

Surface Geology

Grand Harbor Quadrangle, North Dakota

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EXPLANATION

Qb Borrow Area

QUATERNARY SYSTEM

OAHE FORMATION

Qor Alluvium

River and stream sediment. Dark, obscurely bedded clay and silt (mainly overbank sediment); generally overlying cross-bedded sand (channel sediment); on plains of modern streams.

Qop Pond and Slough Sediment

Clay, silt, and organic debris; obscurely bedded; dark colored; deposited in modern ponds and sloughs.
All map areas not coded are (Qop) pond and slough sediment.

Qu Currently Unmappable

Inundated since 1993.

COLEHARBOR GROUP

LAKE SEDIMENT

Qcs Shoreline Sediment (Holocene and Wisconsinan)

Sand and gravel; moderately to well sorted; plane bedded and cross-bedded.

Qclt Nearshore Sediment (Holocene and Wisconsinan)

Flat bedded, thinly laminated silt and clay, overlying glacial sediment.

GLACIAL SEDIMENT

Qccl Collapsed Glacial Topography

Unsorted clay, silt, sand, gravel, and pebbles, with a few cobbles and boulders; flat to gently undulating topography; trace disintegration structures visible on air photos; local relief less than 10 feet.

Qccu Collapsed Glacial Topography

Unsorted clay, silt, sand, gravel, and pebbles, with abundant cobbles and boulders; undulating topography; moderately well-defined disintegration structures visible on air photos; local relief 10 to 20 feet.

Qcch Collapsed Glacial Topography

Hilly surface with numerous kettles, nonintegrated drainage, and abundant ice-disintegration features; local relief commonly more than 100 feet.

Qct Ice-Thrust Masses

Glacial sediment that has been draped over glacial or preglacial sediment or rock that has been sheared up into thrust slabs or folds near the ice margin; hilly areas with intense internal linearity; local concentrations of gravel and boulders.

GLACIOFLUVIAL SEDIMENT

Qcre Eskers and Kames

Ridges and hills of poorly to well-sorted sand and gravel intermixed with cobbles, boulders, and till. Crossbedding, laminae, and soft-sediment deformation structures common. Glaciofluvial material.

Geologic Symbols

— Known contact between two geologic units

▬▬▬ Partially buried meltwater channel

⌋ Transverse ridges on till; mainly washboard moraine

• Control Points

Test holes, observation wells, and field observations.

