

BADGER-GRAND FALLS AREA SURFICIAL AND GLACIAL MAPPING

by

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INTRODUCTION

During 1979 a project was funded to conduct a detailed surficial and glacial interpretation in the Badger 12A/16 and Grand Falls 2D/13 map areas of central Newfoundland, (MAP 1). This project is a continuation of the Surficial and Glacial Mapping program in the Central Mobile Belt designed to provide information as an aid to mineral exploration. This area was chosen because of its recognized mineral potential, recent exploration activity, its scattered occurrences of mineralized float, and its thick and extensive cover of overburden which has given rise to difficulties in geological mapping. Most of the current map area has good access, a considerable number of till exposures and unweathered bedrock exposures exhibiting striations and other glacial flow indicators.

FIELD PROGRAM

Mapping started in mid-May and continued until early October. Information was obtained along all existing roads and most lake shorelines and streams. Eighteen hand-dug, and seventeen backhoe-dug pits provided suitable exposures for till fabrics and samples at 1 metre intervals. Of the thirty-five pits which were dug, fabrics were done in thirty, the remainder were either too unstable to work in because of slumping due to ground-water flow or lacked enough stones to identify a fabric. During the course of field work 900 sites were noted and 130 sets of striae recorded with directions and/or relative ages assigned to 115 of these. Of the 475 samples taken, 400 were till, and the remainder either sand, gravel or rock. At 125 of the 325 till sites, a

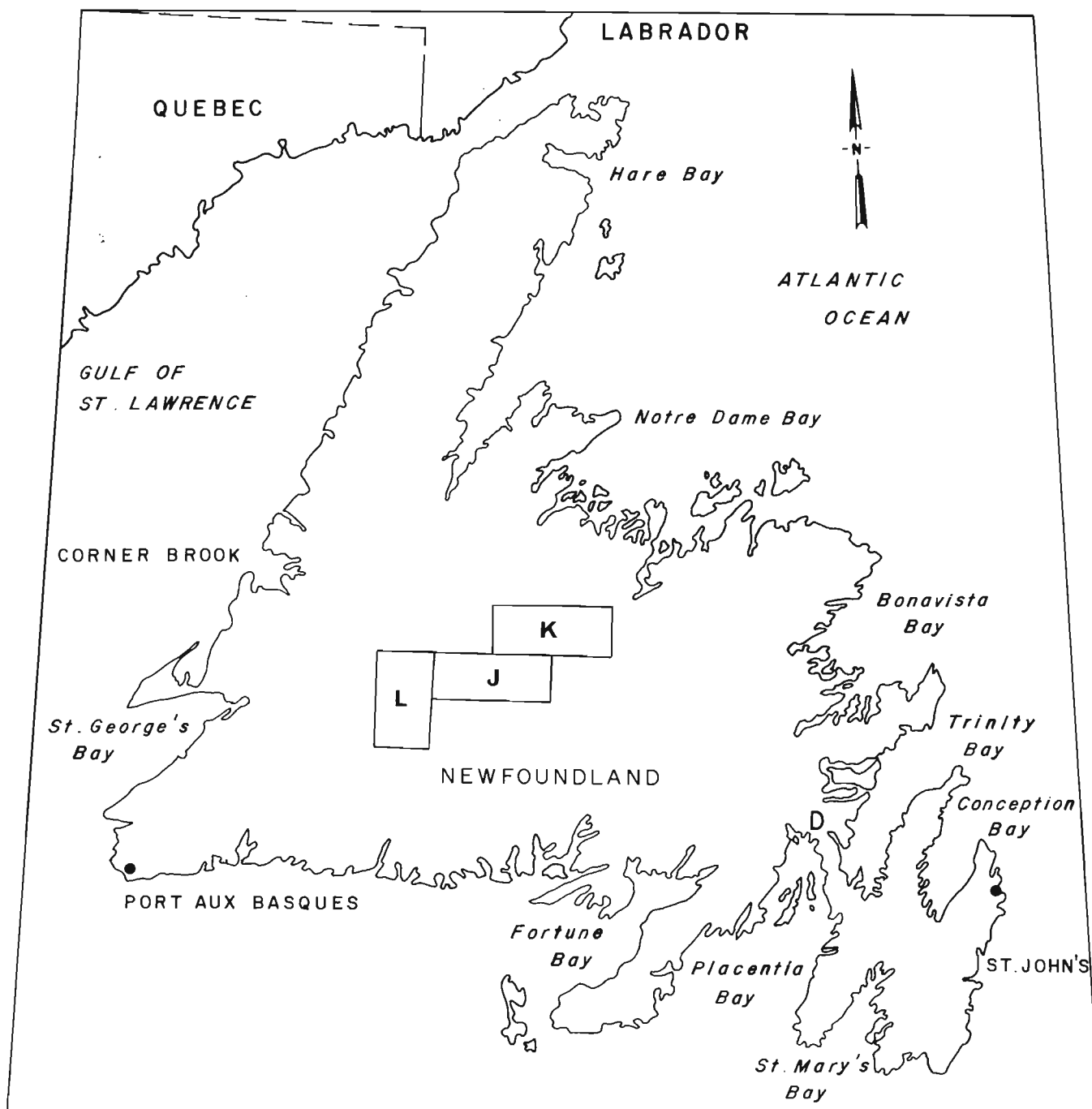
representative pebble fraction was obtained and a determination of the pebble lithologies was made. This study also included information on the silt/clay coating, weathering, staining, sphericity, rounding, fracturing, mineralogy and texture for the various lithologies present.

