



31L02SW0001 OP93-617 SINCLAIR

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ONTARIO PROSPECTORS ASSISTANCE PROGRAM  
OP93-617

BUILDING STONE ASSESSMENT  
HUNTSVILLE - TROUT CREEK AREA  
1993

by

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31L02SW0001 OP93-617 SINCLAIR

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CONTENTS

	PAGE
<b>INTRODUCTION</b>	1
Location and Access	2
Prospecting Targets	4
<b>CURRENT PROJECT</b>	5
<b>GEOLOGY</b>	8
<b>RESULTS</b>	12
Building Stone Potential	12
Description of Prospects	19
1 Sausage Lake - Laurier Tp	21
2 Falby Lake - Chapman Tp	23
3 Distress River - Chapman Tp, Lount Tp	25
4 Midlothian - Ryerson Tp	28
5 Bray Lake - Machar Tp	30
6 Cripple Creek - McCraney Tp	32
7 Dead Horse Lake - Paxton Tp	34
8 Barre Lake - Bethune Tp	36
9 Smith Creek - Paxton Tp	38
10 Buck River - McMurrich Tp	39
11 Loon Lake - Proudfoot Tp	41
12 Buck Lake - McMurrich Tp	43
13 Widgeon Lake - Joly Tp	45
14 Axe Lake - McMurrich Tp	47
<b>CONCLUSIONS AND RECOMMENDATIONS</b>	49
<b>REFERENCES</b>	50

LIST OF FIGURES

	PAGE
Figure 1. Location of the project area	3
Figure 2. Areas surveyed in 1993	6
Figure 3. Regional geology of the project area	10
Figure 4. Lithotectonic domains and stone quarries in the project area and surrounding region	11
Figure 5. Legend for building stone potential maps	13
Figure 6. Areas surveyed in Paxton and Joly Townships	14
Figure 7. Areas surveyed in Proudfoot Township	15
Figure 8. Areas surveyed in Laurier Township	16
Figure 9. Areas surveyed in Ballantyne Township	17
Figure 10. Areas surveyed in Sinclair Township	18
Figure 11. Map symbols for building stone prospect maps	20
Figure 12. Prospect 1 - Sausage Lake	22
Figure 13. Prospect 2 - Falby Lake	24
Figure 14. Prospect 3 - Distress River	27
Figure 15. Prospect 4 - Midlothian	29
Figure 16. Prospect 5 - Bray Lake	31
Figure 17. Prospect 6 - Cripple Creek	33
Figure 18. Prospect 7 - Dead Horse Lake	35
Figure 19. Prospect 8 - Barre Lake	37
Figure 20. Prospect 10 - Buck River	40
Figure 21. Prospect 11 - Loon Lake	42
Figure 22. Prospect 12 - Buck Lake	44
Figure 23. Prospect 13 - Widgeon Lake	46
Figure 24. Prospect 14 - Axe Lake	48

APPENDIX

Colour Photographs:

- Photo 1. Polished tile - Prospect 1, Sausage Lake West
- Photo 2. Polished tile - Prospect 1, Sausage Lake East
- Photo 3. Polished tile - Prospect 2, Falby Lake
- Photo 4. Polished tile - Prospect 3, Distress River
- Photo 5. Polished tile - Prospect 4, Midlothian
- Photo 6. Split flagstone - Prospect 7, Dead Horse Lake

## INTRODUCTION

An assessment of the potential for building stone resources in the Huntsville-Trout Creek area was carried out by the author of this report. This project was completed with financial support from the Ontario Prospectors Assistance Program (File No. OP93-617), and included field work during June, July, and August of 1993.

Prospecting over areas for which building stone surveys have not previously been documented was directed towards the goal of locating quarriable sites of good quality stone, and particularly dimension stone and flagstone resources of rapid development and marketable potential. This project was designed as a reconnaissance-type survey covering a large area of Crown lands in 13 township (Figures 1,2). The project area lies within a region of diverse geology and is generally readily accessible from Highway 11. The area is also favourably located with respect to large potential markets to the south.

A large part of the project area was found to be unsuitable for development of building stone resources for a variety of reasons; however, a significant number of favourable areas with medium to high development potential were also discovered. These include 14 prospects described in this report. Follow-up work is recommended on at least 6 of these prospects for the 1994 field season. Some representative polished tiles of the best dimension stone prospects were prepared for evaluation of the quality of potential products and to assist in possible development and marketing.

**Location and Access**

The project area covered selected Crown lands in the Southern Ontario Mining Division open for staking in June 1993, and situated between the towns of Huntsville and Trout Creek in 13 townships which straddle Highway 11 (Figure 1). The townships are in parts of the administrative districts of Parry Sound, Muskoka, and Nipissing. The 13 townships and corresponding claim map sheets are as follows:

<u>Township</u>	<u>Claim Map Sheet</u>
Sinclair (north)	G2457
Bethune	M167
McCraney	M133
Proudfoot	M196
Joly	G2434
Paxton	M141
Laurier	G2435
Ballantyne	G2465
South Himsworth	G4130
Machar	G2438
Chapman	M169
Ryerson	M197
McMurrich	M188

National topographic system map sheets for the project area at a scale of 1:50,000 are: 31E/6, 31E/10, 31E/11, 31E/12, 31E/13, 31E/14, 31L/3.

Access to the areas surveyed (Figure 2) was along Provincial Highways 11, 60, 124; secondary highways 522, 518, 520; and various paved and unpaved concession roads, cottage roads, forest access roads, bush tracks, portages, and pace and compass traverses.

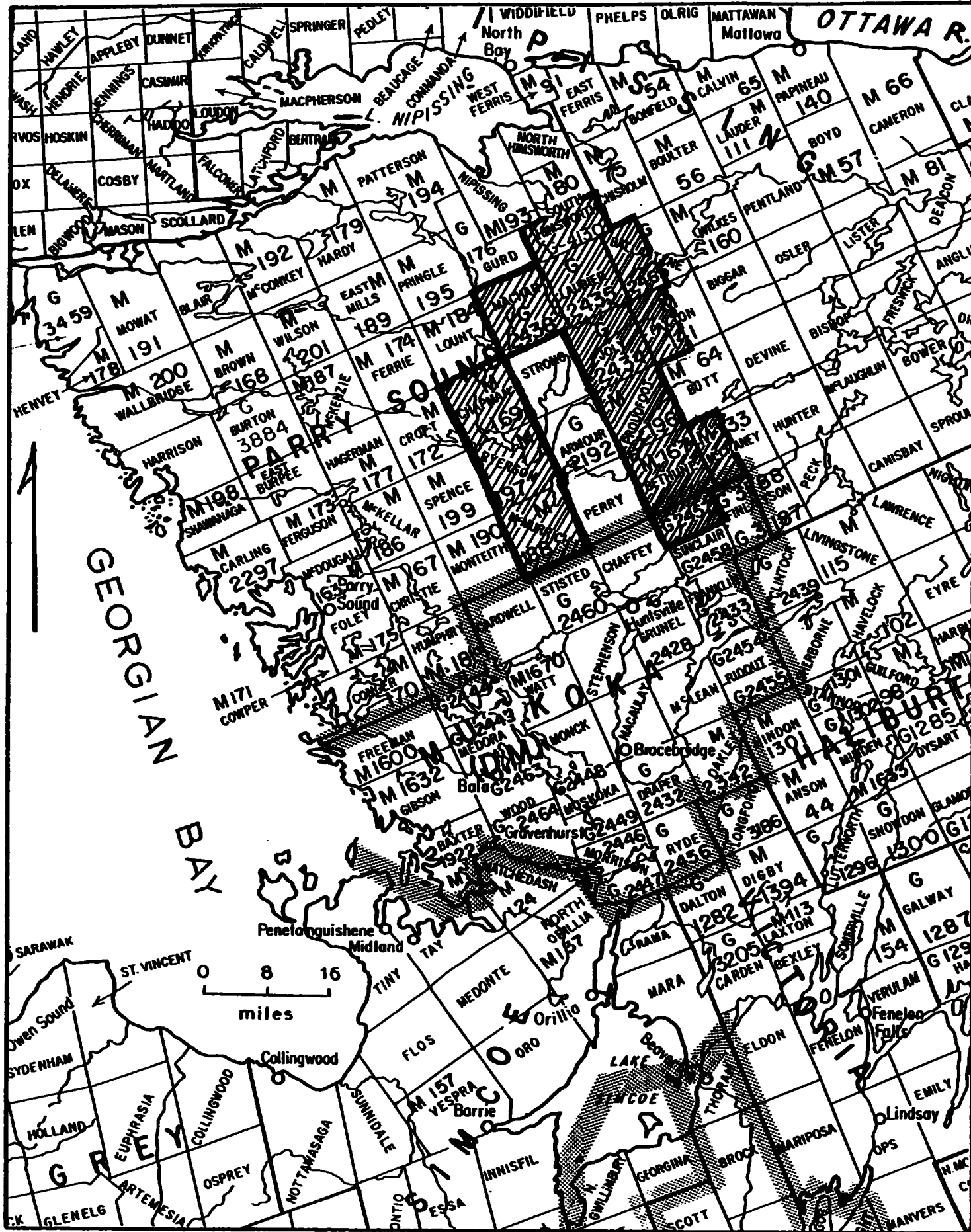


Figure 1. Location of the project area. Scale 1 inch = 16 miles.

## Prospecting Targets

The prospecting work of this project was directed towards the goal of locating previously undocumented, quarriable building stone sites for small, medium, and large (5, 10, 20-30 tonne) block dimension stone; and undocumented quarriable sites for flagstone, ornamental stone, ashlar, curbstone, setts, etc.; with a potential resource value of at least twice the costs of development.

Target lithologies for economic building stone resources include orthogneiss, paragneiss, mixed gneiss and migmatite - all referred to as 'granite' in the building stone industry. The emphasis in the project area was on attractive, unique, high value commodities such as 'black granites' and multi-colored and patterned gneisses amenable to a variety of applications in the currently developing market. The project covered locations selected from aerial photographs in areas which were largely unsurveyed and untested for building stone potential, but which possess good transportation and quarrying feasibility. Thus, in addition to lithology, the prospecting targets included certain structural, physical, and compositional criteria which are required for development of a building stone resource. Exploration guidelines and development criteria for dimensional stone resources in central Ontario have recently been summarized by Marmont (1993).

For about a decade the Ontario Geological Survey has conducted programs to assess the building stone potential in the region of central Ontario which includes this project (Martin 1983; Verschuren et al 1986; Marmont and co-workers 1987-1993). These studies have indicated that a wide variety of attractive gneissic rocks occur in the region, and that large, unsurveyed, prospective areas with favourable infrastructure and location remain to be assessed. Accordingly, the goal of this project was to locate new stone resources which have good potential for development. Within the constraints of this project, the emphasis was on locating as many prospects as possible for prioritization and follow-up work.

## CURRENT PROJECT

This project was designed as a reconnaissance-type survey to assess the building stone potential on Crown lands in the Huntsville-Trout Creek area. Air photo interpretation was used to assist in planning of traverses over areas of outcrop not covered by previously documented surveys in this region. Prospective dimensional stone sites were identified according to the criteria summarized by Marmont (1993): substantial exposure, positive relief, lithological uniformity, low density of joints and fractures, durability of the stone, absence of deleterious minerals, and attractiveness. Flagstone prospects and occurrences were also encountered and those considered to contain a significant volume of commercial resources are described in this report.

During June, July, and August of 1993 a large area of diverse geology was surveyed by prospecting traverses to assess the building stone potential of the project area (Figure 2). The areas shown on Figure 2 were surveyed by pace and compass traverses using air photos at scales of 1:15,840 (1 inch =  $\frac{1}{4}$  mile, flown 1987) or 1:20,000 (1 cm = 200 metres, flown 1989) to locate sites of significant outcrop. The outcrop sites and surrounding favourable areas were prospected at traverse spacings of 400 metres or less to explore for quarriable sites with a minimum area of approximately 1 hectare (10,000 m<sup>2</sup>). Ninety-six colour photographs were taken at sites of building stone potential or interest. Fourteen prospective stone sites were identified and are described in this report. Ten thin sections and fourteen pieces of polished tile were also prepared to assist in the assessment of prospective sites.

A large part of the surveyed project area was found to be of low building stone potential beyond a limited scale of development. However, significant stone prospects were discovered during this project and a wide variety of attractive 'granites' are common in the region (Marmont 1992; Fouts and Marmont 1989). Physiographic



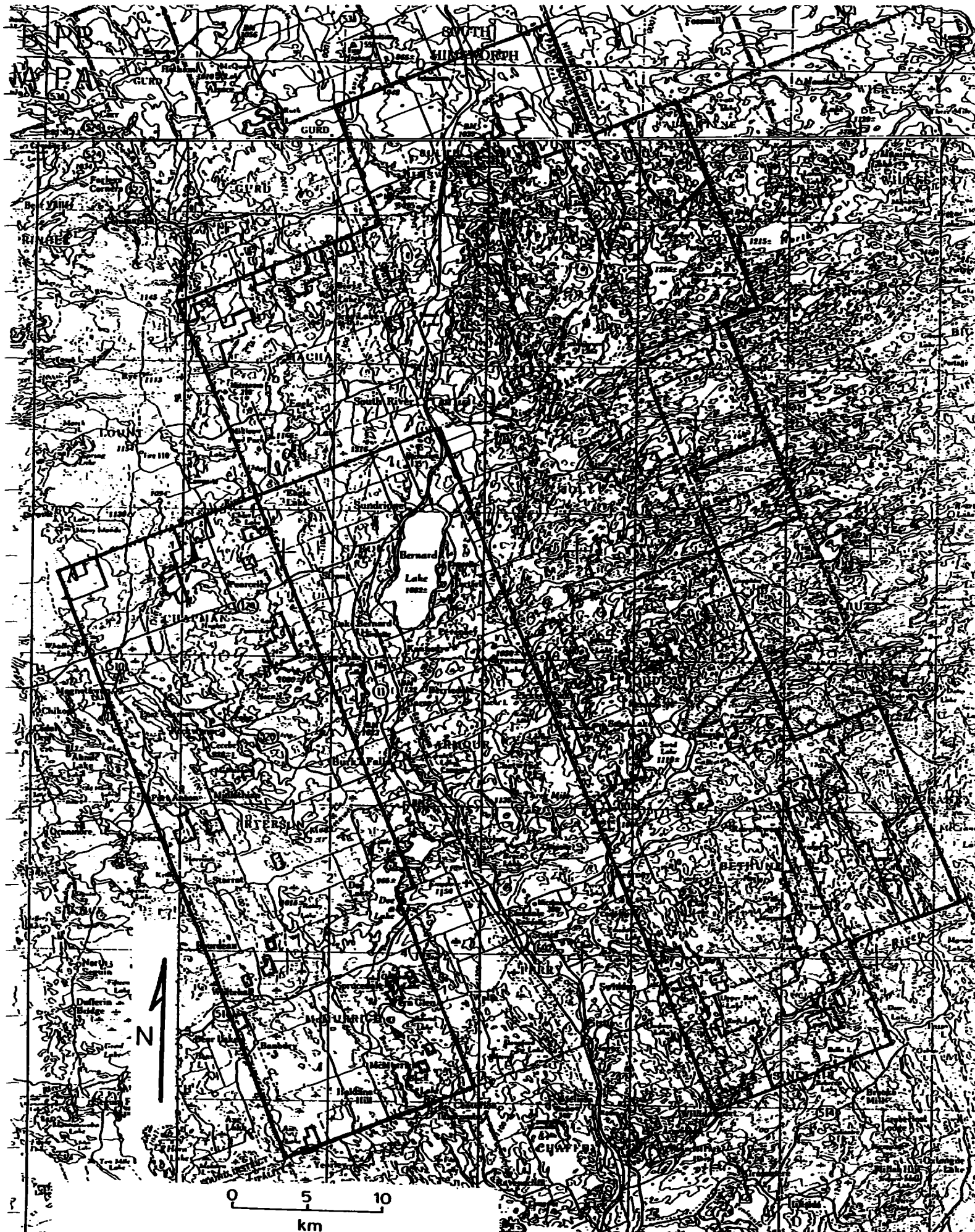


Figure 2. Areas surveyed in 1993.

conditions are also generally favourable for quarrying and the potential for commercial development of more and larger stone quarries in the future is quite high. Thus, this project was focussed on high value stone resources which could be quickly and economically tested, developed, and marketed.

During field work it was observed that air photographs did not clearly show some areas of significant outcrop and thus the potential for discovery of other stone prospects is good. In general, significant outcrop areas were considered to be locations where several hundreds of square metres of a particular rock type were exposed or quite close to surface, and development of a quarry over the site was feasible. Prospective sites were studied by analyzing the lithology, structure, jointing, fracturing, physiography, quarriability, access, and other standard criteria for stone resources (Marmont 1993; Nantel 1983; Currier 1960). Additional and more detailed mapping and sampling of these sites is required prior to developmental stages of work.

## GEOLOGY

Building stone is an industrial mineral resource which occurs in a variety of complex geologic settings within the central Ontario part of the Central Gneiss Belt of the Grenville Province. The project area lies approximately between the towns of Huntsville and Trout Creek in 13 townships which straddle Provincial Highway 11. In this area (Figures 3,4) high grade upper amphibolite to granulite facies metamorphic rocks of Archean to Mesoproterozoic age have undergone northwesterly directed ductile thrusting resulting in the development of several discrete lithotectonic terranes of dominantly northeasterly structural trends, bounded by extensive shear zones delineated by well foliated high strain tectonites (Davidson et al 1985; Davidson 1983; Easton 1992). The lithotectonic terranes are thrust and imbricated crustal segments which in some cases can be further subdivided into domains based on differences in rock types, internal structure, metamorphism, geologic history, and geophysical characteristics.

Over the past decade, work by the Ontario Geological Survey in the region has indicated that a variety of prospective foliated and unfoliated building stone lithologies of the 'granite' commercial category occur in significant numbers of quarriable sites, and are believed to underlie large areas which have not been extensively surveyed for stone. In the project area granulitic orthogneisses, paragneisses, mixed gneisses, migmatites, and metaplutonic rocks occur within several lithotectonic domains; while flaggy, layered gneisses were encountered along the intensely deformed and sheared margins of the domains.

The project area includes parts of the Novar, Kiosk, Seguin, Powassan, and McCraney lithotectonic domains which occur in the central part of the Algonquin terrane, and the eastern margin of the Parry Sound domain (Easton 1992). Large folded sheets of gneissic granitic rocks occur in all of the domains and these have been extensively injected by granitic magmas.

Previous government and private sector reconnaissance surveys along and near roadsides have identified some promising sites for both dimensional stone and flagstone resources containing a variety of gneissic rocks throughout the region (Figure 4). Commercial interest in some of these prospects is recently gaining momentum and was a prime reason for this program of exploration in unsurveyed areas. The great variety of attractive gneissic and granulitic lithologies encountered during this survey indicates that with future expansion of the central Ontario stone industry, it will be possible to establish a number of smaller specialized quarries exploited by mobile equipment and centrally located processing plants.

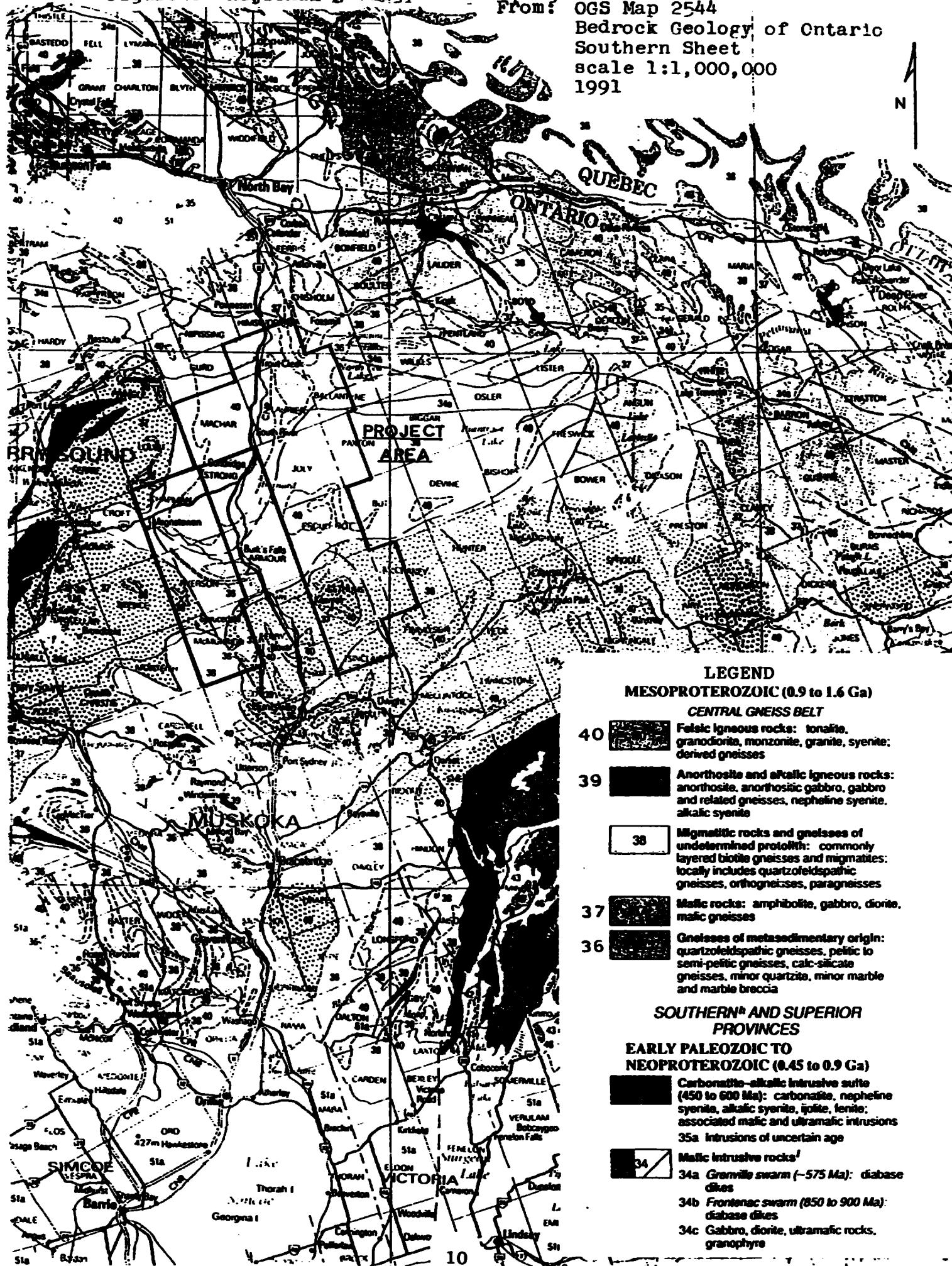
Both conventional granites and gneissic granites were encountered during this project, but in many cases a lack of lithological uniformity or high joint and fracture density obviated further consideration of areas of significant outcrop. Conventional granites were less frequently encountered and included medium to coarse grained equigranular, inequigranular, and porphyroclastic rocks which are variably recrystallized. Rock types include anorthosite, gabbro, monzonite, and granite. Gneissic granites are widespread and display a great variety of types particularly in coloration, texture, and patterning. They are generally medium grained, seriate, migmatitic, and banded in various styles which range from straight-planar to highly convoluted. The gneissic granites are typically wholly recrystallized, porphyroblastic and contain varying amounts of feldspars, quartz, pyroxenes, hornblende, garnet, micas, and opaque minerals. Deleterious minerals are not abundant and most occurrences display good durability and limited weathering.

Figure 3. Regional geology of the project area.

