIORITE-10-15% biotite and hornblende, 10% K feldspars, crystals generally .2 cm in size, block probably in place.
M9652x2R	Basement	GRANITE-20% biotite clean appearance crystals .1 to .3 cm, large outcrop.
M9652x3R	Basement	GRANITE-20% biotite and hornblende.
M9652x4R	Basement	GRANITE/Granodiorite-crystal size becoming finer 15% biotite with minor hornblende.
M9652x5R	Basement	GRANITE-similar to above, slightly higher K feldspar content.
M9652x6R	Basement	GRANITE-similar to above.
M9650x1R	Basement	GRANITE-decreasing in K feldspar content, minor biotite with 15%-20% hornblende.
M9650x2R	Basement	GRANITE-10% hornblende and biotite high K feldspar content.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R. MelinDATE June 1SHEET 66

STATION	UNIT	DESCRIPTION
M9848x1R	Basement	GRANODIORITE-very weathered crumbly, large quartz crystals up to .5 cm, 20% hornblende.
M9848x2R		CONGLOMERATE-blocks may be large eratics, coarse quartz and feldspar sand matrix green clasts dirty ill-sorted.
M9848x3R	Basement	GRANITE-20% hornblende and biotite minor green colouration probably chlorite but may be feldspar (microcline).
M9848x4R	Basement	GRANODIORITE-30% hornblende and biotite minor K feldspar.
M9848x5R	Basement	GRANODIORITE-similar to above, more biotite.
M9850x1R	Basement	GRANODIORITE-35% hornblende, and biotite, crystals unclear, very-weathered, rusty coloured.
M9850x2R	Basement	GRANODIORITE-very weathered, as above.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R. MelinDATE June 1SHEET 67

STATION	UNIT	DESCRIPTION
M9850x3R	Basement	GRANITE-20% biotite, crystals .1-.2 cm.
M9850x4R	Basement	GRANODIORITE-10% biotite, quartz rich, light coloured, minor K feldspar.
M9850x5R	Basement	GRANODIORITE-hornblende and biotite present, minor K feldspar, some chlorite staining.
M9850x6R	Basement	GRANODIORITE-clean traces of hornblende, quartz rich, crystals up to .4 cm but generally less than .2 cm.
M9850x7R	Haslam	SILTSTONE-abundant mudstone and argillaceous sandstone interbeds, fine worm burrow like clasts, dark grey some medium to dark grey, buff to rust weathering, 3 m section, minor fine carbonaceous debris, conchoital featuring, iron rich concretions. Mudstones non-calcareous sandstones are calcareous. Strike 310/6 NE.
M9850x8R	Haslam	MUDSTONE-dark grey, crumbly conchoital weathering, slightly silty, varies to very silty. Minor micaceous lustre, some magnesium colouration, buff-

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R. MelinDATE June 1SHEET 68

STATION	UNIT	DESCRIPTION
		orange-weathering, crumbly abundant nodules, calcareous 2 m outcrop.
M9850x9R	Haslam	MUDSTONE-dark grey appears black when wet, slightly silty and micaceous, crumbly abundant nodules. Slight N.E. dip.
M9852x7R	Haslam	SILTSTONE-dark grey slightly micaceous muddy no bedding evident, non-calcareous, small outcrop.
M9852x8R	Haslam	SILTSTONE-interbedded with mudstone and argillaceous sandstone, dirty appearance abundant sand grain size light coloured grains-feldspar and quartz. Trace of carbonaceous debris, calcareous, some nodules, buff to rust-weathering, large outcrop 4 meters thick. Strike 240/14 SE.
M9852x9R	Haslam	SILTSTONE-dark grey, slightly micaceous, hard massive with thin beds of friably mudstone, calcareous, 5 m outcrop dip appears to be low angle SE.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R. MelinDATE June 1SHEET 69

STATION	UNIT	DESCRIPTION
M9852x10R	Comox	SANDSTONE-varies from fine to very coarse almost conglomeritic, dirty argillaceous generally dark grey with light coloured coarse sand grains to pebbles scattered throughout, buff to rust weathering, irregular bedding, strike appears to be S.E. approximately 5°.
M9852x11R	Comox	SANDSTONE-very coarse with small pebbles. Similar to above dirty appearance with minor traces of carbonaceous debris.
M0052x1R	Comox	SANDSTONE-fine to coarse, ill-sorted and dirty, as above bedding very irregular with small muddy clasts and fine carbonaceous debris, bedding appears to be nearly horizontal.
M0052x2R	Comox	SANDSTONE-similar to above, dirty, dark grey argillaceous with medium to coarse grains, irregular bedding abundant carbonaceous rootlets and debris. Relatively continuous outcrop from 1R to 2R. Strike 205/9 SE.
M0052x3R	Comox	SANDSTONE-dirty grey, argillaceous to coarse grained, ill-sorted, abundance of carbonaceous rootlet is the sandstone. Continuous outcrop 3R to 4R.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R. MelinDATE June 1SHEET 70

STATION	UNIT	DESCRIPTION
M0052x4R	Comox	SANDSTONE-grading to fine conglomerate. Similar to above with increased grain size.
M0052x5R	Comox	SANDSTONE-becoming finer grained dirty argillaceous and some coarse and medium grained sand grains, small muddy and fine carbonaceous clasts, non-calcareous buff weathering.
M0052x7R	Comox	Sandstone - medium quartz and feldspar grains in argillaceous dirty grey matrix, similar to above.
M0052x6R	Comox	SANDSTONE-medium to dark grey, argillaceous, some medium grains, ill-sorted, minor buff weathering, uneven bedding. Strike 240/10 SE.
M0054x1R	Basement	GRANODIORITE-clean 10% biotite.
M0054x2R	Basement	GRANITE/GRANODIORITE-outcrops illustrates contact phase between Plag. and K feldspars. 20% hornblende with some biotite.
M0054x3R	Basement	GRANODIORITE-20% hornblende minor K feldspar.
M0054x4R	Basement	GRANODIORITE-as above.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R. MelinDATE June 1SHEET 71

STATION	UNIT	DESCRIPTION
M0054x5R	Basement	GRANODIORITE-20% hornblende some chloritic crystals minor chlorite staining, large outcrop.
M0054x6R	Basement	GRANODIORITE-30% hornblende, minor K feldspar.
M0252x1R	Basement	GRANODIORITE/GRANITE-30% hornblende minor chlorite crystals.
M0252x2R	Basement	GRANITE-15% hornblende abundant green staining-chlorite.
M0252x3R	Basement	GRANODIORITE-30% hornblende, chlorite stained.
M0252x4R	Comox	SANDSTONE-dark grey to green grey, massive, varies from medium to coarse grained, some fine pebbles, ill-sorted, non-calcareous 2 m block may be in place, low angle dip.
M0252x5R	Comox	SANDSTONE-greenish grey to grey, It appears to have been intruded and/or metamorphosed in parts. Sandstone buff weathering.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R MelinDATE June 1SHEET 72

STATION	UNIT	DESCRIPTION
M0252x6R	Comox	CONGLOMERATE-quartz and feldspar - light coloured pebbles .1 cm to .4 cm in size. Dirty argillaceous matrix, grades to coarse sandstone, small outcrop.
M0252x7R	COMOX	SANDSTONE-with small, conglomerate bands, reddish grey, medium-grained slightly calcareous in parts. Conglomerate bands contains abundant cherts and quartz pebbles up to 1.5 cm sub-rounded. Sandy matrix. Strike due north Dip 18/west.
NOTE	Comox	Lithology and general appearance is very much like the lower comox at Dash Creek.
M0052x8R		Granite block 30% hornblende probably not in place.
M0052x9R	Comox	SANDSTONE-medium-grained, ill-sorted, dirty appearance medium grey buff to rust weathering, a few scattered carbonaceous rootlets, irregular bedding small outcrop .5 meters some concretions evident.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R. MelinDATE June 1SHEET 73

STATION	UNIT	DESCRIPTION
M0052x10R	Comox	SANDSTONE-medium grey to reddish grey, medium-grained, massive block may not be in place.
M0052x11R	Comox	SANDSTONE-generally medium-grained, grey to reddish grey, buff to rust weathering, abundance of carbonaceous rootlets and debris. Sandstone bedding is gently rolling and there is an abundance of very large to small concretions which make strike and dip interpretations very difficult. Strike 349/6 NE.
Note		Continuous outcrop from 11R to 12R Sandstone with minor muddy friable beds, abundance of large concretions.
M0052x12R	Comox	SANDSTONE-reddish grey to grey medium-grained scattered carbonaceous debris, becoming cleaner, nearly horizontal bedding Strike 310/3 NE.
M0052x13R	Comox	SANDSTONE-similar to above becoming cleaner with no concretions evident. Nearly horizontal. Strike due north, Dip 4° E.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R MelinDATE June 1SHEET 74

STATION	UNIT	DESCRIPTION
M0052x14R	Comox	SANDSTONE-very coarse almost conglomeritic some fine pebbles, dark grey dirty appearance with light coloured pebbles. Block-probably in place.
M0052x15R	Comox	SANDSTONE-medium grey, buff to rust weathering, generally medium grained regular bedding some rootlets and carbonaceous debris, non-calcareous, small outcrop. Strike 355/8 E.
M0052x16R	Comox	SANDSTONE-medium-grey buff weathering, medium-grained, traces of medium to coarse grains, uneven bedding minor concretions minor carbonaceous debris, grades to massive with increased carbonaceous debris, relatively horizontal 2 m outcrop.
M0052x17R	Comox	SANDSTONE-similar colour and texture to 16R with some finer platy bedding. Horizontal.
M0052x18R	Lower Haslam	SANDSTONE-cherty appearance, very argillaceous, abundant light coloured medium sized grains throughout. No defined bedding calcareous muddy very small scale irregular bedding, may be metamorphosed.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R. MelinDATE June 1SHEET 75

STATION	UNIT	DESCRIPTION
M0052x19R	Lower Haslam	SANDSTONE-as above very fine-grained silty may be metamorphosed horizontal.
M0052x20R	Lower Haslam	SANDSTONE-cherty appearance, slightly calcareous in parts dark grey matrix with light coloured grains throughout may be metamorphosed.
M0052x21R	Haslam	SILTSTONE-dark grey, very calcareous quite similar to the previous outcrops with finer grains. Strike 315/10 NE.
M0052x22R	Haslam	SILTSTONE-varies from muddy to argillaceous sandy bands, dark grey appears black when wet, some iron staining varies from very calcareous to non-calcareous.
M0052x23R	Haslam	SILTSTONE-dark grey nodules muddy similar to above.
M0052x24R	Haslam	Mudstone-silty dark grey rubble.
M0052x25R	Haslam	Mudstone-dark grey silty rubble.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R MelinDATE June 2SHEET 76

STATION	UNIT	DESCRIPTION
M9850x10R	Haslam	SILTSTONE-very rubbled conchoital fractures silty and muddy laminae dark grey strike 300/21 NE.
M9850x11R	Haslam	SILTSTONE/MUDSTONE-dark grey, conchoital fractures, as above.
M9850x12R	Haslam	SILTSTONE/MUDSTONE-dark grey buff to rust weathering, crumbly, conchoidal fracturing, silty laminae, strike 290/26 NE.
M9850x13R	Haslam	SILTSTONE-dark grey slightly lighter colour minor fine worm burrow clasts.
M9850x14R		SANDSTONE-medium grey medium-grained, non-calcareous generally massive appearance buff-weathering small outcrop. 325/12 NE.
M9850x15R	Haslam	SILTSTONE-dark grey, abundant concretions, laminated.
M9850x16R	Haslam	SILTSTONE-as above, dark grey, rubbly, conchoital fracturing.
M9850x17R	Haslam	SILTSTONE-dark grey concretions magnesium and iron staining conchoital crumbling, 235/5 SE.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R. MelinDATE June 2SHEET 77

STATION	UNIT	DESCRIPTION
M9850x18R	Haslam	SILTSTONE-muddy dark grey similar to above, strike due north, dip 11° E.
M9850x19R	Haslam	SILTSTONE-muddy laminated dark grey abundant fine muddy clast-worm burrows Similar to above outcrops. Strike due north 17° E.
M0252x8R	Porphyry	PORPHYRY-feldspar porphyry, dirty grey with buff to orange weathering becoming equigranular with feldspars and hornblende crystals slightly larger and better developed than background crystals.
M0252x9R	Porphyry	PORPHYRY-medium-dark grey buff-weathering, feldspar porphyry hornblende not as developed as in previous outcrop.
M0252x10R	Porphyry	PORPHYRY-equigranular similar to above becoming finer and slightly greenish in colour.
M0252x11R	Porphyry	PORPHYRY-becoming more greenish with fine hornblende crystals and larger K feldspars and Plag. Feldspars, in a greenish grey background.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R MelinDATE June 3SHEET 78

STATION	UNIT	DESCRIPTION
M0252x12R		Metamorphic Rock-very fine medium-dark grey, larger crystals up to .1 cm visible in weathered surface, slightly sandy texture-quartzitic, maroon colour buff-weathering probably near porphyry contact.
M0252x13R		Metamorphic-dark grey background very fine, fine light coloured feldspar and or quartz crystals developed up to .05 cm. Could be altered Haslem.
M0252x14R		Metamorphic-dark grey very fine as above (altered Haslam?)
M0050x1R		PORPHYRY-dirty grey-buff weathering, quartzite texture hornblende crystals generally fine with some well developed.
M0050x2R		MUDSTONE-dark grey splintery conchoital fracture clean and homogeneous. Rubble along the road may be in place.
M0050x3R	Porphyry	PORPHYRY-equigranular quartz and feldspar porphyry, abundant well-developed hornblende crystals, reddish grey to buff-weathering. Crystal size generally .1 - .2 cm.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R MelinDATE June 3SHEET 79

STATION	UNIT	DESCRIPTION
M0050x4R	Porphyry	PORPHYRY-similar to above crystals becoming larger, equigranular.
M0050x5R	Porphyry	PORPHYRY-becoming slightly finer with greenish colouration quartzite texture.
M0050x6R	Porphyry	PORPHYRY-similar to above crystals generally less than .1 cm with some up to .3 cm quartzite texture green colouration and fine hornblendes.
M0050x7R	Porphyry	PORPHYRY-similar to above.
M0050x8R	Porphyry	PORPHYRY-same buff-weathering equigranular rock.
M0050x9R	Porphyry	PORPHYRY-light to olive green fine hornblende crystals with equigranular quartz and feldspars approximately .2 cm in size. Quartzite texture.
M0050x10R	Porphyry	PORPHYRY-similar texture to above with abundant K feldspar crystals throughout. The last few outcrops appear more like granits or granodiorites.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R MelinDATE June 5SHEET 81

STATION	UNIT	DESCRIPTION	
M0052x26R	Porphyry Haslam	(Large Road Quarry) Mudstone dark grey silty concolital fracturing light grey to buff-weathering, some concretions. The mudstone 10 meters thick is overlain by a bench (2 m) of porphyry. The porphyry is light grey matrix with abundant fine hornblende crystals and minor large feldspar crystals: The mudstone Strike varies from:	
		285/8 SE	
		355/10 SW	
M0052x27R	Porphyry	(Ridge overlying station 26R) Porphyry varies from that resembling 26R to a more 'classic' feldspar porphyry with a fine grey matrix and abundant light coloured feldspar crystals and minor biotite. (See slide 17 & 18).	
M0252x15R	Comox	SANDSTONE-medium grey buff-weathering, relatively clean and massive.	
M0252x16R	Comox	SANDSTONE-medium grey minor reddish colouration, weathering, rust to buff. Massive to uneven bedding medium grained some ill-sorting Strike 355/20-23	SE.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MoriartyGEOLOGIST R MelinDATE June 5SHEET 82

STATION	UNIT	DESCRIPTION	
M0252x17R		Metamorphic greenish grey equigranular with some large quartz 'crystals'	
		minor hornblende quartzite texture May be fringe of sill.	
M0250x1R	Porphyry	PORPHYRY-green grey with buff-weathering, very fine hornblende in	
		equigranular matrix. Some large feldspar crystals. Overlain by a	
		medium to dark greenish\grey rock. Very fine matrix with no crystal	
		development quartzite texture homogeneous may be a volcanic or possibly	
		a metamorphic, buff to rust weathering.	



## VANCOUVER ISLAND FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MORIARTYGEOLOGIST C. BICKFORDDATE 14 November 1980 SHEET 84

STATION	UNIT	DESCRIPTION
M0046X33		This unit contains sulphides including pyrite and chalcopyrite.
(revisited)		
M0046X35A	KH	A larger outcrop at side of road (0.6 m+ thick). HORNFELSIC SILTSTONE - medium grey-green, strongly rusty-weathering, very tough and blocky, with possible burrows. Contains pyrite and minor chalcopyrite.
		Attitude: 091/11N
M0046X35B	KH	Here hornfelsic siltstone overlies porphyry. Siltstone.
	TI	Attitude: 098/12N
M0046X42	TI	PORPHYRITIC DACITE.
M0046X43	TI	PORPHYRITIC DACITE.
M0046X44	KEW?	Here in road cut is the following section: SILTSTONE/SANDSTONE, very fine-grained - interlaminated, planar-laminated, black siltstone and medium grey sandstone; minor burrowing, scattered

## VANCOUVER ISLAND FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY MORIARTYGEOLOGIST C. BICKFORDDATE 14 November 1980 SHEET 85

STATION	UNIT	DESCRIPTION	
		well-rounded granules, non-calcareous.	
		Attitude: 039/10NW. Abrupt.	0.2 m+
		CONGLOMERATE - granules to small, rounded pebbles of quartz and chert, moderately calcareous, thick-bedded.	
M0046X45	TI	DACITE - dyke?, with phenocrysts of feldspar; minor pyrite; light greyish groundmass.	
M0046X46	KEW?	SANDSTONE - medium to coarse-grained, light grey, siliceous, tough, well-sorted, scattered black chert grains, thick-bedded, large-scale low-angle cross-bedded. Low-angle cross-laminated. Rare medium and large dark-rimmed burrows. Salt and pepper appearance. Non-calcareous.	
		Attitude: 135/10 NE? Similar to basal part of X44.	
M0046X9	KCX?	ARKOSE - fine-grained to gritty, ill-sorted, medium olive-grey, locally rusty-weathering, thick-bedded, large-scale cross-bedded, (troughs).	
		Attitude: 158/8 E	

Directly overlying this unit is at least 0.5 m PORPHYRY.

VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

TRAVERSE NOTES

PROPERTY Alberni

GEOLOGIST C. Bickford

DATE May 20

SHEET 4

STATION	UNIT	DESCRIPTION	
x5	KCx,JI	Section exposed in cliff above road:	
		TOP OF SECTION:	
		SANDSTONE-fine to coarse-grained, moderately to well-sorted, greenish-	
		grey, strongly calcareous, with occasional disseminated granules and	
		well-rounded pebbles of Karmutsen. Massive, strongly jointed, nearly	
		flat-lying.	7 m+
		GRANODIORITE-weathered	
A7652x6	JI	Here deeply weathered exposure of the intrusive contact of the granodiorite	
	SV	and the (?) argillites or hornfels of the Sicker Group.	
A7654x1	SV	Here dark-green greenstone, some lineation and vague pillow shapes.	
		Fine-grained.	
x2	SV	Here dark-green greenstone. Fine-grained but no lineation.	

VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

TRAVERSE NOTES

PROPERTY Alberni

GEOLOGIST C. Bickford

DATE May 20

SHEET 5

STATION	UNIT	DESCRIPTION	
x3	SV	Here junction with Rifle line. Exposures of lighter grey-weathering rock, fine-grained, dark greenish-grey (lighter than x2), non-calcareous, hard and tough with nests and veinlets of quartz and chlorite.	
x4	SV	Dark green, fine-grained, massive-appearing rock.	
A7654x5	SV	Dark green, fine-grained, massive-looking rock with quartz veins. Outcrop contains a 3 m to 5 m-wide shear zone, with attitude 110/90.	
x6		Here junction of Egg Hill line. No outcrop, road is overgrown.	
A7456x1	SV	Here large buff of dark greenish-grey, fine-grained rock with quartz-chlorite-epidote veining. Here strongly jointed at 160/90; maybe paralalled to layering. Compare to A7654x5.	
x2	SV	Here as above, jointing at 160.85E.	
x3	SV	Here as above, jointing at 150/90. The edge of the Cretaceous must run	



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 21SHEET 7

STATION	UNIT	DESCRIPTION
A7452x8	KCxB	Here in road and towards lake, outcrops of CONGLOMERATE, ill-sorted, abundant sand and mud matrix, framework of angular greenstone pebbles and cobbles. Rusty-weathering, with no discernable bedding.
x9	KCxB	Here at lake a glacially polished outcrop of CONGLOMERATE-mud to grit matrix, framework is granular to 15 cm+ cobbles of greenstone. Still no semblence of bedding.
x10	KCxB	Here at outlet of lake, outcrops of conglomerate and SANDSTONE-medium-grained, gritty, poorly sorted, with angular clasts of volcanics and minor quartz. Dark green, attitude 060/10 N. SLP, abundant outcrops of Benson conglomerate along shore. Photos taken to illustrate the Benson, which is typically massive, although in sandy phases some bedding is discernable.
x11	KCxB	Here in creek, basal unconformable contact of the Benson and the
	JI	granodiorite, which is deeply weathered. In detail, the contact appears to be gradational from granodiorite through grus to grit, (only slightly



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

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STATION	UNIT	DESCRIPTION
		reworked?). The basal Benson here is 15 cm of greenish, soft grit,
		with conglomerate overlying it. The unconformity strikes $095^{\circ}$ , dipping
		to north at about $10^{\circ}$ , although there is up to 1 m of local relief.
A7452x12		Sandy, strong till. In places well-cemented & oxidised throughout.
		No outcrop.
x13	TI	Here a blocky, weathered exposure of HORNBLLENDE-FELDSPAR PORPHYRY- this
		rock is composed of plagioclase phenocrysts (to 4mm) in a brown groundmass
		which contains some weathered hornblendes. The rock as a whole is tan-
		weathering, unlike the greenish sill unit on Mount Patlicant. At least
		2 m exposed.
x14	TI	SLP, porphyry outcrops in bank, including some fresher, fine-grained
		porphyry with green groundmass, and fewer phenocrysts (mostly feldspars).
A7452x15	TI	FELDSPAR PORPHYRY-fine-grained green (?chloritic) matrix, with 40% to 50%
		phenocrysts of white feldspar.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 21SHEET 9

STATION	UNIT	DESCRIPTION
x16	TI	HORNBLLENDE FELDSPAR PORPHYRY-brown-weathered matrix with laths of hornblende and larger phenocrysts of feldspar. Joints: 118/75 SW (widely spaced) 030/84 NW (widely spaced) 026/17 E (closely spaced).
x17	TI	As at x16, porphyry.
x18		Here fork in road, SLP, and here only till in cuts.
A7454x1	TI?	Here a long ridge and gulley in forest. No outcrop, but soil contains angular blocks of feldspar porphyry similar to that at A7452x14. Probably subcrop of porphyry.
x2		Here end of cleared road. Beyond here it is covered with a nearly impenetrable growth of alders. SLP, road has been built from blocks and cobbles of greenstone, very similar to the sicker of Egg Hill. Either sicker subcrops here, or (more probably) fill was trucked in from a quarry.

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TRAVERSE NOTES

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SHEET 10

STATION	UNIT	DESCRIPTION
A7452x15R	KH?	Here at first bridge on China Creek road, SANDSTONE-fine-grained,
	Possibly	medium grey, light purplish-grey-weathering, a lithic arenite. Medium
	KCx	to thick-bedded, large-scale low-angle, thickly cross-laminated, with
		strong, widely-spaced rectilinear joints. Non-calcareous. At least
		2 m thick. Attitude: 020/7to 9 SE.
A7454x3		From A7452x18 to here, no outcrop, probably till through here. No outcrops.
x4		SLP, here, till; no outcrops.
x5		Here fork in road. Road to north is badly overgrown with aspens.
		SLP, here no outcrop.
x6		Here cutline as shown on map. Partly overgrown and swampy. No visible
		outcrop, looks like till here.
A7254x1		Here at end of cleared road, at a stream. SLP and here, bands show till.
		The creek here is dry, and its banks appear to be till. A trail continues
		to the NW down the creek.

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 21SHEET 11

STATION	UNIT	DESCRIPTION	
A7844x1	KCxB	Here in quarry face an exposure of the basal unconformity:	
	JI	TOP OF SECTION	
		CONGLOMERATE-subrounded to rounded pebbles and cobbles (rarely to 45 cm+)	5 m+
		of greenstone in a brown-weathering sandy matrix. Shell fossil fragments	
		Erosional at base.	
		GRANODIORITE	
x2	TrK	Here is junction of Thistle Mine main line and Lizard main line. Quarry	
		shows Karmutsen greenstone some of which is rusty and sheared, or intruded.	
x3	TrK	SLP, and here, Karmutsen greenstone.	
A7844x4	TrK	Here just above junction with logging road not shown on original map,	
		is Karmutsen greenstone with shear zone and rusty quartz veins at 060/90.	

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

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STATION	UNIT	DESCRIPTION
A7846x1	TrK	SLP, all Karmutsen. Here at junction, outcrop of Karmutsen greenstone.
x2	TrK	Here sandy, stony till full of Karmutsen fragments-could be confused with Benson but plants are growing between the clasts. This overlies Karmutsen greenstones. SLP all Karmutsen.
x3	TrK	SLP, and here, Karmutsen greenstone, here with pronounced non-penetrative cleavage.
x4	TrK	Here in bank a fault plane is exposed for at least 50 m, with attitude of 083/73N. The hanging-wall is fine-grained, medium green greenstone, the footwall is sheared, crumpled, brown-weathered greenstone(?). The fault itself is marked by green clayey gouge.
A7846x5		Till; no outcrop. Here junction with Lizard 700 line.
x6	TrK	Here Karmutsen greenstone, some with laths of some dark green-brown mineral which is pseudomorphous after hornblende.

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TRAVERSE NOTES

PROPERTY Alberni

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SHEET 13

STATION	UNIT	DESCRIPTION
x7	TI?	Here large blocks, doubtful if outcrop. of "sill rock" - HORNBLLENDE-FELDSPAR-with some lighter green, aphanitic phases, perhaps chilled margins. Slope above is all talus.
x8	KH	Here in bank a partly covered exposure of MUDSTONE-dark grey, somewhat silty, hard and slightly slaty, fissile, rubbly, purplish-grey and rusty-weathering. Attitude: 074/18 N.
x9	TI	HORNBLLENDE-FELDSPAR PORPHYRY, pistochio green (like epidote), chalky white to buff-weathering, blocky.
x10	KH	ARGILLITE-dark purplish-grey, hard, rusty-weathering, with rusty, cavernous-weathering nodules-perhaps weathered concretions; rock around them is leached-looking. (Probably Haslam, immediately below porphyry sill). Slightly crumpled and rolled, cut by numerous planes, into wedge-like blocks. SLP, abundant talus along slope.

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 21SHEET 14

STATION	UNIT	DESCRIPTION	
A7846x11	TI	Here in bank, exposure of HORNBLLENDE-FELDSPAR PORPHYRY like before, but with smaller phenocrysts.	
x12	KCxB	CONGLOMERATE-rounded pebbles and granules of greenstone in a green, medium to coarse sand matrix. Massive, but very thickly and poorly cross-stratified. Sorting fair to moderate. This unit appears to underlie the porphyry of x11. Fallen blocks show fine-grained, green, pebbly sandstone with shell fragments up to 0.06 m long. Attitude 084/12 N.	
A7844x5	KCxB TrK	CONGLOMERATE-pebbles and cobbles (some quite angular) of greenstone in a dark green sandy matrix. Overlies greenstone, actual contact not exposed.	
A7054x1	KCxB JI	Here along new highway at Ship Creek, good exposure of CONGLOMERATE-granular to 0.12 m cobbles of well-rounded greenstone, in an abundant matrix of dark green, fine-grained sand and silt. Despite rounding of clasts, this unit is ill-sorted. Weathers to dark brown tones. Well-cemented by silica and calcite. This conglomerate is erosional at base, overlying deeply weathered granodiorite.	

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 22SHEET 15

STATION	UNIT	DESCRIPTION
A7254x2	KCx?	SLP, all till in ditches. Here in high bank, exposure of SANDSTONE/ MUDSTONE (50:50)-thickly (0.30 to 0.50 m) interbedded coarse to very coarse-grained to gritty arkose, brown, brown-weathering, poorly sorted, and mudstone, light to medium grey, silty, gritty, rubbly, soft-weathering. At top of one mudstone layer, small carbonised plant fragments and rootlets occur. The coarse-grained sandstone layers tend to be lenticular. Some of the mudstones may be seatearth mudstones; they grade downward through light grey very argillaceous siltstones to sandstones, even coarse-grained, but still argillaceous. At least 5 m exposed; attitude 125/18 N.
A7054x2	KCx?	Here in cut on north side of telephone cable right-of-way, exposure of SILTSTONE-dark grey, rubbly brown-weathering, thin-bedded, in places, spheroidal-weathering, occasional thin beds of dark grey, fossile, silty mudstone. Attitude: 138/14 NE.
x3	KCx?	SLP up along cut, banks showing an ascending section through thickly (to several m) interbedded mudstone, siltstone and sandstone. Some mudstones



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TRAVERSE NOTES

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SHEET 16

STATION	UNIT	DESCRIPTION
		contain thin interbeds (to 0.10 m) of siltstone or sandstone. Here near
		the end of the exposure is MUDSTONE-dark grey, splintery, rubbly,
		slightly silty, with some ferruginous concretions. Nearly flat-lying.
		This unit is somewhat fissile.
x4	KCx?	Here abundant blocks and chips of SANDSTONE-medium to coarse-grained,
		moderately sorted, brown, some <u>rootlets</u> and thin, rare coaly streaks.
		Attitude 106/33 NE(?).
A7254x3	KCx	Here at edge of valley, outcrop of SANDSTONE-medium-grained, thick-bedded,
		large-scale low-angle cross-laminated, with a few thin dark brown
		carbonaceous mudstone laminae. Light brown, buff-weathering. Vague
		medium-sized, light-weathering burrows. A few small carbonised plant
		fragments.
A7254x4	KH?	SLP down slope of sandstone talus, across creek and up cutline on the
		other side. First 10 m above creek is till, then abundant sandstone
		talus, then here abundant talus and partly covered exposure of MUDSTONE-

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

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STATION	UNIT	DESCRIPTION
		dark grey, purplish-grey-weathering, harder than at A7054x3. Splintery and rubbly, with some argillaceous siltstone and silty mudstone. This unit may overlies the sandstones of x3.
x5	KH?	SANDSTONE-thinbedded, dark grey, brown-weathering, rubbly. 50 cm+ thick. Overlies mudstone of x4.
x6		No outcrop.
A7254x7		Still no outcrop. Cut line appears to stop here. Road to south is heavily overgrown.
A7054x5	JI	Here at corner of Rita Road and Cameron Drive, large outcrop of granodiorite, proving southern limit of Cretaceous rocks.
x6		Here a new house under construction. Excavation shows till.
x7	KCx?	Here a reservoir with embankment made of sandstone blocks. Could Comox subcrop be nearby?

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 22SHEET 18

STATION	UNIT	DESCRIPTION
x8	KCx	SANDSTONE-medium-grained, clean, thick-bedded, large-scale low-angle cross-laminated, brown, brown-weathering, compare to sandstone at x4. Attitude: 102/85.
x9	KCx	SANDSTONE-medium to coarse-grained, thin graded-bedding, moderately sorted, medium grey, tan-weathering. Very similar to sandstone of x4. Attitude 035/6 NW.
A7054x10	KH, KCx	Here in garden, fresh exposure of SILTSTONE-dark grey, rubbly, rusty-weathering, thin bedded to medium bedded, spheroidal-weathering, some sandy and argillaceous phases, some of which are intensely burrowed with small, dark burrows. 1.5 m exposed. Attitude (fair): 180/6 W.  1 m below this, in the footings of a carport, is brown-weathering, thick bedded sandstone.
x11	KH	SILTSTONE-rubbly, spheroidal, rusty-weathering (some purplish tones), dark grey, thin-bedded, with some small dark burrows. Minor very fine-

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TRAVERSE NOTES

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SHEET 19

STATION	UNIT	DESCRIPTION
		grained sandstone and mudstone. Attitude: 010/8 E.
x12	KCx	SANDSTONE-fine to medium-grained, massive, buff-weathering, moderately sorted, attitude: 125/10 SE.
A7256x1		Here on dirt road blocked by fallen tree. No outcrop, either on this road or roads leading to it. Some till in road cuts.
A7846x13	KH, TI, TrK	Here at junction of Lizard 601 spur is a large quarry face, with a fault well-exposed.
		The hanging-wall is greenstone, Karmutsen Formation. The fault plane is marked by 80 cm of clayey gouge both of argillite and a light green, soft, fine-grained siliceous rock which may be a sheared, chilled tongue of the hornblende-feldspar porphyry. Attitude: 139/50 NE, displacement probably reverse, up to NE; fault shows large-scale (several m wavelength) dip-direction undulations which suggest dip slip. The footwall comprises dark grey argillites (probably Haslam) and tongues of hornblende-feldspar porphyry.

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## TRAVERSE NOTES

PROPERTY Alberni GEOLOGIST C. Bickford DATE May 22 SHEET 20

STATION	UNIT	DESCRIPTION
x14	TrK	Karmutsen greenstone in road.
A7846x15	TI, TrK	Karmutsen greenstone here in bank; porphyry shows in ditch, it is sheared in places and appears to follow the extension of the fault trace of x13.
x16	TrK	Karmutsen greenstone in bank.
x17	TI	Here at junction with logging spur, bearing 205°. Large outcrop in bank of fresh-looking porphyry.
x18	TI	Here at end of short logging spur. Hill appears to be entirely made of angular blocks of porphyry.
x19	TI	Here finer-grained rock, more like a felsite than a porphyry. Could this be near the fault again?
x20	KCxB	CONGLOMERATE-chert granules, with a few granitic or volcanic clasts, in a matrix of fine chloritic sand. Clastic texture is discernable only on weathered surfaces.

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 22SHEET 21

STATION	UNIT	DESCRIPTION
A7846x21	TI	HORNBLLENDE-FELDSPAR PORPHYRY-few phenocrysts.
x22	TI	PORPHYRY-as above. Since x21, generally fewer and smaller phenocrysts than to the south. Here 20% of the rock is hornblendes, and 8% is feldspars, to 0.006 m. Remainder is bone-white, slightly greenish-tinge groundmass.
x23	TI, KH	Here in a quarry is exposed the intrusive contact of dark greenish-grey rusty-weathering nodular argillite (probably Haslam) and hornblende (10%) feldspar (10%) porphyry with pale greenish groundmass. At the contact, the argillite is crumpled, sheared, and slickensided.
x24	TI	Here at junction with Lizard 440 line, outcrop of HORNBLLENDE-FELDSPAR PORPHYRY-like that of x21 in that the groundmass is paler, almost white, and hornblende is the most abundant phenocryst type.
x25	TI	Here as at x24, but groundmass a little greener.

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 22SHEET 22

STATION	UNIT	DESCRIPTION	
A7846x26	TI	SLP, to here all porphyry. Here a massive bluff of porphyry.	
A7646x1	KH	Here ARGILLITE-dark green, to dark grey, tough, hard, rings when struck some listric surfaces and extensive shears, some of which are rusty. Concentric weathering, which is elsewhere typical of the Haslam, is lacking; instead, this rock weathers to a distinctive pale green-white tone. 038/28 NW. (uncertain if bedding).	
x2	TI, KH	Here on road, within a distance of 20 m, a passage from hornblende-feldspar porphyry to pale-weathering, light grey-green fessite to pale-weathering, dark grey argillite like x1. Argillite underlies porphyry. Exposures poor, but the transition appears to be over a stratigraphic interval of about 2 m.	

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TRAVERSE NOTES

PROPERTY Alberni

GEOLOGIST C. Bickford

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SHEET 23

STATION	UNIT	DESCRIPTION
A8044x1	TrK	From Lizard main line to here all greenstone. Here greenstone, sheared and veined at 075/74 SE.
A7846x27	TrK	Karmutsen greenstone, sheared and slickensided at 078/90, and 118/89 S.
x28	TrK	Karmutsen greenstone, faulted at 145/68 S. Probably only minor throw, as only 0.02 to 0.50 m of gouge and breccia.
x29	TrK	Greenstone
x30		
x31	KcxB,	CONGLOMERATE-subangular to rounded pebbles and large cobbles (to small boulders) of greenstone, in a sparse matrix of coarse-grained, green sand, massive, erosional at base, overlying greenstone.
x32	KcxB, TrK	Here in wall of ditch is contact of Benson and Karmutsen. Benson conglomerate here is overturned to south (158/25 S overturned), and both the Benson and the Karmutsen greenstones are cut by closely-spaced joints,

085/74 SE.



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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 24SHEET 24

STATION	UNIT	DESCRIPTION
x33	KCxB	The Benson here consists of CONGLOMERATE-pebbles, angular to subrounded mostly granitic, markedly less sorted than before, in a brown, silty-muddy matrix. Attitude: 109/795 (overturned, tops to N by cross bedding).
A7846x34	KCxB	CONGLOMERATE-pebble, angular to well-rounded, greenstone and minor chalcedony (possible replaced shells?) in an abundant, ill-sorted matrix of silt to coarse sand. Thick-bedded and cross-bedded, tops to N. One thick-shelled pelecypod fragment. Attitude 098/81 S (overturned).
x35	KCxB	CONGLOMERATE-pebbles of rounded greenstone, with a few rounded granules of quartz. Matrix-supported.
x36	KCxB	CONGLOMERATE-pebble to cobble, moderately sorted, sub rounded to rounded clasts of greenstone, some of quartz. Framework-supported; matrix of fine sand.
x37	KCxB	CONGLOMERATE-sandy, small pebbles and granules.

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 24SHEET 25

STATION	UNIT	DESCRIPTION
A7846x38	KCxB	CONGLOMERATE- very sandy, angular to subrounded granules and small pebbles of greenstone and quartz in a medium to coarse sand matrix.
x39	TrK	Here on high bluff, Karmutsen greenstone.
x40	KCxB	Here glacially rounded outcrop of CONGLOMERATE-granular to small pebbles, well-rounded, of greenstone, jasperoid chert, and quartz. Cavernous-weathering.
x41	KCxB	GRITSTONE-massive, blockily-jointed, moderately sorted, sandy, granular, green. Attitude (poor) 084/15 N.
x42	KCxB	SANDSTONE-medium to very coarse-grained, scattered pebbles. Green, thick-bedded, honeycomb-weathering, abundant single pelecypod valves, indicating tops up. Attitude: 076/20 N.
x43	KCxB	CONGLOMERATE-angular pebbles of greenstone and smaller, rounded pebbles of quartz; abundant medium-grained ill-sorted sand matrix. Here a rounded

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 24SHEET 26

STATION	UNIT	DESCRIPTION
		bedding- plane (?) exposure, parallel to slope.
A7846x44	KCxB	Here low rounded outcrops of CONGLOMERATE-thick-bedded, pebbly. SLP nearly a dip slope.
x45	KCxB	CONGLOMERATE-massive, well-rounded pebbles in an abundant sand matrix, fining upward to SANDSTONE-medium-grained, with scattered granules. Tough, hard, dark green like Karmutsen. Abundant pelecypods at top of unit. Large-scale, low-angle cross-bedded, at least 2m thick. Attitude 054/11 NW. Compare to x42.
x46	KCxB	SANDSTONE-coarse-grained, pebbly to conglomeratic, dark green, massive, very thickly laminated. Attitude (poor): 130/16 NE.
x47	KCxB	CONGLOMERATE/SANDSTONE-as before, at least 2 m thick, forming a low, small, open anticline, limbs dipping 10 NE and NW, axis trending about 000.

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 24SHEET 27

STATION	UNIT	DESCRIPTION	
A7846x48	KcxB, TrK	Here is exposed the greenstone - conglomerate contact, with the conglomerate appearing to have filled cracks and fissures in the greenstone.	
x49	TrK	Karmutsen greenstone	
x50	TI	Hornblende - feldspar porphyry.	
x51	TrK, TI	Here porphyry has intruded greenstone at the top of a bluff.	
x52	TrK	Karmutsen greenstone	
x53	TrK	As above, but amygdaloidal.	
x54	TI	Feldspar porphyry with pale green groundmass	
x55	TI, KH?	Here road follows contact of dark grey argillite, and overlying hornblende - feldspar porphyry.	

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 24SHEET 28

STATION	UNIT	DESCRIPTION	
A7846x56	KH	ARGILLITE-dark grey, with nodules of light grey to white aphanitic carbonate. Some nodules are fractured and slightly displaced. They form up to 90% of the rock. Probably a replacement phenomenon associated with the porphyry.	
x57	KH	ARGILLITE-dark grey, rare nodules. Attitude: 138/23 N.E.	
x58	TI?	Here road is covered with blocks of porphyry. Probable subcrop.	
x59	TI	BIOTITE-FELDSPAR-HORNBLLENDE PORPHYRY-darker green.	
x60	TI,KH	Here intrusive contact of argillite and light green to white hornblende-feldspar porphyry. Contact attitude: 095/37S.	
x61	TI	Hornblende-feldspar porphyry.	
A7646x3	TI	SLP, followed what appears to be the same intrusive body. Here is a coarser-grained, pale greenish-white hornblende quartz diorite.	

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 24SHEET 29

STATION	UNIT	DESCRIPTION	
A7646x4	TI	Hornblende quartz diorite.	
A7846x62	TI	Hornblende-feldspar porphyry, with pale green groundmass.	
x63	TI	As above.	
x64	TI	As above.	
A7644x1	KCxB	SANDSTONE-fine to medium-grained with scattered angular grit, granules and pebbles. Dark green; abundant shell fragments. Massive, strongly jointed. Attitude (poor); 029/16 SE. Thickness 1.8 mt.	
x2	KCxB	SANDSTONE-as above. Attitude: 129/22 NE.	
x3	KCxB	SANDSTONE-fine-grained, with granular phases, dark grey-green, massive, hard, strongly jointed, abundant shell debris in discrete layers. Shell debris is chaotically oriented, suggested rapid deposition. Attitude 100/31 N (good).	

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 24SHEET 30

STATION	UNIT	DESCRIPTION
A7644x4	KCxB	SANDSTONE, fine-grained, clean/coarse-grained, pebble - interbedded, all dark green, planar-bedded, with some shell fragments. Pebbles are subrounded, mainly of greenstone but some of quartz.
x5	KCxB	CONGLOMERATE-well-rounded pebbles of greenstone in abundant matrix of coarse to gritty, greenstone sand. Dark green, fairly to well-sorted, with rare pebbles to 0.03 m. Massive. Attitude: 072/23 N.
x6	JI	Granodiorite bluffs.
A7846x65	KCxB	CONGLOMERATE-sandy, well-rounded greenstone pebbles. Forms strike ridge here, top of which is probably dip slope.
x66	TrK	Karmutsen greenstone.
x67	KCxB	CONGLOMERATE-large subrounded to subangular pebbles and cobbles of greenstone.

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 24SHEET 31

STATION	UNIT	DESCRIPTION
A7846x68	KCxB	CONGLOMERATE-well-rounded to subangular pebbles and cobbles of greenstone, in an abundant matrix of medium to coarse-grained sand. Attitude: 085/27 N (poor).
x69	TrK	Karmutsen amygdaloidal greenstone.
x70	TrK	Karmutsen greenstone.
A7844x6	TrK	Karmutsen greenstone.
x7	TrK	As above.
x8	TrK?	LIMESTONE-greenish-black, crinoidal, partly dolomitised, perhaps the "intervolcanic limestone:.
x9	KCxB	CONGLOMERATE-pebble, subrounded, supported by medium to coarse-grained green sand matrix. Pebbles are of greenstone.
x10	JI	Granodiorite.



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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 25SHEET 32

STATION	UNIT	DESCRIPTION
A7846x71	TrK, JI	Greenstone, intruded by chlorite-rich granodiorite.
x72	TrK	Greenstone, rusty, veined, some looking like recemented breccia, and argillite, hard, dark grey, rusty.
x73	KH?	ARGILLITE-dark grey, splintery.
x74	TrK	Greenstone.
x75	TrK	Here is exposed an apparent gradation from "typical" Karmutsen greenstone through black, finely porphyritic basalt to dark grey or greenish grey "argillite", which is aphanitic and in places shows possible vesicles and flow banding, (thus probably a tuff). Does not resemble Haslam argillites.
x76	TI <sup>1</sup>	HORNBLLENDE DACITE(?) - fine-grained, pale greenish.
x77	TI	HORNBLLENDE PORPHYRY-pale green groundmass.

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## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 25SHEET 33

STATION	UNIT	DESCRIPTION
A7646x5	TI, KH	Here hornblende-feldspar porphyry overlies and intrudes argillite.
x6	TI	Hornblende-feldspar porphyry.
x7	KH	ARGILLITE-dark grey, tough, attitude: 048/18 NW.
x8	TI	From junction to here, all hornblende-feldspar porphyry.
x9	TI	QUARTZ DIORITE(?)-chlorite-rich.
x10	TI	HORNBLLENDE-CHLORITE QUARTZ DIORITE
x11	TI, KH	Here a lens of argillite is surrounded by hornblende-feldspar porphyry. The lens dips about 25° NE, and pinches from 1 m to nil in 3m, going to SE.
x12	TI	Porphyry.
x13	KH	ARGILLITE-dark grey, rusty, some light grey and nodular. Underlies

porphyry of x12.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST C. BickfordDATE May 25SHEET 34

STATION	UNIT	DESCRIPTION	
x14	KH	ARGILLITE-dark grey, rusty-weathering, blocky, tough, rare nodules.	
x15	KH	Argillite.	
x16	TI	Porphyry	
x17	TI	Porphyry	
x18	TI	Porphyry	
x19	TI	Porphyry	
x20	TI	Here and SLP, porphyry	
x21	TI	Porphyry	
x22	TI	Porphyry, still hornblende-feldspar.	
A7846x78	TI	Porphyry. Here a mineral claim post. Tag read as follows:	
		No. 37209	
		Claim name	CRINOSAUR
		Post number	4W 4N
		Locator	F. Thrane
		FMC No.	194986

Agent for

Union Miniere Exploration and Mining Corp. Ltd.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. MelinDATE May 21SHEET 36

STATION	UNIT	DESCRIPTION
A7452x8	Benson Mbr	Conglomerate - see Coreys notes.
A7452x9	Benson Mbr	Conglomerate - See Coreys notes (See also slide #7)
A7452x10	Benson Mbr	Conglomerate - colour, ranges from olive green to buff-orange. Ill sorted with angular to sub-angular clasts in a dirty matrix clast size 2 to 8 cm, with some portions of the conglomerate containing leases of small clasts ( 1 cm). Some cross-bedding is evident as well as jointing. Matrix and clasts appear to be green volcanics. Strike 60°/Dip 10° NW.
A7452x11	Benson/ Basement	Conglomerate/Granodiorite. Contact of Benson Conglomerate overlying the Granodiorite basement rock. Conglomerate as in 8 through 10. The basement rock is generally white quartz, and possible feldspar, with approximately 40% dark coloured hornblende and minor chlorite crystals. The granodiorite in this section is weathered, soft and platy. Samples of dark grey (hard) argillite are also located near by.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 21SHEET 37

STATION	UNIT	DESCRIPTION
A7452x12R	Basement	Granodiorite: Same "classic" white and black colouration of hornblende on quartz with some large dark coloured clasts. Joint fracturing and minor veining. Thickness 2 m (slide 8).
A7452x13R		Boulders generally Granodiorite however south from this point lithology of creek boulders is changing from granodiorite to green argillaceous volcanics.
A7452x14R	Basement	Granodiorite. Generally white and black weathering buff to red. Approx 40% hornblende in white quartz and possibly feldspars. Some iron staining in weathered surface. Crumbly, platy, jointing evident. Stream outcrop. Thickness 1.5 m.
A7452x15R	Comox	Sandstone-dark grey to red-grey, very hard argillaceous. Large sparsely scattered clasts (harder than matrix sandstone). Very fine to fine-grained, appears to be somewhat metamorphosed. Joints at right angles at .5 m to 2 m intervals. Strike 20°/Dip 8° SE.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 21SHEET 38

STATION	UNIT	DESCRIPTION
A7452x16R		Quartzite texture metamorphosed rock. Olive grey green in colour with light coloured quartz crystals throughout. Crystal size less than .5 cm. Very few fine hornblende crystals. Slightly calcareous in part. Weathers dark grey with minor dirty red colouration.
A7452x17R	Sill	Porphyry-Sill-Rock. Colour dirty grey green with abundant light coloured feldspar crystals. Crystals generally .2 to .3 cm in diameter. Weathers dirty grey to black with minor red staining. 2 m to 3 m thickness.
A7452x18R	Sill	Porphyry. This rock is relatively continuous from station 17 to 18. Dark, dirty grey-green with 20-30% light coloured crystals. Weathers a dark to dirty grey. This relatively continuous outcrop forms a series of small waterfalls along the creek.
A7452x19R	Comox/ Haslam	Sandstone-very argillaceous, slightly micaceous in appearance. Non-calcareous no defined bedding, with a slightly conchoidal fracture pattern. Dark grey colour weathering tan to buff. No distinctive markings 1 m section. Probably lower Haslem or Upper Comox.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 21SHEET 39

STATION	UNIT	DESCRIPTION
A7452x20R	Haslam	Mudstone-dark grey weathering buff. No bedding evident. Crumbly conchoidal fracturing. Weak concretions with some iron staining. Minor magnesium colouration. Minor micaceous texture.
A7452x21R	Haslam	Mudstone-dark grey as above - relatively continuous with silty portion at 20 AR. Dip appears to be low angle (less than 7°).
A7450x1R	Haslam	Mudstone- dark grey, as above.
A7650x1R	Haslam	Mudstone-dark grey, as above.
A7650x2R	Haslam	Mudstone-dark grey, as above. Although bedding is still indistinct it appears as if there is an increase in the dip. The attitude is very interpretive. Strike 153/25 E.
A7650x3R	Haslam	Mudstone-continuous from 2R with minor covered sections. Some dark grey conceital fracturing, definite magnesium colouration.





## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 22SHEET 41

STATION	UNIT	DESCRIPTION
A7452x1R	Basement	Granodiorite-appears to be in place. Hornblende crystals make up 30-40% with the remainder being quartz and possibly light coloured feldspars. Some portions contain inclusions of high concentrations of hornblende giving a localized blotchy appearance. (This is what is generally described in the notes to follow as "classic" granodiorite).
A7452x2R	Basement	Granodiorite as above appears to be in place.
A7252x1R	Basement	Granodiorite-classic colouration appears to be in place.
A7252x2R	Basement	Granodiorite-composition change from previous outcrops. The rock is not as homogeneous and there is a definite increase in chlorite content. Along with the chlorite there is still hornblende and minor biotite. The matrix is quartz-chlorite stained. There are large veins intruding the rock (up to 10 cm thick) these light coloured veins appear to be high in feldspar content but may be quartzitic. Outcrop 1-3 m thick. Jointing evident.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 22SHEET 42

STATION	UNIT	DESCRIPTION
7252x3R	Basement	Granodiorite-Hornblende- quartz back into classic granodiorite.
7252x4R	Basement	Granodiorite-classic Hornblende-quartz granodiorite.
7252x5R	Basement	Granodiorite-classic appearance with minor biotite crystals.
7252x6R	Basement	Granodiorite-classic hornblende-quartz granodiorite.
7252x7R	Basement	Granodiorite-classic hornblende quartz granodiorite inclusions of high concentrations of hornblende are evident.
7252x8R	Basement	Granodiorite-some composition change from above. Dirty quartz due increased chlorite content. Approximately 30-40% hornblende content.
7252x9R	Basement	Granodiorite-back into the classic hornblende-Granodiorite.
7252x10R		Granodiorite-chlorite staining on quartz. Hornblende and chlorites making up 30%-40% of the content.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 22SHEET 43

STATION	UNIT	DESCRIPTION	
7252x11R	Basement	Granodiorite-classic hornblende, Granodiorite.	
7252x12R	Basement	Granodiorite-chlorite rich, Hornblende Granodiorite	
7252x13R	Basement	Granodiorite-chlorite rich Hornblende Granodiorite	
7252x14R	Basement	Granodiorite-classic Hornblende Granodiorite	
7252x15R	Basement	Granodiorite-a definite composition change from classic to the chlorite rich rocks. Colouration is a pale off-white with abundant red crystals less than .3 cm in size. Less than 10% fine hornblende crystals. The matrix appears to be predominantly quartz with some feldspar. Rich Fe+ staining on weathered surface. Very hard.	
7252x16R	Basement	Granodiorite-back in classic Hornblende Granodiorites.	
7252x17R	Basement	Granodiorite-classic Hornblende Granodiorite.	
7252x18R	Basement	Granodiorite-Hornblende Granodiorite with some chlorite staining and crystals.	