Other Features

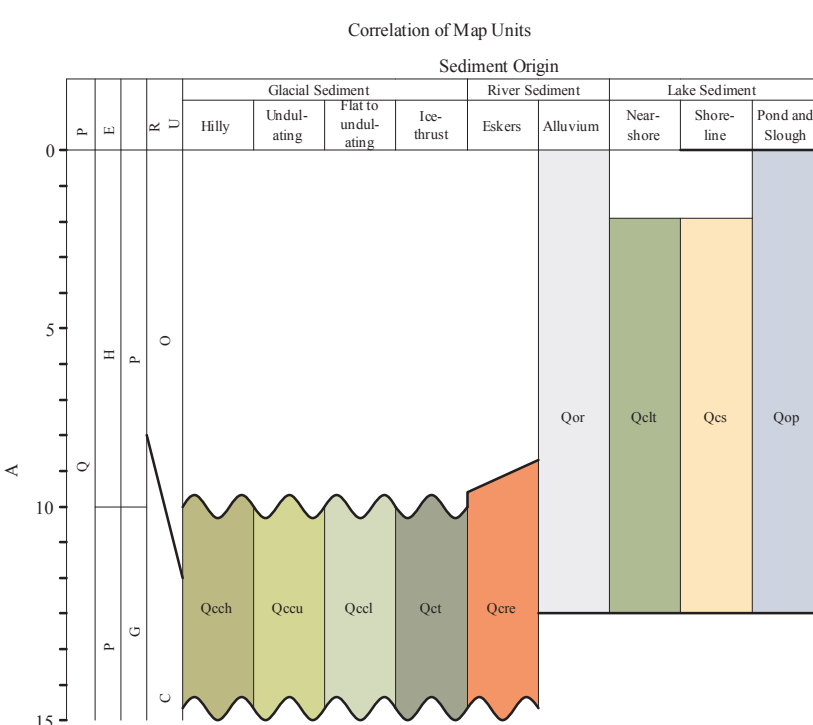
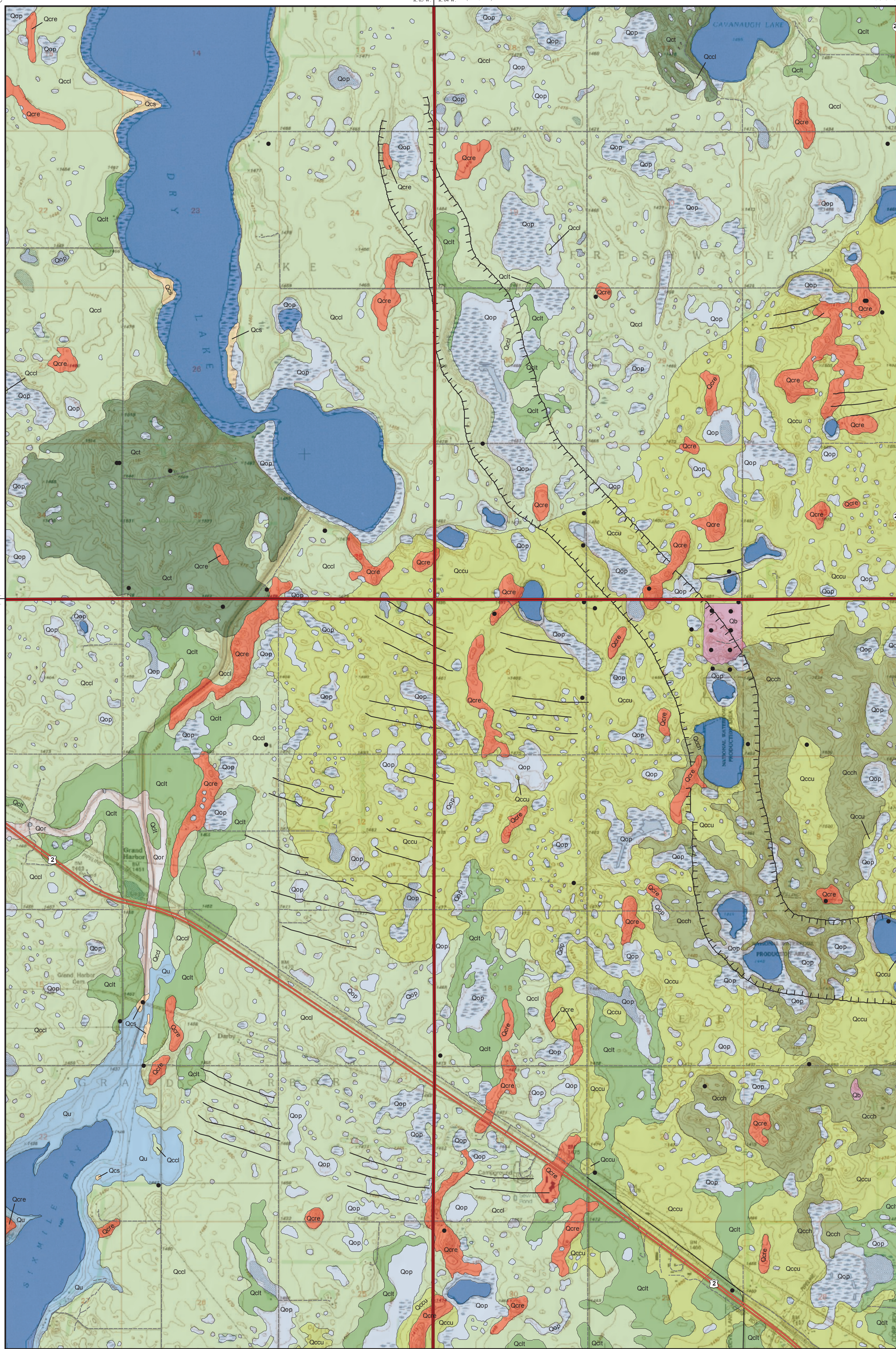
Water

U. S. Highway

State Highway

Paved Road

Unpaved Road



Scale 1:24,000

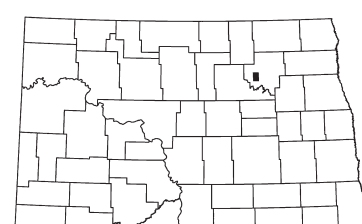
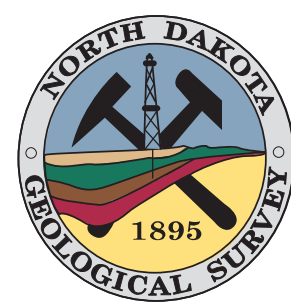


Miles

7° 30'

MN

1994 Magnetic North
Declination at Center of Sheet



Grand Harbor Quadrangle, North Dakota

Lambert Conformal Conic Projection Standard Parallels 48°07'30" and 48°15'00"
1927 North American Datum NGVD 1929
USGS 7.5 Minute Topographic Map Contour Interval 5 Feet
Road Layer Rectified to 2003 NAIP Digital Orthophoto

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Cartographic Compilation: Elroy L. Kadmas