From: OGS Map 2544

Bedrock Geology of Ontario  
Southern Sheet

scale 1:1,000,000  
1991



**LEGEND**

**MESOPROTEROZOIC (0.9 to 1.6 Ga)**

**CENTRAL GNEISS BELT**

- 40 Felsic igneous rocks: tonalite, granodiorite, monzonite, granite, syenite; derived gneisses
- 39 Anorthositic and alkalic igneous rocks: anorthosite, anorthositic gabbro, gabbro and related gneisses, nepheline syenite, alkalic syenite
- 38 Migmatitic rocks and gneisses of undetermined protolith: commonly layered biotite gneisses and migmatites; locally includes quartzofeldspathic gneisses, orthogneisses, paragneisses
- 37 Mafic rocks: amphibolite, gabbro, diorite, mafic gneisses
- 36 Gneisses of metasedimentary origin: quartzofeldspathic gneisses, pelitic to semi-pelitic gneisses, calc-silicate gneisses, minor quartzite, minor marble and marble breccia

**SOUTHERN<sup>a</sup> AND SUPERIOR PROVINCES**

**EARLY PALEOZOIC TO NEOPROTEROZOIC (0.45 to 0.9 Ga)**

- Carbonatite-alkalic intrusive suite (450 to 600 Ma): carbonatite, nepheline syenite, alkalic syenite, ijolite, lenite; associated mafic and ultramafic intrusions  
35a Intrusions of uncertain age
- Mafic intrusive rocks<sup>1</sup>
  - 34a Grenville swarm (~575 Ma): diabase dikes
  - 34b Frontenac swarm (850 to 900 Ma): diabase dikes
  - 34c Gabbro, diorite, ultramafic rocks, granophyre

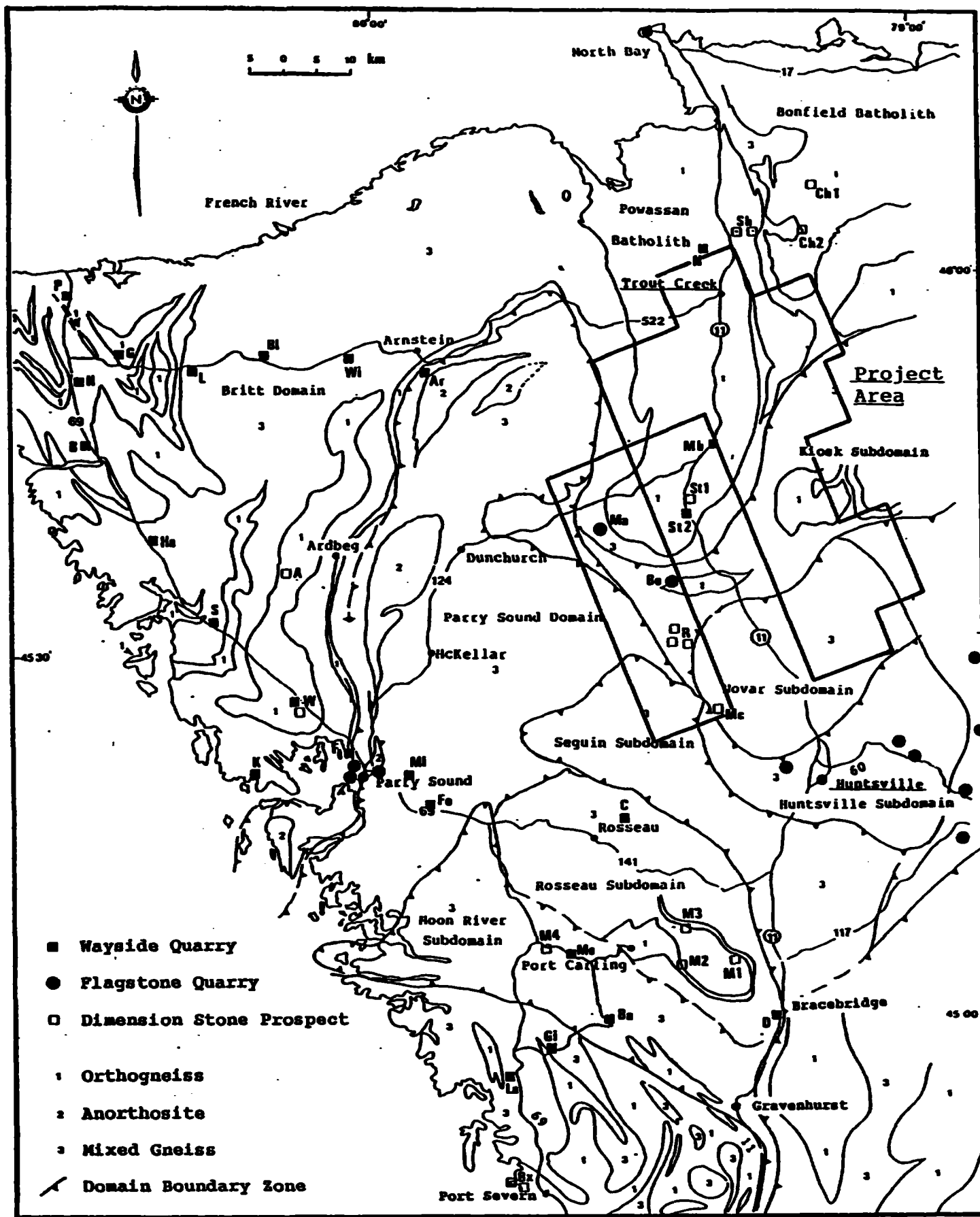


Figure 4. Lithotectonic domains and location of quarries and dimensional stone prospects in the project area and surrounding region of central Ontario (from Marmont 1991).

## RESULTS

### Building Stone Potential

The results of this project indicate a good potential for development of building stone resources, both dimensional stone and flagstone, in the Huntsville-Trout Creek area. Given the large area under consideration, this survey's findings are not exhaustive and the discovery of additional prospects is of high probability. The following maps show some of the more interesting areas examined and their relative building stone potentials. The best occurrences have been prioritized into 14 prospects described in the next section.

Although many of the areas of significant outcrop examined during this project did not fulfill the requisite criteria for a building stone quarry of moderate to high value, it was also noted that a great variety of very attractive good quality stone of small scale potential is widespread. The viability of smaller scale operations would likely increase if larger operations were first established in the area.

As marketing is a key component in development of building stone resources, the author is seeking contacts in the industry to facilitate test extraction and promotion of stone resources from the project area. Government support in the form of the Ontario Prospectors Assistance Program and the Ontario Mineral Incentive Program also increase the viability and incentives for developmental projects.

Figure 5.

LEGEND

 Generalized outcrop area examined in 1993


Overall Building Stone Potential


- 1 Good
- 2 Moderate
- 3 Poor

② Building Stone Prospect, ranked 1-14

Significant Positive (underlined), or Negative Features

- a Access (e.g. a = good access)
- d Dimensional stone prospect
- f Flagstone prospect
- e Exposure
- j Jointing, fracturing density
- m Deleterious minerals
- r Relief
- u Lithological uniformity
- x Attractiveness

 Potential quarry outline,  
examined in 1993

 Sample location



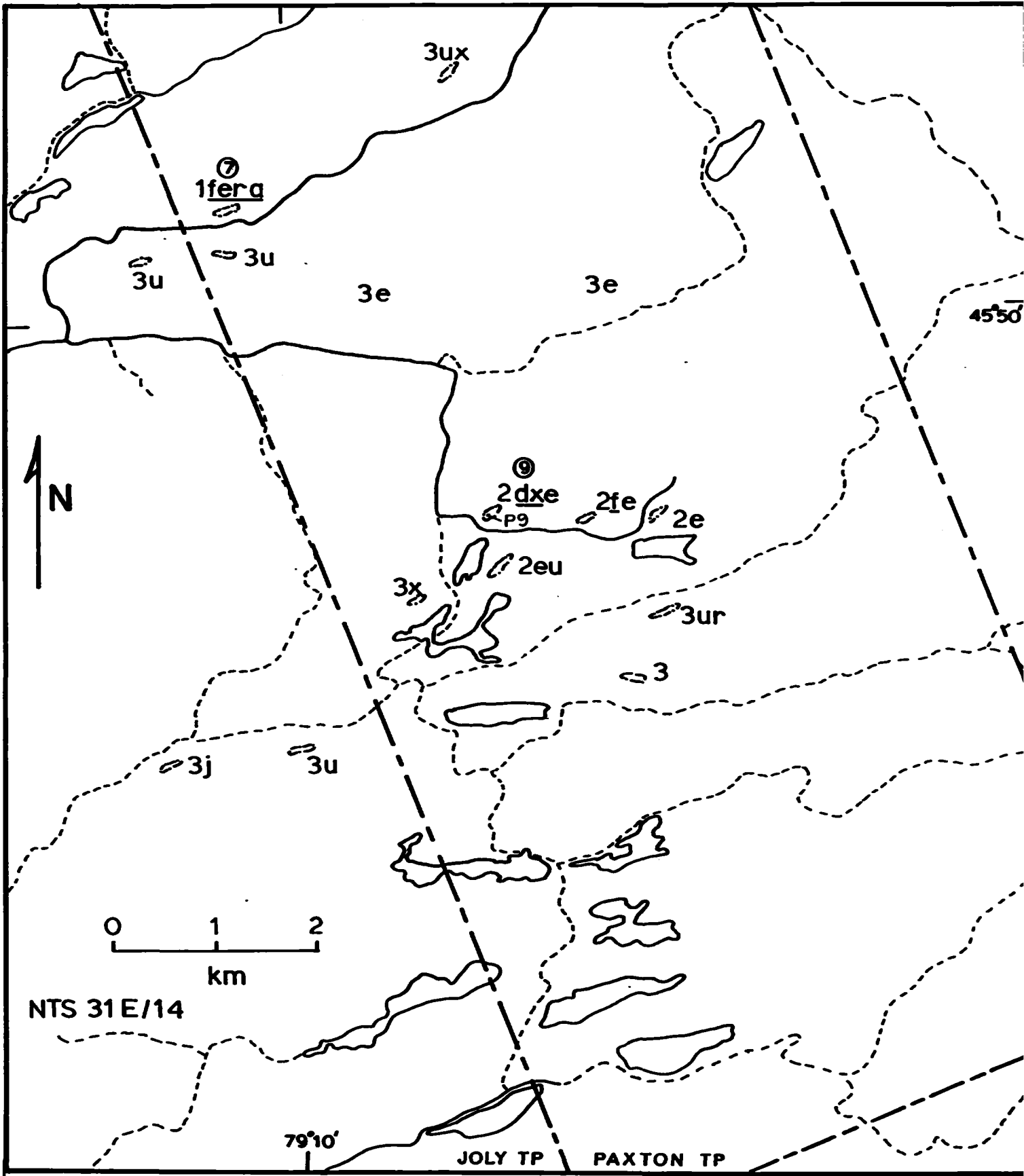


Figure 6. Areas surveyed in Paxton and Joly Townships

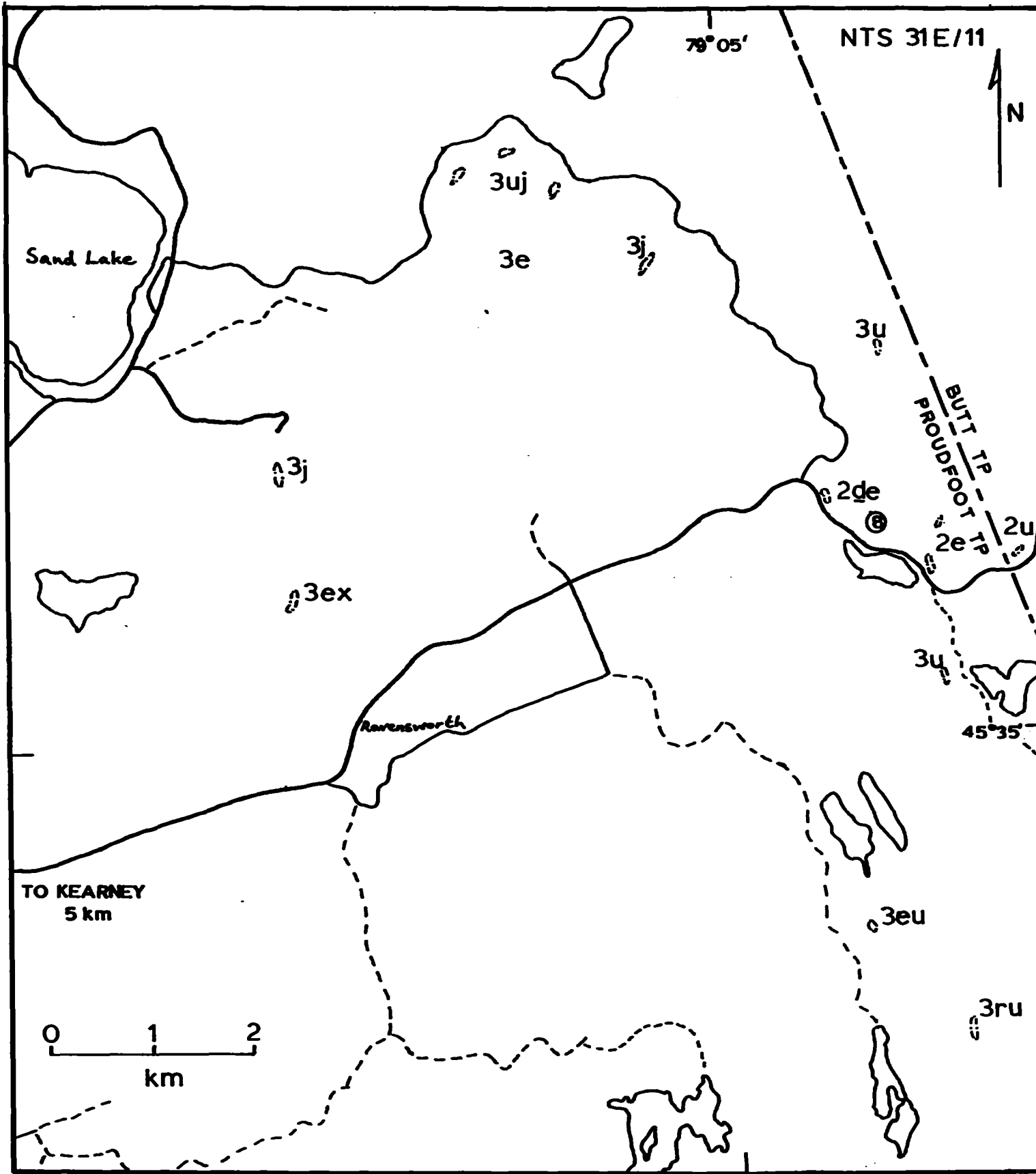
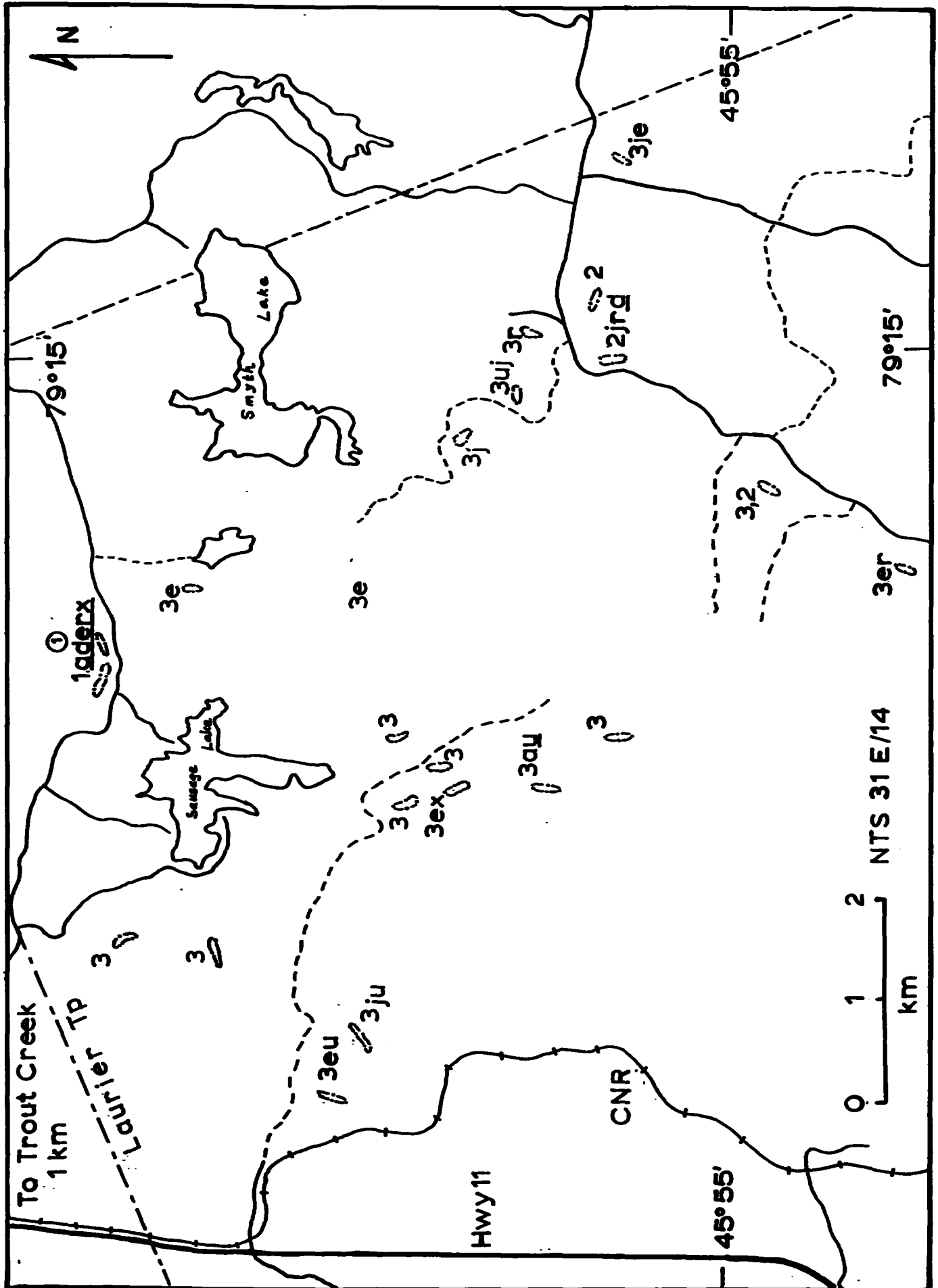


Figure 7. Areas surveyed in Proudfoot Township.



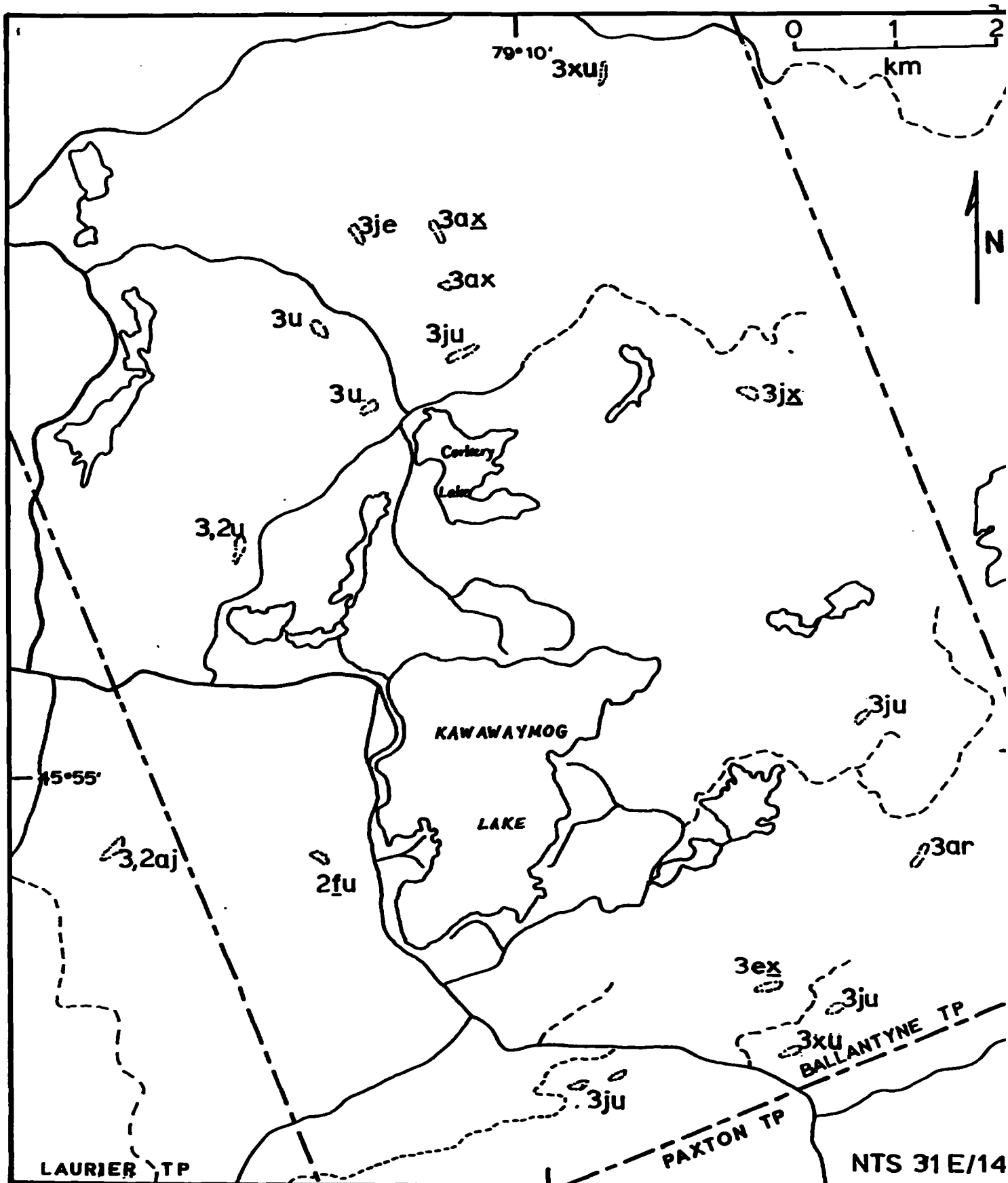


Figure 9. Areas surveyed in Ballantyne Township.

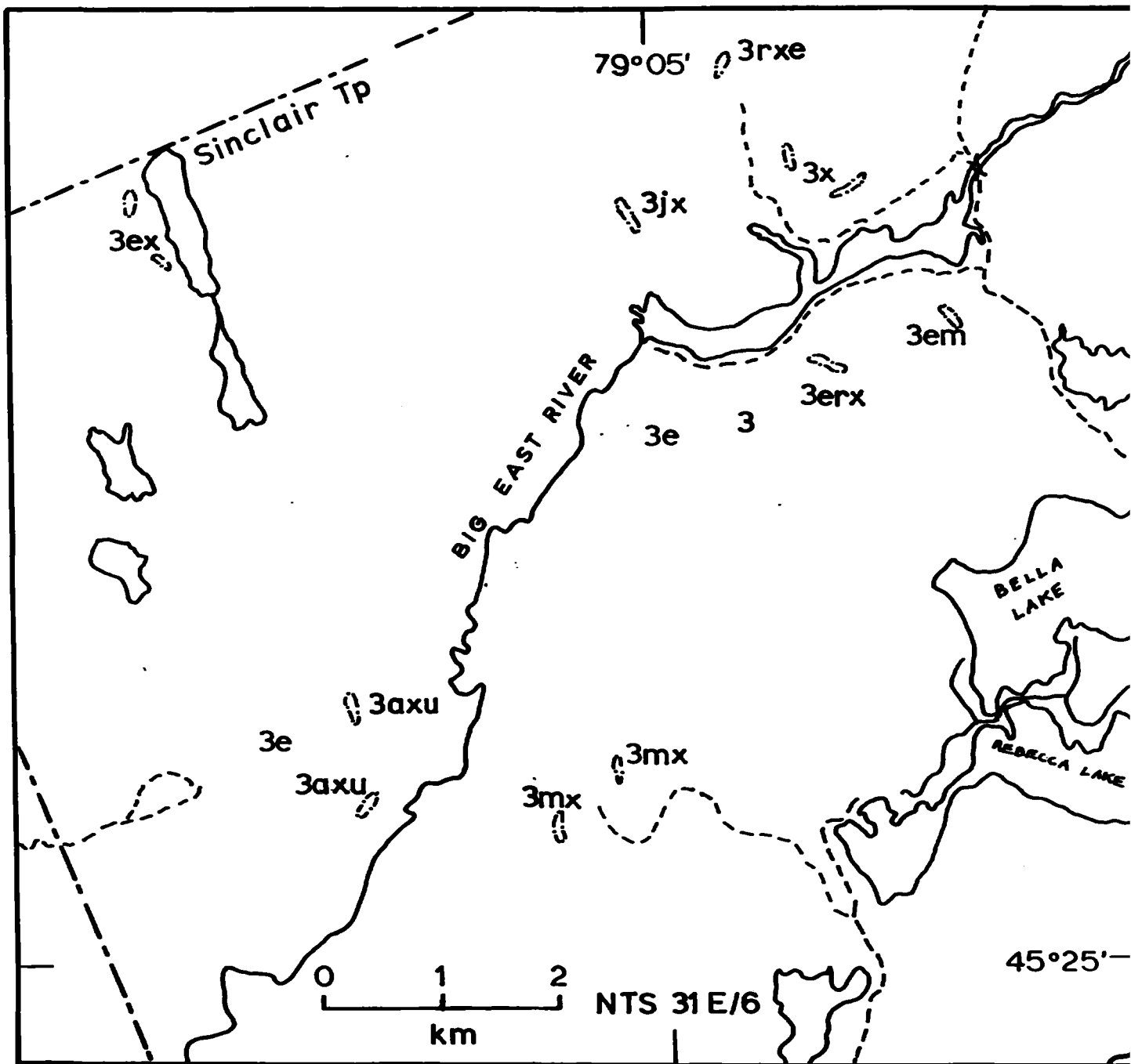


Figure 10. Areas surveyed in Sinclair Township.

## Description of Prospects

Fourteen prospective areas for building stone were selected and ranked for this project according to overall development potential and value of resource. The best prospects are described first and those for which polished tiles, thin sections, and photographs were prepared are also noted. All of the prospects occur in whole or in part on Crown lands and in most cases the regulatory procedures towards test quarrying would be straightforward. Aerial photographs, representative hand samples, and additional information on these sites are available from the author. Future additional work is planned on some of these sites pending favourable response from industry representatives and market conditions.

Some of the features indicated on the accompanying maps include potential quarry dimensions, significant outcrop and subcrop areas, access, physiography, and other local features.

To assess the quality of stone, outcrop areas in these prospects were broken by hammer in up to 20 or more locations.

Figure 11. Map symbols for building stone prospects.

**OBM  
MAP SYMBOLS**

Dike	
Ditch, Drain *	
Electric Substation	
Fence, Hedge, Wall	
Feature outline, Parking Area	
Flooded Land	
Lock	
Marsh, Swamp	
Mast	
Pipeline	
(above ground)	
Railroad	
Single track	
Double tracks	
Abandoned	
Narrow Gauge	
Turntable	
Reservoir	
River	
Narrow with Falls	
with Rapids	
with Multiple Rapids	
Wide with Falls	
with Rapids	
with Multiple Rapids	
Road	
King's Highway	
Secondary Highway	
County, District, Regional road	
Other road	
Access (road of doubtful maintenance or significant driveway)	
Trail, Bush Road, Portage	
Sidewalk *	
Rock	
(Significant)	

Bridge	
Road, Railway	
Footbridge *	
Building	
Large	
Small	
Ruin	
Boundaries, Cadastral Surveys	
International	
Interprovincial	
Line, Surveyed **	
unsurveyed **	
Lot, Concession (approximate position) *	
*Hecont (1: 20 000 only)	
Park	
Road Allowance **	
Township, District, Indian Reserve, surveyed	
Township, projected	
Chimney	
Cliff, Pit, Pile	
Contour	
Approximate	
Depression	
Interpolated	
Control	
Horizontal	
Vertical	
Culvert	
Dam	
Large	
Small (Beaver)	
Stream, Canal	
approximate, seasonal	
Direction of flow	
Spot Elevation	
(Lake Elevation)	
Wooded Area	

Contour interval = 5 metres  
Scale: 1 cm = 100 metres  
North is up

\* See also Figure 5. (page 13) for Legend.

**Prospect 1 Sausage Lake** Figure 12, Thin Section, Polished Tiles.

**Location:** Laurier Township, Con 8, Lots 25,26  
NTS 31 E/14 OBM 10 17 6300 50900

**Access:** About 6 km east of Trout Creek along a ridge 100 m north of the road and 300 m past the east access road to Sausage Lake.