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 22SHEET 44

STATION	UNIT	DESCRIPTION
7252x19R	Basement	Granodiorite/Volcanic Along the Hornblende Granodiorite rock there is a well defined contact. The associated rock is a dirty green colour with no crystal development evident. There are some pale green portions which appear to be stained quartz. There is some magnesium lustre present. (Slide 15).
7252x20R	Basement	Granodiorite. A chlorite stained Hornblende. Granodiorite with concentrated inclusions of chlorite and hornblende.
7252x21R	Basement	Granodiorite-chlorite stained hornblende granodiorite.
7252x22R	Basement	Granodiorite-chlorite rich hornblende granodiorite.
7252x23R	Basement	Granodiorite-chlorite stained hornblende Granodiorite.
7250x1R	Basement	Granodiorite-30-40% hornblende in quartz and some feldspar. Weathers buff orange to grey. Minor chlorite rich veins and staining but predominantly clean. Jointed at 1 m intervals.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 23SHEET 46

STATION	UNIT	DESCRIPTION
7644x1R	Basement	Granodiorite-hornblende 40% with crystal size of .2 to .4 cm.
7644x2R	Basement	Granodiorite-black and white colour weathering grey to buff. 40% hornblende in quartz and feldspar. Large outcrop, jointed and sheared.
7644x3R	Basement	Granodiorite-chlorite stained, less than 10% small hornblende crystals. Drity green colour weathers buff grey. Block outcrop may not be in place.
7644x4R	Basement	Granodiorite-chlorite stained. 30% dark coloured, hornblende and chlorite crystals. Chlorite veins, very sheared, buff-grey weathering.
7644x5R	Basement	Granodiorite-classic hornblende granodiorite. Block may not be in place.
7644x6R	Basement	Granodiorite-classic hornblende granodiorite.
7644x7R	Basement	Granodiorite-classic hornblende granodiorite with hornblende rich inclusions, block may not be in place.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 23SHEET 47

STATION	UNIT	DESCRIPTION
7444x1R	Basement	Granodiorite-classic hornblende granodiorite, minor chlorites, very sheared.
7444x2R	Basement	Granodiorite-classic hornblende granodiorite.
7444x3R	Basement	Contact: Granodiorite/Volcanics Granodiorite: classic hornblende granodiorite, 40% hornblende, crystals .2-.2 cm in size. Abundance of chlorite near the contact with a dirty mulched appearance. Weathers dark grey to green grey. Contact appears relatively clean with some of the finer crystalline volcanic rock in the granodiorite. Volcanics: medium to dark dirty green, 10% hornblende crystals-very fine less than .1 cm. Most of the remaining crystals are chlorite and chlorite stained quartz, minor clear quartz, less than 10%, all generally less than .1 cm. Has a sandstone appearance, lacking bedding. (Slide #9)



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 24SHEET 48

STATION	UNIT	DESCRIPTION
7444xR4	Basement	Granodiorite-generally classic hornblende granodiorite with some chlorite rich inclusions and veins. Sheared 1 m outcrop.
7444xR5	Basement	Granodiorite-classic hornblende granodiorite, chlorite traces .5 m outcrop.
7446x1R	Basement	Granodiorite. From 7444x5R to 7446x1R has been continuous small outcrops of hornblende granodiorite.
7446x2R	Basement	Grondiorite-hornblende granodiorite with crystals .2-.3 cm, sheared hornblende & chlorite rich inclusions, some magnesium colouration. Large outcrop 4m.
7446x3R	Basement	Granodiorite, classic hornblende, granodiorite very sheared.
7446x4R	Basement	Granodiorite, contact between two different granodiorites. The upper granodiorite has what appears to be more feldspars and is lighter in colour and breaks down more due to weathering. The lower granodiorite weathers a darker colour, has more hornblende and is more resistant.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 24SHEET 49

STATION	UNIT	DESCRIPTION	
7446x5R	Basement	Granodiorite-classic hornblende granodiorite, several granodiorite outcrops between 4R & 5R.	
7446x6R	Basement	Granodiorite-classic hornblende granodiorite.	
7446x7R	Basement	Granodiorite-classic hornblende granodiorite.	
7446x8R	Basement	Location where Child Creek crosses the Child Creek road. Large outcrop of granodiorite. There are large boulders blocking the road at this point. Hornblende granodiorite.	
7448x1R	Basement	Granodiorite-hornblende granodiorite with chlorite staining and chlorite rich inclusions along shears.	
7448x2R	Basement	Granodiorite-abundant 40% hornblende, minor green volcanics magnesium colouration parts. The granodiorite is generally dirty with grain size variable and chlorite staining.	

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 24SHEET 50

STATION	UNIT	DESCRIPTION	
7448x3R	Basement	Granodiorite-classic hornblende granodiorite.	
7448x4R	Basement	Granodiorite-chlorite rich hornblende granodiorite.	
7648x1R	Benson/ Basement	Granodiorite/Conglomerate-Granodiorite-chlorite rich, 30-40% hornblende crystals. Conglomerate-green, dirty, abundant fine-grained matrix containing large clasts of large angular volcanic rock fragments as well as abundance granodiorite fragments.	
7648x2R	Benson Mbr	Conglomerate-dirty, green-grey. Clasts vary from sand size to cobbles 5 cm in diameter, non-calcareous.	
7646x1R	Basement	Granodiorite-40% hornblende, shearing evident, slickensides, classic hornblende granodiorite.	
7646x2R	Basement	Granodiorite, classic hornblende granodiorite.	
x3R	Basement	Granodiorite, classic hornblende granodiorite.	



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY AlberniGEOLOGIST R. J. MelinDATE May 25SHEET 52

STATION	UNIT	DESCRIPTION
7650x4R	Basement	Hornblende granodiorite 20% hornblende crystal .2-.4 cm off white and black colour weathering dirty grey to tan with chlorite staining. Some chlorite rich veins (possibly volcanics) light to olive green, no crystal form evident, quartzite type texture.
7650x5R	Basement	Granodiorite-40% hornblende, minor chlorite staining abundant sheering evident, white power texture on sheer plains.
7650x6R	Basement	Stations 5R to 6R relatively continuous outcrop sections. The granodiorite appears dirty, chlorite stained. Crystal sizes are quite variable and the hornblende content varies from 20%-40%.
7650x7R	Basement	Granodiorite-classic hornblende granodiorite, several outcrops of granodiorite from 6R-7R.
7650x8R	Basement	Granodiorite-chlorite rich hornblende granodiorite, dirty grey colour.
7650x9R	Basement	Granodiorite-relatively clean, 30-40% hornblende only faint chlorite staining.



VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

TRAVERSE NOTES

PROPERTY ALBERNI

GEOLOGIST C. BICKFORD

DATE 11 October 1980 SHEET 54

STATION	UNIT	DESCRIPTION	
A 7454X2 (revisited)	KH?	Here at proposed site V is a new quarry. (The road has been reopened past here.) In quarry face is:	
		SILTSTONE - dark grey, very thickly-bedded, with pyritic concretions.	
		Strongly jointed; overall appearance is of some shearing. Jointing	
		(approx) 135/50 NE; bedding (approx) 100/10 N. This unit is tough and	
		splintery, looking as if baked. Might be Sicker, but very similar to	
		Haslam beds in top of hole BP-4 (site U).	

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DASH CREEK PROPERTY

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## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST C. BickfordDATE May 31SHEET 1

STATION	UNIT	DESCRIPTION
D0842x1		Here at junction of main road from Nanaimo River, and C7C line, no outcrop; thick till.
D0840x1	JI	SLP till. Here hornblende granodiorite.
x2	JI	Granodiorite
x3	JI	SLP and here at switchback, granodiorite.
x4	JI	SLP and here at junction with C7E line, granodiorite.
x5		SLP and here at junction with C7A1 line, no outcrop, only till.
D0642x1		SLP and here at junction with C39 line, till, probably fairly thick as here topography is subdued. C39 line is ditched but passable for a 4x4 vehicle.
x2		SLP and here at junction with C58 line, till.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST C. BickfordDATE May 31SHEET 2

STATION	UNIT	DESCRIPTION
D0642x3	KCxB	SLP till. Here at junction an outcrop in road, of CONGLOMERATE-subangular to rounded granules to 20 cm cobbles of greenstone in a very fine-grained to coarse-grained, ill-sorted, abundant brown sand matrix.
D0642x4	KCxB	CONGLOMERATE-as before.
x5		SLP and here no outcrops. Till is at least 1.5 m thick.
x6	KCxB	Here in ditch a 50 m - long exposure of CONGLOMERATE-granules to cobbles with brown matrix, as before.
x7	KCxB	CONGLOMERATE-as before but clasts more rounded, maximum about 12 cm. Framework is rather better-sorted, but still matrix is brown and abundant. Nearly flat-lying.
D0640x1		From D0642x3 to here at till. Here a small lake surrounded by swamp and snags. No outcrop.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST C. BickfordDATE May 31SHEET 3

STATION	UNIT	DESCRIPTION
D0640x2	JI	SLP at till. Here in active logging area, is hornblende granodiorite.
D0640x3	JI	Granodiorite, as before.
x4	JI	SLP scattered outcrops of granodiorite. Here granodiorite as before with scattered inclusions of greenstone.
x5	JI	Granodiorite with greenstone inclusions.
x6	JI	Granodiorite above and below on hillside. It can be readily recognised by its whitish-weathering, which is characteristic of the granodiorite seen thus far.
D0840x6	JI?	From D0640x6 to here fro 300 m scattered outcrops of granodiorite, then only till to here. Here junction; no outcrop.
x7	JI	Granodiorite.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST C. BickfordDATE May 31SHEET 4

STATION	UNIT	DESCRIPTION
D0840x8		Till - initially resembles conglomerate but has unconsolidated matrix and abundant granodiorite clasts.
D0640x7	KCxB	CONGLOMERATE-granules to 30 cm cobbles, subrounded, dominantly of greenstone but a few of granodiorite, in an abundant coarse-grained green sand matrix. Probable subcrop for 200 m outbye along road.
x8	KCxB	CONGLOMERATE-as before.
x9	KCxB	CONGLOMERATE-as before, but here consisting of rounded cobbles to 15 cm. Matrix here greenish-brown, perhaps due to weathering. Massive.
x10	KCxB	CONGLOMERATE-as before, consisting of rounded cobbles to 30 cm. Massive.
x11	JI	Granodiorite.
D0642x8	KCxB	CONGLOMERATE-poorly cemented, rounded cobbles of greenstone in an abundant matrix, which is green or brown, with brown predominant towards the top

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST C. BickfordDATE May 31SHEET 5

STATION	UNIT	DESCRIPTION	
		of the section (this is probably a weathering effect). Massive, flat-	
		lying est. 6 m+ thick.	
D0642x9		Here at junction with C37 line. No outcrop.	
x10	KCxB	CONGLOMERATE-subrounded to rounded cobbles, still with abundant matrix.	
x11	KCxB	CONGLOMERATE-angular to subrounded small pebbles to 6 cm cobbles of green-	
		stone in an abundant, illsorted coarse-grained brown sand matrix.	
x12	KCxB	CONGLOMERATE-as before	
x13	KCxB	CONGLOMERATE-as before	
x14	KCxB	CONGLOMERATE-well-rounded pebbles of greenstone, light and dark grey chert,	
		red chert, and quartz, in an abundant medium to coarse-grained grey sand	
		matrix. Thick-bedded, with some pebbly sandstone phases. Attitude:	
		175/15 E.	

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST C. BickfordDATE May 31SHEET 6

STATION	UNIT	DESCRIPTION
		The markedly more variable clast mineralogy suggests that this is near the top of the Benson.
D0642x15	KCxB	SANDSTONE-medium to coarse-grained, clean, quartz-lithic, medium grey with orange-weathering specks, massive, <u>occasional laminae of pebbles and granules.</u> Purplish-weathering, patchily calcareous, attitude 155/10 E.  This may be the very uppermost Benson.
x16	KCx	SANDSTONE-fine to medium-grained, clean, quartz-lithic, medium greenish-grey, hematitic-weathering, rubbly to blocky and spheroidal-weathering, medium to thick-bedded, scattered rootlets. Slightly calcareous.  Attitude: 140/6 NE.
x17	KCx	SANDSTONE-fine to medium-grained, clean, quartz-lithic, non-calcareous, orange-weathering specks, orange-brown-weathering, massive, blocky.  One ? ostreaid pelecypod.
x18	TI	FELDSPAR PORPHYRY-grey, hornblende-rich groundmass. At least 1.5 m exposed.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST C. BickfordDATE May 31SHEET 7

STATION	UNIT	DESCRIPTION
D0642x19	TI	HORNBLLENDE FELDSPAR PORPHYRY
D0644x1	KCx	SANDSTONE-medium-grained, clean, quartz-lithic. Attitude: 111/22 NE. Massive, blocky, non-calcareous, brown-weathering, with orange-weathering specks. 3 m+ thick.
x2	KCx	SANDSTONE-medium to coarse-grained, clean, light grey, tan-weathering, non-calcareous, massive, blocky. <u>May not be in place.</u>
x3	TI	HORNBLLENDE-FELDSPAR PORPHYRY-phenocrysts 50% of rock: 10% hornblende and 40% white plagioclase. Groundmass 50% of rock: pale greenish-brown looks chloritic.
x4	TI	HORNBLLENDE-FELDSPAR PORPHYRY-as before.
x5	TI	HORNBLLENDE-FELDSPAR PORPHYRY-dark green, chloritic-looking matrix.
x6	TI	HORNBLLENDE-FELDSPAR PORPHYRY-as before.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST C. BickfordDATE May 31SHEET 8

STATION	UNIT	DESCRIPTION
D0644x7		Here at junction, no outcrop. SLP, scattered porphyry outcrops for 100 m, then nothing.
D0644x8	TI	HORNBLLENDE-FELDSPAR PORPHYRY-visibly crystalline, greenish-grey groundmass.
D0844x1		SLP all till. Here junction of C-30 line and C-31 line. C-30 is ditched and cannot be entered from this end. Here bouldery till.
x2		Here junction of C-30 and mainline. Still no outcrop.
D0642x20		Since D0642x1, no outcrop. Here a washed-out culvert; still no outcrop.
x21		SLP, here no outcrop: some till in banks.
D0844x3		Here at junction with C-30 line. Here and SLP no outcrop, although a few cuts show till.
D0844x4	TI	SLP no outcrop, although some exposures of till. Here in ditch, chlorite-rich, brown-weathering, feldspar porphyry.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST C. BickfordDATE May 31SHEET 9

STATION	UNIT	DESCRIPTION
D0844x1	(revisited)	From D0844x4 to here, no outcrop.
D0842x2	KCxB	SLP no outcrop. Here CONGLOMERATE-well-rounded pebbles, mostly of greenstone but some chert and quartz.
x3	KCxB	SLP only till. Here CONGLOMERATE-pebbles of greenstone in a dark green, brown-weathering illsorted coarse-grained sand matrix. Probably underlies beds of x2.
x4		SLP and here no outcrop. Road is in poor shape.
D0646x1		From D0844x2 to here via C line. No outcrop.
x2		Here road washed out and overgrown. SLP and here no outcrop. Till shows in banks.
x3	JI ?	Here on hillside, seen from road, are large light-weathering blocks or perhaps outcrop, probably of granodiorite.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. MelinDATE May 31SHEET 10

STATION	UNIT	DESCRIPTION
D0642x1R	Upper Benson	Conglomerate, light tan to buff sand matrix. Abundant clasts and cobbles, similar to color to the matrix but with some light green coloration. These clasts are sub-rounded to sub-angular and comprise 60% of the rock. The clasts range in size from 0.2 cm to 5 cm. Approximately 20% of the conglomerate is made up of chert and quartz clasts ranging from pebble size to cobble size and again are sub-rounded to sub-angular.
D0642x2R	Upper Benson	Conglomerate, similar to above, block is probably in place.
D0642x3R	Upper Benson	Conglomerate, similar to 0642x1R, block is probably in place.
D0642x4R	Upper Benson	Conglomerate, dark green to brown, matrix of coarse sandstone, clasts range from pebbles to cobbles, with the cobbles being less than 3 cm in diameter, sub-angular clasts and cobbles.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 11

STATION	UNIT	DESCRIPTION
D0642x5R	Comox	Sandstone, medium grey, buff to rust weathering, fine to medium-grained well dispersed cobbles and pebbles throughout, iron staining, non-calcareous. Thin beds of conglomerate within the sandstone. Sandstone is underlain by a green sandy, ill-sorted conglomerate. Strike: $260^{\circ}$ / Dip: $12^{\circ}$ N.
D0642x6R		Conglomerate/Sandstone, grey green blocks along the side of the road which are not in place. Photograph taken at this station.
D0642x7R	Comox	Sandstone, light-medium grey, rust weathering, fine to medium grained with scattered pebbles, small concretions throughout, Conglomerate bands near base, .5 m outcrop.
D0642x8R	Comox	Sandstone, buff to rust colored, fine to coarsed grained with minor pebbles throughout. Abundant carbonaceous debris, branches, rootlets, mulched up and inlaid in the sandstone. Strike: due north/Dip: $9^{\circ}$ .

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 12

STATION	UNIT	DESCRIPTION
D0642x9R	Comox	Sandstone, medium grey, buff weathering, medium-grained, massive with finely laminated sandstone beds. Carbonaceous debris throughout outcrop.
D0642x10R	Porphyry	Porphyry, white-grey color, buff weathering, feldspar crystals 0.2 cm to 1.0 cm in diameter abundant fine hornblende crystals (about 10%).
D0642x10AR	Prophyry	Porphyry, similar to above with the matrix becoming greener.
D0642x11R	Comox/Ben	Conglomerate/Sandstone, contact, grey to buff weathering, sandstone is massive with some fine bedding. Conglomerate is dirty and ill-sorted. Strike: 315°/Dip 19° NE.
D0642x12R	Comox/Ben	Conglomerate, dirty green, ill sorted, clasts are chert and greenstone with some quartz pebbles. The conglomerate is overlain by grey to buff weathering sandstone, some sandstone and conglomerate interbeds.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 13

STATION	UNIT	DESCRIPTION
D0642x13R	Comox	Sandstone, dark grey, generally fine to medium-grained, massive, slightly calcareous, outcrop has intermittent worm burrows and small carbonaceous debris.
D0642x14R	Comox	Sandstone, medium grey, buff to rust weathering similar to 0642x8R. Abundant concretions which are iron stained and dirty in appearance, abundant carbonaceous debris. Strike: $313^{\circ}$ /Dip: $21^{\circ}$ NE.
D0642x15R	Comox	Sandstone, medium to dark grey, with conglomerate; light green sand matrix with chert and quartz clasts and pebbles, minor green clasts as well. Probably a conglomerate within the lower Comox.
D0642x16R	Comox	Sandstone, green to green grey turbulent dirty appearance, rust weathering, very uneven bedding to massive in parts, non-calcareous, abundant root-lets and carbonaceous branches throughout. Slide #2. Strike: $290^{\circ}$ /Dip $40^{\circ}$ NE.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 14

STATION	UNIT	DESCRIPTION
D0642x17R		Metamorphic, greenish color with off-white and fine black flecks, feldspar quartz crystals fine to 0.3 cm, chlorite rich and abundant fine hornblende crystals.
D0642x18R	Porphyry	Porphyry, highly weathered feldspar porphyry.
D0642x19R	Comox/ Porphyry	Porphyry/Sandstone, contact, dirty grey, abundant carbonaceous debris. Strike: 290°/Dip 18° NE.
		NOTE: We have located a relatively continuous stratigraphic section, from the Benson conglomerate to the Porphyry sill and there has been no carbonaceous shale or coal encountered (i.e. station 1R to 19R in map area 0642).
D0642x20R		Metamorphic, generally green, hornblende rich and chlorite stained, quartz and feldspar crystals are fine, generally less than 0.1 cm.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 15

STATION	UNIT	DESCRIPTION
D0642x21R	Benson	Conglomerate, sandy matrix, large clasts and cobbles generally dirty and ill sorted, rust weathering, coarse sand lenses within conglomerate body.
D0642x22R	Benson	Conglomerate, dirty green matrix, rust weathering, ill sorted clasts and cobbles.
D0642x23R	Benson	Conglomerate, dirty green matrix, ill sorted, rust weathering, as we move "down" section the conglomerate appears to be greener in color.
D0642x24R	Benson	Conglomerate, dirty green matrix, ill sorted with clasts, pebbles and cobbles up to 8 cm in diameter.
D0642x25R	Benson	Conglomerate, dirty dark green color, clasts and cobbles becoming larger down section. Cobbles larger than 10 cm. Slide to compare with slide taken at the top contact to show contact in clast size. Slide #13 (rock hammer for scale).



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 16

STATION	UNIT	DESCRIPTION
D0642x26R	Benson	Conglomerate, dark dirty green, ill sorted, similar to 0642x25R.
D0642x27R	Benson	Conglomerate, dark dirty green, ill sorted, clast size steadily increasing to greater than 20 cm in diameter.
D0642x28R	Benson	Sandstone, very coarse sandstone bed, light grey and green, minor pebbles scattered throughout. Thickness 2 m, grading back into large cobble green matrix conglomerate.
D0642x30R	Benson	Sandstone, buff colored, rust weathering, medium grained.
D0642x29R	Porphyry	Porphyry, badly weathered feldspar porphyry.
D0644x1R	Porphyry	Porphyry, buff to light brown, matrix increasing in size with feldspar phenocrysts being better developed and large in size, 20% hornblende crystals.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 17

STATION	UNIT	DESCRIPTION
D0644x2R	Porphyry	Porphyry, similar to 0644x1R, increased hornblende content.
D0644x3R	Porphyry	Porphyry, feldspar porphyry, crystals becoming equi-granular at approximately 0.2 cm to 0.3 cm.
D0644x4R	Porphyry	Porphyry, feldspar porphyry, similar to above becoming more equi-granular.
D0644x5R	Porphyry	Porphyry, feldspar porphyry, equi-granular, some chlorite staining is evident.
D0644x6R	Porphyry	Porphyry, feldspar porphyry, approximately 15% hornblende.
D0644x7R	Porphyry	Porphyry, feldspar porphyry, equi-granular, chlorite rich, quartz crystals becoming more evident, hornblende no longer fine and long, approximately 20% hornblende.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 18

STATION	UNIT	DESCRIPTION
D0644x8R	Porphyry	Porphyry, extreme red rust colored weathering, due to weathering it is difficult to determine composition. However, it appears to be quartz and K feldspar. Has texture much like a porphyry.
D0644x9R	Porphyry	Porphyry, feldspar porphyry, fine dirty light grey background, white feldspar crystals up to 0.3 cm and minor dark chlorite crystals.
D0644x10R	Porphyry	Porphyry, feldspar porphyry, 50% large crystals of feldspar in a fine grey-brown matrix. (Previous percentage of feldspar 20%).
D0644x11R	Porphyry	Porphyry, feldspar porphyry, 20% large feldspar crystals, background crystals size increasing as is the chlorite content.
D0644x12R	Porphyry	Porphyry, feldspar porphyry, becoming equi-granular, chlorite staining.
D0644x13R	Porphyry	Porphyry, grading to a fine crystal granodiorite, 20% fine hornblende crystals.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 19

STATION	UNIT	DESCRIPTION
D0644x14R	Porphyry	Porphyry, feldspar porphyry, approximately 35% feldspar crystals up to 0.2 cm in a light grey fine crystal background, 10% fine hornblende.
D0644x15R	Porphyry	Porphyry, feldspar porphyry, becoming equi-granular, has a granidioritic appearance.
D0644x16R	Porphyry	Porphyry, feldspar porphyry, similar to above.
D0644x17R	Porphyry	Porphyry, feldspar porphyry, crystals of white feldspar up to 0.4 cm in a dirty grey background, 15% hornblende.
D0644x18R	Porphyry	Porphyry, feldspar porphyry, becoming equi-granular, feldspar, quartz and 20% hornblende.
D0644x19R	Porphyry	Porphyry, feldspar porphyry, similar to 0644x18R.
D0644x20R	Porphyry	Porphyry, very weathered, red-orange in color, appears to have some K feldspar.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 20

STATION	UNIT	DESCRIPTION
D0644x21 R	Porphyry	Porphyry, feldspar porphyry, very fine matrix with 30% feldspar crystals ranging from 0.1 to 0.3 cm in size.
D0644x22R	Porphyry	Porphyry, very weathered rust to orange, no crystals evident appears to be tuff like.
D0644x23R		Conglomerate block, may not be in place. Dirty rust weathering, cobbles and pebbles generally less than 2 cm in diameter, cobbles and pebbles are quartz and cherts.
D0644x24R		Volcanic, grey to green color, buff weathering, crystals grade from fine (sand size) to 0.2 cm. 5 m exposure, the weathering gives the rock a quartzose sandstone appearance.
D0644x25R	Basement	Granidiorite, 30-40% hornblende, some (10%) pink K feldspars evident, crystals are less than 0.1 cm to 0.3 cm in size, some chlorite staining.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 21

STATION	UNIT	DESCRIPTION
D0644x26R	Basement	Granodiorite, hornblende Granodiorite, 40% hornblende crystals which are unusually large as compared to feldspar and quartz crystals, 0.4 cm in size.
D0644x27R	Basement	Granite, chlorite stained, 15% hornblende granite.
D0644x28R	Benson	Conglomerate, buff weathered sand matrix with abundant sub-rounded chert and quartz clasts and cobbles, generally 1 cm to 5 cm, bands of fine pebbles conglomerates in parts as well as sandy portions.
D0644x29R	Benson	Conglomerate, as above, chert and quartz sub-rounded clasts.
D0644x30R	Benson	Conglomerate, green sand matrix with abundant green clasts, bands of very coarse grained sandstone also associated with this conglomerate.
D0644x31R	Benson	Sandstone, coarse grained sandstone grading to a fine conglomerate of cherts and quartz.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 22

STATION	UNIT	DESCRIPTION
D0644x32R	Benson	Conglomerate, becoming coarser, green to brown in color, cobbles generally chlorite rich volcanics up to 8 cm in diameter, conglomerate is ill sorted with clasts being sub-angular.
D0642x31R	Benson	Conglomerate, ill sorted green to brownish green, clasts of cherts and quartz, cobbles up to 4 cm, sub-rounded to sub-angular.
D0642x32R	Benson	Conglomerate, abundant green clasts in a green matrix.
D0642x33R	Benson	Conglomerate, ill sorted green conglomerate with large cobbles of chert and some granodiorite. Dip is very difficult to obtain by appears to be approximately 10° NE.
D0642x34R	Benson	Conglomerate, dirty grey to green, ill sorted with large cobbles, the outcrop is badly sheared.
D0642x35R	Benson	Conglomerate, as above, dirty grey to brown, large cobbles.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Dash CreekGEOLOGIST R. J. MelinDATE May 31SHEET 23

STATION	UNIT	DESCRIPTION
D0642x36R	Basement	Granodiorite, 30 to 40% hornblende, approximately 10% K feldspars, crystal sizes varies from 0.1 cm to 0.3 cm, some chlorite staining evident.
D0642x37R	Basement	Granite, 30% hornblende, minor chlorite staining, crystal size varies from 0.1 cm to 0.3 cm.
D0642x38R	Basement	Granite, same as above, but a decrease in K feldspar content is evident.
D0642x39R	Basement	Granodiorite, 20% hornblende, minor K feldspars.
D0642x40R	Basement	Granodiorite, classic hornblende granodiorite.
D0442x1R	Basement	Basement, appears to be hornblende granodiorite.
D0442x2R	Basement	Basement, as above.
D0640x1R	Basement	Basement, appears to be hornblende, granodiorite.







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## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. BickfordDATE May 29SHEET 1

STATION	UNIT	DESCRIPTION	
P8864x1		Here at Little Qualicum Park. From highway, no outcrop.	
x2	JI	Here above lower falls, gorge in granodiorite, biotite-rich.	
x3	JI	Granodiorite, white, brownish-weathering, biotite-rich.	
x4		Here in the riverbed is exposed the base of the Nanaimo Group.	
x5		Here are exposed beds higher in the section. The following is a composite	
x6		stratigraphic section: as most of the beds are inaccessible due to the	
		rapid current of the river, thicknesses and lithologies are approximate:	
		TOP OF EXPOSURE IN CLIFF: (x6)	
	KH	MUDSTONE?-rubbly, dark brown-weathering	10 m+
		SANDSTONE-fairly persistent, buff-weathering	075/4 NW 0.5 m+
		MUDSTONE?-rubbly, dark brownish-grey-weathering.	085/5 NW 20 m+
	KCx?	SANDSTONE-fine-grained, dark brownish-grey, grey-weathering, abundant	
		biotite flecks and large carbonised plant fragments, thickness ranges from	

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. BickfordDATE May 29SHEET 2

STATION	UNIT	DESCRIPTION	
		40-60 cm. Attitude on south side of river: 112/0 to 22 NE (drape)	1 m+
		MUDSTONE?-olive-grey-weathering, containing some well-rounded cobbles.	
		This unit fills hollows in the pre-Nanaimo Group surface, thickness ranges from 60cm to	2 m +
		UNCONFORMITY	
	JI	QUARTZ DIORITE-biotite-rich.	
		BASE OF EXPOSURE IN RIVER BED (x4)	
		The 20 m mudstone unit is notable in that it contains sandstone dykes, oblique to the bedding. Typical attitudes are 040/45 W and 040/45 E.	
P8864x7		Here high above river is subcrop of MUDSTONE-dark grey to brownish-grey, brown-weathering, some silty laminae, rubbly. Similar in appearance to the mudstones of x6.	
P9468x1	KH	Here at north tower of railway bridge, approximately 15 m of MUDSTONE, silty/SILTSTONE, argillaceous/SANDSTONE very fine-grained (45:50:5)-	

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. BickfordDATE May 29SHEET 3

STATION	UNIT	DESCRIPTION	
		<p>-interbedded, thin-bedded, rubbly, dark grey, slate-grey-weathering (bluish cast), sandstones tend to be slightly buff-weathering. Scattered small dark burrows, but lamination is generally planar to lenticular, delicate, and well-preserved. Some spheroidal weathering is evident. Occasional ferruginous bands, up to several m long and from 5 to 10 cm thick. Some finely comminuted plant debris and mica on bedding, which here is at 170/4 E.</p>	
P9468x2		<p>CONGLOMERATE-massive, ill-sorted, devoid of lamination. Framework consists of granules to small pebbles, moderately sorted and well-rounded up to 3 cm (mode 1 cm); in a matrix of brown mud to very fine sand. Basal 0.6 m of exposure consists of 0.05 to 0.08 m interbeds of dark olive grey silty mudstone and muddy gritstone. For 1 m above this, the conglomerate contains abundant large (to 0.15 x 0.9 m) tabular mudstone blocks.</p>	



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. BickfordDATE May 30SHEET 4

STATION	UNIT	DESCRIPTION
P8470x1		Here at junction of Hornelk Road and new 500 KV power line. In a small ridge to SE is exposed SILT-clayey, some sandy phases, soft, compact, blocky to rubbly, golden brown, with some rootlets. Probably Pleistocene.
P8068x2		Here in a quarry, sand gravel over sand-at least 5 m thick.
x4		Here on logging road, sandy gravel over 2 m of sand.
x5	?	Here at bridge over 15 m-deep dry gorge. Under bridge are overhanging exposures of LIMESTONE-medium to thick-bedded, dark grey, coarsely crystalline. Attitude: 120/61 NE. May be Quatsinc Limestone.
P8268x1		From sawmill to here, no outcrop. Soil is gravely sandy till or outwash.
x2		GREENSTONE-medium greenish grey with abundant clots of a dark green to black mineral.
x3		GREENSTONE-massive, blocky, dark emerald green. 8 m face in quarry.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. BickfordDATE May 30SHEET 5

STATION	UNIT	DESCRIPTION
P8468x1		SLP no outcrop. Country is underlain by sand and gravel, perhaps outwash
		Spider Lake may be a group of kettles. Here at fork in road, still no outcrop.
P8466x1		SLP, here no outcrop. Still in outwash flats. Here junction with
		Kinkade Main Line.
P8666x1		Still no outcrop along road, but possible outcrop up hill to S. Here at
		junction with overgrown road.
x2	TrK	GREENSTONE-hornblende-feldspar-chlorite, dark green, purplish-red- weathering, sucrosic texture. Low, rounded outcrops.
x3	TrK	GREENSTONE-like at P8268x3, with scattered phenocrysts of hornblende and feldspar. Hill slope above is dotted with low, rounded bluffs, similar to x2 and x3.
x4	TrK	GREENSTONE-feldspar-chlorite, dark green, but lighter-weathering. In ditch at fork in road.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. BickfordDATE May 30SHEET 6

STATION	UNIT	DESCRIPTION
x5	TrK	GREENSTONE-as at x4. At fork in road.
P8666x6	KCx	SANDSTONE-medium to very coarse-grained, quartz-feldspathic, some silty phases, angular, moderately sorted, very abundant carbonised plant debris and thin coaly laminae. Dark grey, rusty brown-weathering, thick-bedded, blocky to rubbly, poorly cemented. 0.6 m+
		MUDSTONE-light grey, silty, rubbly, rusty-weathering, thin-bedded, with thin laminae of very fine to fine-grained sandstone, thin carbonaceous mudstone laminae, abundant coaly lenses and laminae. One coaly lens at top is up to 0.02 m thick. Attitude (fair) 135/17 SE. 0.3 m+
P8664x1	TrK	GREENSTONE
x2	TrK	GREENSTONE
P9064x1		Here railway cuts in sand.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. BickfordDATE May 30SHEET 7

STATION	UNIT	DESCRIPTION
P9064x2		Here 500 KV line crosses highway. No outcrop.
x3		SLP sand and gravel along right of way. No outcrop.
P8864x8		From park road crossing to here, no outcrop. Railway cuts in gravel in sand. Here 12 m+ of sand and gravel. Basal 2 m is a clean, fine-grained sand.
x9		Here in cut, 15 to 20 m of silty stony till, overlain by 1 to 2 m of sand.
P8862x1		Here till in cut. SLP no outcrop.
x2	JI	Here in road cut, GRANODIORITE-biotite-rich.
x3		Here in road cut, 5 to 6 m+ of sand and gravel, overlying sandy stony till.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. BickfordDATE June 11SHEET 9

STATION	UNIT	DESCRIPTION
P0266Zx1	KEx	CONGLOMERATE-sub-rounded to well-rounded granules and pebbles of chert and greenstone in an abundant fine-grained, rusty-weathering sand matrix. Large-scale low-angle cross-laminated. Attitude: (fair) 115/6 NE.
P0466Zx1	KEx?	Here in field, not accessible from road, is a low, rounded cuesta, striking 135°; backslope dipping 5° NE.
P0062Zx1	KEx	Here subcrop of CONGLOMERATE-subrounded to well-rounded granules and small pebbles of chert, quartz and greenstone. One coal fragment. Abundant fine-grained rusty-weathering sand matrix.
P0062Zx2	KEx	Here small, low exposure on road allowance, of GRITSTONE-sandy, pebbly, and SANDSTONE-fine to medium-grained, brown-weathering, pebbly. Pebbles are chert, greenstone, gneiss, and quartzite. All rounded. Attitude 118/5 NE.
P0262Zx1	KEx	Here in ditch is small exposure of CONGLOMERATE-rounded to well-rounded granules and small pebbles (rare to 3 cm) of chert, greenstone, sandstone/quartzite, in an abundant fine to medium-grained brown-weathering sand.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. BickfordDATE June 13SHEET 11

STATION	UNIT	DESCRIPTION
P0256x4	KCxB/TrK	Here at lower falls, 5 m of greenstone pebble to boulder conglomerate overlies Karmutsen greenstones. Clasts in conglomerate are angular to subrounded.
x6	KCx?	MUDSTONE-dark brown, rubbly, evidently overlies conglomerate of x4.
P0256x1	KCx/ KCxB/ TrK	Here at upper bridge at Englishman River Falls Park, cliff shows approximately 6 m sandstone overlying 6 m conglomerate, boulder, which unconformably overlies the Karmutsen.
x2	KCxB/TrK	Here KCxB conglomerate infills hollows in the TrK surface. The Benson is composed of blocks of greenstone (up to 1 m) floating in greenstone-pebble (mostly well-rounded) conglomerate with abundant fine sand matrix.
x3	KCx	Here a high bluff of massive, bluff-weathering sandstone. At least 30 m high. Top of bluff on east side is very fine-grained, silty.





## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. LangillDATE May 27SHEET 13

STATION	UNIT	DESCRIPTION
P8078x1	over-burden	Ditch exposure of iron stained till, rounded and sub-rounded cobble size clasts; 70% are of granodiorite 20% of greenstone, matrix is sandy and bright rust colour.
P7878x1	over-burden	Till only; iron stain, more angular clasts, SLP scattered till exposures.
P7878x2		Till; iron-stained, stony 1 m thick.
P7878x3	over-burden	outcrop or erratic boulder, isolated at roadside, not part of a ridge, dark green (wit) very hard, breccia or volcanic conglomerate, possible attitude 92/32 S. Angular surface about .5 x 1 m.
P7678x1	over-burden	Flat lying, till-covered ground surface, trees and threatening signs bar the road "beware of dog". Occasional bolder of granodiorite up to .8 m no outcrop on any of many roads.
P7878x 4	over-burden	till, .5 m thick

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. LangillDATE May 27SHEET 14

STATION	UNIT	DESCRIPTION
P7878x5	over-burden	well sorted, medium sand. Slightly stratified 1 m thick.
P7680x1	over-burden	SLP, sand on road side exposures, ATP 2 m thick.
P7680x2	over-burden	SLP sand, ATP sand 2.5 m exposed, no crossbeds, laminae ( 3mm thick) of dark sand grains. Possibly rock fragments, not apparently organic material. Light laminae are well sorted quartz.
P7878x6	over-burden	Till, medium sand matrix, well-sorted, clasts of subangular pebbles and cobbles, some stratification apparent. Formed by layers of less pebbly till alternating with layers of moderately well-sorted, rounded, pebble rich till. Not iron stained, buff coloured dry surface, exposure is 2.5 m thick.
P7878x7	over-burden	SLP, about .3 km along road, till. ATP poorly sorted, non-stratified drift, iron staining at scattered locations. About 2 m thickness exposed.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. LangillDATE May 27SHEET 15

STATION	UNIT	DESCRIPTION
P8078x2	over-burden	till only, iron stained, poorly sorted
x3	"	till only, iron stained, poorly sorted
x4	"	till only, iron stained, poorly sorted
x5	"	till only, iron stained, poorly sorted
x6	"	till quite stony, 2 m exposed
P7876x1	over-burden	till, small ridge in topography
x2	"	SLP, ATP: till
P7874x1	"	SLP, ATP: till
P7876x3	"	SLP, stony, iron stained
x4	"	sand medium to coarse, some subrounded cobbles to 4 cm. Buff coloured 2 m exposed.
x5	"	pebbly sand, 10% pebbles, sub-rounded, dark yellow brown wet colour; buff dry colour 3.5 m thickness. (Note this station not found on map CLB)
P7676x1	"	sandy till ATP, 10 m thickness
		SLP, sandy till, pebbly sand and gradations.
P7676x2	"	SLP, ATP: till

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. LangillDATE May 27SHEET 16

STATION	UNIT	DESCRIPTION
P8276x1	over-burden	till
x2	"	till
x3	"	gravel and till
x4	"	till 1.5 m thick
x5	"	till 5 m thick, stony till, clasts sub-rounded to 10 cm. 50% matrix moderately well-sorted sand matrix, dark brown wet, buff dry, some is iron stained.
P8274x1	over-burden	no outcrop
P8474x1	"	gravel pit, till adjacent 3 m, buff colour
x2	"	till
x3	"	till and stratified drift 3 m, buff colour, gravel, cobbles to 7 cm sand layers.
P8472x1	"	SLP, ATP till
x2	"	SLP, ATP till

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST C. LangillDATE May 28SHEET 17

STATION	UNIT	DESCRIPTION	
P7880x1	over-burden	till	
P8078x7	"	till 20 m thick	
P8078x8	"	till	
P8474x4	"	grey-brown till	
x5	"	sand, pebbly, buff-coloured 3 m	
P8472x3	"	till	
x4	"	SLP, ATP till	
P8068x1	"	SLP, ATP till	
	possibly outcrop	also either a) outcrop, or b) large erratic in till sample taken 'fresh'	
	as well	surface is dark green to black, but rock is very weathered - buff colour.	
		Veins of white quartz 1 cm thick, aphanitic, mafic groundmass, one	
		surface is smooth, rounded, the remainder are fractured, angular.	
		Angular clasts of same material are abundant in float here.	
P8068x2	over-burden	till, stratified drift (possibly kame deposit 5.m exposed in quarry.	
x3	"	till.	



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Parksville

GEOLOGIST R. J. Melin

DATE May 27

SHEET 19

STATION	UNIT	DESCRIPTION
P9858x1R	Haslam	Mudstone, dark grey weathers buff to dark grey. Slightly silty, conchoidal fractures, rubbly. Rubbly-probably in place.
P9858x2R	Haslam	Mudstone, dark grey, silty, as above. Probably in place.
P9658x1R	Haslam	Mudstone, dark grey slightly silty, iron stained, weak concretions rubble weathering. Low angle dip, appears to be $5^{\circ}$ NE. Strike approximately $300^{\circ}$ .
P9658x2R	Haslam	Mudstone, dark grey, as above, minor silty and argillaceous sand lenses.
P9656x1R	Haslam	Mudstone, dark grey, conchoidal fracturing, weak concretions, becoming lighter coloured medium grey to greenish grey.
P9656x2R	Haslam	Mudstone, medium grey to greenish grey, iron staining, conchoidal fracturing.
P9656x3R	L. Haslam	Mudstone/Siltstone, medium grey to greenish grey weathers buff to dark grey iron staining. conchoidal fracturing. Not as crumbly as previous mudstone.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST R. J. MelinDATE May 27SHEET 20

STATION	UNIT	DESCRIPTION
		Fossil imprint appears to be an ammonite.
		Strike 321°/Dip 5°-7°.
P9656x4R	Haslam	Mudstone, medium grey as above weathering buff to dark grey. The dark grey to black is evident on weathered fracture surfaces, a result of iron staining.
P9656x5R	Haslam	Mudstone, medium green grey to grey weathering buff and dark grey. Iron staining conchoidal fracturing. Weak concretions. Strike: 350°/Dip 16° NE.
P9656x6R	Haslam	Mudstone, as above.
P9656x7R	Haslam	Mudstone, medium grey, conchoidal fracturing as above, fracturing very evident.
P9656x8R	Basement	Granodiorite, off white to dark grey, buff weathering. Badly weathered, friable and dirty. 30-40% hornblende. Large dark green-grey inclusions.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST R. J. MelinDATE May 28SHEET 22

STATION	UNIT	DESCRIPTION
P9656x11R	Porphyry	Porphyry, greenish grey with some brown matrix. White feldspar crystals throughout up to .2 cm. Matrix is cleaner and crystals are larger and better defined than in 10R.
P9656x12R	Basement	Granodiorite, 20% hornblende, dirty appearance very weathered. Abundance of sheering and veins, some pink staining on sheered surfaces.
P9656x13R	Basement	Granodiorite block, 40% hornblende becoming more like classic hornblende granodiorite. Block probably in place.
P9856x1R	Porphyry	Porphyry, medium greenish grey, relatively homogeneous matrix with a quartzitic texture. 20% large well developed feldspar crystals scattered throughout, crystal size .05 to .2 cm.
P9856x2R	Basement	Granodiorite, classic hornblende granodiorite-abundant sheering
P9856x3R	Basement	Granodiorite, classic hornblende granodiorite, as above.

## VANCOUVER ISLAND 1980 . . . . . GEOLOGICAL MAPPING PROGRAM

## TRVERSE NOTES

PROPERTY ParksvilleGEOLOGIST R. J. MelinDATE May 28SHEET 23

STATION	UNIT	DESCRIPTION
P9658x3R	L. Haslam	Sandstone, medium to dark grey, bubb-iron and magnesium stained weathering, argillaceous laminated with darker siltstones and mudstones. In portions the sandstone grades to mudstones with sandy laminae. Non calcareous. Strike $285^{\circ}$ Dip $9^{\circ}$ - $15^{\circ}$ NE.
P9658x4R	L. Haslam	Sandstone/Mudstone, interbedded (beds less than 10 cm) very fine grained argillaceous sandstone with darker siltstones and mudstone. Weathers buff-dark grey with iron and magnesium staining (slide #12). Strike approximately $280^{\circ}$ Dip $6^{\circ}$ NE.
P9658x5R	L. Haslam	Sandstone, (similar to above) very fine grained, argillaceous with laminae (less than 10 cm usually 1 cm or less) of darker coloured siltstone or mudstone. Non-calcareous. Strike: $310^{\circ}/9^{\circ}$ NE.
P9658x6R	L. Haslam	Sandstone/Silty Mudstone, interbedded argillaceous sandstone, very fine grained and silty mudstone buff to dark grey weathering, iron and magnesium stained. Strike: $291^{\circ}/9^{\circ}$ NE.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST R. J. MelinDATE May 29SHEET 25

STATION	UNIT	DESCRIPTION
P9456x2R	Haslam	Mudstone, dark grey clean conchoidal fracturing iron and magnesium staining and concretions.
P9456x3R	Haslam	Mudstone, dark grey laminated with thin siltstone and argillaceous sandstone bands fine small worm burrows. Contact with green fine grained sandstone (or volcanic-difficult to tell because grain size indicated sandstone but no bedding is evident. Mudstone northeast of green rock. Strike: $304^{\circ}$ /near verticle.
P9458x1R	L. Haslam	Sandstone, medium to dark grey, buff weathering, argillaceous, fine to very fine grained. Some muddy laminae, non-calcareous, iron stained. Strike: $302^{\circ}/84^{\circ}$ NE.
P9458x2R	L. Haslam	Siltstone Sandstone similar to above-muddier. Strike $309^{\circ}/44^{\circ}$ NE.
P9458x3R		Sandstone, medium grey minor dark grey well bedded fine laminations. Fine and very fine argillaceous fine muddy beds, buff weathering, Strike: $310^{\circ}/36^{\circ}$ NE.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Parksville

GEOLOGIST R. J. Melin

DATE May 29

SHEET 26

STATION	UNIT	DESCRIPTION
P9458x4R		Sandstone, medium to dark grey buff weathering, some mudstone beds and fine clasts very small scale irregular bedding. Strike: $302^{\circ}/29^{\circ}$ NE.
P9258x1R	Basement	Volcanics, "off" green to a whitish grey colour, fine background, less than 10% fine hornblende crystals.
P9258x2R	Basement	Volcanics, off white minor, traces of K feldspar in feldspar quartz background minor hornblende.
P9258x3R	Basement	Granite, lithology grading to increased K feldspar content from 2 R to 3R. Hornblende content varies from 5 to 20% increase in crystal size to approximately .2 cm.
P9258x4R	Basement	Granodiorite-Granite with varying K feldspar content. 10 - 25% hornblende crystal size generally less than .1 cm, dirty appearance, red to buff weathering. (Slides 18 & 19 South end of Parksville Area).

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST R. J. MelinDATE May 29SHEET 27

STATION	UNIT	DESCRIPTION
P9258x5R	Basement	Granite / Granodiorite very chlorite rich-staining, dirty appearance buff weathering crystal size .1-.3 cm. Green volcanics deep green colour crystals less than .1 cm quartzitic texture.
P9258x6R	Basement	Granodiorite, 30-40% hornblende, dirty appearance, crystals .1 to .3 cm some hornblende rich inclusions.
P9258x7R	Basement	Granodiorite 10% to 20% hornblende, some pyrite mineralization.
P9258x8R	Benson Basement	Conglomerate, dirty green and grey. Ill sorted sand grain size to 5 cm cobbles. Large clast of green volcanics and blocks of hornblende granodiorite. Granodiorites may be reworked - Possible contact Benson Fm/ Basement.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST R. J. MelinDATE May 30SHEET 28

STATION	UNIT	DESCRIPTION
P9258x9R	Basement	Granodiorite, abundant quartz some feldspar and hornblende, very badly weathered-rust stained.
P9258x10R	Basement	Volcanic-dark grey fine relatively homogeneous with some pyritic mineralization along fractures, badly weathered.
P9258x11R	Basement	Granodiorite-fine hornblende crystals in classic hornblende granodiorite.
P9258x12R	Basement	Volcanic-dark grey, fine crystals abundant network of quartz veins throughout veins up to 4 cm thick. Some hornblende, granodiorite associated.
P9258x13R	Basement	Volcanics, similar to above, becoming slightly lighter in colour with some hornblende crystals becoming evident, less veining.
P9258x14R	Basement	Volcanic intrusion very metallic rich, pyritic chalcopyrite malachite and others. All rock is dark grey to metallic rust weathering.  Core Drilling Above Outcrop (several hundred meters up the mountain)

## VANCOUVER ISLAND 198 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST R. MelinDATE June 2SHEET 29

STATION	UNIT	DESCRIPTION	
P7874x1R	Basement	Green volcanic dark green grey to dirty grey, abundant rust and	
		magnesium staining, abundant quartz veins.	
P7874x2R	Basement	Green volcanic (difficult to obtain a fresh sample badly weathered) dirty	
		green abundant stains and quartz veining.	





## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

DRILL SITE SHEET

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST R. J. MelinDATE June 4SHEET 32

STATION	UNIT	DESCRIPTION
Drill Site	A	<p>Access to this area is on roads owned by McMillan-Bloedel and Qualicum Bay Concrete Ltd. The access is not in an active logging area. The actual drill site will need some work mostly just sump construction. The area is fairly poorly kept to date as there is a smashed car on the proposed site. The road access is very good for truck mounted or a skid mounted rig. The drill site size at present is approximately 10 x 12 m. Thick drift cover is expected in this area.</p> <p>Water availability for this area may be a problem and contact should be made with the fisheries department as this area near there fish hatcheries will be very sensitive especially with regard to the usage of the Qualicum river in its tributaries.</p>
Drill Site	B	<p>Roads leading to this area have been altered considerably since our base map was compiled however the access available is very good. The last 600 m to the drill site is presently active logging road. The site looks very acceptable with only minor cut work required-sump construction. The proposed site is approximately 12 m by 12 m which will be more than</p>

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

DRILL SITE SHEET

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST R. J. MelinDATE June 4SHEET 33

STATION	UNIT	DESCRIPTION
Drill Site	B Cont'd	adequate. There are several alternate good sites in the immediate area if necessary. Thick drift cover is expected.
		Water usage will be a problem as with Site A and contact should be made with the Fish Hatchery in B.C. Department of Fisheries. Lake water may be available.
Drill Site	C	The initial site C has been discarded because of access/logistic problems.
Drill Site	C2	This alternate site has been selected because it has much better access than the original proposed site. The site is 20 x 15 m and only minor cut work would be required in site construction. The road leading to the site is good for truck or skid mounted rig. Water can be obtained from a creek 1 km to the west. Very thick drift is expected. No active logging is being carried out on this road.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

DRILL SITE SHEET

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST R. J. Melin

DATE \_\_\_\_\_

SHEET 35

STATION	UNIT	DESCRIPTION
Drill Site	E	This site location is on a Y-intersection so there is ample room for set up. The access is good for truck or skid mounted rig. Sump construction would be the only cat work required. The location is 200 m within an active logging area however this is not expected to pose any major problems. Water is available 900 meters north on the road.
Drill Site	F	This site has been moved from its original location primarily for geological reasons. In its present location it will be located within the Haslem formation. The access is good although clearance will be required from B.C. Forest Products Ltd. Faulting within the Haslem has been located within the Haslem Fm 1500 meters to the west although it is not expected to cause problems within the proposed drill hole. Only minor cat work will be required (if any) and no drift is expected.



## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY ParksvilleGEOLOGIST D. StandringDATE June 2,4,5SHEET 36

STATION	UNIT	DESCRIPTION
P8068x1D		Volcanic, dark dirty green, dark brown to dark green weathering, calcite and feldspar filled joints, badly sheared, 10 m exposure.
P8068x2D		Volcanic, dark dirty green as above, associated with "greenstone" (that is underlain by), again outcrop is badly sheared some scattered quartz crystals, joints filled with calcite or feldspar, 10-15 m exposure.
P8666x1D		Volcanic, blue green, tan to light brown weathering, some minor malachite veins.
P9060x1D		Granite, badly weathered, buff to off pink weathering, 25% K feldspar, 20% hornblende, 10% biotite.
P9060x2D		1. Volcanic, green to dirty green, dark grey to brown weathering, minor quartz crystals scattered throughout, Mg staining along fractures. 2. Granodiorite, fine well developed crystals, tan weathering, minor quartz, and hornblende.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Parksville

GEOLOGIST D. J. Standring

DATE June 5

SHEET 37

STATION	UNIT	DESCRIPTION
P8862x1D		Granite, off white to pinkish white, weathering, well developed quartz and K feldspars, minor hornblende and biotite.
P8862x2D		Granite, off white to buff weathering, 30% biotite, well developed quartz and K feldspar crystals, very little plagioclase, 4 m of exposure above the road.
P8862x3D		Granite, off white to tan weathering, 20% biotite, 30% K feldspar, well developed small quartz crystals, some chlorite staining, outcrop exhibits severe shearing and jointing, (possibly caused by road blasting).
P8862x4D		Granodiorite, dark green to tan weathering, large well developed feldspar crystals (0.3 cm), 20% hornblende some Mg staining along fractures.
P8862x5D		Granite, grey to light brown weathering, well developed large quartz crystals, K feldspar, small but numeroud 15-20%, minor biotite crystals.

## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY Parksville

GEOLOGIST D. J. Standring

DATE June 5

SHEET 38

STATION	UNIT	DESCRIPTION
P8862x6D		Volcanic, deep dark green, light grey to tan weathering, quartz and feldspar crystals scattered throughout, some Mg staining along joints 1 m exposure.
P8862x7D		Volcanic, dark green, light grey to buff weathering, quartz and feldspar crystals are large and well developed, 15-20% biotite.
P8860x1D		Granite, light grey to tan weathering, 60% quartz, (well developed) 20% K feldspar, 15% biotite, 5% plagioclase feldspar.
P8860x2D		Granodiorite, tan to light brown weathering, hornblende rich (25%) outcrop dissected by large "veins" of a light green K feldspar rich substance.
P8860x3D		Granodiorite, tan weathering, 35% hornblende, xenoliths of greenstone from 3 cm to 23 cm in diameter, a few scattered quartz crystals.





## VANCOUVER ISLAND 1980 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY PARKSVILLEGEOLOGIST C. BICKFORDDATE 15 November 1980 SHEET 41

STATION	UNIT	DESCRIPTION
P0862ZX1	KEX	Here at old bridge site, Englishman River has cut a gorge through conglomerate and conglomeratic sandstone similar to that seen on the highway bypass. Here beds appear to be of classical deltaic origin, with flat-lying to gently rolling, thick-bedded conglomerate and sandstone over northerly-dipping, thick-bedded conglomerate. Perhaps here are topset and foreset beds of a coarse-grained delta.
P0862ZX3	KEX	CONGLOMERATE - granule to small-pebble, rounded, abundant fine to very fine-grained sand matrix, thick-bedded, occasional pebbles to 0.06 m. Attitude: 160/23 NE (could be cross-beds).
P0862ZX4	KEX	CONGLOMERATE as before - large-scale low-angle cross-bedded. Attitude: 166/14 NE.
P1062ZX2	KEX	CONGLOMERATE - very thick-bedded, rounded granules to small pebbles of chert, greenstone, quartz, dark volcanic rock, some red cherts in abundant fine- to medium-grained sand matrix. Medium grey, orange-weathering. Occasional rounded cobbles to 0.12 m, floating in unit.

## VANCOUVER ISLAND 19 FIELD MAPPING PROGRAM

## TRAVERSE NOTES

PROPERTY PARKSVILLEGEOLOGIST C. BICKFORDDATE 15 November 1980 SHEET 42

STATION	UNIT	DESCRIPTION
		Attitude: 023/22 W
		This exposure is at the now water well site of the City of Parksville, by the rifle range.
P1062 ZX3	KEX	CONGLOMERATE - small to large, rounded pebbles in abundant matrix of fine- to coarse-grained sand. Light grey, pinkish to orange-weathering, very thickly bedded, with pebbles at times forming stringers very similar to those seen in the Pender Conglomerate at Departure Bay.
		Attitude: 051/23 NW.
P1458 ZX1	KCX?	SANDSTONE - dominantly coarse-grained, some fine and medium grained phases, locally gritty; on the whole, clean and well-sorted. Medium planar beds; some low-angle scours. Dark green, brown-weathering; unit is composed of dark green volcanic rock fragments. Scattered large burrows; float blocks suggest shell fragments are locally abundant.
		Attitude: 158/56 SW.





N.E. B.C. 1980 FIELD MAPPING PROGRAM

TRAVERSE NOTES

PROPERTY Parksville

GEOLOGIST C. BICKFORD

DATE 30 October 1979 SHEET 44

STATION	UNIT	DESCRIPTION
P1064Zx1	KEx	CONGLOMERATE and SANDSTONE - forming a series of low benches.
		Attitude: 145/6 NE.
P1064Zx2	KEW?	Here at SE end of point, SANDSTONE - argillaceous, silty, very fine to
		fine-grained, dominantly olive grey, buff-weathering, with minor
		argillaceous siltstone and mudstones, thin to medium-bedded, rubbly.
		Attitude: 135/5 NE.

N.E. B.C. 1980 ELD MAPPING PROGRAM

TRAVERSE NOTES

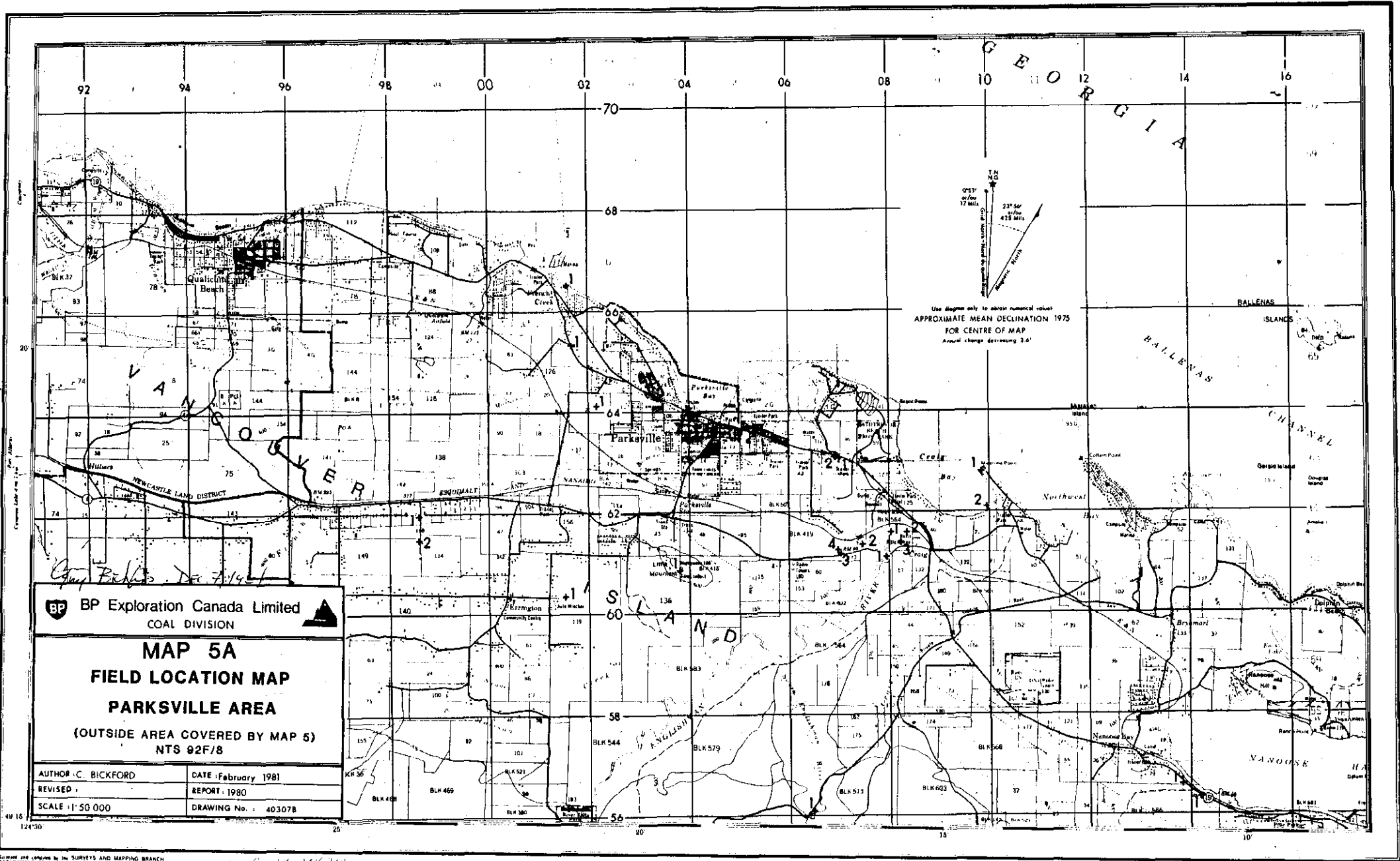
PROPERTY Parksville

GEOLOGIST C. BICKFORD

DATE 30 October 1979 SHEET 45

STATION	UNIT	DESCRIPTION
P0462Zx1	KEx	<p>Here atop Little Mountain, which is a prominent butte projecting from the otherwise gently-rolling coastal lowland. Good exposure at the top of a cliff, of CONGLOMERATE - small, rounded pebbles of light grey to white quartz, dark grey chert, granodiorite, volcanics, a few reddish cherts. Matrix of granules to coarse sand. Massive, non-calcareous, moderately well-cemented. Large-scale low-angle planar cross-laminated and cross-bedded. Attitude: 037/26NW (may be cross-bedding). Estimated thickness exposed at this point 40 m. Mountain is a cuesta, with anti-dip scarp along the south side. Probable thickness of Extension beds here is at least 90 m.</p>
P1062Zx1	KEx	<p>Outcrop in road cut on Highway 4 bypass near Craig's Crossing, on north side of road:</p> <p>SANDSTONE - coarse-grained, conglomeratic, with estimated 30% small pebbles and granules as - discrete laminae and stringers, well-rounded, consisting of volcanic rock fragments, granodiorite and chert. Noticable trace of reddish chert (compare to Little Mountain beds). Unit is thick-bedded to massive. Bedding appears planar throughout. Medium grey,</p>





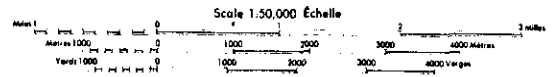
Source and copies by the SURVEYS AND MAPPING BRANCH  
DEPARTMENT OF LANDS AND FORESTS, BRITISH COLUMBIA  
1981 1981 1980 Produced by the SURVEYS AND MAPPING BRANCH  
DEPARTMENT OF ENERGY, MINES AND RESOURCES, Ottawa  
from aerial photographs taken in 1977. Contour lines 1:24 1:24 1:24  
400 1:24

403078

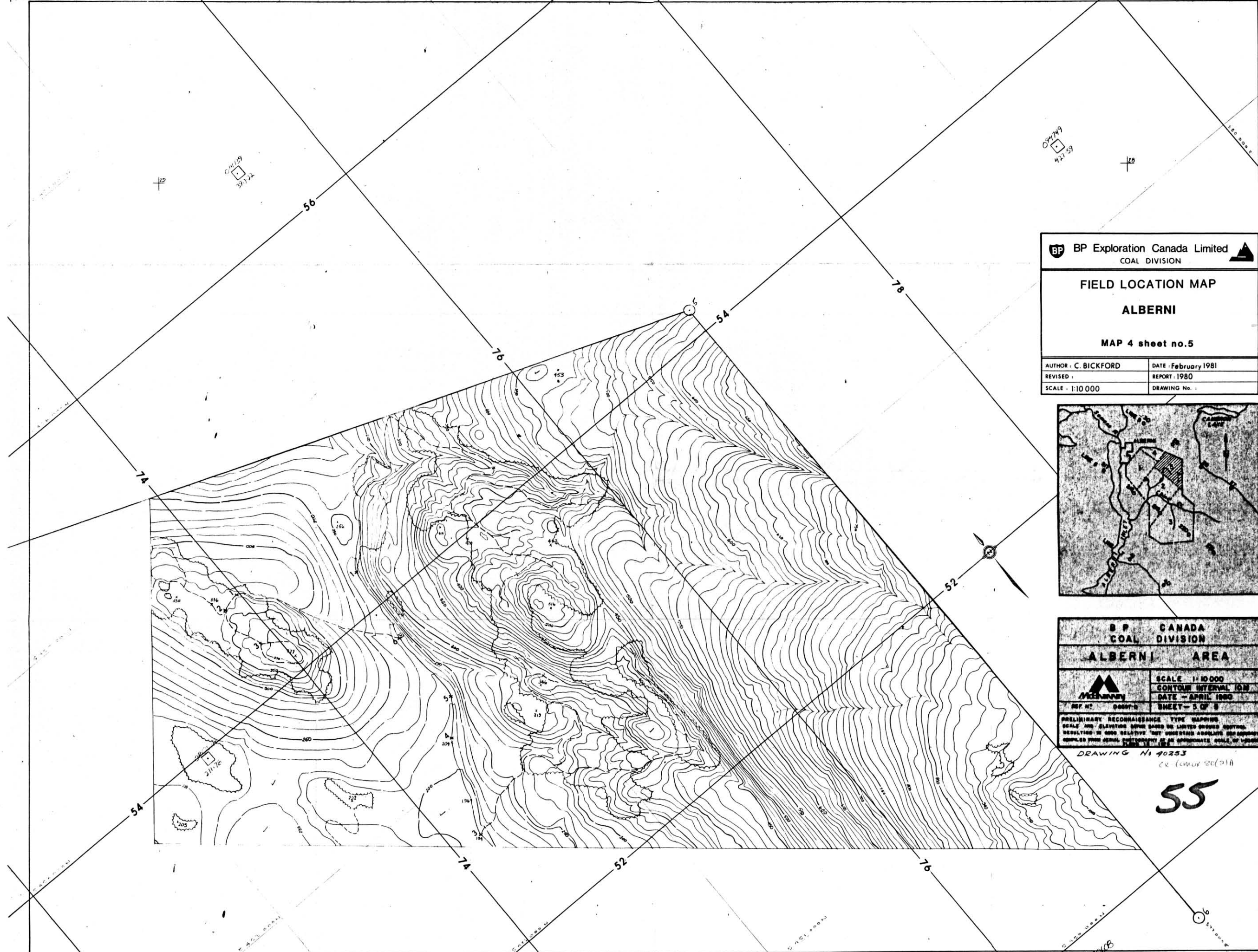
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- |  |                               |
|--|-------------------------------|
| <b>Roads</b>   | <b>Roads</b>                  |
| hard surface all weather                             | grade (low season)            |
| hard surface all weather                             | gravel aggregate (low season) |
| loose or stabilized surface all weather              | gravel (low season)           |
| loose surface (all weather and unclassified streets) | unclassified streets          |
| carriage   | unclassified streets          |
| mail or line of passage                              | senior piece of passage       |


**PARKVILLE  
BRITISH COLUMBIA**

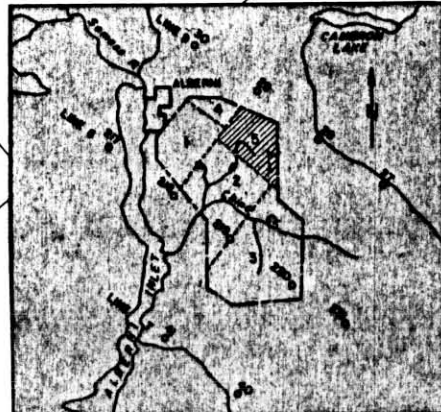



CONTOUR INTERVAL 100 FEET  
Contours in Feet above Mean Sea Level  
North American Datum 1922  
Elevation in Meters above French Mean



074749  
43359


 <b>BP Exploration Canada Limited</b> COAL DIVISION	
<b>FIELD LOCATION MAP</b> <b>ALBERNI</b> <b>MAP 4 sheet no.5</b>	
AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:

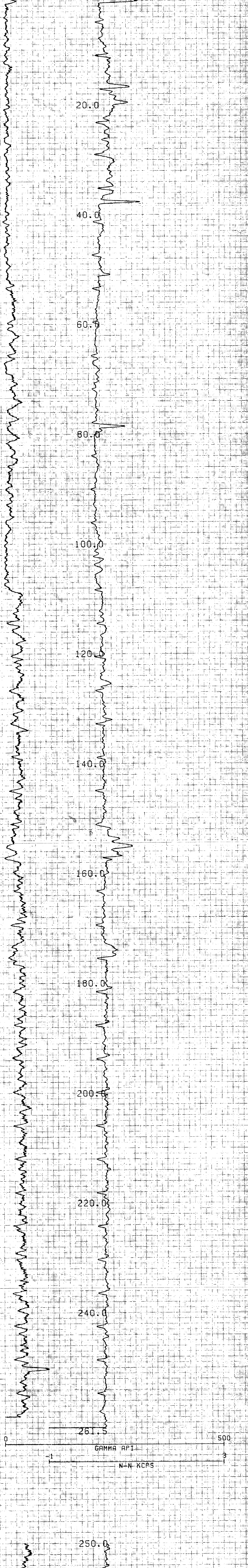


<b>BP CANADA</b> <b>COAL DIVISION</b>	
<b>ALBERNI AREA</b>	
	SCALE: 1:10 000 CONTOUR INTERVAL: 10M DATE: APRIL 1980
	SHEET: 5 OF 8
<small>PRELIMINARY RECONNAISSANCE TYPE MAPPING. SCALE AND ELEVATION DATA BASED ON LIMITED GROUND SURVEY. RESULTING IN 6000 RELATIVE BUT UNCERTAIN ABSOLUTE HEIGHTS. COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROPRIATE SCALE OF 1:50 000.</small>	
DRAWING No. 40253 CE (CIVIL) 20(21A)	

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02468  
2233

 <b>CENTURY GEOPHYSICAL CORPORATION</b> Tulsa, Oklahoma		BOREHOLE <b>BP# 9B</b>	DATE <b>11-17 80</b>
COMPANY <b>B.P. CANADA</b>		UNIT OPERATOR <b>7921/F. MILLIGAN</b>	FIELD OFFICE <b>CALGARY</b>
<b>EQUIPMENT DATA</b>			
BOREHOLE <b>B.P. # 9B</b>		ELEVATION <b>(L1)</b>	
AREA <b>VANC ISLAND</b>		STATE <b>B.C.</b>	
SECTION TOWNSHIP		RANGE	
<b>HOLE DATA</b>			
TOTAL DEPTH - DRILLER <b>408.4 m</b>		BIT SIZE <b>15.2 cm</b>	
TOTAL DEPTH - LOGGER <b>271.5 m</b>		CASING - TYPE & SIZE <b>STEEL 6</b>	
LOGGING SPEED <b>9m/min</b>		BOREHOLE FLUID <b>MWD @ D</b>	
REFERENCE LEVEL <b>GROUND</b>		FLUID RESISTIVITY <b>1 @ 1F</b>	
PROBE NO. <b>9067-520</b>		SOFTWARE LEVEL <b>V6.26</b>	
		SCALE SELECTION OPERATOR SOLENT	
REMARKS: SAMPLING RATE - 1cm VERTICAL SCALE - 50m/DIV 10 MILLI-KEPLAT SECTION NDTE STEEL RW WERE USED IN HOLE WHILE LOGGING			



COMPU-LOG V4L6 PLOT 11-17-80

B.P. 9B  
 B.P. CANADA  
 PARKSVILLE

HOLE DIAMETER = 15.2  
 PROBE # 9067 - 520  
 CAL STD CPS = 0166 CAL RUN CPS = 0159  
 PROBE CAL BIAS = +00000  
 DATA V6L6 TRUCK # 7921  
 F. MILLIGAN APPL # 1507H

# VERTICAL DEVIATION

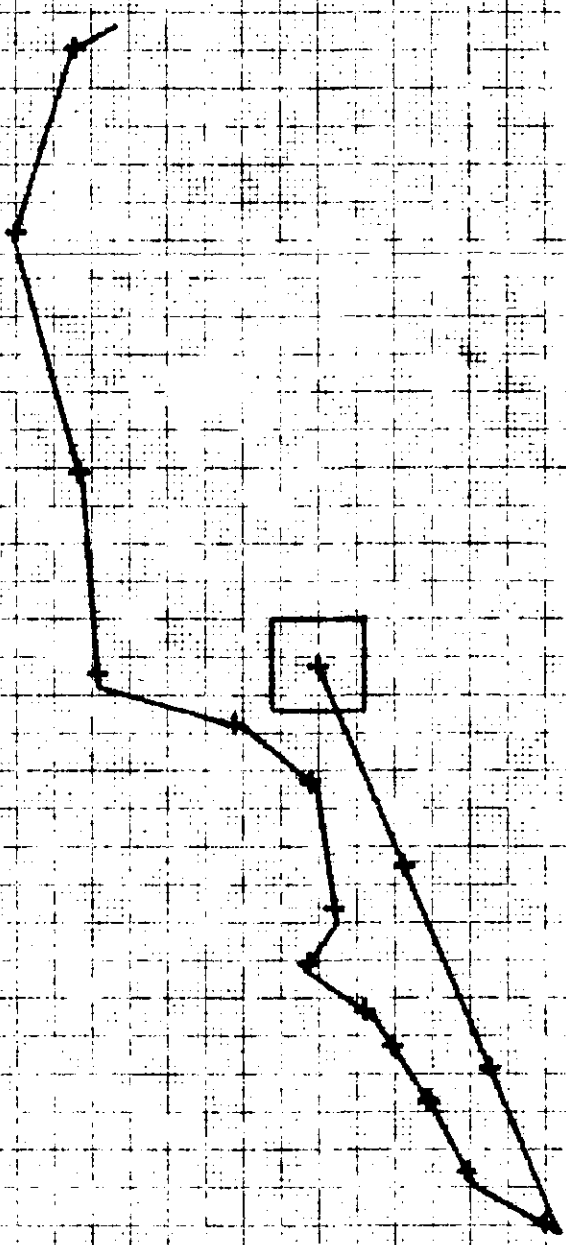
COMPU-LOG V6L4 DEVIATION  
DATA FROM : V6L6

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L2

CLIENT : B.P. CANADA  
LOCATION : PARKSVILLE  
HOLE ID : B.P. 10  
DATE OF LOG : 11-28-88  
PROBE : 9055A 0243

SCALE: 1.5 M/■-2CM  
MAG DECL: 23.6  
TRUE DEPTH: 620.7 M  
AZIMUTH: 342.4  
DISTANCE: 6.64 M

+ = 40.0 M INCR  
△ = TOP OF ZONE  
◇ = BOTTOM OF ZONE  
TRUE NORTH ↑







# VERTICAL DEVIATION

COMPU-LOG V6L4 DEVIATION  
DATA FROM : V6L6

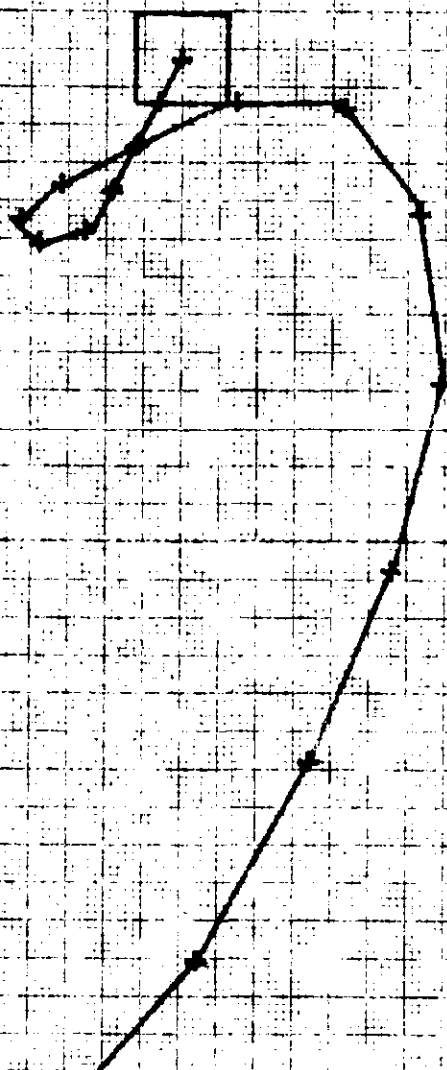
CLIENT : B.P. CANADA  
LOCATION : PARKSVILLE  
HOLE ID : B.P. 11  
DATE OF LOG : 12-13-80  
PROBE : 9055A 0243

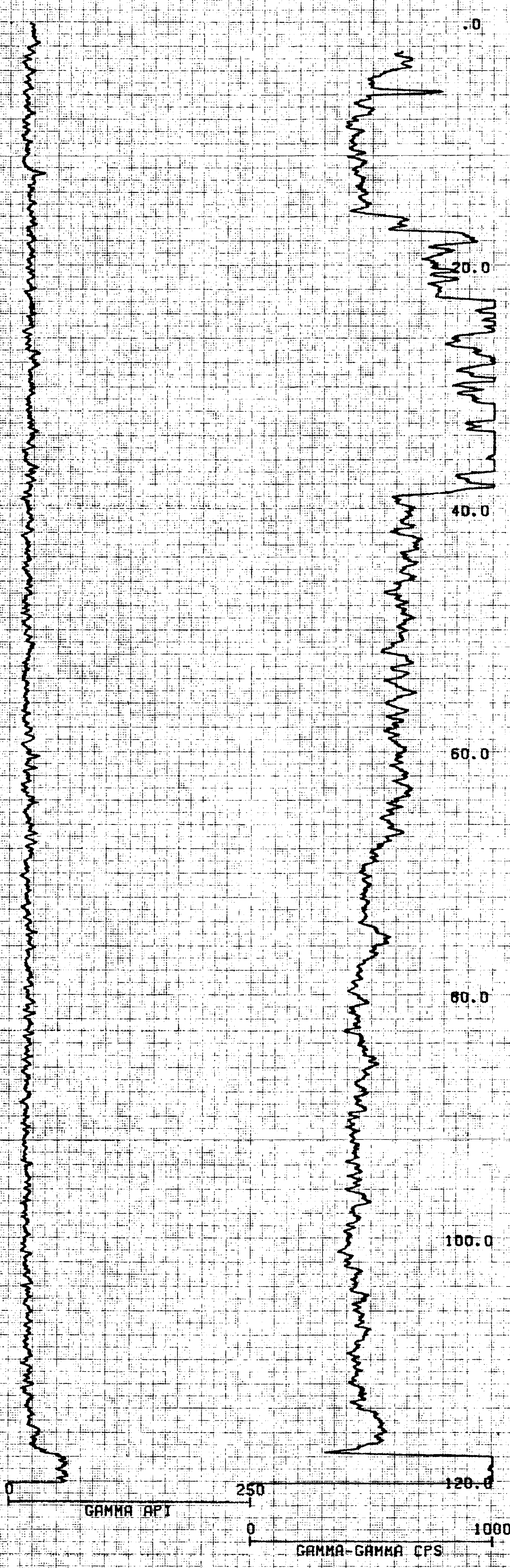
55  
④ L4

SCALE: 5.0 M/2CM  
MAG DECL: 23.6  
TRUE DEPTH: 624.1 M  
AZIMUTH: 184.3  
DISTANCE: 33.49 M

+ = 40.0 M INCR  
Δ = TOP OF ZONE  
◇ = BOTTOM OF ZONE

TRUE NORTH ↑





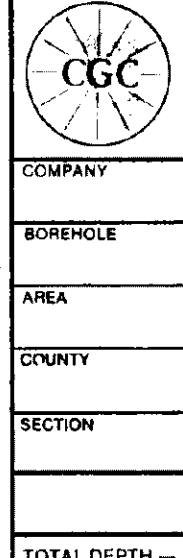
COMPU-LOG V4L6 PLOT 12-13-80  
 B.P. 11  
 B.P. CANADA  
 PARKSVILLE  
 HOLE DIAMETER = 14.9  
 PROBE # 9030A - 457  
 CAL STD CPS = 16588 CAL RUN CPS = 4973  
 PROBE CAL BIAS = +00009  
 DATA V6L6 TRUCK # 7921  
 F. MILLIGAN APPL. #2635 H

BP 11 CX-Complex 80(B)A

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 (5)

BP 11

Cx-bmax 80(3)A



CENTURY GEOPHYSICAL CORPORATION

Tulsa, Oklahoma

WELL # BP # 11 DATE 12-13-80

OPERATOR F. MILLIGAN CALGARY

COMPANY B.P. CANADA AREA B.P. # 11 ELEVATION 55

CITY VANC. ISLAND STATE B.C.

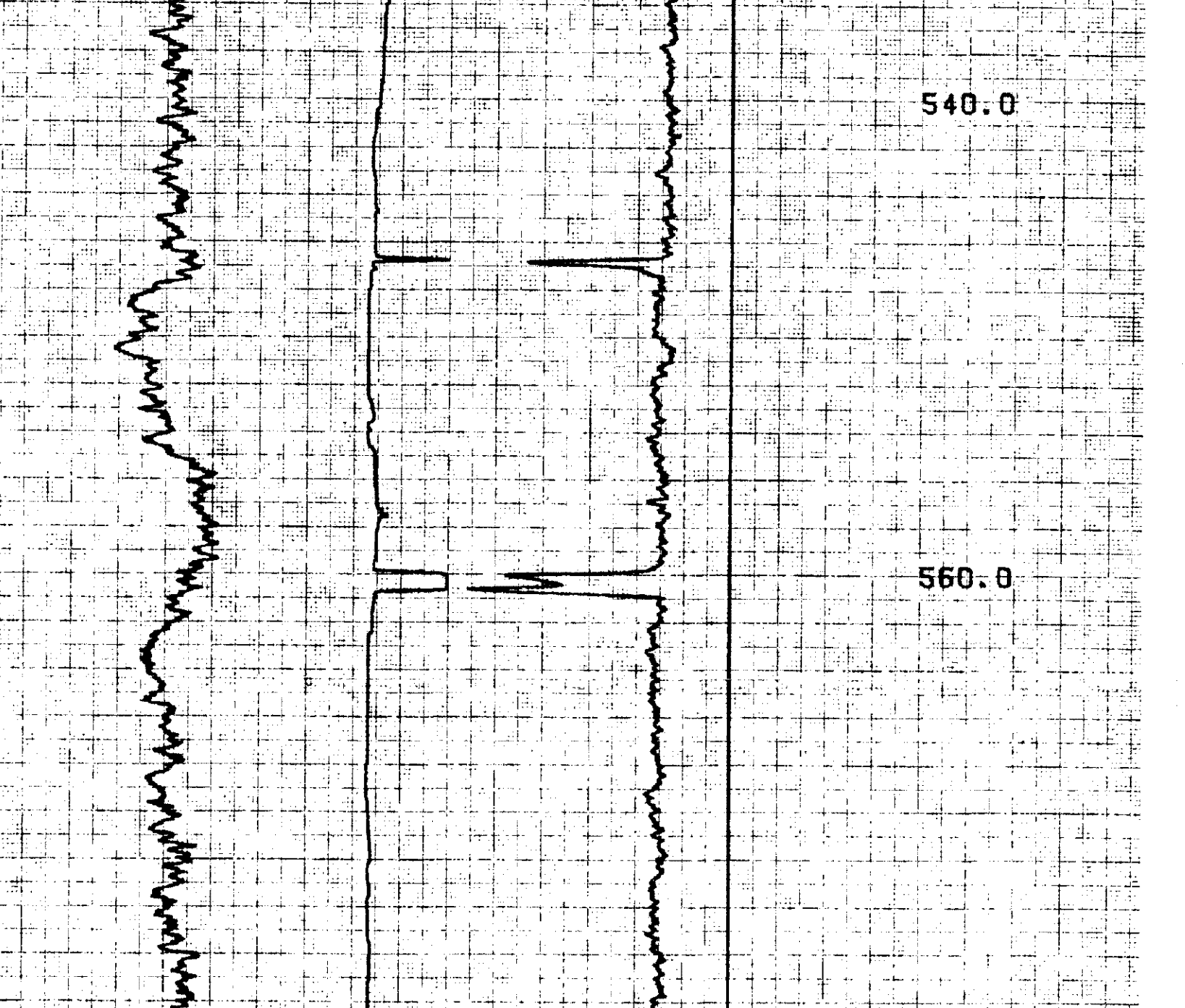
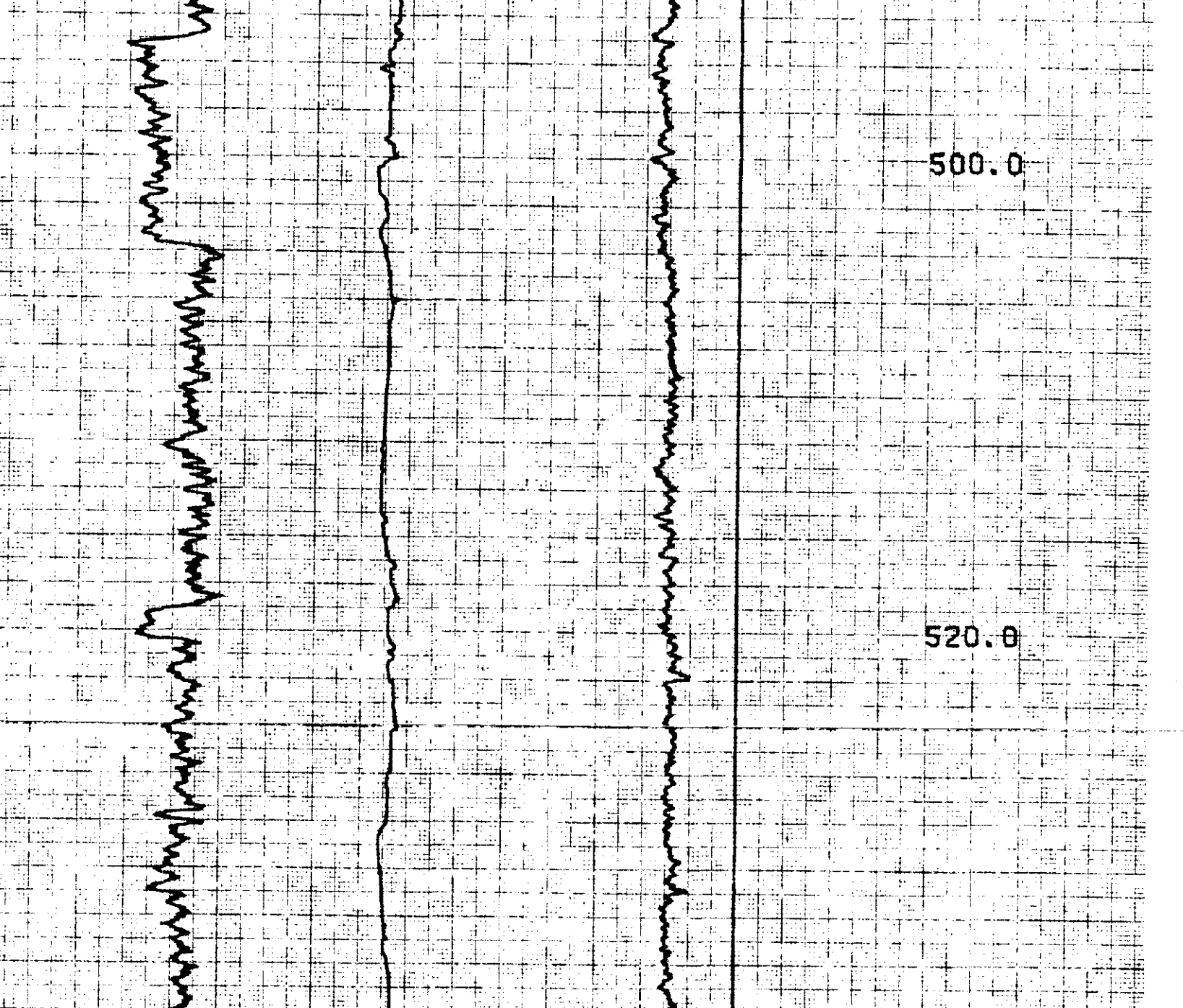
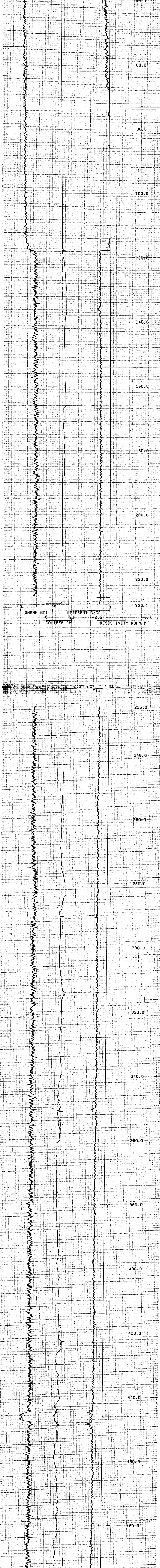
HOLE DATA

TOTAL DEPTH - DRILLER 456.4 m BIT SIZE 4.5 cm
TOTAL DEPTH - LOGGER 428.1 m CASING - TYPE & SIZE 4" STEEL
TOTAL FOOTAGE LOGGED 428.1 m CASING DEPTH 428.1 m
LOGGING SPEED 8.1 m/min BOREHOLE FLUID FRESH
REFERENCE LEVEL 4.0 m FLUID RESISTIVITY 0
PROBE NO. 9030-457 SOFTWARE LEVEL V6L6

REMARKS: SAMPLING RATE - 1 cm
VERTICAL SCALE - 5.0 m / DIV
10 METER REPEAT SECTION
\* NOTE: HOLE WAS LOGGED IN TWO PARTS BECAUSE OF DEPTH

EQUIPMENT DATA

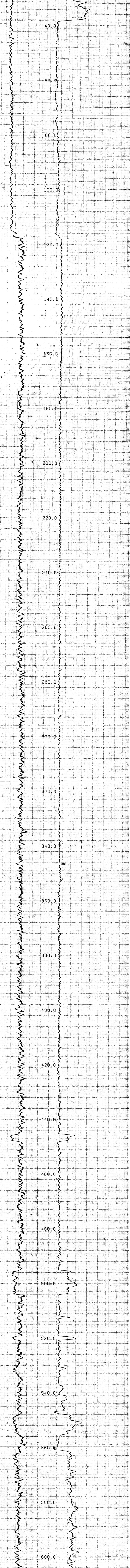
Table with columns: PROBE NO., BIT SIZE, LOGGING SPEED, etc.



COMPU-LOG V4L6 PLOT 12-13-80
B.P. # 11
B.P. CANADA
PARKSVILLE
HOLE DIAMETER = 114.9
PROBE # 9030R = 457
CAL STD CPS = 6588 CAL RUN CPS = 4973
PROBE CAL BIAS = +00009
DATA V6L6 TRUCK # 7921
F. MILLIGAN APPL. # 2530 H

b711 CX-0000 P8(3)A

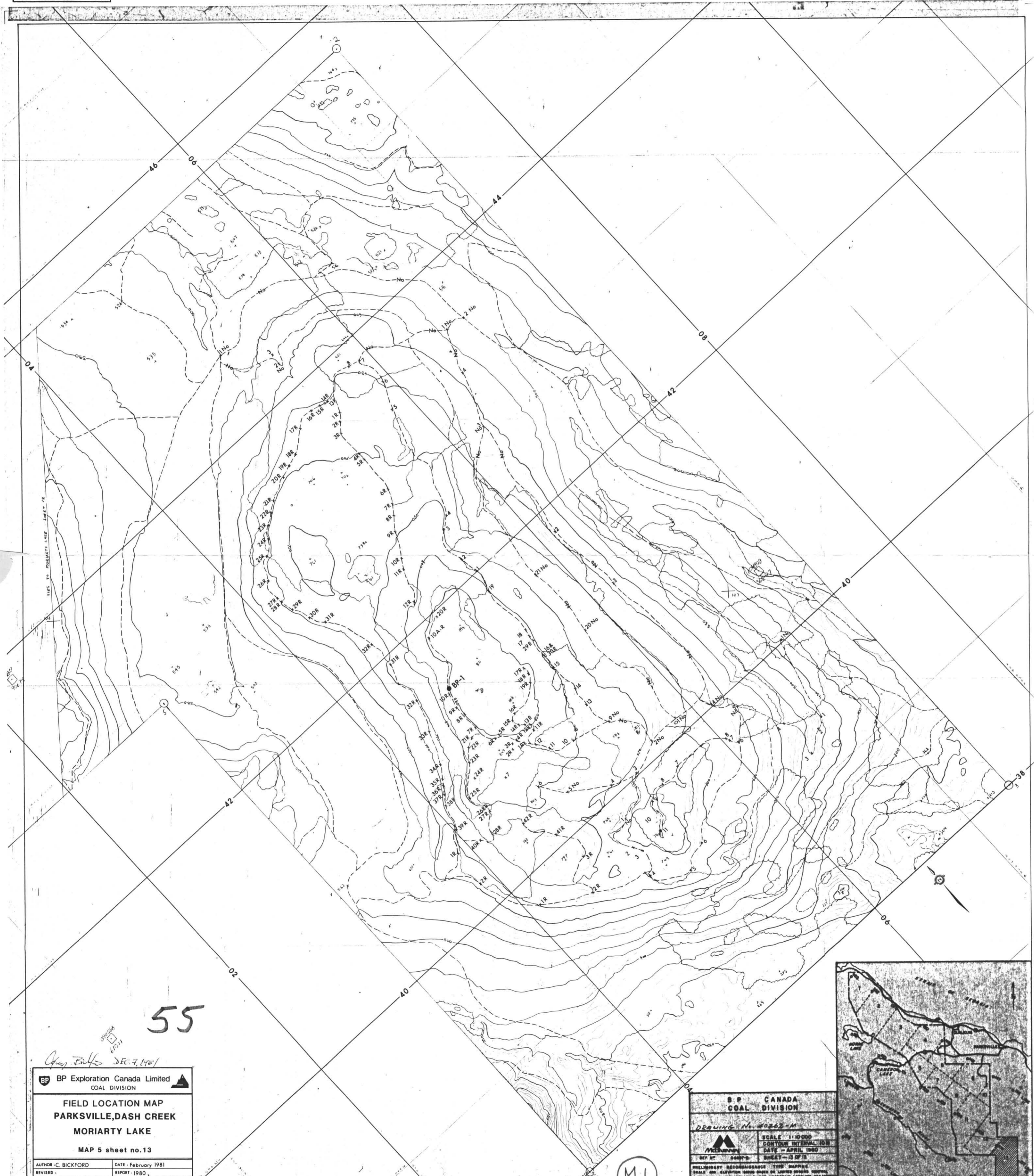
<b>CENTURY GEOPHYSICAL CORPORATION</b> Tulsa, Oklahoma		BOREHOLE # <b>B.P. # 11</b>	DATE <b>12-28-80</b>
COMPANY <b>B.P. CANADA</b>		UNIFORMITY <b>1944 / F. HILLIGAN</b>	FIELD OFFICE <b>CALDWELL</b>
<b>EQUIPMENT DATA</b>			
BOREHOLE <b>B.P. # 11</b>	SECTION <b>(L7)</b>	PROBE MODEL	BIT
COUNTY <b>VANCE ISLAND</b>	STATE <b>OK</b>	SECTION TYPE	1" / 1" / 1" / 1" / 1"
SECTION	TOWNSHIP	SECTION TYPE	1" / 1" / 1" / 1" / 1"
<b>HOLE DATA</b>		SECTION TYPE	1" / 1" / 1" / 1" / 1"
TOTAL DEPTH - DRILLER <b>72.5 m</b>	BIT SIZE <b>14.5 cm</b>	SECTION TYPE	1" / 1" / 1" / 1" / 1"
TOTAL DEPTH - LOGGER <b>56.2 m</b>	CASING - TYPE & SIZE <b>2.126 (6)</b>	SECTION TYPE	1" / 1" / 1" / 1" / 1"
TOTAL FOOTAGE LOGGED <b>57.2 m</b>	CASING DEPTH <b>12.42 m</b>	SECTION TYPE	1" / 1" / 1" / 1" / 1"
LOGGING SPEED <b>7 m/min</b>	BOREHOLE FLUID <b>MUDS</b>	SECTION TYPE	1" / 1" / 1" / 1" / 1"
REFERENCE LEVEL <b>6606ND</b>	FLUID RESISTIVITY <b>0</b>	SECTION TYPE	1" / 1" / 1" / 1" / 1"
PROBE NO. <b>9067-520</b>	SOFTWARE LEVEL <b>V. 2.6</b>	SECTION TYPE	1" / 1" / 1" / 1" / 1"
	SCALE SELECTION <b>OPERATOR</b>	SECTION TYPE	1" / 1" / 1" / 1" / 1"
REMARKS: <b>SAMPLING RATE - 1.0m VERTICAL SCALE - 5.0m/INCH 10 METER REPEAT SECTION *NOTE: SILEX RODS WERE LEFT IN HOLE WHILE LOGGING</b>			



COMPU-LOG V4L6 PLOT 12-13-80

B.P. 11  
 B.P. CANADA  
 PARKSVILLE

HOLE DIAMETER = 14.5  
 PROBE # 9067 - 520  
 CAL STD CPS = 0166 CAL RUN CPS = 0159  
 PROBE CAL BIAS = +00000  
 DATA V6L6 TRUCK # 7921  
 F. HILLIGAN APPL. # 1507 H



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*Chap. 10/15 DEC. 7, 1981*

**BP** BP Exploration Canada Limited  
 COAL DIVISION

**FIELD LOCATION MAP  
 PARKVILLE, DASH CREEK  
 MORIARTY LAKE**

MAP 5 sheet no. 13

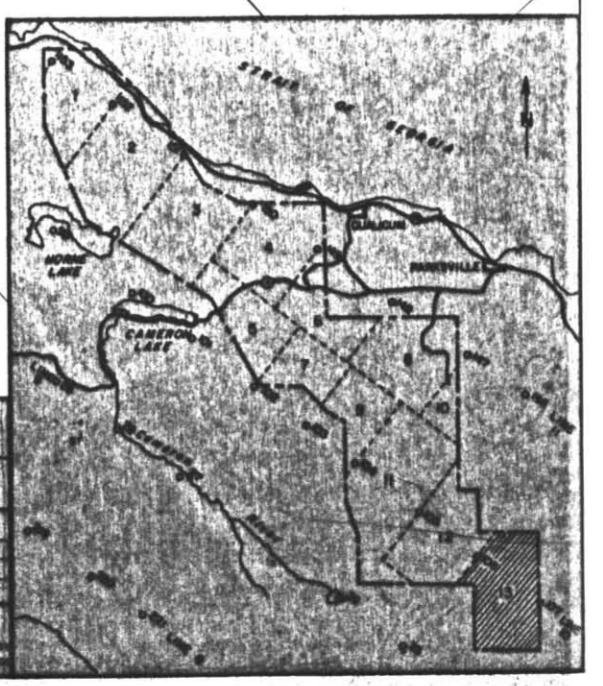
AUTHOR: C. BICKFORD	DATE: February 1981
REVISION:	REPORT: 1980
SCALE: 1:100 000	DRAWING No.:

**B.P. CANADA  
 COAL DIVISION**

DRAWING No. 40243-11

SCALE: 1:100 000
CONTOUR INTERVAL: 10M
DATE: APRIL 1980
SHEET - 13 OF 18

**PRELIMINARY RECONNAISSANCE TYPE MAPPING**  
 SCALE AND ELEVATION VALUES GIVEN ON LARGER SCALE MAPS  
 RESULTS IN THIS DRAWING ARE NOT NECESSARILY ACCURATE  
 SHOULD THIS DRAWING BE USED FOR ANY PURPOSES OTHER THAN  
 THAT FOR WHICH IT WAS PREPARED



MI

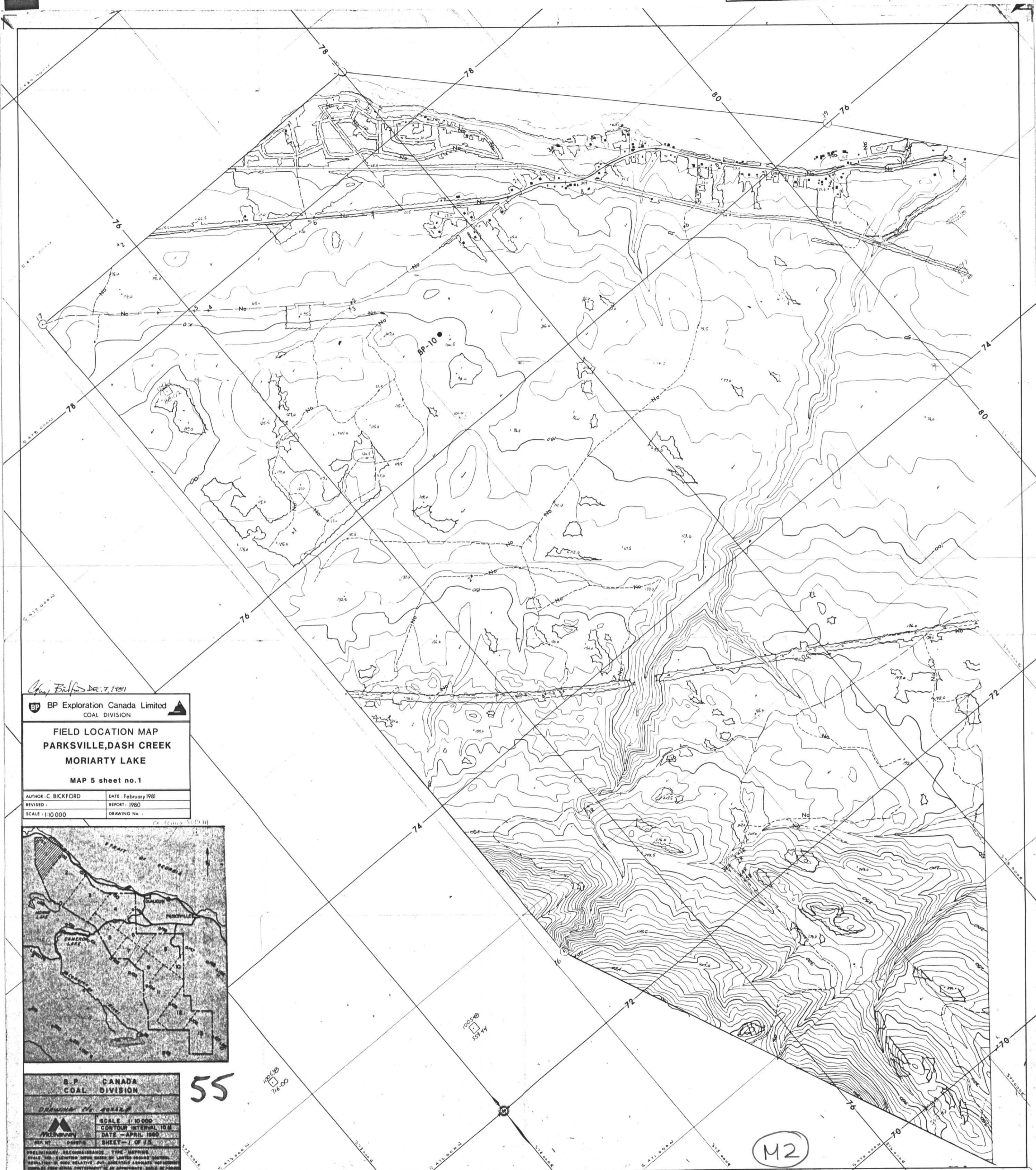
100M WIDEEN

1:100,000

1:250,000

1:500,000

1:1,000,000



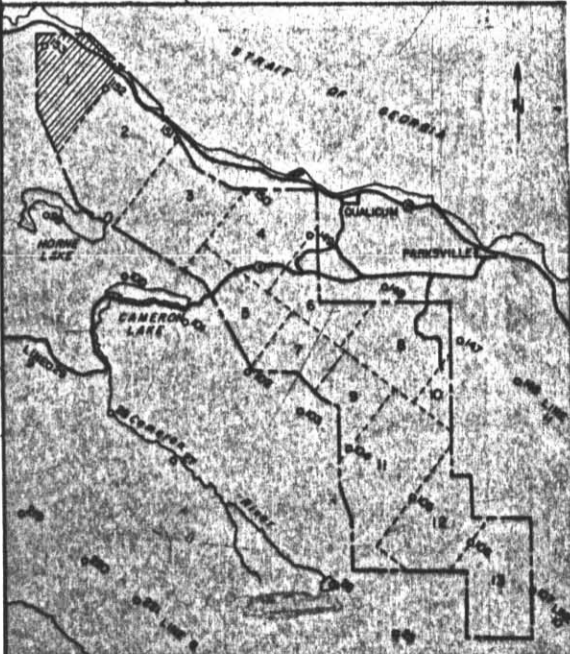
*Clay Bickford DEC. 7, 1981*

**BP** BP Exploration Canada Limited  
COAL DIVISION

**FIELD LOCATION MAP  
PARKVILLE, DASH CREEK  
MORIARTY LAKE**

MAP 5 sheet no. 1

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10,000	DRAWING No.:



**S.P. CANADA  
COAL DIVISION**

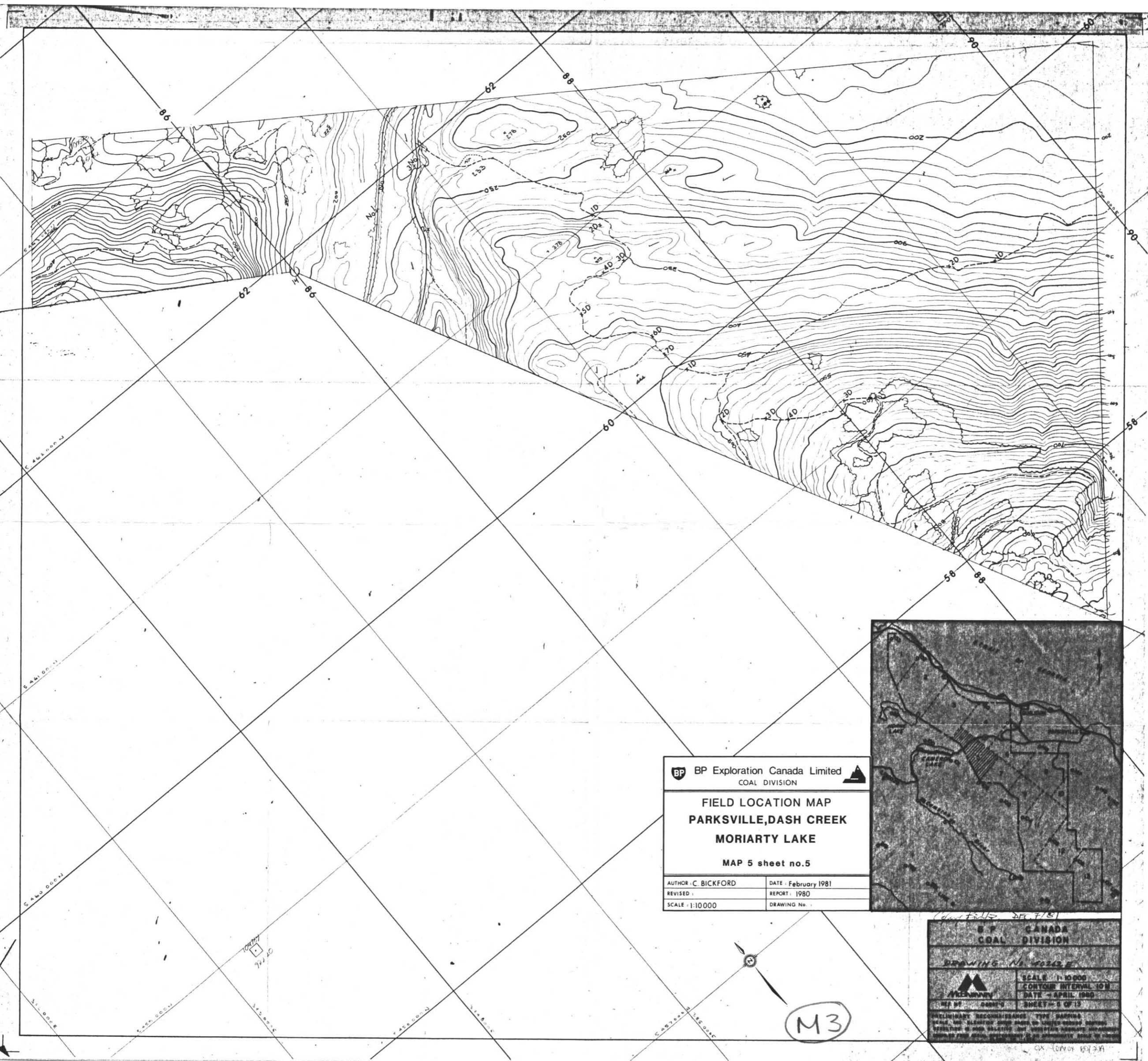
DRAWING No. 10242-P


SCALE: 1:10,000
CONTOUR INTERVAL: 10 M
DATE: APRIL 1980
SHEET: 1 OF 25

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
SCALE AND ELEVATION DATA BASED ON LIMITED SURVEY DATA  
RESULTS IN 6000 RELATIVE, BUT DIRECTLY ABSOLUTE HORIZONTAL  
COORDINATES. ALL OTHER DATA SUBJECT TO THE SAME LIMITATIONS.

