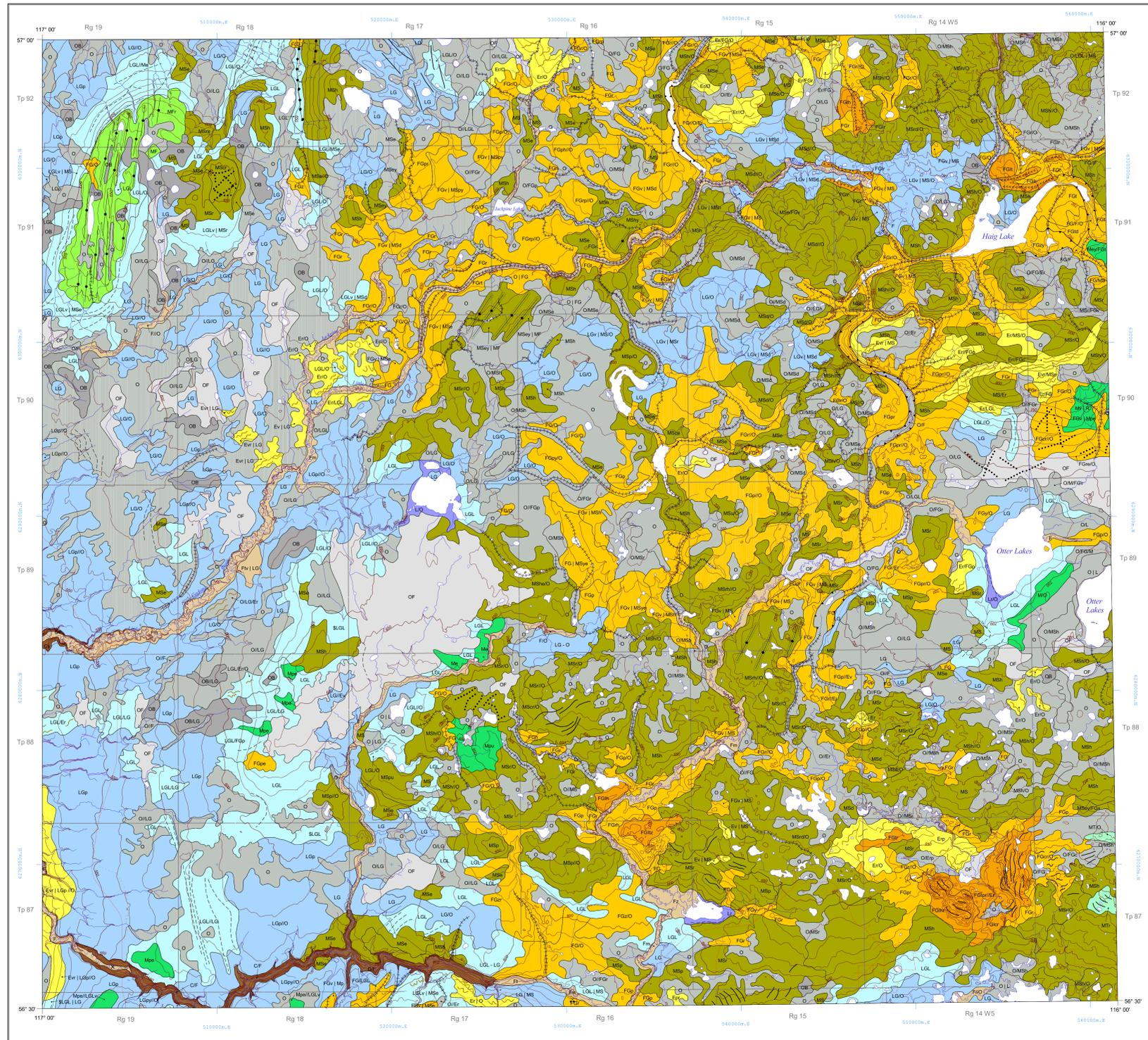


NTS 84C/NE
SURFICIAL GEOLOGY



This is a common map legend for the surficial geology of northern Alberta. Coloured legend blocks indicate map units that appear on this map. Not all map symbols shown in the legend necessarily appear on this map.