**Status:** Crown land

**Description:** A well-exposed 400 m ridge of outcrops extending to a rock cliff 25 m high at east end next to a swamp, scattered blocks to 50 tonnes. Coarse megacrystic gabbroic anorthosite grades eastward into a porphyritic monzodiorite at the cliff with faulting along the transition. Both lithologies yeild attractive polished tiles.

**Rock Types:** Gabbroic anorthosite, porphyritic monzodiorite

**Mineralogy:** Gabbroic anorthosite: plagioclase (85%), hornblende (5%), quartz (5%), biotite (5%), magnetite (~1%).  
Monzodiorite: plagioclase (70%), K-feldspar (10%), hornblende (15%), quartz (5%), magnetite (~1%).

**Texture:** Porphyroblastic, porphyritic, cataclastic, coarse grained (.5-2 cm), inequigranular, subhedral, massive.

**Colour:** Gabbroic anorthosite: purple-brown with green schiller.  
Monzodiorite: variegated reddish-grey and black.

**Structure:** Irregular limited to moderate jointing: strike 70°, dip 76°W and strike 50°, dip 90°.

**Positive**

**Features:** Large block potential for two unique and attractive rock types which yeild good polished finishes; good access, relief, and quarriability, large volume; large loose blocks on site for test processing.

**Negative**

**Features:** Irregular fracturing in porphyritic monzodiorite may be fault related and extend to depth, however, some of the fractures annealed by quartz.

**Note:** Photo 1 - Gabbroic anorthosite, Photo 2 - Porphyritic monzodiorite.



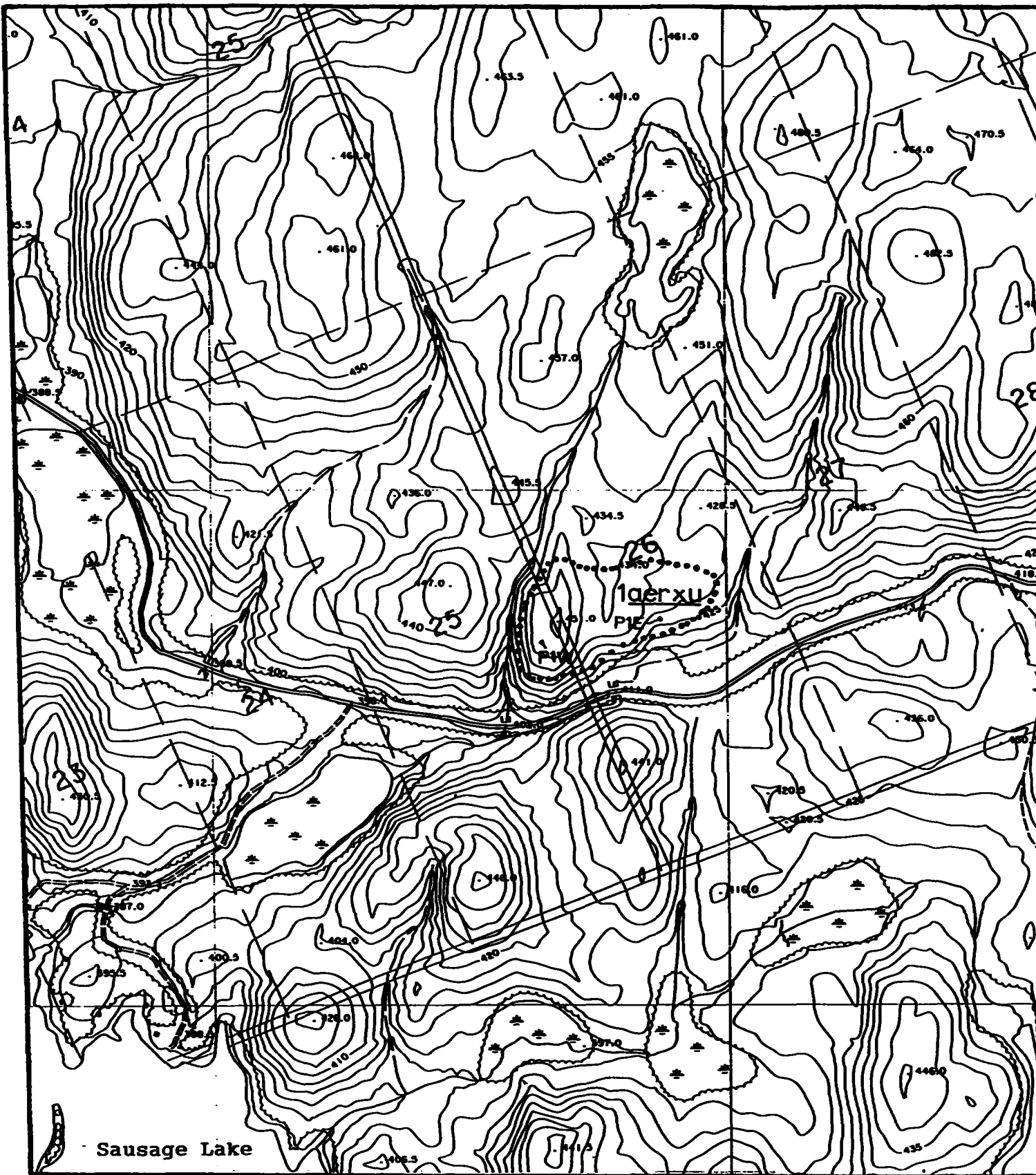


Figure 12. Prospect 1 - Sausage Lake.

**Prospect 2 Falby Lake Figure 13, Thin Section, Polished Tiles.**

**Location:** Chapman Township, Con 11, Lots 14,15  
NTS 31 E/12 OBM 20 17 6100 50600

**Access:** From Hwy 11 west along Hwy 124, turn north 2 km west of Pearceley for 2.5 km, turn west to end of concession road, follow trail west to top of ridge.

**Status:** Crown land, access through private lots.

**Description:** Scattered outcrops of gneissic granite displaying pegmatitic, graphic textured, ptygmatic, and cloudy patterned phases. Contorted recumbent folding mixed with regular planar gneiss in attractively patterned pink and grey colorations with well-blended textural variations and subtle rheomorphic veining. Dispersed fine to medium grained mauve garnet and fine disseminated sparkling magnetite. Polished tiles have a soft nebulous appearance. Medium block potential (10 tonne).

**Rock Type:** Granite gneiss

**Mineralogy:** Plagioclase (35%), orthoclase (25%), quartz (20%), hornblende (15%), biotite (5%), apatite (~1%), sphene (~1%), magnetite (~1%), garnet (~1%).

**Texture:** Gneissic, migmatitic, granoblastic, seriate, polygonal, graphic, generally medium grained (.5-1.5 mm).

**Colour:** Pink with wispy biotite (black) and flecks of reddish garnet and hematitic feldspar.

**Structure:** Weak gneissic foliation, migmatitic, ptygmatic, veinitic, convoluted recumbent folding. Gneissosity strikes  $348^{\circ}$ , dips  $74^{\circ}\text{W}$ . Jointing is irregular and limited to moderate at  $335^{\circ}/90^{\circ}$ ,  $19^{\circ}/90^{\circ}$ ,  $331^{\circ}/90^{\circ}$ .

**Positive**

**Features:** A good architectural stone prospect with good relief, access, and quarriability. Large potential reserves and abundant loose blocks.

**Negative**

**Features:** Irregular jointing and pegmatitic pods and lenses. Road construction may be costly.

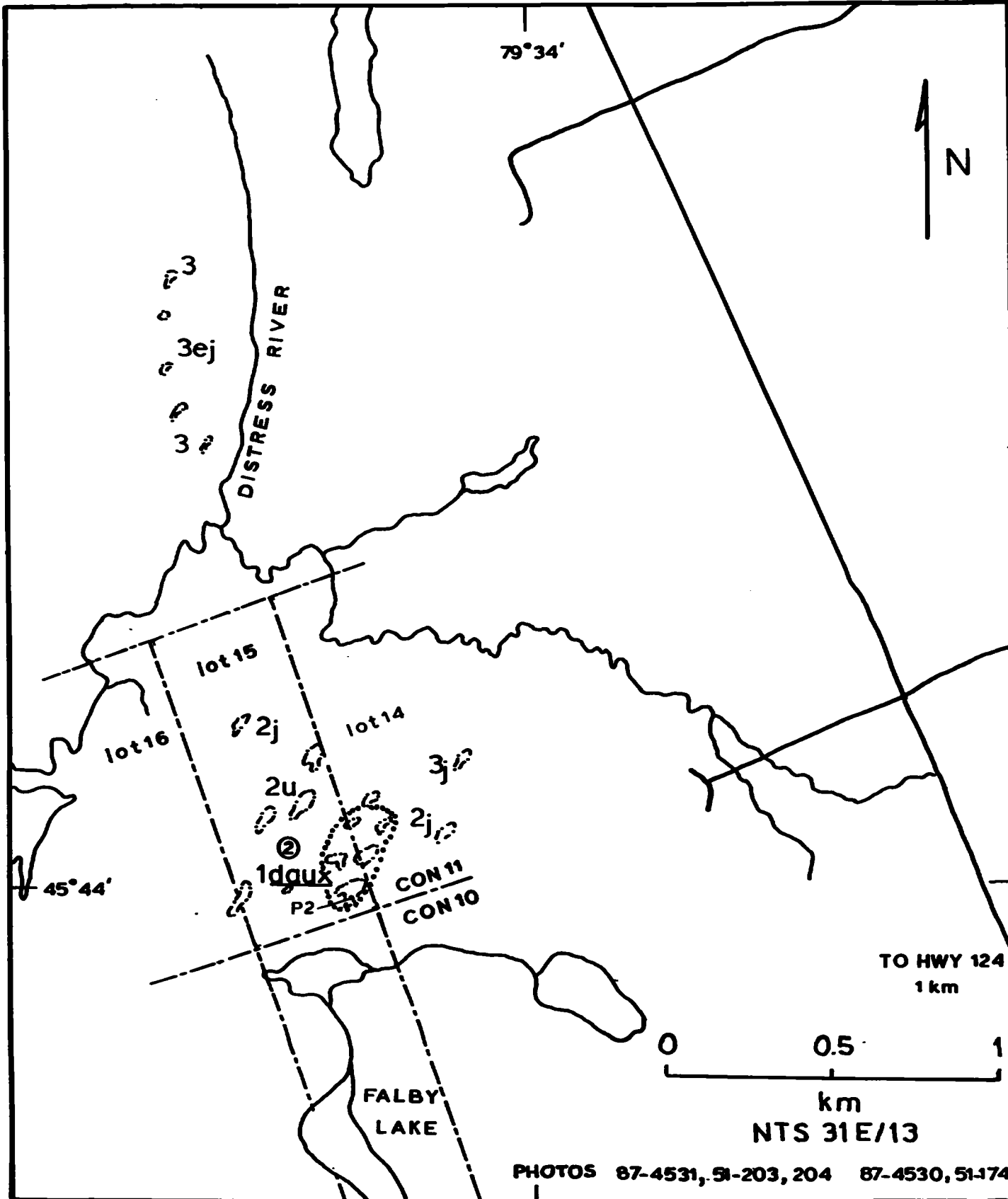


Figure 13. Prospect 2 - Falby Lake.

**Prospect 3** Distress River Figure 14, Thin Section, Polished Tiles.

**Location:** Chapman Township Con 14, Lots 10,11  
 Lount Township Con 1, Lot 10  
 NTS 31 E/13 OBM 20 17 6100 50600

**Access:** From Hwy 11 west along Hwy 124, turn north 2 km west of Pearceley for 5 km, turn east at Chapman Township limits, main outcrops along north side of road.

**Status:** Crown land, outcrops extend onto private lots.

**Description:** Moderately to intensely jointed and terraced exposures of 10-25 metres relief over an area of 1-2 hectares occur at the best sites along the township limits, in places some quarry blocks up to 2x2x2 metres may be extractable. Lithological variations display patterns and colours which blend gradationally and at least two types of dimensional stone could be quarried. The prospect appears to be part of the gneissic complex which also occurs at Falby Lake (Prospect 2).

**Rock Types:** Granitic migmatite, meta-arkose.

**Mineralogy:** Granitic migmatite: K-feldspar (35%), plagioclase (30%), quartz (15%), biotite (15%), hornblende (7%), magnetite (1%), sphene (1%), garnet (1%).  
 Meta-arkose: K-feldspar (40%), plagioclase (32%), quartz (18%), biotite+chlorite (8%), magnetite (1-2%), garnet (1%).

**Texture:** Granitic migmatite is well-banded and planar in alternating fine and coarse bands of variable thickness with local contortions and pegmatitic lenses. Meta-arkose is weakly migmatitic with diffuse swirls and cloudy streaks of disseminated phyllosilicates.

**Colour:** Migmatite displays alternating pink and grey bands with a predominance of darker finer grained plagioclase-biotite-hornblende bands over coarser K-feldspar-quartz bands, colour index varies from 10-35. Meta-arkose is a soft pink with subtle swirls of darker, sparkling schlieritic material.

**Structure:** Gneissosity is variable, gently dipping to sub-horizontal; migmatitic banding is variably developed with some boudinage, local mafic inclusions, and diffuse veinitic injections of leucogranite and pegmatite. Jointing is irregular and intense to moderate at 54°/71°N (1.5 m spaced), 93°/90° (.1-2 m spaced), 143°/90° (variable), and sub-horizontal sheeting (52°/8°N).

**Positive**

**Features:** Good access, some medium to large block potential, crown land, two attractive and distinct lithologies, very good quarriability, minor road building required.

**Negative**

**Features:** Meta-arkose appears to be deeply weathered in places, areas of intense jointing decrease recovery and increase potential waste, mafic inclusions and pegmatitic lenses.

**Comments:** Further exploration to the north in Lount Township may yeild areas of lower joint density and more favourable litholigical uniformity.

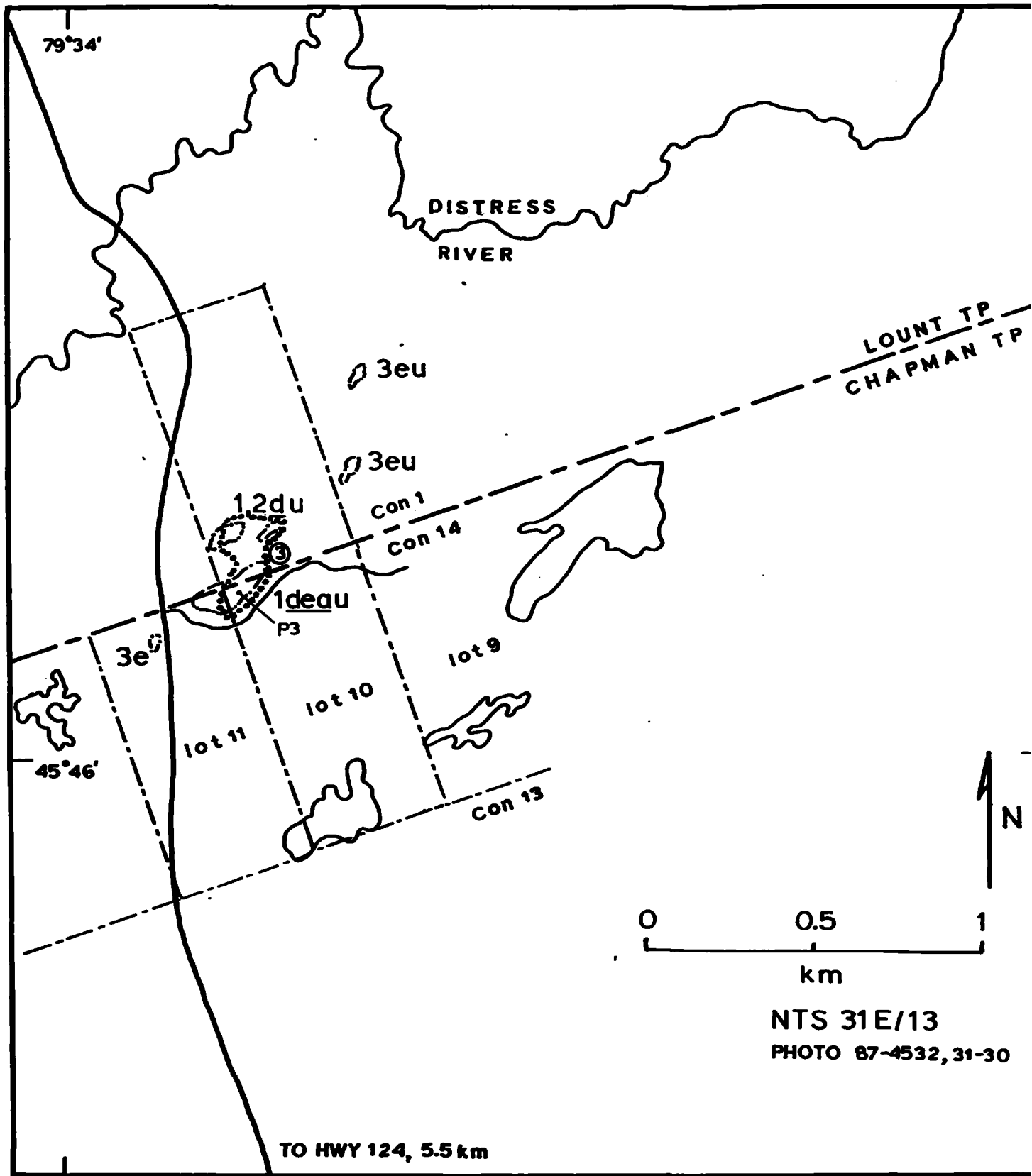


Figure 14. Prospect 3 - Distress River.

**Prospect 4** Midlothian Figure 15, Thin Section, Polished Tiles.

**Location:** Ryerson Township, Con 10, Lot 33  
NTS 32 E/12 OBM 10 17 6050 50450

**Access:** From Hwy 11 at Burk's Falls west along Hwy 520 for 3 km, continue west at Wisemans Corners along concession road for 12 km past Midlothian to left gravelled fork leading up hill to outcrops on the south side.

**Status:** Crown land along road allowance.

**Description:** A hill of rounded outcrops of about 20 metres relief occurs in the north half of lot 33. Heavy lichen cover, exfoliated, dense, very tough, migmatitic mafic orthogneiss. Overburden cover is generally thin and local blocks are up to 20 tonnes. Jointing density is difficult to assess but appears to be moderate. Though of somewhat sombre appearance, polished tiles exhibit a dignified complexity and conservatism.

**Rock Type:** Migmatitic diorite

**Mineralogy:** Plagioclase (45%), orthopyroxene (20%), hornblende (20%), quartz (5%), garnet (10%), opaques (~1%).

**Texture:** Granoblastic, migmatitic, garnet porphyroblasts (.5-7cm), medium grained matrix (2mm), weakly gneissic, relict dioritic texture, inequigranular interlobate.

**Colour:** Mottled brown-black with red highlights and contrasting bold white veining.

**Structure:** Foliation  $160^{\circ}/90^{\circ}$ , quartz-feldspar veining .5-10cm wide along foliation and as discordant thin chevron and syntactically folded veinlets. Jointing strikes  $60^{\circ}, 34^{\circ}, 40^{\circ}$  and dips subvertically.

**Positive**

**Features:** Very tough stone, good access, quarriability, and volume; unique classical appearance.

**Negative**

**Features:** Brown patchy discoloration observed in polished tiles may extend to depth, joint density difficult to assess, proximity to private residences, dark appearance may limit architectural applications.

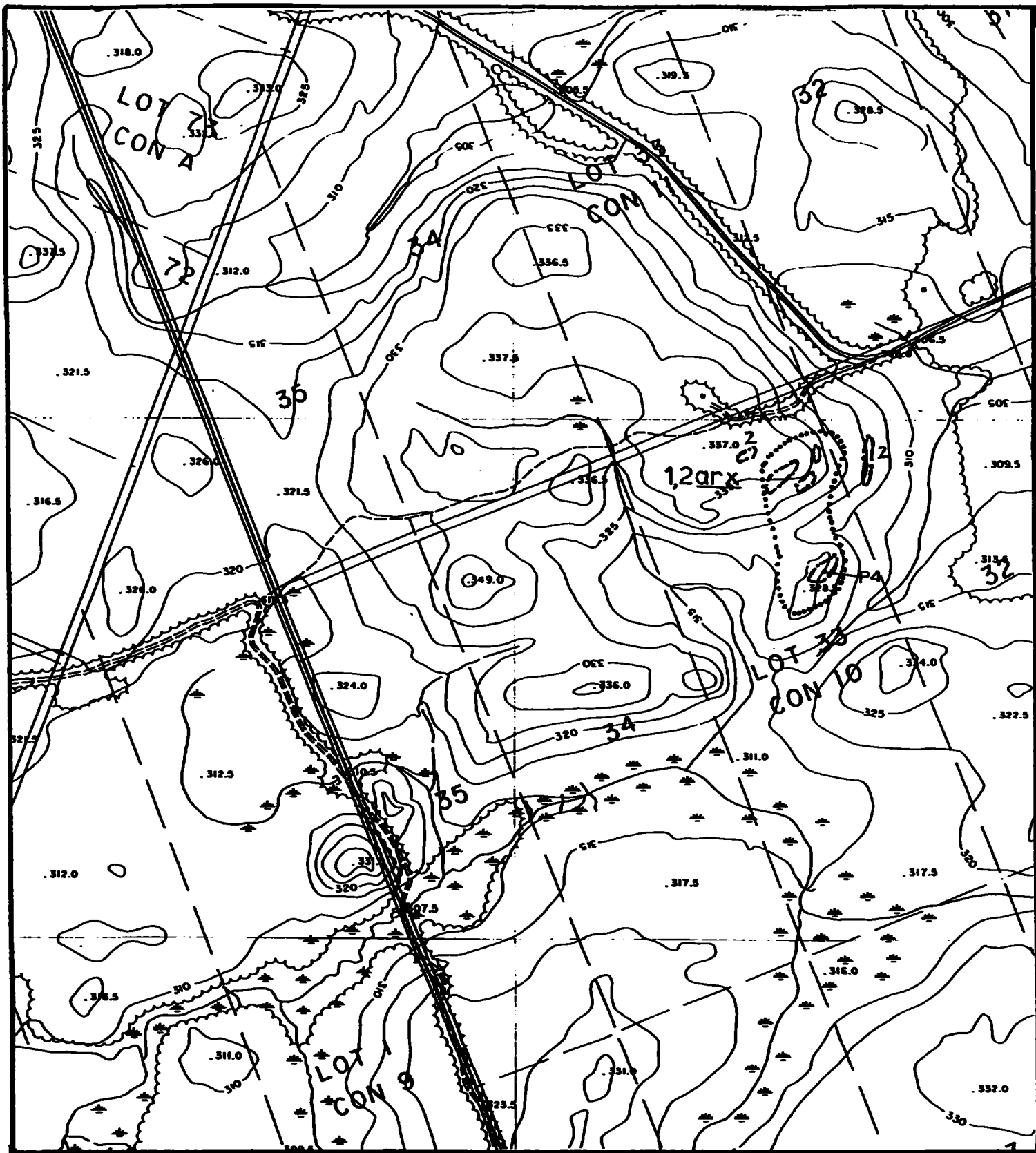


Figure 15. Prospect 4 - Midlothian.



**Prospect 5 Bray Lake Figure 16, Thin Section**

**Location:** Machar Township, Con 10, Lot 1  
NTS 31 E/14 OBM 10 17 6200 50800,50850

**Access:** From Hwy 11 6 km north of South River turn west along Goreville Road for 1.5 km to logging road running north for a distance of about 1.5 km to outcrops along a ridge of about 30 metres relief and 600 metres length.

**Status:** Crown land

**Description:** A distinctive and homogenous hornblende porphyroblastic pink granite is well-exposed at a 30 metre cliff with fallen blocks to 20 tonnes at the base. This rock also occurs in road cuts on Hwy 11 to the east and at several locations to the north and northeast of the prospect. Minor pegmatite occurs as small lenses and veins which blend in with overall coloration and subgneissic fabric. The stone's rough surface is quite attractive at a distance and should yield a unique and pleasing polished surface.

**Rock Type:** Gneissic hornblende granite

**Mineralogy:** Plagioclase (35%), Microcline (30%), quartz (10%), hornblende (18%), biotite (2%), garnet (3%), sphene (1%), apatite (1%).

**Texture:** Subhedral platy hornblende porphyroblasts and poikiloblasts (.5-2cm) in fine to medium grained seriate polygonal matrix with an even granoblastic fabric, weakly gneissic with ovoid and flame-like coarsely crystalline black sparkling hornblende.

**Colour:** Salmon pink creamy toned matrix with a random snowflake pattern of sparkling black hornblende megacrysts.

**Structure:** Subgneissic, foliated, weakly lineated with an overall massive appearance. Joint density is moderate to low with good potential for large quarry blocks, joint directions are variable, subvertical and mostly surficial.

