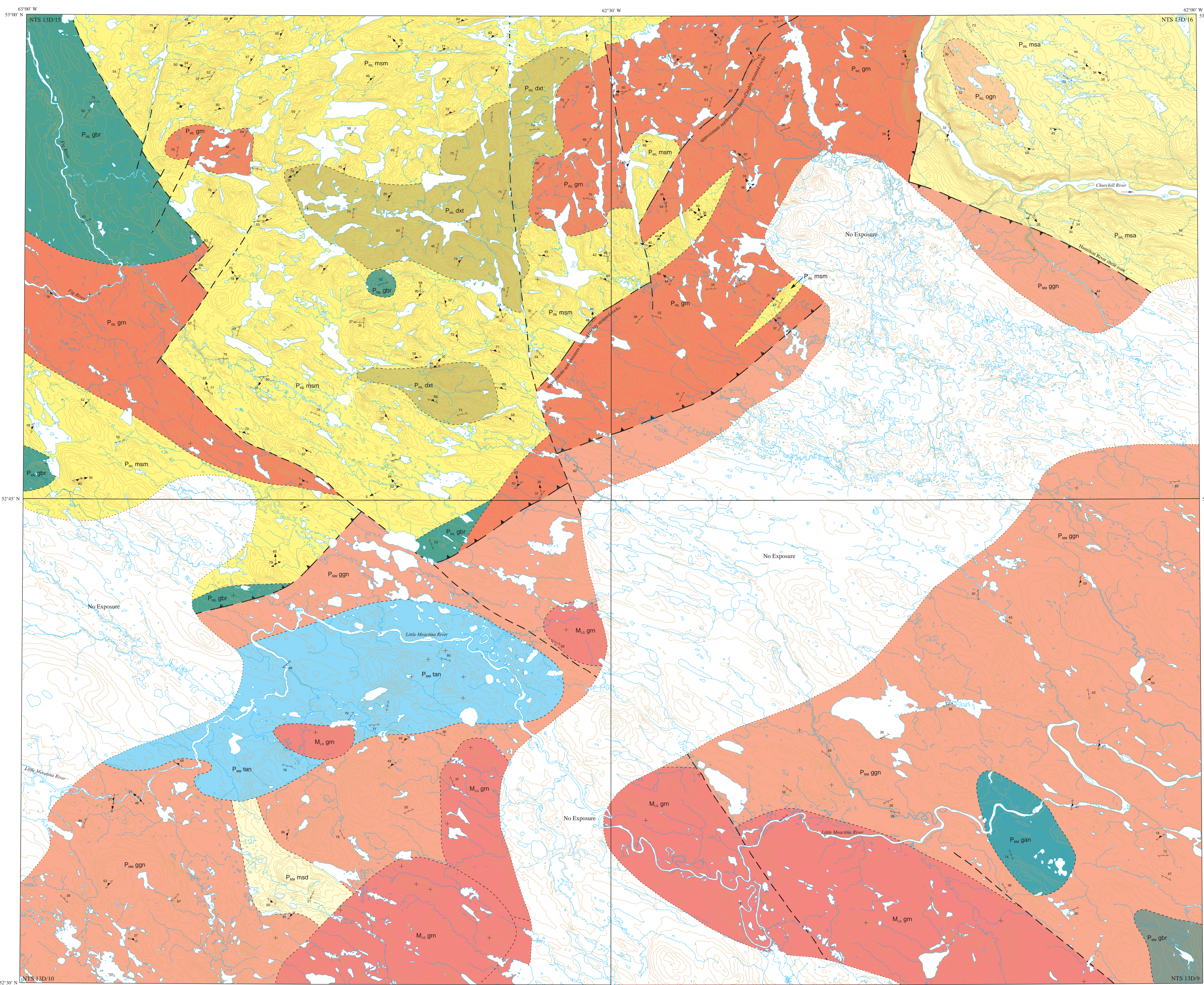


Joint project of the Geological Survey of Newfoundland and Labrador and the Geological Survey of Canada.

GOVERNMENT OF NEWFOUNDLAND AND LABRADOR Department of Mines and Energy Geological Survey



BEDROCK GEOLOGY OPEN FILE 013D/0029 MAP 2001-18

GEOLOGY OF THE LITTLE MECATINA RIVER AREA (NTS 13D/NE), GRENVILLE PROVINCE, SOUTHERN LABRADOR.

scale: 1:100 000



Recommended citation: Jones, D.T. and Nadeau, L. 2001. Geology of the Little Mecatina River area (NTS 13D/NE), Grenville Province, southern Labrador. Geological Survey of Newfoundland and Labrador, Department of Mines and Energy, Map 2001-18. Open File 013D/0029. 1:100 000 scale map with descriptive notes.

