UNIT	NAME	MATERIAL	THICKNESS m	TOPOGRAPHY	DRAINAGE PATTERN	GROUND ICE	COMMENTS
fO	Organic fenland	Peat, typically woody sedge peat	2-3	Flat to very gently sloping, in part with reticulate network of low ridges (50 cm high). Slope 0-2°	No integrated drainage system; water at surface throughout summer months	Commonly unfrozen to 2+ m. Little data available on segregated ice content at greater depths	Poor drainage, plus high compressibility and low strength of the material, makes it unsuitable for any type of construction
pO pO-k	Organic peatland	Peat, typically sedge and woody sedge overlain by sphagnum peat; commonly treeless or with scattered black spruce; lichens commonly constitute 50% or more of surface vegetation, resulting in high albedo.	2-4	Flat to very gently sloping, typically with numerous shallow steep-sided (2-3 m) depressions occupied by lakes, ponds, and bogs (pO-k)	Depressions interconnected by seepage channels; poorly drained	Commonly up to 20%, locally up to 60% segregated ice within peat; typically 30-100 cm, locally up to 3 m total thickness segregated ice in mineral soil immediately below peat. Peat in wet depressions commonly thawed to 1+ m	Subsidence of up to 1 m common and subsidence up to 3 m possible when vegetation is removed; alternation of permanently frozen peat plateaus and thawed depressions and water bodies presents serious problems in construction of roads, pipelines, etc.; material highly compressible when thawed. This unit, which occupies about 35% of the map area, occurs extensively around the periphery of a former thermokarst glaciolacustrine plain. There the peat may be underlain by glaciolacustrine silt and clay; elsewhere it is typically underlain by glacial till
Ap	Alluvial plain	Medium to coarse sand or gravel of point bar deposits overlain by silt and fine grained sand of overbank deposits	3-5	Floodplain and low bordering terraces, commonly with meander scars. Slope 0-3° Relief to 1 m	No integrated drainage system; impeded by meander scroll ridges where present. Poorly to moderately well drained	Permafrost lacking in unvegetated part of floodplain; elsewhere 10-25% segregated ice by volume as thin (1 mm-2 cm) seams. Cement ice only in coarse sand and gravel; ice wedges in polygonal pattern (diameter of polygons 6-25 m) common	Subject to periodic flooding; along secondary streams that lie outside of the area of glaciolacustrine deposits in the southeast part of the map area, silt and sand of overbank deposits may be underlain by gravel, but extraction of the gravel may produce serious deleterious changes in the stream course or dowstream changes in stream regimen
Ap-k	Thermokarst alluvial plain	Fine grained sand and silt	3-5	Floodplain, in part with meander scars and numerous channels and thermokarst ponds. Slope 0-3° Relief to 5 m	Seepage to ponds and lakes, then by connecting channels to trunk stream Poorly to moderately well drained	20 to 50% or more segregated ice by volume ice wedges in polygonal pattern (diameter of polygons 6-25 m) common	Thermokarst processes active around pond margins; widespread occurrence of ice wedges which, upon removal of vegetation, will melt and produce a polygonal network of depressions. Occurs mainly adjacent to Mackenzie River
At	Alluvial terrace	Sand and silt; may be underlain by gravel	2-5	Flat to gently sloping, in part with meander scars and channels	No integrated drainage system. Poorly to moderately well drained	No data; ice content probably low to moderate in adjacent areas 10-25% segregated ice by volume as thin (1 mm- 2 cm) seams. Cement ice only in subjacent gravel	Constitute a potential source of aggregate
Af	Alluvial fans and fan aprons	Highly variable, mainly silt, sand, minor gravel; discontinuous layers of woody peat	30+	Gently to moderately sloping fans and fan aprons. Slope 1-6°	One or more shifting streams usually present; downslope seepage in poorly defined runnels	No data; ice content probably medium to high	Fans subject to sudden and damaging shifts of streams; generally unsuitable for construction
Ax	Alluvial complex; includes Ap, Af	As for Ap and Af		As for Ap and Af	As for Ap and Af	As for Ap and Af	As given for Ap and Af
Cv	Colluvial veneer	Rock detritus and surficial deposits transported by gravity	0-2	Veneer conforms to bedrock topography; occurs mainly along valley walls and scarps. Slope to 30°	Generally freely drained. No organized drainage; generally moderately well drained	No data, but because this unit generally overlies impermeable bedrock, high ice contents are likely, particularly in foot slope positions	Active transportation of material by rock falls, creeping, and slumping; active-layer detachment slides common, especially following forest fire
Cx	Slope complex (Cv, Ca, Af, undivided)	Deposits derived from entire range of surficial material plus bedrock detritus transported by gravity, sheetwash, and intermittent or permanent streams	0-5	Occurs as veneer or blanket on gently to steeply sloping scarps and valley sides. Slope 1-30° Relief to 150 m	No integrated drainage; poorly to moderately well drained	No data; ice content probably highly variable depending on texture and thickness of material forming the unit	Potential slope instability presents major problems for any kind of construction
