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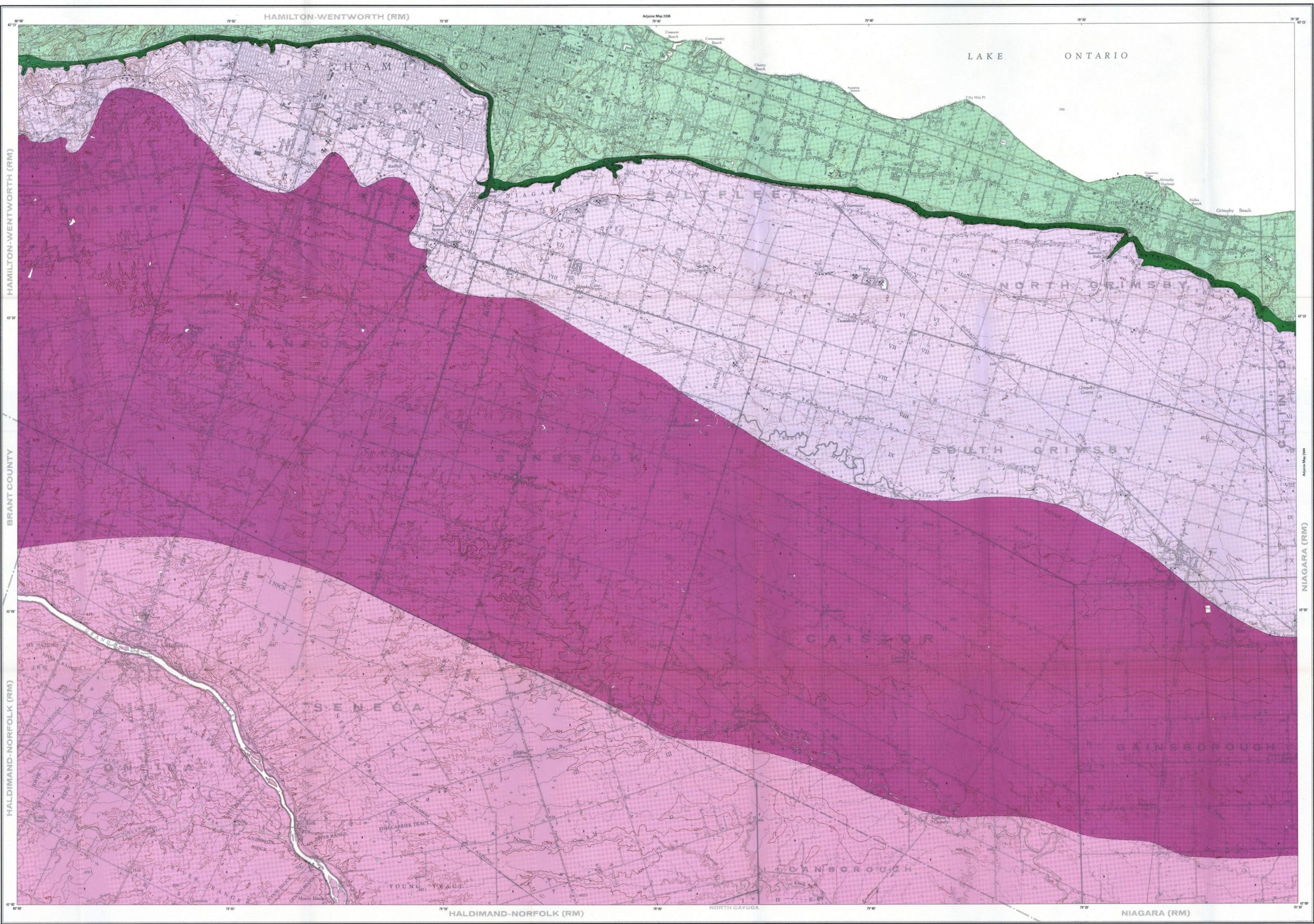
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Physiography of the Grimsby area is dominated by three main features, viz. the Niagara Escarpment trending north-west-south-east through the area, Lake Ontario to the north, and the deeply incised Dundas Valley at the northwestern margin of the area. The erosional edge of a sequence of Silurian dolostones and dolomitic limestones forms the Escarpment. Below this feature more easily eroded Ordovician shales produce hummocky topography much described by a series of northward draining streams. Further north and east the Ordovician shales are covered by a veneer of Neoproterozoic sandstones forming a narrow plain that extends to Lake Ontario. The Dundas Valley is a broad, valley some 500 feet deep which is now mostly filled by alluvial sediments (Karrow, 1963).

STRATIGRAPHY
Queenston Formation (Upper Ordovician-Richmondian) This unit forms the bedrock of the major portion of the map-area north of the Escarpment, and in the Dundas Valley, it may form a considerable portion of the Escarpment face. It is dominantly red, hematitic, fossiliferous and micaceous calcareous shale. Frequent zones having a green coloration occur parallel and discordant to bedding. The thickness of the unit cannot be determined from outcrop studies but a minimum thickness of 700 feet is estimated. The upper contact of the unit with the Whitlock Formation is sharp and unconformable.