Geology by D.T. Jones (Geological Survey of Newfoundland and Labrador) and L. Nadeau (Geological Survey of Canada, Quebec), 2000.

This map represents a preliminary interpretation of the geological field data and is subject to change without notice. Contents regarding revisions to errors are noted and should be referred to the Director, Geological Survey of Newfoundland and Labrador, P.O. Box 870, St. John's, Newfoundland, Canada, A1B 4X8.

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LEGEND

- MESOPROTEROZOIC
Late to post-Grenvillian intrusive rocks
M1 gm Granite: pink-weathering, mainly coarse, and medium-grained biotite granite, locally K-feldspar porphyritic granite; mainly isotropic, although contains a local weak foliation (reflect isopines foliation ?)
PALEOPROTEROZOIC
MEALY MOUNTAINS TERRANE (MMT)
Mealy Mountains Intrusive Suite (MMIS)
P1w tan Anorthositic white- to grey weathering, recrystallized and foliated meta-anorthositic containing hornblende and biotite.
P1w gbn Gabbric-anorthositic: recrystallized and foliated gabbric anorthositic, leucogabbro, gabbric and gabbroic gabbro.
P1w gbr Gabbric-gabbroitic: massive to foliated and recrystallized gabbric, biotite gabbric and gabbroitic.
P1w gms Orthogitic: heterogeneous and unshaded unit consists of gneissic and foliated granitoid rocks including granite, granodiorite, quartz monzonite, local diorite and rare gabbro.
Pre-MMIS rocks
P1w msd Metasedimentary gneiss: pink- and grey-weathering, biotite + garnet + sillimanite migmatite, contains a high percentage of K-feldspar-bearing leucosome.
WILSON LAKE TERRANE (WLT)
P1w gbr Gabbric and gabbroitic: variably deformed and recrystallized gabbric and gabbroitic.
P1w gm Granitoid rocks: consists mainly of recrystallized, foliated and locally mylonitic, biotite + hornblende gneiss, granodiorite, monzonite, K-feldspar porphyritic granite and local clinopyroxene-bearing granitoid rocks.
P1w ogn Grey orthogitic: grey-weathering granitoid orthogitic containing biotite + hornblende + clinopyroxene.
Metasedimentary gneiss and related rocks:
P1w msa Grey- and black-weathering, amphibolite and upper amphibolite-facies metasedimentary gneiss containing biotite + sillimanite + muscovite.
P1w msm Rhyolite or pink-weathering, high-grade metasedimentary gneiss containing biotite + sillimanite and variable amounts of K-feldspar-bearing leucosome, also including rare occurrences of quartzite and calc-silicate schist.
P1w dxt Pink-weathering, biotite + sillimanite-bearing diatexite containing abundant inclusions of P1w meta-metasedimentary gneiss.

- Contact: assumed
Dike
Foliation, vertical foliation
Gneissosity, vertical gneissosity
Gneissosity or foliation and contained mineral elongation lineation
Planar fabric in highly strained rocks
Grenvillian high-strain zone: assumed
Grenvillian high-strain zone - boundary between the WLT and the MMT, teeth on structural hanging wall: assumed
Late- to post-Grenvillian fault (Neoproterozoic ?): assumed
Outcrop (massive or no structural fabrics missing)
Igneous layering

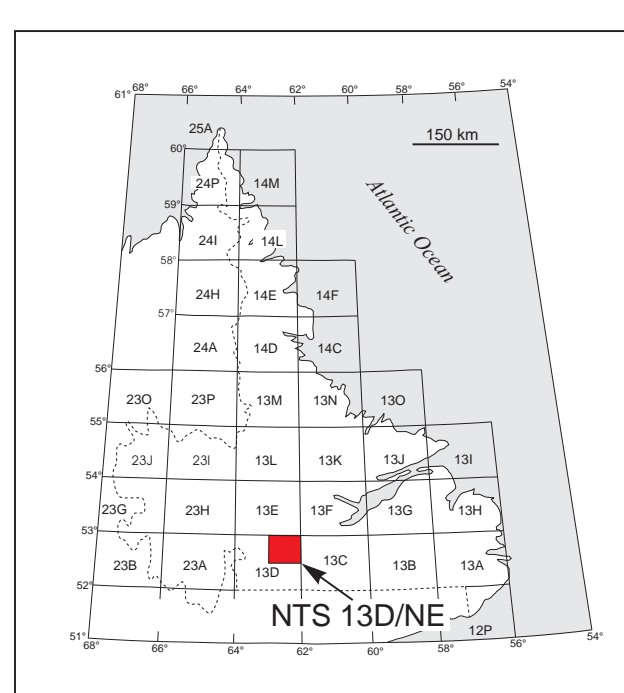


Figure 1. Index map of Labrador showing location of the NTS 13D/NE area.