Lp	Glaciolacustrine plain	Glaciolacustrine silt and clay, minor sand; discontinuous organic cover	2-15+	Flat to gently sloping. (0-5°) Relief to 3 m	Surface seepage through fen-filled depressions. Poorly drained, except where overlain by sand	Commonly 10 to 25% segregated ice as thin (1 mm-2 cm) seams in upper 1-3 m; segregated ice as reticulate network to 50% by volume, or thick tabular bodies of nearly pure ice at greater depth.	Active layer detachment slides followed by development of retrogressive thaw flow slides common on slopes developed on this unit, especially following fire or other disturbance of vegetation. Highly susceptible to gullying even on gentle slopes, following removal of vegetation
Lp-k	Glaciolacustrine thermokarst plain	Glaciolacustrine silt and clay, minor sand; discontinuous organic cover	3-15+	Flat to gently sloping, numerous thermokarst lakes and ponds. Slope 0-5° Relief to 6 m	Seepage centripetal to ponds, and lakes, intermittent seepage along fen-filled depressions between ponds and lakes. Poorly drained	Commonly 10 to 25% segregated ice as thin (1 mm-2 cm) seams in upper 1-3 m; segregated ice as reticulate network to 50% by volume, or thick tabular bodies of nearly pure ice at greater depth.	Thermokarst processes active around pond margin; active layer detachment slides, followed by development of retrogressive thaw flow slides common on slopes developed on this unit, especially following fire or other disturbance of vegetation
Ls	Shoreline deposits of glacial lake: beaches, spits, offshore bars	Sand and gravel	up to 10	Low ridges up to 10 m high along former glacial lake shoreline	No surface drainage. Well drained	No data, but ground ice content probably low	Offers restricted well drained sites at margins of larger areas of poorly drained Lp, Lp-k. Beach gravels are good source of aggregate
Lx	Glaciolacustrine complex	Sand and silt; may overlie glaciolacustrine silt and clay	3-20	Gently irregular topography. Slope 0-5°	Generally moderately well drained	Low to medium ice content; higher ice content (as for Lp, Lp-k) in underlying glaciolacustrine silt and clay, if present	Offers restricted well drained sites at margins of larger areas of poorly drained Lp, Lp-k. Beach gravels are good source of aggregate
Lx-k	Thermokarst glaciolacustrine complex	Sand and silt; may overlie glaciolacustrine silt and clay	3-20	Flat to gently sloping. Numerous shallow thermokarst lakes and ponds. Slope 0-5°	Drainage by seepage along channels connecting thermokarst ponds	Low to medium ice content; higher ice content (as for Lp, Lp-k) in underlying glaciolacustrine silt and clay, if present	Offers restricted well drained sites at margins of larger areas of poorly drained Lp, Lp-k. Beach gravels are good source of aggregate
Gp Gp-c	Glaciofluvial plain, channelled glaciofluvial plain	Sand, gravel locally with veneer of eolian silt or sand; silt and/or peat may occur as filling in channels in Gp-c	3-30	Flat to gently sloping. Commonly retains shallow braided channels, in case of Gp-c. Slope 0-2°	Drainage mainly subsurface, locally with seepage along channels. Well drained except for seepage along channels	Very low ice content, but when ice present consists of cement ice only	Offers good construction sites; major source of aggregate where the material is gravel rather than sand. Where the unit grades into units Lx, Lx-k, the surface deposit is typically sand rather than gravel and may be underlain by ice-rich silt
Gh Gr	Hummocky, ridged glaciofluvial deposits (include esker complexes)	Gravel, sand	3-20	Hummocks and ridges. Slope 5-15° Relief to 25 m	Drainage mainly subsurface. Hummocks and ridges well drained; intervening depressions may be poorly drained	Very low ice content, but when ice present consists of cement ice only	Major source of aggregate where the material is gravel rather than sand
Gx	Glaciofluvial complex (Gh, Gr, Gp, undivided)	Gravel, sand	2-20	Hummocky-kettled topography connected with short flat surfaces. Slope 0-15° Relief to 25 m	As for Gh, Gr, Gp	Very low ice content, but when ice present consists of cement ice only	Major source of aggregate where the material is gravel rather than sand
Mp	Moraine plain	Till, typically clay, silt, minor sand and gravel	3-20	Flat to gently sloping. Slope 0-5°	Downslope seepage in shallow subparallel runnels. Generally poorly to moderately well drained	Commonly 10-25% segregated ice as thin (1 mm-2 cm) irregular discontinuous seams in upper 2-3 m. Thicker (10 cm to 3+m) ice lenses may occur at depth	Potential subsidence upon removal of vegetation typically less than 1 m. Possible high ice content in organic deposits within the unit. Because of drainage by numerous runnels, roads, or berms normal to slope direction, requires numerous culverts to avoid impoundment of surface water
