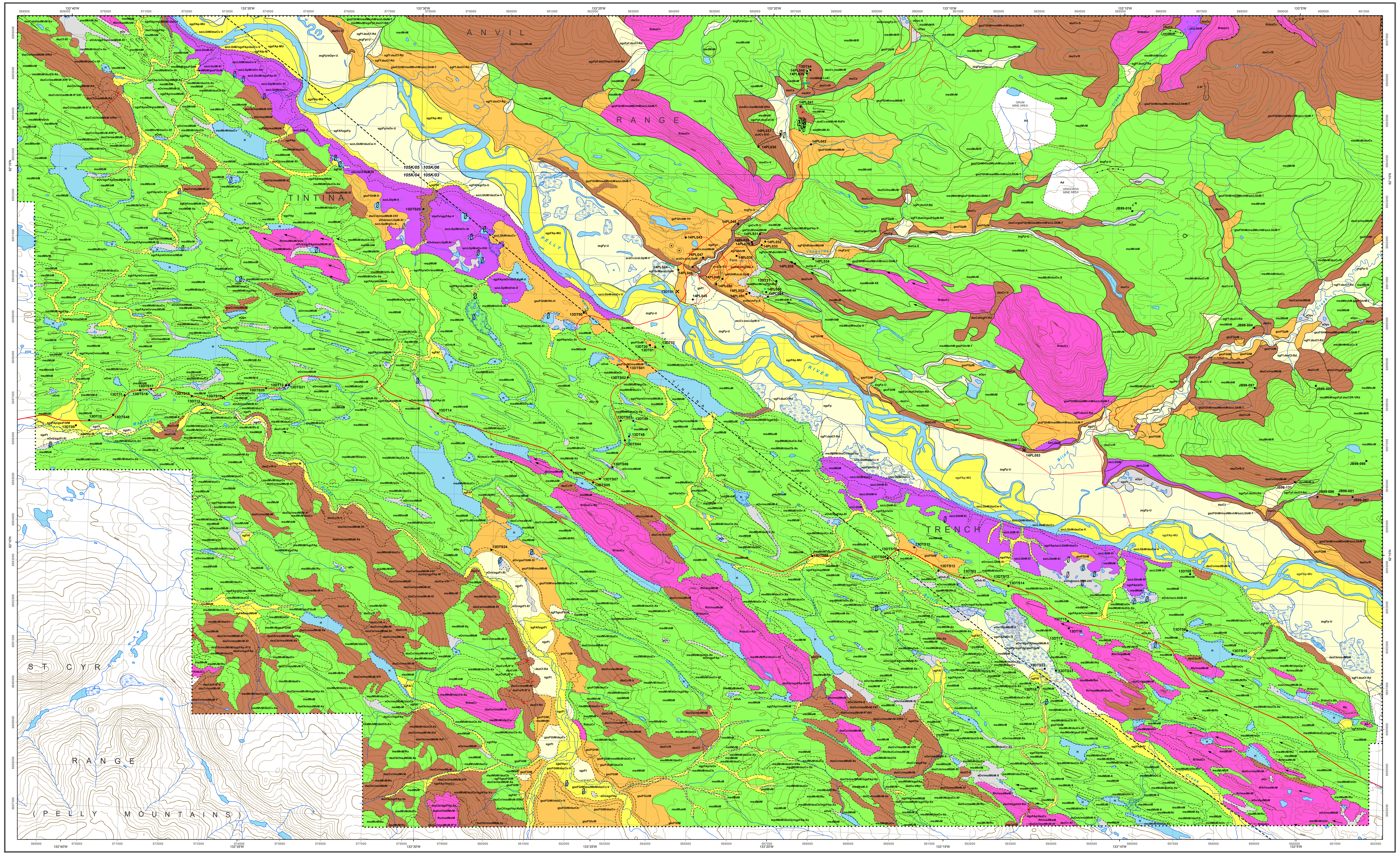

TERRAIN CLASSIFICATION SYSTEM

This surficial geology map was classified using the Terrain Classification System for British Columbia (Howes and Kenk, 1997), with minor modification to meet standards set by the Yukon Geological Survey. For example, we have added some permafrost process subclasses to accomodate the wider variety of permafrost features found in Yukon. We have also added an age classification to distinguish materials deposited during different Pleistocene glaciations.