**Positive**

**Features:** Good access and quarriability, attractive uniform appearance.

**Negative**

**Features:** Some pitted rusty weathering of mafic minerals.

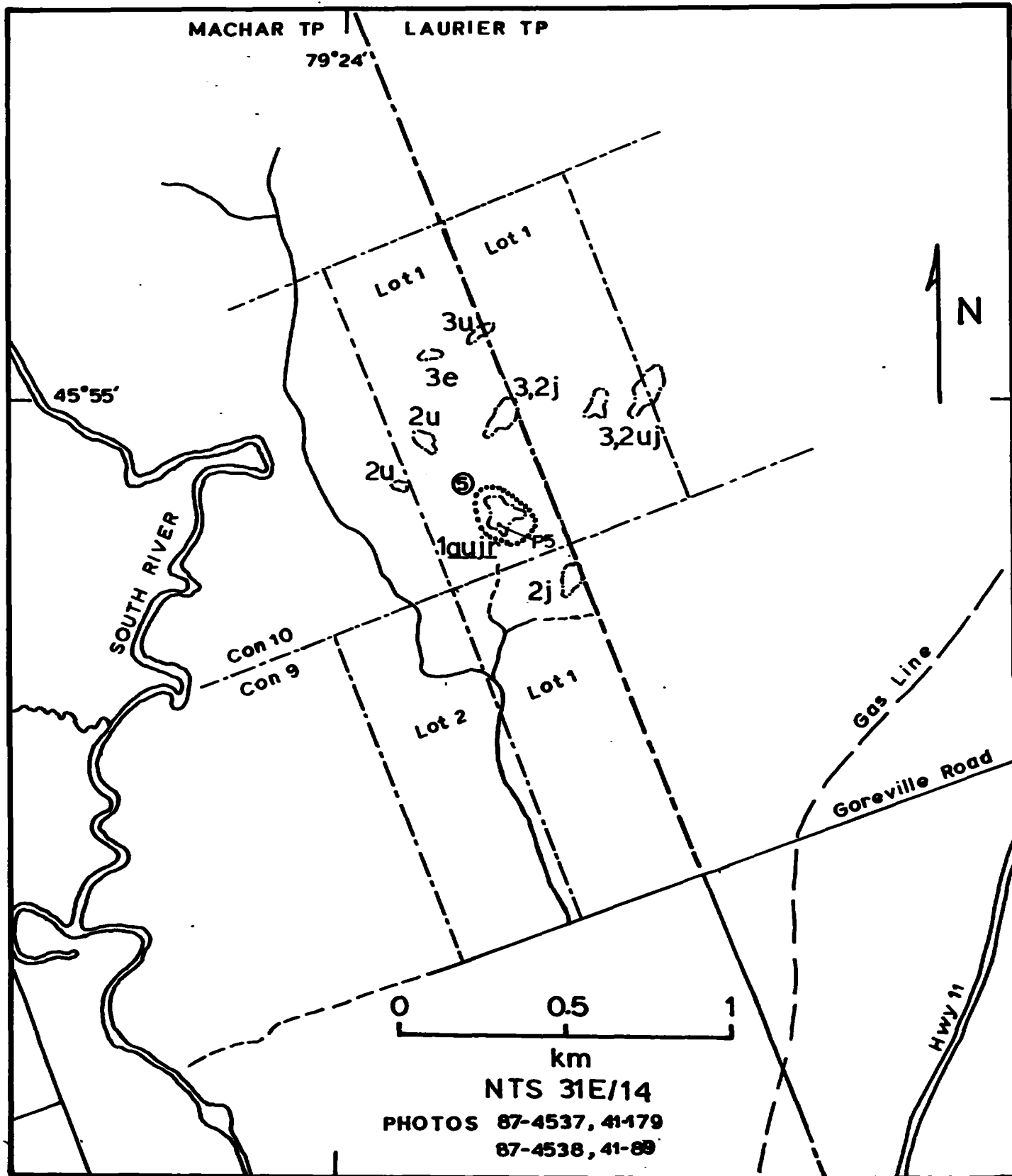


Figure 16. Prospect 5 - Bray Lake.

**Prospect 6 Cripple Creek Figure 17, Thin Section**

**Location:** McCraney Township, Con 9, Lots 8,9; Con 8, Lot 9  
NTS 31 E/10, 31 E/11 OBM 10 17 6550 50500

**Access:** From Hwy 11 to Hwy 518 past Kearney east for about 22 km to  $\frac{1}{2}$  km past Round Lake to a 1 km long ridge of flaggy granitic gneiss.

**Status:** Crown land along road into Algonquin Park.

**Description:** Along the north side of the road and about 100 metres from it, a series of steep to overhanging rock scarps dips to the northeast and is well-exposed over about 1km. Rock is variably flaggy, well-layered, and fissile with parallel ribbon lineation in areas of intense shearing. The stone can be split into thicknesses of about 2-10cm and is similar in appearance to stone from the McBride and Mill Lake quarries but has a subtle variety of coloration and fabric which make it distinct. Relief of 30 metres from road level.

**Rock Type:** Granitic gneiss

**Mineralogy:** Microcline (45%), plagioclase (20%), quartz (25%), biotite (7%), muscovite (3%), sphene+magnetite (~1%).

**Texture:** Inequigranular, polygonal fine grained (less than 1mm) granoblastic matrix with scattered porphyroblasts of feldspar and quartz in ovoid to lensoid shapes (2-10mm).

**Colour:** Orange pink with streaky grey biotitic ribbons, finely sparkling sugary surface.

**Structure:** Strongly sheared thrust; foliated and gneissic with variable fissility and lineation along strike. Jointing is irregular and low to moderate with some potential for medium size quarry blocks from less fissile faces. Foliation and layering at  $333^{\circ}/45-50^{\circ}\text{NE}$ .

**Positive**

**Features:** Multiple face development is possible, good access, amenable to light blasting, attractive subtle variations of colour and fabric, good splitting qualities, similar to popular flagstone being marketed.

**Negative**

**Features:** Some areas of deep weathering along foliation planes were observed. Proximity to Algonquin Park (~6km).

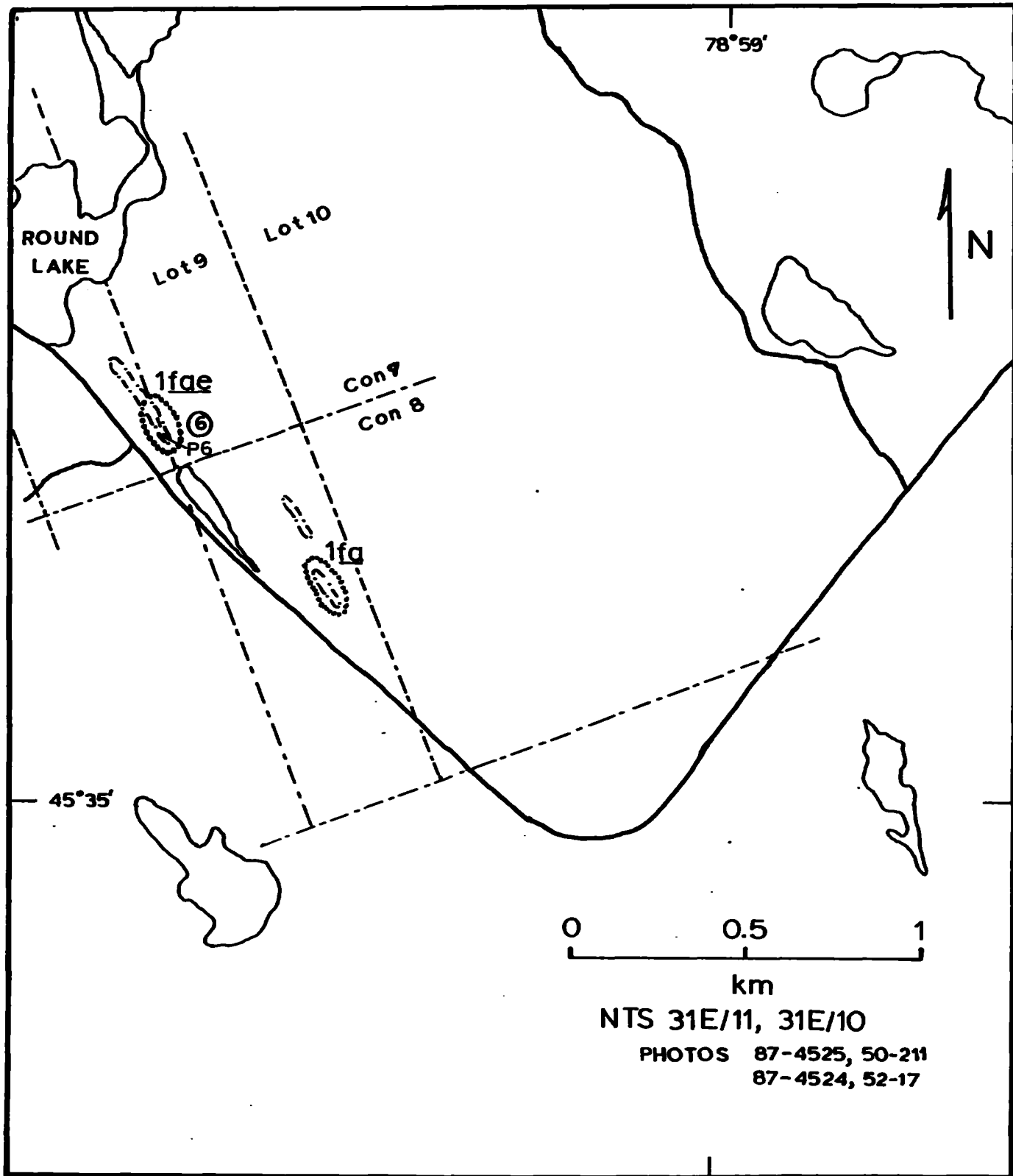


Figure 17. Prospect 6 - Cripple Creek.

**Prospect 7** Dead Horse Lake Figure 18, Thin Section**Location:** Paxton Township

NTS: 31 E/14 OBM: 10 17 6400 50750

**Access:** Approximately 20 km east of Sundridge at a prominent road-side exposure about 50 m north of the road and somewhat obscured by vegetation. Some fill-in required for access by heavy equipment.**Status:** Crown land, unsubdivided.**Description:** A well-exposed 25 metre, flat-topped cliff of steeply south dipping, prominently layered grey gneiss about 200 metres in length with subtle, well-blended lithologic variations according to percentages of felsic silicates and intercalated thin pegmatitic horizons. The main outcrop has a thick slaty appearance and yields moderately difficult splitting flags generally over 5 cm in thickness with attractive rough, undulose surfaces with a stately and tranquil coloration that is combined with a subdued but lively schistose lustre.**Rock Type:** Psammitic biotite gneiss**Mineralogy:** Plagioclase (45%), K-feldspar (25%), quartz (10%), biotite (15%), hornblende (~5%), magnetite (~1%), sphene (trace), apatite (trace).**Texture:** Foliated, planar, gneissic, schistose, granoblastic, sub-centimetre banding, prophyroblastic plagioclase to 3 mm, seriate to equigranular, polygonal, fine grained recrystallized groundmass (less than 1 mm), granular streaky foliation, small scale augen.**Colour:** Grey sparkling with soft pinkish tones in the lineation, reddish-pink coarser leucocratic veins, fine red flecks of hematitic feldspar.**Structure:** Gneissosity strikes  $52^{\circ}$ , dips  $68^{\circ}$  south, down-dip ribbon lineation, well layered. Joints: regular to variable and moderate with some curvilinear fractures, prominent joints strike  $138^{\circ}$ , dip  $83^{\circ}$  east at 1 metre spacing.**Positive****Features:** Preliminary reserves estimated on order of 500,000 tonnes, large slab potential or quarry blocks for dimensional stone (.5m x 1m x 1m), suitable for institutional applications, amenable to light blasting and ease of extraction, excellent access and large potential volume of flagstone.**Negative****Features:** Some discoloration and oxidation of iron in foliation planes with development of structural weakness.

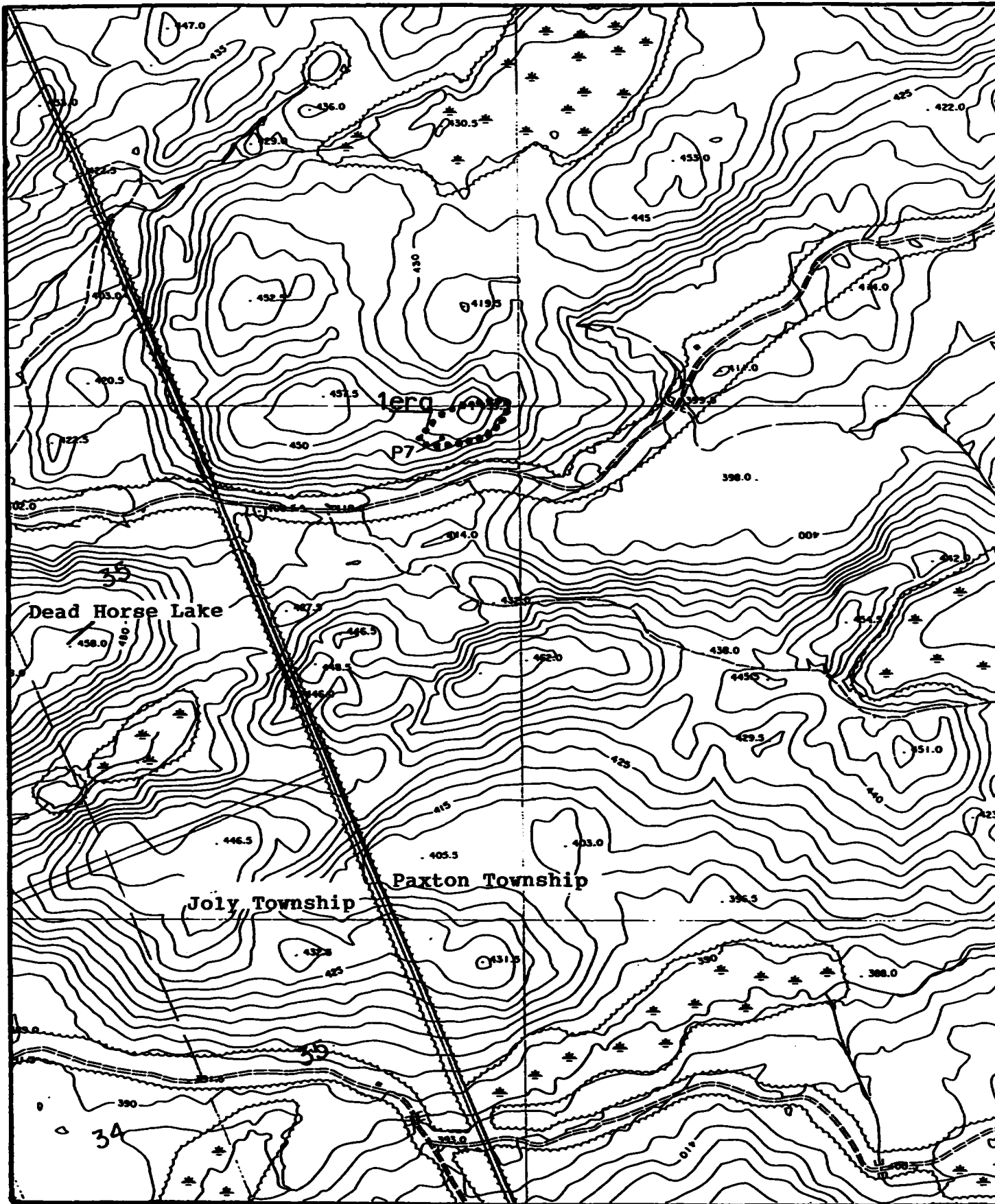


Figure 18. Prospect 7 - Dead Horse Lake.

**Prospect 8 Barre Lake Figure 19**

**Location:** Bethune Township, Con 11, Lots 32,33; Con 10 Lot 34  
NTS 31 E/11 OBM 10 17 6500 50500

**Access:** From Hwy 11 to Hwy 518 past Kearney east for about 15 km to outcrops along the north side of the road at Barre Lake.

**Status:** Crown land

**Description:** Pink, grey, and white massive to foliated rocks are sparsely exposed on the side of a steep 20 metre ridge with generally thin overburden cover. In lot 32 a fine grained, massive, sugary, and garnetiferous aplite of soft pale pink colour has limited jointing and exhibits high strength and durability where subjected to explosives for road building. Further east in lots 33,34 outcrops of foliated white and grey granitic paragneiss also display some potential for dimensional stone.

**Rock Types:** Aplite, granitic paragneiss

**Mineralogy:** Aplite: K-feldspar (65%), quartz (30%), garnet (5%).  
Granitic paragneiss: Plagioclase (55%), microcline (10%), quartz (20%), hornblende (5%), biotite (5%), garnet (5%).

**Texture:** Aplite: fine grained equigranular polygonal matrix with rounded porphyroblasts of quartz and garnet (to 2mm); sugary, recrystallized, tough, durable fabric.  
Granitic paragneiss: gneissic, thinly banded, granoblastic, seriate, interlobate, medium grained.

**Colour:** Aplite: Pink, soft even creamy tone flecked with resinous deep maroon garnets.  
Granitic paragneiss: Banded grey to white, flecked with maroon garnets, sparkling lustre.

**Structure:** Aplite is massive and homogenous with limited minor jointing, contains small biotitic mafic xenoliths.  
Granitic paragneiss is foliated with irregular moderate to intense jointing at various orientations.

**Positive**

**Features:** Good access and relief, multiple face development possible for 2 or 3 types of attractive stone.

**Negative**

**Features:** Limited exposure, overburden stripping required to assess potential, some mixing of lithologies on the outcrop scale.

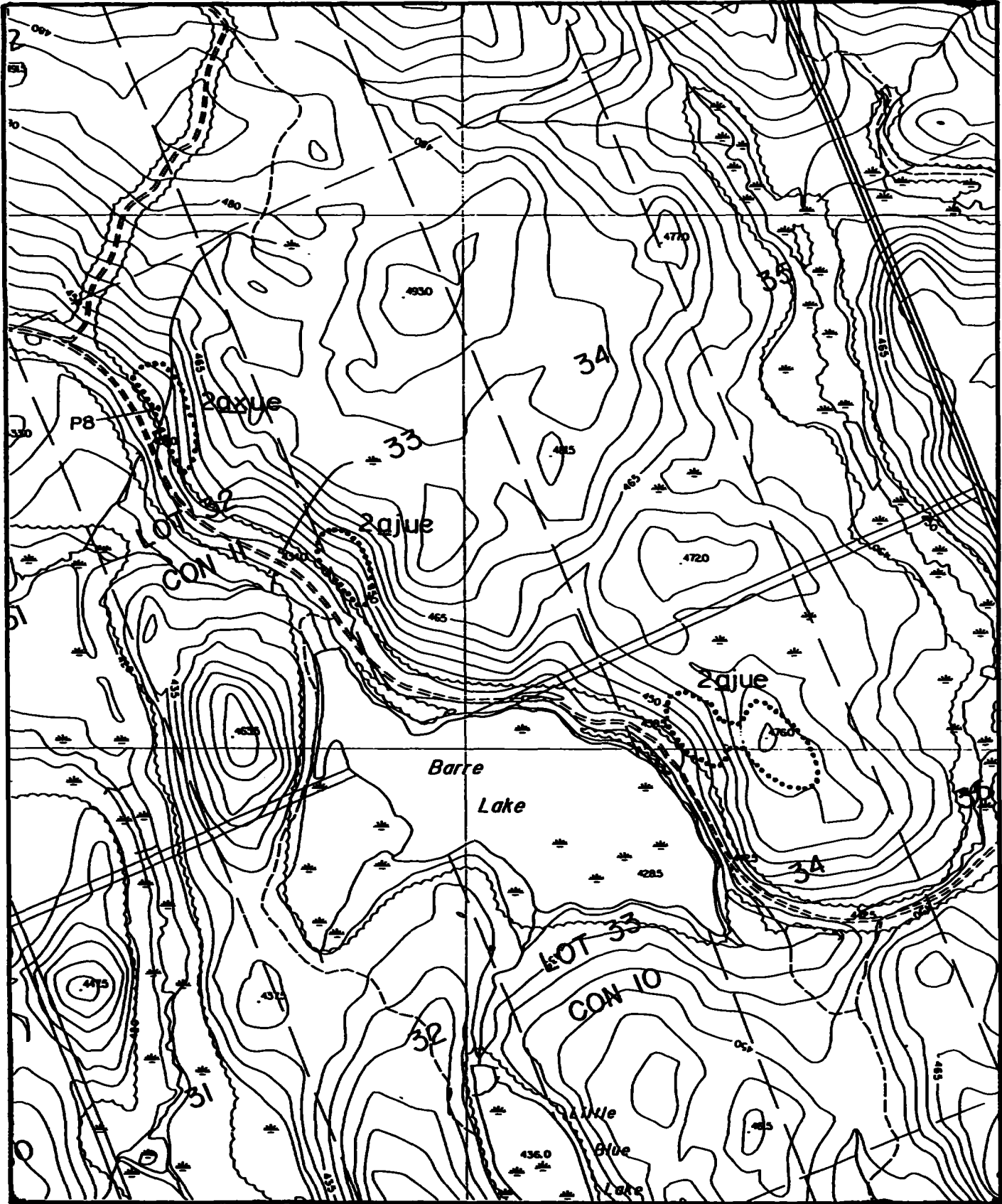


Figure 19. Prospect 8 - Barre Lake.



**Prospect 9 Smith Creek Figure 6**

**Location:** Paxton Township  
NTS 31 E/14

**Access:** Approximately 25 km east of Sundridge past north turn off to Dead Horse Lake in west-central Paxton Township. Outcrops on north side of road on the sides of a rounded hill of several hectares.

**Description:** A pink and grey migmatitic granite gneiss with speckled, streaky, and wispy fabric of mafic minerals is sparsely exposed on the sides of a rounded hill. The rock is weakly banded with a complex and intricate pattern of sheared and recrystallized mafic and felsic components. Jointing is irregular and limited with some potential for medium size quarry blocks. Overburden stripping is required for further assessment, but outcrops exhibit an attractive, uniform, and durable lithology.

**Rock Type:** Migmatitic granite gneiss

**Mineralogy:** Microcline (45%), plagioclase (20%), quartz (20%), hornblende (10%), biotite (5%), magnetite (trace).

**Texture:** Inequigranular, polygonal, foliated, weakly banded, migmatitic; streaky, wispy fabric, granoblastic.

**Colour:** Pink and grey in complex streaky and flecked patterns and swirls of mafic material.

**Structure:** Sheared and migmatized with variable foliation directions. Joints are irregular and limited at 340°/73°E, 40°/90°, 20°/90°, 0°/90°.

**Positive**

**Features:** Good access and relief, large potential volume of dimensional stone or flagstone, attractive subtle colours and patterns, tough and durable stone.

**Negative**

**Features:** Poor exposure, irregular jointing, overburden stripping required for further assessment.

**Prospect 10 Buck River Figure 20**

**Location:** McMurrich Township, Con 9, Lots 6,7  
NTS 31 E/6 OBM 10 17 6200 50350

**Access:** From the sand pit 5 km east of Sprucedale on Hwy 518, proceed south past abandoned railway for about 1 km to a series of low hills along the west side of the Buck River.

**Status:** Lot 7 is Crown land, lot 6 is patented private property.

**Description:** A ridge along the west side of the Buck River has limited outcrop exposure and relief of up to 20 m. Fairly uniform, pink-grey, thinly banded transposed granite gneiss with attractive random boudinage and a wavy wispy fabric was observed in several outcrops. The rock is flecked with deep maroon garnets and is generally tough and durable with some potential for unique dimensional or flagstone quarrying.

**Rock Type:** Granite gneiss

**Mineralogy:** Microcline (35%), plagioclase (25%), quartz (20%), biotite (18%), garnet (2%), magnetite (trace).

**Texture:** Fine grained, thinly parallel banded (1mm-1cm) with subtle wavy and wispy forms, random augen and boudins of quartz and feldspar, highly sheared, sub-fissile, inequigranular, polygonal, recrystallized.

**Colour:** Pink and grey, banded with thin black biotitic layers.

**Structure:** Highly sheared and attenuated but without well-defined rift or grain; gneissic, well-banded, boudined, weakly lineated; regular, moderate jointing with main orientations at 305°/73°S (1m spaced), 28°/90° (~2m spaced).

**Positive**

**Features:** Good relief, attractive lively pattern of colours with coarser grained foliated inclusions; appears to be a fairly tough, durable and uniform stone with some dimensional stone potential.

**Negative**

**Features:** Poor access requiring road building, limited exposure, possibly only limited reserves of good quality stone, part of prospect on private land.

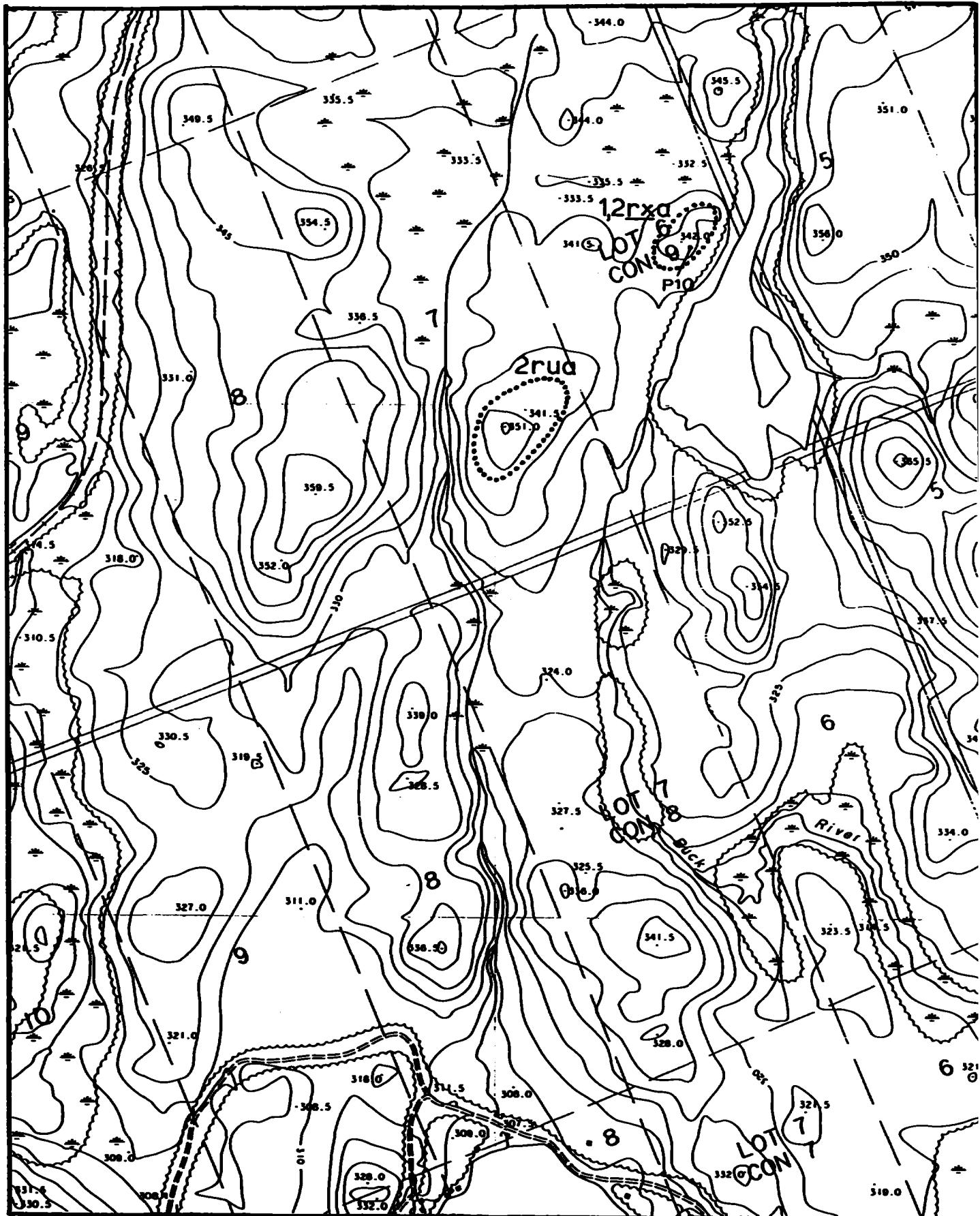


Figure 20. Prospect 10 - Buck River.

