

DETAILED AGGREGATE ASSESSMENT PROJECT - INSULAR NEWFOUNDLAND

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ABSTRACT

This report summarizes the results of 1985 field work to assess the aggregate potential in the St. Barbe area of the Great Northern Peninsula, and the old Norris Arm highway area of Central Newfoundland.

The study has verified that the St. Barbe area has a general lack of surficial aggregate materials, and that the old Norris Arm highway area contains adequate amounts of aggregates (in a glaciofluvial terrace). However, most of the latter deposit has been sterilized by cabin development; extensive bog cover over the remaining area will make quarrying difficult.

INTRODUCTION

It became evident with the completion of the Inventory of Aggregate Resources Project in 1981 that more detailed information on aggregate resources in specific areas of the province would be required. Municipal and other planning agencies were requesting more detailed information on aggregate resources, in an effort to reduce the size of the reserve areas. This project was initiated in 1982 in order to define accurately those areas with highest aggregate potential or those areas necessary to meet the local aggregate requirements. To date, 34 planning areas have been completed, in addition to a number of special projects.

Most of the 1985 field season was spent in the office, compiling maps and open file reports on previous work under this program. However, a two-week period was spent on a detailed aggregate resource assessment in the St. Barbe area of the Great Northern Peninsula and in the Norris Arm area of central Newfoundland (Figure 1).

FIELD PROGRAM 1985

Prior to field work, all available aggregate resource data was compiled. From this data and a review of airphotos, target areas were selected for field study.

Field work involved vehicle traversing along all roads and trails throughout each area to update data on previously-sampled surficial deposits (Kirby *et al.*, 1983). Foot traverses were conducted in areas of potential quarry development. Backhoe testpitting was usually conducted to determine the extent, quantity and quality of the deposit, if reasonable access was available. Otherwise, shallow, hand-dug pits were used.

Mapping in the St. Barbe area was plotted on 1:50,000 scale base maps, whereas mapping in the Norris Arm area was plotted on 1:12,500 scale orthophoto maps.

A total of 60 aggregate and rock samples were collected during the 1985 field program. Samples of unconsolidated

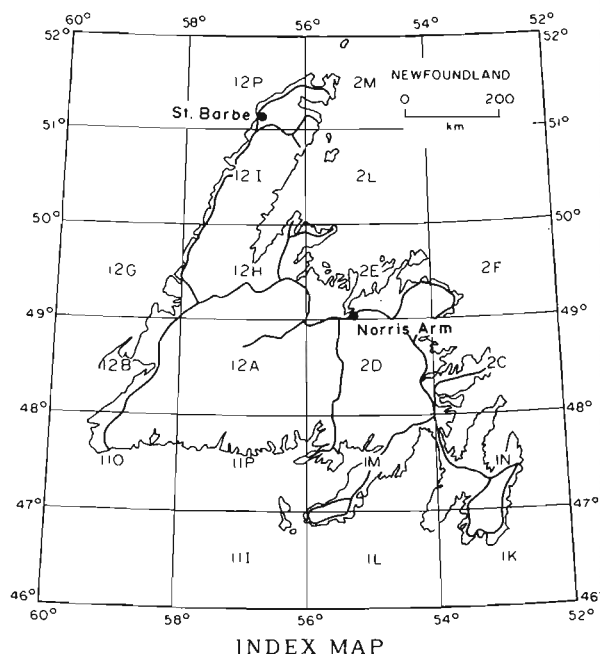


Figure 1: Location map of aggregate assessment areas, 1985 field season.

aggregates containing plus 8 mm size material were field sieved and a split of the minus 8 mm fraction was retained for further laboratory sieve analysis (Kirby *et al.*, 1983). A split of the minus 31.5/plus 16 mm pebble fraction was retained for lithological and petrographic analyses.

Study Results

St. Barbe area. This study has verified that the area lacks any significant amount of surficial aggregate material. The better quality deposits have been used in the construction of the Northern Peninsula highway with little materials remaining to meet local needs. A raised marine-beach deposit at

