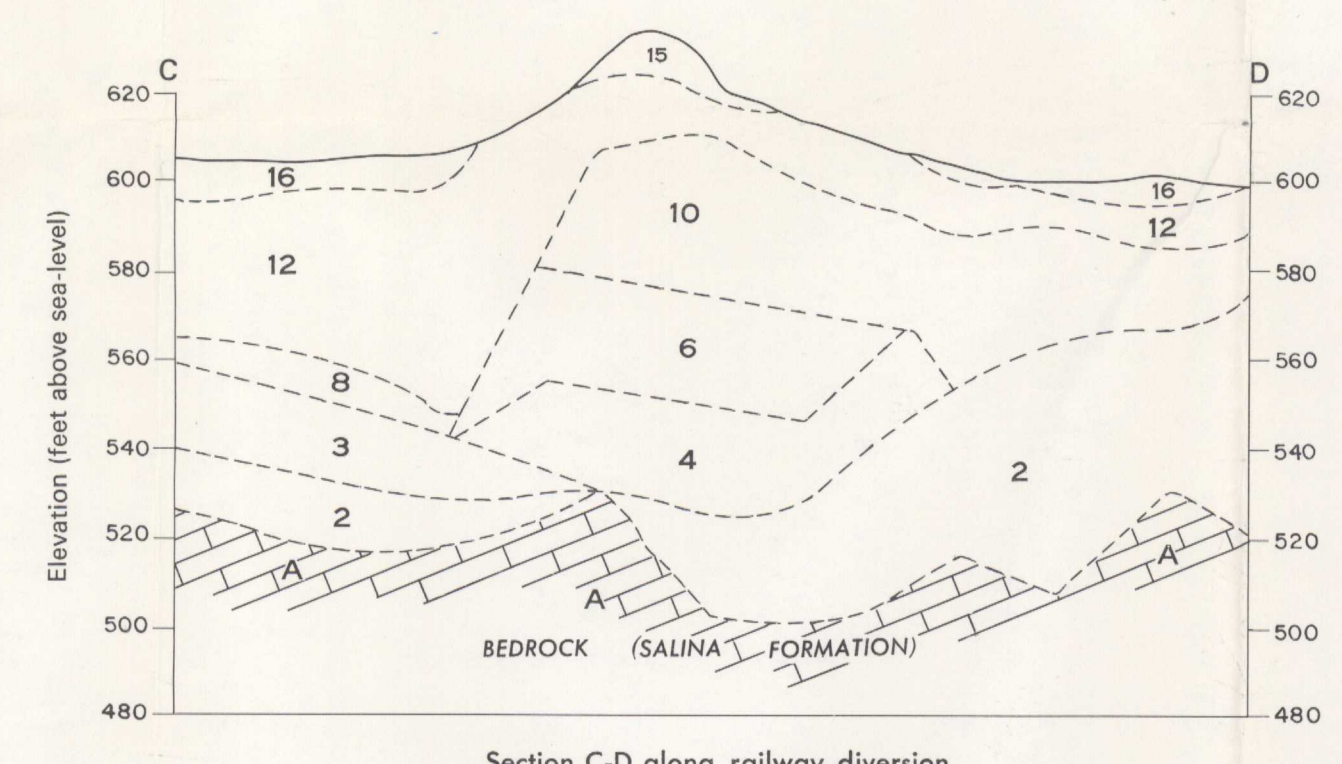


Section A-B, along Welland Canal By-Pass



Section C-D along railway diversion

- LEGEND
- QUATERNARY RECENT
- 22 Dumped material obtained chiefly during excavation of the existing Welland Canal
 - 21 Stream deposits: partly stratified gravel, sand, silt and clay; in places mixed with considerable organic material
 - 20 Muck: black, decomposed, organic material overlying glaciolacustrine silty clay (Unit 16) or till (Unit 13)
 - 19 Lake Erie deposits: sand and fine grained gravel, angular boulders in the vicinity of bedrock exposures
 - 18 Aeolian deposits: fine to medium-grained sand, minor silt; an area of active dunes
 - 17 Aeolian deposits: sandy silt, thin, overlies glaciolacustrine silty clay (Unit 16), till (Unit 12) or bedrock
- WISCONSINAN
- 16 Glaciolacustrine: silty clay, brownish-grey, commonly stratified, in places varved, weathering confined to upper 24 inches except along vertical fractures where it might extend 20 feet downwards, gypsum occupies some fractures
 - 15 Glaciolacustrine: sand and silty sand, usually overlies till (Unit 12)
 - 14 Glaciolacustrine: medium-grained sand to coarse-grained gravel, a beach deposit
 - 13 Till: sandy, gravelly, reworked, grades downward into finer-grained till (Unit 12)
 - 12 Till: clayey, silty, grey brown to reddish-brown, massive, jointed, rock fragments become more numerous northward, large boulders occur singly or in nests in the bottom part
 - 11 Glaciolacustrine till transition: sandy silt, fine-grained, buff, varies from massive to thin-bedded and contains irregular inclusions of till (Unit 10)
 - 10 Till: silty, brown to reddish-brown, sandy and gravelly in places
 - 9 Glaciolacustrine: sandy silt to fine-grained sand, buff
 - 8 Glaciolacustrine: varved clay, upper part distorted in places
 - 7 Glaciolacustrine: silty clay, brown to reddish-brown, scattered narrow lenses of silt and fine-grained sand
 - 6 Glaciolacustrine: clayey silt, reddish-brown, contains widely scattered stones
 - 5 Glaciolacustrine: varved clay grading downward into massive clay, contains a few scattered cobbles and stones
 - 4 Lacustrine till transition: silt, clay, brown, containing inclusions of till (Unit 2)
 - 3 Glaciolacustrine: sandy silt, fine to medium-grained sand, rounded gravel
 - 2 Till: reddish-brown, sandy and gravelly, compact, relatively impervious, scattered thin lenses of silt and fine-grained sand
 - 1 Glaciolacustrine: fine to coarse-grained sand, gravel, containing boulders from the underlying bedrock