**Prospect 11 Loon Lake Figure 21**

**Location:** Paxton Township, Con 9, Lots 7,8; Con 10 Lot 7  
NTS 31 E/11

**Access:** From Burk's Falls east approximately 25 km to turn off north to Loon Lake, proceed about 3 km to outcrops along a series of hills within about 0.5 km of the west side of the road.

**Status:** Crown land

**Description:** Limited scattered outcrops of very attractive grey, white, and pink glomeroporphyroblastic and augen textured orthogneiss. Weakly foliated to massive, brightly coloured and boldly patterned with up to 10% red garnet porphyroblasts. Tough and durable with irregular jointing and variable overburden cover.

**Rock Type:** Tonalitic orthogneiss

**Mineralogy:** Plagioclase (50%), quartz (15-25%), microcline (10-15%), garnet (5-10%), hornblende (5%), biotite (1-10%), magnetite (trace to 1%).

**Texture:** Medium to coarse grained, inequigranular, polygonal, glomeroporphyroblastic, augen textured, granoblastic.

**Colour:** Variegated grey, white, pink with contrasting porphyroblasts in various attractive combinations and subtle patterns.

**Structure:** Weakly foliated and gneissic to massive, migmatitic, irregular and variable jointing with prominent orientation at 154°/90°.

**Positive**

**Features:** Good access, variety of possible test sites, very attractive colorations and patterns, potential for medium size quarry blocks.

**Negative**

**Features:** Limited exposure and variable overburden, irregular and variable jointing and fracturing, proximity to cottages.

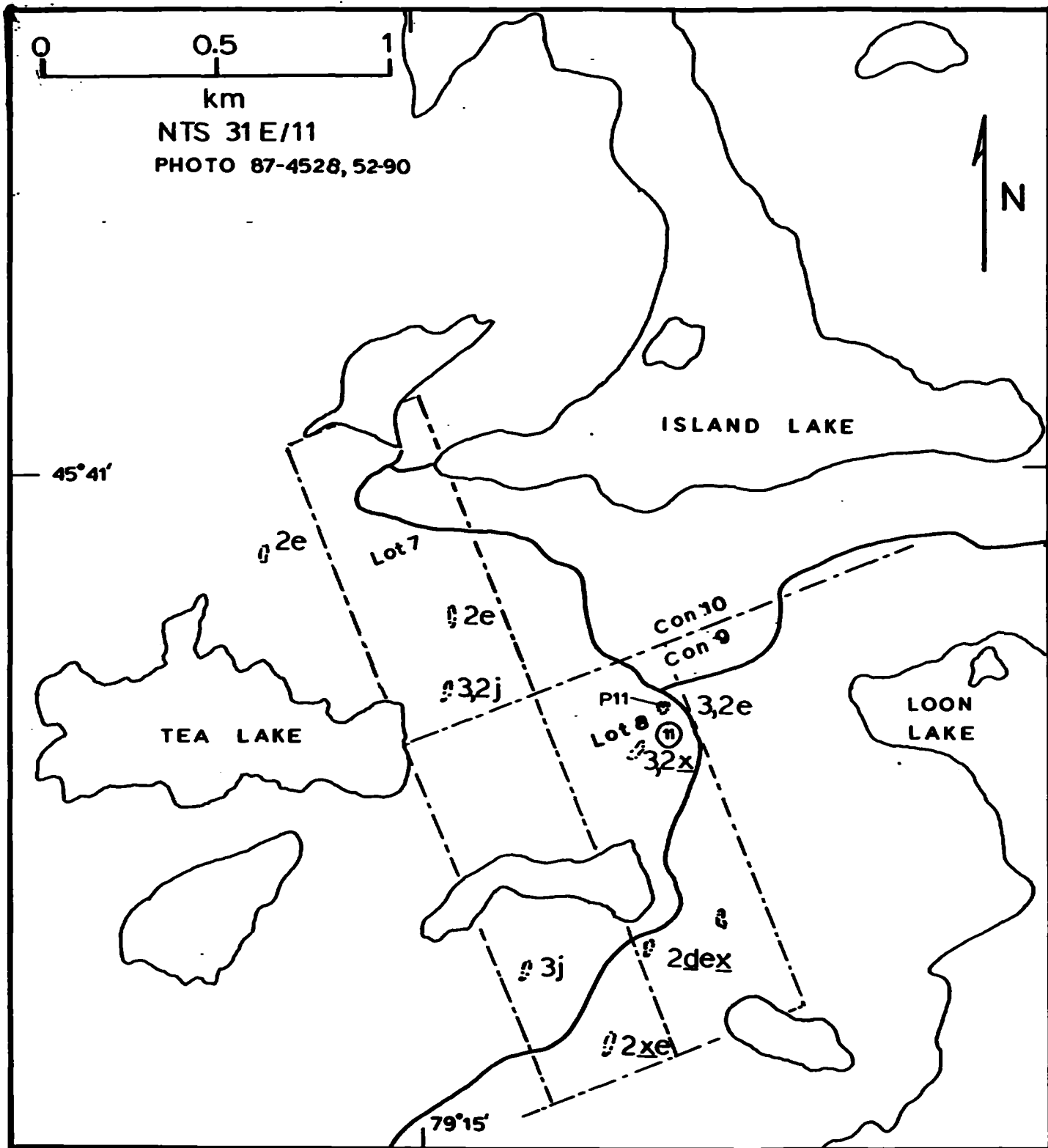


Figure 21. Prospect 11 - Loon Lake.

**Prospect 12 Buck Lake Figure 22**

**Location:** McMurrich Township, Con 3, Lot 7  
NTS 31 E/6 OBM 10 17 6250 50300

**Access:** From Hwy 518 at Sprucedale, south approximately 7 km to Buck Lake turn off, proceed 4 km to forest access road east for 1 km. Low scattered outcrops along road and along low ridges to the north for about  $\frac{1}{2}$  km.

**Status:** Crown land

**Description:** Sheared, flaggy granitic gneiss in scattered low rounded outcrops. Gneissic, banded, and tightly folded pink and grey with garnet porphyroblasts and pegmatitic pods. Moderately to intensely jointed with small local xenoliths and mafic clots. Potential flagstone resource with heavy lichen cover requires further prospecting and stripping.

**Mineralogy:** K-feldspar (35%), plagioclase (30%), quartz (18%), biotite (15%), garnet (2%), magnetite (trace).

**Texture:** Fine to medium grained, inequigranular, polygonal to interlobate; thinly banded delicate fabric, granoblastic, flecked with garnet porphyroblasts (0.2-0.5cm).

**Colour:** Pink and grey with 0.5-2cm biotitic bands.

**Structure:** Gneissic, foliated 65°/45°S, weakly lineated, attractive tight small scale chevron folds, thin pegmatitic lit-par-lit injections; sheared, competent, dense, and tough. Intense to moderate variable jointing with one main set at 67°/90°. Limited variable sheeting and frost heaved surfaces. Also joints at 6°/65°E, 26°/24°S.

**Positive**

**Features:** Good access and possible multiple quarry sites for attractive gneissic flagstone.

**Negative**

**Features:** Limited exposure, intense jointing in places, relatively small volume of reserves. Relief generally less than 8 metres.

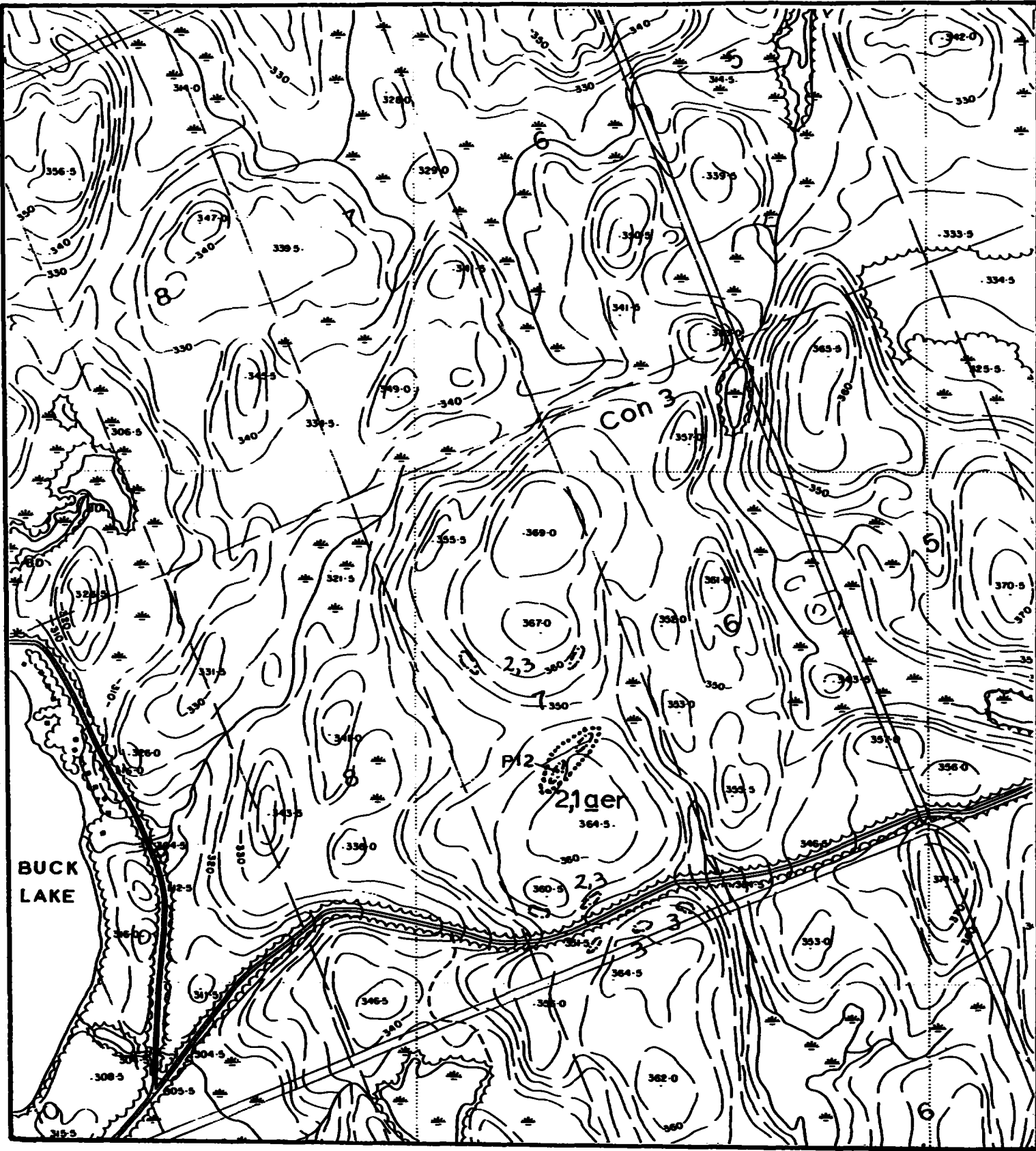


Figure 22. Prospect 12 - Buck Lake.

**Prospect 13 Widgeon Lake Figure 23**

**Location:** Joly Township, Con 1, Lots 11,12; Con 2, Lots 13,14  
NTS 31 E/11 OBM 10 17 6350 50650

**Access:** From Hwy 11 approximately 5 km north of Burk's Falls proceed east along road on Strong and Armour Township limits past Pevensey for 2 km, turn north for 2 km, turn east for 6 km to south turn off to Widgeon Lake. Outcrops are along a 1 km ridge east of the road and north of Widgeon Lake. Also 30 metre rocky slope in Con 2, Lots 13,14.

**Status:** Crown land

**Description:** At Widgeon Lake a well-exposed 1 km ridge with scattered outcrops along both flanks and 30 metres relief. Variable gneissic lithologies, mainly variegated grey, white, pink granitic paragneiss with weathering of up to 10's of centimetres in places. Thin planar banding with schistose layers, variably flaggy with transverse and orthogonal jointing; attractive lithologies with both dimensional and flagstone potential.

**Rock Type:** Granitic paragneiss

**Mineralogy:** Plagioclase (35-45%), K-feldspar (15-25%), quartz (5-10%), biotite (5-10%), garnet (2-10%).

**Texture:** Gneissic, thin planar banding (.2-2cm), weak quartz-feldspar ribbon lineation, garnet porphyroblasts (to .5cm), mafic clots, schistose layers, granoblastic, seriate, interlobate; grain size .1-5 mm.

**Colour:** Variegated grey, white, pink bands with sparkling fine grained biotite schistosity flecked with maroon garnets.

**Structure:** Flaggy in places to banded with moderate cleavage, variable foliation:  $4^{\circ}/68^{\circ}E$  to  $34^{\circ}/86^{\circ}S$ ; irregular limited to moderate jointing, transverse and orthogonal with sets at  $271^{\circ}/90^{\circ}$ ,  $355^{\circ}/90^{\circ}$ ; variable sheeting greater than 70 cm spacing.

**Positive**

**Features:** Good relief, large block potential, attractive coloration and banded patterns; both flagstone and dimensional stone potential; reasonably good access with multiple possible test sites of competent rock with limited to moderate jointing.

**Negative**

**Features:** Variable weathering may extend to depth, variations in lithology and jointing difficult to assess, some strip-ping required.



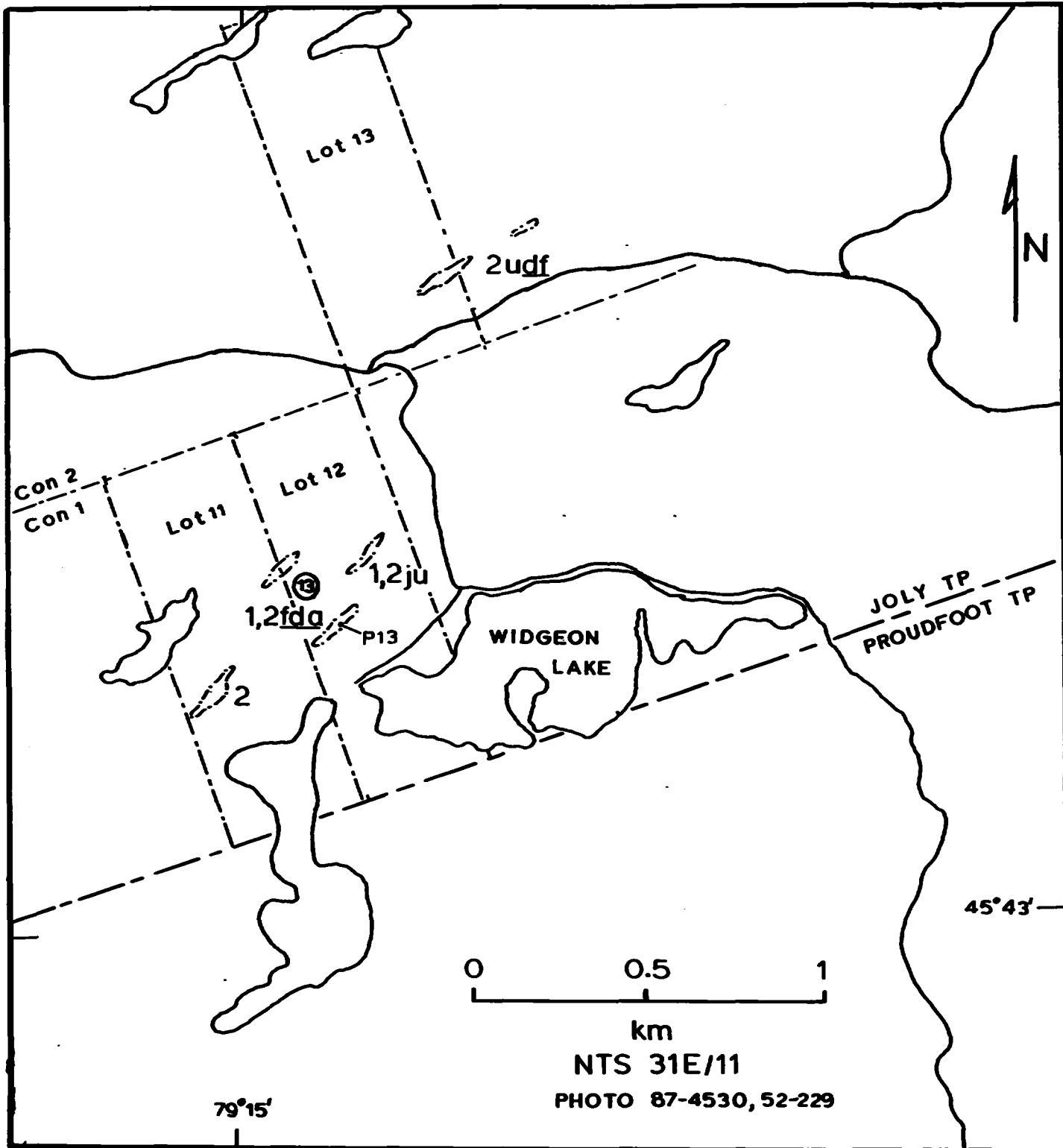


Figure 23. Prospect 13 - Widgeon Lake.

**Prospect 14 Axe Lake Figure 24**

**Location:** McMurrich Township, Con 1, Lots 27,28,29  
NTS 31 E/6 OBM 10 17 6150 50250

**Access:** From Hwy 518, 1.5 km west of Sprucedale proceed south for approximately 10 km to McMurrich Township limits, then west for 2.5 km to outcrops comprising a low hill 300 metres north of Axe Creek; also outcrops 200 metres south of Axe Creek about 400 metres past bridge.

**Status:** Lots 28,29 are Crown land, lot 27 is privately owned.

**Description:** Grey-pink varitextured granitic gneiss with complex marble-like convoluted, veined, and banded patterns; 5-15 metres relief, several 20-tonne loose blocks; swirled pegmatitic injections; durable and competent stone; lively attractive appearance; moderate jointing; mottled with porphyroblastic mafic clots.

**Rock Type:** Granite to tonalite gneiss

**Mineralogy:** Plagioclase (45-50%), microcline (15-25%), quartz (10-15%), biotite (5-10%), hornblende (1-5%), magnetite (~1%).

**Texture:** Migmatitic, gneissic, inequigranular (.1-5mm), interlobate, granoblastic, swirled pegmatitic bands.

**Colour:** Variegated grey and pink contorted bands and swirls flecked with mafic clots.

**Structure:** Variable gneissic fabric averaging  $114^{\circ}/75^{\circ}W$ , migmatitic, contorted banding, regular moderate jointing at  $36^{\circ}/90^{\circ}$ ,  $120^{\circ}/90^{\circ}$  and other less common orientations.

**Positive**

**Features:** Good access, limited jointing, large block potential, loose test blocks, attractive coloration and patterns, tough durable stone, thin overburden, good quarriability.

**Negative**

**Features:** Best exposures on private property, possibly insufficient relief for adequate reserves; some overburden stripping required; high local water table.

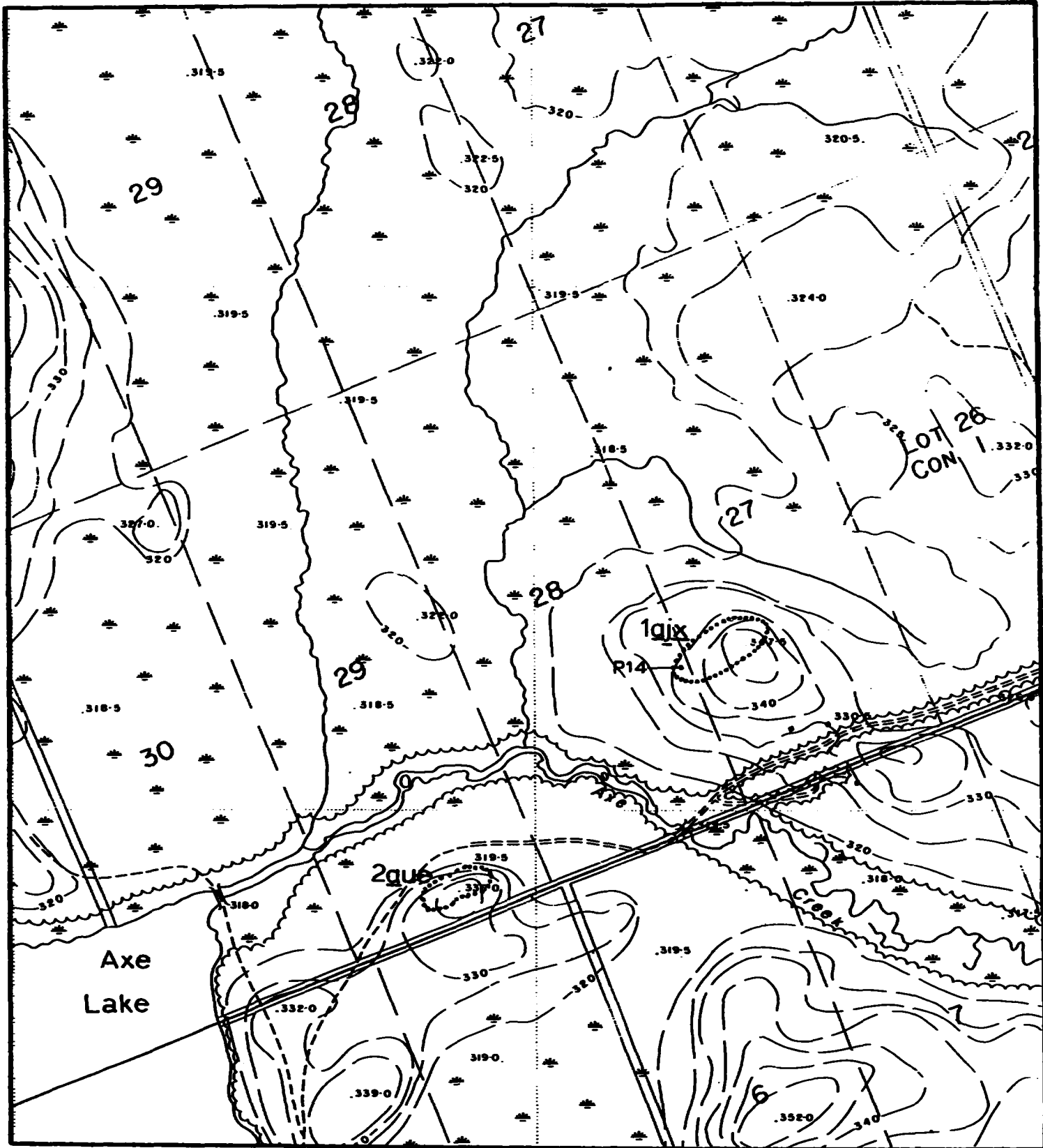


Figure 24. Prospect 14 - Axe Lake.

## CONCLUSIONS AND RECOMMENDATIONS

The project area has a good potential for development of building stone resources and many favourable locations have yet to be thoroughly prospected. A wide variety of commercial-type granites occur in the area and prospects 1 to 5 appear to have the best overall qualities for dimensional stone. Prospects 6 and 7 have good potential for large volumes of flagstone, while the remaining prospects require some additional exploration and sampling to provide better assessments.

Recommended follow-up work on the best prospects includes detailed mapping of lithology, jointing, and fracturing; analysis of potential recovery and size of blocks; test quarrying plans; test block extraction for dimensional stone products; and test marketing of limited volumes of stone through an Aggregate Permit.

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## APPENDIX

### Colour Photographs:

Photo 1. Polished tile - Prospect 1, Sausage Lake West

Photo 2. Polished tile - Prospect 1, Sausage Lake East

Photo 3. Polished tile - Prospect 2, Falby Lake

Photo 4. Polished tile - Prospect 3, Distress River

Photo 5. Polished tile - Prospect 4, Midlothian

Photo 6. Split flagstone - Prospect 7, Dead Horse Lake

\* scale approximately 50% actual size.

