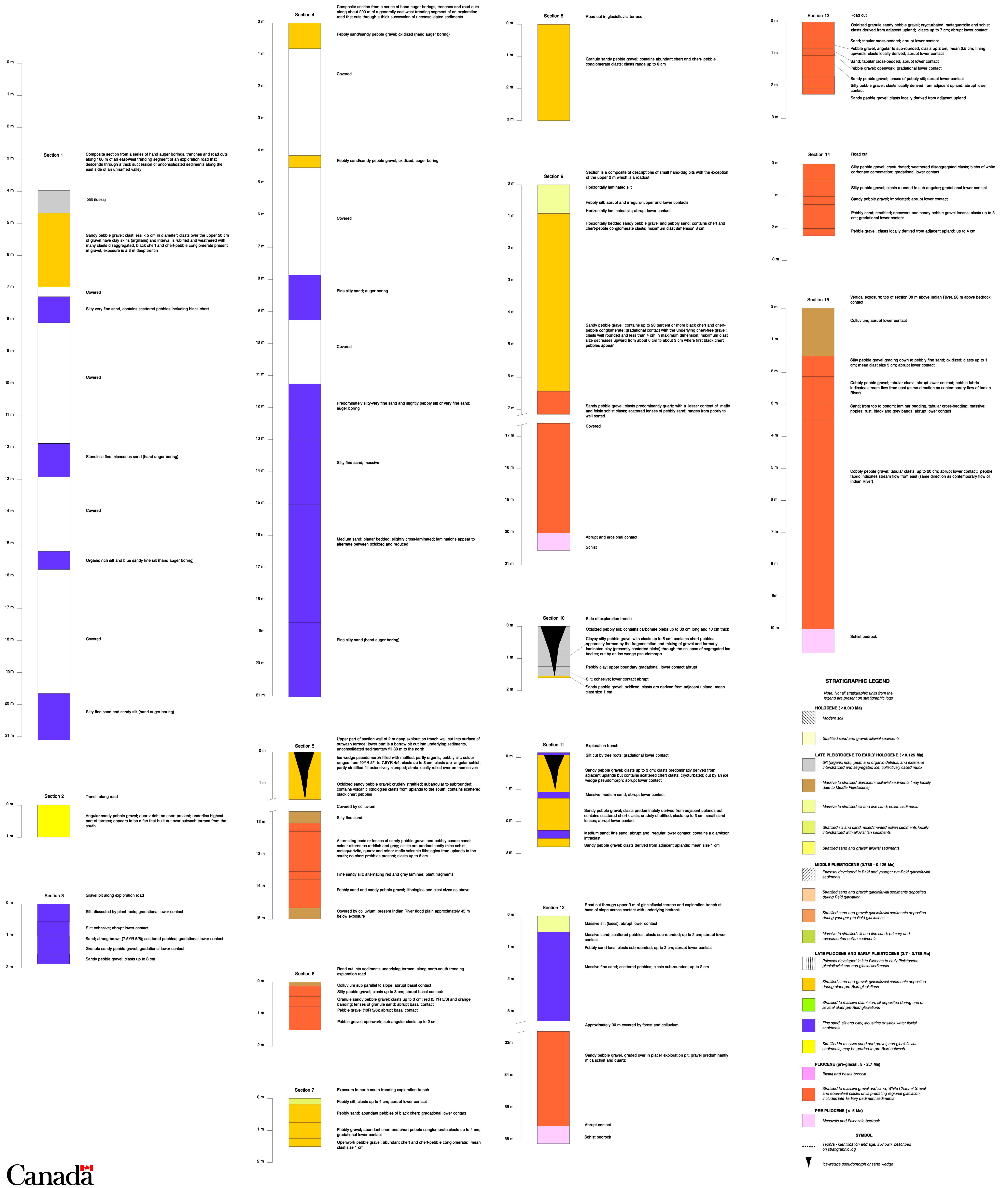

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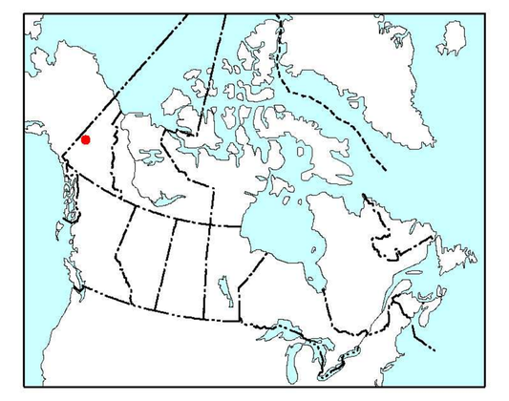