A sample map unit label is shown below to illustrate the terrain classification system. Surficial materials form the core of the polygon map unit labels and are symbolized with a single upper case letter. Lower case textures are written to the left of the surficial material, and lower case surface expressions are written to the right. An upper case activity qualifier (A = active; I = inactive) may be shown immediately following the surficial material designator. The glacial qualifier "G" may alternatively be written immediately following the surficial material to indicate glacially modified materials. Age is indicated by a capital letter that follows the surface expression but precedes the process modifiers. Geomorphological processes (capital letters) and subclasses (lower case letters) always follow a dash symbol ("-").

sgFGptM-Xs

- GEOMORPHOLOGICAL PROCESS(ES) (-X = permafrost)
- SUBCLASS(ES) (s = sheetwash)
- AGE (M = McConnell)
- SURFACE EXPRESSION (pt = plain, terrace)
- QUALIFIER (G = glacial; A = active; or I = inactive)
- SURFICIAL MATERIAL (F = fluvial)
- TEXTURE (sg = sand, gravel)

COMPOSITE SYMBOL DELIMITERS:

Due to scale limitations, up to 4 terrain units may be included in a single map unit label (*e.g.*, sgFGptM.dsmMbM/xsCv\zcLGpM-XsV). Each component is separated by a delimiter that indicates relative proportions between the components (".", "/", "//") or a stratigraphic relationship "\").

"." - terrain units on either side of the symbol are of approximately equal proportion
"/" - terrain unit(s) before the symbol is more extensive than the one(s) following
"//" - terrain unit(s) before the symbol is considerably more extensive than the one(s) following
"\" - terrain unit(s) before the "\" symbol stratigraphically overlies the one(s) following

1st terrain unit (>50% of map unit) / 2nd terrain unit (30-49% of map unit) // 3rd terrain unit (10-29% of map unit) \ Underlying terrain unit

SURFICIAL MATERIALS

Surficial materials are non-lithified, unconsolidated sediments. They are produced by weathering, sediment deposition, biological accumulation, and human and volcanic activity. In general, surficial materials are of relatively young geological age and they constitute the parent material of most (pedological) soils. Note that a single polygon will be coloured only by the dominant surficial material, but other materials may exist in that unit.

A — Anthropogenic: Materials produced or significantly modified by human activity, such as landfills, mine tailings, and open-pit mines.

O — Organic: Organic materials are produced by the accumulation of decomposing vegetative matter and contain at least 30% organic matter by weight. They are generally found at the surface in areas of little to no slope or in poorly drained depressions. Poor drainage associated with these deposits inhibits decomposition and results in fibric textures (eO), although mesic (uO)and humic (hO) textures were observed. Shallow permafrost is commonly encountered in or beneath these materials due to their insulating effect. Organic deposits form veneers (Ov) where they are <1 m thick and blankets (Ob) where they are >1 m thick. Thin veneers (Ox) <20 cm thick are widespread and unmapped.

C — Colluvium: Material transported and deposited on or at the foot of slopes by gravity-driven processes such as creep, solifluction, landslides, and snow avalanches. Colluvium is common in areas of high relief with moderately steep to steep slopes, particularly in the Pelly Mountains. It typically comprises poorly sorted sediment ranging in size from clay to boulders, depending on the parent material. On gentle to moderate, north-facing slopes, colluvium is composed of fine-grained material and is deposited by periglacial processes such as sheetwash (-Xs) and active layer detachment slides (-Xf). Coarse-grained colluvium is more typical on steeper slopes where landslides (-R and -F) are the primary transport mechanisms. Colluvium is also found in fans (Cf), cones (Cc), and aprons (Ca) at the base of slopes where it has been deposited by hazardous mass movement processes such as rockfall (-Rb), rockslides (-Rr), slumps (-Fu), debris slides (-Rs), and debris flows (-Rd). Permafrost presence is highly variable and dependent on soil texture, topographic position, and surface expression.

F, FA — Fluvial: Sediments transported by streams and rivers and deposited as floodplains (Fp), alluvial fans (Ff) and terraces (Ft). Fluvial deposits typically consist of well-sorted, stratified sand and rounded gravel with varying amounts of silt and organic materials. Silt, sand, and organic deposits make up thinly laminated or massive overbank deposits that are commonly interbedded with coarser gravel deposits. Floodplain sediments are widespread adjacent to the Pelly River where they reach thicknesses greater than 13 m (Environment Yukon, 1976). Fans are common where streams enter broad valleys. Higher elevation, narrow floodplains typically contain coarser-grained deposits than large, lower elevation floodplains. Steep bedrock canyons have also been cut along Vangorda Creek. Permafrost is uncommon in active fluvial deposits, but may be found at depth in inactive deposits. Active fluvial deposits (FA) have recently flooded or are subject to regular flooding.