GLACIAL STRIAE

Throughout the area one major set of striae at 050-075 has been recorded with the dominant direction being approximately 060. On numerous outcrops, a second striae direction usually perpendicular or sub-perpendicular to the dominant set was recorded. In all cases where directions have been assigned to striae, one or more of the following indicators have been used: (a) miniature crag and tail (b) crescentic or lunate fractures or gouges, (c) nail head striae, and (d) miniature stoss and lee forms.

GLACIAL INTERPRETATION

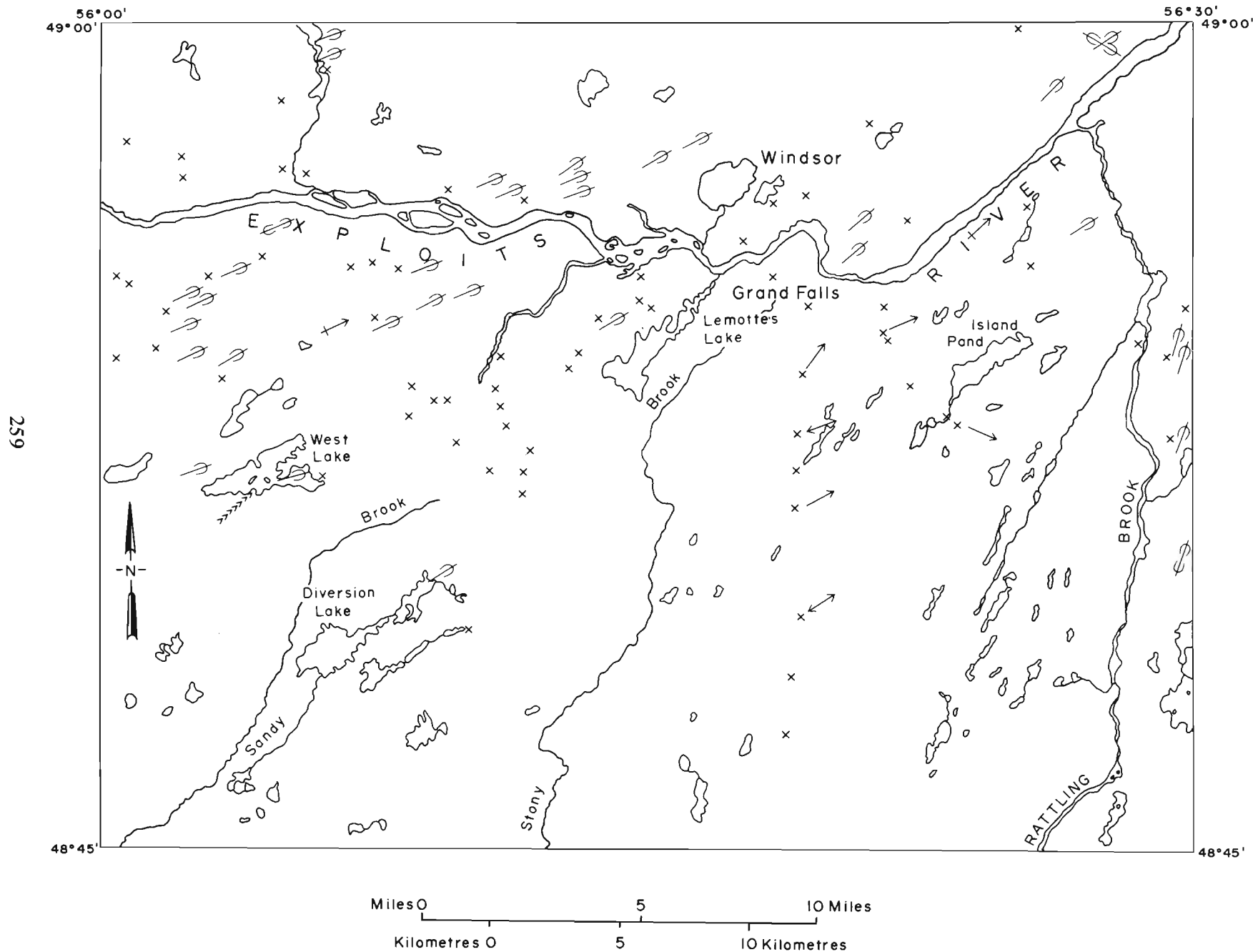
The glacial history of the area, based on the striae and till fabrics compiled to date, has indicated only the generally northeast movement (Maps 2, 3) of what has been concluded to be mid to late stage Wisconsin ice (Vanderveer and Sparkes 1979). This movement parallels the regional structure in most areas but may run sub-parallel to local topography. In the few areas where striae have been found in other directions, these have been interpreted as being younger than the northeast movement and formed as a result of late topographically controlled flow of ice from the ridges into the valleys during the waning stages of glaciation.