UNIT	UNIT NAME	DESCRIPTION AND GENESIS
QUATERNARY		
HOLOCENE		
A	ANTHROPOGENIC MATERIALS	Culturally-made or modified geological materials such that their physical properties (e.g., structure, cohesion, compaction) have been drastically altered.
O	ORGANIC DEPOSITS	Undifferentiated peat layers, woody to fibrous muck, occurring in undifferentiated wetlands; commonly underlain by fine-grained, poorly-sorted glaciolacustrine deposits, includes marshes, swamps, bogs and fens.
OB	Bog peat	Occurs in a peatland with a fluctuating water table and commonly a raised surface; peatland surface is dominated by sphagnum mosses, heath shrubs and short, stunted trees.
OF	Fen peat	Occurs in a peatland with water table at surface and slow internal drainage; peatland surface is dominated by sedges, with grasses and reeds near local pools, and sparsely treed.
C	COLLUVIAL DEPOSITS	Materials that have reached their present position as a result of direct, gravity-induced movement, commonly occurs as slope and slump deposits confined to valley slopes and floors, includes pre-existing bedrock, till, glaciolacustrine, glacioluvial and eolian sediments, generally poorly sorted.
F	FLUVIAL DEPOSITS	Sediments transported and deposited by streams and rivers; synonymous with alluvial deposits (e.g., postglacial floodplains, terraces, fans and deltas).
L	LACUSTRINE DEPOSITS	Sediments deposited in and adjacent to recent lakes; offshore sand, silt and clay, minor organic deposits; littoral (nearshore beaches and bars) sand and silt and minor gravel.
E	EOLIAN DEPOSITS	Wind-deposited sediments; well-sorted, medium- to fine-grained sand, and minor silt (loess); generally massive to locally cross-bedded or ripple laminated; includes both active and vegetated deposits.
PLEISTOCENE		
LG	GLACIOLACUSTRINE DEPOSITS	Five-grained distal sediments deposited in or along the margins of glacial lakes, including sediments that were released by the melting of floating ice. Includes laminated (hythmically bedded) to massive fine sand, silt and clay, and may contain ice-fallen stones.
LGL	Littoral and nearshore sediments	Massive to stratified well-sorted silt, sandy sand and minor gravel; occurs as beaches, bars, spits and forest dunes; deposits deposited during regression and lowering of glacial lakes.
FG	GLACIOLUVIAL DEPOSITS	Sediments deposited by glacial meltwater streams directly in front of glacier ice as subaerial or subaqueous outwash. Includes sand and gravel, often stratified, minor silt, and may show evidence of ice melting (slumped structures). Features include meltwater channels, kettle holes and terraces.
FGI	Ice-contact sediments	Sediments deposited by glacial meltwater streams in direct contact with glacial ice, either in front of (kame terraces) or within glacial ice (crevasse ridges). Includes massive to stratified, poor to moderately sorted coarse sediments (predominantly pebble gravel and coarse sand, silt and clay) and may show evidence of ice melting (slumped structures).
M	MORAINES	Material deposited directly by glacial ice without modification by any other agent of transportation. Includes unsorted till (a mixture of clay, silt, sand and minor pebbles, cobbles and boulders) as the ice margin or beneath a glacier. Locally, it may contain blocks of bedrock, pre-existing stratified drift and till. Beds and lenses of glaciolacustrine and/or glacioluvial sediments may occur.
MS	Stream ice moraine	Terrain resulting from the collapse and lateral movement of englacial and supraglacial sediment in response to melting of buried stagnant ice at the ice margin; sediment is mainly diamicton (fill), but locally includes stratified sediments of glaciolacustrine or glacioluvial origin. Characterized by low to high-relief hummocky topography.
MT	Ice-thrust moraine	Terrain resulting from glacio-tectonic transport of originally subglacial sediment and deposited by the glacier more or less intact; deposits may include syngenetic till as well as masses of deposited pre-existing till, stratified drift and/or bedrock. Characterized by high to moderate relief and features include hill-hole pairs and glacio-tectonic moraine ridges.
MF	Fluted moraine	Glacially streamlined terrain, varies from alternating furrows and ridges to nearly equidistant smoothed hills; all landforms parallel to the local ice flow direction; includes flutes, drumlins and drumlinoids.
PP	PREGLACIAL FLUVIAL DEPOSITS	Sediments transported and deposited by streams and rivers prior to glaciation. Includes sand and gravel deposits occurring in paleovalleys (i.e. preglacial floodplains, terraces, fans and deltas); ranging in age from Middle Wisconsin to Late Tertiary.
PRE-QUATERNARY		
R	BEDROCK	Undivided; may include crystalline (Shield), carbonate or clastic sedimentary rock, and/or coal.
RT	Fluvial gravels	Predominantly well-sorted, quartzite and chert gravel and cobbles; Cordilleran source, Tertiary age.