Mpv	Moraine plain, (veneer)	Till, typically clay, silt, minor sand and gravel	1-3	Flat to gently sloping 0-5° following shape of underlying bedrock topography. Slope 0-5°	Downslope seepage in subparallel runnels; poorly to moderately well drained, but locally well drained where subjacent bedrock is sandstone or limestone	Commonly 10-25% segregated ice as thin (1 mm-2 cm) irregular discontinuous seams in upper 2-3 m. Thicker (10 cm to 3+m) ice lenses may occur at depth. Subjacent bedrock typically free of visible ice	Offers fairly good to good construction sites; subjacent shale and siltstone bedrock is suitable for common fill in highway, airstrip, or pad construction
Mb	Moraine blanket	Glacial till, typically clay, silt, minor sand and gravel	3-6	Gentle to steeper slopes. Slope 5-15°	Downslope seepage in shallow subparallel runnels. Generally poorly to moderately well drained	Commonly 10-25% segregated ice as thin (1 mm-2 cm) irregular discontinuous seams in upper 2-3 m. Thicker (10 cm to 3+m) ice lenses may occur at depth	Potential subsidence on removal of vegetation typically less than 1 m; potential for creep of active layer. Because of drainage by numerous runnels, roads, and berms normal to slope direction, requires numerous culverts to avoid impoundment of surface water
Mv	Moraine veneer	Till, typically clay, silt, minor sand and gravel	0-3	Gently to steeper sloping veneer conforms to the underlying bedrock topography. Slope 8-15°	Downslope seepage in subparallel runnels; poorly to moderately well drained, but locally well drained where subjacent bedrock is sandstone or limestone	Commonly 10-25% segregated ice as thin (1 mm-2 cm) irregular discontinuous seams in upper 2-3 m. Thicker (10 cm to 3+m) ice lenses may occur at depth. Subjacent bedrock typically free of visible ice	Offers fairly good to good construction sites; subjacent shale and siltstone bedrock is suitable for common fill in highway, airstrip, or pad construction
Md	Drumlinoid till plain	Glacial till, typically clay, silt, minor sand and gravel	3-30	Moraine plain with individual drumlins, to fluted moraine plain. Slope 2-15°	Parallel seepage or streams in fluted moraine, to trellis pattern or derange drainage in moraine plain with drumlins	Commonly 10-25% segregated ice as thin (1 mm-2 cm) irregular discontinuous seams in upper 2-3 m. Thicker (10 cm to 3+m) ice lenses may occur at depth. Subjacent bedrock typically free of visible ice	Crest of drumlins and drumlinoid ridges typically well drained, intervening depressions poorly drained; construction of roads, etc. easier parallel to rather than normal to orientation of drumlins
Mvd	Drumlinoid moraine veneer	Thin till over glacially eroded drumlinoid bedrock ridges.	1-3	Moraine plain with individual drumlins, to fluted moraine plain. Slope 2-15°	Drumlinoid ridges well drained; intervening depressions commonly poorly drained	Low ice content in till on drumlinoid ridges, higher in till of intervening ridges; subjacent bedrock typically free of visible ice	Crest of drumlins and drumlinoid ridges typically well drained, intervening depressions poorly drained; construction of roads, etc. easier parallel to rather than normal to orientation of drumlins
Mm	Rolling moraine	Glacial till, typically with 5-20% pebble size and larger in a silty clay or clayey silt matrix	up to 20	Broad hummocks 10-20 m. Slope 0-10°	Drainage centripetal to local depressions. Elevated areas moderately well drained; intervening depressions generally poorly drained	Commonly 10-25% segregated ice as thin (1 mm-2cm) irregular discontinuous seams in upper 2-3 m; irregularly shaped and irregularly distributed large masses of segregated ice common at greater depth	Summits of broad hummocks typically well drained; removal of vegetation may cause differential subsidence of up to 3 m due to thawing of segregated ice masses
Mh	Hummocky moraine	Glacial till with 20-50% (locally 60%) pebble size in clayey silt to silty sand matrix	up to 20	Individual or coalescent hummocks. Slope 0-20°, exceptionally 30° Relief 15-30 m	Hummocks well drained; intervening depressions may be poorly drained	Few data; ice content probably low	Crests of prominent hummocks are commonly well drained offering restricted good construction sites; ice content and potential for subsidence may be high in depressions
R	Bedrock	Shale, sandstone		Mainly prominent ridges, scarps, and hills developed on shale, sandstone, and limestone	Generally freely drained but with some poorly drained depressions	No data	Bedrock within the map area comprises shale of Devonian Hare Indian Formation; limestone of Ramparts Formation; siliceous shale of Devonian Canol Formation; and sandstone and shale of Cretaceous age. Limestone of Ramparts Formation is suitable for rip-rap and can be crushed for use as road-metal. Shale of Canol Formation can be crushed readily for use as road-metal, but has proven to be injurious to rubber tires. Other bedrock of the area is mostly too soft for use as road-metal but low ground ice content makes it valuable for common fill