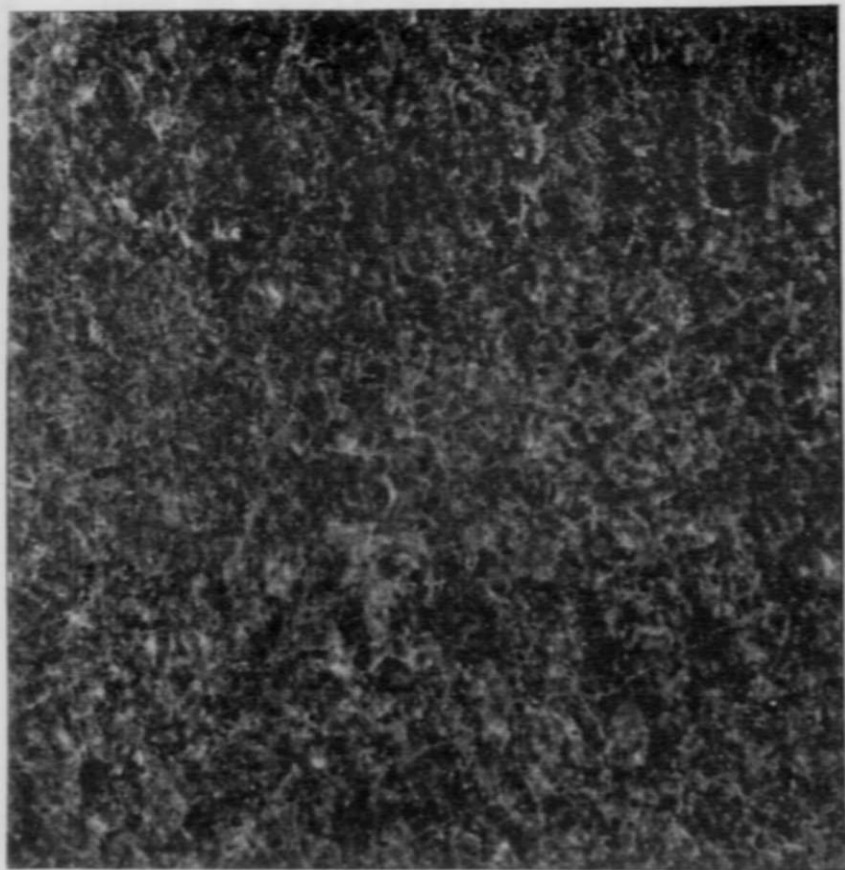


Photo 1

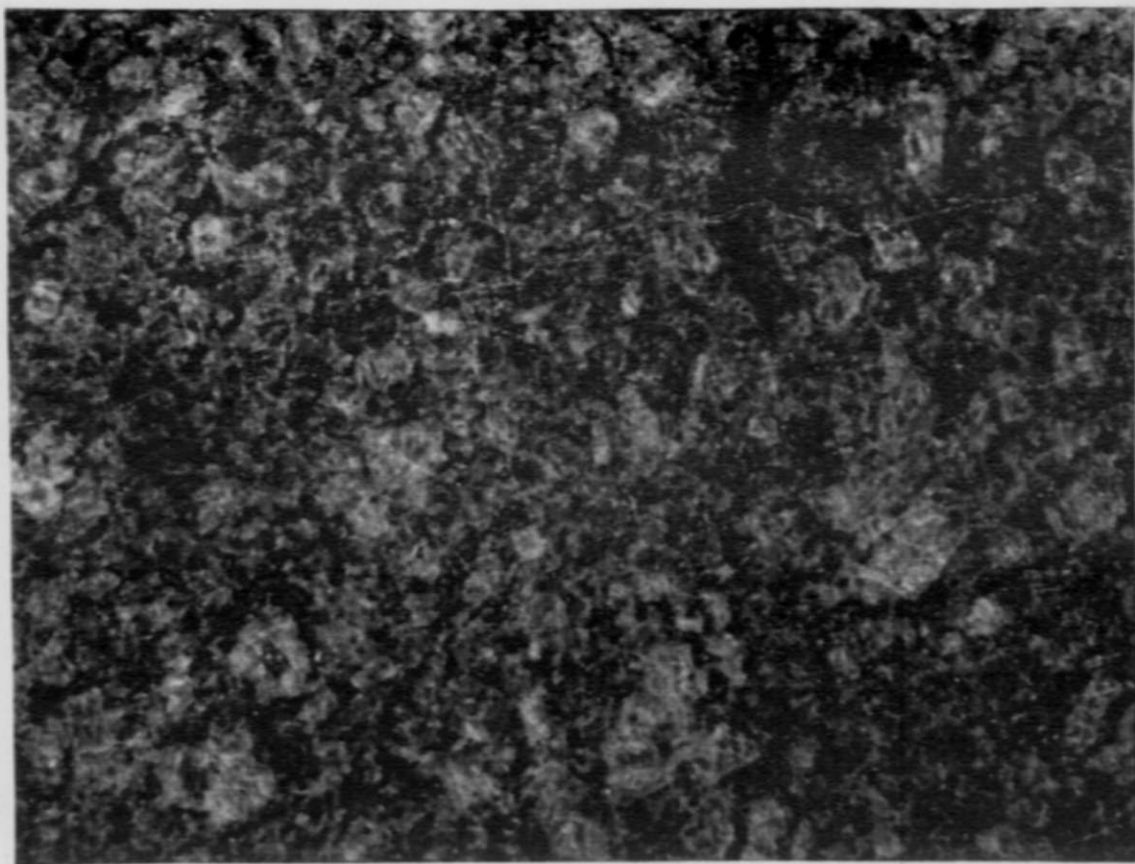


Photo 2

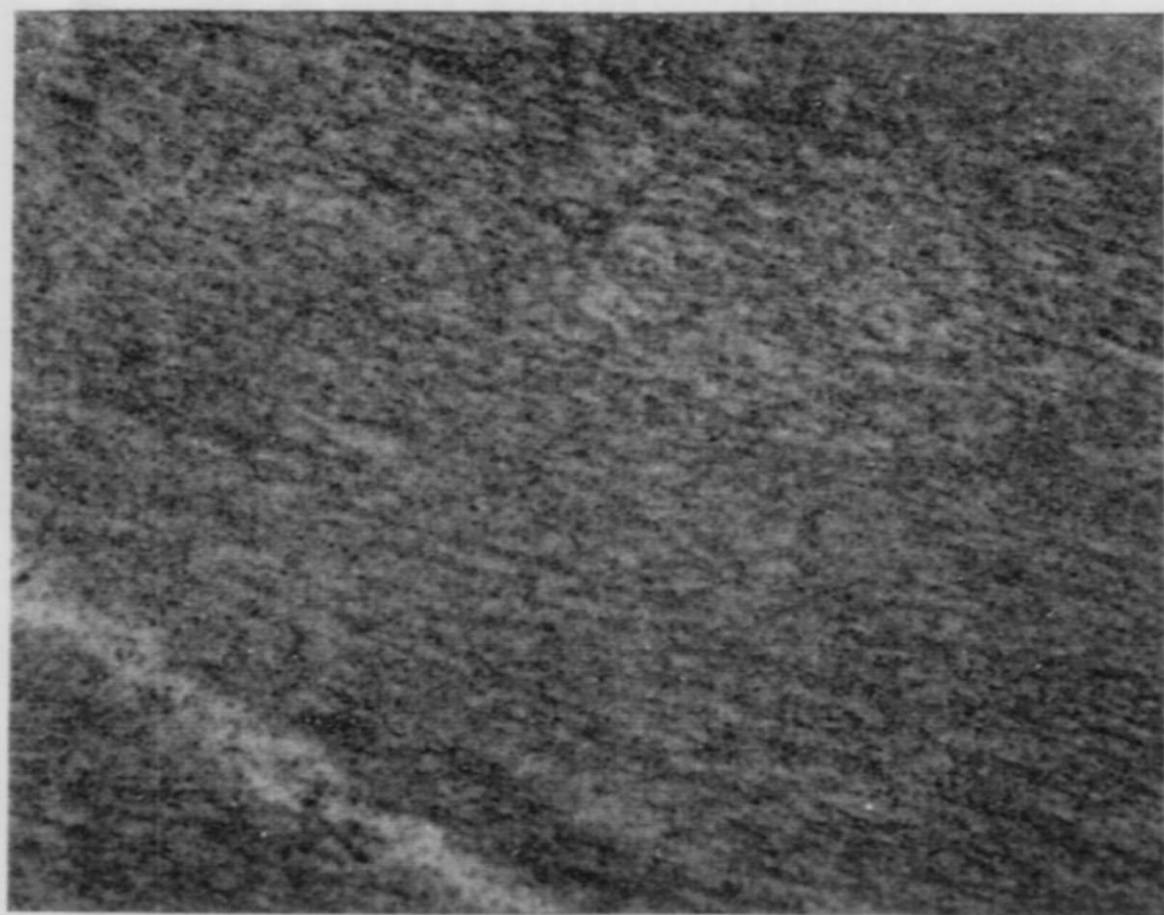


Photo 3



Photo 4

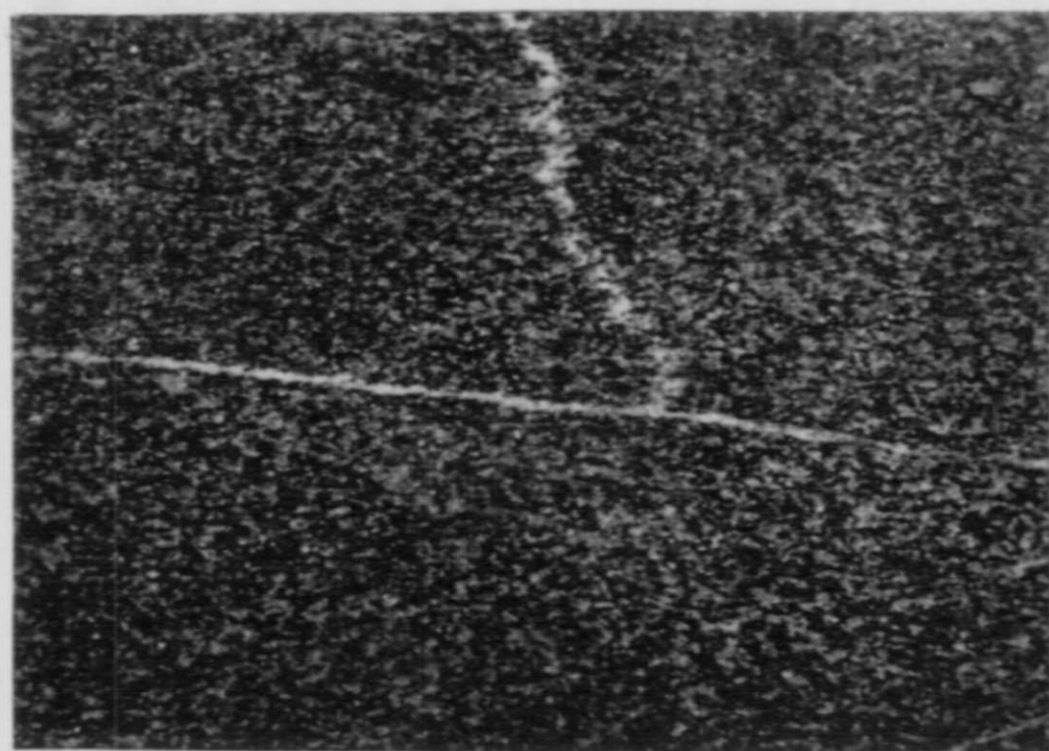


Photo 5

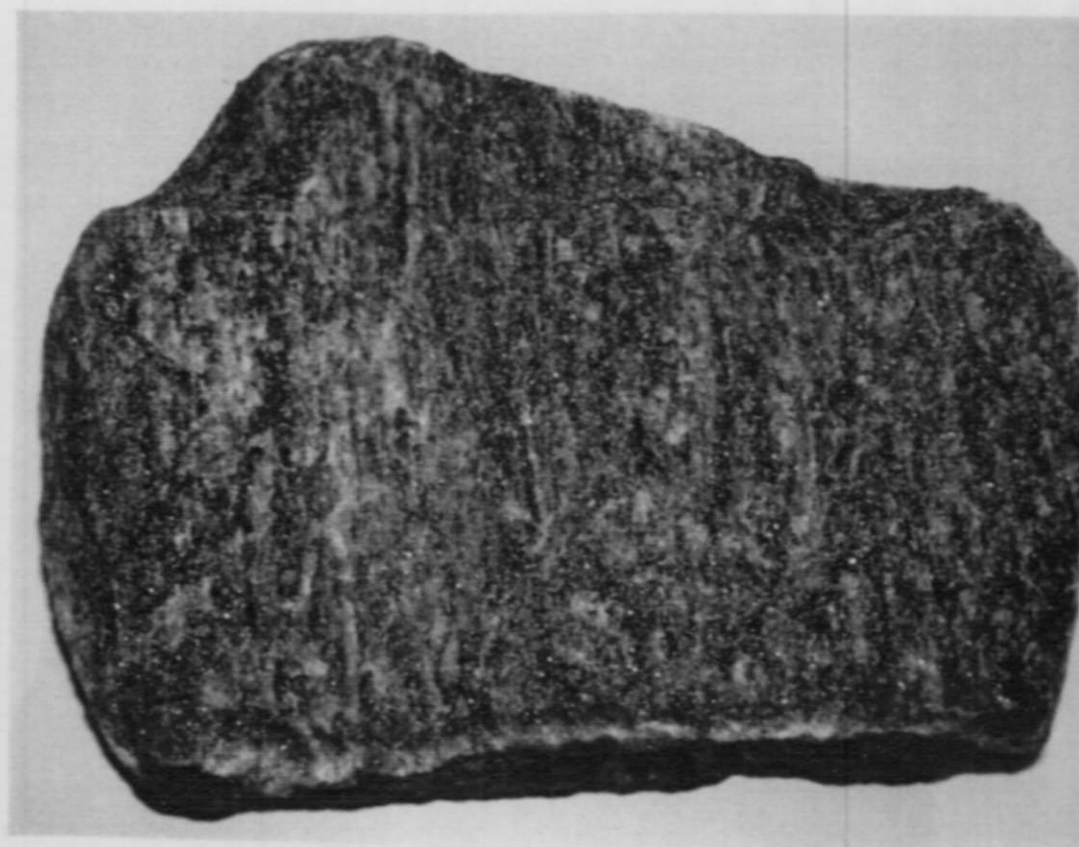


Photo 6



Ryerson Twp.

THE TOWNSHIP  
**A** OF **M188**  
**Mc Murrich**  
 PARRY SOUND DISTRICT  
 DISTRICT OF  
 PARRY SOUND  
 SOUTHERN ONTARIO  
 MINING DIVISION  
 RESIDENT GEOLOGIST-DORSET  
 SCALE: 1-INCH=40 CHAINS

Montith Twp.



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 I

Perrin Twp.

Stisted Twp.

LEGEND

- PATENTED LAND
- CROWN LAND SALE
- LEASES
- LOCATED LAND
- LICENSE OF OCCUPATION
- MINING RIGHTS ONLY
- SURFACE RIGHTS ONLY
- ROADS
- IMPROVED ROADS
- KING'S HIGHWAYS
- RAILWAYS
- POWER LINES
- MARSH OR MUSKES
- MINES
- CANCELLED

NOTES

This Map Is Not To Be Used  
 For Survey Purposes:  
 400' Surface rights reservation around all lakes and  
 rivers

DATE OF ISSUE  
 1 MAR 03 1993  
 SOUTHERN ONTARIO  
 MINING DIVISION

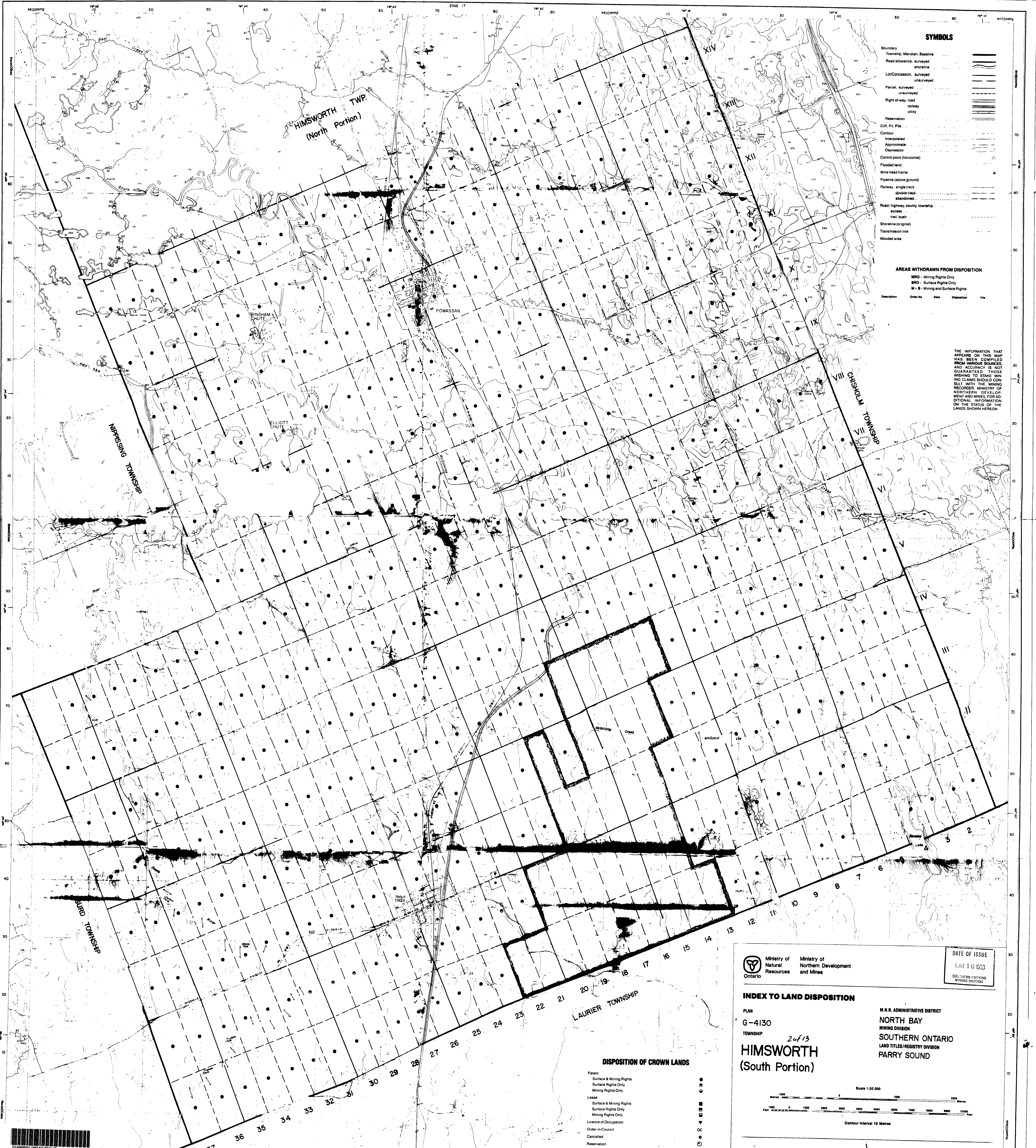
THE INFORMATION THAT  
 APPEARS ON THIS MAP  
 HAS BEEN COMPILED  
 FROM VARIOUS SOURCES,  
 AND ACCURACY IS NOT  
 GUARANTEED. THOSE  
 WISHING TO STAKE MIN-  
 ING CLAIMS SHOULD CON-  
 SULT WITH THE MINING  
 RECORDER, MINISTRY OF  
 NORTHERN DEVELOP-  
 MENT AND MINES, FOR AD-  
 DITIONAL INFORMATION  
 ON THE STATUS OF THE  
 LANDS SHOWN HEREON.

MINING RECORDS OFFICE - TORONTO  
**RECEIVED**  
 SEP 16 1995  
 AM 7 8 9 10 11 12 1 2 3 4 5 6 PM

PLAN NO. - M. 188

MINISTRY OF NATURAL RESOURCES  
 SUPPLIES AND SERVICES





**SYMBOLS**

- Boundary Township, Meridian, Baseline
- Road allowance, surveyed shoreline
- Lot/Concession, surveyed
- Parcel, surveyed
- Right-of-way, road, railway, utility
- Reservation
- Cliff, Pt. Pile
- Contour
- Interpolated
- Approximate
- Depression
- Control point (horizontal)
- Flooded land
- Mine head frame
- Pipeline (above ground)
- Railway, single track, double track, abandoned
- Road, highway, county, township
- Shoreline (original)
- Transmission line
- Wooded area

**AREAS WITHDRAWN FROM DISPOSITION**

MRO - Mining Rights Only  
 SRO - Surface Rights Only  
 M & S - Mining and Surface Rights

Description	Order No.	Date	Disposition	File

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

**DISPOSITION OF CROWN LANDS**

- Patent
- Surface & Mining Rights
- Surface Rights Only
- Mining Rights Only
- Lease
- Surface & Mining Rights
- Surface Rights Only
- Mining Rights Only
- Licence of Occupation
- Order-in-Council
- Cancelled
- Reservation
- Sand & Gravel

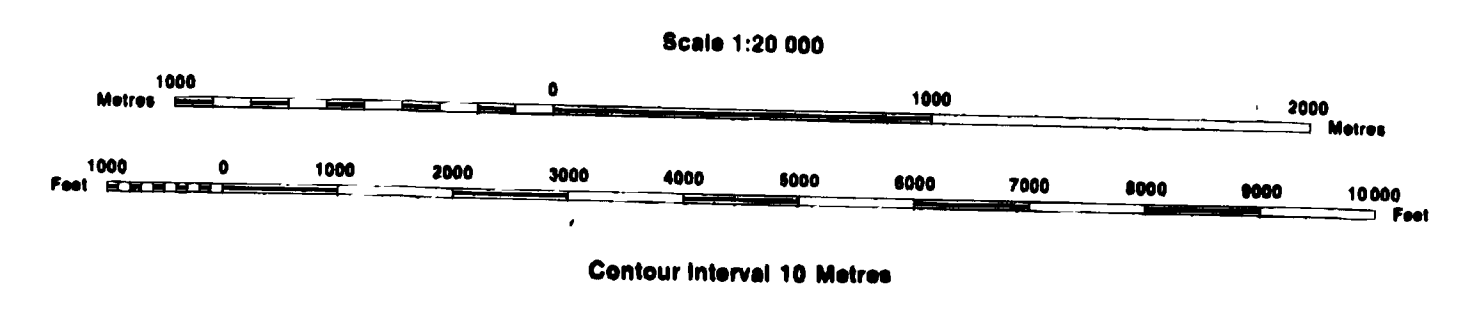
Ministry of Natural Resources  
 Ministry of Northern Development and Mines

DATE OF ISSUE  
 MAR 10 1993  
 COLLEGE OF REGISTRARS  
 MINING DIVISION

**INDEX TO LAND DISPOSITION**

PLAN  
 G-4130  
 TOWNSHIP  
 2 of 13  
**HIMSWORTH**  
 (South Portion)

M.N.R. ADMINISTRATIVE DISTRICT  
 NORTH BAY  
 MINING DIVISION  
 SOUTHERN ONTARIO  
 LAND TITLES/REGISTRY DIVISION  
 PARRY SOUND



Map base and land disposition drafting by Surveys and Mapping Branch, Ministry of Natural Resources. The disposition of land, location of lot fabric and fiscal boundaries on this index was compiled for administrative purposes only.



210

FORM

Chapman Twp.

THE TOWNSHIP OF

# RYERSON

DISTRICT OF  
PARRY SOUND

SOUTHERN ONTARIO  
MINING DIVISION

SCALE: 1-INCH=40 CHAINS

### LEGEND

PATENTED LAND	⊙
CROWN LAND SALE	C.S.
LEASES	⊖
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
MINING RIGHTS ONLY	M.R.O.
SURFACE RIGHTS ONLY	S.R.O.
ROADS	—
IMPROVED ROADS	—
KING'S HIGHWAYS	—
RAILWAYS	—
POWER LINES	—
MARSH OR MUSKES	—
MINES	* C
CANCELLED	—

### NOTES

This Twp. Is Not To Be Used  
For Survey Purposes

400' Surface rights reservation around all lakes and rivers.

### DATE OF ISSUE

MAR 03 1993  
SOUTHERN ONTARIO  
MINING DIVISION

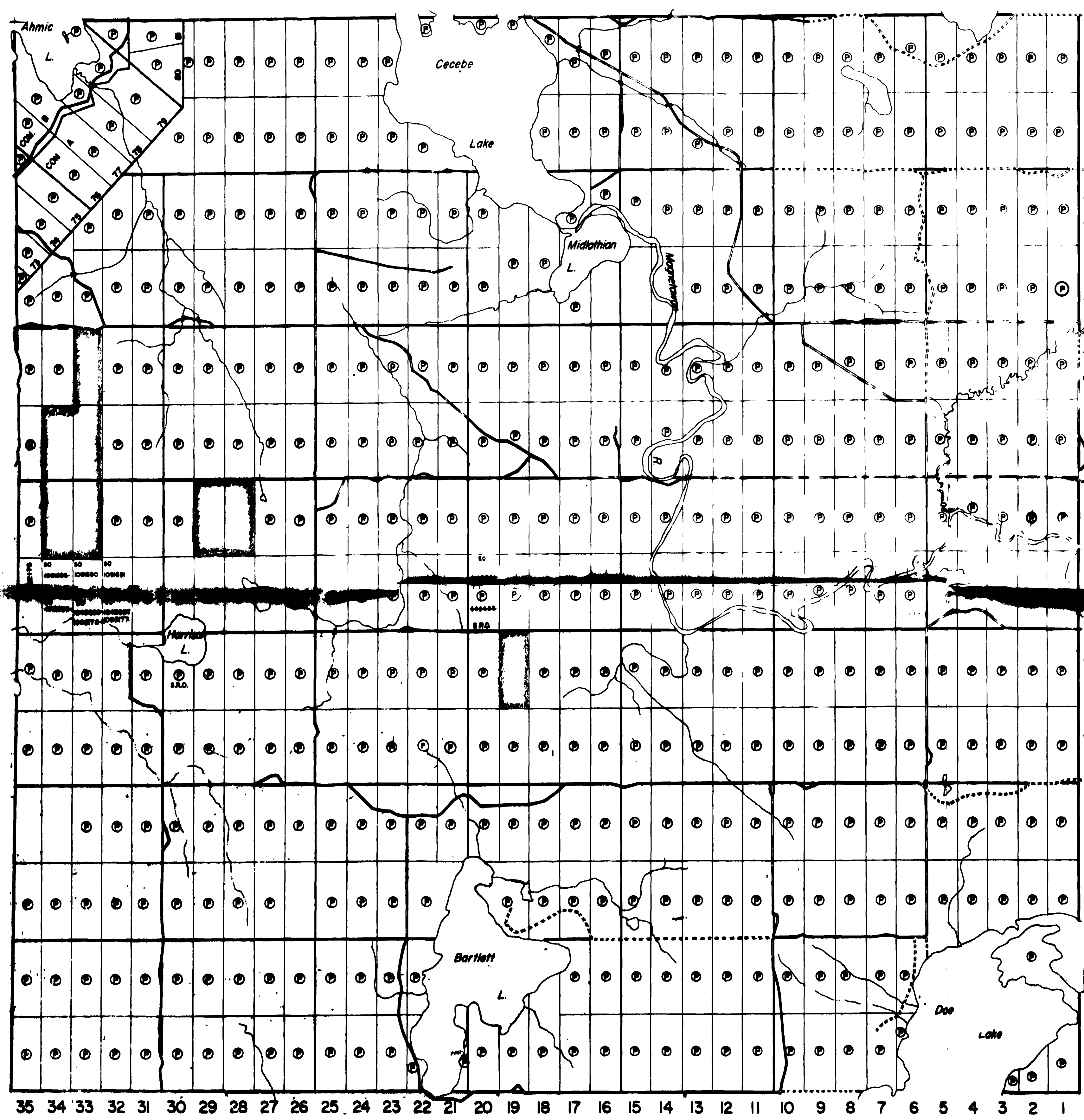
THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WHO WISH TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREBY.