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M2



 BP Exploration Canada Limited  
 COAL DIVISION

**FIELD LOCATION MAP**  
**PARKSVILLE, DASH CREEK**  
**MORIARTY LAKE**


MAP 5 sheet no.5

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10000	DRAWING No.:



B.P. CANADA  
 COAL DIVISION

DRAWING No. 40245 E

 MORIARTY

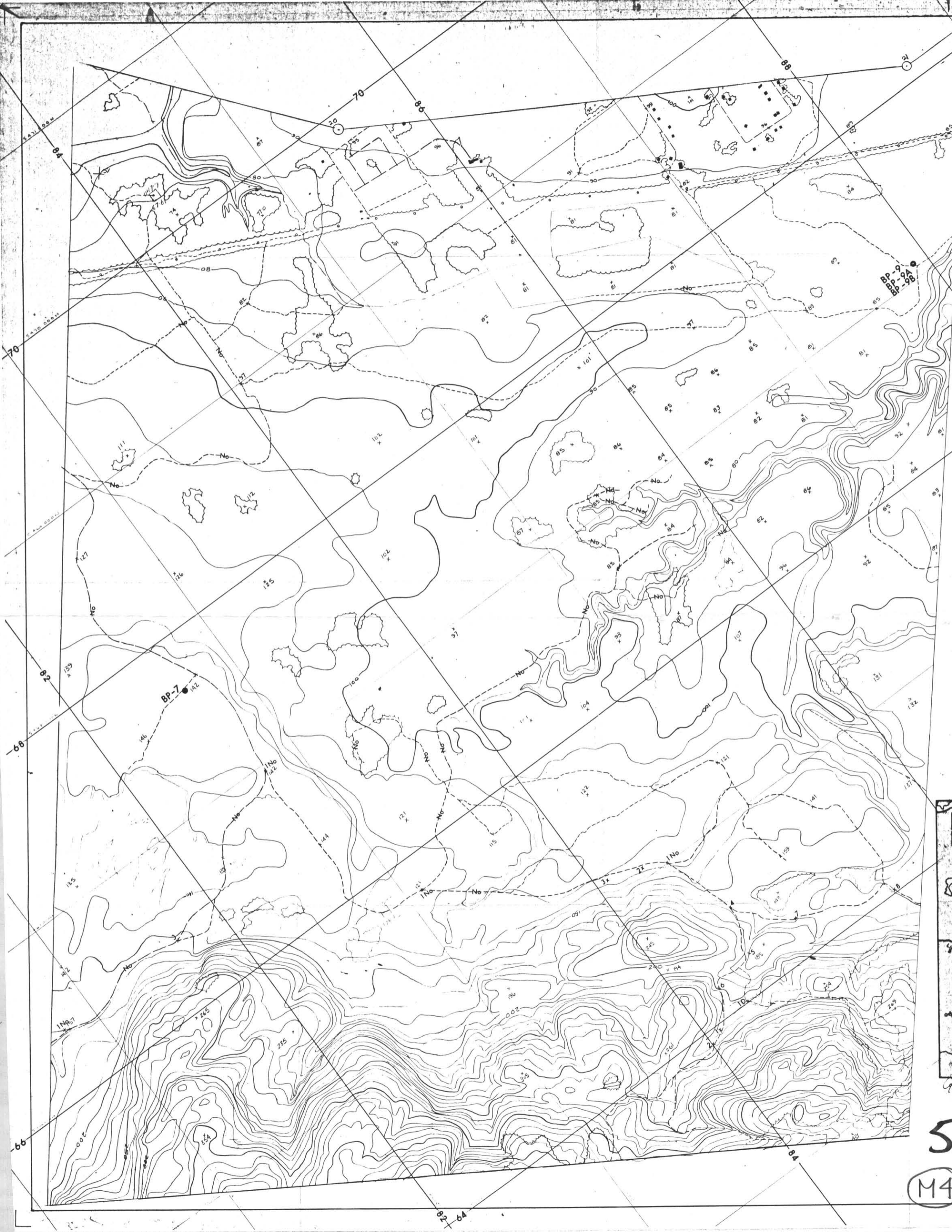
SCALE: 1:10000  
 CONTOUR INTERVAL: 10M  
 DATE: APRIL 1980

SHEET: 5 OF 13

PRELIMINARY RECONNAISSANCE TYPE DRAWING  
 SCALE AND ELEVATION SHOWN SHOULD NOT BE USED FOR DESIGN PURPOSES  
 WITHOUT THE WRITTEN APPROVAL OF THE PROJECT ENGINEER  
 DRAWING FOR OFFICE USE ONLY

M3

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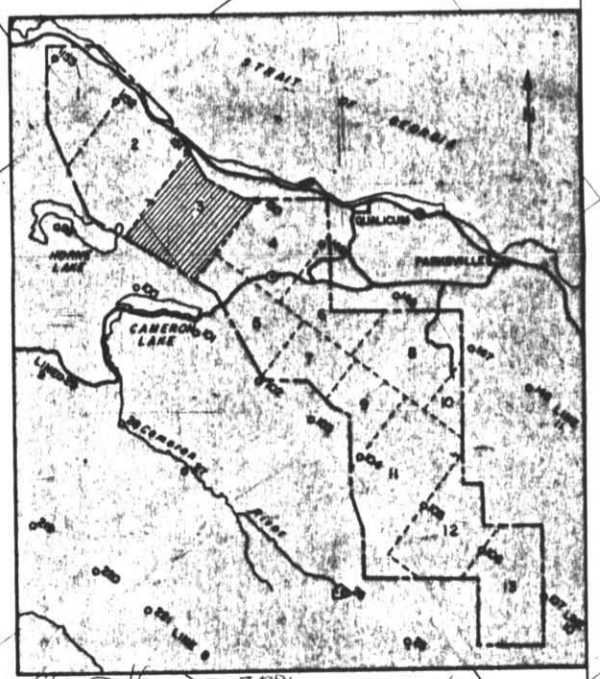


**BP** BP Exploration Canada Limited  
 COAL DIVISION

**FIELD LOCATION MAP  
 PARKVILLE, DASH CREEK  
 MORIARTY LAKE**

MAP 5 sheet no.3

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10000	DRAWING No.:



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(M4)

**B P CANADA  
 COAL DIVISION**

DRAWING No. 40962C

**MEASUREMENT**

SCALE: 1:10000
CONTOUR INTERVAL: 10 M
DATE: APRIL 1980
SHEET: 3 OF 13

PRELIMINARY: RECONNAISSANCE TYPE MAPPING  
 SCALE AND ELEVATION DATA BASED ON LIMITED GROUND CONTROL  
 RESULTS IN 6000 RELATIVE BUT UNCERTAIN ABSOLUTE COORDINATES  
 DERIVED FROM AERIAL PHOTOGRAPHY AT AN APPROPRIATE SCALE OF 1:50000



BP Exploration Canada Limited  
COAL DIVISION

**FIELD LOCATION MAP**  
**PARKSVILLE, DASH CREEK**  
**MORIARTY LAKE**

MAP 5 sheet no.2

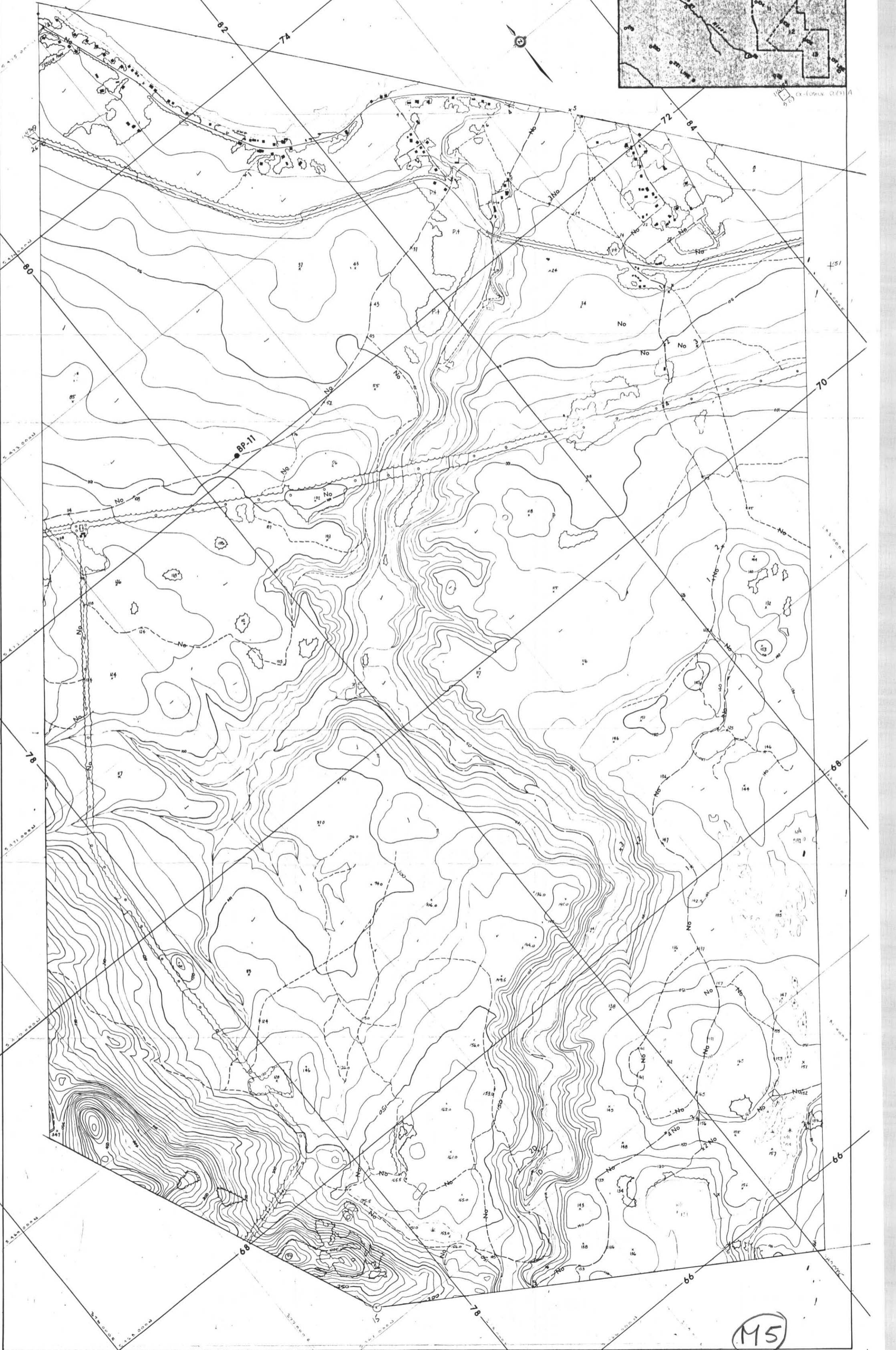
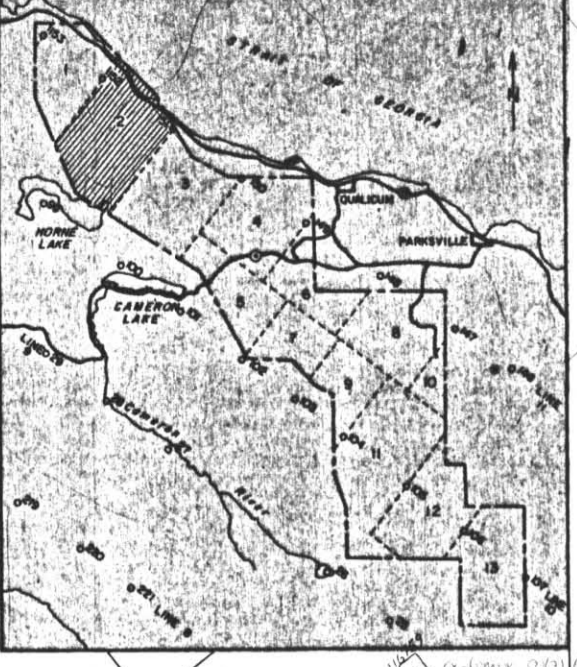
AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10000	DRAWING No.:

**B.P. CANADA**  
**COAL DIVISION**

DRAWING No. 40242B  
SCALE 1:10000  
CONTOUR INTERVAL 10M  
DATE - APRIL 1980  
SHEET - 2 OF 15

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
SCALE AND ELEVATION DATA BASED ON LIMITED GROUND CONTROL  
RESULTS IN GOOD RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY  
COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:10000  
FLOW 11 1977

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(M5)

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**BP Exploration Canada Limited**  
 COAL DIVISION

**FIELD LOCATION MAP**  
**PARKSVILLE, DASH CREEK**  
**MORIARTY LAKE**

MAP 5 sheet no.4

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:

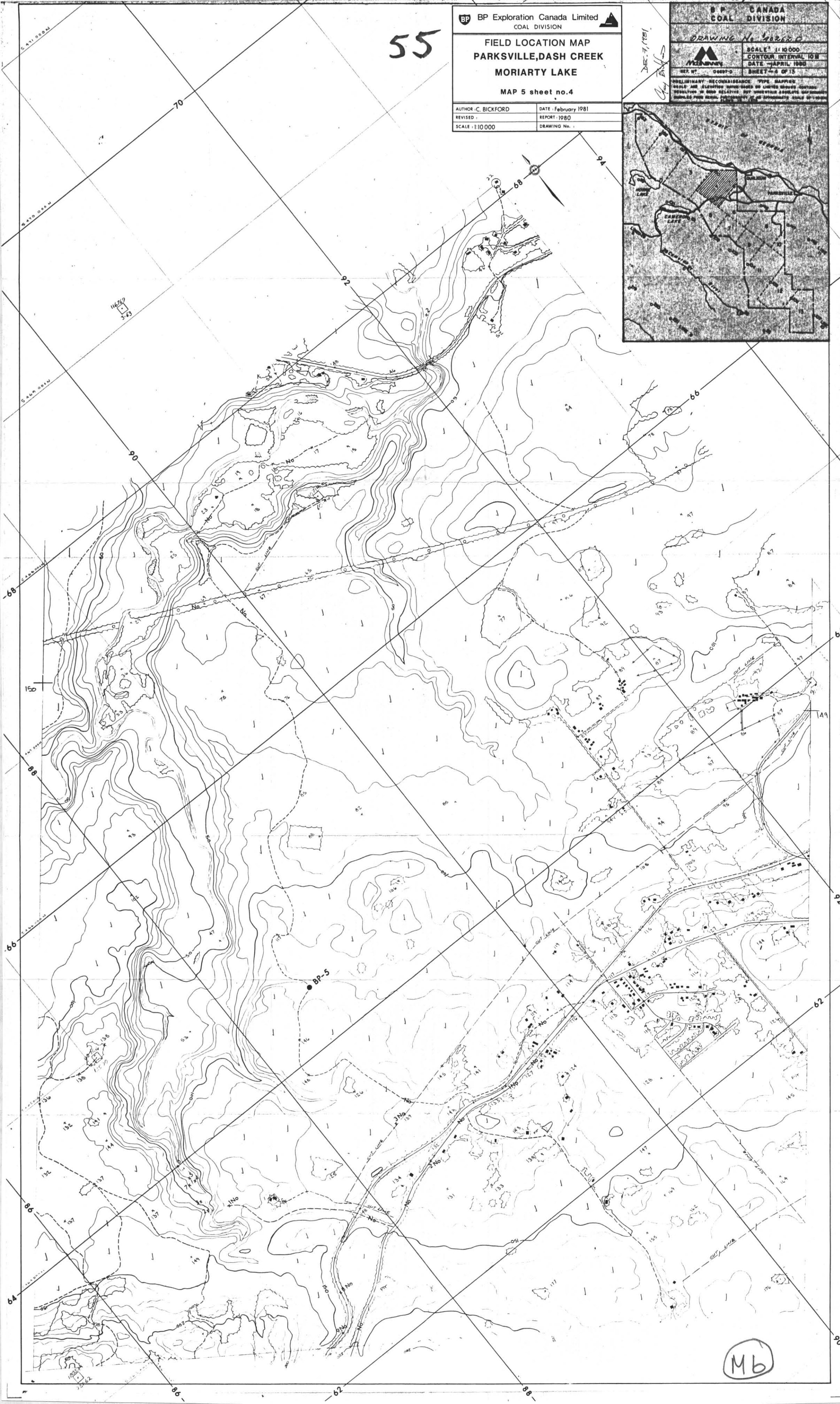
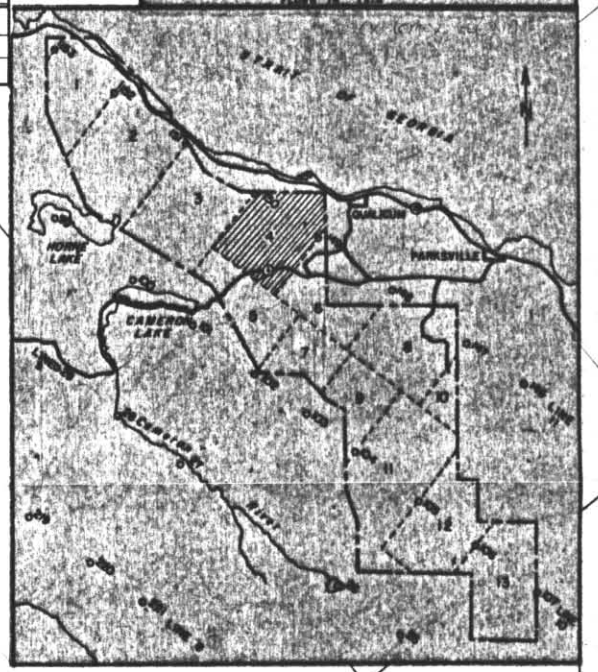
**BP CANADA**  
**COAL DIVISION**

DRAWING No. 42828-D

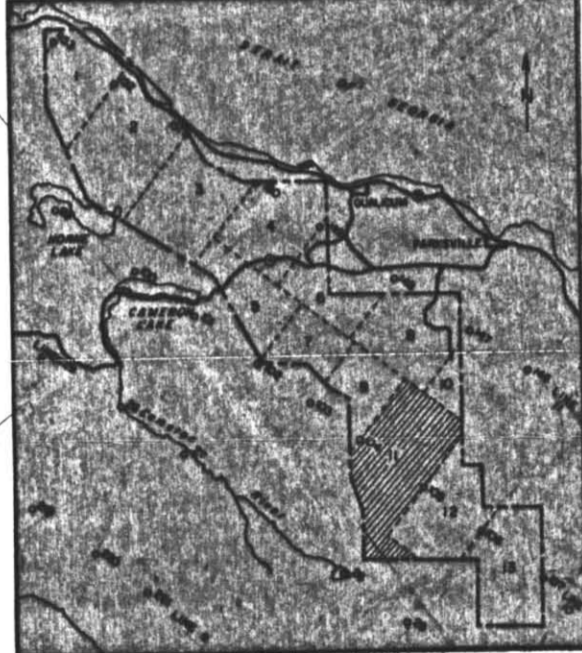
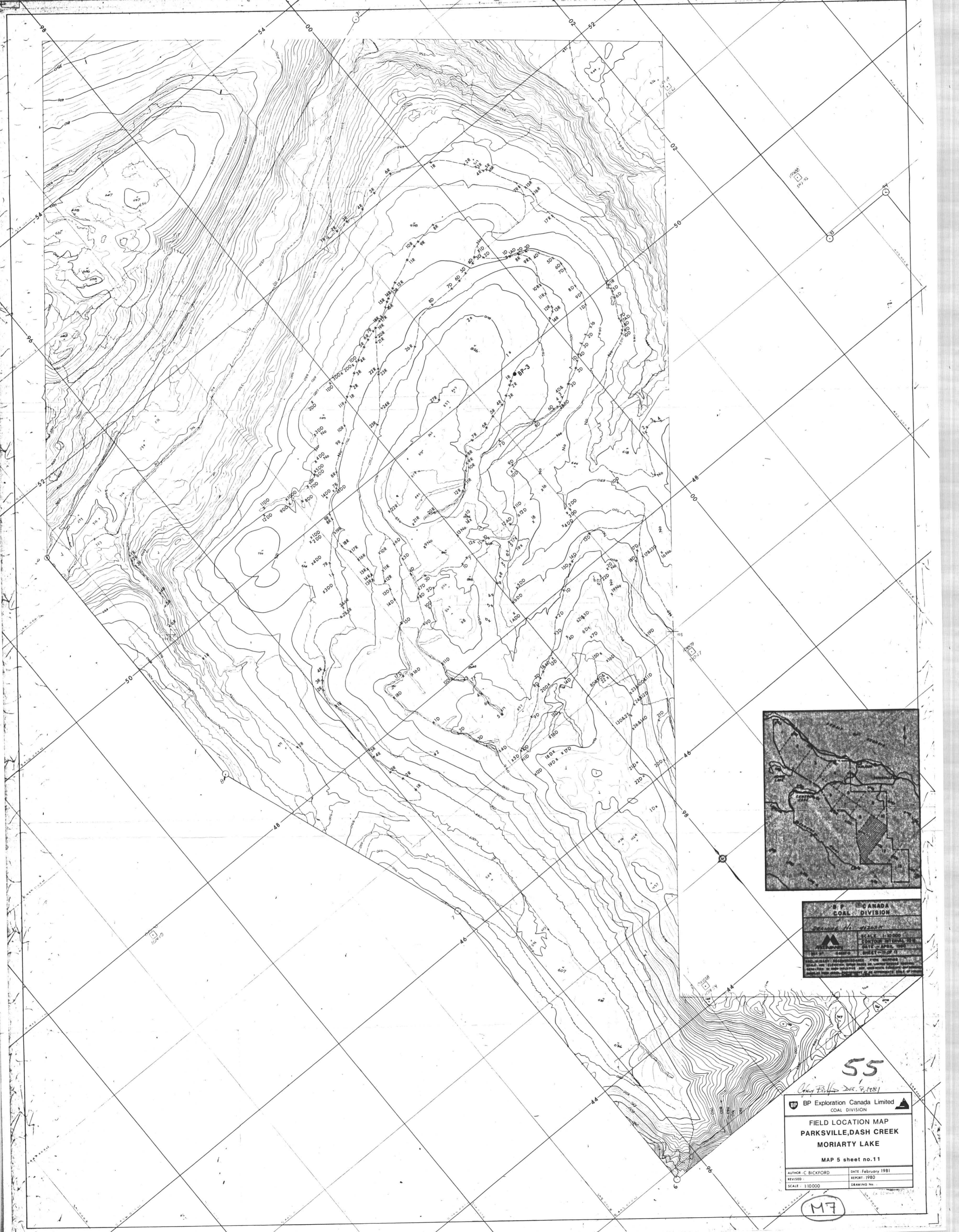
SCALE: 1:10 000  
 CONTOUR INTERVAL 10 M  
 DATE: APRIL 1980  
 SHEET 4 OF 13

PRELIMINARY RECONNAISSANCE PIPE MAPPING  
 SCALE AND ELEVATION SHOWN SHOULD BE LIMITED TO GENERAL  
 RESULTS IN THIS RELATIVE BUT UNRELIABLE ABSOLUTE ACCURACY  
 SUPPLIED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:10 000

DEC 7 1981  
Cly



M6



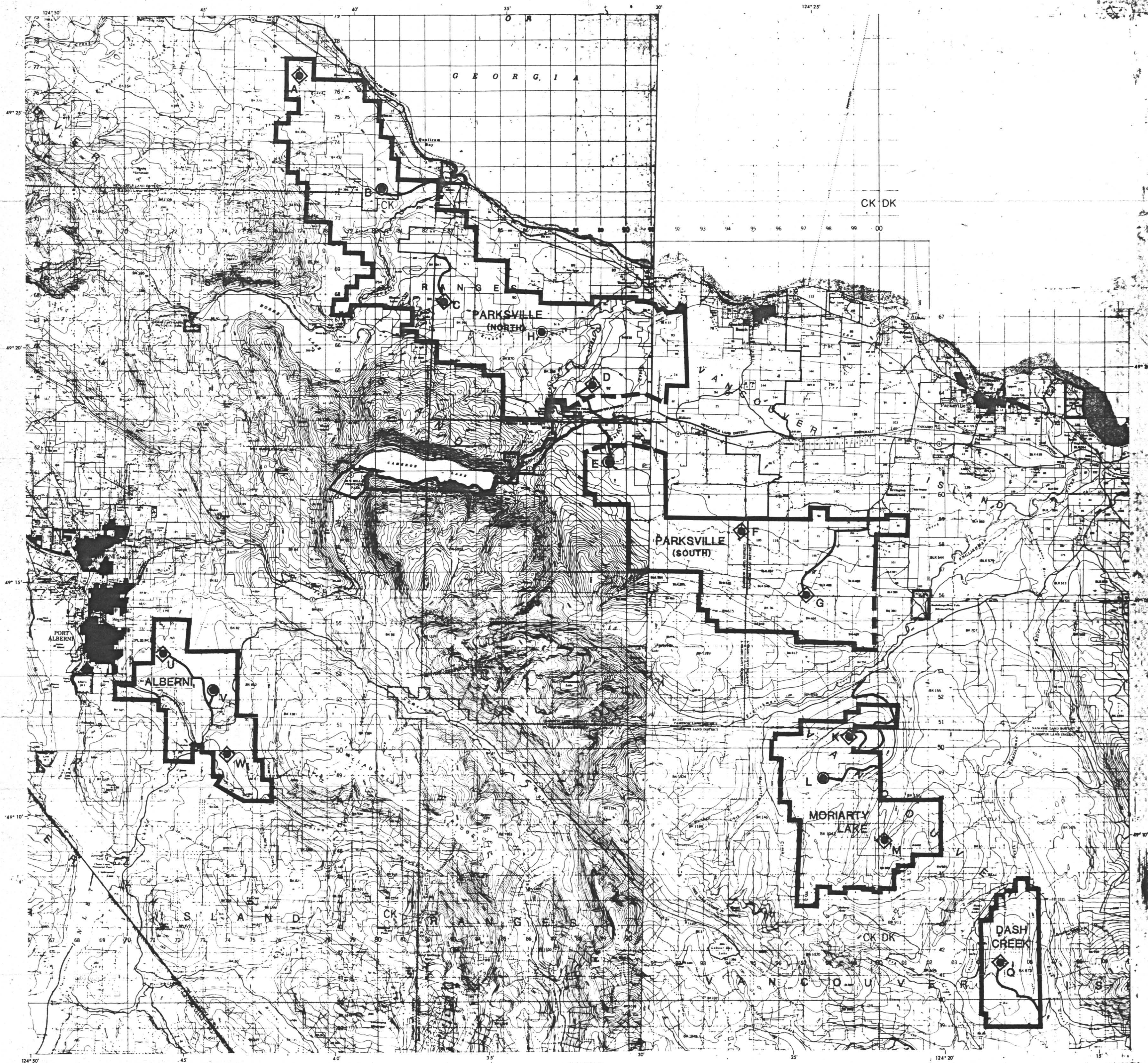
**BP CANADA COAL DIVISION**  
 Drawing No. 472025  
 SCALE: 1:10000  
 DRAWING BY: T.M. & L.L.  
 DATE: APRIL, 1981  
 SHEET NO. 11

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CHRY. F. H. D.F. 7. 1981

**BP Exploration Canada Limited**  
 COAL DIVISION  
**FIELD LOCATION MAP**  
**PARKVILLE, DASH CREEK**  
**MORIARTY LAKE**  
 MAP 5 sheet no. 11  
 AUTHOR: C. BICKFORD DATE: February 1981  
 REVISION: NONE SHEET: 1980  
 SCALE: 1:10000 DRAWING NO. 472025

(M7)




PROPOSED HOLES		DRILLED HOLES	
PARKSVILLE	A - diamond 450 m	PARKSVILLE	BP10(A) - diamond 623 m
	B - rotary 250 m		BP9 (B) - rotary 657 m
	C - diamond 150 m		BP7 (C) - diamond 450 m
	D - diamond 150 m		BP5 (D) - diamond 334 m
	E - rotary 150 m		BP6 (E) - diamond 551 m
	F - diamond 400 m		BP8 (C) - diamond 300 m
	G - diamond 300 m		BP11(H) - rotary 408 m
MORIARTY	K - diamond 300 m	MORIARTY	BP5 (K) - diamond 371 m
	L - rotary 300 m		BP2 (L) - diamond 159 m
	M - diamond 300 m		BP1 (M) - diamond 223 m
DASH CREEK	Q - diamond 200 m	DASH CREEK	BP1 (Q) - diamond 223 m
	U - diamond 300 m		BP4 (U) - diamond 348 m
ALBERNI	V - rotary 350 m		
	W - diamond 150 m		

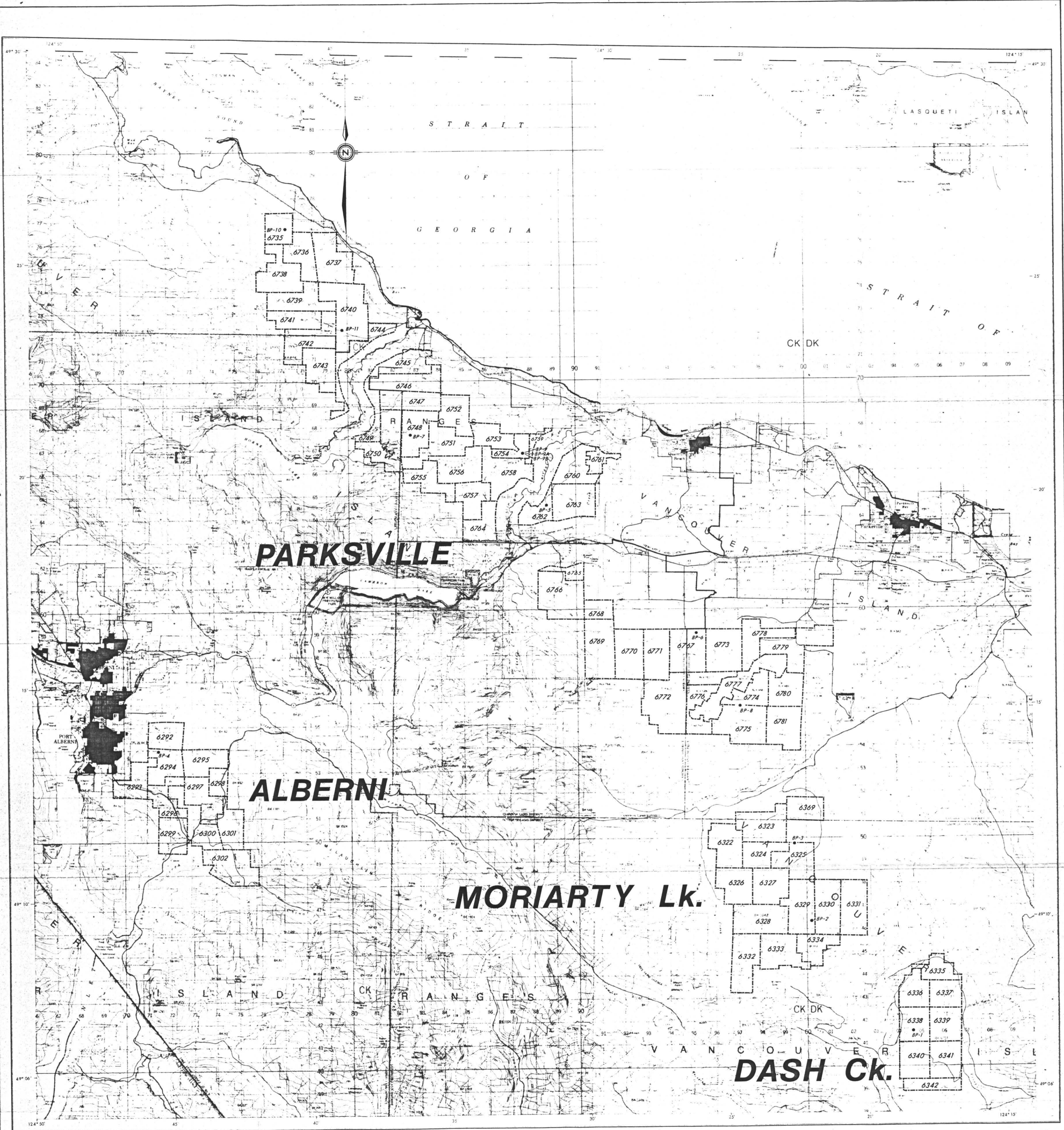
 rotary hole  
 diamond hole

Scale 1:50,000  
1000 0 1000 2000 3000 4000 METRES

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M8

 BP Exploration Canada Limited  
 COAL DIVISION  
  
 VANCOUVER ISLAND  
 1980 DRILL PROGRAM  
 MAP 7  
  
 AUTHOR: P. LEE  
 DATE: JAN. 1981  
 REVISED:  
 SCALE: 1:50,000  
 SHEET:



LEGEND  
 COAL LICENCE: 6403

55

BP Exploration Canada Limited  
 COAL DIVISION

VANCOUVER ISLAND EXPLORATION  
 MAP 1

LOCATION AND ACCESS, ALBERNI, DASH CREEK  
 MORIARTY LAKE AND PARKSVILLE PROPERTIES  
 NTS 92F/1, F/2, F/7, F/8

AUTHOR: C. BICKFORD	DATE: 26 JANUARY 1980
REVISED:	REPORT: 1980
SCALE: 1:50,000	DRAWING NO.: 0000

M9

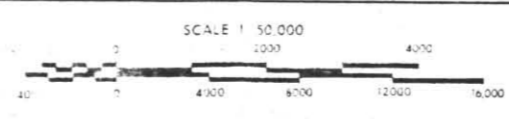
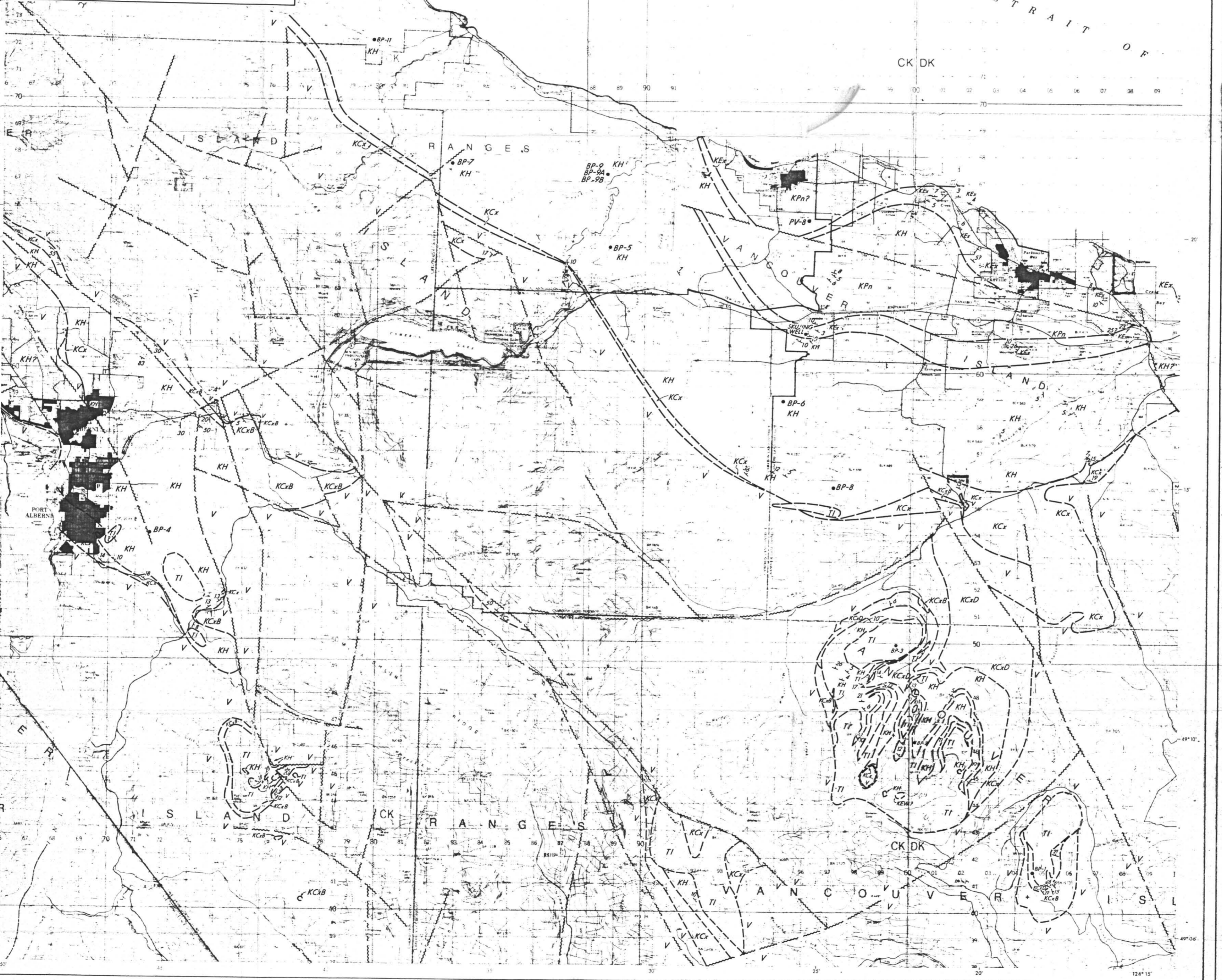
### GEOLOGICAL LEGEND

TI	Cotface Intrusions	Geological boundary approximate: - - - -
KPn	Pender Formation	Fault, approximate: - - - -
KEx	Extension Formation	Bedding, flat, inclined: +, -02
KEW	East Wellington Form. (Moriarty Lake area only)	Borehole (cited in text): • BP-6
KH	Haslam Formation	
KCx	Comox Formation (Undivided)	
KCxD	Dunsmuir Member	
KCxB	Benson Member	
V	Basement (undivided)	

Geological compilation by:  
 C. Bickford, 1980-81  
 based on mapping by:  
 J.D. McKenzie, 1922  
 J.S. Stevenson, 1945  
 J.G. Fyles, 1956  
 G. Kovacs, 1966  
 J.E. Muller and D.J.T. Carson, 1969  
 J.E. Muller and J.A. Jezletzky, 1970  
 C. Bickford, 1979-80

Geological compilation is interpretive based on best information available to author.

TO ACCOMPANY REPORT ON VANCOUVER ISLAND EXPLORATION, 1980.



