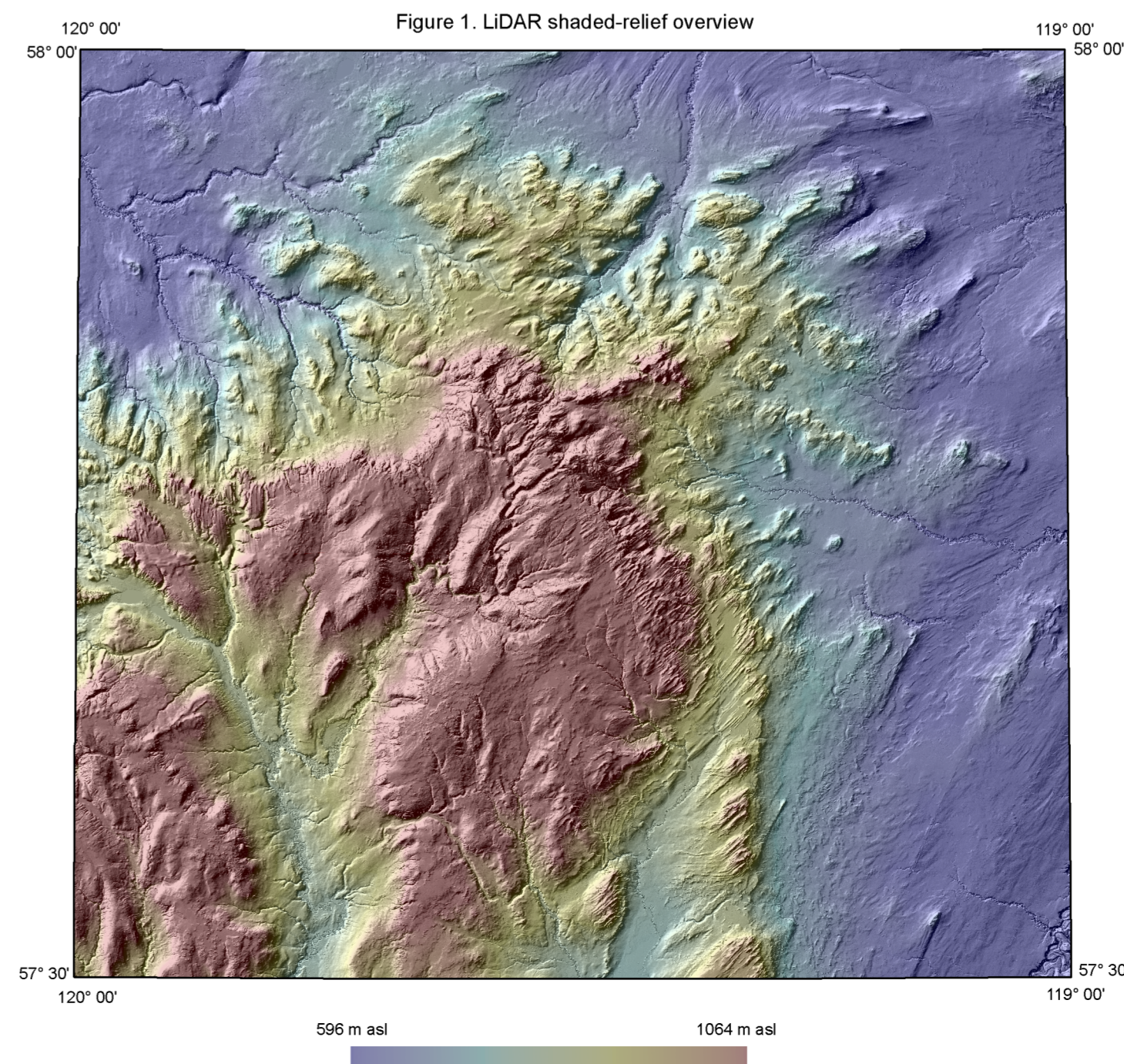


This is a common map legend for the surficial geology of northern Alberta. Coloured legend blocks indicate map units that appear on this map. Not all map symbols shown in the legend necessarily appear on this map.