NATURAL SURFACE DRAINAGE	RANGE IN THICKNESS (FEET)	AVERAGE NATURAL WET DENSITY (P.C.F.)	TEXTURE AND PLASTICITY
Good	<2-50		
Poor	<1-12		
Poor	<1-10		
Good	<5-50		
Good	<1-8		
Poor	<2-30	121	Figures 2,4,6
Good	<1-5		
Good	<2-15		
Good	<1-8		
Imperfect	5-37	125	Figures 1,3,6
	1-11	127	
	1-50	128	Figures 1,3
	1-24	129	
	1-15	113	Figure 5
	1-32	108	Figures 2,4,6
	2-47	125	Figures 2,4
	2-15	113	Figure 5
	1-24	116	
	1-26		
	2-52		Figures 1,3
	1-20		

- DEVONIAN
- D AMHERSTBURG FORMATION: cherty limestone and dolomite
 - C BOIS BLANC FORMATION: dolomite, limestone, nodular chert
- SILURIAN
- B BERTIE FORMATION: argillaceous dolomite
 - A SALINA FORMATION: dolomite, shale, gypsum
- Bedrock outcrop
- Bedrock outcrop (too small to be plotted)
- Geological boundary
- Soils
- Bedrock (approximate)
- Boundary of shallow overburden
- Areas of shallow overburden (usually less than 4 feet in thickness)
- Concealed bedrock scarp
- Glacial striae
- Raised beach
- Quarry (active, abandoned)
- Sand and gravel pit (active, abandoned)

Geology by E. B. Owen 1967-1970

To accompany GSC Paper 71-49 by E. B. Owen

Geological cartography by the Geological Survey of Canada

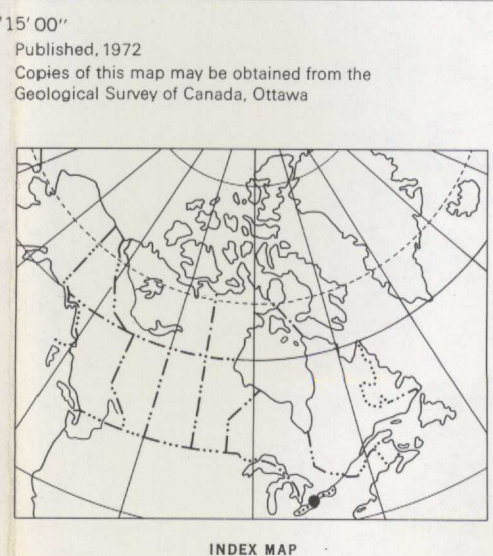
Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Base-map assembled by the Geological Survey of Canada from maps published at the same scale by the Army Survey Establishment, R.C.E. in 1964

Topographical maps covering this map-area (NTS 30L/14b, 30L/14g) may be obtained from the Map Distribution Office, Department of Energy, Mines and Resources, Ottawa.

Mean magnetic declination 1972, 8° 15' West, decreasing 1.5' annually

Elevations in feet above mean sea-level



MAP B-1971
PAPER 71-49
SURFICIAL GEOLOGY
WELLAND - PORT COLBORNE
ONTARIO
Scale 1:25,000

Feet 0 2000 4000 6000
Metres 0 600 1200 1800

30M/34	30M/36	30M/38
30L/14b	30L/14c	30L/14d
30L/14e	30L/14f	30L/14g
30L/14h	30L/14i	30L/14j

B-1971

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NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO GEOLOGICAL SURVEY OF CANADA MAPS
MAP B-1971
WELLAND - PORT COLBORNE
ONTARIO