FG^M — Glaciofluvial (late Wisconsin/McConnell): Glaciofluvial sediment is deposited by glacial meltwater either directly in front of, or in contact with, glacial ice. The sediment is typically poorly to well-sorted, rounded, and stratified gravel and sand. Glaciofluvial materials in the study areas were deposited as hummocky, ice marginal sediment, sub and englacial eskers, and kettled outwash plains (FGp) that were subsequently eroded into terraces (FGt) in valley bottoms. Several large glaciofluvial fans were formed as sediment was deposited from the Pelly Mountains into the Tintina Trench during, or immediately following, deglaciation. These fans are typically partly covered by smaller Holocene fans. The high porosity of glaciofluvial materials results in largely ice-free deposits or deep active layers. Sediments may be more ice-rich in areas with discontinuous, fine-grained sand and silt beds. In the Faro area, variably thick glaciofluvial sediment overlies thick accumulations of glaciolacustrine material. These locations can be vulnerable to permafrost degradation in the underlying material despite the lack of near-surface ice in the glaciofluvial sediment.

M^M — Morainal (late Wisconsin/McConnell): Morainal deposits, also referred to as till, are deposited directly by glacial ice without modification by any other transportation agent. These deposits are widespread, both in valley bottoms and across gentle to moderate slopes in the Tintina Trench. Till is typically a poorly sorted and consolidated mixture of silt, sand, and rounded to angular, pebble to boulder-sized clasts. Many of these clasts are heavily striated and have keels, lee-end fractures and other evidence of glacial erosion. Till may be thin (<15 cm) in high elevation areas, but reaches thicknesses >50 m across the study area (Environment Yukon, 1990). Morainal deposits are typically found as veneers (Mv) or blankets (Mb) that follow the underlying topography. Streamlined drumlins and flutings (Mm and Mr) composed of heavily compacted basal till are abundant across the Tintina Trench. These features were formed from sediment deformation at the ice-bed interface below the ice sheet and typically comprise >5 m of till. Morainal deposits also form undulating (Mu) and hummocky topopgraphy (Mh). Till is generally colluviated when found on slopes, and permafrost is commonly found within morainal deposits with varying amounts of ice.

LG — Glaciolacustrine (late Wisconsin/McConnell): Glaciolacustrine material primarily consists of interbedded and interlaminated clay, silt, and sand deposited in glacial lakes during deglaciation. Glaciolacustrine deposits are widespread in the Tintina Trench, reaching >10 m in thickness. Many of these deposits are covered by glaciofluvial, colluvial, lacustrine, and organic sediment. A notable exception to this is the large glaciolacustrine terraces on the southwest side of the Pelly River. These terraces are ~30 m above the Pelly River floodplain and have a plain (LGp) to undulating (LGu) expression. Glaciolacustrine terraces also exist on the northeast side of the river, but they have been covered by 5-10 m of glaciofluvial sediment and are therefore mapped as glaciofluvial deposits. The low permeability of glaciolacustrine deposits promotes thin active layers. Thermokarst lakes and segregated ice lenses are common in these deposits, indicating the presence of near-surface ice-rich permafrost.

R — Bedrock: Bedrock is exposed mostly on alpine summits, ridges, and spur crests and on steep valley sides. Lower elevation exposures in the Tintina Trench are streamlined to the northwest, in the down-ice flow direction. Bedrock is also exposed in valleys where streams have eroded through valley-bottom sediments. Steep bedrock exposures are mapped as hummocky (Rh) to reflect their irregular surface. Bedrock is commonly associated with colluvial deposits and may be a source of rockfall and rockslide activity.