Whitlock Formation (Lower Silurian-Alexandrian) This unit is exposed in the Dundas Valley, and is resistant to weathering and occasionally forms a lower bench beneath the main scarp. The unit is composed of medium to thick bedded, brown weathered, light to grey, quartz sandstone. The sandstone varies from fine to very fine-grained; the grains are subrounded and well-sorted. Thin shale partings and seams can occur. Sedimentary features include symmetrical and asymmetrical ripple marks and ripple cross-laminations. The unit is up to 15 feet in thickness.

Mantoulin Formation The Mantoulin Formation conformably overlies the Whitlock Formation in the northwest part of the map-area. The contact is readily distinguishable with the cessation of sandstone being moderately sharp. Near Stony Creek the basal part of Mantoulin is moderately shaly. Near Stony Creek the basal part of Mantoulin is moderately shaly. Near Stony Creek the basal part of Mantoulin is moderately shaly. Near Stony Creek the basal part of Mantoulin is moderately shaly.

Clinton Group (Middle Silurian-Niagaran) This unit is exposed in the Dundas Valley, and is resistant to weathering and occasionally forms a lower bench beneath the main scarp. The unit is composed of medium to thick bedded, brown weathered, light to grey, quartz sandstone. The sandstone varies from fine to very fine-grained; the grains are subrounded and well-sorted. Thin shale partings and seams can occur. Sedimentary features include symmetrical and asymmetrical ripple marks and ripple cross-laminations. The unit is up to 15 feet in thickness.

Lockport Formation This unit is exposed in the Dundas Valley, and is resistant to weathering and occasionally forms a lower bench beneath the main scarp. The unit is composed of medium to thick bedded, brown weathered, light to grey, quartz sandstone. The sandstone varies from fine to very fine-grained; the grains are subrounded and well-sorted. Thin shale partings and seams can occur. Sedimentary features include symmetrical and asymmetrical ripple marks and ripple cross-laminations. The unit is up to 15 feet in thickness.

Devonian The Devonian is represented by the Lockport Formation, the Decree Formation, and the Verulam Formation. The Lockport Formation is a massive, blue-grey dolomite and limestone. The Decree Formation is a grey shale, silty limestone, and shale. The Verulam Formation is a grey limestone, minor shale.

Geological Boundaries
 Geological boundaries are shown as solid lines. Positional boundaries are shown as dashed lines. Geological boundaries, position approximate, are shown as dotted lines. Geological boundaries, position indeterminate, are shown as long-dashed lines. Quarry locations are marked with a cross symbol.

LEGEND

PALEOZOIC
SILURIAN
 SALINA FORMATION
 1 Argillaceous dolomite, evaporites.
 2 Brown or tan dolomite.
 3 Brown or tan dolomite.
 4 Grey-green shale, siltstone, limestone.
 5 Red shale.
 6 Grey-green shale, siltstone, limestone.
 7 Grey siltstone, minor shale.

DEVONIAN
 LOCKPORT FORMATION*
 1a Evonosa Member: dark brown or black, silty dolomite.
 1b Unnamed member: (Vinemont) shale, brown argillaceous dolomite and shale.
 1c God Island Member: dark brown dolomite.
 1d Gasport Member: blue-grey dolomite and limestone.
 2 Amabel Formation*
 2a Evonosa Member: dark brown or black, silty dolomite.
 2b Unnamed member: massive, blue-grey to buff dolomite.

CLINTON GROUP*
 DECREE FORMATION: Grey dolomite, interbedded limestone.
 ROCHESTER FORMATION: Dark grey shale, interbedded limestone.
 THOROLD FORMATION: Grey dolomite and limestone.
 RENAYLES FORMATION: Grey and blue-grey dolomite.
 NIAGARA FORMATION: Grey shale, interbedded limestone.
 THOROLD FORMATION: Greenish sandstone and shale.

CATABACT GROUP*
 GRIMSBY FORMATION: Red sandstone and shale.
 CABOT HEAD FORMATION: Grey and green shale, interbedded limestone.
 MANTOULIN FORMATION: Grey, brown argillaceous dolomite.
 WHITLOCK FORMATION: Tan or grey quartz sandstone.
 DISCONFORMITY—UNCONFORMITY

ORDOVICIAN
 QUEENSTON FORMATION
 1 Red shale.
 2 Grey-green shale, siltstone, limestone.
 3 Grey-green and black shale.

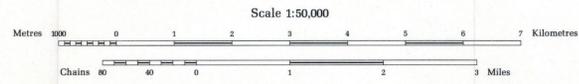
SYMBOLS
 County or Regional Municipality boundary.
 Regional township boundary.
 Topographic contours.
 Railroad outcrop.
 Geological boundary, observed.
 Geological boundary, position approximate.
 Geological boundary, position indeterminate.
 Quarry.

*Lockport and Amabel Formations are lateral facies equivalents, with arbitrary boundary in the Waterloo area. Because of the map scale, formations of this group could not be shown separately. Does not occur in map area.

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 Compiled by P. G. Telford, 1975.
 Cartography by C. A. Love and assistants, Ontario Division of Mines, Brant County, Hamilton, Ontario Division of Mines, Map 2343 (East and West sheets) of the National Topographic System.
 Map scale: declination in the area was approximately 1° 10' N in 1975.

Map 2343
Paleozoic Geology
GRIMSBY
 SOUTHERN ONTARIO



Abbrev. 100