GRANULAR RESOURCE INVENTORY - MACKENZIE -LAC BELOT NTS 96L 1:250,000 Produced for Indian and Northern Affairs by Dept. of Energy, Mines and Resources





GRANULAR RESOURCE INVENTORY - MACKENZIE

LAC BELOT NTS 96 L SW1

Scale 1:250,000

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For: Department of Indian

and Northern Affairs

TERRAIN SCIENCES DIVISION		
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SUMMARY

Sand and gravel are found as glaciofluvial terraces, outwash plains, and eskers in the southwest quarter of the Lac Belot map area The deposits vary in depth and amount of coarse granular material. Ground ice content is probably low in the deposits that have coarse grained material and are topographically high. The majority of the deposits are found in the northern portion of the study area.

Ordovician, Silurian and Devonian limestone and dolomite underlie many of the surficial deposits of the area. The carbonates vary from well bedded and densely crystalline to rubbly. In general they would make good construction aggregate material.

Cretaceous sandstone is weakly cemented and weathers to form fine to coarse white quartz sand. This bedrock could be used as sand-sized construction material.

Devonian shale is highly fissile but could be used for subgrade construction material.

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INTRODUCTION

This report presents preliminary qualitative information on the distribution of granular materials available from unconsolidated deposits and bedrock sources in the southwest quarter of the Lac Belot map area.

The information in this report has been compiled from published and unpublished information of the Geological Survey and from personal communication with officers of the Geological Survey of Canada. No tabular summary has been included because there is only minimal information on the deposit thickness, texture of material, and quantity of ground ice.

The surficial geology map of the southeast corner of Lac Belot map area (scale 1:250,000) is a portion of G.S.C. Open File 21 (R.J. Fulton, 1970). The units on this map were subdivided principally on the basis of airphoto interpretation. This map may be viewed at Geological Survey of Canada offices in Ottawa, Calgary, and Vancouver. Ozalid copies may be obtained commercially at nominal cost.

The bedrock geology map has been prepared from Geological Survey published map 6-1969 (J.D. Aitken, D.G. Cook, 1969). The rock units of this prepared map are grouped according to gross lithology and age. The map indicates the availability of bedrock for construction purposes as an alternative to unconsolidated material.



1:2,500,000

FIGURE #1

after Bostock 1948, 1967

GENERAL GEOLOGY AND PHYSIOGRAPHY

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Two physiographic regions are represented in the study area, the Anderson Plain in the west and the Colville Hills in the east (see figure 1). Most of the study area is a till plain overlying Devonian carbonates and Cretaceous sandstone. Other unconsolidated deposits include glaciofluvial terraces, outwash trains and hummocks, morainal ridges and hummocks, and alluvial deposits. In addition to Devonian carbonate and Cretaceous sandstone, Ordovician and Silurian carbonate and Devonian shale may also be found in the map area.

Unconsolidated Granular Deposits

Terraces and Outwash trains, To, gravel and sand.

The major source of sand-and gravel exists along the Hare Indian meltwater channel in the northern portion of the study area. These deposits are glaciofluvial terraces and outwash trains of varying thickness and contain variable amounts of coarse granular material. Ground ice content is probably low except where the deposit is topographically low and has a high ground water table. Smaller deposits of the same origin are found in other parts of the study area.

Eskers, mixed sand and gravel.

Sand and gravel, deposited as eskers, are found both on the till plain and in abandoned meltwater channels. These eskers tend to be low lying but may be up to 4 miles in length.

Other Unconsolidated Deposits

The other unconsolidated deposits in the study area contain a variable, but small, percentage of sand and gravel and a large percentage of silt and clay sized material. The ground ice content in these deposits is probably more abundant than that in the glaciofluvial terraces, outwash trains and eskers.

Bedrock

Devonian carbonates underlie the majority of the Lac Belot map area. This unit includes limestone and dolomite of the Bear Rock and Hume Formations. These carbonates vary from well bedded and dense to rubbly. In general they would make good construction aggregate material.

In the southeast portion of the study area carbonate rocks of Ordovician and Silurian age underlie the surficial deposits. These rocks are predominantly crystalline dolomites from the Ronning Group and Mount Kindle Formation. They would also make good aggregate material.

The Cretaceous sandstone is similar to that found in the Fort Good Hope, Travaillant Lake, and Canot Lake map areas. It is weakly cemented, porous, and many outcrops consist of fine to coarse white quartz sand. This rock type could be crushed or ripped to provide sand-sized construction material.

Devonian shale of the Hare Indian Formation is highly fissile. It could be ripped and used for subgrade construction material.

Bedrock of the study area is generally flat lying. Numerous outcrops indicate depth to bedrock is not great. It is estimated that maximum depth to bedrock is 30'.

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MAPS AND LEGENDS.

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Lac Belot 96L SW¹/₄ Surficial Geology and Legend.
 Lac Belot 96L SW¹/₄ Bedrock Geology and Legend.



SURFICIAL GEOLOGY LEGEND*

Alluvium - generally mixed coarse and fine grained sediments -А includes floodplains, low terraces, and fans. Colluvial Complex - unstratified mixtures of gravel, sand, silt and Сх clay sized particles - includes colluvial blankets, small fans, slope deposits. Eolian Deposits - mainly medium to fine grained sand - generally occur as Eo duned blankets. High Terraces and outwash trains - dominantly gravel and sand - consist То largely of flat surfaced, stream scrolled areas, raised ten or more feet above present day base levels. Kettled Terraces and outwash trains - dominantly gravel and sand - consist Τk of high terraces and outwash trains pocked with kettle holes. Hummocky Gravel - generally gravel and sand - hummocky areas of "ice contact Н stratified drift". Hummocky Terrain - dominantly glacial till but locally may be "ice contact M⁺ stratified drift" - areas characterized by "morainal" hummocks. Mх Morainal Complex - dominantly glacial till but locally contains "ice contact stratified drift" - areas characterized by "morainal" ridges and hummocks. * Areas not designated as a legend unit are largely rock, near surface rock or till plains. Symbols Pingo Moraine ridge AAAASand dune area ✓ ✓ Submergence limit Abandoned or misfit channel Escarpment K Ly (> Esker Beach ridge " X / Glacial grooving or drumlinoid Euried or filled valley Feature G Sink hole

All units and symbols do not necessarily appear on this map.

Geology from air photo interpretation supplemented by widely scattered field checks by R.J. Fulton, 1968.



Bedrock Geology Legend

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The rock units which appear on the accompanying overlay are a geological grouping according to gross lithology and age.

These units were derived from a more detailed geological map, whose units were subdivided largely on the basis of airphoto and stratigraphic interpretation. The units are identified by a two component code. The first component is upper case and designates age which is followed by a mnemonic designating gross lithology, e.g. Dls - Devonian limestone. When no lithology follows the age component, the unit is composed of many of the rock types listed below.

Legend

Age

T - Tertiary
K - Cretaceous
JR - Jurassic
TR - Triassic
Pr - Permian
C - Carboniferous
D - Devonian
S - Silurian
O - Ordovician
G - Cambrian
P - Precambrian





car - carbonate limestone and/or dolomite 1s - limestone

Lithology

dol - dolomite

ss - sandstone

sh - shale

no mnemonic component indicates unit is composed of many of the above rock types

Boundary of bedrock unit (approximate)

Boundary of bedrock unit inferred in area of surficial cover

Limit of mapping

All units and symbols do not necessarily appear on this map.

SOURCES OF INFORMATION

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