



LEGEND
 Note: This is a common legend for Open files 3963, 3964, 3965 and 3966. Not all units or symbols will appear on each map. Unit boxes without colour indicate the unit does not appear on map.

- QUATERNARY**
- HOLOCENE**
- 7 **ALLUVIUM:** Modern floodplain deposits; silt, sand and gravel with organic fragments and lenses; includes all areas that are inundated during normal overbank flooding; surfaces may be scarred by abandoned channels; commonly terraced
 - 6 **BOG AND SWAMP DEPOSITS:** Silty, woody peat, and gyttja; common in undrained depressions; less frequent in kettle depressions due to permeable nature of ice-contact deposits
- PLEISTOCENE (WISCONSINAN)**
- GLACIOLACUSTRINE SEDIMENT**
- 5 **UNDIFFERENTIATED:** sand, silt, and clay, deposited in ice-contact or proglacial lakes; thickness varies from less than 1 to 10% of metres and glaciolacustrine surfaces may either mimic or mask topography of underlying bedrock
 - 5a **DEEP BASIN DEPOSITS:** laminated clay, silt, and sand; fine-to medium-grained sand, massive to micro-crossbedded; commonly exhibits flow folding and high angle reverse faults; may form depositional terraces rimming modern lakes
 - 5b **DELTAIC DEPOSITS:** coarsening upward sequences of clay, silt, sand, and gravel; 10% of metres thick with planar upper surfaces and steeply dipping foresets; internal structure characterized by large scale foreset crossbedding
 - 5c **ICE-CONTACT DEPOSITS:** silt and fine sand to coarse cobble gravel and diamictic; may be arranged in filling and capped sequences composed of a cobble gravel core, overlain in turn, by plane to tabular crossbedded gravel and sand, ripple drift cross-laminated fine sand and silt, capped by laminated sand, silt, and clay, interpreted as deposits of ice-marginal subaqueous fans; may form parched terraces flanking valley walls, esker beds or complete valley-fill sequences
- GLACIOFLUVIAL SEDIMENT**
- 4 **PROGLACIAL DEPOSITS (OUTWASH):** undifferentiated valley train deposits 1 to 10% of metres thick; frequently composed of coarsening upward sequences characterized by ripple drift crossbedded and graded silt and fine sand near the base, overlain by plane to crossbedded sand, gravel, and cobble gravel; bedding may be contorted and frequently is cut by high angle reverse faults; forms planar depositional surfaces (occasionally slightly pitted) or may form depositional terraces rimming modern lakeshores
 - ICE-CONTACT DEPOSITS:** interstratified complex of sand, gravel, and diamictic; bedding often chaotic and cut by both high angle reverse faults and normal faults; may contain minor glaciolacustrine deposits; subdivided on the basis of morphology
 - 3a **ESKERS:** sinuous ridges trending subparallel to ice flow; thickness up to 10 to 20 m, maximum length about 2 km
 - 3b **KAME AND KAME TERRACE:** hummocky stagnant ice deposits; thickness variable ranging up to 10 to 15 m; commonly forms thin (1-2 m) discontinuous veneer on bedrock; includes all parched ice-contact glaciolacustrine deposits that form isolated pockets flanking valley sides; terracing is frequently indistinct
- TILL AND RELATED DEPOSITS:** Chiefly unsorted debris containing erratics, deposited beneath or in the terminus regions of the ice sheet; textural proportions average 80% sand, 17% silt, and 2% clay; bedrock content variable, commonly approximately 10% but ranges up to 30%; mechanism and environment of deposition variable, ranging from deposition directly from glacial ice, to sediment flow deposition in the ice-marginal and sub-ice environments
- 2a **FLUTED AND DRUMMLINOID TERRAIN:** thickness variable ranging up to 8 to 10 m
 - 2b **GROUND MORaine:** thickness variable, commonly 2 to 3 m thick but up to 10 m in topographic low; topography of the bedrock surface and bedrock structure control surface morphology
 - 2c **THIN DRIFT ON BEDROCK:** thickness variable, commonly less than 1 m but ranging up to several metres in topographic depressions; may include minor glaciolacustrine and glaciolacustrine deposits; amount of bedrock outcrop varies from 0 to 25%
- PRE-QUATERNARY**
- BEDROCK**
- 1 Composed predominantly of granitic gneisses and migmatitic intrusives, gneissic meta-sediments, and marbles; minor outcrop of Paleozoic lithologies; Paleozoic/Precambrian contact symbolized; exposed surfaces frequently smoothed and moulded by glacial abrasion; surfaces are commonly etched and pitted obscuring striation, however these are preserved locally; bedrock topography consists of rock knolls and undrained depressions; local relief averages 70 to 120 m; small pockets of glacial and proglacial sediment may occupy topographic lows; amount of bedrock outcrop varies from 25 to 100%



Geology by C.A. Kaszycki, 1981-1983
 Geological compilation by C.A. Kaszycki, 1988
 Digital cartography by R.L. Allard, Earth Sciences Sector Information Division (ESS info)
 This map was produced from processes that conform to the ESS info Publishing Services Subdivision Quality Management System, registered to the ISO 9001:2000 standards
 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 ESS info
 Mean magnetic declination 2003, 12°00'W, increasing 0.5' annually
 Elevations in metres above mean sea level



OPEN FILE 3964
SURFICIAL GEOLOGY
GOODERHAM
 ONTARIO

Scale 1:50 000 / Échelle 1/50 000
 Kilometres / Kilomètres
 Universal Transverse Mercator Projection / Projection transversale universelle de Mercator
 North American Datum 1983 / Système de référence géodésique nord-américain, 1983
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31 E/2	31 E/1	31 E/4
OF 3966	OF 3965	
31 D/15	31 D/16	31 D/13
OF 3963	OF 3964	
31 D/10	31 D/9	31 D/12

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3964
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