SYMBOLS

GEOLOGICAL BOUNDARIES:
- defined
- approximate
- assumed
- limit of mapping

GLACIAL FEATURES:
- cirque
- esker, known direction of flow
- esker, unknown direction of flow
- moraine ridge
- minor meltwater channel, known direction of flow
- minor meltwater channel, unknown direction of flow
- drumlin or drumlinoid
- streamlined bedrock

OTHER GEOLOGICAL FEATURES:
- escarpment
- landslide headwall scarp
- landslide direction of movement:
  - debris flow
  - unclassified
- Tintina Fault (approximate location)

TOPOGRAPHIC FEATURES:
- contours
- streams
- roads
- trails
- H lakes
- wetlands

GROUND OBSERVATION SITES:
(labelled with site number, *e.g.* 13DT001)
- field station
- stratigraphic section
- permafrost borehole
- electrical resistivity tomography (ERT) profile station

OTHER FEATURES:
- drumlin, ice-flow direction known
- streamlined bedrock, ice-flow direction known
- striations
- kettle hole
- thermokarst pond

BACKGROUND NOTES

This map was produced as a base layer for community landscape hazard assessment and climate change adaptation planning. An accompanying report providing additional detail on local surficial geology, stratigraphy, glacial history, and landscape hazards will be available from Yukon College's Northern Climate ExChange in April 2015.

The study area lies within the Yukon Plateau. The Pelly River divides the Anvil Range to the northeast and the St. Cyr Range (Pelly Mountains) to the southwest. Other major drainages include Vangorda and Blind creeks which drain into the Pelly River from the north, and Buttle Creek and Magundy River to the south. The Pelly River occupies the Tintina Trench which is the physiographic expression of the Tintina fault, a major strikeslip fault now considered inactive.

Most of the surficial materials and glacial landforms in the study area were formed during the most recent, late Wisconsinan McConnell (Cordilleran) glaciation (ca. 25-10 ka). At its maximum, the Cordilleran Ice Sheet reached elevations between 1550–1900 m over Faro and Ross River (Jackson, 1994), covering all but the highest peaks.

Much of the area is underlain by till up to or exceeding 50 m in thickness. Streamlined drumlins and flutings composed of McConnell till are abundant across the Tintina Trench. In many places, the till is covered by glaciolacustrine (glacial lake) sand, silt and clay, and glaciofluvial sand and gravel (outwash) units of variable thickness. A complex deglacial history, including active retreat, possible re-advances and final stagnation of the ice sheet resulted in interbedding of these units, with repeated layers of till, glacial lake and outwash sediments. See stratigraphic section figures below for more details on site-specific surficial geological units.

GEOLOGIC HAZARDS

The primary geologic hazards in the study area are thawing ice-rich permafrost, landslides and flooding. Permafrost is discontinuous across the study area and may be masked beneath coarse-grained unfrozen surface sediments. Permafrost was directly observed within some shallow soil pits (<1m depth) near the town of Faro in fine-grained soils and beneath thick organic mats. Periglacial features such as thermokarst collapse pits (-Xt), sheetwash (-Xs), and active-layer detachment slides (-Xf) also indicates the presence of near-surface permafrost in surrounding areas. Permafrost is most common and ice-rich in finer-grained sediment, such as glaciolacustrine deposits or finer-grained till, especially on north-facing slopes. Permafrost was only mapped in areas with observable periglacial processes. However, it is interpreted to exist in most materials at ≥2 m depth. In 2008, a mean annual ground temperature of -0.8°C was measured in the town of Faro at 3 m depth (Lipovsky and Yoshikawa, 2009).

Landslides are the downslope movement (mass wasting) of surficial materials and bedrock fragments, mixed with vegetation and debris. This includes both rapid and slow-moving events. The most common landslides in the study area are debris flows and rock slides and falls, all of which occur in steeper areas of high relief. Permafrost-related landslides, such as retrogressive thaw slumps and active-layer detachments also occur, the latter commonly triggered by forest fires.

Flooding is an ongoing concern on alluvial fans and floodplains, particularly along the Pelly River.

DATA SOURCES

As shown in the index map to the left, the portion of the map northeast of the Pelly River was originally completed by Bond (1999) with minor updates along the Pelly River floodplain and surrounding the town of Faro by Lipovsky (2014; this map). Southwest of the Pelly River, the map was interpreted by Derek Turner (2014; this map) from high resolution digital stereo imagery (1:50 000 and 1:40 000 scale scanned aerial photographs* from 1989 and 2004) using PurView/ArcGIS softcopy software. Some map features may therefore not exactly match physiographic and hydrologic features displayed on the underlying 1:50 000-scale topographic base map. Field checking was performed in 2013 and 2014.