SYMBOL LEGEND	
Thermokarst depression	X
Landslide and active layer failure scar (small)	X
Landslide and active layer failure scar (large)	X
Eolian forms, dune ridges	~
Beach or shoreline	---
Wave cut bench	---
Escarpment	-----
Meltwater channel (minor)	+++++
Meltwater channel (minor, flow indicated)	+++++
Meltwater channel (major)	-----
Meltwater channel (major, flow indicated)	-----
Crevasse filling
Ice contact slope	▲▲▲
Kettle	⊙
Esker, direction of paleoflow unknown	-----
Esker, direction of paleoflow indicated	-----
Drumlinoid or streamlined landform	-----
Drumlinoid, down-ice flow indicated	-----
Burnt/unburnt or streamlined landform	-----
Minor moraine ridge, De Geer, Roegen, ribbed, washboard (minor)	-----
Major moraine ridge	-----
Iceberg scour	-----
Ice thrust ridge	-----
Stratification (direction unknown)	-----
Stratification (direction known)	-----
Bedrock outcrop	X
Gravel and/or sand pit	X
Section of stratigraphic interest	⊙

ROADS LEGEND	
Paved	-----
Gravel	-----
Unimproved	-----
Truck-trail	-----
UTM, Zone 11 Grid	+
Contour, intervals 10 metres	-----

UNIT NOTATION	
Example: GLACIOLACUSTRINE plain	
Textural modifier	s CL p
Genetic class	CL p
Geomorphic modifier	p
Textural Modifier	
Textural characteristics may be applied to the terrain classification as a prefix based on field observations or by inference from distinctive genetic and/or morphologic features. When two modifiers are given, the second letter is the dominant texture, with the first letter indicating the secondary texture, i.e., sc for sandy clay	
p = pebble	
s = gravel	
cl = sand	
l = silt	
c = clay	
a = sand-silt-clay	
GENETIC & GEOMORPHIC MODIFIERS	
c	crevasse fill
d	doughnut rings and ridges
e	eroded
f	fan
g	gullied
h	hummock
k	collapse
m	meander
p	plain
r	ridged
s	slumped
t	terrace
u	undulating
v	veneer
w	washboard
z	dissected
Δ	delta
Complex	
Where two or more classes of terrain are interpenetrated in a mosaic or repeating pattern on a scale too small to warrant meaningful differentiation, the proportion of each component in the combination is given in a two or three position designation set off by slashes denoting arbitrary percentage limits. For example,	
*MLvGp	means that the area is underlain by approximately 60% moraine plain and up to 40% glaciolacustrine veneer.
*MLvGp	means that at least 60% of the area is underlain by moraine plain, with up to 40% glaciolacustrine veneer and less than 15% glacioluvial plain.
*LGM	means that more than 60% of the area is underlain by a glaciolacustrine plain, with less than 15% moraine.
Stratigraphic Sequence	
Where materials of different origin or texture are known to be superimposed or can be confidently inferred, the sequence is indicated in conventional order using vertical separators, such as:	
*LGL M _p	Thin sandy glaciolacustrine sediment deposited on moraine plain
Transitional Association	
Locally, two or more terrain units are juxtaposed by reason of related origin, temporal sequence, or ambiguous geomorphic distinction. In the last case, both components may or may not be present. Such situations are identified by a compound designation marked by a hyphen. Examples are: *FG-LG indicating ice-contact delta including siltstone from glaciolacustrine delta, or *FG-MD indicating ice-contact kame and kettle topography that blends with hummocky stagnant ice moraine.	
Morphologic Overprint	
Where a sequence of geomorphic processes has produced a multi-aspect or compound terrain fabric, the geomorphic modifier suffixes are appended in the inferred order of super position. *M _p means that a plain of fill has been moulded into ridge forms and finally dissected by modern streams. *F _g h _r means that a glacioluvial plain has been discontinuously covered by ice-contact hummocks and ridges.	

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Map 289
Surficial Geology of the Southwest Buffalo Head Hills Area (NTS 84C/NE)
Geology by: R.C. Paulen, M.M. Fenton and J.G. Pawlowicz