Map 1

J. Lake Ambrose - Noel Paul's (1978)	O.F. 12A (212)
K. Badger - Grand Falls (1979)	
L. Proposed Mapping (1980)	

GLACIAL FLOW FEATURES – GRAND FALLS 2 D/13



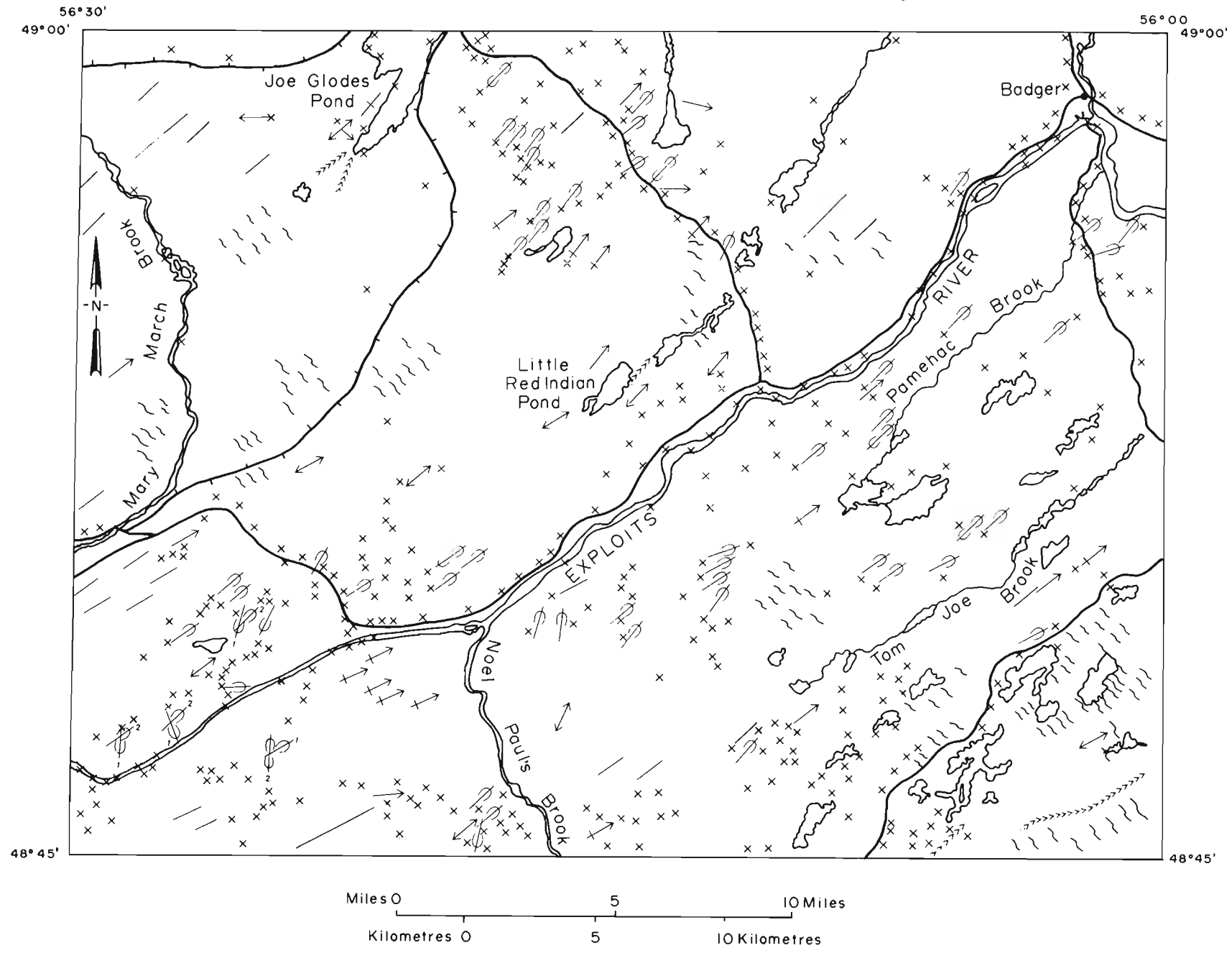
SYMBOLS

Glacial striae (direction of ice movement known, unknown. Number indicates relative age, 1 being the oldest)	
Till fabrics (ice flow direction known, unknown).	
Esker (direction of flow known, unknown)	
Minor moraines, rib moraines, washboard moraines, annual moraines, till ridges transverse to ice flow (irregular, straight)	
Drumlins and drumlinoid ridges	
Crag and tail hills and ramps	
Sample sites	
Glacial linear feature	