*National Air Photo Library aerial photographs:
A27522: 74-85, 90-100 and 147-154 (1989, 1:50 000 scale)
A28517: 15-24, 177-187 and 140-151 (2004, 1:40 000 scale)

TEXTURE

Texture refers to the size, shape, and sorting of particles in clastic sediments, and the proportion and degree of decomposition of plant fibre in organic sediments. Texture is indicated by up to three lower case letters, placed immediately before the surficial material designator, listed in order of decreasing abundance.

Specific clastic textures
a - blocks: angular particles >256 mm in size
b - boulders: rounded particles >256 mm in size
k - cobbles: rounded particles >64-256 mm in size
p - pebbles: rounded particles >2-64 mm in size
s - sand: particles between >0.0625-2 mm in size
z - silt: particles 2 μm-0.0625 mm in size
c - clay: particles ≤2 μm in size

Common clastic textural groupings
d - mixed fragments: a mixture of rounded and angular particles >2 mm in size
x - angular fragments: a mixture of angular fragments >2 mm in size (*i.e.*, a mixture of blocks and rubble)
g - gravel: a mixture of two or more size ranges of rounded particles >2 mm in size (*e.g.*, a mixture of boulders, cobbles, and pebbles); may include interstitial sand
r - rubble: angular particles between 2 and 256 mm; may include interstitial sand
m - mud: a mixture of silt and clay; may also contain a minor fraction of fine sand
y - shells: a sediment consisting dominantly of shells and/or shell fragments

Organic terms
e - fibric: the least decomposed of all organic materials; it contains amounts of well-preserved fibre (40% or more) that can be identified as to botanical origin upon rubbing
u - mesic: organic material at a stage of decomposition intermediate between fibric and humic
h - humic: organic material at an advanced stage of decomposition; it has the lowest amount of fibre, the highest bulk density, and the lowest saturated water-holding capacity of the organic materials; fibres that remain after rubbing constitute less than 10% of the volume of the material

SURFACE EXPRESSION

Surface expression refers to the form (assemblage of slopes) and pattern of forms expressed by a surficial material at the land surface. This three-dimensional shape of the material is equivalent to 'landform' used in a non-genetic sense (*e.g.*, ridges and plain). Surface expression symbols also describe the manner in which unconsolidated surficial materials relate to the underlying substrate (*e.g.*, veneer). Surface expression is indicated by up to three lower case letters, placed immediately following the surficial material designator, listed in order of decreasing extent.

a - apron: a wedge-like slope-toe complex of laterally coalescent colluvial fans and blankets. Longitudinal slopes are generally less than 15° (26%) from apex to toe with flat or gently convex/concave profiles

b - blanket: a layer of unconsolidated material thick enough (>1 m) to mask minor irregularities on the surface of the underlying material, but still conforms to the general underlying topography; outcrops of the underlying unit are rare

c - cone: a cone or sector of a cone, mostly steeper than 15° (26%); longitudinal profile is smooth and straight, or slightly concave/convex; typically applied to talus cones

d - depressions: circular or irregular area (hollow) of lower elevation than the surrounding terrain and delimited by an abrupt break in slope; depression side slopes are steeper than surrounding terrain; depressions are two or more metres deep; typically applied to kettle holes, karst, or piping depressions

f - fan: sector of a cone with a slope gradient less than 15° (26%) from apex to toe; longitudinal profile is smooth and straight, or slightly concave/convex

h - hummock: steep sided hillock(s) and hollow(s) with multidirectional slopes dominantly between 15-35° (26-70%) if composed of unconsolidated materials, whereas bedrock slopes may be steeper; local relief >1 m; in plan, an assemblage of non-linear, generally chaotic forms that are rounded or irregular in cross-profile; commonly applied to knob-and-kettle glaciofluvial terrain

l - delta: landform created at the mouth of a river or stream where it flows into a body of water; gently sloping surfaces between 0-3° (0-5%), and moderate to steeply sloping fronts between 16-35° (27-70%); glaciofluvial deltas in the map area are typically coarse-grained with steep sides and gently inclined kettled or channeled surfaces

m - rolling: elongate hillock(s); slopes dominantly between 3-15° (5-26%); local relief >1 m; in plan, an assemblage of parallel or sub-parallel linear forms with subdued relief (commonly applied to bedrock ridges and fluted or streamlined till plains)