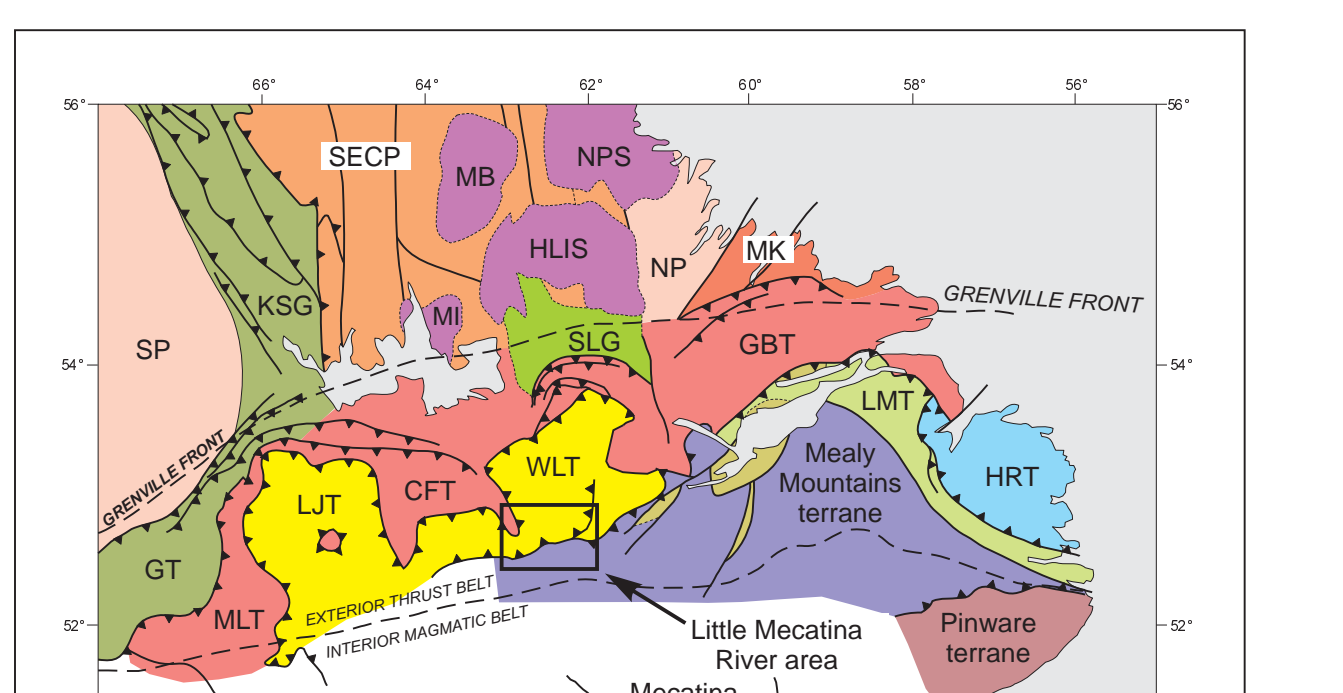


Figure 2. Location of the Little Mecatina River area in relation to the tectonic and major tectonostratigraphic units of southern Labrador, Grenville Province: HRT - Hasleby River terrane, LMT - Lake Melville terrane, GBT - Gossamer Bay terrane, WLT - Wilson Lake terrane, CFT - Churchill Falls terrane, LFT - Lac Seul terrane, MMT - Mealy Mountains terrane, GI - Gossamer terrane, MMT - Mealy Mountains terrane, LBD - La Bonaventure terrane, Ardara terrane, Ardara terrane, SP - Supper terrane, NP - Nain Province (Hopedale Block), Ardara and Palaeoproterozoic divisions, MK - Malakoff Province, SGP - Southwestern Churchill Province core mass, KSG - Kamukpak Supergroup 2.25-1.8 Ga, Mesoproterozoic units, SP - Supper terrane, HLT - Harg Lake terrane units, MMT - Mealy Mountains terrane, MMT - Mealy Mountains terrane, SGT - Seal Lake Group.