PLAN NO. M-197

ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

Spence Twp.

Amour Twp.



220

McMurrich Twp.

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

DISPOSITION OF CROWN LANDS

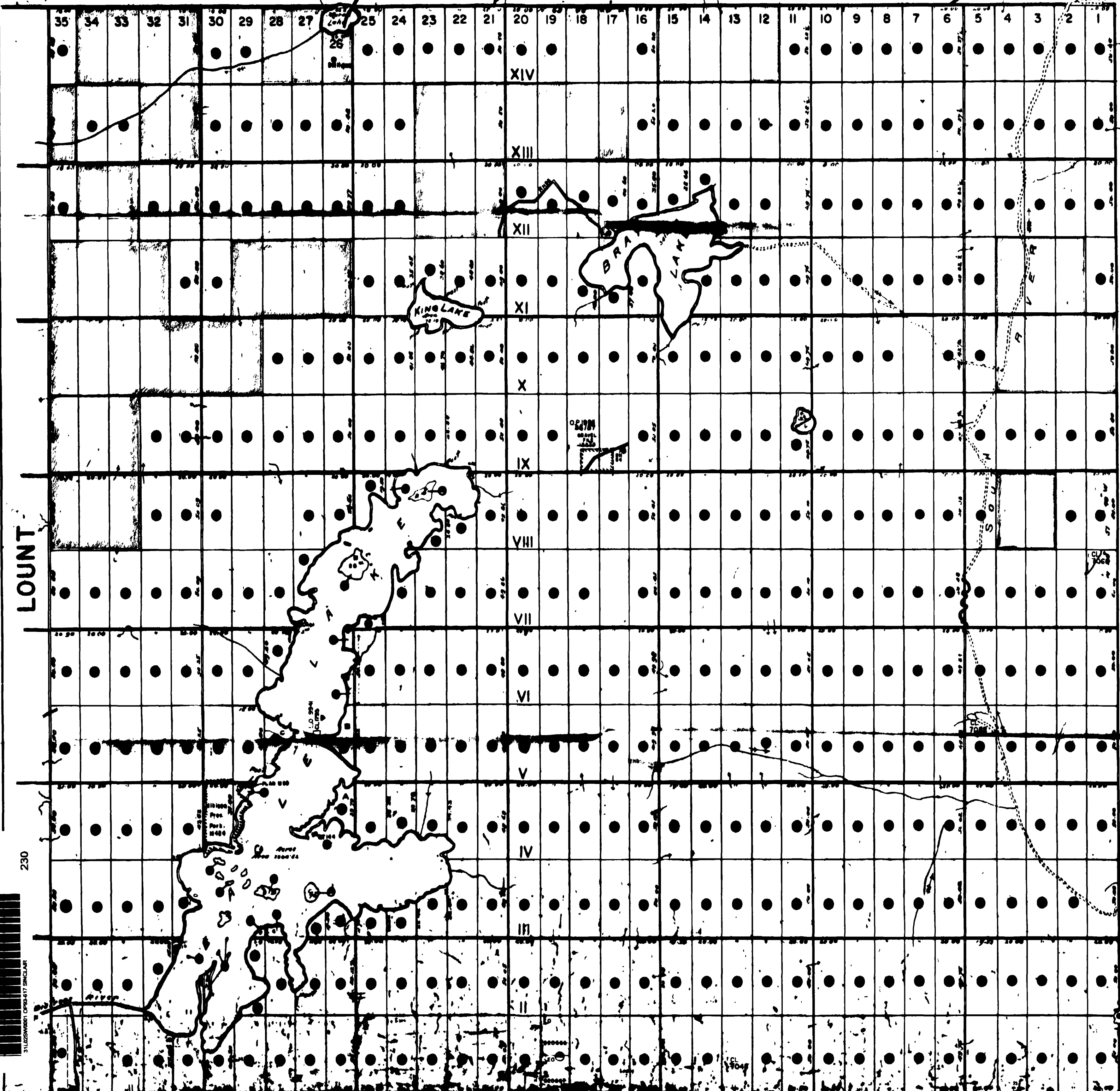
TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" SURFACE RIGHTS ONLY	○
" MINING RIGHTS ONLY	◐
LEASE SURFACE & MINING RIGHTS	■
" SURFACE RIGHTS ONLY	◑
" MINING RIGHTS ONLY	◒
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	⊙
CANCELLED	○
SAND & GRAVEL	○

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 8, 1913, VESTED IN ORIGINAL PATENTEES BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 300, SEC. 60, SUBSEC. 1.

DATE OF ISSUE  
MAY 08 1993  
SOUTHERN ONTARIO  
MINING DIVISION

MACHAR  
DISTRICT OF PARRY SOUND  
SOUTHERN ONTARIO MINING DIVISION  
SCALE: 40 CHAINS = 1 INCH

GURD



**LEGEND**

- CANCELLED
- PATENTED LAND
- CROWN LAND SALE
- LEASES
- LOCATED LAND
- LICENSE OF OCCUPATION
- MINING RIGHTS ONLY
- SURFACE RIGHTS ONLY
- QUARRY PERMIT

- C
- CS
- LOC
- L.D.
- M.R.O.
- S.R.O.

DATE OF ISSUE  
 1 MAR 08 1993  
 SOUTHERN ONTARIO  
 MINING DIVISION

# PAXTON

## DISTRICT OF NIPISSING

Scale 40 chains to an inch

SOUTHERN ONTARIO MINING DIVISION  
BALLANTYNE

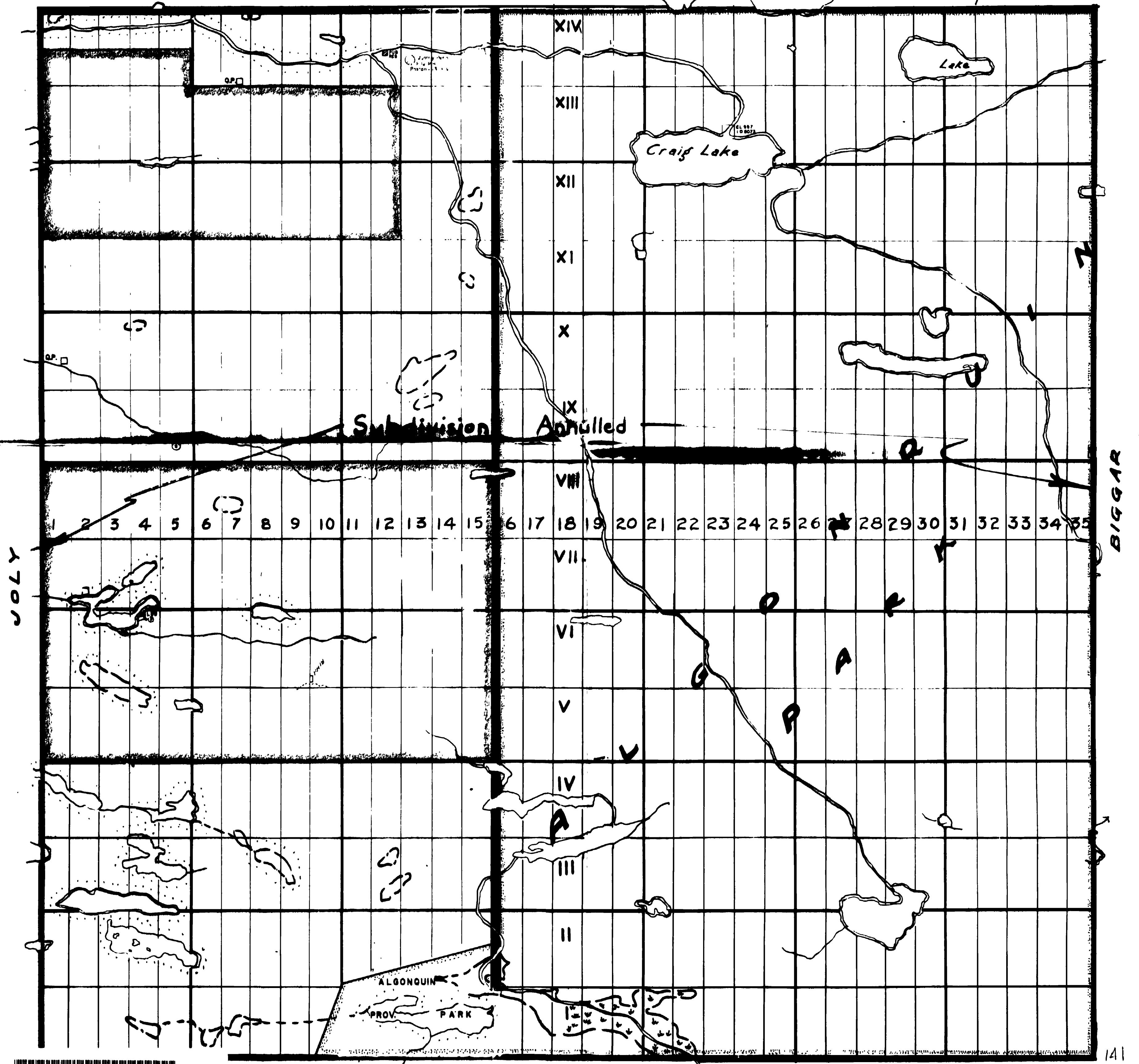
M.141  
ONTARIO

MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

AREA SHOWN THIS MAP WITHIN ALGONQUIN PROVINCIAL PARK  
WITHDRAWN FROM STAKING

400' surface rights reservation around all lakes & rivers.

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.



JOLY

BIGGAR

BUTT

PLAN NO. M.141



6 of 13

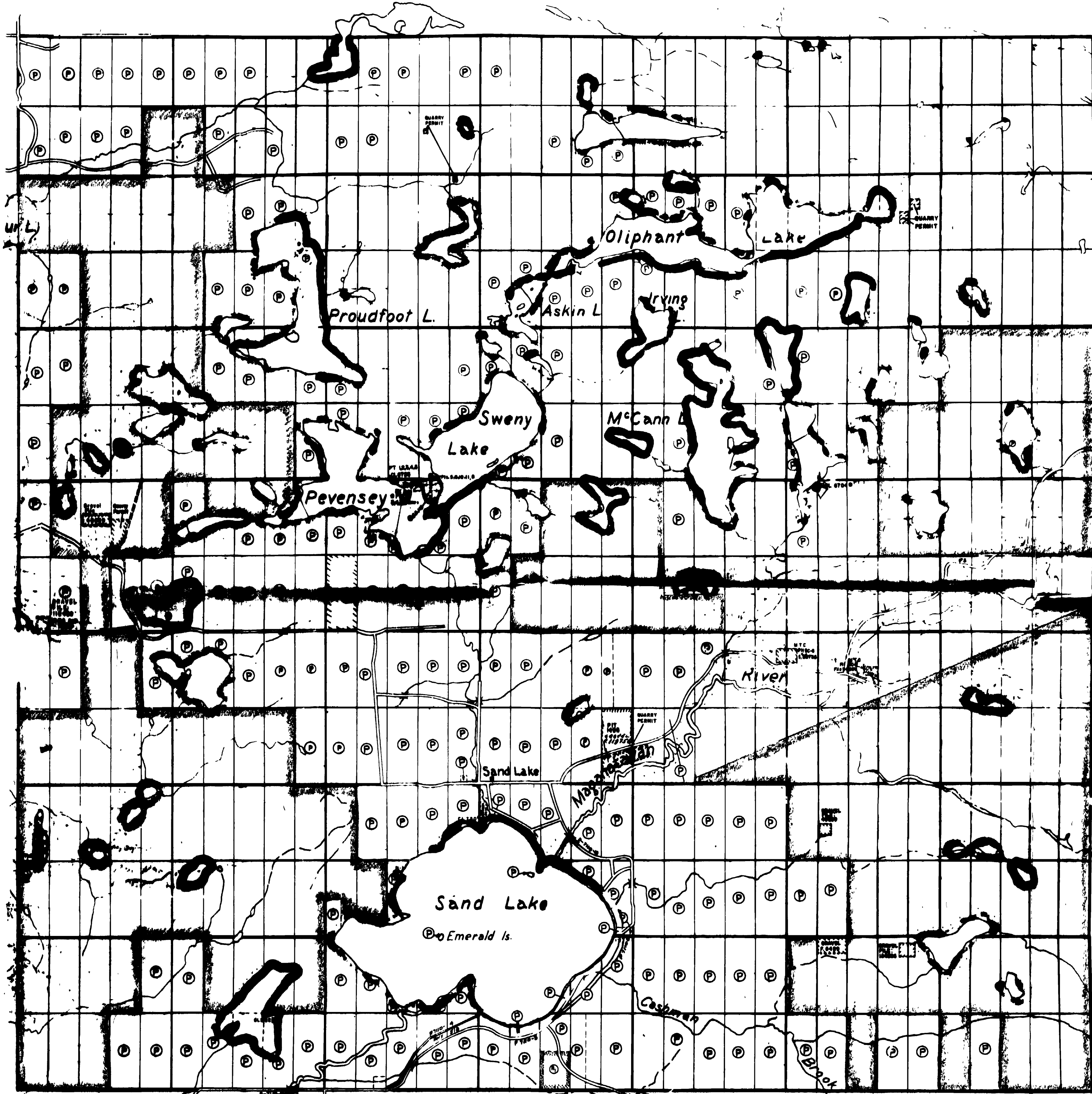
THE TOWNSHIP OF  
PROUDFOOT

DISTRICT OF  
PARRY SOUND

SOUTHERN ONTARIO  
MINING DIVISION

SCALE: 1 INCH TO 40 CHAINS

JO LY TWP.



XIV  
XIII  
XII  
XI  
X  
IX  
VIII  
VII  
VI  
V  
IV  
III  
II  
I

BUTT TWP.

LEGEND

- PATENTED LAND ● or ○
- LEASE ○
- LICENSE OF OCCUPATION L.O.
- CROWN LAND SALES C.S.
- LOCATED LAND Loc.
- CANCELLED C.
- MINING RIGHTS ONLY M.R.O.
- SURFACE RIGHTS ONLY ● or S.R.O.
- ROADS —
- RAILWAYS =
- POWER LINES —

NOTES

400' Surface rights reservation around all rivers.

Areas withdrawn from staking under Section 26 of the Mining Act (R.S.O. 1980).

Order No.	File	Date	Disposition
W.9/81	160707	2/18/81	S.R.O.
W5001/81	16417	16/04/81	S.R.O.

DATE OF ISSUE

MAR 08 1983  
SOUTHERN ONTARIO  
MINING DIVISION

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M.196

ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

BETHUNE TWP.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35



REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

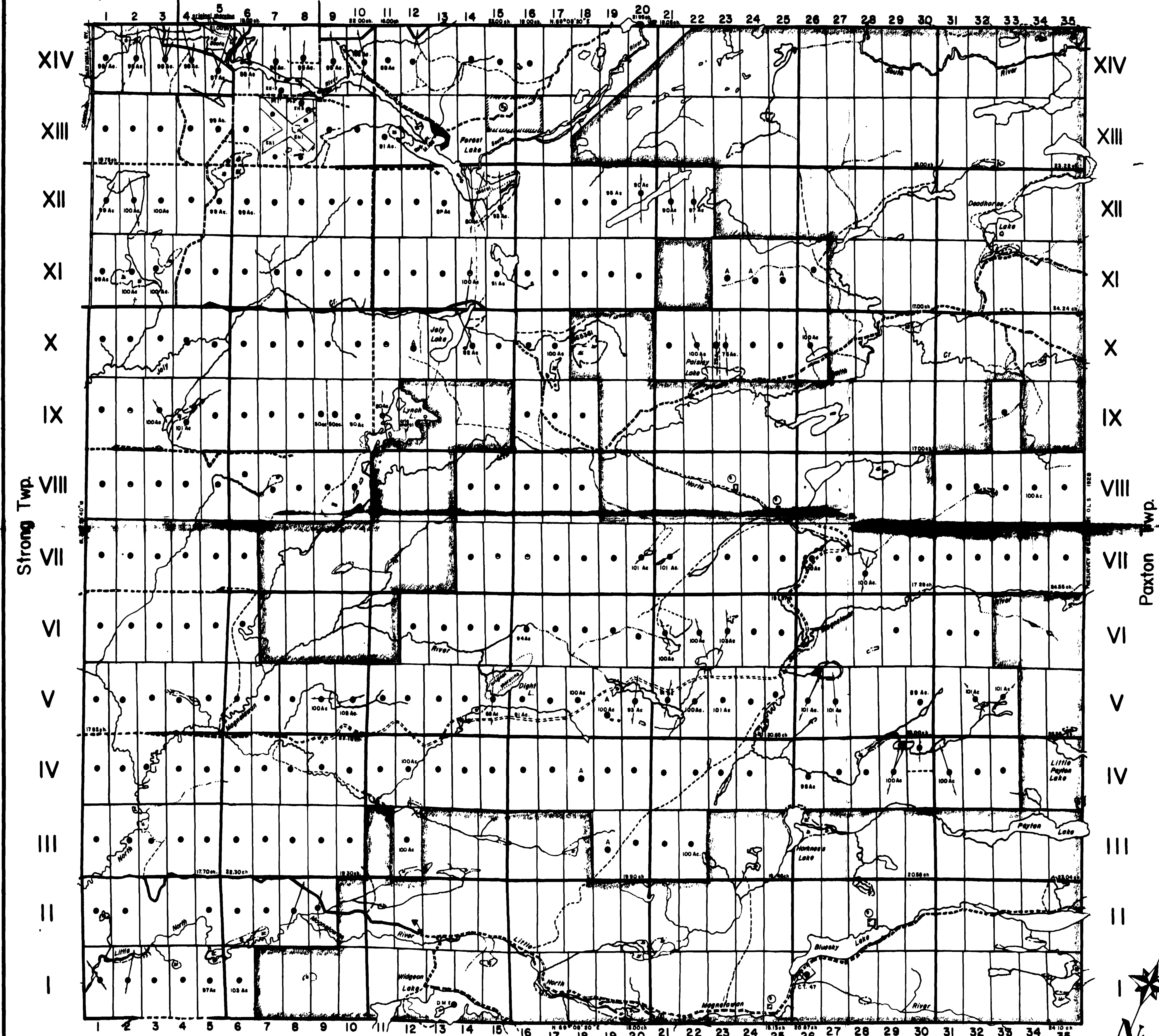
- M.R.O. - MINING RIGHTS ONLY
  - S.R.O. - SURFACE RIGHTS ONLY
  - M.+S. - MINING AND SURFACE RIGHTS
- | Description | Order No | Date | Disposition | File |
|-------------|----------|------|-------------|------|
|             |          |      |             |      |

SAND & GRAVEL

- ① MTC PIT File 47640
- ② MTC GRAVEL PIT No 5-C-19
- ③ GRAVEL File 88877
- ④ GRAVEL File 88830
- ⑤ QUARRY PERMIT
- ⑥ M.H.R. GRAVEL RESERVE File 188808

Machar Twp.

Laurier Twp.



Strong Twp.

Paxton Twp.

Proudfoot Twp.

LEGEND

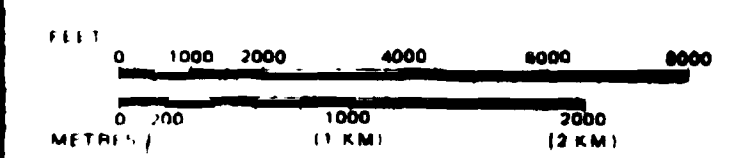
- HIGHWAY AND ROUTE No
- SECONDARY ROADS
- OTHER ROADS, TRAILS
- SURVEYED LINES
- TOWNSHIPS, BASE LINES, ETC
- LOTS, MINING CLAIMS, PARCELS, ETC
- UNSURVEYED LINES
- LOT LINES
- PARCEL BOUNDARY
- MINING CLAIMS ETC
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT
- PORTAGES

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" SURFACE RIGHTS ONLY	○
" MINING RIGHTS ONLY	⊙
LEASE, SURFACE & MINING RIGHTS	■
" SURFACE RIGHTS ONLY	□
" MINING RIGHTS ONLY	⊠
LICENCE OF OCCUPATION	▽
ORDER-IN-COUNCIL	OC
RESERVATION	⊖
CANCELLED	⊕
SAND & GRAVEL	⊙
CROWN LAND ACQUISITION -	⊙

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 8, 1913, VESTED IN ORIGINAL PATENTEES BY THE PUBLIC LANDS ACT R.S.O. 1970 CHAP. 380, SEC. 63, SUBSEC. 1

SCALE: 1 INCH = 40 CHAINS



DATE OF ISSUE

LAR 0 8 1993

SOUTHERN ONTARIO MINING DIVISION

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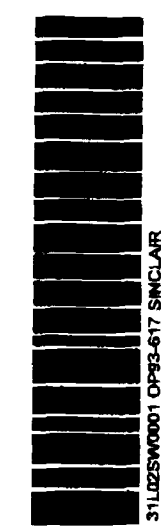
TOWNSHIP  
**JULY**

M.N.R. ADMINISTRATIVE DISTRICT  
**BRACE BRIDGE**  
MINING DIVISION  
SOUTHERN ONTARIO  
LAND TITLES / REGISTRY DIVISION  
**PARRY SOUND**

Ministry of Natural Resources Ontario  
Ministry of Northern Development and Mines

Date FEBRUARY, 1987

Number  
**G-2434**

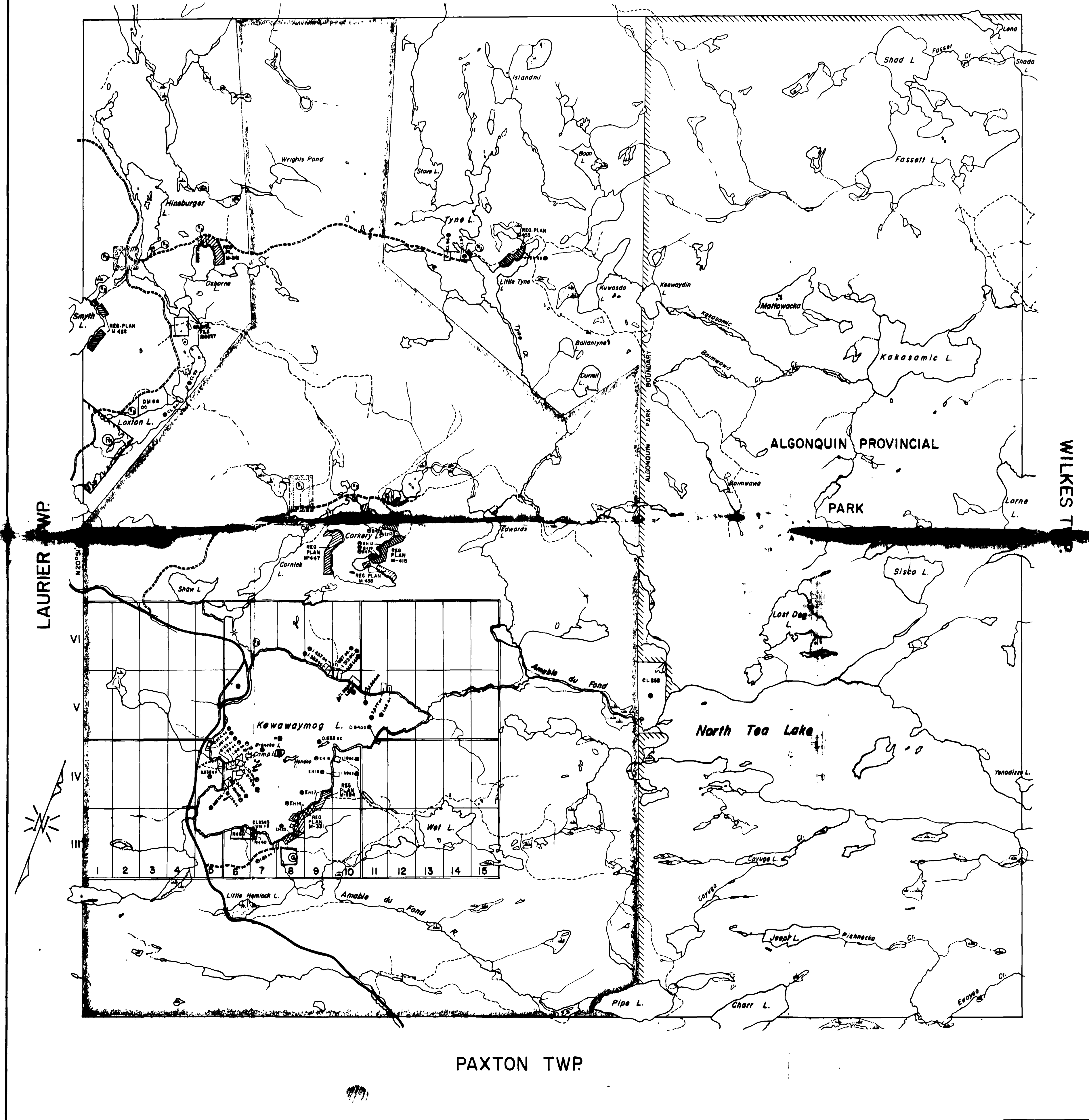


NOTES

**ANNULMENT**

SUBDIVISION OF THIS TOWNSHIP INTO LOTS AND CONCESSIONS IS PARTIALLY ANNULLED ON DEC 14, 1983.