*duplicate #55*  
*Clay Bickford Dec. 7/81*

BP Exploration Canada Limited COAL DIVISION	
<b>MAP 2 GEOLOGY</b>	
CENTRAL VANCOUVER ISLAND AREA	
NTS 92F/1, F/2, F/7, F/8	
AUTHOR: C. BICKFORD	DATE: 1981-03-23
REVISED:	REPORT VANCOUVER IS. 1980
SCALE: 1:50,000	DRAWING NO.: 40307

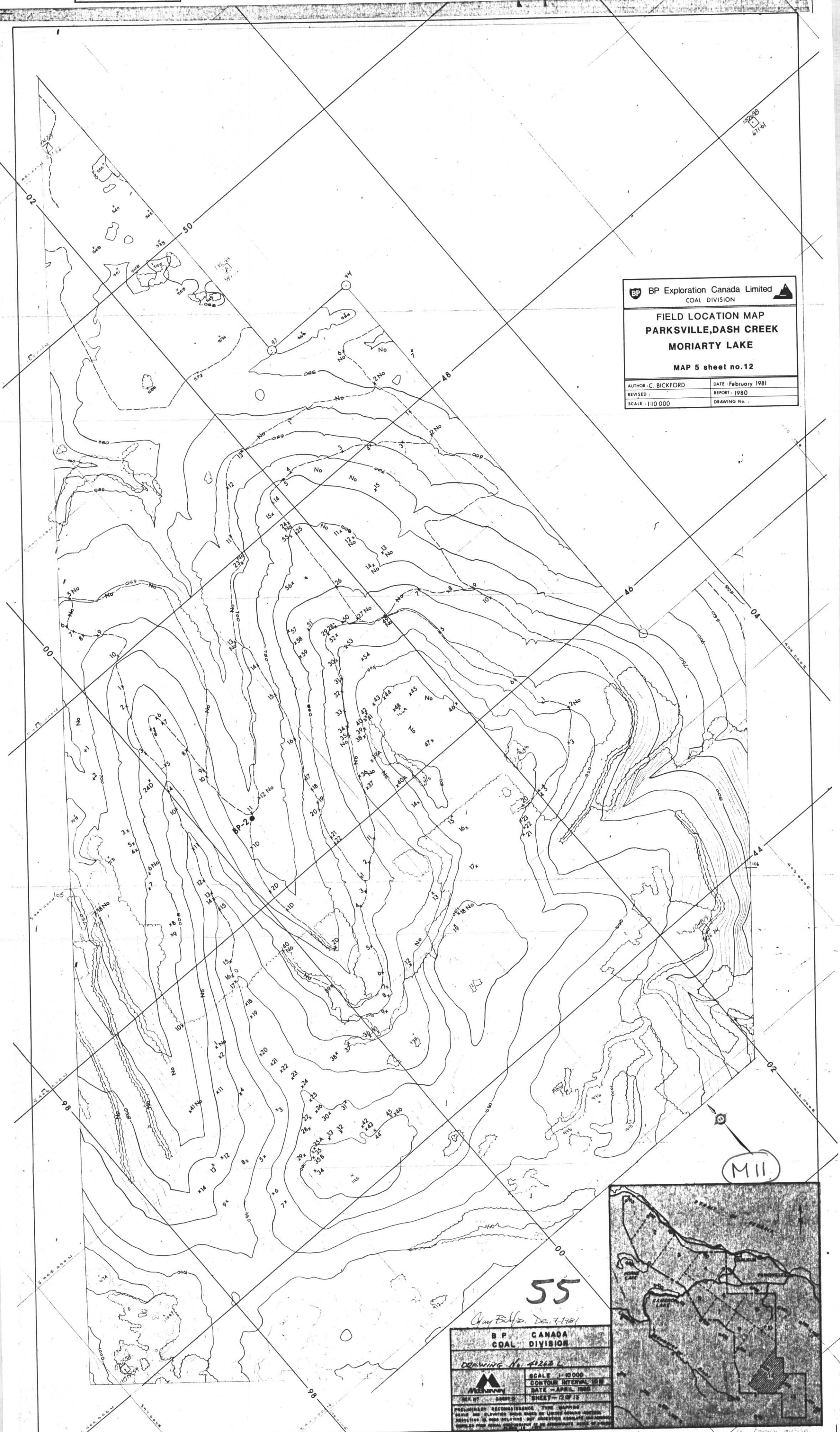
M10

**BP** BP Exploration Canada Limited  
 COAL DIVISION

**FIELD LOCATION MAP**  
**PARKVILLE, DASH CREEK**  
**MORIARTY LAKE**

MAP 5 sheet no. 12

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



M11

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Clay Bickford, Dec. 7, 1981

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**COAL DIVISION**

DRAWING No. 4265 L

SCALE: 1:10 000  
 CONTOUR INTERVAL: 5M  
 DATE: APRIL 1980  
 SHEET: 12 OF 13

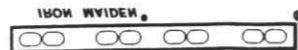
**McSurvey**

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
 SCALE AND ELEVATION DATA BASED ON LIMITED SURFACE MEASUREMENTS  
 PROJECTION IS UTM 18Q UTM ZONE 507 400000 EASTING  
 UTM 18Q UTM ZONE 507 400000 EASTING

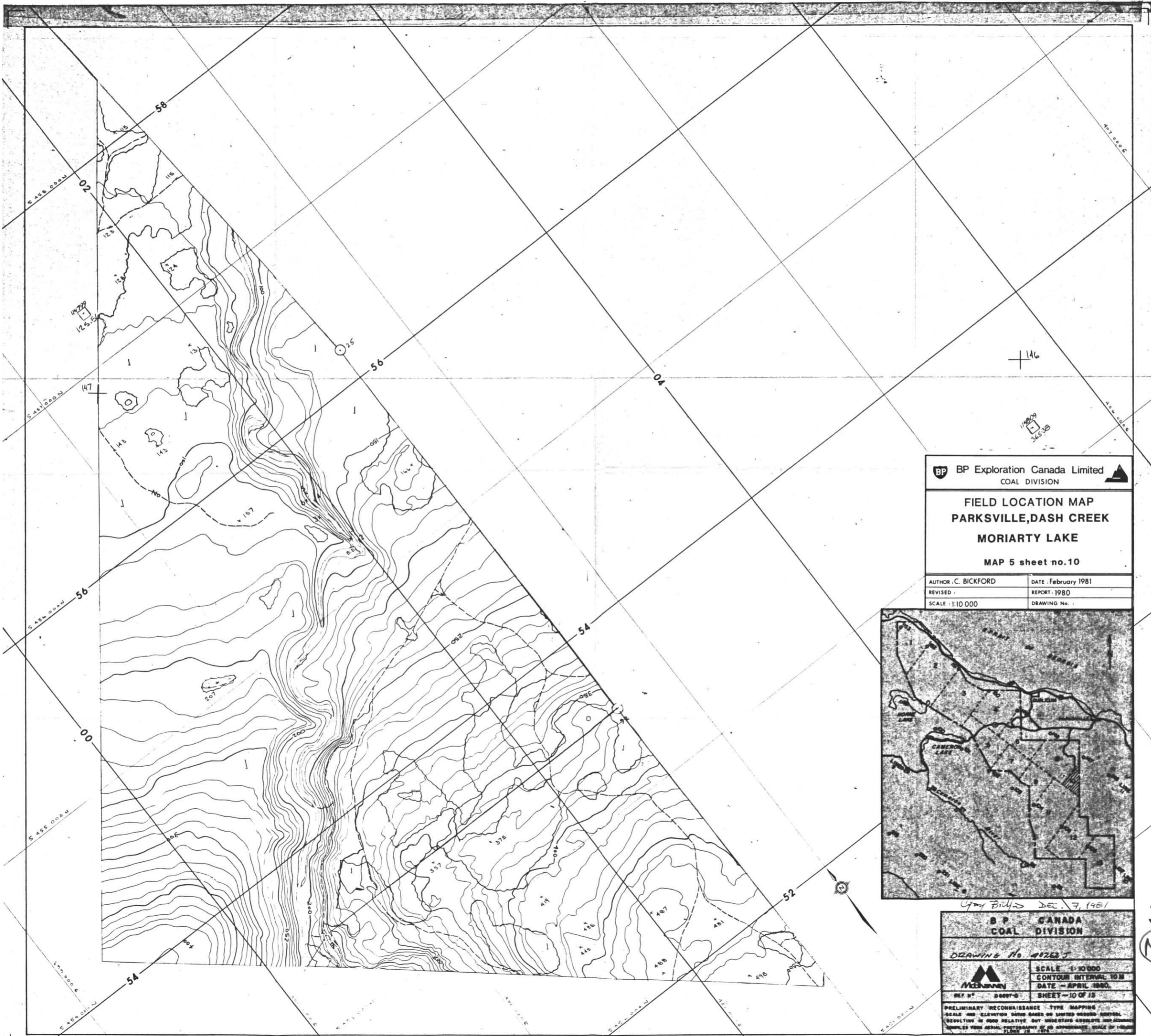


(10) J811

81254, ON, DR DESIGN REG. NO. 41523  
CYMVDIM IND DESIGN REG. NO. 41523  
81254, ON, DR DESIGN REG. NO. 41523



(B)



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COAL DIVISION

**FIELD LOCATION MAP  
PARKVILLE, DASH CREEK  
MORIARTY LAKE**

MAP 5 sheet no. 10

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



474 BICKFORD DEC. 7, 1981

**BP CANADA  
COAL DIVISION**

DRAWING No. 40263 J

**McKENNAN**

SCALE 1:10000
CONTOUR INTERVAL 10M
DATE - APRIL 1980
SHEET - 10 OF 15

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
SCALE AND ELEVATION DATA BASED ON LIMITED GROUND CONTROL  
RESULTING IN SOME RELATIVE BUT UNSTABLE ABSOLUTE POSITIONS  
OBTAINED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:5000  
PLANS IS - 1980

55  
(M12)



FIELD LOCATION MAP  
PARKVILLE, DASH CREEK  
MORIARTY LAKE

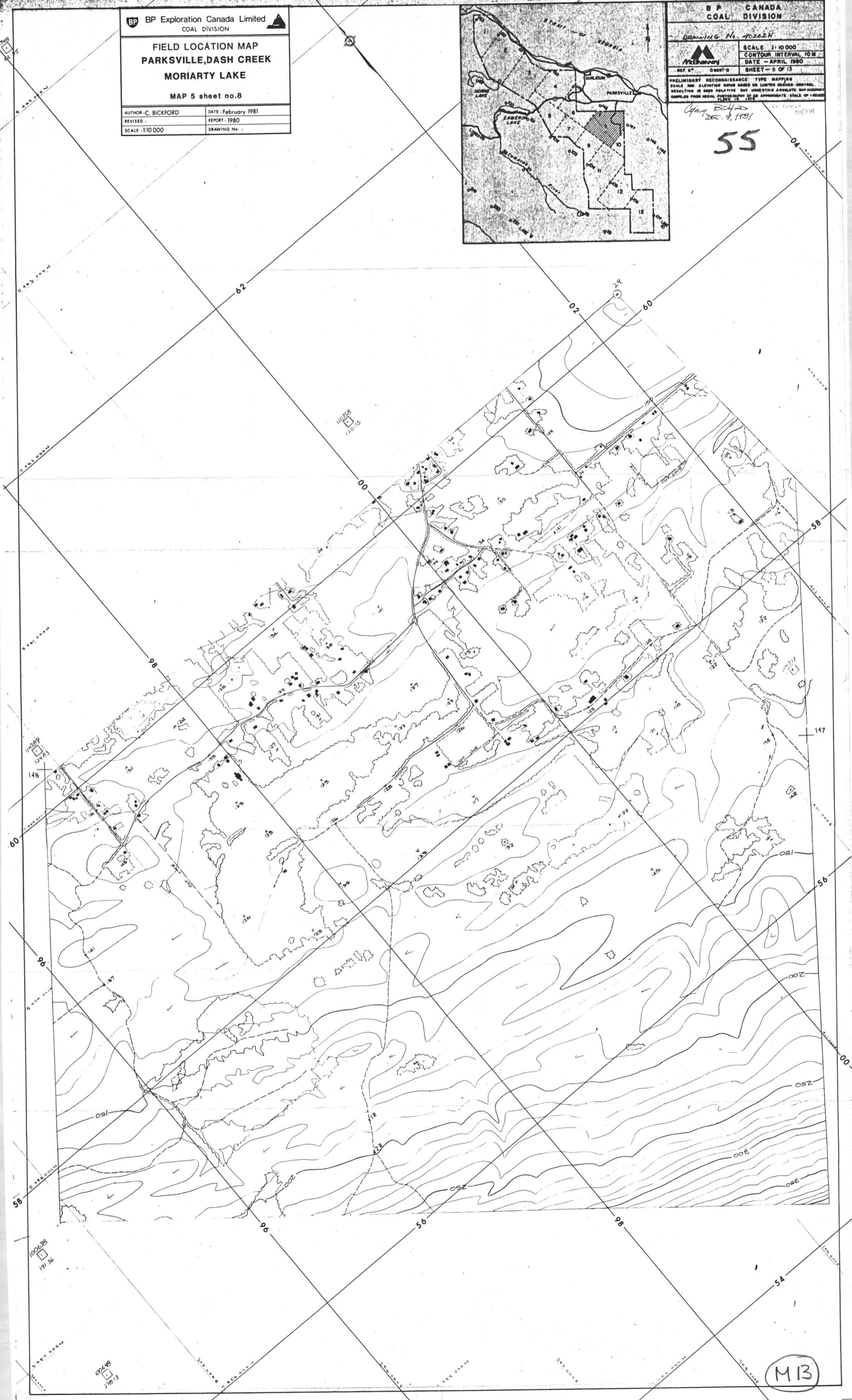
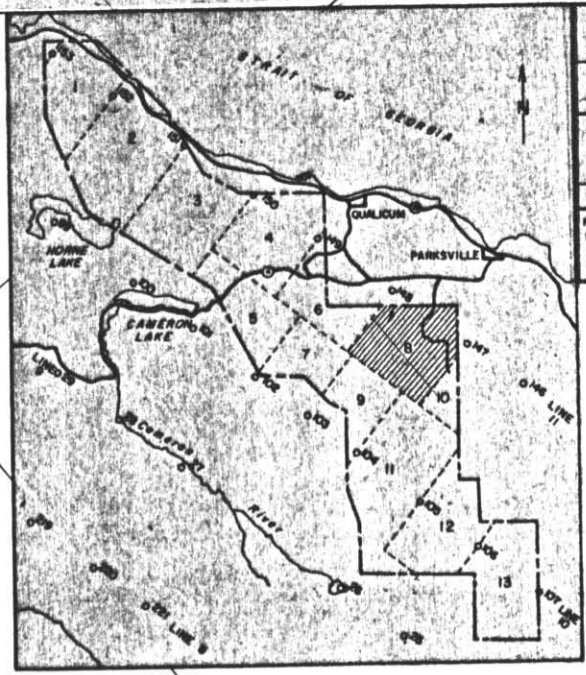
MAP 5 sheet no.8

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:

B.P. CANADA COAL DIVISION	
Drawing No. 70262H	
SCALE: 1:10 000	CONTOUR INTERVAL: 10 M
DATE: APRIL 1980	SHEET: 8 OF 13
REF. NO. 0007-0	
PRELIMINARY RECONNAISSANCE TYPE MAPPING SCALE AND ELEVATION DATA BASED ON LIMITED GROUND CONTROL RESULTING IN DATA RELATIVE BUT UNSTABLE ABSOLUTE MAP ACCURACY OBTAINED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:5000 EVEN IN 1981	

*C. Bickford*  
DEC. 7, 1981

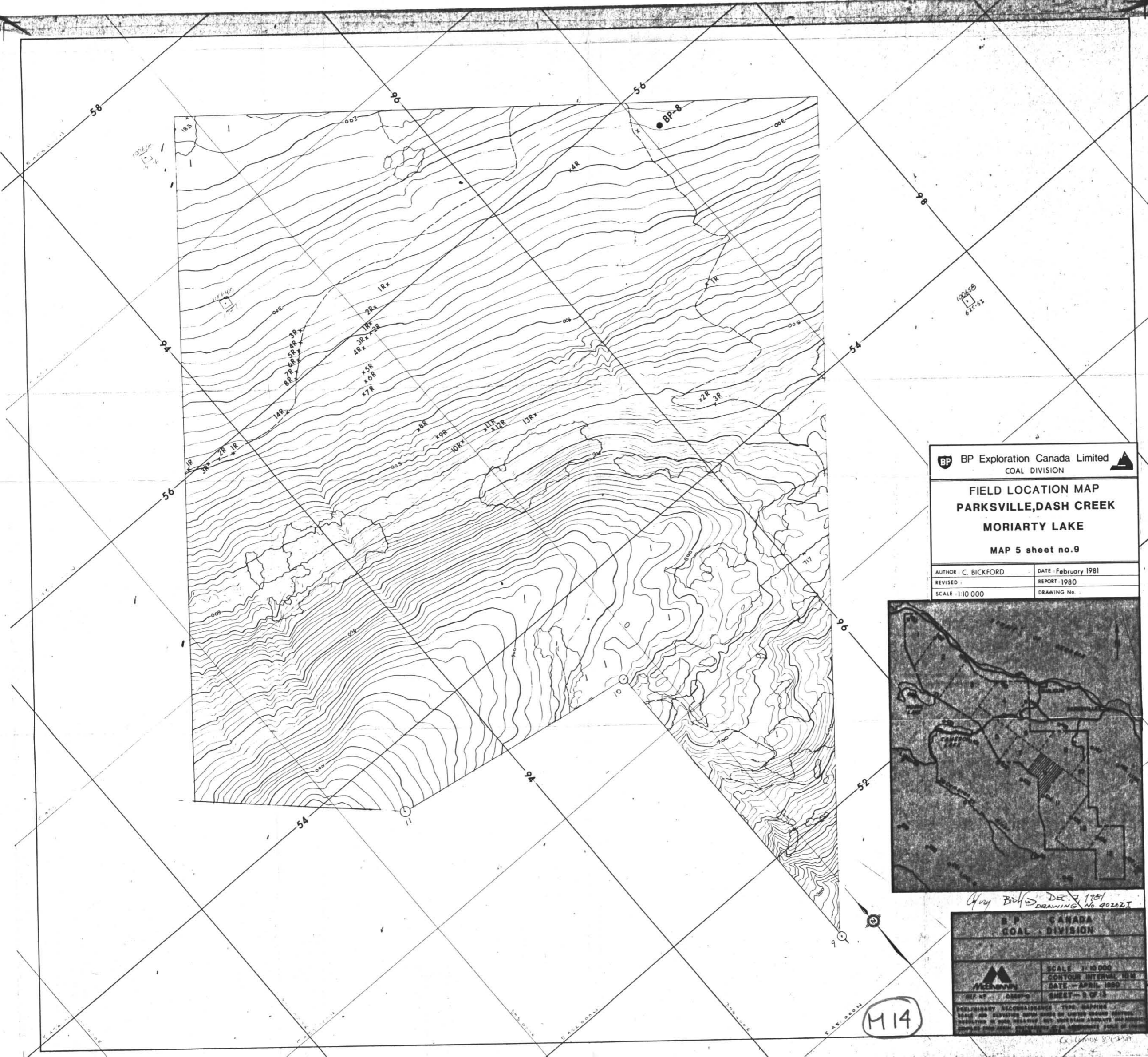
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M13

ИМОН МВИДЕМ  
078-8423218 ТИЭРЭ МИЭЭН А. А. У.  
0781-8272001 ТИЭРЭ МИЭН А. А. У.  
СЫНДЫМ АГБЕРЛЫ СЫНДЫ  
1981

(B)

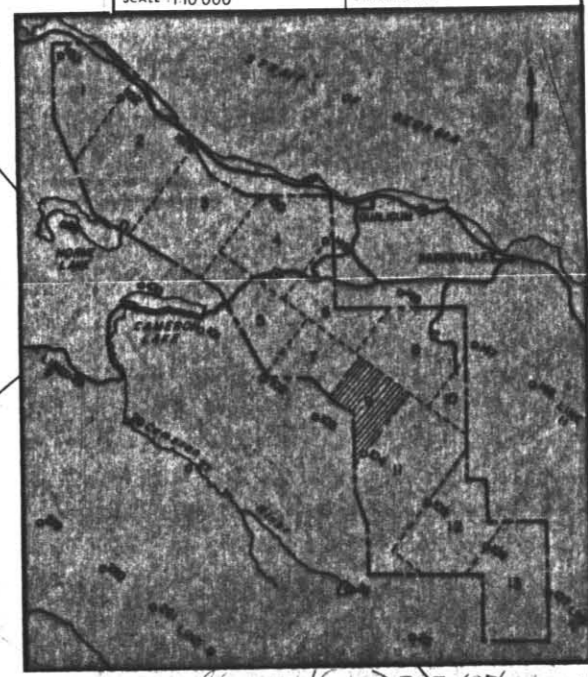


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COAL DIVISION

**FIELD LOCATION MAP**  
**PARKSVILLE, DASH CREEK**  
**MORIARTY LAKE**

MAP 5 sheet no.9

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



*Chuy Bickford DEC 7 1981 DRAWING No. 902621*

**BP CANADA**  
**COAL DIVISION**

SCALE: 1:10 000  
CONTOUR INTERVAL: 10 M  
DATE: APRIL 1980  
SHEET: 3 OF 15

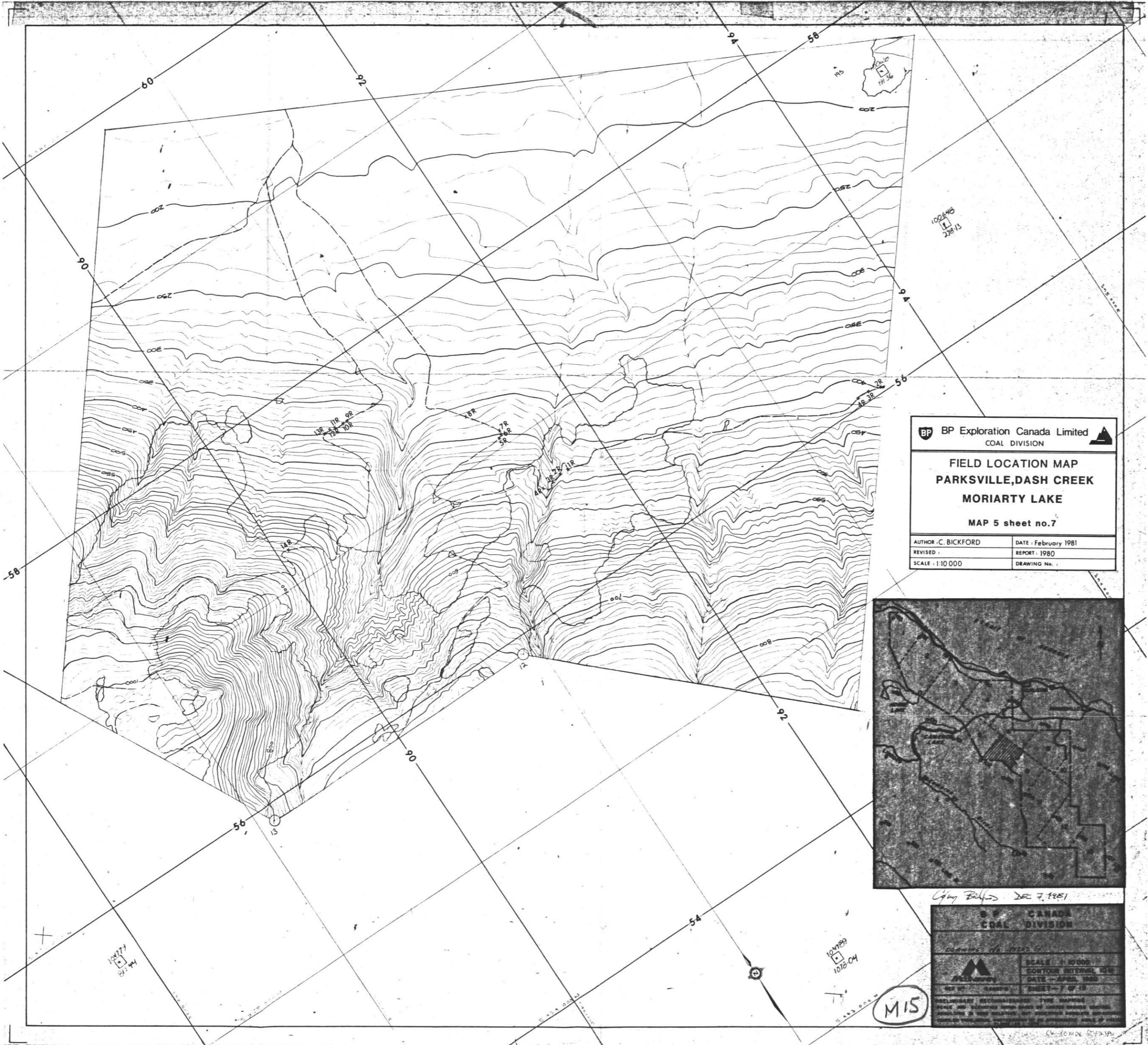
PRELIMINARY RECONNAISSANCE TYPE MAPPING  
SCALE AND SLOPES SHOWN BASED ON UNITED STATES CONTROL  
RESULTS IN 2000 METERS BY 2000 METERS APPROXIMATE  
CONTOUR INTERVAL: 10 M APPROXIMATE

(M14)

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1000 WIDEN  
 U.S. A. DESIGN PATENT 4138348-818  
 CUNYDIA' VIBREIV' CUNYDIA  
 45254-1000 WIDEN  
 1000 WIDEN

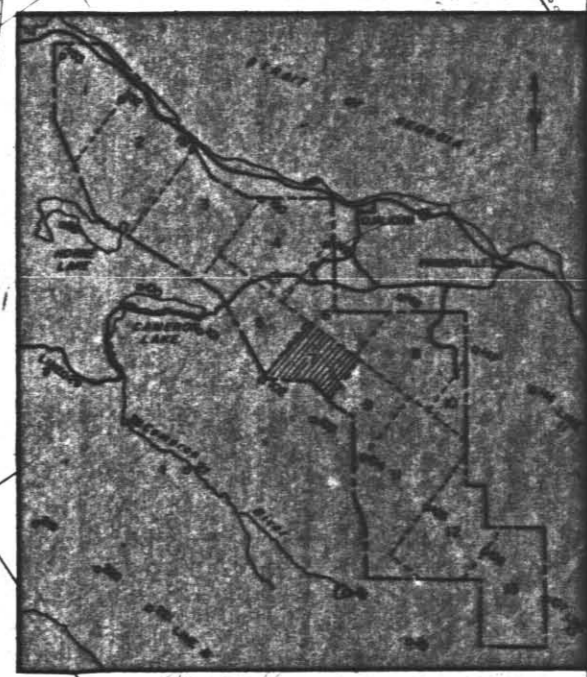
(B)



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**FIELD LOCATION MAP**  
**PARKVILLE, DASH CREEK**  
**MORIARTY LAKE**  
**MAP 5 sheet no.7**

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



*Clyde Bickford DEC 7, 1981*

**BP** CANADA  
 COAL DIVISION

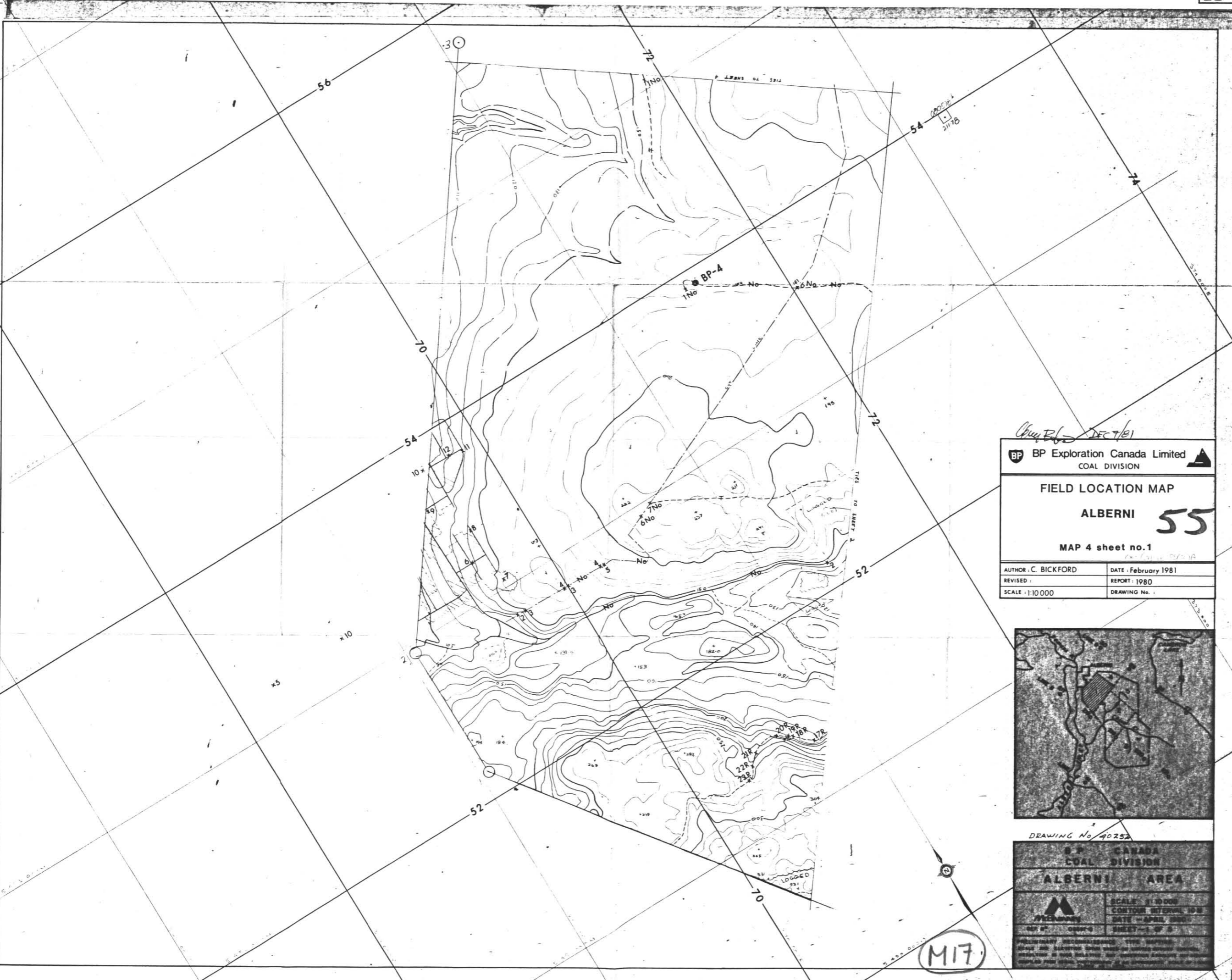
SCALE: 1:10 000  
 CONTOUR INTERVAL: 5M  
 DATE: APRIL 1980  
 SHEET: 7 OF 13

PRELIMINARY RECOMMENDATIONS FOR MINING  
 SCALE AND EXTENT OF WORK SHALL BE LIMITED TO THE  
 AREA SHOWN IN THIS MAP. THE PROPOSER ASSUMES  
 RESPONSIBILITY FOR OBTAINING ALL NECESSARY  
 PERMITS AND APPROVALS.

MIS

55





*Chris Bickford DEC 7/81*

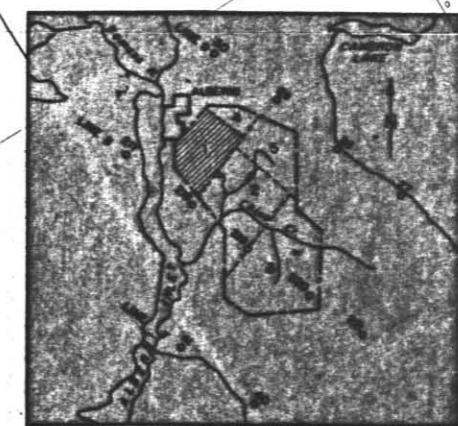
**BP** BP Exploration Canada Limited  
COAL DIVISION

**FIELD LOCATION MAP**

**ALBERNI** **55**

MAP 4 sheet no.1

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



DRAWING No. 40252

**BP CANADA**  
COAL DIVISION

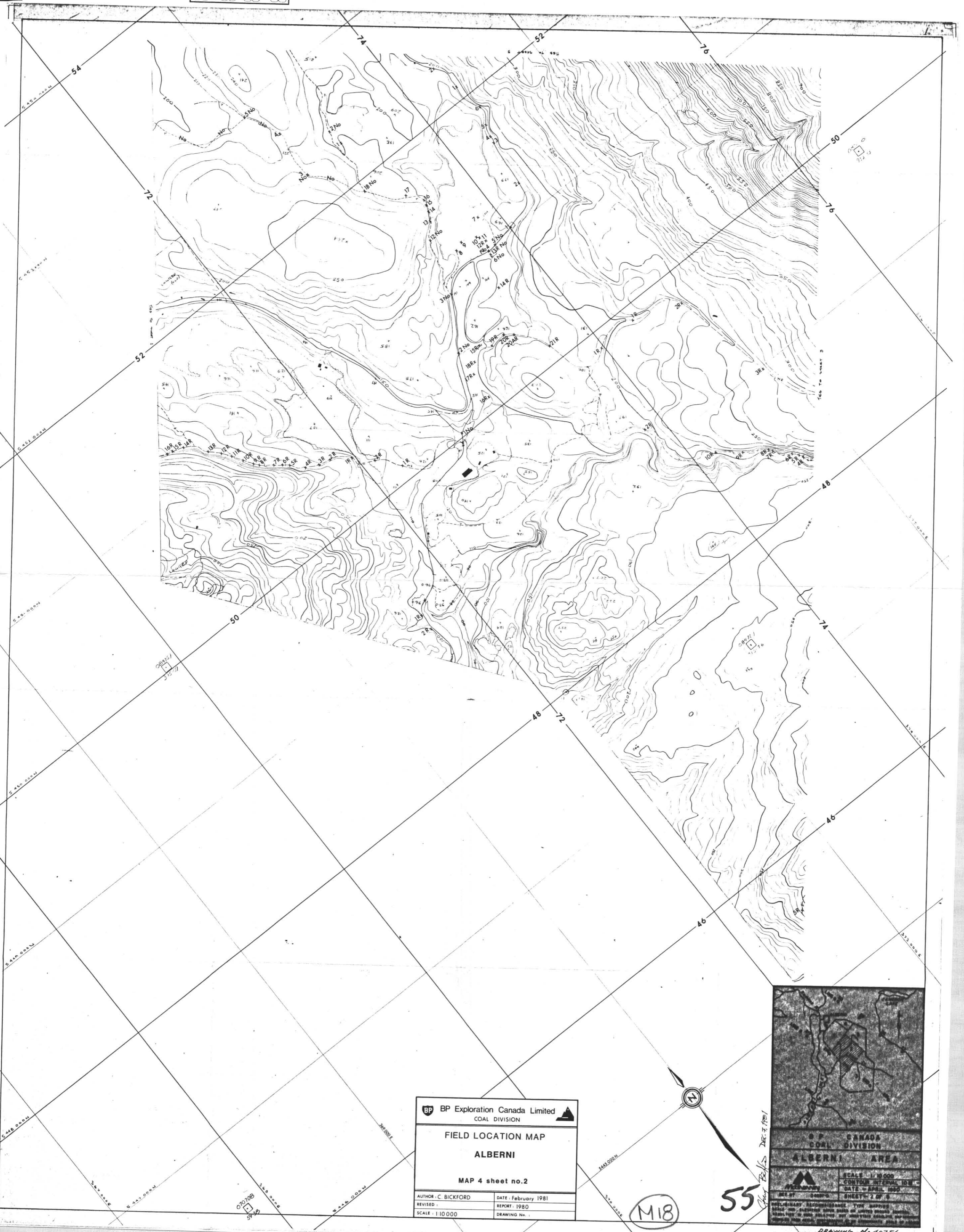
**ALBERNI AREA**

	SCALE: 1:10 000
PRELIMINARY	CONTOUR INTERVAL: 10M
DATE: APRIL 1980	DATE: APRIL 1980
SHEET: 1 OF 3	SHEET: 1 OF 3

PRELIMINARY RECONSTRUCTION THE NORTH  
SHOULD BE BASED ON THE DATA OF THE ORIGINAL SURVEY  
AND NOT ON THIS MAP. THE ORIGINAL SURVEY DATA  
SHOULD BE USED FOR ALL PURPOSES.

M17

(R)



**BP** BP Exploration Canada Limited  
 COAL DIVISION

**FIELD LOCATION MAP**  
**ALBERNI**

MAP 4 sheet no.2

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10000	DRAWING No.:

**BP CANADA**  
**COAL DIVISION**  
**ALBERNI AREA**

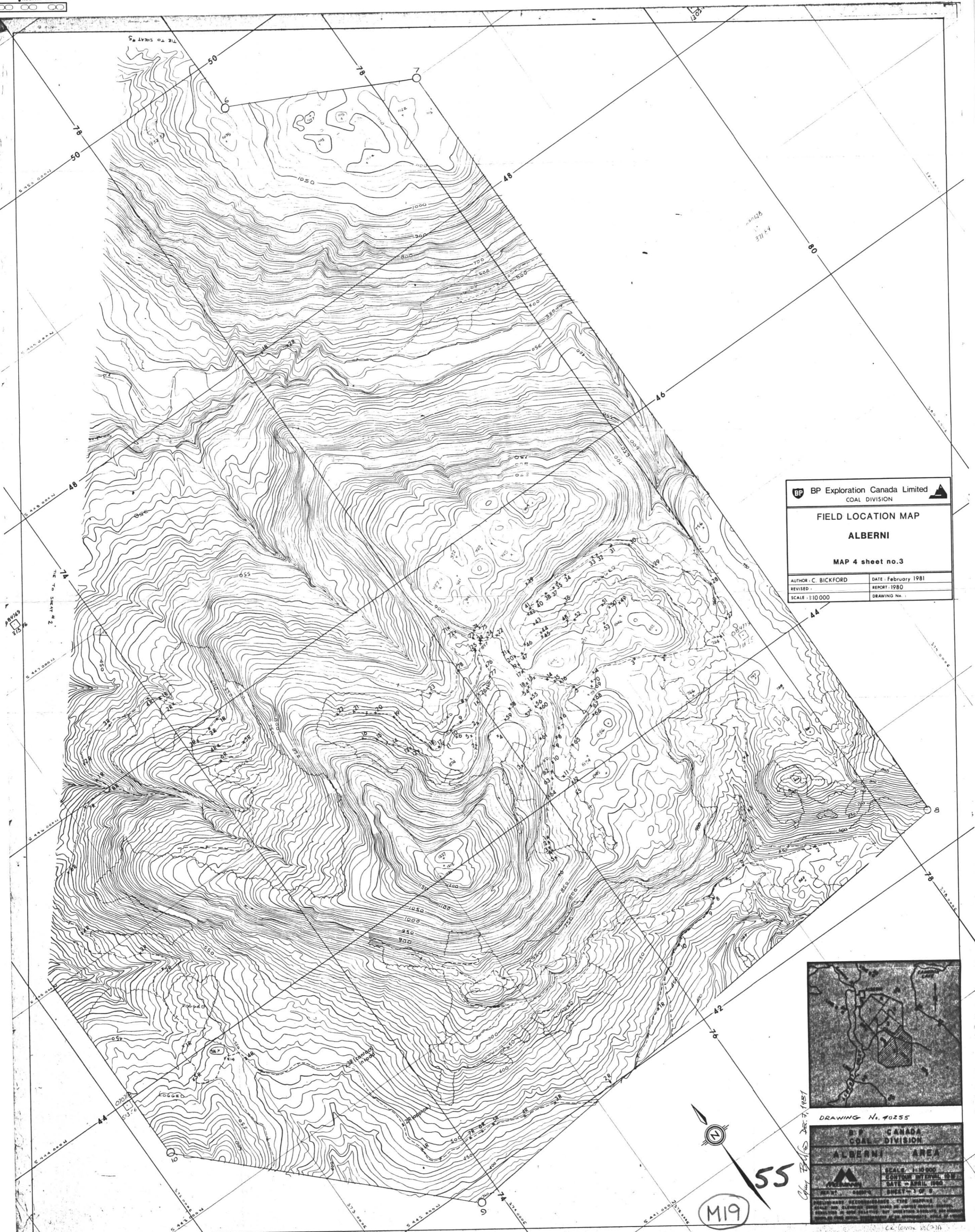
SCALE: 1:10000  
 CONTOUR INTERVAL: 10m  
 DATE: APRIL 1980  
 SHEET: 2 OF 5

DRAWING No. 40256  
 (16) (10) (3) (1) (1)

(M18)

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Dec 7 1981



**BP** BP Exploration Canada Limited  
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**FIELD LOCATION MAP**

**ALBERNI**

MAP 4 sheet no.3

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10000	DRAWING No.:



DRAWING No. 40255

**BP CANADA**  
 COAL DIVISION

**ALBERNI AREA**

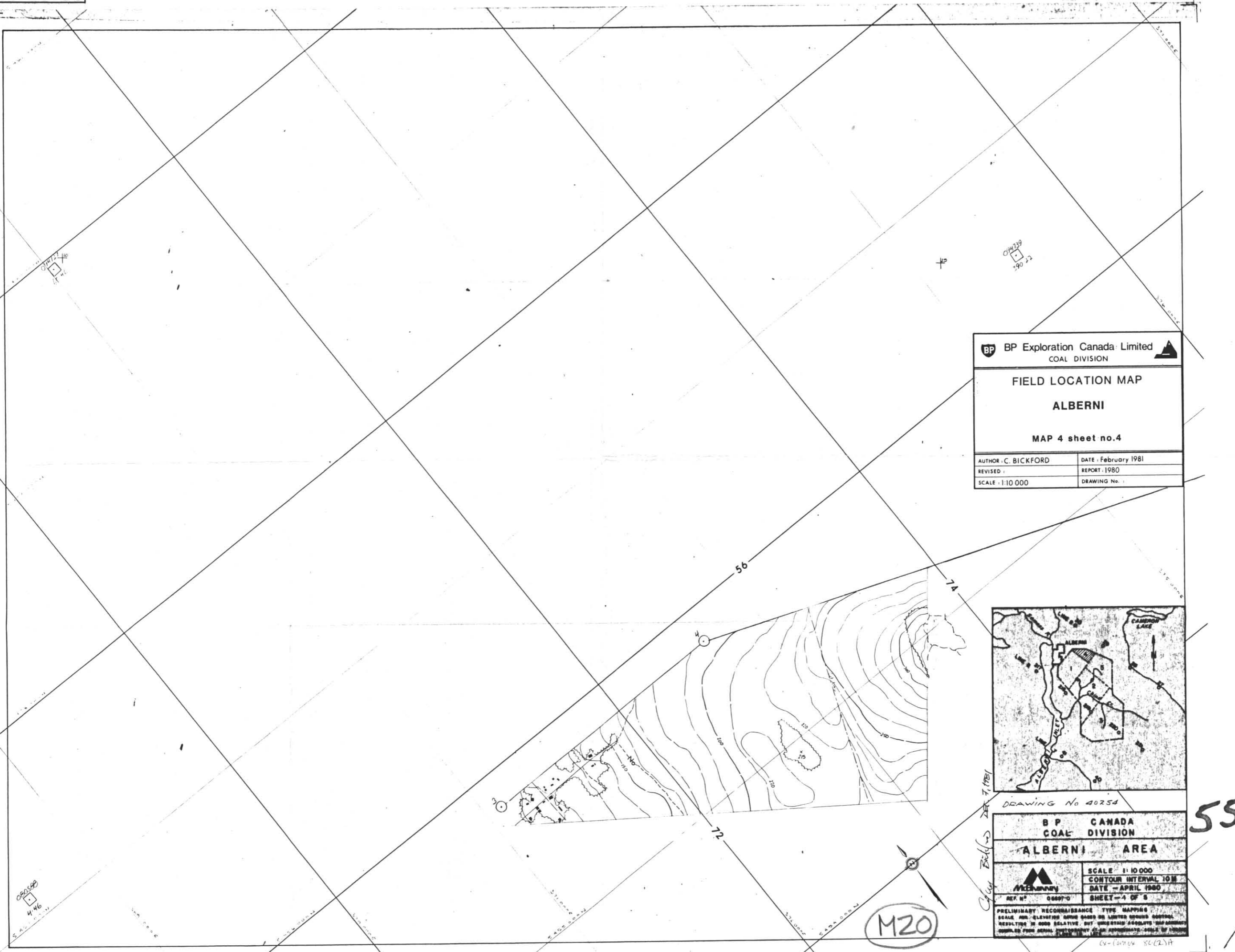
SCALE: 1:10000  
 EASTING: 100000  
 DATE: APRIL 1980

IRON MAIDEN SYSTEMS LTD.  
 U.S. A. DESIGN PATENT 413929  
 CANADIAN PATENT 1065729

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M19

Color Profiles Dec. 7, 1981



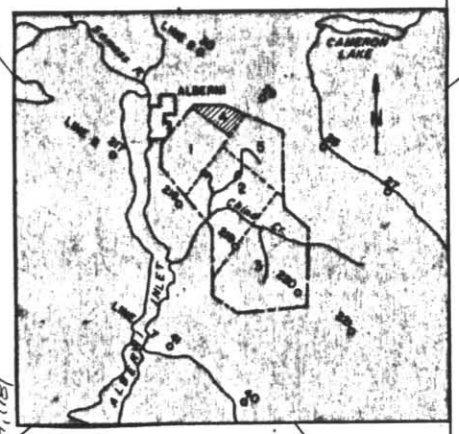
**BP** BP Exploration Canada Limited  
 COAL DIVISION

**FIELD LOCATION MAP**

**ALBERNI**

MAP 4 sheet no.4

AUTHOR : C. BICKFORD	DATE : February 1981
REVISED :	REPORT : 1980
SCALE : 1:10 000	DRAWING No. :



DRAWING No 40254

**BP CANADA**  
**COAL DIVISION**

**ALBERNI AREA**

<b>ALBERNI</b>	SCALE 1:10000
	CONTOUR INTERVAL 10M
	DATE - APRIL 1980
REF. NO. 06697-0	SHEET - 4 OF 5

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
 SCALE FOR ELEVATIONS GIVEN BASED ON LIMITED SOUNDINGS  
 RESULTING IN 400M RELATIVE DAT. UNSTANDARD ABSOLUTE DAT. ADJUSTED  
 DERIVED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:25000

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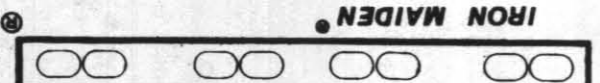
M20



IRON MAIDEN<sup>®</sup> SYSTEMS LTD. CALGARY, ALBERTA, CANADA

(RD) 1977

U. S. A. DESIGN PATENT 4139248 1979  
CANADIAN PATENT 1065729 1979

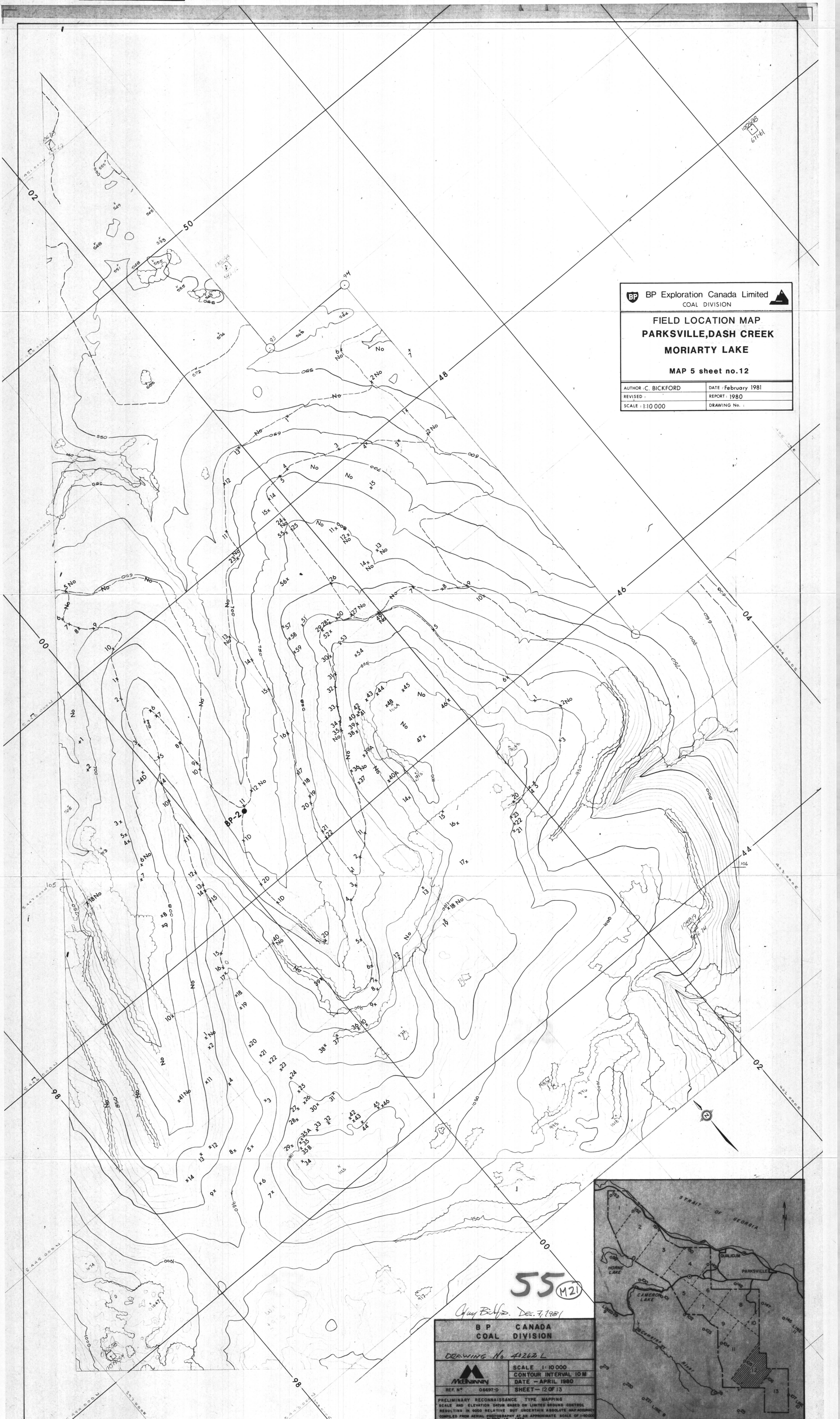


**BP** BP Exploration Canada Limited  
COAL DIVISION

**FIELD LOCATION MAP**  
**PARKSVILLE, DASH CREEK**  
**MORIARTY LAKE**

MAP 5 sheet no. 12

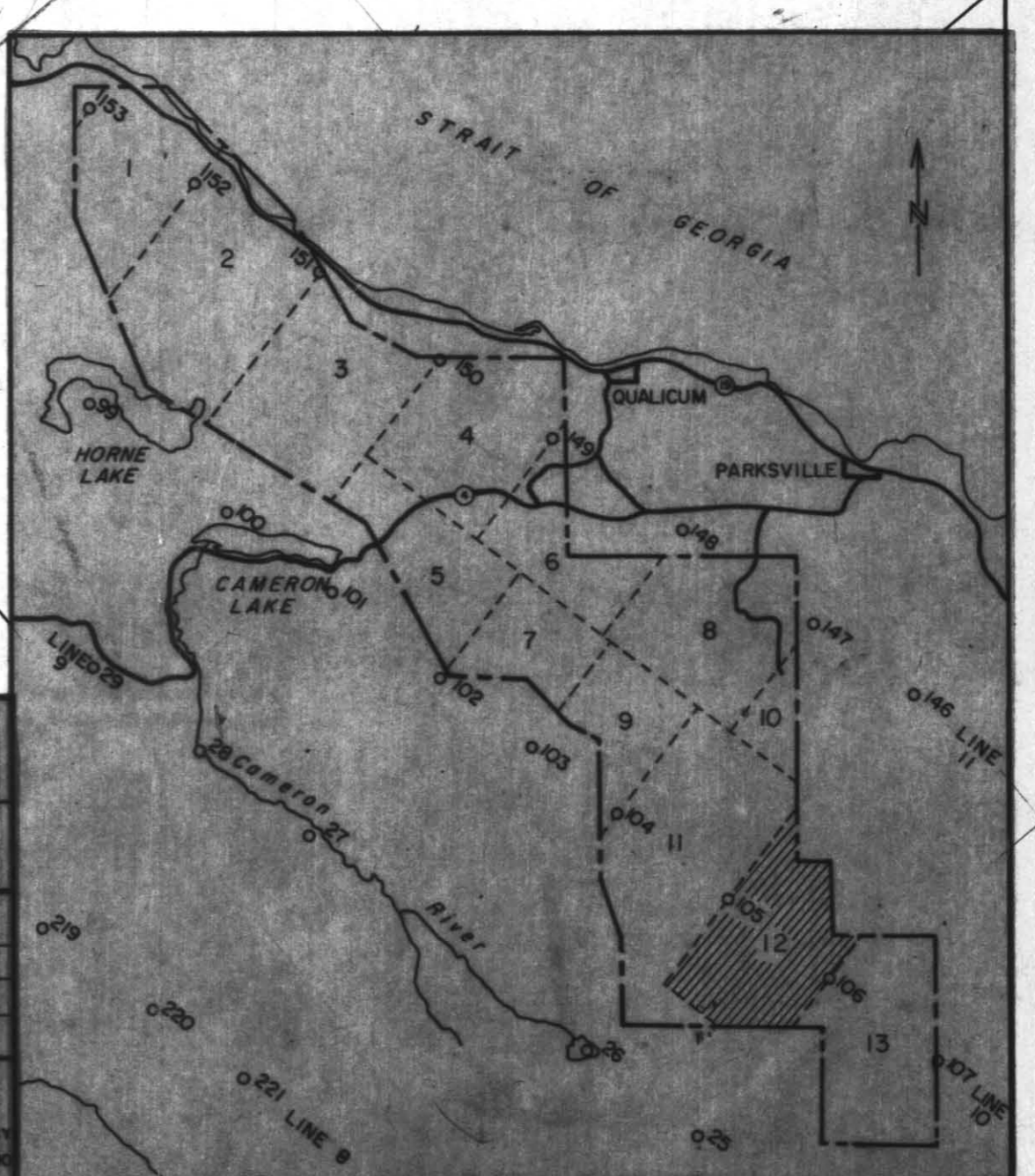
AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



55 (M2)

*C. Bickford, Dec. 7, 1981*

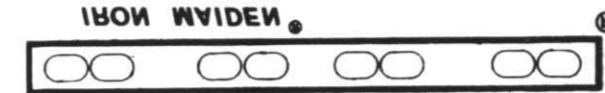
<b>B P CANADA</b> <b>COAL DIVISION</b>	
DRAWING No. 41262 L	
	SCALE 1:10000 CONTOUR INTERVAL 10 M
REP. No. 06697-D	DATE - APRIL 1980
	SHEET - 12 OF 13
PRELIMINARY RECONNAISSANCE TYPE MAPPING SCALE AND ELEVATION SHOWN BASED ON LIMITED BRUING CONTROL RESULTING IN GOOD RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:5000 ELEVATION 18 1979	



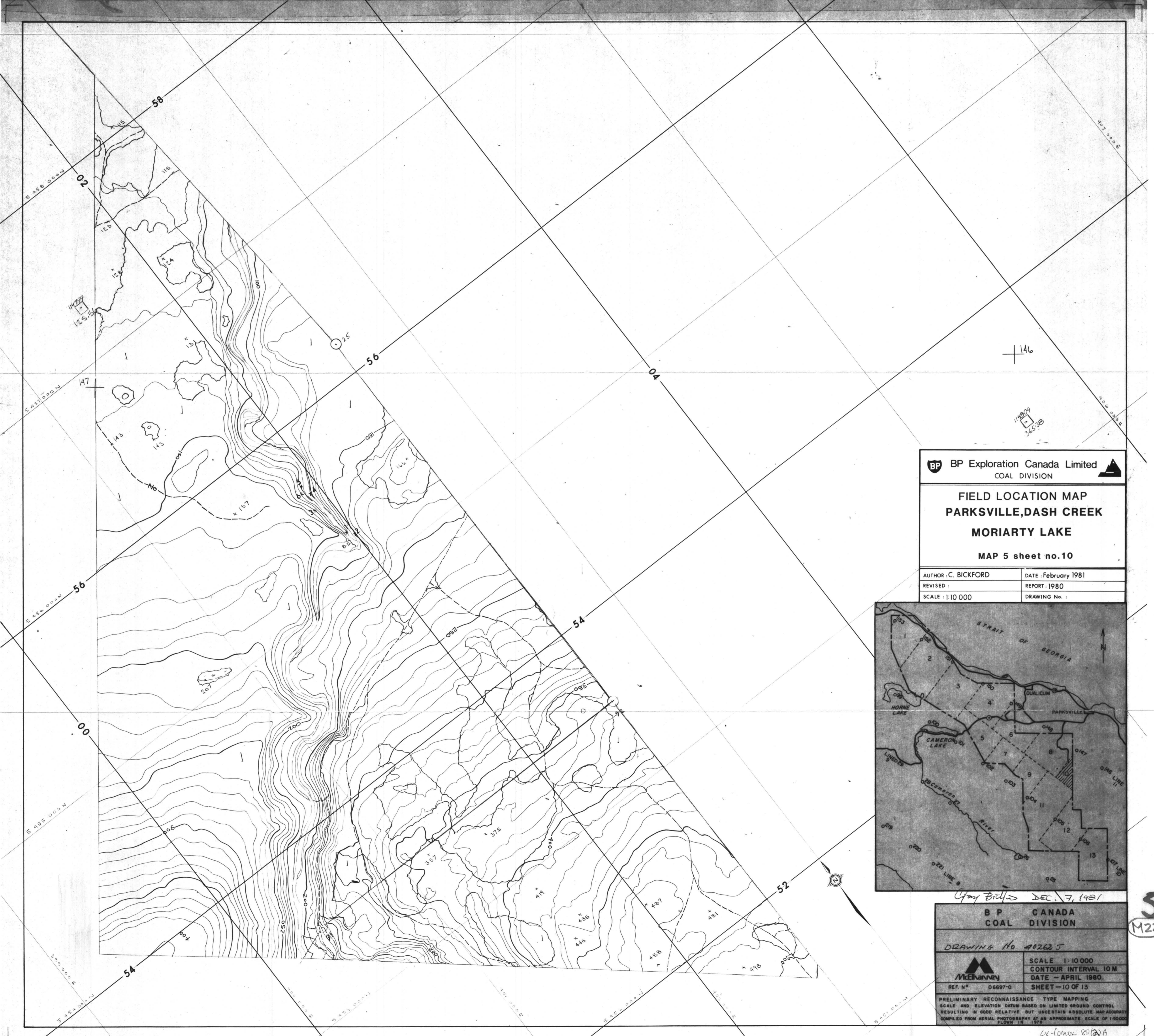
CL-COMOK 80C-1A

1811

CANADIAN PATENT 1082158-1818  
CANADIAN IND. DESIGN REG. NO. 45254  
U. S. PAT. & DESIGN OFFICE 4138248-1839



(B)