p - plain: a level or very gently sloping, unidirectional (planar) surface with slopes 0-3° (0-5%); relief of local surface irregularities generally <1 m; applied to (glacio)fluvial floodplains, organic deposits, lacustrine deposits, and till plains

r - ridge: elongate hillock(s) with slopes dominantly 15-35° (26-70%) if composed of unconsolidated materials; bedrock slopes may be steeper; local relief is >1 m; in plan, an assemblage of parallel or sub-parallel linear forms; commonly applied to drumlinized till plains, eskers, morainal ridges, crevasse fillings, and ridged bedrock

t - terrace: a single or assemblage of step-like forms where each step-like form consists of a scarp face and a horizontal or gently inclined surface above it; applied to fluvial and lacustrine terraces and stepped bedrock topography

u - undulating topography: non-linear rises and hollows with slopes generally less than 15° (26%)

v - veneer: a layer of unconsolidated materials too thin to mask the minor irregularities of the surface of the underlying material; 10 cm - 1 m thick; commonly applied to eolian/loess veneers and colluvial veneers

w - mantle of variable thickness: a layer or discontinuous layer of variable thickness, typically 0 to 3 m, that fills or partly fills depressions in an irregular substrate; generally too thin to mask irregularities in the underlying material

x - thin veneer: a very thin layer up to 20 cm thick

GEOMORPHOLOGICAL PROCESSES

Geomorphological processes are natural mechanisms of weathering, erosion, and deposition that result in the modification of the surficial materials and landforms at the earth's surface. All processes, except for deglacial processes, are assumed to be active unless the qualifier "I" (inactive) is used. All deglacial processes are assumed to be inactive unless the qualifier "A" (active) is used. Up to three upper case letters may be used to indicate processes. These are listed in order of decreasing importance and placed after the surface expression symbol, following a dash (-) symbol.

Subclasses are used to provide more specific information about a general geomorophological process, and are represented by lower case letters placed after the related process designator. Up to two subclasses can be associated with each process. Process subclasses used on this map are defined with the related process below.

EROSIONAL PROCESSES

V - gully erosion: running water, mass movement, and/or snow avalanching, resulting in the formation of parallel and sub-parallel, long, narrow ravines

FLUVIAL PROCESSES

I - irregularly sinuous channel: a clearly defined main channel displaying irregular turns and bends without repetition of similar features; backchannels may be common, and minor side channels and a few bars and islands may be present, but regular and irregular meanders are absent

J - anastamosing channel: a channel zone where channels diverge and converge around many islands. The islands are vegetated and have surfaces that are far above mean maximum discharge levels

M - meandering channel: a clearly defined channel characterized by a regular and repeated pattern of bends with relatively uniform amplitude and wave length

MASS MOVEMENT PROCESSES

F - slow mass movements: slow downslope movement of masses of cohesive or non-cohesive surficial material and/or bedrock by creeping, flowing or sliding

L - mass movement at an unspecified rate

R - rapid mass movements: rapid downslope movement by falling, rolling, sliding, or flowing of dry, moist, or saturated debris derived from surficial material and/or bedrock

Subclasses: (") initiation zone; (b) rockfall; (d) debris flow; (k) tension cracks; (r) rockslide; (s) debris slide; (u) slump in surficial material; (x) slump-earthflow

PERIGLACIAL PROCESSES

C - cryoturbation: movement of surficial materials by heaving and/or churning due to frost action (repeated freezing and thawing)

S - solifluction: slow gravitational downslope movement of saturated non-frozen overburden across a frozen or otherwise impermeable substrate

X - permafrost processes: processes controlled by the presence of permafrost, and permafrost aggradation or degradation

Z - general periglacial processes: solifluction, cryoturbation and nivation, possibly occuring in a single polygon

Subclasses: (e) thermokarst erosion; (f) thaw flow slides; (l) segregated ice; (n) pingo; (t) thermokarst subsidence; (r) patterned ground; (s) sheetwash; (w) ice-wedge polygons

DEGLACIAL PROCESSES

E - channeled by meltwater: erosion and channel formation by meltwater alongside, beneath, or in front of a glacier

H - kettled: depressions in surficial materials resulting from the melting of buried glacier ice

T - ice contact: landforms that developed in contact with glacier ice such as kames

HYDROLOGIC PROCESSES

U - inundation: terrain seasonally under standing water for greater than one month per year and resulting from a high watertable

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RECOMMENDED CITATION

Turner, D.G., Bond, J.D., and Lipovsky, P.S., 2014. Surficial geology, Faro region, Yukon, parts of NTS 105K/3, 4, 5 & 6 (1:25 000 scale). Yukon Geological Survey, Energy, Mines and Resources, Government of Yukon, Open File 2014-14.