CHISHOLM TWP



**LEGEND**

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES
- TOWNSHIPS, BASE LINES, ETC.
- LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES
- LOT LINES
- PARCEL BOUNDARY
- MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

**DISPOSITION OF CROWN LANDS**

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" SURFACE RIGHTS ONLY	○
" MINING RIGHTS ONLY	◐
LEASE SURFACE & MINING RIGHTS	◑
" SURFACE RIGHTS ONLY	◒
" MINING RIGHTS ONLY	◓
LICENCE OF OCCUPATION	◔
ORDER-IN-COUNCIL	OC
RESERVATION	○
CANCELLED	○
SAND & GRAVEL	○

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 8, 1915, VESTED IN ORIGINAL PATENTEES BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 360, SEC. 63, SUBSEC. 1

**AREAS WITHDRAWN FROM DISPOSITION**

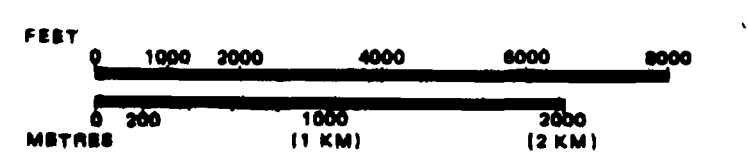
Description	Order No.	Date	Disposition	File
① SEC. 36/80	W.7/81	13 NOV. 81	S.R.O.	160707
② SEC. 36/80	W.7/81	19 NOV. 81	S.R.O.	160707
③ RESERVED FOR PUBLIC ACCESS				160707
④ SEC. 36/80	W/88	29 JAN. 88	S.R.O.	188549

**DATE OF ISSUE**

1 MAR 08 1993

SOUTHERN ONTARIO  
MINING DIVISION

**SCALE: 1 INCH = 40 CHAINS**



8 of 13

TOWNSHIP  
**BALLANTYNE**  
M.N.R. ADMINISTRATIVE DISTRICT  
BRACEBRIDGE/ALGONQUIN PARK  
MINING DIVISION  
SOUTHERN ONTARIO  
LAND TITLES / REGISTRY DIVISION  
NIPISSING

Ministry of Natural Resources  
Ministry of Northern Development and Mines

Date JUNE, 1987  
Number  
**G-2465**

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES, AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.



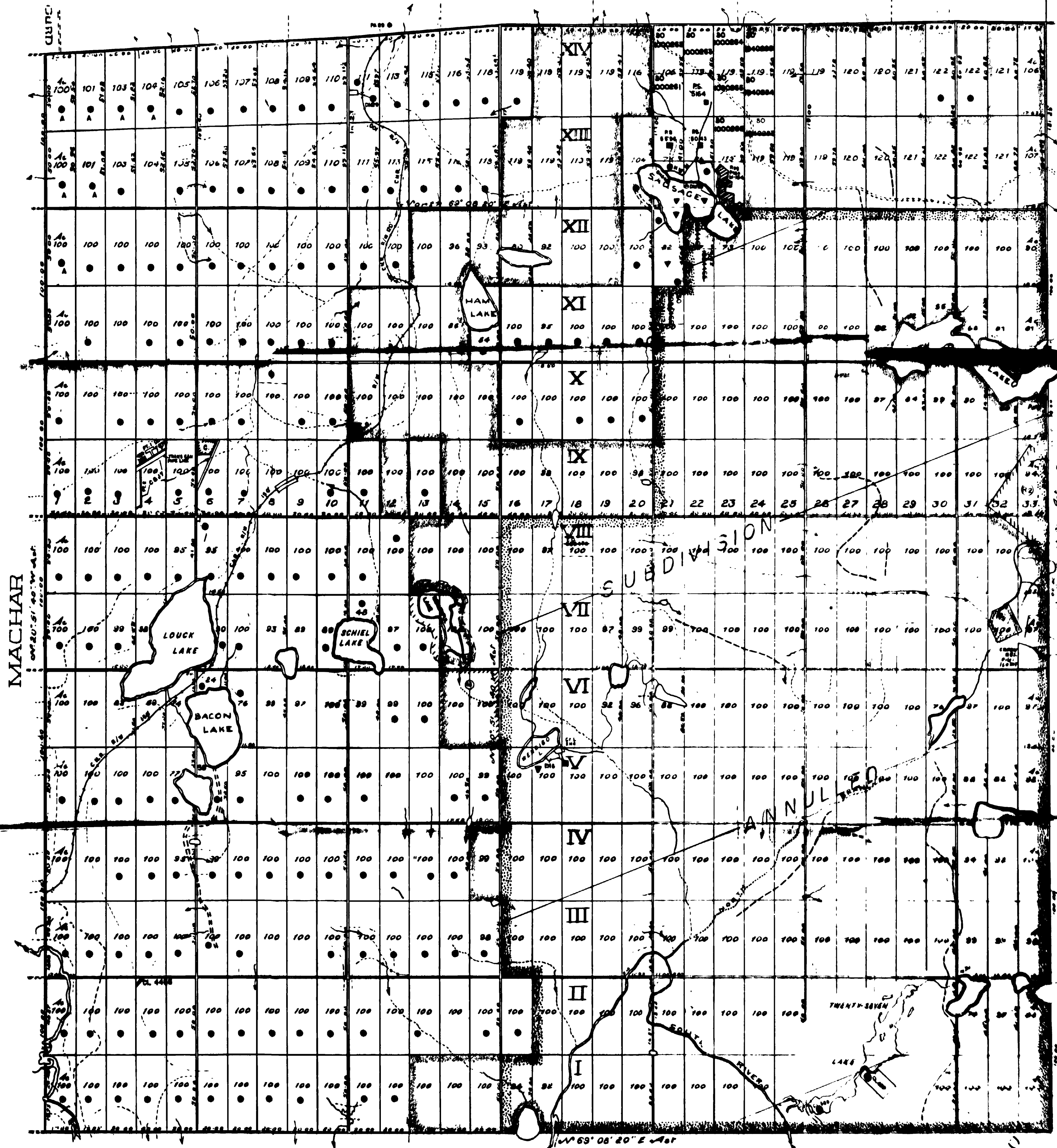


REFERENCES

AREAS WITHDRAWN FROM DISPOSITION

Description	Order No.	Date	Disposition	File
M.R.O. - MINING RIGHTS ONLY				
S.R.O. - SURFACE RIGHTS ONLY				
M.+S. - MINING AND SURFACE RIGHTS				
Ⓢ	WS/81	16/11/81	S.R.O.	106787
Ⓣ		27/10/78	S.R.O.	118336
Ⓡ	WS/88	29/01/88	S.R.O.	108848

HIMSWORTH



LEGEND

- HIGHWAY AND ROUTE No.
- TRAILS
- SURVEYED LINES
- TOWNSHIP BASE LINES ETC.
- LOTS, MINING CLAIMS, PARCELS ETC.
- UNSURVEYED LINES
- LOT LINES
- PARCEL BOUNDARY
- MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE P. AN.
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

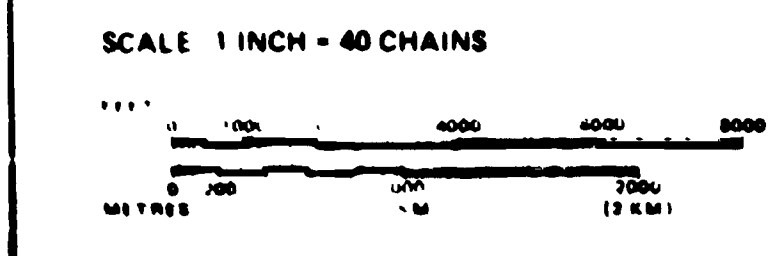
TYPE OF DOCUMENT	SYMBOL
PATENT SURFACE & MINING RIGHTS	●
" SURFACE RIGHTS ONLY	○
" MINING RIGHTS ONLY	○
LEASE SURFACE & MINING RIGHTS	○
" SURFACE RIGHTS ONLY	○
" MINING RIGHTS ONLY	○
LICENCE OF OCCUPATION	○
ORDER IN-COUNCIL	○
RESERVATION	○

**SAND & GRAVEL**  
 NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1912, VESTED IN ORIGINAL PATENTEES BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 300, SEC. 63, SUBSEC. 1.

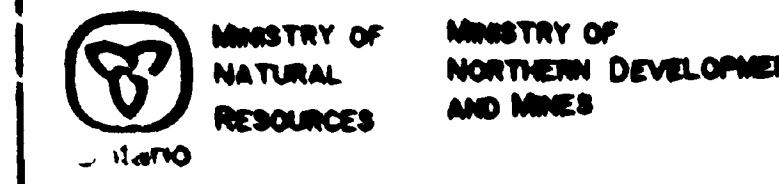
DATE OF ISSUE  
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 SOUTHERN ONTARIO  
 MINING DIVISION

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NOTE: TOWNSHIP SUBDIVISION PARTIALLY ANNULLLED APRIL 11/1983



TOWNSHIP  
**LAURIER**  
 M.N.R. ADMINISTRATIVE DISTRICT  
**BRACEBRIDGE**  
 MINING DIVISION  
**SOUTHERN ONTARIO**  
 LAND TITLES / REGISTRY DIVISION  
**PARRY SOUND**



DATE: FEBRUARY 1987 NUMBER: **G-2435**

RES. GEO. DORSET  
 M.N.R. DIST.  
 BRACEBRIDGE



23AS-D

PWT 23R/J

23AS-D

# TOWNSHIP OF BETHUNE

**REFERENCES**

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. - MINING RIGHTS ONLY  
 S.R.O. - SURFACE RIGHTS ONLY  
 M.S. - MINING AND SURFACE RIGHTS

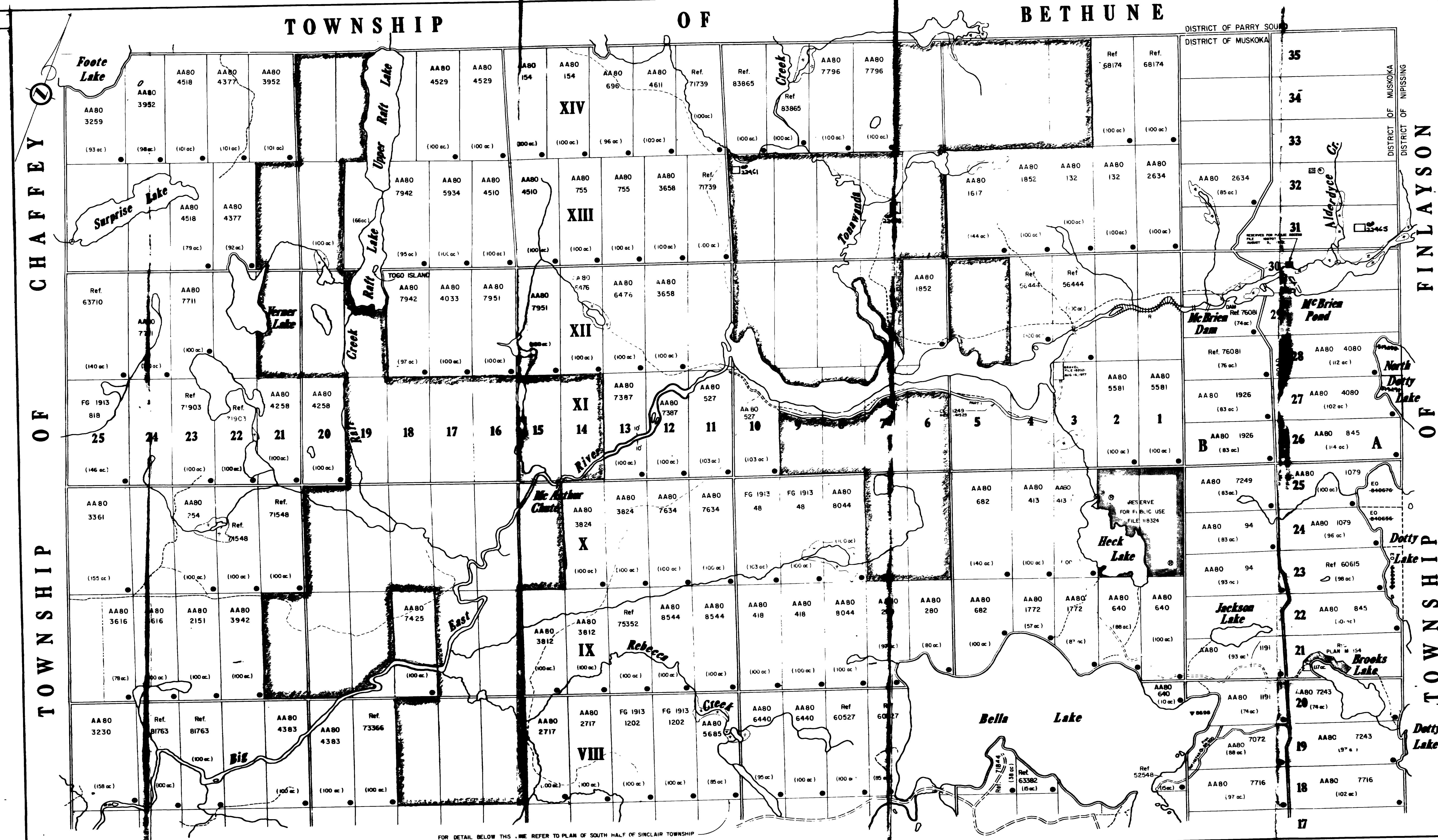
Description	Order No.	Date	Disposition	File

**SAND & GRAVEL**

○ QUARRY PERMIT

G-2457

31025M001 0P83-87 SINCLAIR 290



DATE OF ISSUE  
 APR 03 1983  
 SOUTHERN ONTARIO  
 MINING DIVISION

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

SCALE: 1 INCH = 20 CHAINS

**LEGEND**

PROVINCIAL BOUNDARY	COUNTY AND DISTRICT BOUNDARY	TOWNSHIP BOUNDARY	SURVEYED BOUNDARY	PROJECTED BOUNDARY	SURVEYED LINES	LAND SURVEYED LINES	WATER	BLIND LINES	UNSURVEYED PARCEL BOUNDARY	HIGHWAY AND ROUTE No.	MAIN ROAD	OTHER ROADS	TRAIL OR PATH	ELECTRIC TRANSMISSION LINE	TELEPHONE LINE	PIPE LINE	RAILWAY AND RIGHT-OF-WAY	RESERVATION	SUBDIVISION OR COMPOSITE PLAN	BRIDGE	DAM, RAFTS, FALLS, PORTAGE	NON-PERENNIAL STREAM	FLOODING	TRANSVERSE POST	PORTAGES
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

**DISPOSITION OF CROWN LANDS**

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	○
... SURFACE RIGHTS ONLY	○
... MINING RIGHTS ONLY	○
LEASE, SURFACE & MINING RIGHTS	○
... SURFACE RIGHTS ONLY	○
... MINING RIGHTS ONLY	○
LICENCE OF OCCUPATION	○
ORDER-IN-COUNCIL	○
RESERVATION	○
CANCELLED	○
SAND & GRAVEL	○

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 1, 1912, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1918, CAP. 388, SEC. 43, SUBSEC. 1

TOWNSHIP  
**SINCLAIR (NORTH PART)**  
 M.R.O. ADMINISTRATIVE DISTRICT  
**BRACEBRIDGE**  
 MINING DIVISION  
**SOUTHERN ONTARIO**  
 LAND TITLES / REGISTRY DIVISION  
**MUSKOKA**

Ministry of Natural Resources  
 Ontario  
 Land Management Branch

Date: DEC. 1983  
 Number: **G-2457**

FOR DETAIL BELOW THIS LINE REFER TO PLAN OF SOUTH HALF OF SINCLAIR TOWNSHIP

M. 167

# BETHUNE

ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

Scale — 40 Chains - 1 Inch  
DISTRICT OF PARRY SOUND  
SOUTHERN ONTARIO MINING DIVISION  
PROUDFOOT

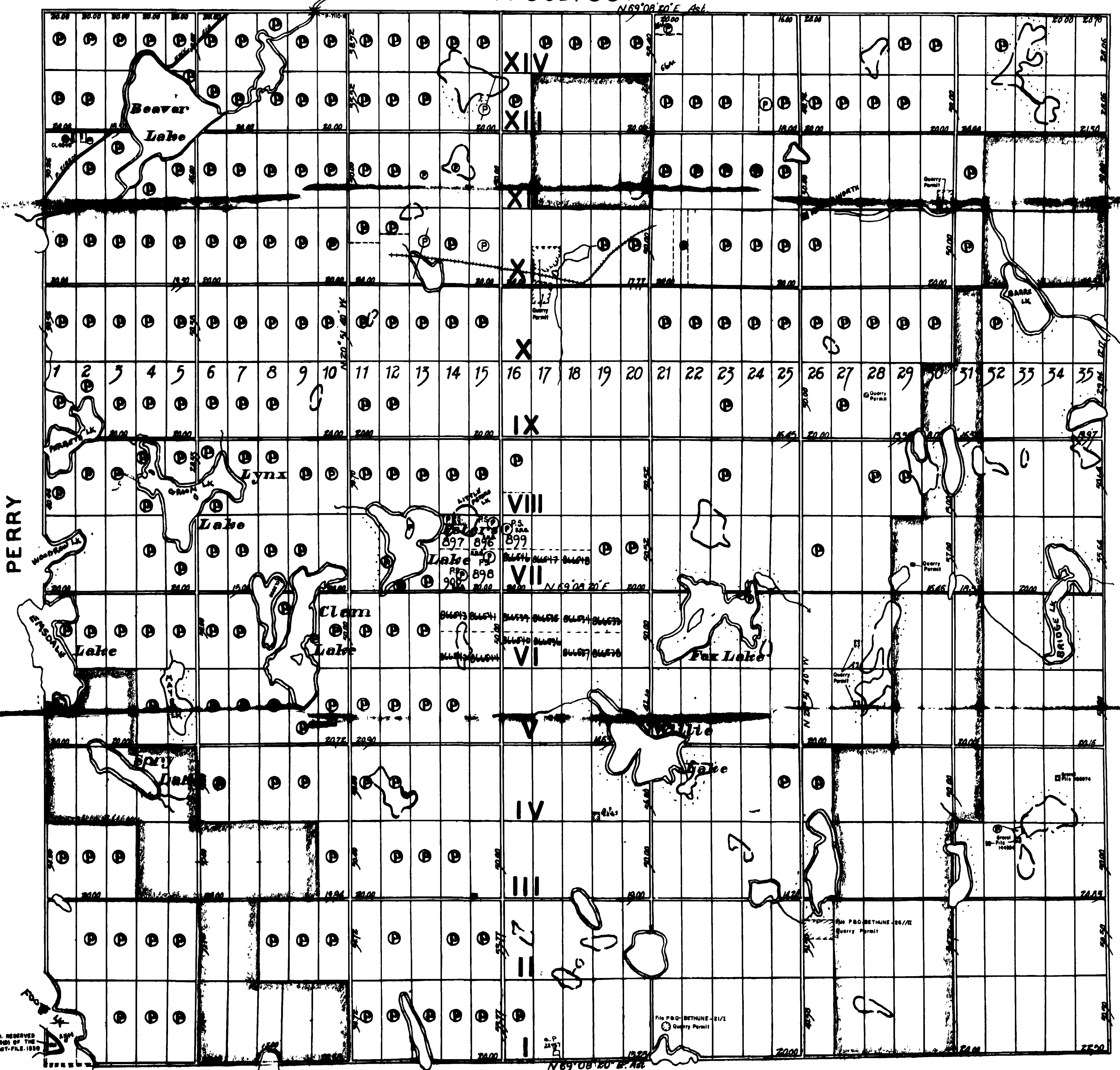
DATE OF ISSUE  
MAR 08 1993  
SOUTHERN ONTARIO  
MINING DIVISION

### LEGEND

- |                       |        |
|-----------------------|--------|
| CANCELLED             | C      |
| PATENTED LAND         | ⊙      |
| CROWN LAND SALE       | CS     |
| LEASES                | ⊕      |
| LOCATED LAND          | LOC.   |
| LICENSE OF OCCUPATION | LO     |
| MINING RIGHTS ONLY    | M.R.O. |
| SURFACE RIGHTS ONLY   | S.R.O. |

THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

400' Surface rights reservation around all lakes & rivers.



PERRY

McCRANEY

SINCLAIR

RES. GEO. DORSET

300

S.O. RESERVED  
ALL RIGHTS OF THE  
M.A. ACT-FILE 1000

STILESWOOD LINES-SYD SINCLAIR

### LEGEND

- CANCELLED
- PATENTED LAND
- CROWN LAND SALE
- LEASES
- LOCATED LAND
- LICENSE OF OCCUPATION
- MINING RIGHTS ONLY
- SURFACE RIGHTS ONLY
- QUARRY PERMIT — (C)

- C.S.
- Loc
- L.O.
- M.R.O.
- S.R.O.

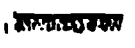
THE INFORMATION THAT APPEARS ON THIS MAP HAS BEEN COMPILED FROM VARIOUS SOURCES AND ACCURACY IS NOT GUARANTEED. THOSE WISHING TO STAKE MINING CLAIMS SHOULD CONSULT WITH THE MINING RECORDER, MINISTRY OF NORTHERN DEVELOPMENT AND MINES, FOR ADDITIONAL INFORMATION ON THE STATUS OF THE LANDS SHOWN HEREON.

## District of Nipissing

Scale: 40 chains to an inch

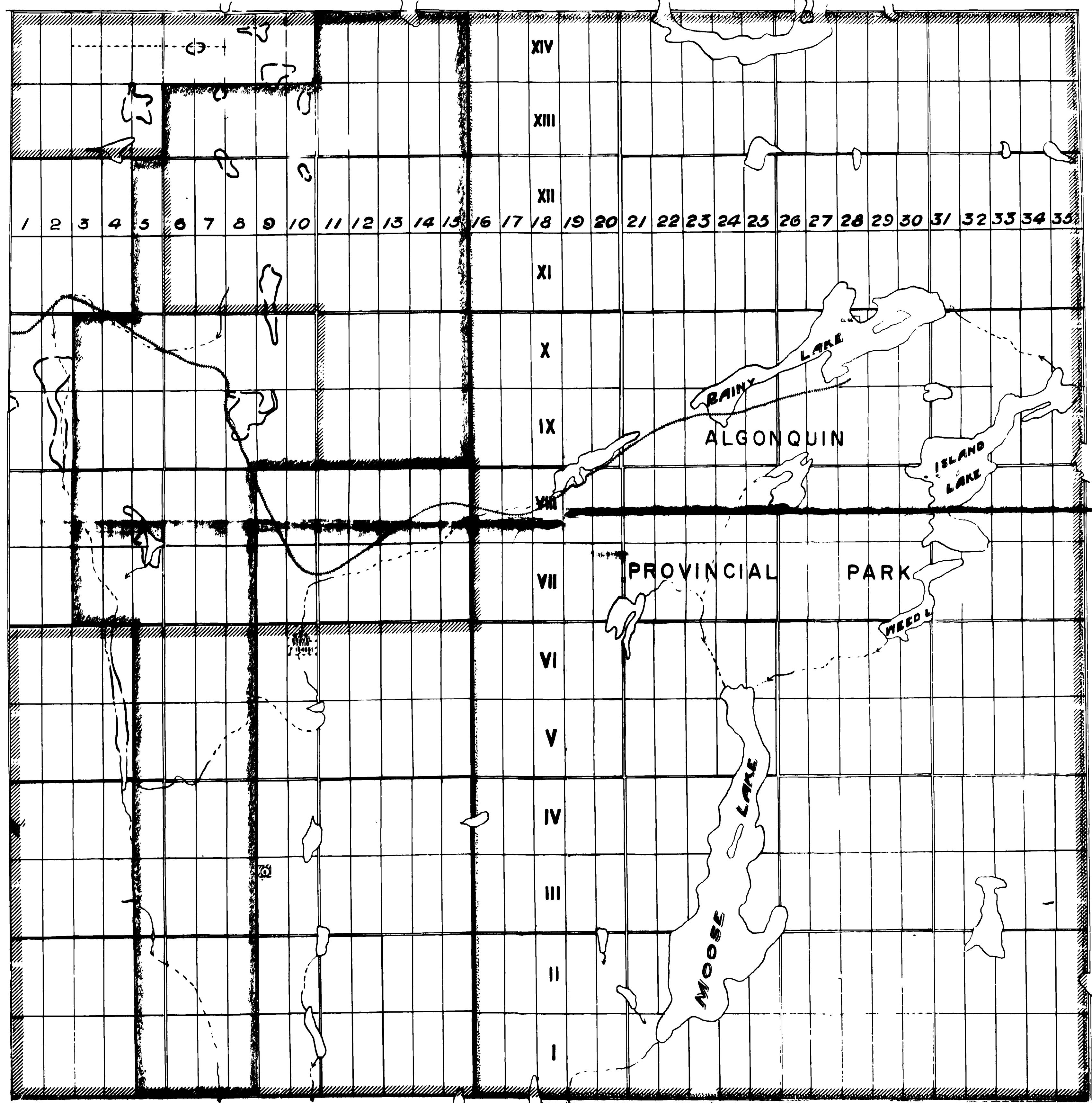
SOUTHERN ONTARIO MINING DIVISION  
**BUTT**

DATE OF ISSUE  
14 MAR 08 1993  
SOUTHERN ONTARIO  
MINING DIVISION

AREA WITHIN THE ALGONQUIN PROVINCIAL PARK SHOWN THUS: 

'00' Surface rights reservation around all lakes & rivers.

SUBDIVISION WITHIN THE HATCHED PORTION ANNULLED  
MAY 28, 1953



BETHUNE

HUNTER

FINLAYSON

851-M

PLAN NO. M.133

RES. GEO. DORSET  
M.N.R. DIST. ALGONQUIN PARK



LEGEND

- CANCELLED PATENTED LAND CROWN LAND SALE LEASES LOCATED LAND LICENSE OF OCCUPATION MINING RIGHTS ONLY SURFACE RIGHTS ONLY
- C
- CS
- C
- LOC.
- LO
- MRO.
- SRO

# CHAPMAN

DATE OF ISSUE  
MAR 08 1993  
SOUTHERN ONTARIO  
MINING DIVISION

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Scale 40 Chains : 1 Inch  
DISTRICT OF PARRY SOUND  
SOUTHERN ONTARIO MINING DIVISION  
LOUNT

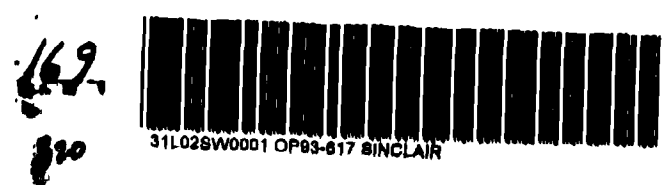
ONTARIO  
MINISTRY OF NATURAL RESOURCES  
SURVEYS AND MAPPING BRANCH

N 69° 3' 20" E



CROFT

STRONG



320

RES. GEO. DORSET  
M.N.R. DIST. PARRY SOUND

PLAN N M-169