UNIT	UNIT NAME	DESCRIPTION AND GENESIS
QUATERNARY		
HOLOCENE		
A	ANTHROPOGENIC MATERIALS:	Artificially made ground or geological materials that have been disturbed by human activity, such that their physical properties (e.g. structure, cohesion, compaction) have been drastically altered.
O	ORGANIC DEPOSITS:	Undifferentiated peat (woody to fibrous muck) occurring in wetlands; commonly underlain by fine-grained, poorly drained 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 peatland which receives water from slowly flowing streams and groundwater, with the water table lying at the land surface; peatland surface is dominated by sedges, with grasses and reeds near local pools, and is 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, glaciofluvial and eolian sediments, generally poorly sorted.
F	FLUVIAL DEPOSITS:	Sediments transported and deposited by streams and rivers; synonymous with alluvium, includes well-sorted stratified sand, gravel, silt, clay and organic sediments occurring in channel and overbank deposits (e.g., postglacial floodplains, terraces, fans and deltas).
L	LACUSTRINE DEPOSITS:	Sediments deposited in and adjacent to recent and modern lakes; includes offshore sand, silt and clay, minor organic deposits; may also include minor littoral (nearshore) beaches and bars composed of sand, silt and minor gravel.
E	EOLIAN DEPOSITS:	Wind deposited sediments; comprise well-sorted, medium- to fine-grained sand and minor silt; generally massive to locally cross-bedded or ripple-laminated; includes both active and vegetated dunes and sand sheets.
PLEISTOCENE		
LG	GLACIOLACUSTRINE DEPOSITS:	Primarily fine-grained, distal sediments deposited in or along the margins of glacial lakes, including sediments released by the melting of floating ice. Includes laminated (rhythmically bedded) to massive fine sand, silt and clay, and may contain ice-rafted debris.
LGL	Littoral and nearshore sediments:	Massive to stratified, well-sorted silty sand, pebbly sand and minor gravel; occurs in beaches, bars, spits and deltaic forests deposited during regression and lowering of glacial lakes.
FG	GLACIOFLUVIAL DEPOSITS:	Sediments deposited by glacial meltwater streams 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, kette holes, terraces and minor ice-contact sediments.
FGI	Ice-contact sediments:	Sediments deposited by meltwater streams flowing either in direct contact with the ice margin (kame terraces) or within and/or under glacial ice (eskers, crevasse ridges). Includes massive to stratified, poorly to moderately sorted, coarse-grained sediments (predominantly pebble gravel and coarse-grained sand, locally till) and may show evidence of ice melting (slumped structures).
M	MORAINES:	Diamiction (til) deposited directly by glacial ice and consisting of a mixture of clay, silt, sand and minor pebbles, cobbles and boulders. Locally, this unit may contain blocks of bedrock, pre-existing stratified sediment and till, or lenses of glaciolacustrine and/or glaciofluvial sediment.
MS	Stagnant ice moraine:	Material resulting from the collapse and slumping of englacial and supraglacial sediment in response to the melting of buried stagnant ice at the ice margin; sediment is mainly diamiction, but locally includes stratified sediments of glaciolacustrine or glaciofluvial origin. Characterized by low to high-relief hummocky topography.
MT	Ice-thrust moraine:	Terrain formed from the glaciotelectonic displacement of materials as blocks or rafts in a more or less intact state. Materials may include syngenetic till, as well as masses of pre-existing sediments and/or bedrock. Characterized by high to moderate relief and features include hill-hole pairs and glaciotelectonic terraces.
MF	Fluted moraine:	Glacially streamlined terrain; varies from alternating furrows and ridges to nearly equidimensional smoothed hills; all landforms parallel the local ice flow direction; includes flutes, drumlins and drumlinoids.
FP	PREGLACIAL FLUVIAL DEPOSITS:	Sediments transported and deposited by streams and rivers prior to glaciation. This includes sand and gravel deposited in paleovalleys (i.e., preglacial floodplains, terraces, fans and deltas).
PRE-QUATERNARY		
RT	UNCONSOLIDATED FLUVIAL GRAVELS:	Predominantly well-sorted, quartzite and chert gravel and cobbles; Cordilleran source, Paleogene to Neogene.
R	BEDROCK	