OPEN FILE 4588

SURFICIAL GEOLOGY

REINDEER MOUNTAIN

YUKON TERRITORY

Scale 1:50 000/Échelle 1/50 000

Universal Transverse Mercator Projection / Projection transverse universelle de Mercator
North American Datum 1983 / Système de référence géodésique nord-américain, 1983

115 N/15 OF4579	115 N/16 OF4580	115-0/13 OF4590	115-0/14 OF4591	115-0/15 OF4592	115-0/16 OF4593
115 N/10 OF4578	115 N/9 OF4577	115-0/12 OF4589	115-0/11 OF4588	115-0/10 OF4587	115-0/9 OF4586
115 N/7 OF4575	115 N/8 OF4576	115-0/5 OF4582	115-0/6 OF4583	115-0/7 OF4584	115-0/8 OF4585
115 N/2 OF4574	115 N/1 OF4573	115-0/4 OF4581	115-0/3 OF4349	115-0/2 OF4348	115-0/1 OF4347
115 K/15	115 K/16	115 J/13	115 J/14 OF4344	115 J/15 OF4345	115 J/16 OF4346

NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

Geology by L.E. Jackson, Jr. (1999 - 2002)

Co-ordinated through the auspices of the Ancient Pacific Margin NATMAP

Digital cartography K. Shimamura, Terrain Sciences Division

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

Digital base map from data compiled by Geomatics Canada, modified by Parm Dhesi, Earth Sciences Sector Information Division (ESS Info)

Magnetic declination 2005, 25°39' E, decreasing 19.0' annually

Elevations in feet above mean sea level

Contour interval 100 feet

DESCRIPTIVE NOTES

The Reindeer Mountain map area lies within the Klondike Plateau, an incised rolling upland predominantly underlain by Paleozoic schist and gneiss basement (Bostock 1942). These are, in turn, extensively overlain by folded and faulted siliciclastic rocks of Lower Cretaceous age. These are extensively overlain and intruded by andesitic volcanic and volcanoclastic rocks of the Carmacks Group of Late Cretaceous age (Lowey 1984). Drainage is predominantly rectangular with the courses of Ruby, Montana, and Rosebute Creek controlled by north-south and northeast-southwest trending lineaments.

Dense vegetation covers much of the area. Permanently frozen ground is often on a few tens of centimeters below the surface making digging with hand tools difficult. Consequently, surficial sediments have been largely mapped from the interpretation of air photographs. However, mineral exploration roads and placer mines and test pits locally provide excellent exposures. Much of the stratigraphic information for the area comes from these along with natural exposures in stream cliff-banks.

The Reindeer Mountain map area has never been glaciated with the exception of the highest uplands where features interpreted as eroded cirques occur. Consequently, colluvium covering slopes and ridges is the dominant sediment. It is formed by the breakdown of bedrock into regolith that is transported down-slope by gravitational processes such as seasonal creep, solifluction and landsliding. Major landslides are largely confined to areas underlain by volcanic rocks of the Carmacks Group.

Glaciofluvial and fluvial deposits are confined to terraces and valley bottoms. The oldest (P^T, At^T) consist of non-glacial gravel and sand deposited as alluvial fans and terraces along major streams in the area including Indian River, Ruby, Montana and Rosebute creeks. This period of sedimentation culminated with the deposition of more than 10 m of sand in the Indian River valley (Lu^{PR}) and the subsequent deposition of a black chert-bearing gravel which caps terraces along Indian River (Gt^{PR}). The cause of the deposition of sand is not conclusively known. One possibility is that it was deposited in the arm of a glacially dammed lake (Glacial Lake Yukon) created by damming of the ancestral Yukon drainage system by the first Cordilleran ice sheet during the late Pliocene (alternatively, the growth of alluvial fans during the period may have created low energy fluvial environments in the Indian River valley). The overlying black chert-bearing gravel is clearly outwash from a Cordilleran ice sheet that drained into the headwaters of Indian River (Bostock 1965; Duk-Rodkin et al. 2001). This also apparently occurred during the first regional glaciation ca. 3.1 to 2.6 million years ago (Duk-Rodkin et al. 2001; Froese et al. 2000, 2001).

Following the deposition of outwash gravel, streams in the area have progressively incised sedimentary fill and underlying bedrock and concentrated placer gold. Flood plain and low terraces along Indian River have been extensively mined as have parts of Ruby, Montana and Rosebute creeks. Most of the streams in the area appear to have placer gold potential.

Organic deposits in bogs and fens are extensive in valley bottom settings as is resedimented aeolian silt know as muck. These overlie placer gravel in many areas. They commonly also contain massive lenses of ice.

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