Any revisions or additional geological information known to the user would be welcomed by the Yukon Geological Survey.

Paper copies of this map may be obtained from Yukon Geological Survey, Room 102 - 300 Main St., Whitehorse, Yukon, Y1A 2B5.
Phone: 867-667-3201, E-mail: geology@gov.yk.ca.

A digital PDF (Portable Document Format) file of this map may be downloaded free of charge from the Yukon Geological Survey website: http://www.geology.gov.yk.ca.

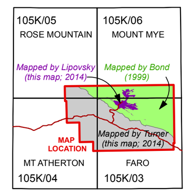
Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon

Open File 2014-14

Surficial Geology, Faro Region, Yukon
Parts of NTS 105K/3, 4, 5 & 6
1:25 000 scale

by

Derek G. Turner, Jeffrey D. Bond, and Panya S. Lipovsky



1:50 000 scale topographic base data produced by CENTRE FOR TOPOGRAPHIC INFORMATION, NATURAL RESOURCES CANADA

ONE THOUSAND METRE GRID
Universal Transverse Mercator Projection
North American Datum 1983
Zone 8

CONTOUR INTERVAL 100 FEET
Elevations in feet above Mean Sea Level

SURFICIAL GEOLOGY
FARO REGION
PARTS OF 105K/3, 4, 5, & 6

SCALE 1:25 000

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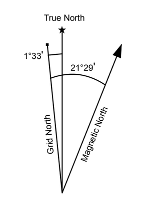
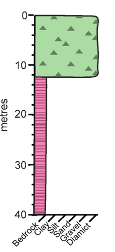
kilometres



Use diagram only to obtain numerical values
APPROXIMATE MEAN DECLINATION NOVEMBER 2014
FOR CENTRE OF MAP

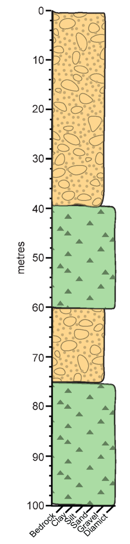
13DT012



Unit 2 (0-12 m): till with sandy silt matrix; strong fissility; light brown where weathered; 25% pebble to boulder sized clasts, average pebble; angular to subrounded clasts, average subangular

Unit 1 (12-40 m): bedrock; upper contact undulates by 5-7 m

13DT019



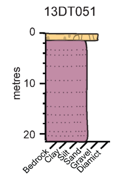
Unit 4 (0-39 m): not well exposed, but on the slope surface is clearly gravel; coarse-grained sand matrix; well rounded to subangular clasts, average subrounded; similar to Unit 2; largest clasts are all felsic intrusives; 50 cm of well-sorted, very fine grained light brown, massive sand (loess) at the top of the exposure on one side

Unit 3 (39-60 m): till; light grey massive diamict; silty sand matrix; 15-20% pebble to boulder sized clasts; angular to subrounded clasts, average subrounded; variable clast lithologies

Unit 2 (60-75 m): glaciofluvial gravel with lenses of diamict; lower contact undulates and comprises 10 cm of bedded fine to medium-grained sand; very coarse grained and poorly sorted with clasts up to 1 m diameter; well-rounded to subangular clasts, average well-rounded; some Ca-precipitation beards; matrix is well-sorted, coarse-grained sand; no observed structures in the gravel

Unit 1 (75-100 m): poorly sorted till; silty sand matrix; consolidated, massive, dark grey; 25-30% clasts ranging from pebble to boulder size; largest clast is >50 cm; subangular to angular clasts, average subangular; range of clast lithologies including felsic intrusive; some clasts are heavily striated

13DT051



Unit 2 (0-1 m): glaciofluvial gravel

Unit 1 (1-21 m): glaciolacustrine sediment; interbedded very fine-grained sand beds; average bed thickness is 2.5 cm; beds grade from light grey to dark grey repeatedly; flame structures were observed at the contact of these light and dark beds; all the beds are heavily faulted and offset by up to 1 cm