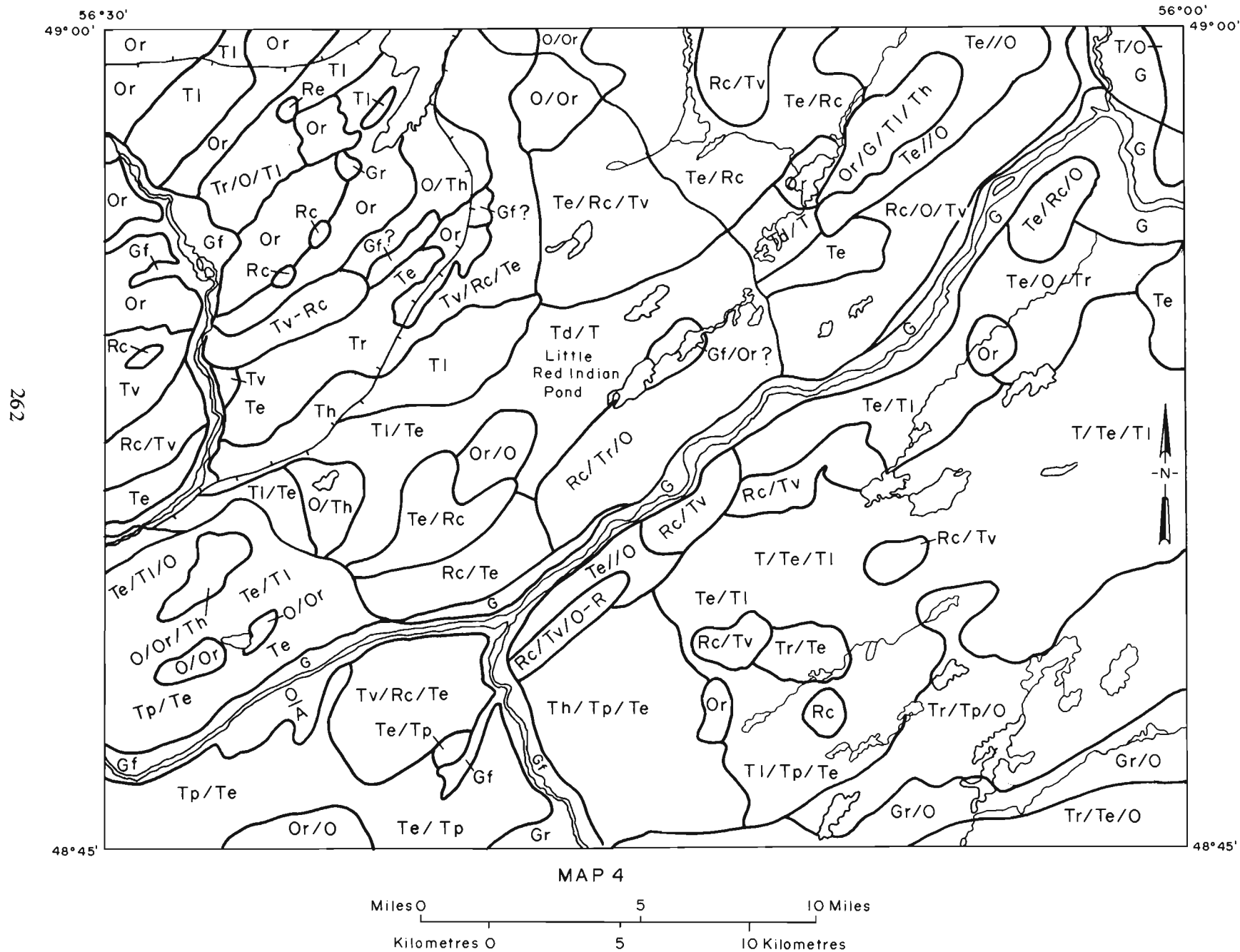


GLACIAL FLOW FEATURES - BADGER 12A/16

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GENERALIZED LANDFORM CLASSIFICATION BADGER 12A/16



SURFICIAL LANDFORM CLASSIFICATION

Morphological Modifier:		Genetic Category:	Morainal	Glaciofluvial	Alluvial	Marine	Lacustrine	Eolian	Colluvial	Organic	Rock
			T	G	A	M	L	E	C	O	R
drumlinoid	(d)		Td								
plain	(p)		Tp	Gp	Ap	Mp	Lp			Op	
hummocky	(h)		Th	Gh							
ridged	(r)		Tr	Gr		Mr	Lr	Er		Or	Rr
veneer	(v)		Tv	Gv	Av	Mv	Lv	Ev	Cv		
terraced	(t)			Gt		Mt	Lt				Rt
eroded and dissected	(e)		Te	Ge		Me	Le		Ce		
kettled	(k)		Tk	Gk							Rk
deltaic	(f)			Gf	Af				Cf		
lineated	(l)		Tl					El		Ol	Rl
concealed by vegetation	(c)								Cc		Rc
weathered	(w)							Ew			Rw
ridged complex	(rx)			Grx							

TABLE 1

SURFICIAL CLASSIFICATION

The geomorphological classification is based on a landform system (Table 1) which consists of a combination of one or more landforms. Each landform is designated by a genetic category and a morphological modifier. The genetic category denotes the type of deposit and the morphological modifier describes the possible mode of formation of each deposit. A generalized landform map (Map 4) has been compiled for the Badger area.

FUTURE PLANS

Plans include: (a) preparation of pebble lithology data, (b) analyses of the till fabric data (c) textural analyses of till samples, (d) compilation of airphoto interpretation of surficial landforms and field data, to produce a surficial map (scale 1:50,000) and (e) geochemical analyses of till samples and selected analyses for heavy

mineral assemblages. An open file release should be made in early 1980.

Surficial and glacial mapping in the Buchans to Annieopsquotch Mountains area is planned for the coming field season.

ACKNOWLEDGEMENTS

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REFERENCES

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1979: Lake Ambrose-Noel Paul's Brook Area: Surficial and Glacial Mapping. In Report of Activities for 1978. Edited by R.V. Gibbons. Newfoundland Department of Mines and Energy, Mineral Development Division, Report 79-1, pages 197-205.