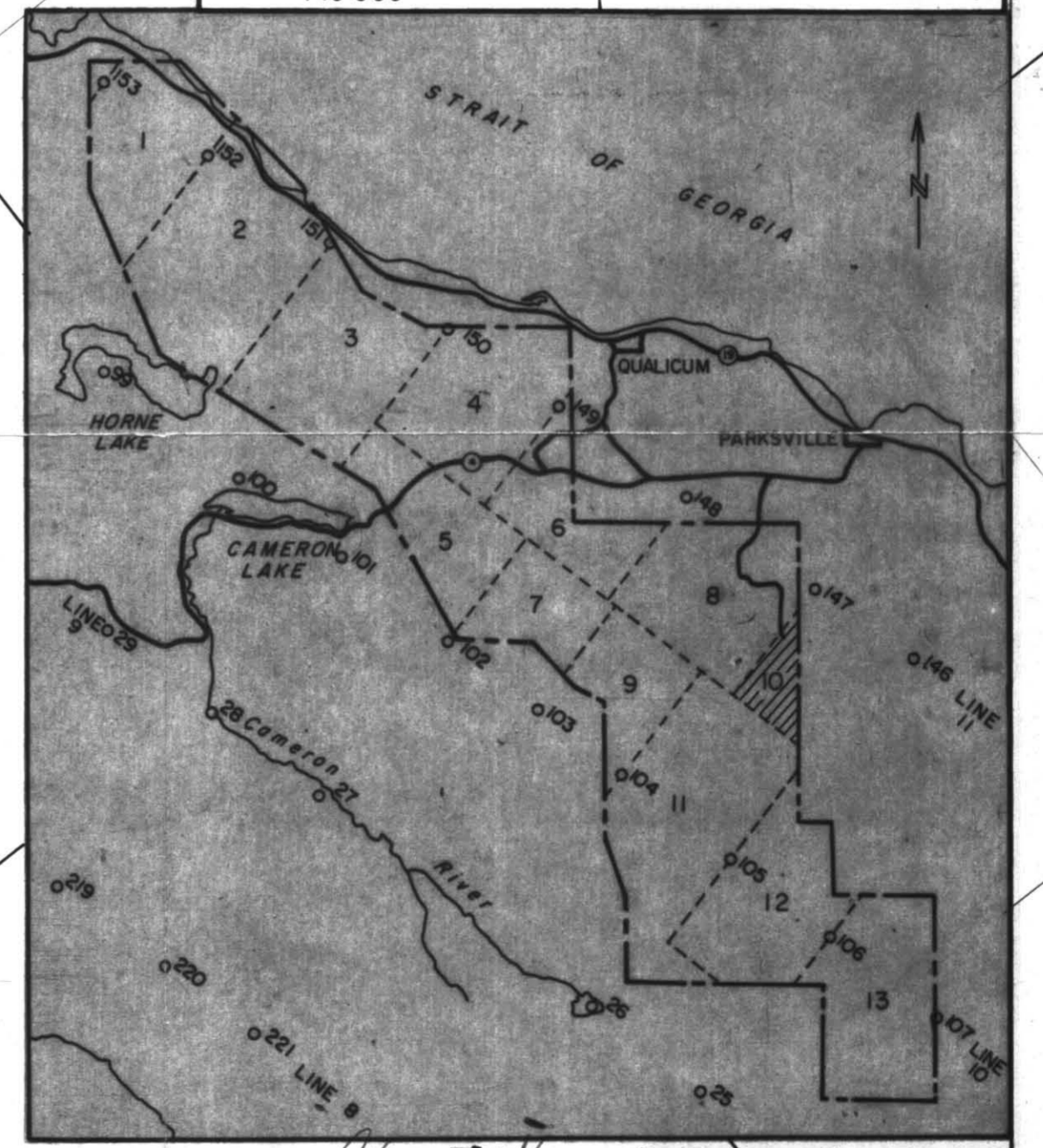


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COAL DIVISION

**FIELD LOCATION MAP  
PARKVILLE, DASH CREEK  
MORIARTY LAKE**

MAP 5 sheet no.10

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



*Copy Bill's DEC. 7, 1981*

**B P CANADA  
COAL DIVISION**

DRAWING No 40262 J

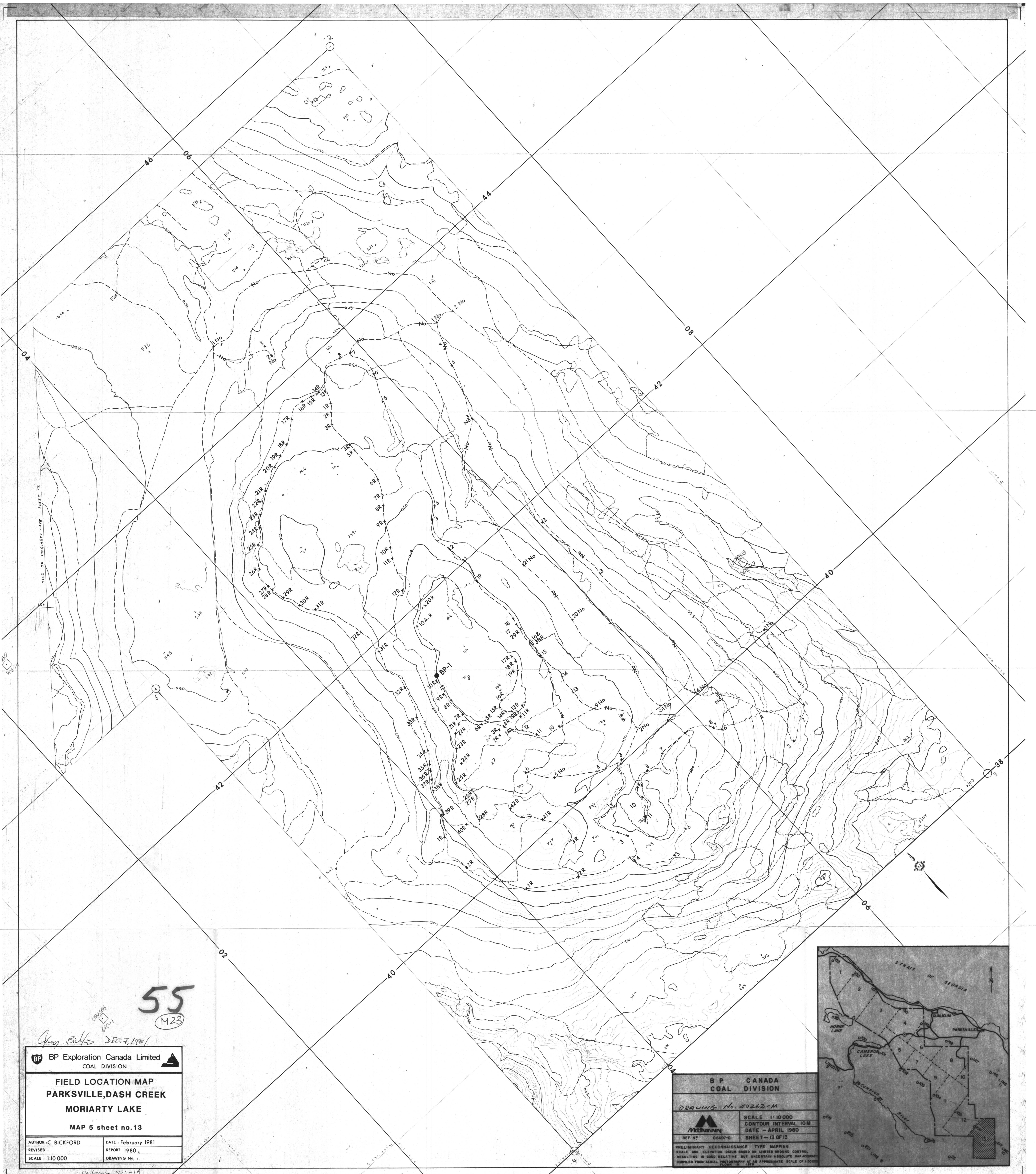
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REF. N° 06697-0	SHEET - 10 OF 13

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
SCALE AND ELEVATION DATA BASED ON LIMITED GROUND CONTROL  
RESULTING IN GOOD RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY  
COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:50 000  
FLOW 18 - 1979

*lx-(omax 80/2) A*

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M22

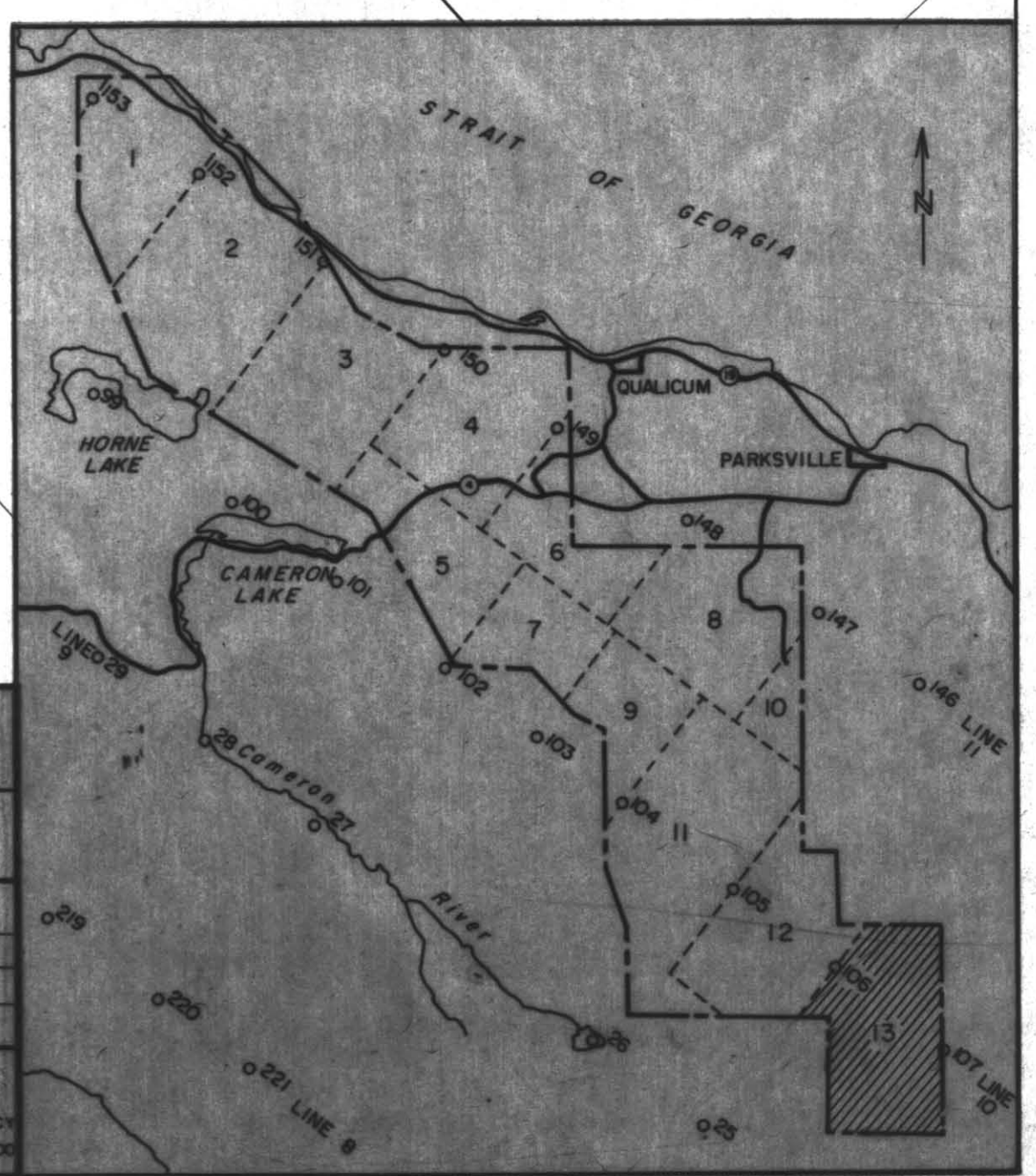
IRON MAIDEN SYSTEMS LTD. CALGARY ALBERTA CANADA  
 (10) 1977  
 CANADIAN PATENT 108529-879  
 U.S.A. DESIGN PATENT 413248-979

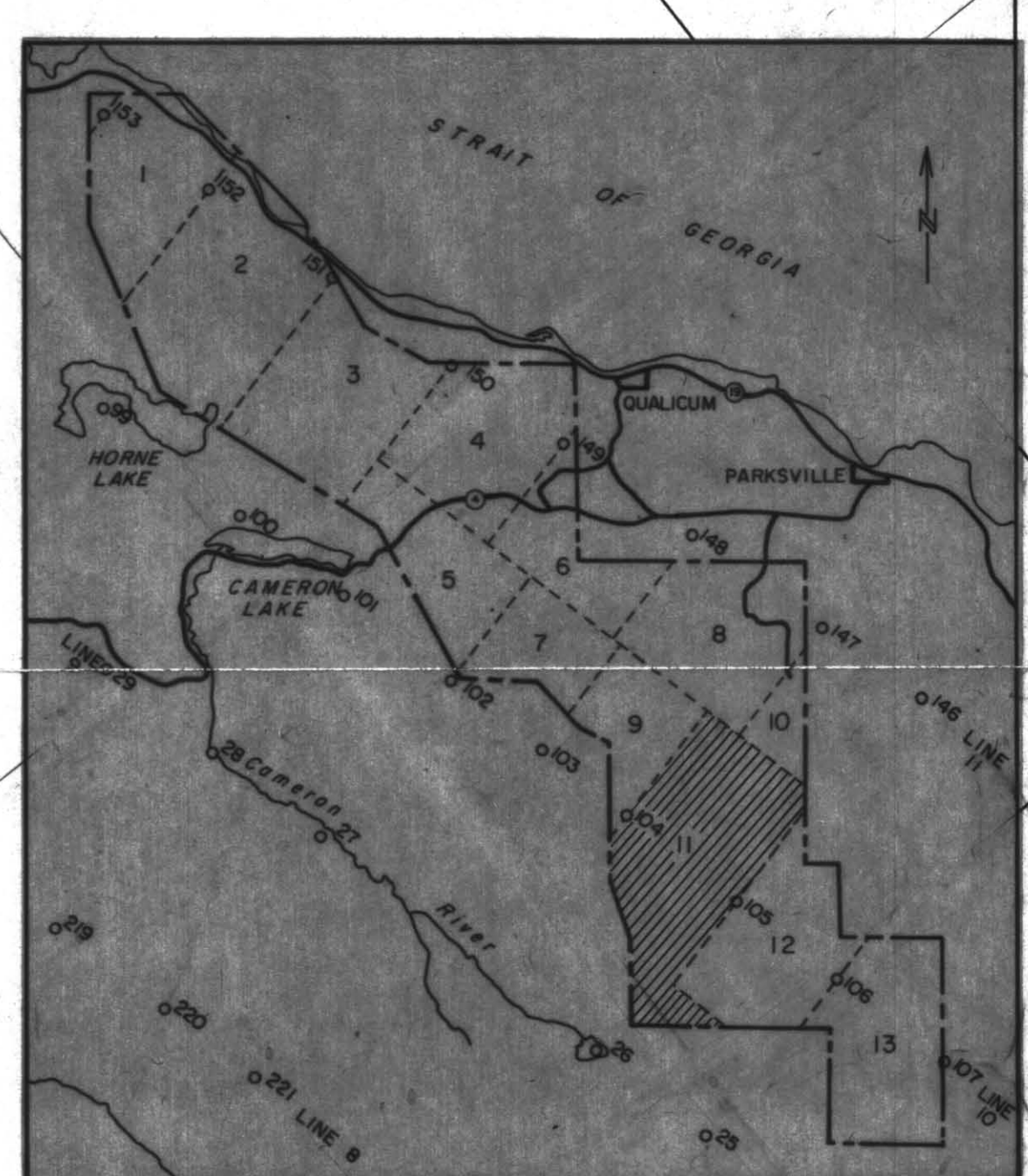
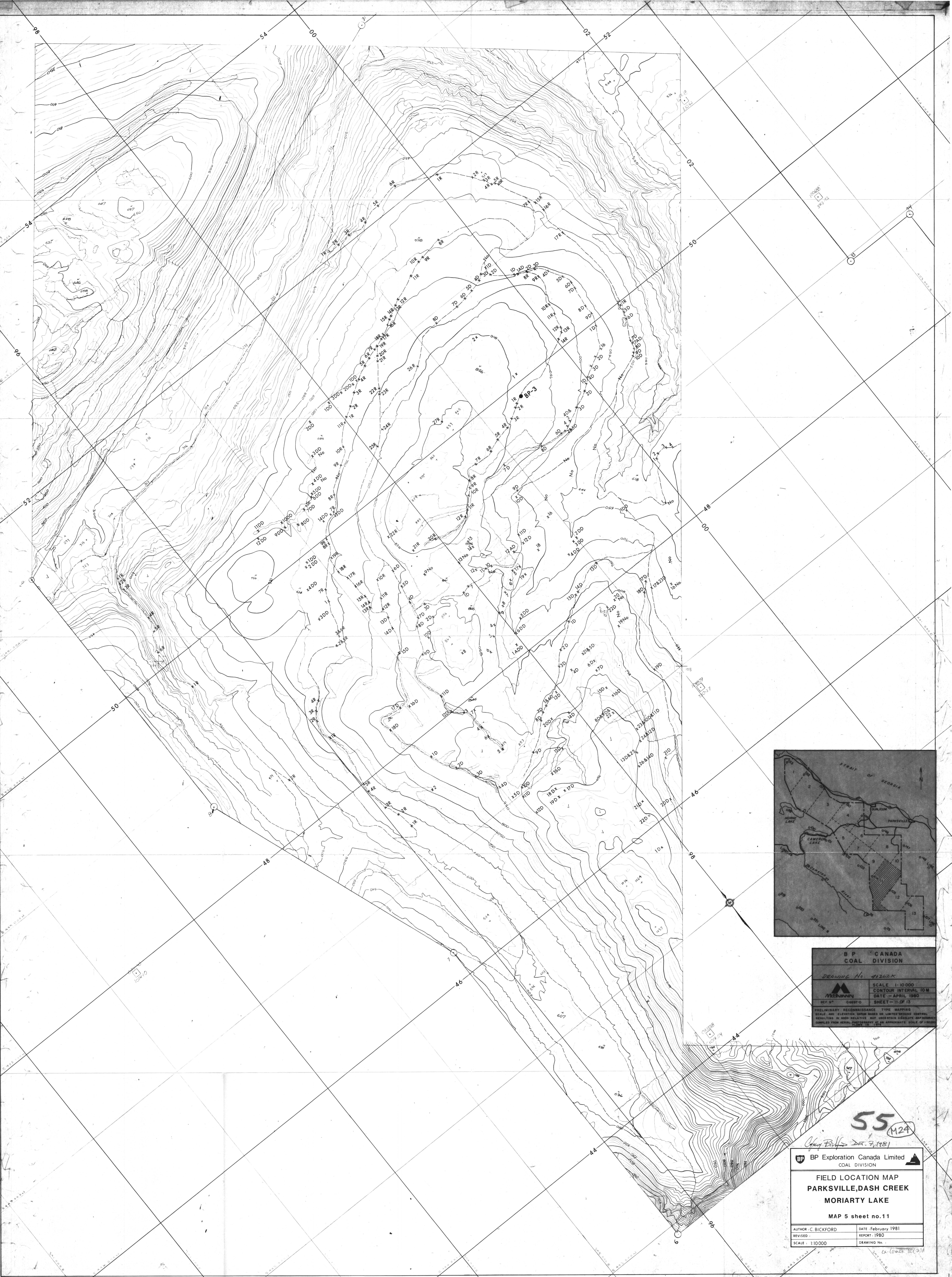


55  
 M23

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 COAL DIVISION  
**FIELD LOCATION MAP**  
**PARKVILLE, DASH CREEK**  
**MORIARTY LAKE**  
 MAP 5 sheet no. 13  
 AUTHOR: C. BICKFORD DATE: February 1981  
 REVISED: REPORT: 1980  
 SCALE: 1:10 000 DRAWING No.:

BP CANADA  
 COAL DIVISION  
 DRAWING No. 40262-M  
 SCALE 1:10 000  
 CONTOUR INTERVAL 10M  
 DATE - APRIL 1980  
 REF. NO. 0667-9 SHEET - 13 OF 13  
 PRELIMINARY RECONNAISSANCE TYPE MAPPING  
 SCALE AND ELEVATION DATA BASED ON LIMITED SPOTS CONTROL  
 RESULTS IN GRID RELATIVE BUT UNDESIRABLE ANGLE OF POSITION  
 DERIVED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:1000





BP CANADA  
COAL DIVISION

DRAWING No. 41262K

SCALE 1:10000  
CONTOUR INTERVAL 10M  
DATE - APRIL 1980  
SHEET - 11 OF 13

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
SCALE AND ELEVATIONS GIVEN BASED ON LIMITED SURVEY CONTROL  
RESULTS IN 50% RELATIVE 50% UNCERTAIN AS TO ACCURACY  
UNLESS FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:10000

55 (124)

BP Exploration Canada Limited  
COAL DIVISION

FIELD LOCATION MAP  
PARKSVILLE, DASH CREEK  
MORIARTY LAKE

MAP 5 sheet no. 11

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10000	DRAWING No.:

CK-COMD-881918

**FIELD LOCATION MAP  
PARKVILLE, DASH CREEK  
MORIARTY LAKE**

MAP 5 sheet no.6

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:

*C. Bickford* DEC. 7, 1981  
C-10mox 20(2)A

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425



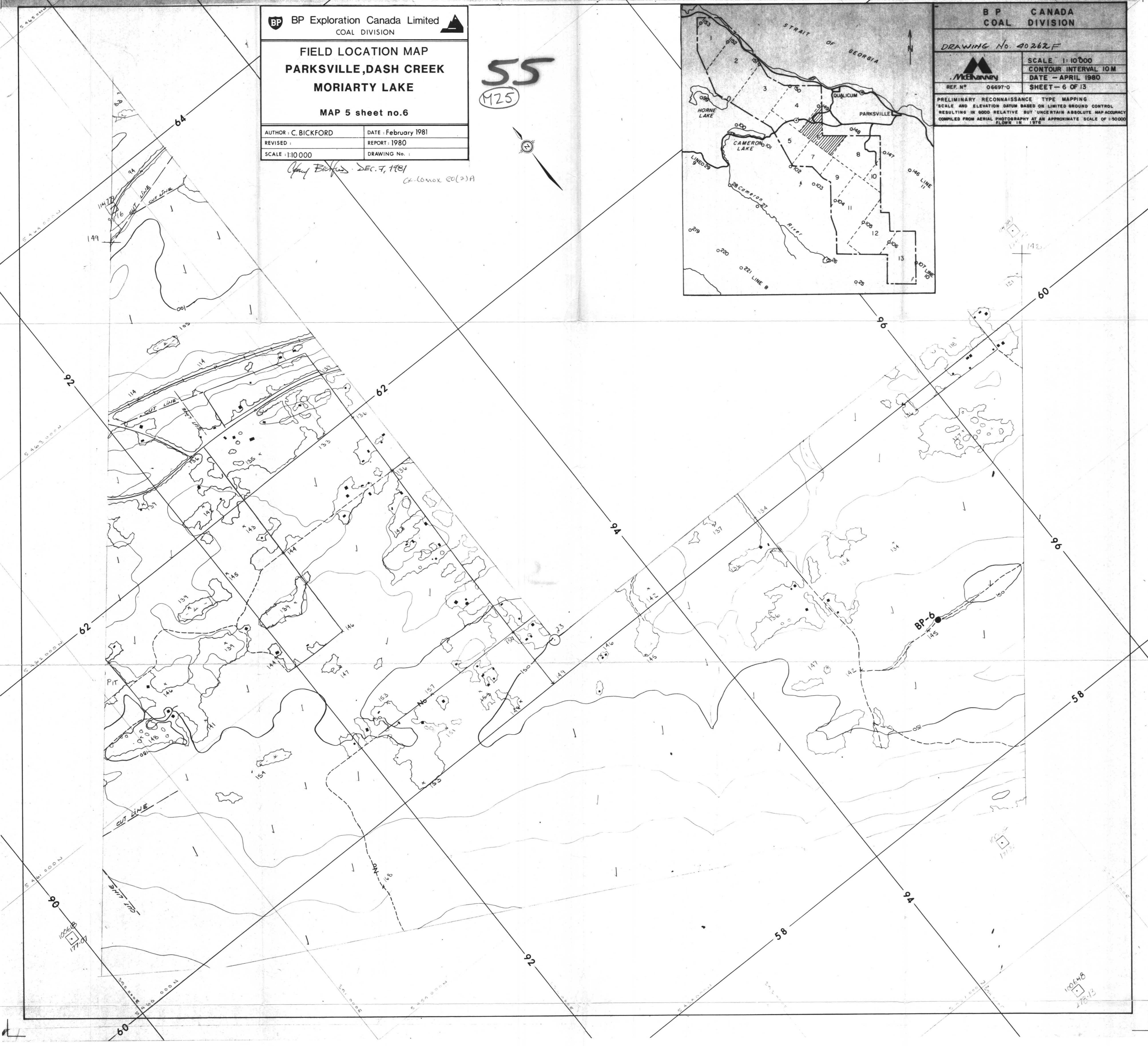
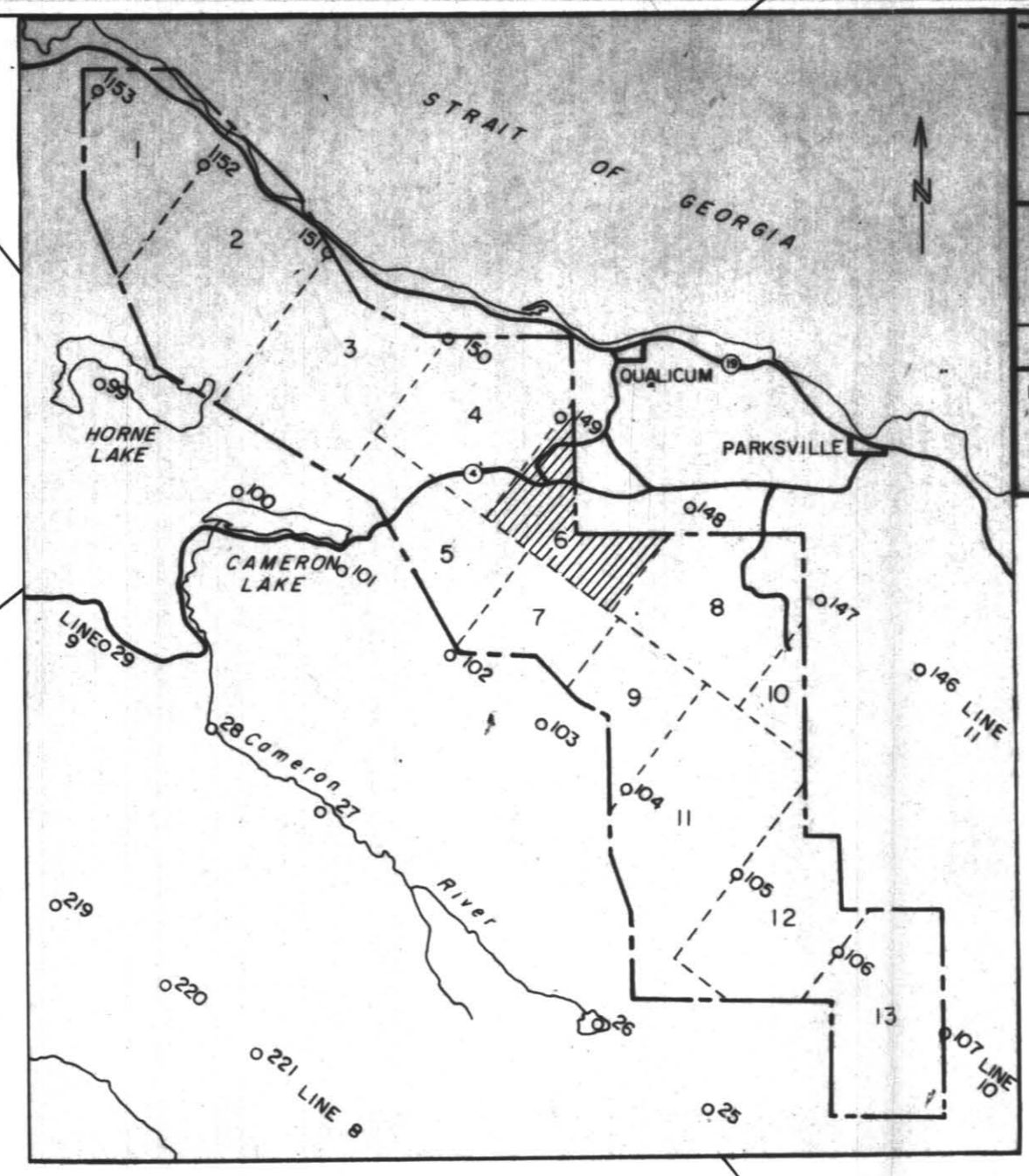
B P CANADA  
COAL DIVISION

DRAWING No. 40262.F

McKENNEY

SCALE 1:10 000  
CONTOUR INTERVAL 10 M  
DATE - APRIL 1980  
REF. No. 06697-0 SHEET - 6 OF 13

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
SCALE AND ELEVATION DATUM BASED ON LIMITED GROUND CONTROL.  
RESULTING IN GOOD RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY  
COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:50 000  
FLOWN IN 1978



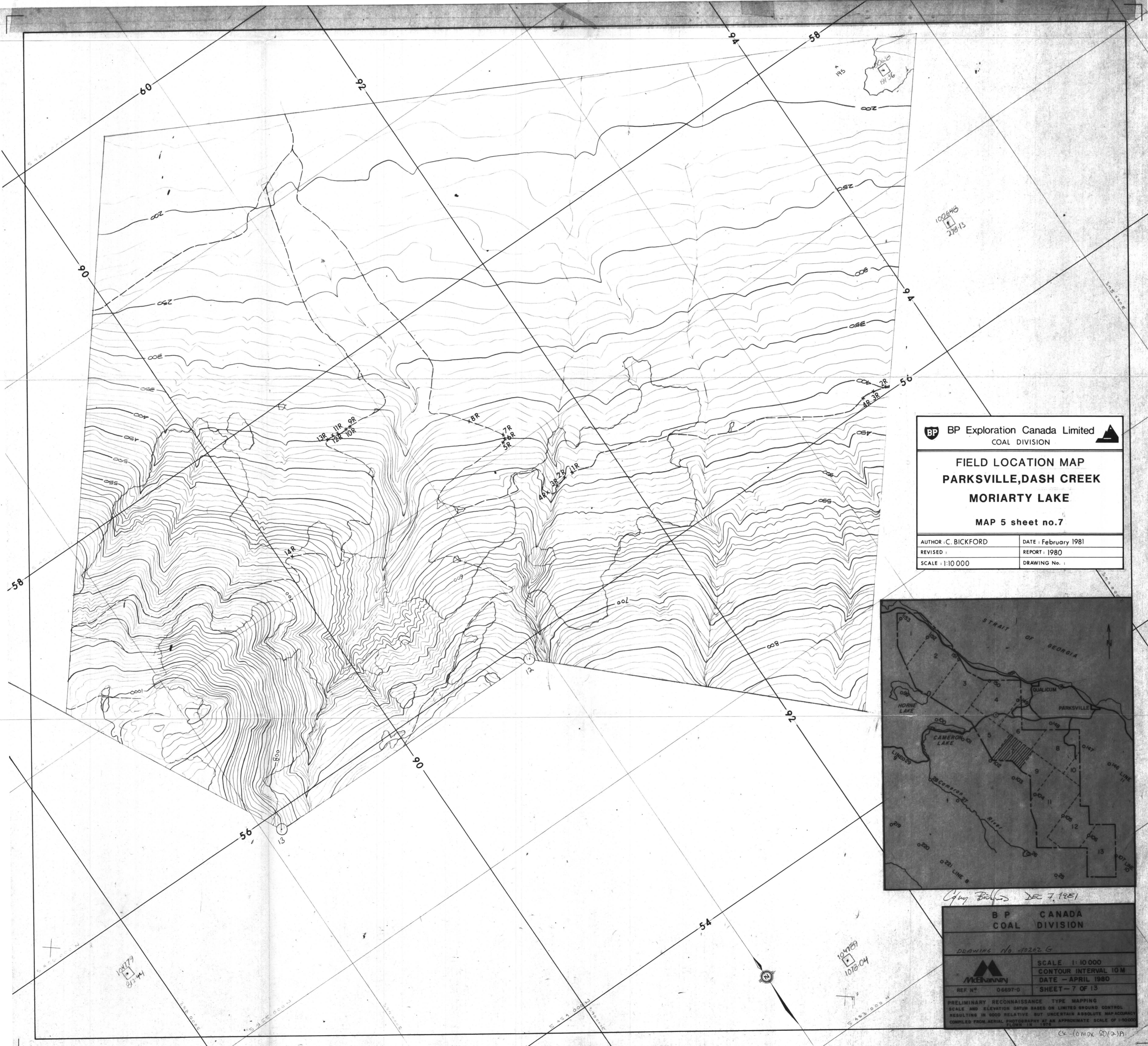
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1:10,000

BP

BP Exploration Canada Limited  
COAL DIVISION  
FIELD LOCATION MAP  
PARKSVILLE, DASH CREEK  
MORIARTY LAKE

MAP 5 sheet no. 7

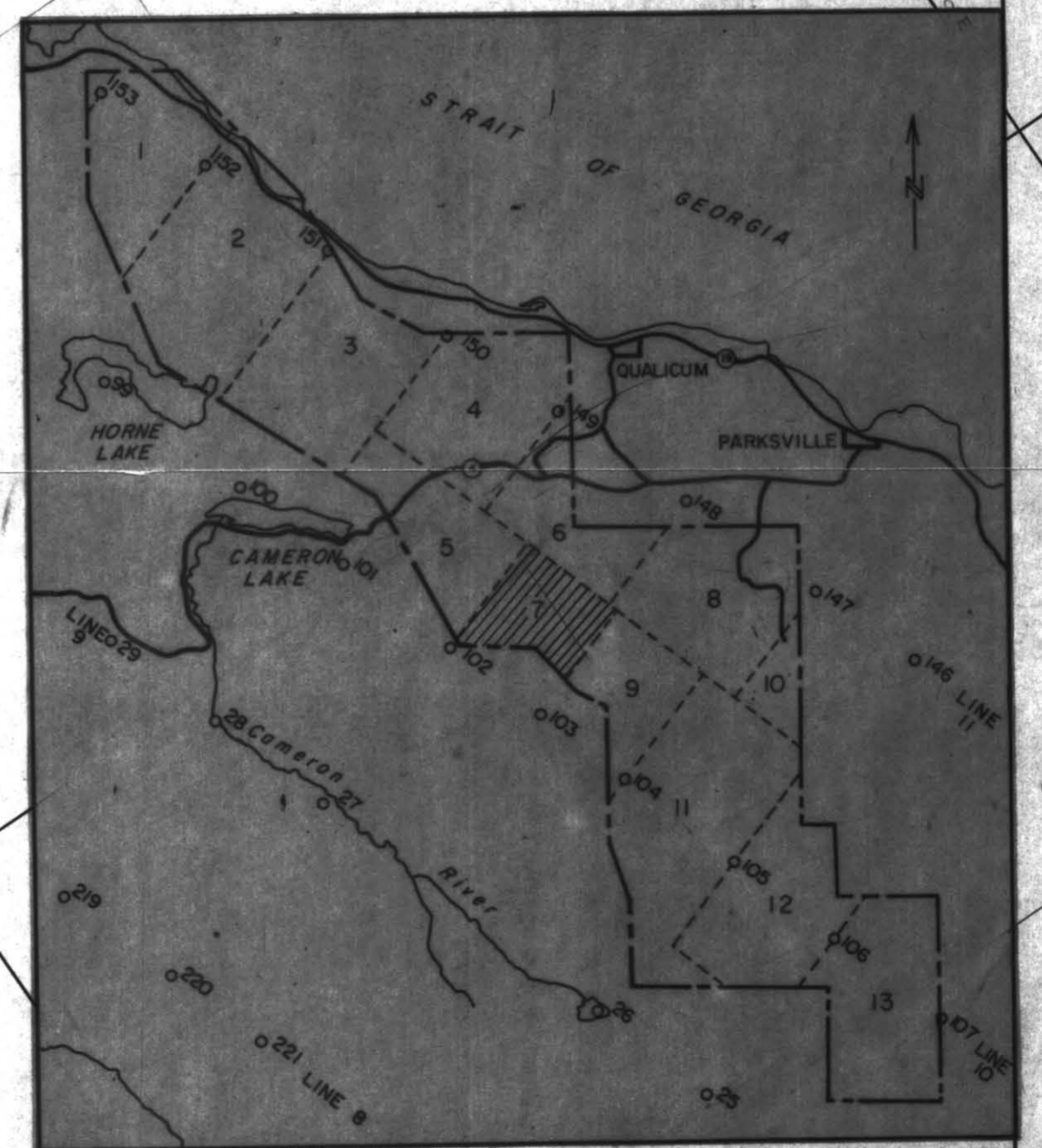


**BP** BP Exploration Canada Limited  
COAL DIVISION

**FIELD LOCATION MAP  
PARKSVILLE, DASH CREEK  
MORIARTY LAKE**

MAP 5 sheet no. 7

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



*Clyde Bickford Dec 7, 1981*

**BP CANADA  
COAL DIVISION**

DRAWING 1/5 49242 G

SCALE: 1:10 000
CONTOUR INTERVAL: 10 M
DATE: APRIL 1980
SHEET: 7 OF 13

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
SCALE AND ELEVATION DATA BASED ON LIMITED GROUND CONTROL  
RESULTS IN VIEW RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY  
COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:50,000

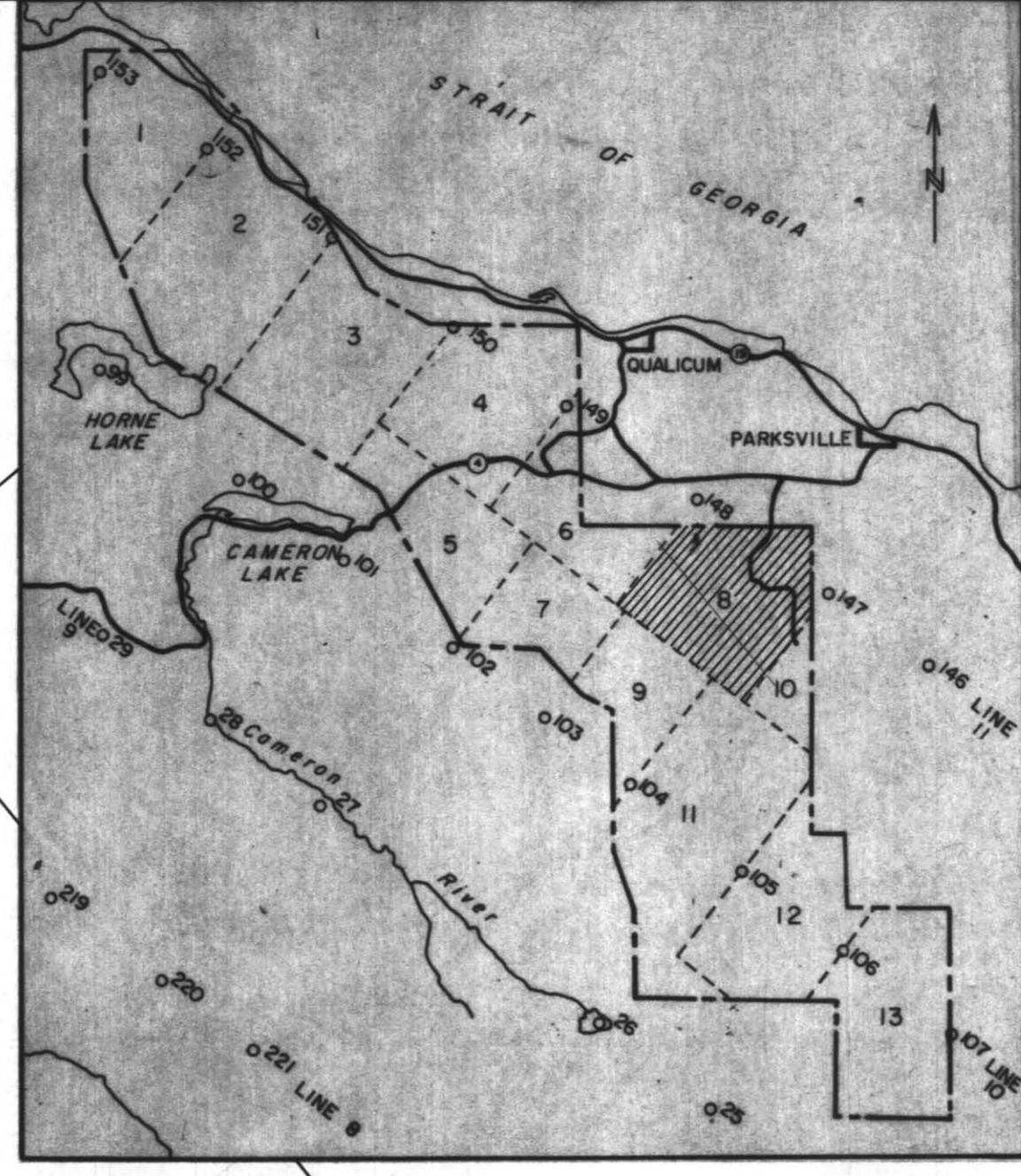
55  
M26

CV-10MOK 80(2)71

FIELD LOCATION MAP  
PARKVILLE, DASH CREEK  
MORIARTY LAKE

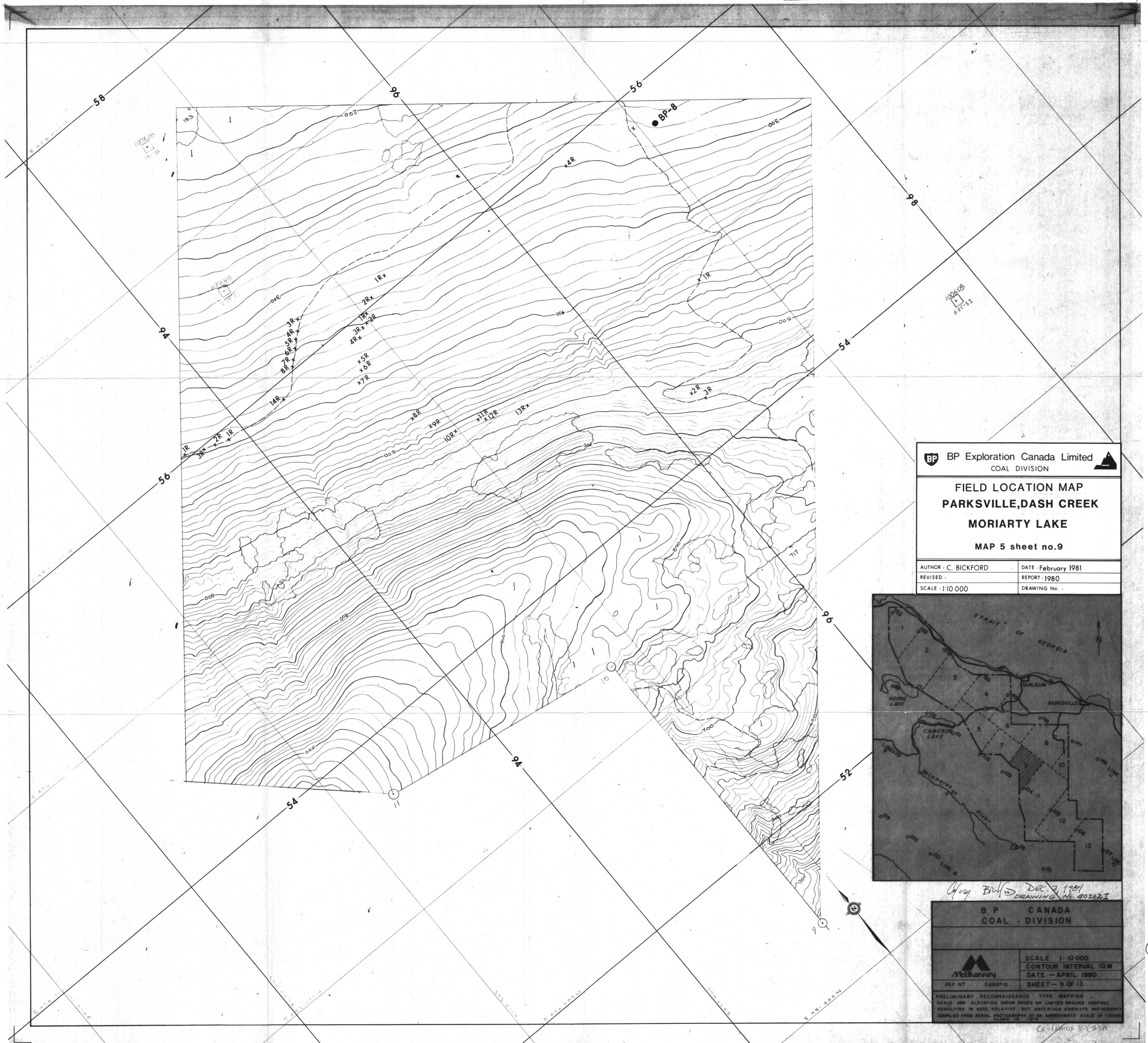
MAP 5 sheet no.8

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



UD 1811  
 CAVDADIAH PATENT 1082135-1818  
 CAVDADIAH IND. DESIGN REG. NO. 42824  
 U.S. A. DESIGN PATENT 4138448-1818  
 180M WVIDEN

(B)

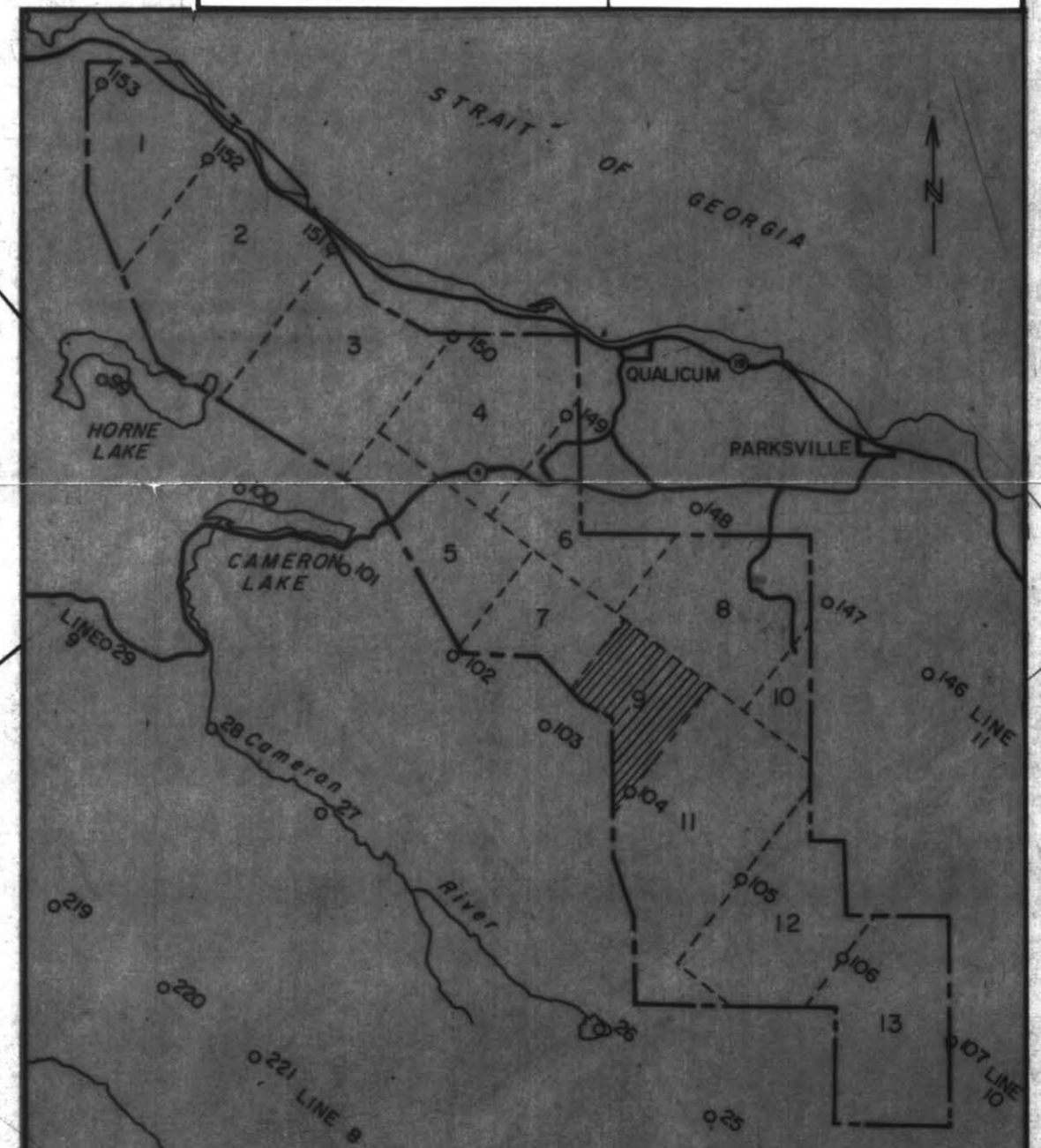


**BP** BP Exploration Canada Limited  
 COAL DIVISION

**FIELD LOCATION MAP  
 PARKSVILLE, DASH CREEK  
 MORIARTY LAKE**

MAP 5 sheet no.9

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



*Clay Bickford* DEC. 7, 1981  
 DRAWING No. 902421

**B P CANADA  
 COAL DIVISION**

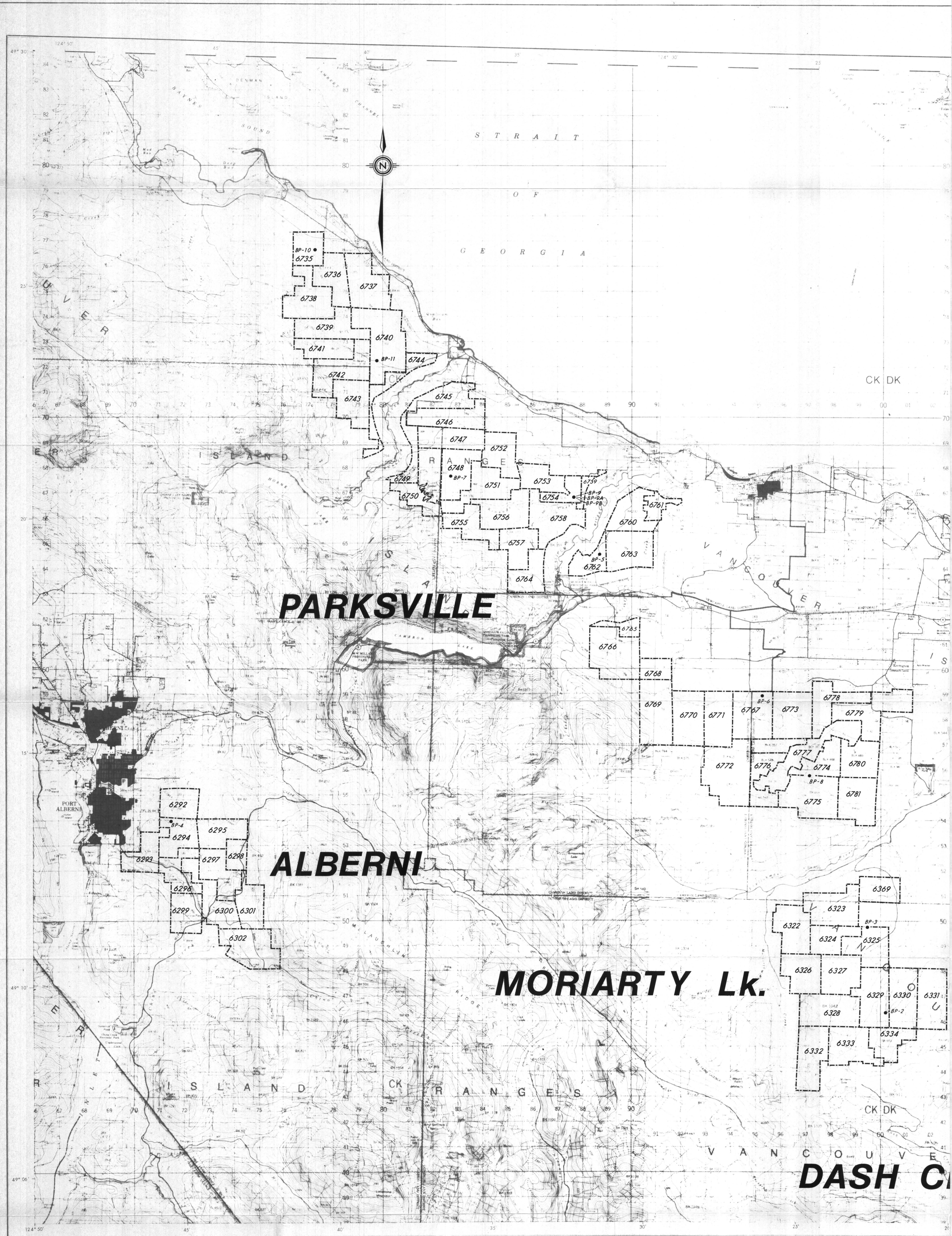
SCALE: 1:10 000
CONTOUR INTERVAL 10M
DATE - APRIL 1980
SHEET - 9 OF 13