DATA POSITIONING
On this map, structural and isotopic data are plotted in the position where the data were collected in the field (i.e., symbol representing isotopic structure or primary features are not offset from the outcrop location). The centre of the symbol representing a planar fabric element (e.g., foliation or gneissosity) is a planar primary feature (e.g., bedding or igneous layering) is plotted in the position where the data were collected in the field. The symbol represents an outcrop that has a massive (i.e., isotropic) structure or one that does not contain a measurable fabric (e.g., fine-grained or anisotropy-free structure).

STRUCTURE AND METAMORPHISM

INTRODUCTION
The outcrops part of NTS 13D/NE includes sheets 13D/1, 13D/10, 13D/13 and 13D/16 was mapped at a scale of 1:100 000 in the 2000 field season (Jones and Nadeau, 2001). Mapping was accomplished by using topographic maps and aerial photographs. The scale of the map is 1:100 000. The map was prepared by D.T. Jones and L. Nadeau in 1999 and revised in 2001. The map was prepared by D.T. Jones and L. Nadeau in 1999. The map was prepared by D.T. Jones and L. Nadeau in 1999. The map was prepared by D.T. Jones and L. Nadeau in 1999.

REGIONAL GEOLOGY
The study area is situated in the southern Grenville Province and straddles the boundary between the Eastern Grenville Province and the Mealy Mountains terrane (Figure 2). This structurally complex terrain is Grenvillian in age, although they consist primarily of Palaeoproterozoic rocks.

Geological studies of the Mealy Mountains terrane (MMT) in southern Labrador, Grenville Province, have been published since the 1960s. The MMT consists primarily of Palaeoproterozoic (Labrador age) gneisses of the Mealy Mountains intrusive suite (MMIS) (see Ennis, 1976; Ennis and Hall, 1990; Ennis et al., 1994; various sections of Palaeoproterozoic, Labradorian and Proterozoic, 1994; 1450 Ma) and late to post-Grenvillian intrusions (Ennis, 1996). The MMIS consists mainly of an older group of anorthositic, leucogabbroic and gabbroic rocks, and a younger group of gabbroic and quartz monzonite intrusions. Ennis (1996) has shown that the MMIS is composed of a variety of gabbroic and quartz monzonite intrusions. Ennis (1996) has shown that the MMIS is composed of a variety of gabbroic and quartz monzonite intrusions.

The Wilson Lake terrane (WLT) is dominated by high-grade metasedimentary gneisses having prograde depositional age (1.7-2.0 Ga, see Jones and Nadeau, 2001). The gneisses are derived primarily from pelitic and mafic volcanic rocks, although they contain amounts of metasedimentary rocks and quartzite and calc-silicate schists. The WLT is a tectonostratigraphic unit that is bounded to the north by the Mealy Mountains terrane and to the south by the Mealy Mountains terrane. The WLT is a tectonostratigraphic unit that is bounded to the north by the Mealy Mountains terrane and to the south by the Mealy Mountains terrane.

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DESCRIPTION OF ROCK UNITS
WILSON LAKE TERRANE (WLT)
Metasedimentary gneiss (P1w msa)
In NTS 13D/NE, the WLT consists approximately 60% metasedimentary gneiss and related rocks, including diatexite and granite. The most common metasedimentary rock type is a high-grade biotite and sillimanite-bearing migmatite (P1w msa), which is composed of a very fine-grained, massive to finely crystalline, biotite and sillimanite-bearing migmatite. Gabbro occurs only rarely in the WLT.

The P1w msa gneiss is predominantly anorthositic and contains anorthite, biotite, and quartz monzonite. The P1w msa gneiss is predominantly anorthositic and contains anorthite, biotite, and quartz monzonite. The P1w msa gneiss is predominantly anorthositic and contains anorthite, biotite, and quartz monzonite. The P1w msa gneiss is predominantly anorthositic and contains anorthite, biotite, and quartz monzonite.

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The outcrops part of NTS 13D/NE, north and east of the Churchill River, is mainly undeformed grey- and white-weathering, biotite + hornblende gneiss, granodiorite, monzonite, K-feldspar porphyritic granite, and locally clinopyroxene-bearing granitoid rocks. The P1w gm gneiss is a variety of gabbroic and quartz monzonite intrusions. Ennis (1996) has shown that the MMIS is composed of a variety of gabbroic and quartz monzonite intrusions.

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