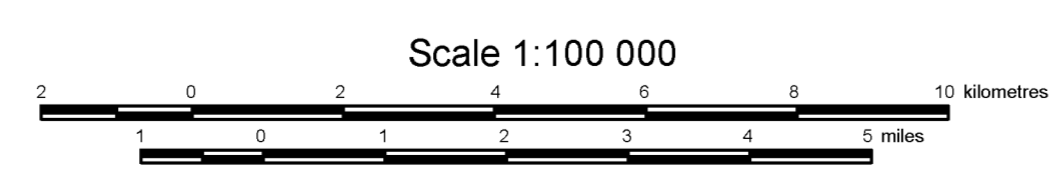
SYMBOL LEGEND	BASEMAP LEGEND
Permafrost: relict and/or active	Primary road, gravel
Beach or strandline	Unimproved road
Meltwater channel (minor)	Truck trail
Meltwater channel (minor, paleoflow direction known)	River
Crevasse filling	Lake
Ice thrust ridge	UTM, Zone 11 Grid
Esker (paleoflow direction unknown)	Contour, intervals 50 metres
Esker (paleoflow direction known)	Aerodrome
Drumlinoid or streamlined landform	
Drumlinoid (ice flow direction known)	
Buried drumlinoid or streamlined landform	
Minor moraine ridge	

UNIT NOTATION	
Example: sandy GLACIOLACUSTRINE plain	
Textural modifier	Geomorphic modifier
s LG p	
Textural Modifier	
Textural characteristics may be applied to the terrain classification as a prefix based on field observations or by inference from distinctive genesis and/or morphology. 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 g = gravel s = sand \$ = silt c = clay a = sand-silt-clay	
GENETIC & GEOMORPHOLOGICAL MODIFIERS	
c	crevasse fill
d	doughnut rings and ridges
e	eroded
f	fan
g	gullied
h	hummock
kt	thermokarst
m	meander
p	plain
r	ridged
s1	slide
s2	flow
t	terrace
u	undulating
v	vener
y	dissected
Complex	
Where two or more classes of terrain are interspersed 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. Examples are:	
'Mp/LGv'	indicates the area is underlain by approximately 60% morainal plain and up to 40% glaciolacustrine veneer
'Mv/LGv/FGp'	indicates at least 60% of the area is underlain by morainal veneer, with up to 40% glaciolacustrine veneer and less than 15% glaciofluvial plain
'LGp/M'	indicates more than 60% of the area is underlain by a glaciolacustrine plain, with less than 15% moraine
Stratigraphic Sequence	
Where materials of different origins or textures are known to be superimposed or can be confidently inferred, the sequence is indicated in conventional order using vertical separators, such as:	
'sLGv Mp'	indicates sandy glaciolacustrine veneer deposited on morainal plain
Transitional Association	
Locally, two or more terrain units are juxtaposed by reason of related origin, temporal sequence or ambiguous geomorphological 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:	
'LG-LGL'	indicates glaciolacustrine indistinguishable from littoral and nearshore glaciolacustrine sediment
Morphological Overprint	
Where a sequence of geomorphological processes has produced a multi-aspect or compound terrain fabric, the geomorphological modifier suffixes are appended in the inferred order of superposition. 'Mpy' indicates a morainal plain has been moulded into ridges and finally dissected by streams. 'FGpH' indicates a glaciofluvial plain that includes discontinuous hummocks and ridges.	
Methodology	
The Alberta Geological Survey conducted surficial geology field mapping in the area during 2012. Observations made during field mapping were combined with the interpretation of Light Detection and Ranging (LIDAR) bare-earth data (Figure 1), as well as SPOT 5 and Landsat 7 satellite imagery. The LIDAR digital elevation model was used to delineate landforms through shaded-relief images created from three illumination directions. The shaded-relief shown as an underlay on the main map was produced by fusing shaded-relief (315 illumination azimuth, 45 declination) and slope-gradient images.	
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Map 574
Surficial Geology of the Levellers Creek Area (NTS 84E/NW)
Geology by: D.J. Utting



Projection: Universal Transverse Mercator
Datum: North American Datum, 1983