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
 SCALE AND ELEVATION DATA BASED ON LIMITED GROUND CONTROL  
 RESULTS IN 5000 RELATIVE, BUT UNCERTAIN ABSOLUTE HORIZONTAL  
 COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:5000  
 1978

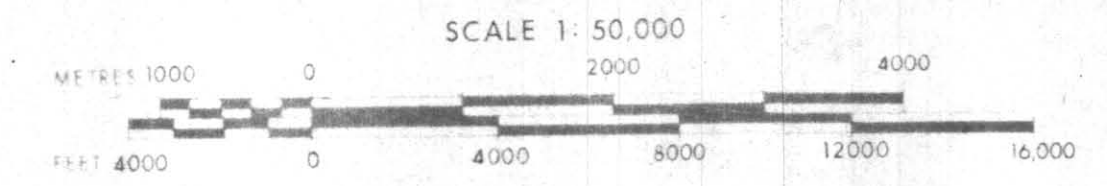
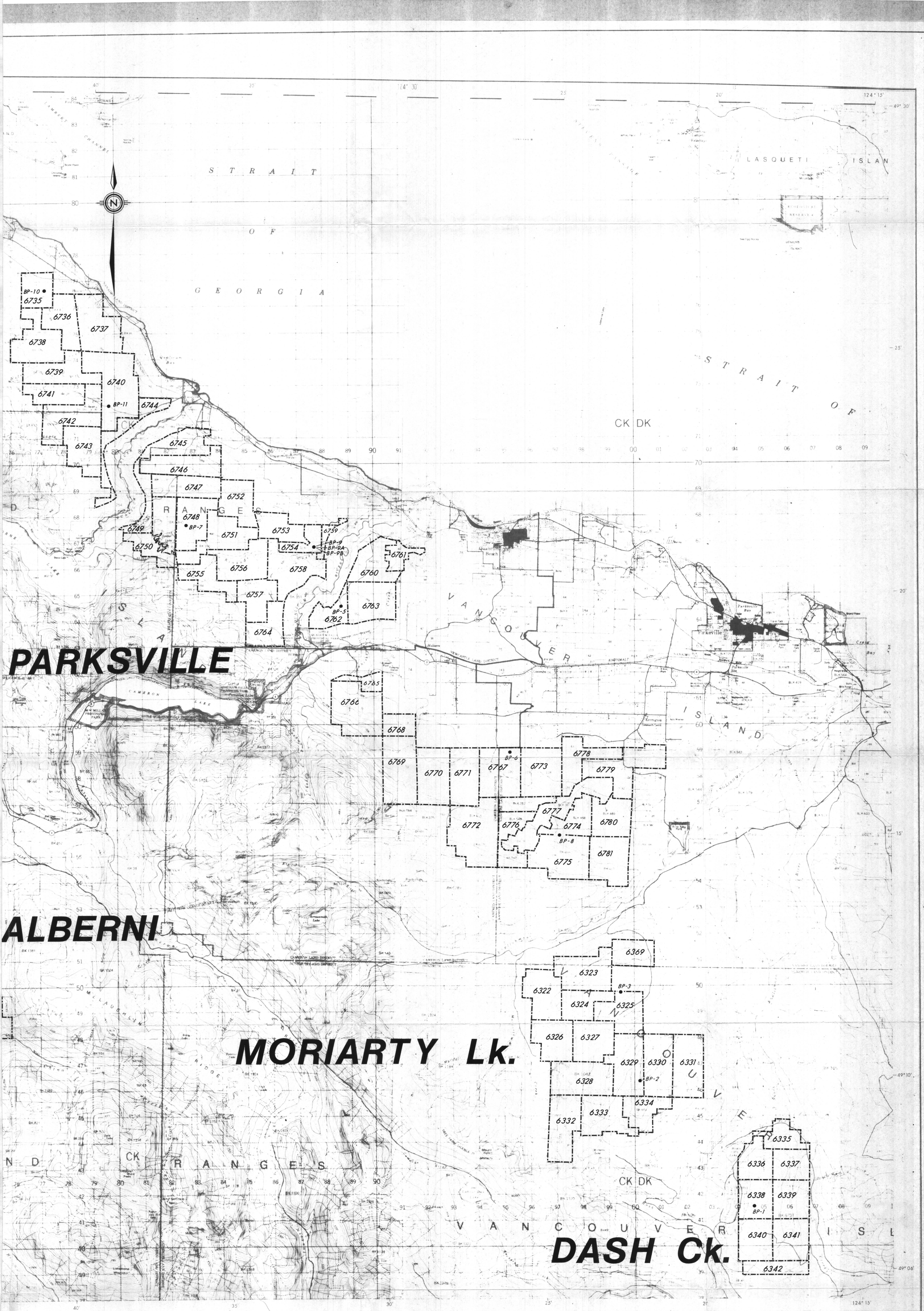
CX-600X 80(2)A

55  
 (M28)





LEGEND  
COAL LICENCE: 6403



LEGEND  
 COAL LICENCE: 6403

**55**  
 (M29) b

*Clyde Foster* DEC 7/81

**BP** BP Exploration Canada Limited  
 COAL DIVISION

**VANCOUVER ISLAND EXPLORATION  
 MAP 1**

LOCATION AND ACCESS, ALBERNI, DASH CREEK  
 MORIARTY LAKE AND PARKSVILLE PROPERTIES  
 NTS 92F/1, F/2, F/7, F/8

AUTHOR C. BICKFORD	DATE 26 JANUARY 1980
REVISED	REPORT 1980
SCALE 1:50,000	DRAWING NO. M29

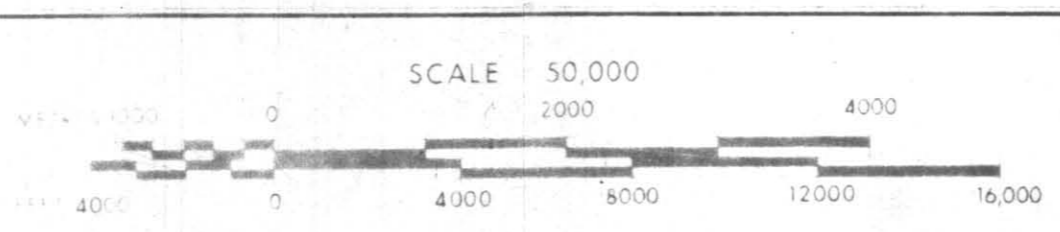
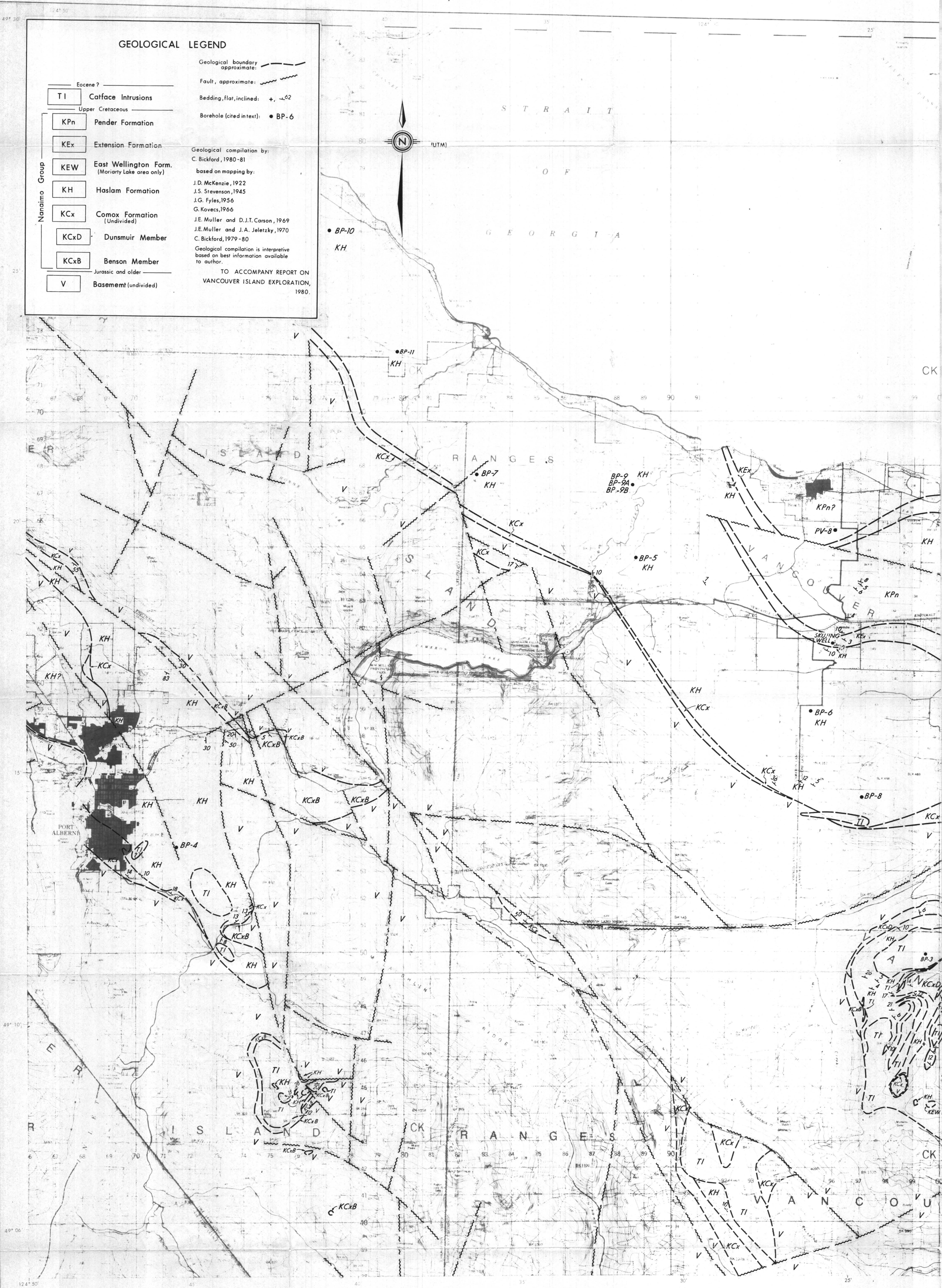
55 M29a

**GEOLOGICAL LEGEND**

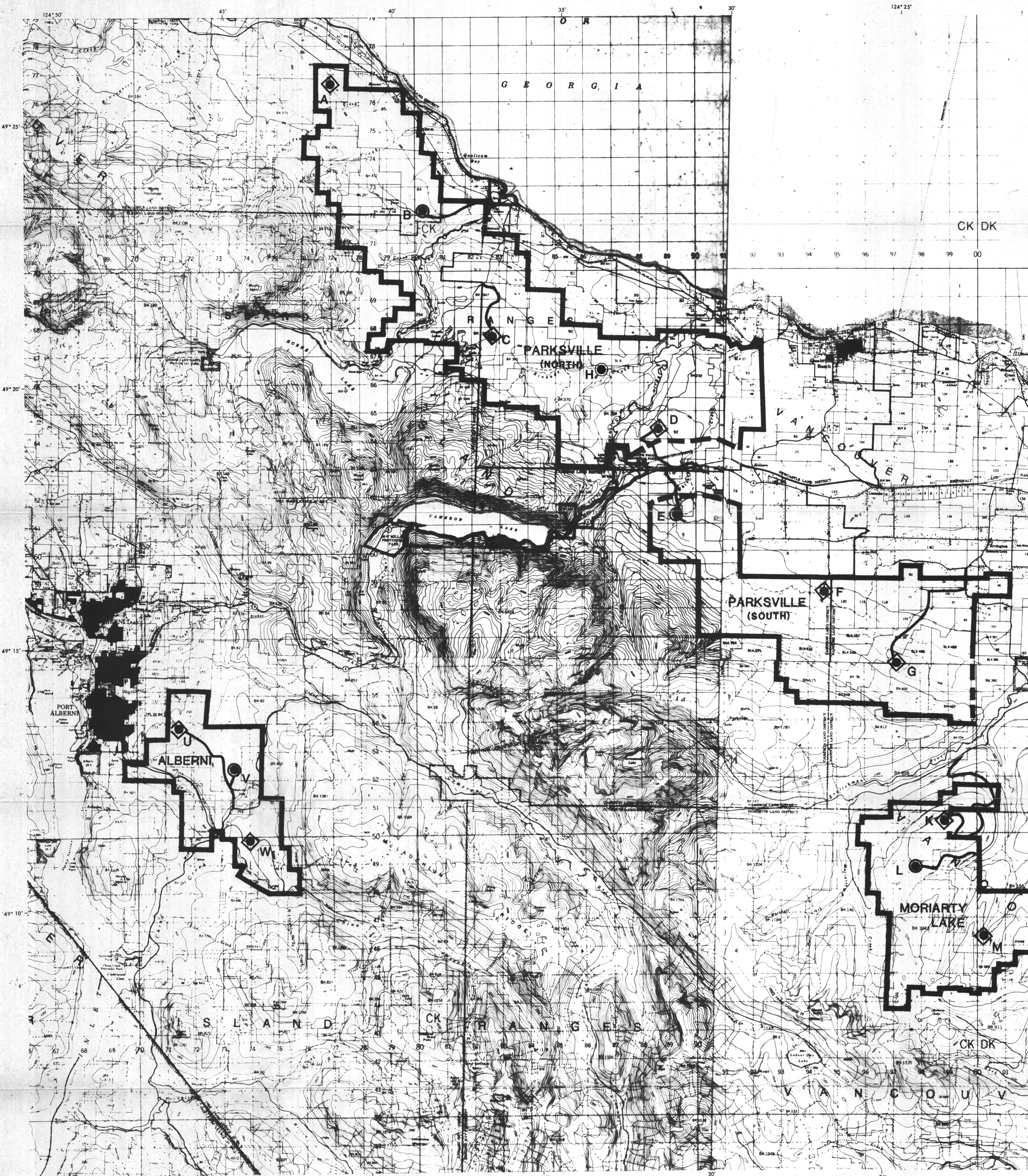
- TI **Carface Intrusions**  
 Upper Cretaceous  
KPN **Pender Formation**  
KEX **Extension Formation**  
KEW **East Wellington Form.**  
 (Moriarty Lake area only)  
KH **Haslam Formation**  
KCX **Comox Formation**  
 (Undivided)  
KCxD **Dunsmuir Member**  
KCxB **Benson Member**  
 Jurassic and older  
V **Basement (undivided)**

- Geological boundary approximate:   
 Fault, approximate:   
 Bedding, flat, inclined: +, -62  
 Borehole (cited in text): ● BP-6



Geological compilation by:  
 C. Bickford, 1980-81  
 based on mapping by:  
 J.D. McKenzie, 1922  
 J.S. Stevenson, 1945  
 J.G. Fyles, 1956  
 G. Kovacs, 1966  
 J.E. Muller and D.J.T. Carson, 1969  
 J.E. Muller and J.A. Jelezky, 1970  
 C. Bickford, 1979-80  
 Geological compilation is interpretive  
 based on best information available  
 to author.  
 TO ACCOMPANY REPORT ON  
 VANCOUVER ISLAND EXPLORATION,  
 1980.



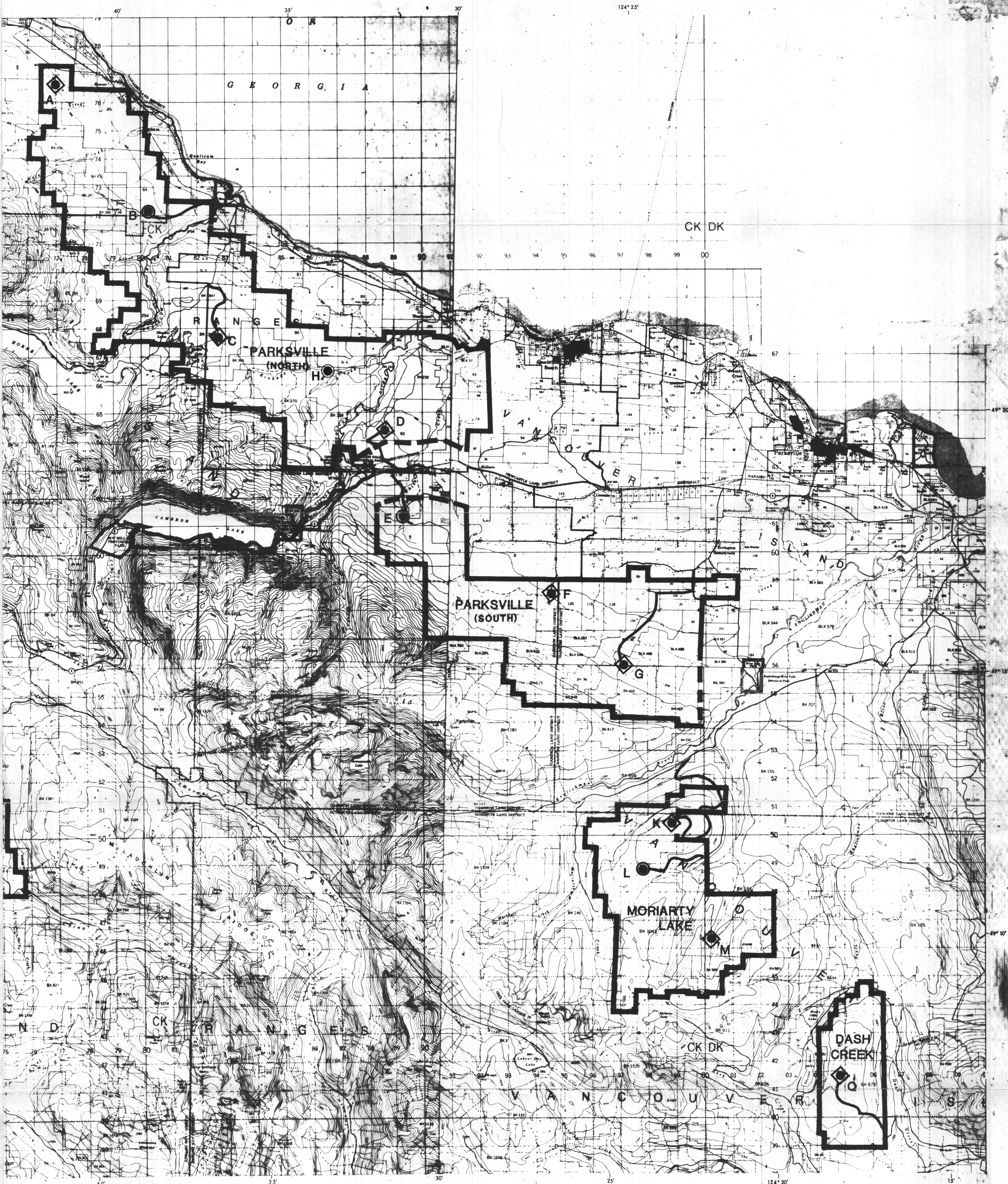




PROPOSED HOLES			DRILLED HOLES		
PARKSVILLE	A	diamond 450 m	BP10(A)	diamond 623 m	
	B	rotary 250 m	BP9 (B)	rotary 657 m	
	C	diamond 150 m	BP7 (C)	diamond 450 m	
	D	diamond 150 m	BP5 (D)	diamond 334 m	
	E	rotary 150 m	BP6 (E)	diamond 551 m	
MORIARTY	F	diamond 400 m	BP8 (F)	diamond 300 m	
	G	diamond 300 m	BP11(G)	rotary 408 m	
DASH CREEK	K	diamond 300 m	BP3 (K)	diamond 573 m	
	L	rotary 300 m	BP2 (L)	diamond 159 m	
ALBERNI	M	diamond 300 m	BP1 (M)	diamond 223 m	
	U	diamond 300 m	BP4 (U)	diamond 548 m	
	V	rotary 350 m			
	W	diamond 150 m			

 rotary hole  
 diamond hole

SS-31a



**DRILLED HOLES**

BP10(A) - diamond	625 m
BP9 (B) - rotary	657 m
BP7 (C) - diamond	450 m
BP5 (D) - diamond	334 m
BP6 (E) - diamond	551 m
BP8 (G) - diamond	300 m
BP11 (H) - rotary	408 m
BP5 (K) - diamond	375 m
BP2 (M) - diamond	150 m
BP1 (Q) - diamond	223 m
BP4 (U) - diamond	348 m

rotary hole  
 diamond hole

Scale 1:5,000  
 1000 0 1000 2000 3000 4000 METRES

55

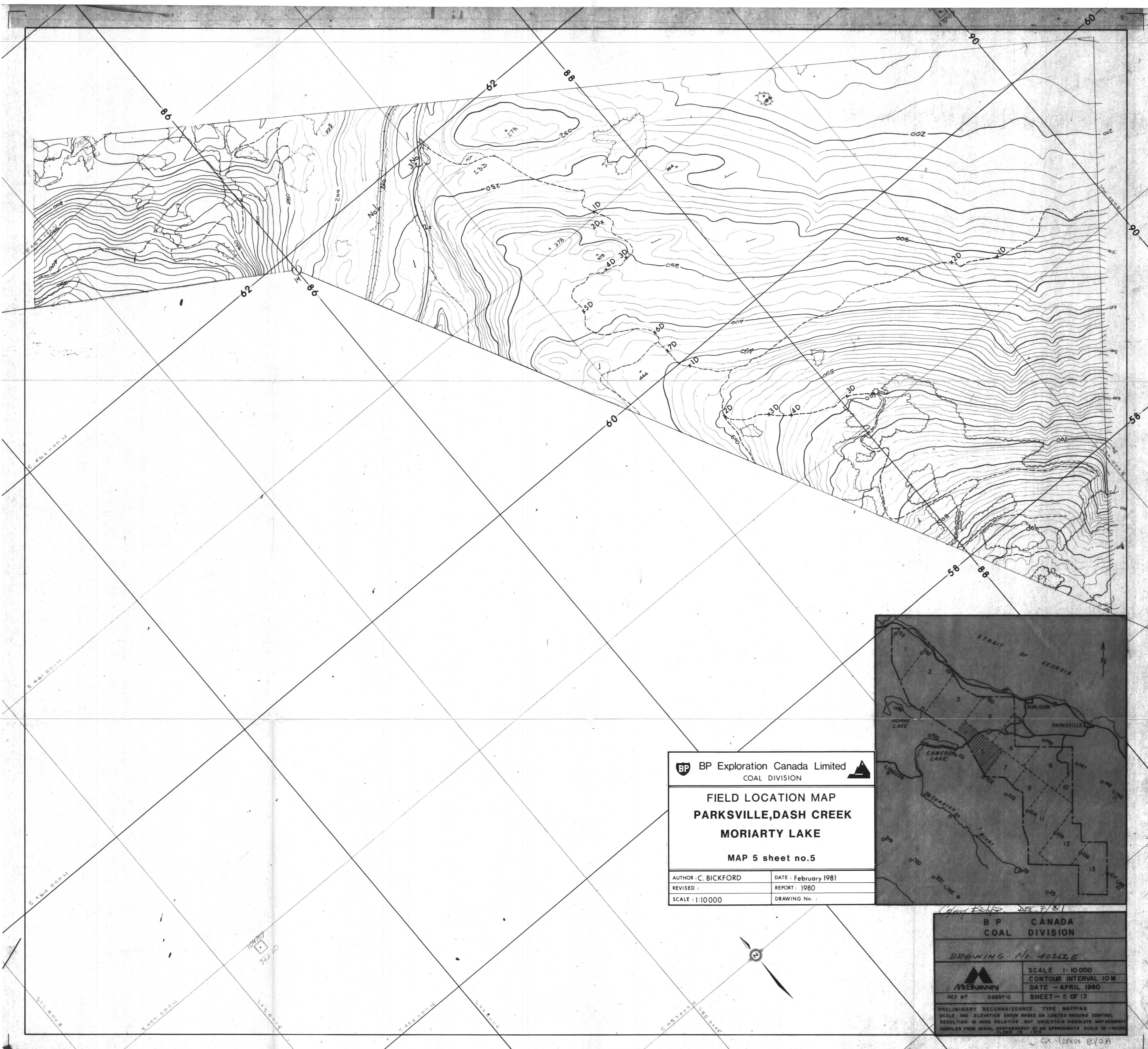
SS31a


BP Exploration Canada Limited  
 COAL DIVISION

VANCOUVER ISLAND  
 1980 DRILL PROGRAM  
 MAP 7

(M31)b

AUTHOR: P. LEE *Wm. P. Lee* DATE: JAN. 1981  
 REVISED: RECENT  
 SCALE: 1:50,000 DRAWING No. 10754

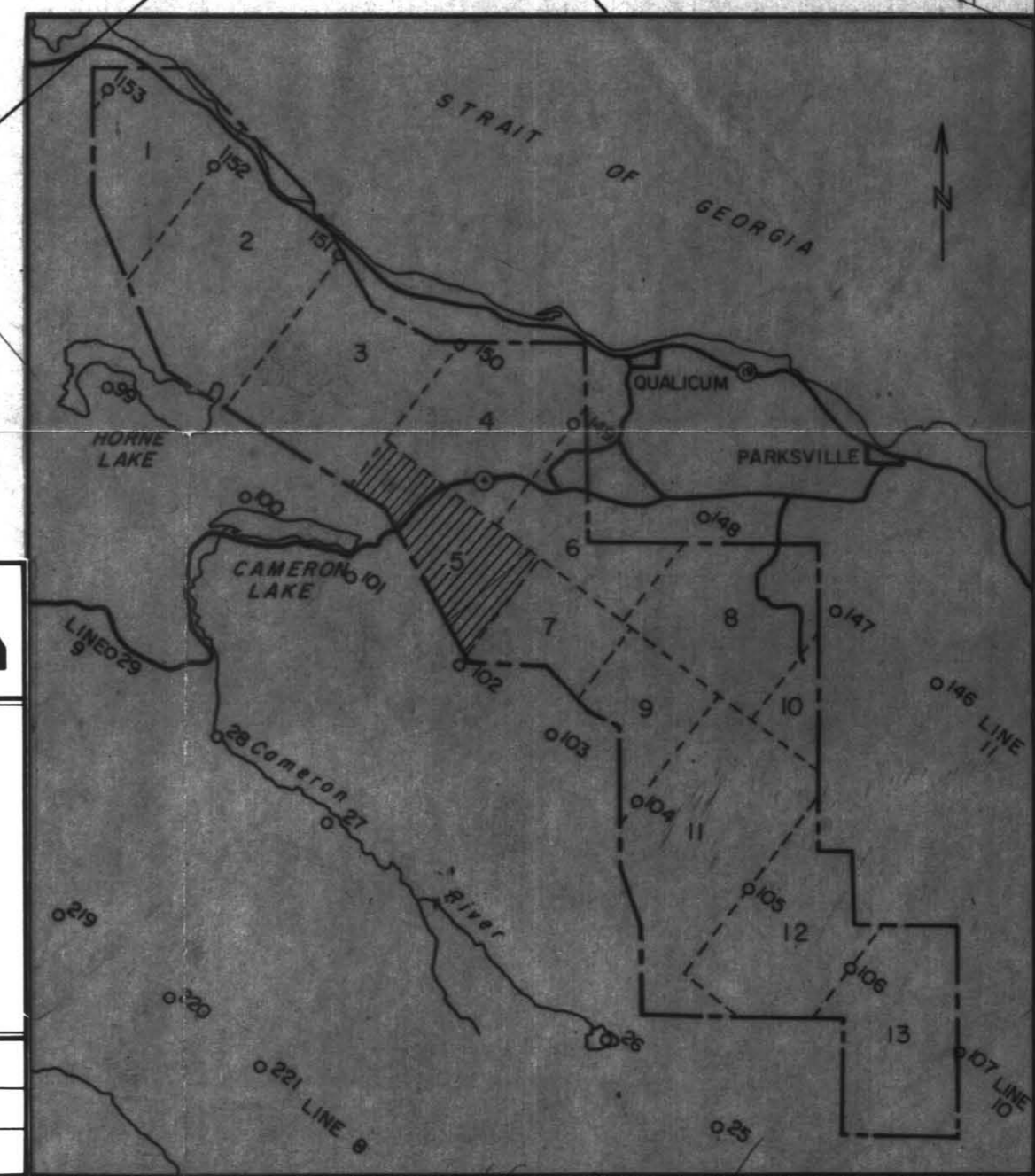


 BP Exploration Canada Limited  
 COAL DIVISION

**FIELD LOCATION MAP**  
**PARKSVILLE, DASH CREEK**  
**MORIARTY LAKE**

**MAP 5 sheet no.5**

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10000	DRAWING No.:



B P CANADA  
 COAL DIVISION

DRAWING No. 4026E

SCALE: 1:10000
CONTOUR INTERVAL 10M
DATE - APRIL 1980
SHEET - 5 OF 13

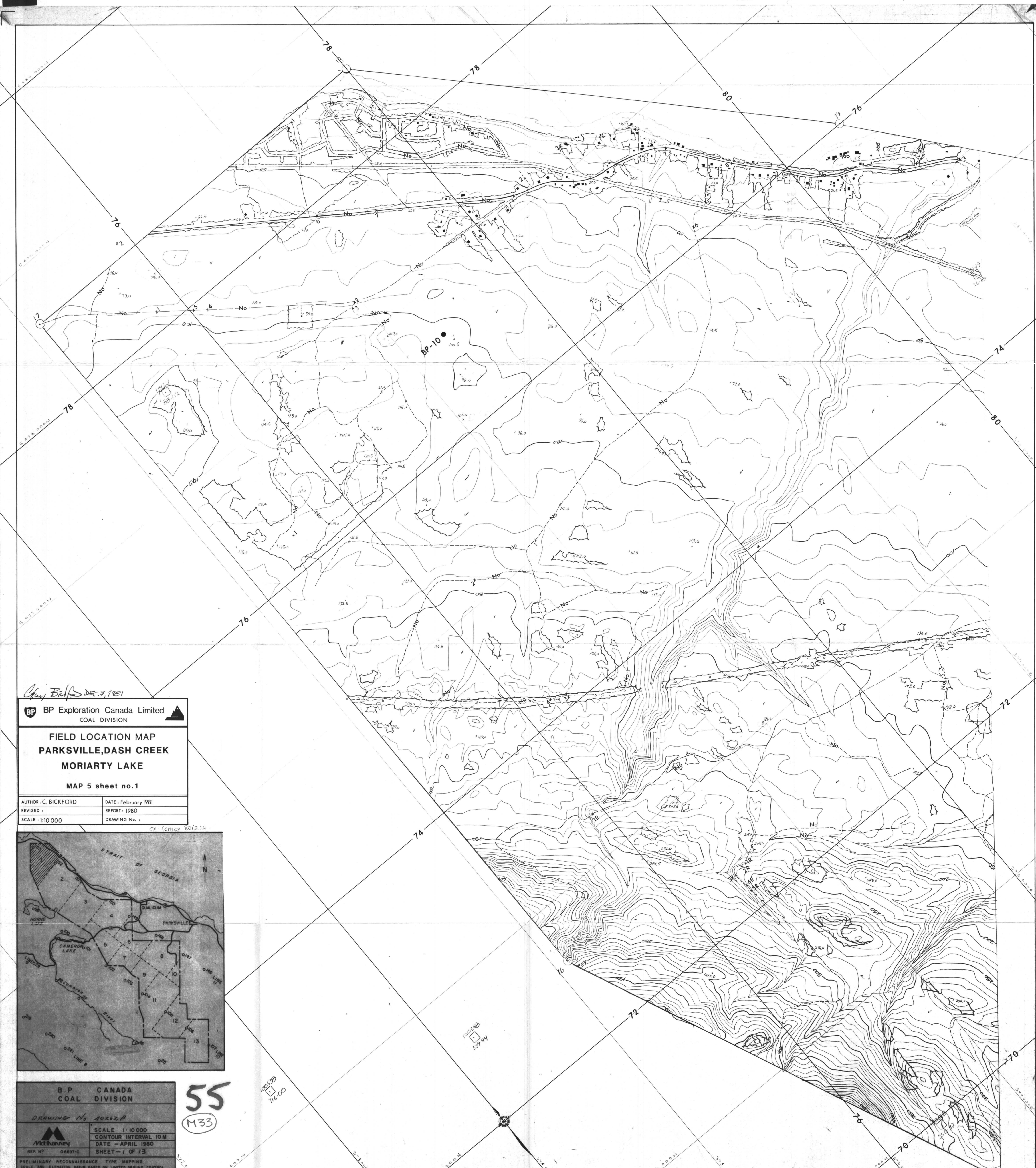
PRELIMINARY RECONNAISSANCE TYPE MAPPING  
 SCALE AND ELEVATION SHOWN BASED ON LIMITED POINTS CONTROL  
 RESULTING IN GOOD RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY  
 COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:50000  
 CLASS. 18, 1978

55  
M32

180M WIDE, 2425M E.D. CIVILIAN UTILITY CANADA

(UD) 1833  
 CIVILIAN UTILITY DESIGN NO. 45233  
 U.S. 2' 2" DESIGN UTILITY CANADA  
 180M WIDE

(B)



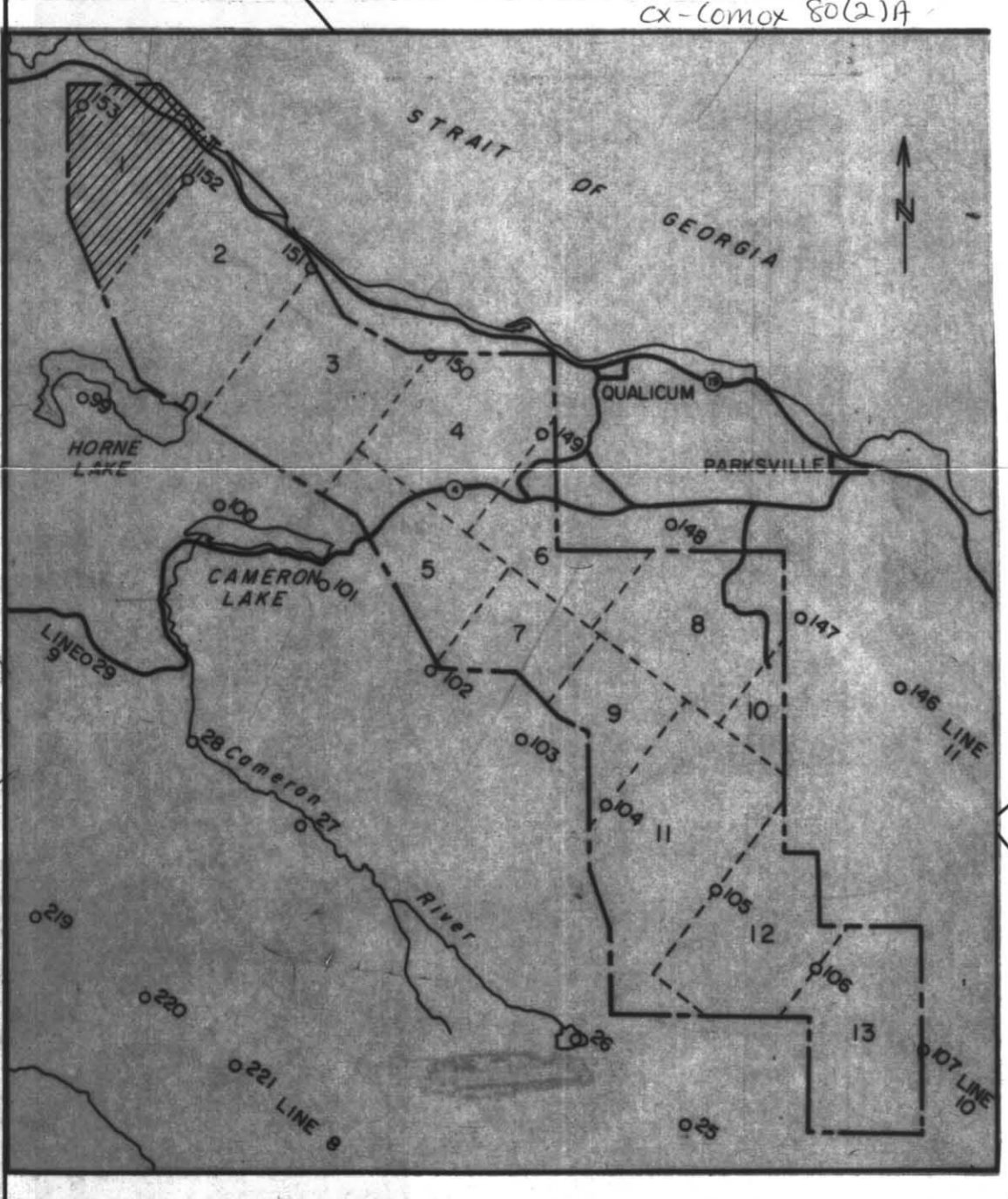
Clay Bickford Dec. 7, 1981

BP Exploration Canada Limited  
COAL DIVISION

**FIELD LOCATION MAP  
PARKSVILLE, DASH CREEK  
MORIARTY LAKE**

MAP 5 sheet no. 1

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



**B.P. CANADA  
COAL DIVISION**  
 DRAWING No. 40282A  
 SCALE 1:10 000  
 CONTOUR INTERVAL 10M  
 DATE - APRIL 1980  
 SHEET - 1 OF 13  
 PRELIMINARY RECONNAISSANCE TYPE MAPPING  
 SCALE AND ELEVATION DATA BASED ON LIMITED GROUND CONTROL  
 RESULTING IN GOOD RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY  
 COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:80000

55  
M33



55  
M34

BP Exploration Canada Limited  
COAL DIVISION

FIELD LOCATION MAP  
PARKSVILLE, DASH CREEK  
MORIARTY LAKE

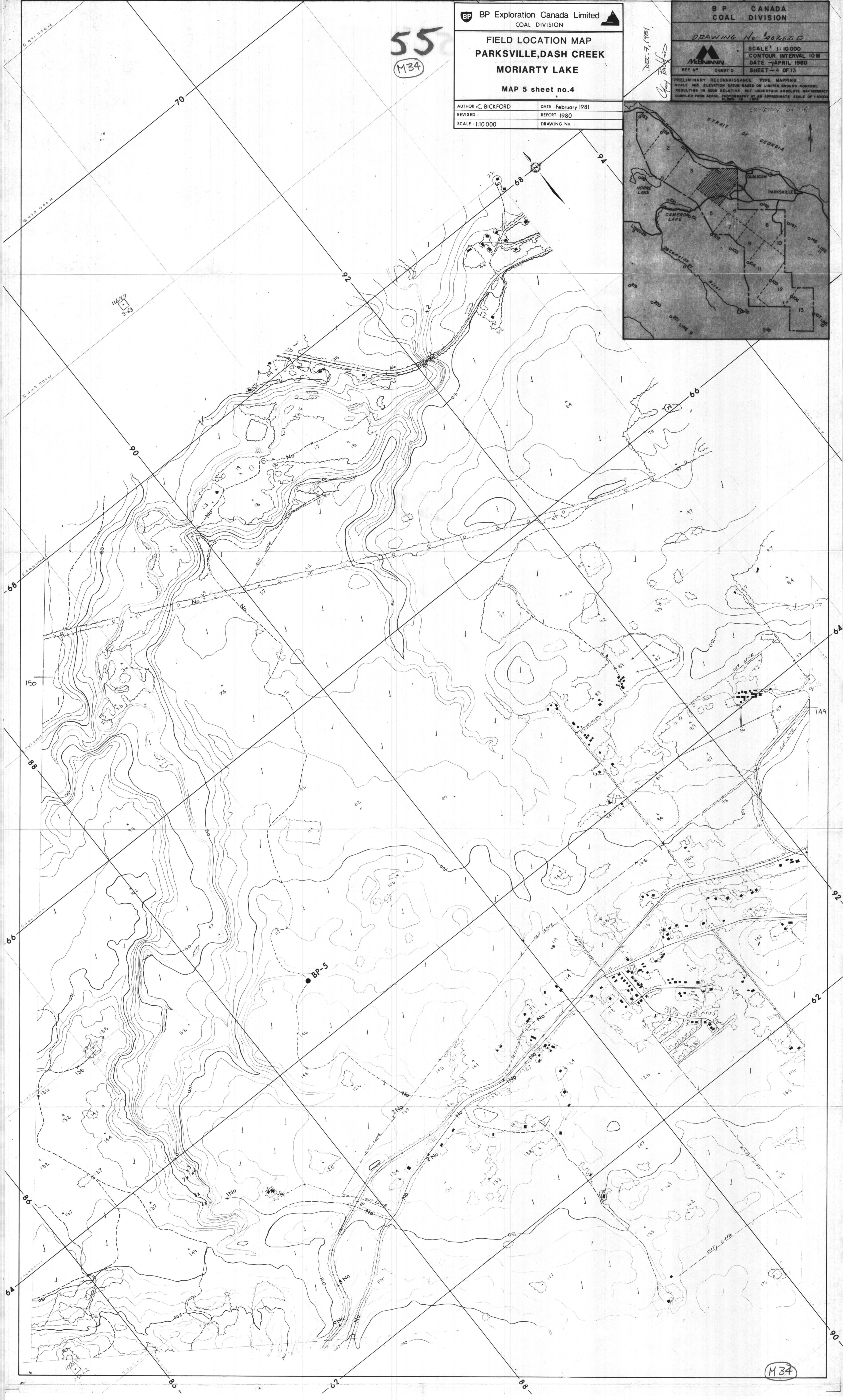
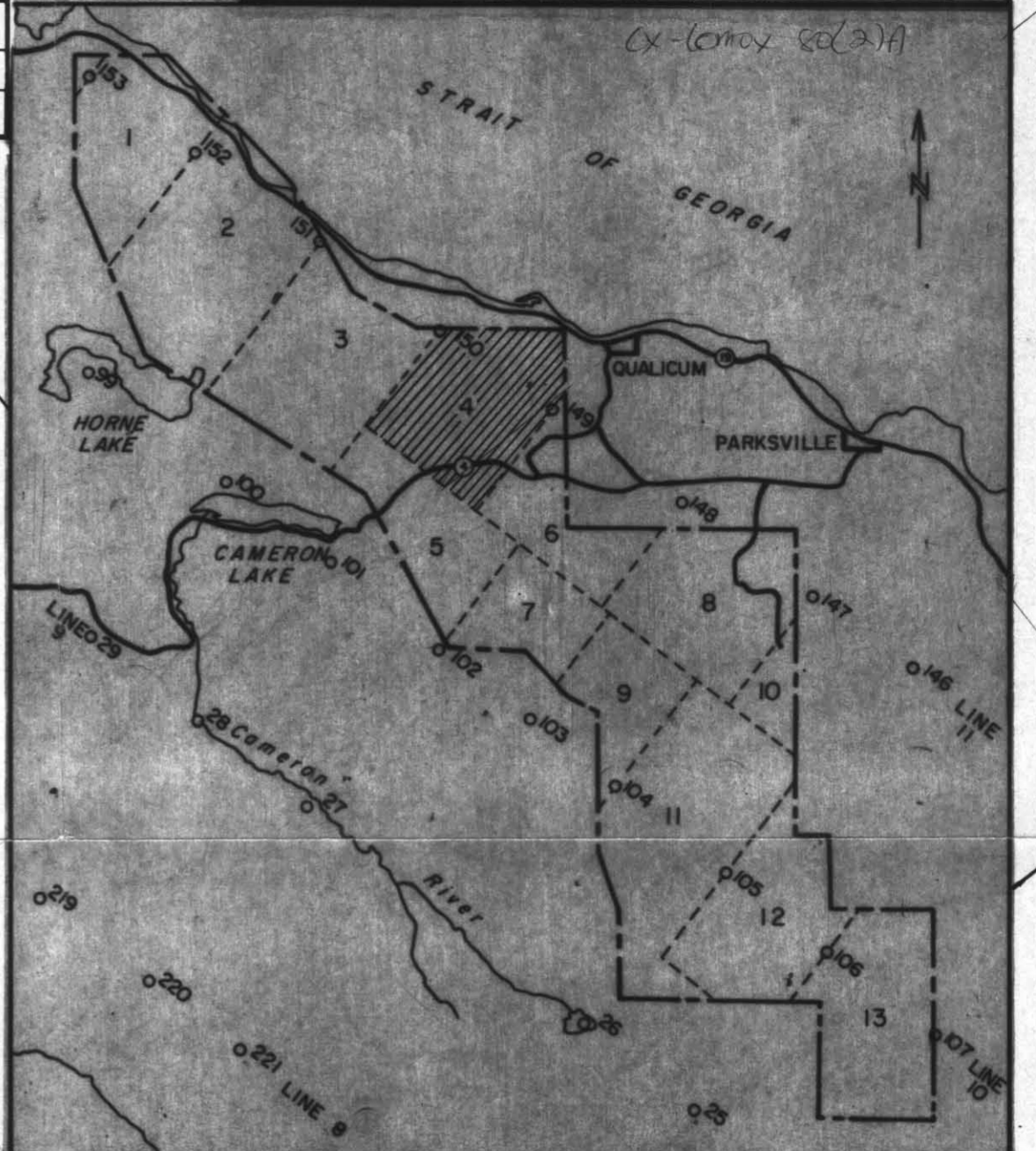
MAP 5 sheet no. 4

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10000	DRAWING No.:

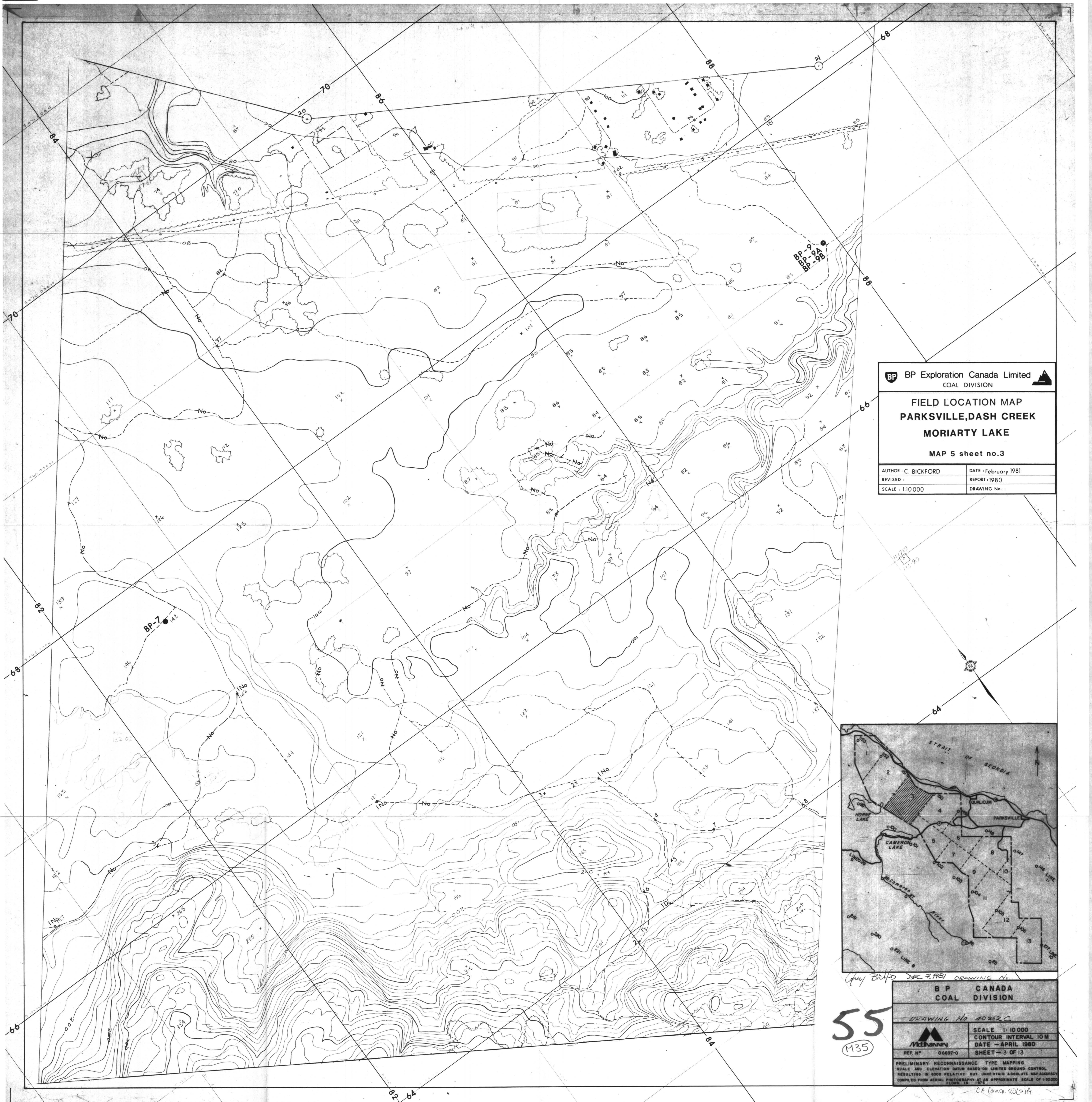
B P CANADA  
COAL DIVISION

DRAWING No 40262 D  
SCALE: 1:10000  
CONTOUR INTERVAL 10M  
DATE: APRIL 1980  
SHEET - 4 OF 13

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
SCALE AND ELEVATION DATUM BASED ON LIMITED GROUND CONTROL  
RESULTS IN GOOD RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY  
COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:50000  
FIGURE 10 1978