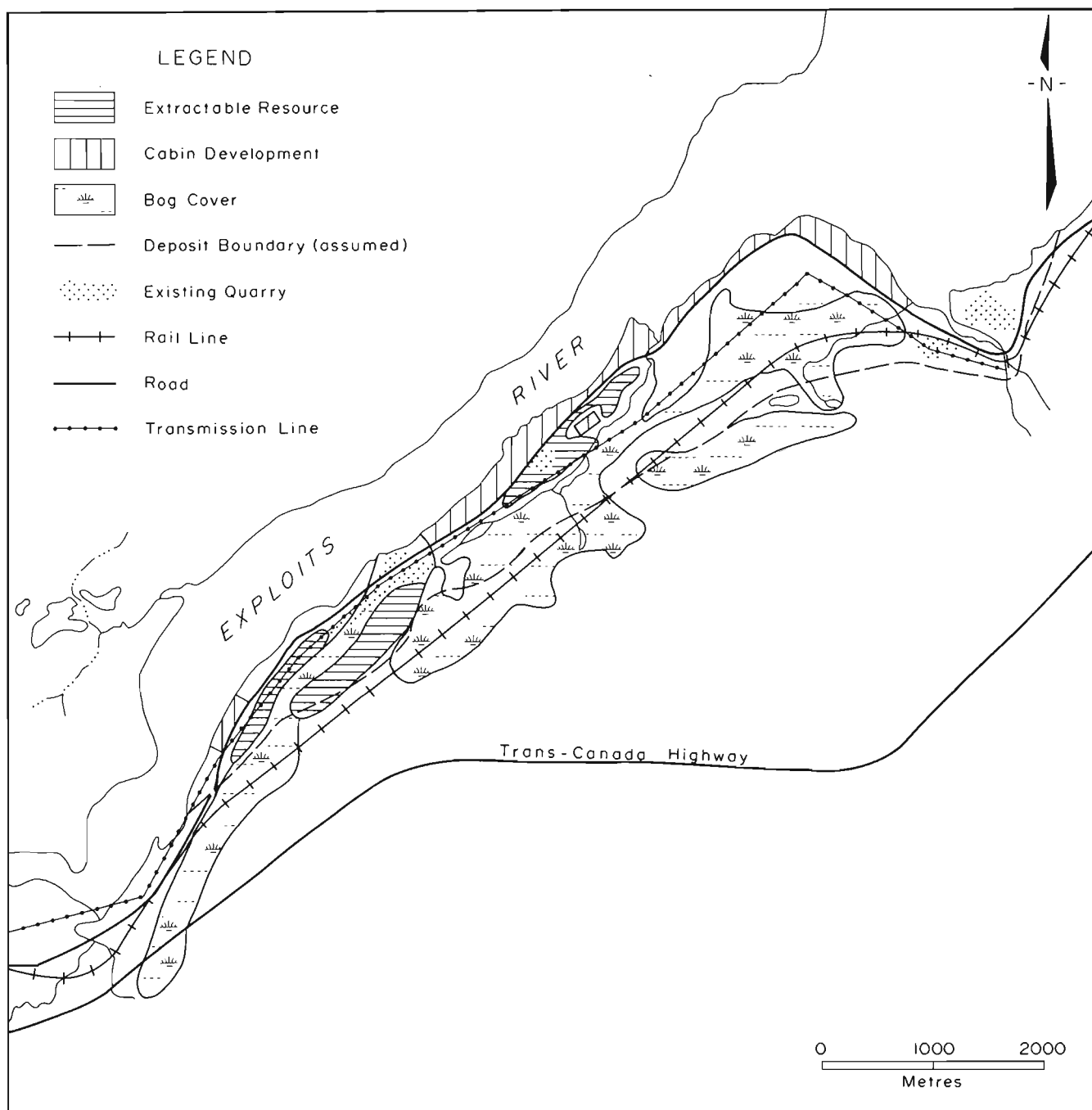


Figure 2: Distribution of extractable aggregate resources within the glaciofluvial deposit along the Exploits River.

Pigeon Cove was used until recently to supply local needs; a conflict between local residents and the contractor has resulted in the closure of this operation. Extensive areas of the coast have been stripped of their thin veneer (1 m) of aggregate material (shingle beach), leaving large barren areas that are now susceptible to coastal erosion. Bedrock in the inland area is covered by a thin veneer (1 m) of marine sediment. The marine sediment is suitable for fill but large areas would have to be stripped to obtain any significant volume of material.

There are a large number of rock quarries scattered throughout the area. The underlying carbonate rocks are suitable for use as aggregates but the cost of blasting and crushing is prohibitive for contractors serving this small population base.

Old Norris Arm highway. Due to uncontrolled development along the old Norris Arm highway, the Department of Municipal Affairs is preparing a development plan for the area. The Department of Mines and Energy was contacted

and a resource-evaluation program was conducted in the area, to ensure that areas of aggregates are set aside for extraction.

The area contains a glaciofluvial terrace deposit that parallels the Exploits River (Figure 2). Field work involved the locating and delineating of glaciofluvial deposits, and determining the amount of extractible material in areas suitable for quarry development.

A total of 15 backhoe test pits were dug in pre-selected sites throughout the area to determine the extent and quality of the deposit. The results of the mapping and sampling show that the area is underlain by a dominantly sandy gravel deposit with no bedrock exposures, and most of the deposit is suitable for concrete production. However, much of the area bounded by the Exploits River and the old Norris Arm highway has been sterilized by cabin development. A large portion of the remaining area is covered by bog, which may make quarry development more difficult.

Planned Work

Maps and laboratory analyses are currently being compiled for inclusion into reports that will be forwarded to the Department of Municipal Affairs for follow-up action.

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REFERENCE

- Kirby, F.T., Ricketts, R.J. and Vanderveer, D.G.
1983: Inventory of aggregate resources in Newfoundland and Labrador, information report and index maps. Newfoundland Department of Mines and Energy, Mineral Development Division, Report 83-2 and Open File Maps, Nfld. 1283 and Labrador 602.