M34

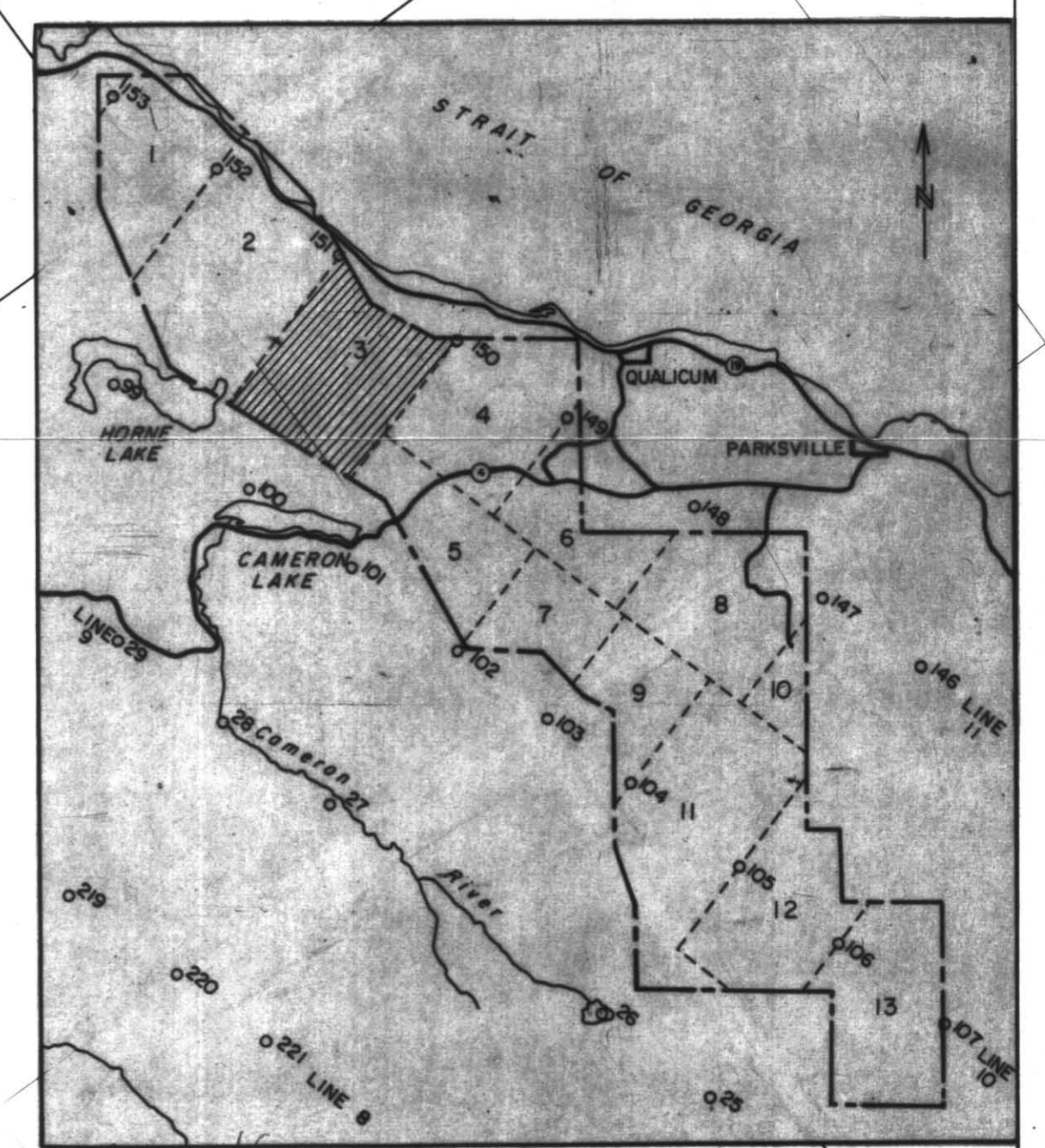


**BP** BP Exploration Canada Limited  
 COAL DIVISION

**FIELD LOCATION MAP  
 PARKVILLE, DASH CREEK  
 MORIARTY LAKE**

MAP 5 sheet no.3

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10000	DRAWING No.:



55  
 (135)

BP CANADA  
 COAL DIVISION

DRAWING No 40262C

SCALE 1:10000
CONTOUR INTERVAL 10M
DATE - APRIL 1980
SHEET - 3 OF 13

REF. No. 06697-0

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
 SCALE AND ELEVATION NOT BASED ON LIMITED GROUND CONTROL  
 RESULTING IN 80% RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY  
 COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:50000  
 PLOTTED IN 1978

CR (once 80%)A

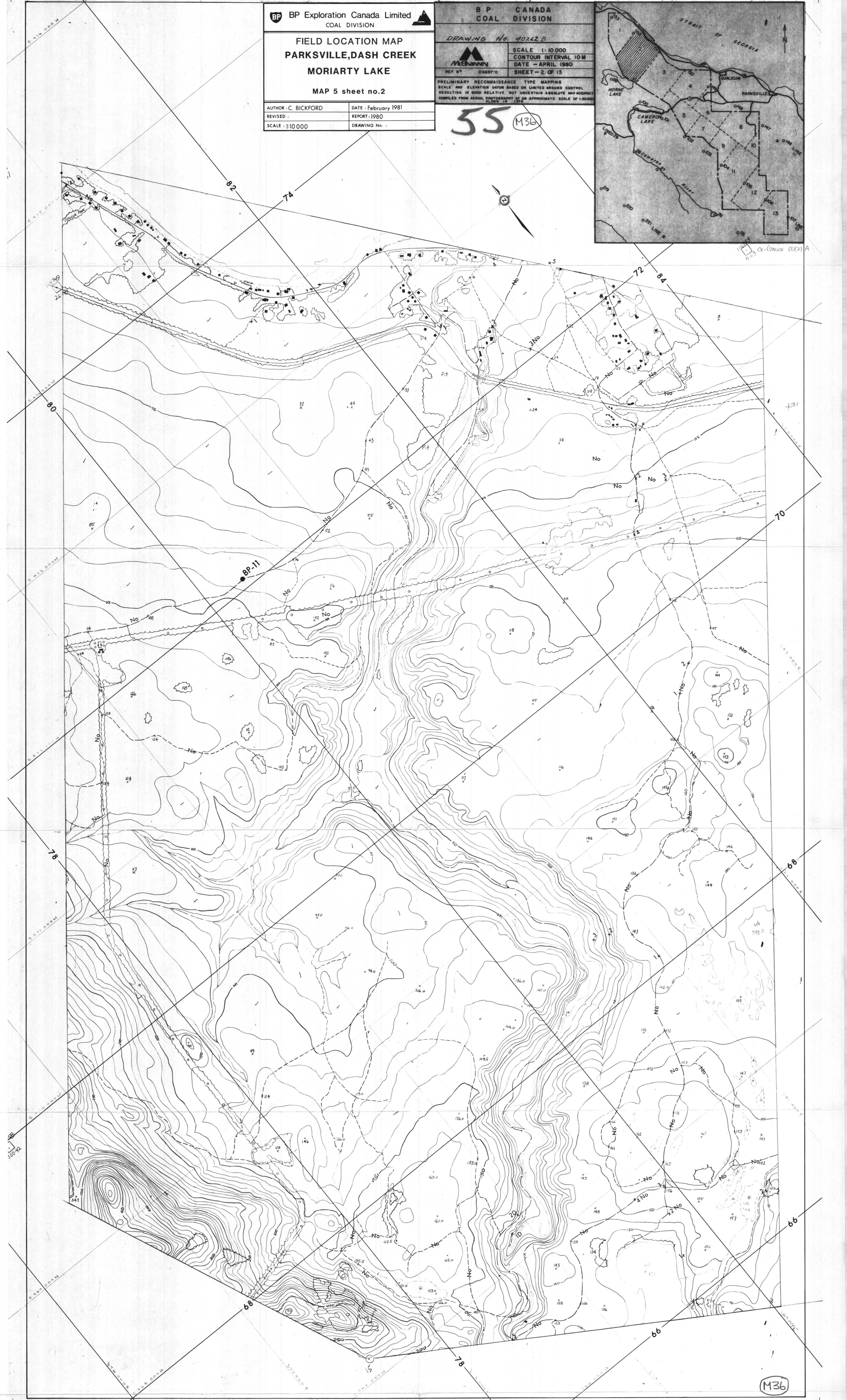
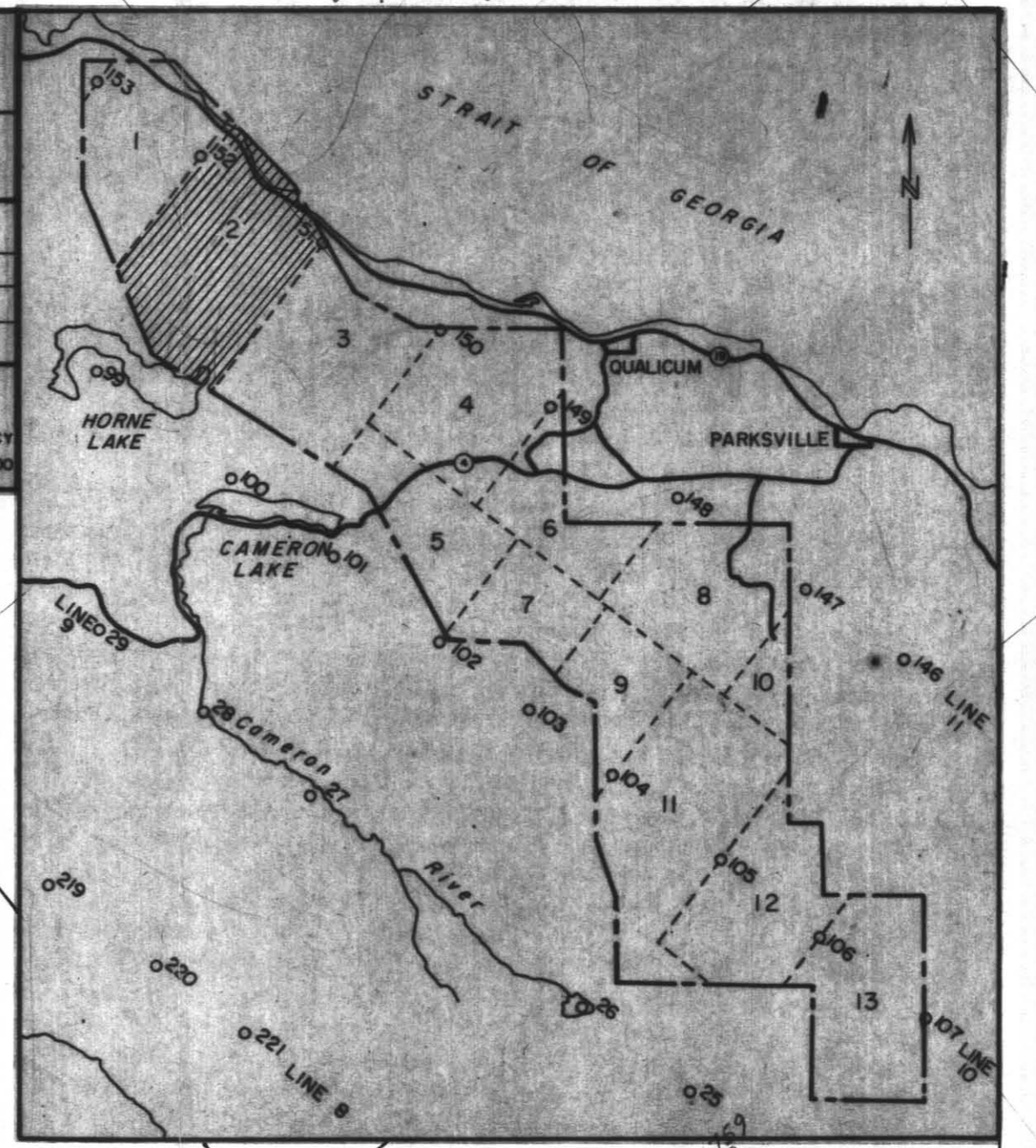
FIELD LOCATION MAP  
PARKVILLE, DASH CREEK  
MORIARTY LAKE

DRAWING No. 40262.B  
SCALE 1:10000  
CONTOUR INTERVAL 10 M  
DATE - APRIL 1980  
SHEET - 2 OF 13

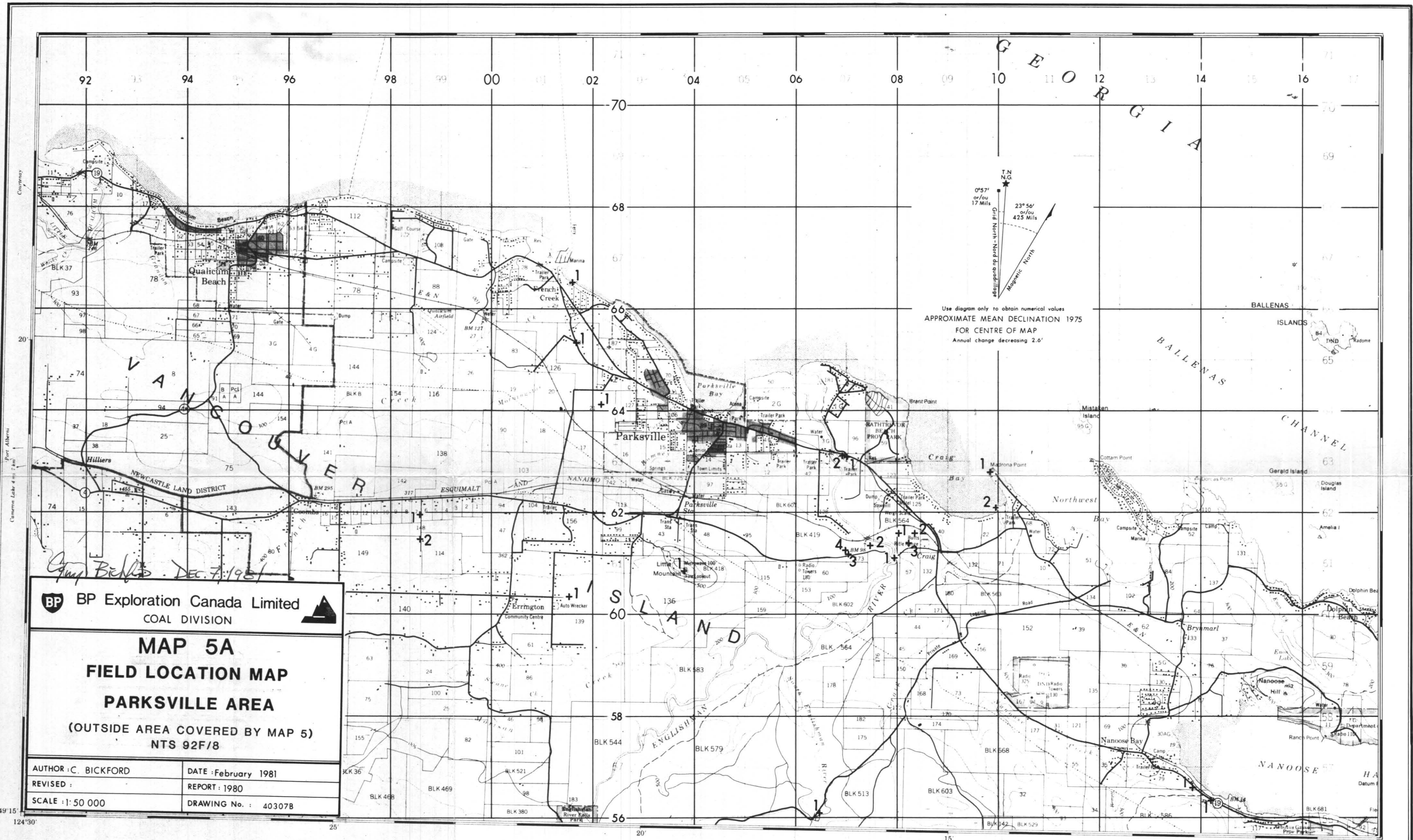
MAP 5 sheet no.2  
AUTHOR: C. BICKFORD  
DATE: February 1981  
REVISED:  
SCALE: 1:10000

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
SCALE AND ELEVATION DATUM BASED ON LIMITED GROUND CONTROL  
RESULTING IN GOOD RELATIVE, BUT UNCERTAIN ABSOLUTE MAP ACCURACY  
DUMPED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:50000  
PLOWN IN 1980

55 (M36)



(M36)



**BP** BP Exploration Canada Limited  
COAL DIVISION

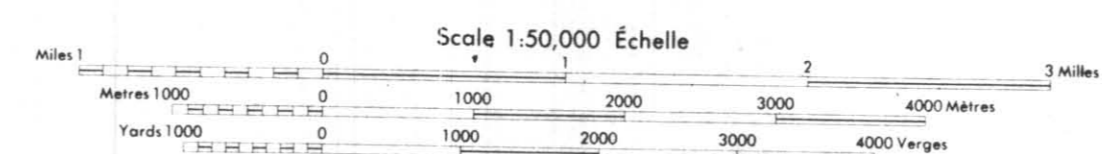
**MAP 5A**  
**FIELD LOCATION MAP**  
**PARKSVILLE AREA**

(OUTSIDE AREA COVERED BY MAP 5)  
NTS 92F/8

AUTHOR : C. BICKFORD	DATE : February 1981
REVISED :	REPORT : 1980
SCALE : 1:50 000	DRAWING No. : 403078

Roads	Routes	Highway	more than 2 lanes
hard surface, all weather	pavée, toute saison	dual highway	plus de 2 voies
hard surface, all weather	pavée, toute saison	chaussées séparées	moins de 2 voies
loose or stabilized surface, all weather	gravier aggloméré, toute saison	2 voies	moins de 2 voies
loose surface, dry weather and unclassified streets	de gravier, temps sec et rues hors classe	2 voies ou plus	moins de 2 voies
car track	de terre, classe		
trail, cut line or portage	sentier, percée ou portage		

**PARKSVILLE**  
**BRITISH COLUMBIA**



CONTOUR INTERVAL 100 FEET  
Elevations in Feet above Mean Sea Level  
North American Datum 1927  
Transverse Mercator Projection

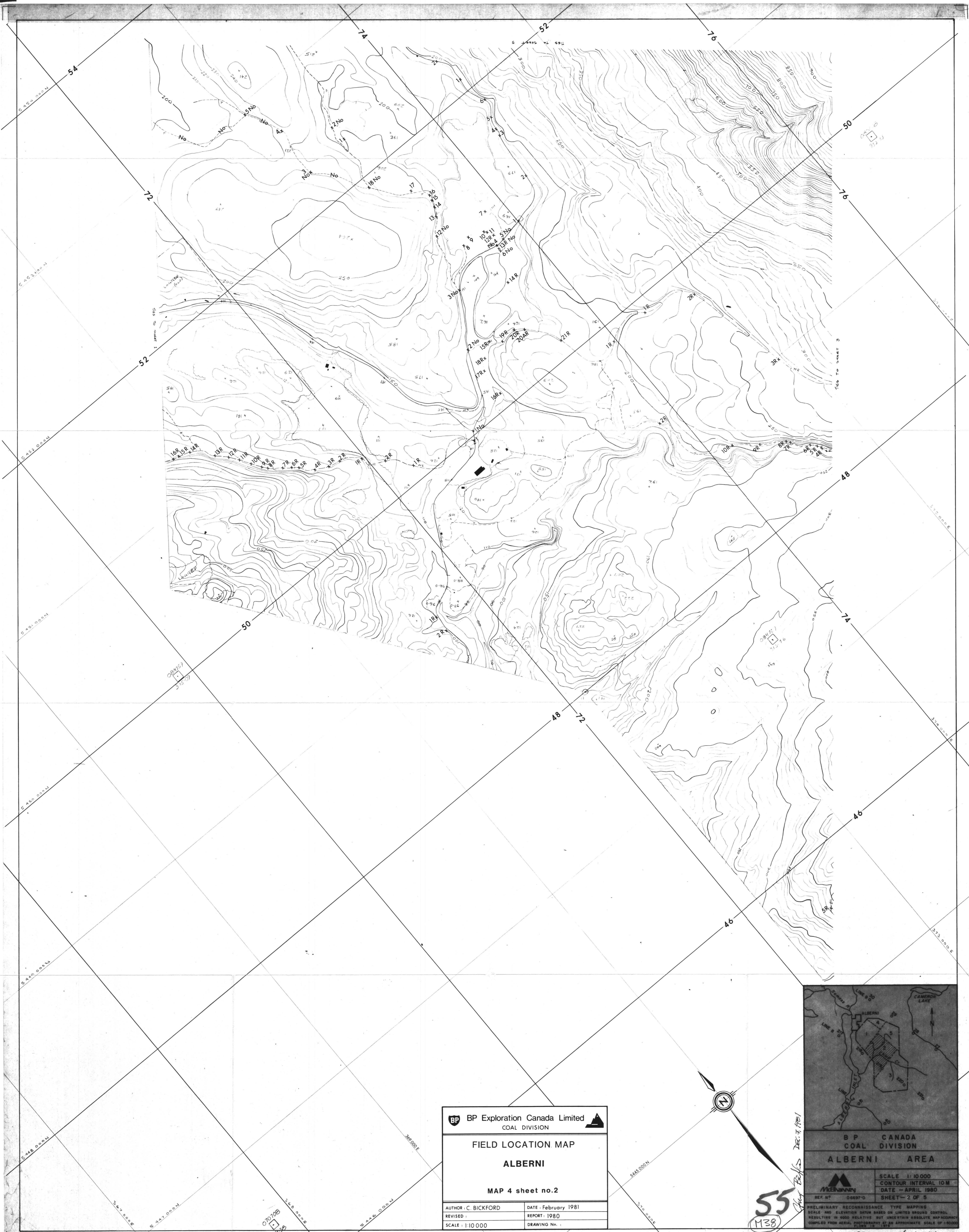
cx-Comox 80(2)A

55 (M37)

Surveyed and compiled by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF LANDS AND FORESTS, BRITISH COLUMBIA, 1942-1943-1950. Produced by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES. Updated from aerial photographs taken in 1972. Culture check 1974. Information current as of 1974.

IRON MAIDEN SYSTEMS LTD. CALGARY, ALBERTA, CANADA

IRON MAIDEN  
U.S. A. DESIGN PATENT 419248-1979  
CANADIAN PATENT 1065729-1979  
© 1977



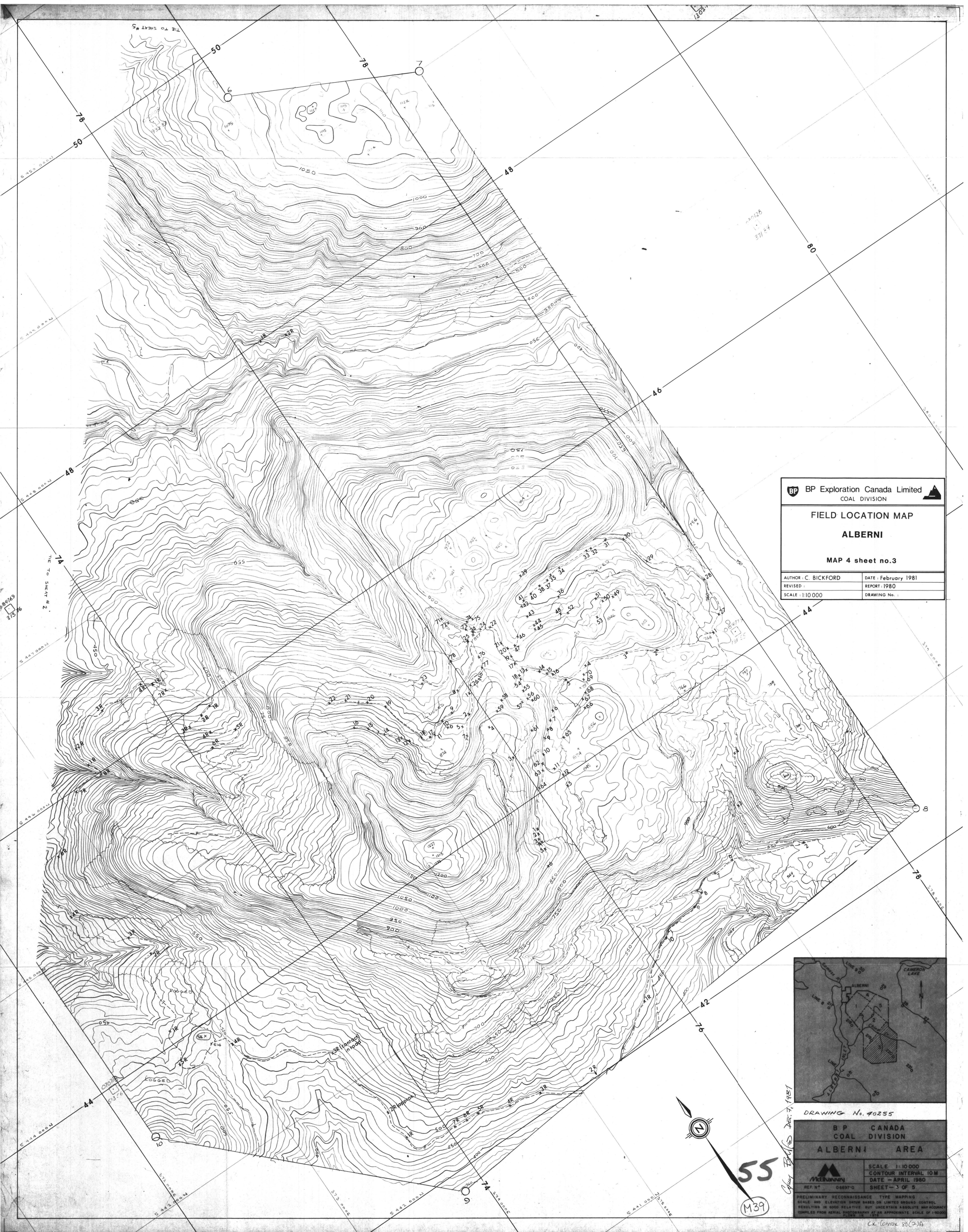
BP Exploration Canada Limited COAL DIVISION	
<b>FIELD LOCATION MAP</b>  <b>ALBERNI</b>	
MAP 4 sheet no.2	
AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:

<b>B P CANADA</b> <b>COAL DIVISION</b> <b>ALBERNI AREA</b>	
SCALE: 1:10 000	CONTOUR INTERVAL: 10M
DATE: APRIL 1980	SHEET: 2 OF 5
<small>PRELIMINARY RECONNAISSANCE TYPE MAPPING          SCALE AND ELEVATION DATA BASED ON LIMITED SURVEY CONTROL          RESULTS IN GOOD RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY          COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:50,000          FROM 1975</small>	
Drawing No. 40256 GY-6(MAY 1980)H	

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1138

Dec. 7, 1981

IRON MAIDEN<sup>®</sup> SYSTEMS LTD., CALGARY, AL.  
 (10) 1977  
 U.S.A. DESIGN PATENT 4139248 1979  
 CANADIAN PATENT 1063729 1979



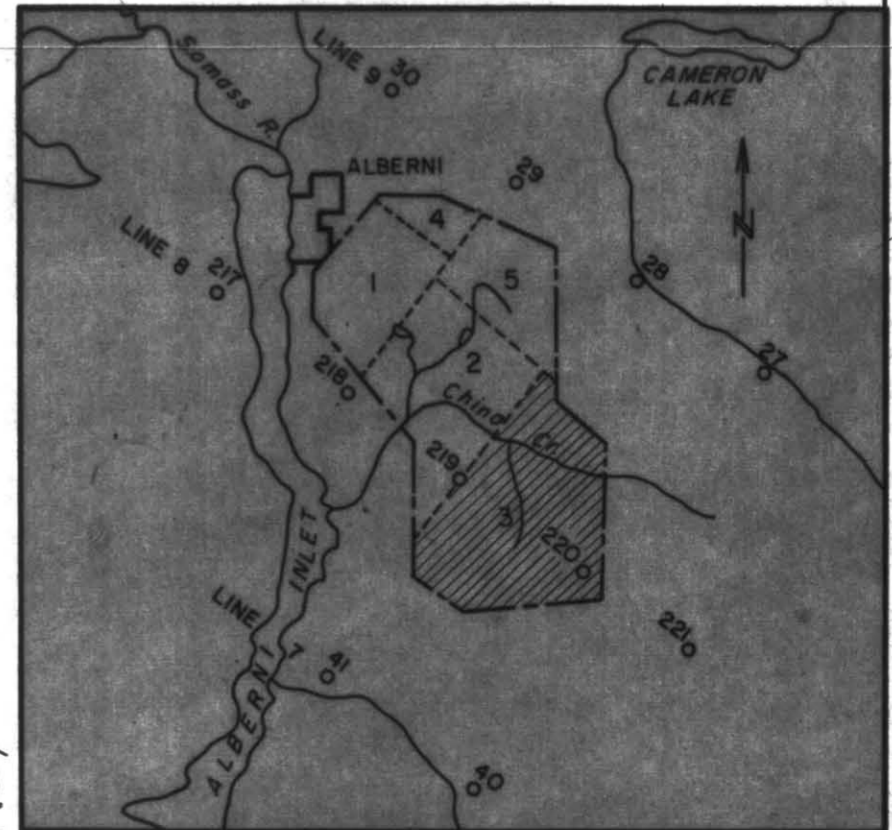
**BP** BP Exploration Canada Limited  
 COAL DIVISION

**FIELD LOCATION MAP**

**ALBERNI**

MAP 4 sheet no.3

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



DRAWING N. 40255

**B P CANADA**  
**COAL DIVISION**

**ALBERNI AREA**

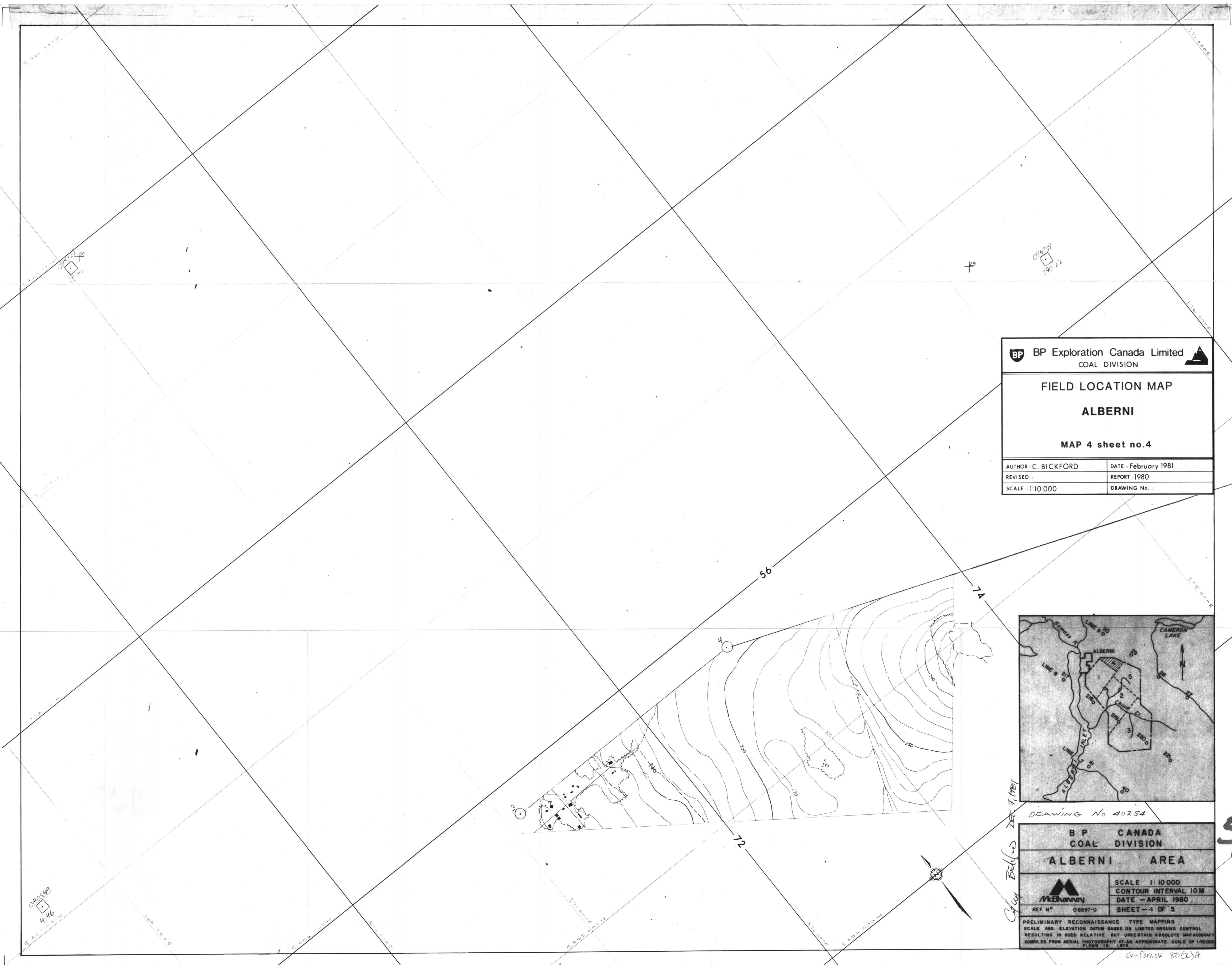
**MENNANN**

SCALE: 1:10 000	CONTOUR INTERVAL: 10 M
DATE: APRIL 1980	SHEET: 3 OF 5
REP. N°: 06897-0	

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
 SCALE AND ELEVATION DATA BASED ON LIMITED GROUND CONTROL  
 RESULTS IN GOOD FIELD-TIME. NOT UNDER ABSOLUTE PHOTOGRAMMETRY CONTROL  
 COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:50 000

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 (M39)

IRON MAIDEN®  
 U.S. A. DESIGN PATENT 4139248 1975  
 CANADIAN INNOVATION PATENT 1065729 1979  
 (RD) 1977  
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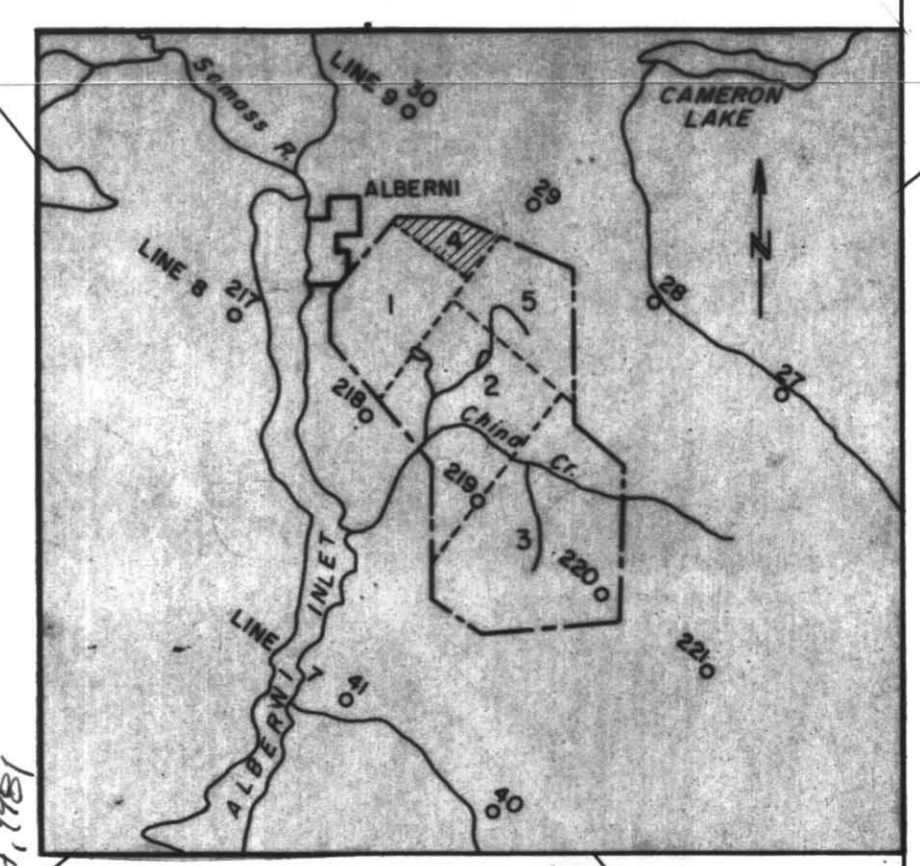
**BP** BP Exploration Canada Limited  
 COAL DIVISION

**FIELD LOCATION MAP**

**ALBERNI**

MAP 4 sheet no.4

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



DRAWING No 40254

**B P CANADA**  
**COAL DIVISION**

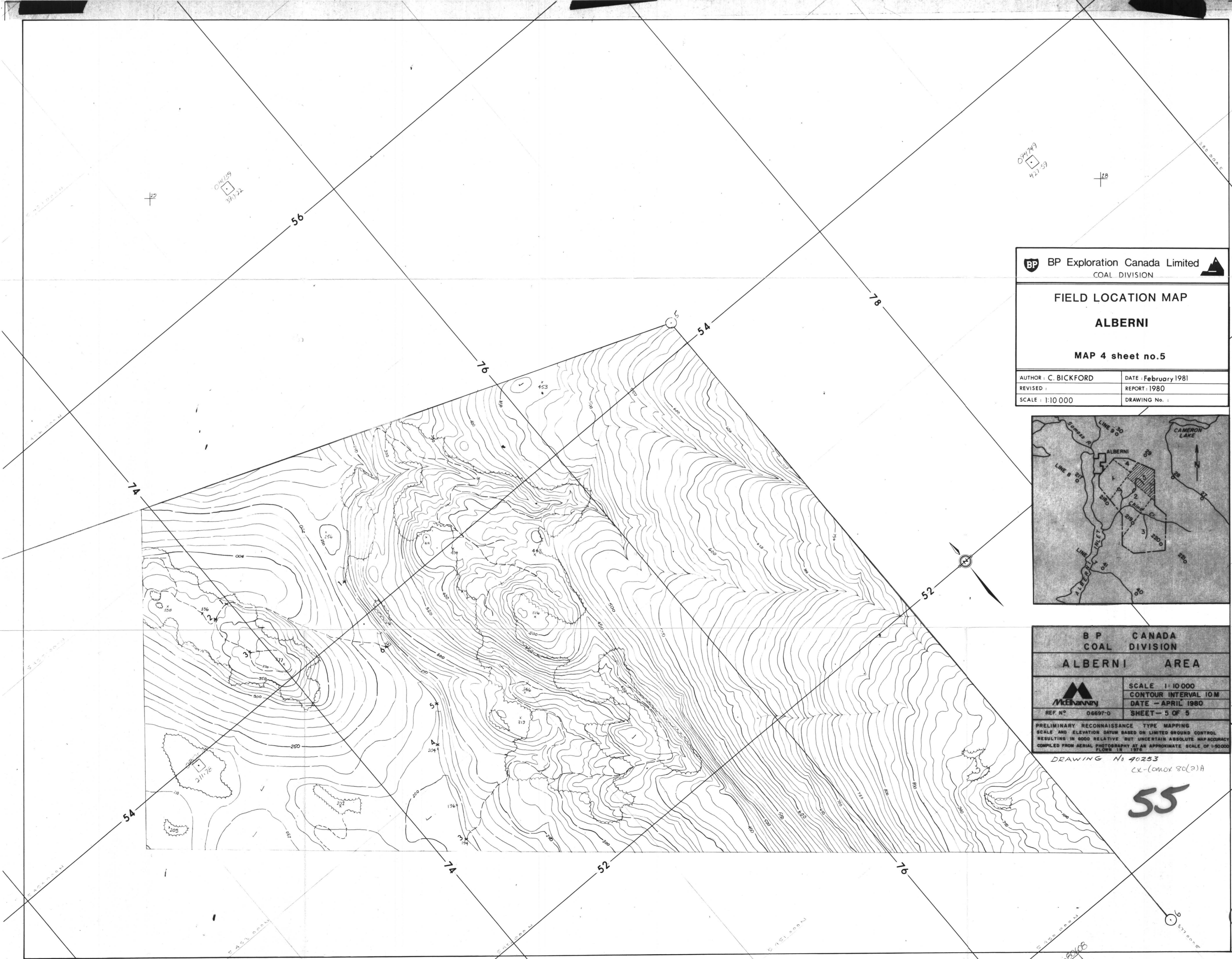
**ALBERNI AREA**


<b>McKENNEY</b>	SCALE 1:10 000 CONTOUR INTERVAL 10M
REF. N° 06697-0	DATE - APRIL 1980
	SHEET - 4 OF 5

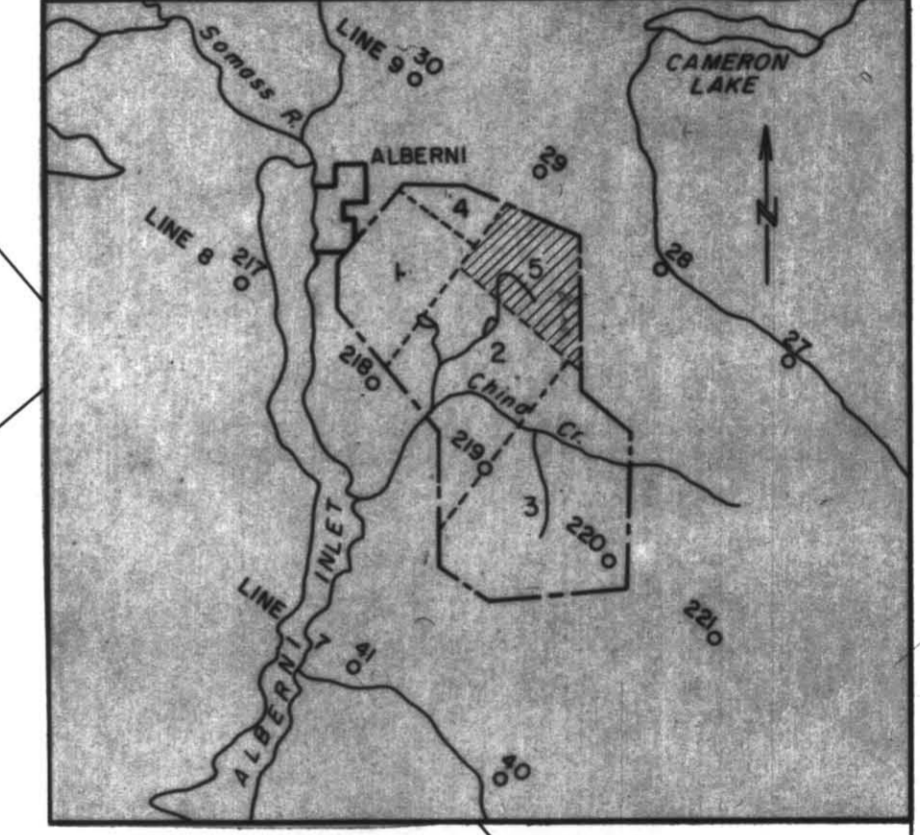
PRELIMINARY RECONNAISSANCE TYPE MAPPING  
 SCALE AND ELEVATION DATUM BASED ON LIMITED GROUND CONTROL  
 RESULTS IN 6000 RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY  
 COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:5000  
 FLOWN IN 1976


CV-Comox 80(2)A

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 (M40)



 <b>BP Exploration Canada Limited</b> COAL DIVISION	
<b>FIELD LOCATION MAP</b>  <b>ALBERNI</b>  <b>MAP 4 sheet no.5</b>	
AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:

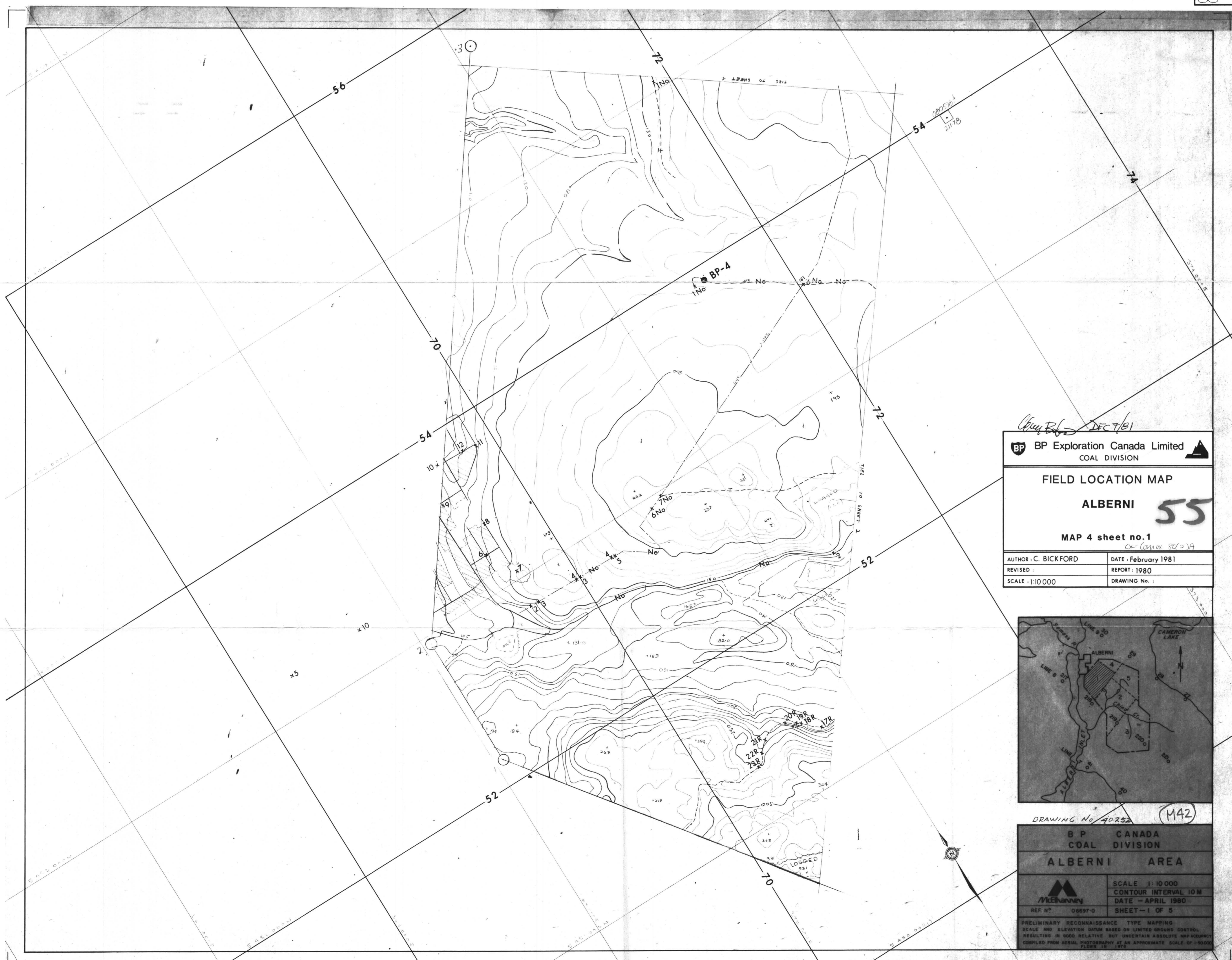


<b>B P CANADA</b> <b>COAL DIVISION</b> <b>ALBERNI AREA</b>	
	SCALE 1:10 000
	CONTOUR INTERVAL 10M
REF. No. 06697-D	DATE - APRIL 1980
SHEET - 5 OF 5	
<small>PRELIMINARY RECONNAISSANCE TYPE MAPPING          SCALE AND ELEVATION DATUM BASED ON LIMITED GROUND CONTROL          RESULTING IN GOOD RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY          COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:50 000          FROM 1978</small>	
DRAWING No. 40253 CX-(COMOX 80(2)A)	

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*Chas. Ed. DEC 7/81*

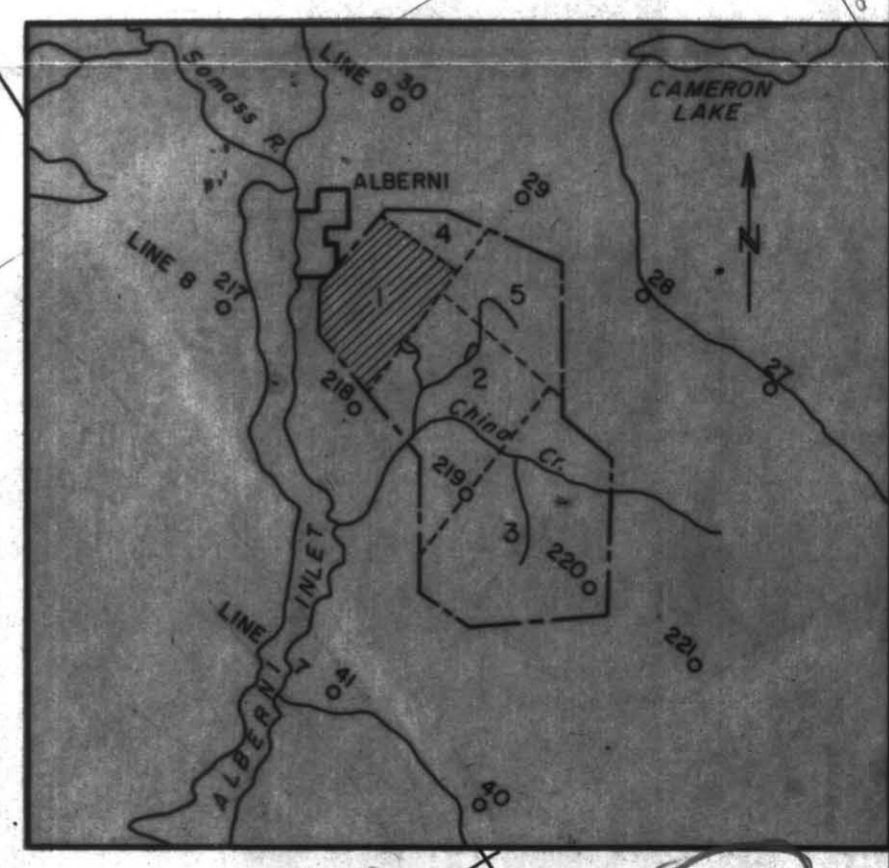
**BP** BP Exploration Canada Limited  
COAL DIVISION

**FIELD LOCATION MAP**

**ALBERNI** **55**

**MAP 4 sheet no. 1**  
*EX- Contour 50(2)A*

AUTHOR: C. BICKFORD	DATE: February 1981
REVISED:	REPORT: 1980
SCALE: 1:10 000	DRAWING No.:



DRAWING No. 40252 (M42)

**BP CANADA**  
**COAL DIVISION**

**ALBERNI AREA**

**MINNAPY**

SCALE: 1:10 000  
CONTOUR INTERVAL: 10M  
DATE: APRIL 1980  
SHEET: 1 OF 5

PRELIMINARY RECONNAISSANCE TYPE MAPPING  
SCALE AND ELEVATION DATA BASED ON LIMITED GROUND CONTROL  
RESULTING IN 500M RELATIVE BUT UNCERTAIN ABSOLUTE MAP ACCURACY  
COMPILED FROM AERIAL PHOTOGRAPHY AT AN APPROXIMATE SCALE OF 1:50 000  
PLANS 18-154