North Dakota Geological Survey
24K: Bnfd - sg

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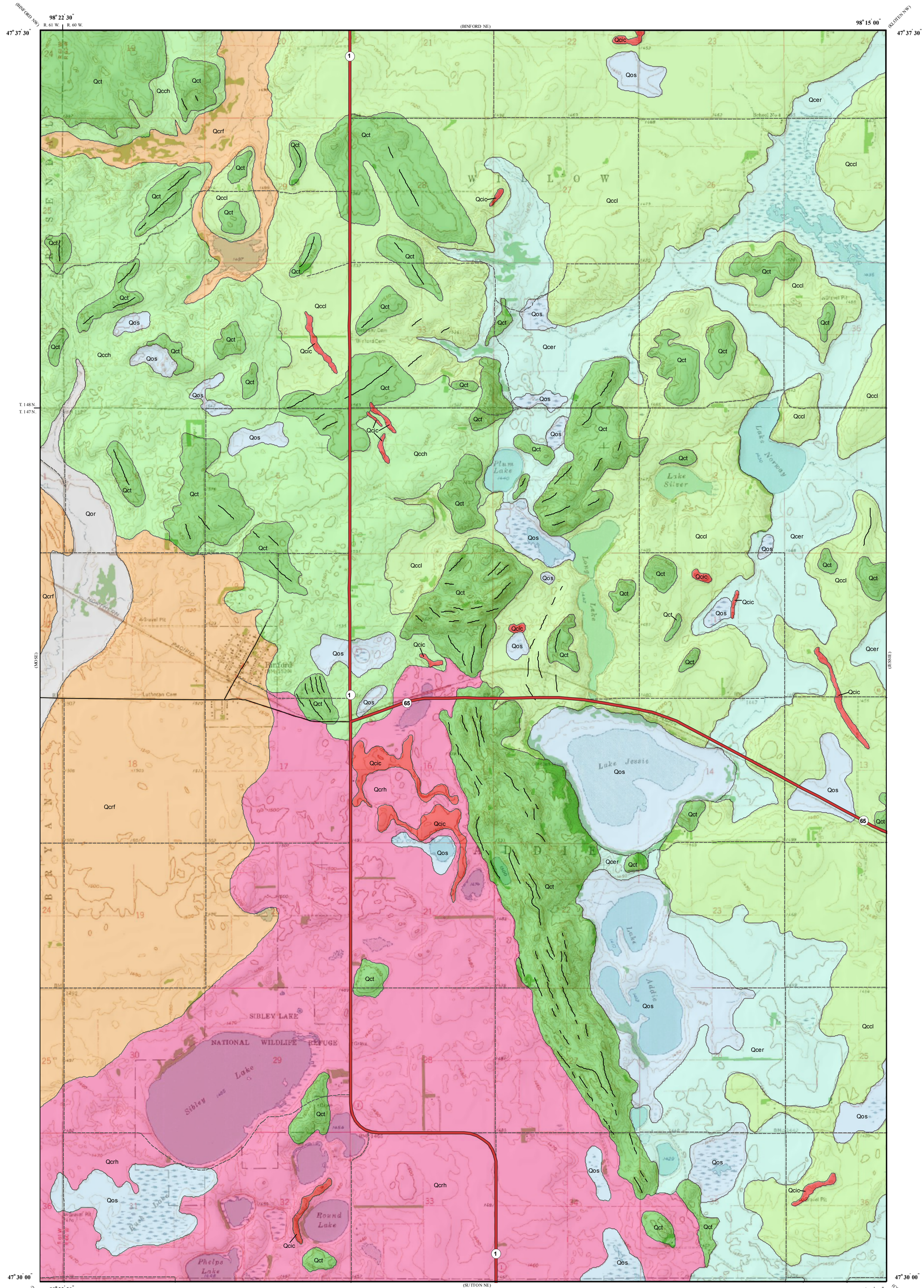
Surface Geology

Binford Quadrangle, North Dakota

John P. Bluemle
2008



EXPLANATION

QUATERNARY SYSTEM

RECENT

OAHE FORMATION

Qos **Pond and Slough Sediment**

Dark, obscurely bedded clay and silt; in modern ephemeral ponds.

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.

PLEISTOCENE

COLEHARBOR GROUP

Silt Facies

Insignificant amounts of this facies on this quadrangle.

Sand and Gravel Facies

River sediment. Moderately well-sorted, cross bedded sand and plane-bedded gravel, including sediment of meltwater rivers.

Qcrh **Collapsed River Sediment**

Faulted and contorted supraglacial sediment with hummocky topography.

Qcrf **Flat Fluvial Plains**

Flat-bedded sediment of nearly level plains and river terraces, commonly with braided channel scars, oxbows, and other relict markings; relief of 1 to 10 feet. Mainly on the outwash plain west and south of Binford.

Qcer **River-Eroded Glacial Sediment**

Glacial sediment with flat to undulating topography resulting from stream erosion in the bottom of large meltwater trenches or over broad areas of till that have been washed by running water; overlain by a thin layer of fluvial sediment of the Coleharbor Group or Oahe Formation in places.

Qcic **Ice-contact deposits**

Mainly gravel and sand with cobbles and boulders common; inclusions of glacial sediment common; local relief up to 50 feet; eskers and kames.

Till Facies

Glacial sediment. Unsorted, unbedded mixture of angular, subangular, and rounded blocks of rock, gravel, and sand, generally in a stiff matrix of silt and clay; yellowish-brown to olive-gray in exposures depending on weathering intensity; contains discontinuous lenses of gravel and sand.

Qcch **Hilly Surface -Kettles**

Nonintegrated drainage, and abundant ice-disintegration features; local relief commonly more than 100 feet. Over much of the area of Qcch in the northwestern part of the Binford Quadrangle, exposures of lacustrine silt are common. Apparently an ice lobe advanced over a lake deposit (or through a proglacial lake) of unknown extent, redistributing and thrusting the lake silts.

Qccl **Hilly surface with numerous kettles**

Poorly integrated drainage, linear elements (which parallel the former ice margin); local relief commonly ranges between 25 and 75 feet (Martin Moraine).

Qct **Ice-Thrust Masses**

Glacial sediment 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; local relief may exceed 200 feet. Ice-thrust features are abundant on this quadrangle. The directions of emplacement of the features suggest at least two, and possibly three, major directions of ice-flow in the area (an advance from the north cross-cuts - and post-dates - features that were deposited by an advanced from the east).

Geologic Symbols

Known contact between two geologic units

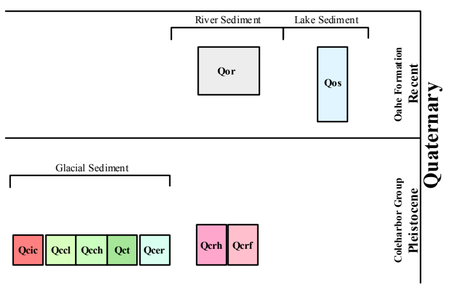
Ridge-Transverse

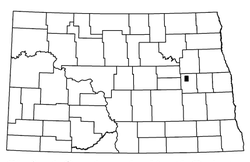
Other Features

State Highway

Paved Road

Unpaved Road





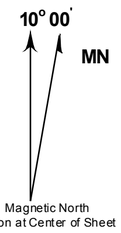
Binford Quadrangle, North Dakota

Scale 1:24,000

0 0.5 1

Miles

Lambert Conformal Conic Projection Standard Parallels 47° 30' 00" and 47° 37' 30"
1927 North American Datum NGVD 1929
USGS 7.5 Minute Topographic Map Contour Interval 10 Feet
Road Layer Rectified to 2003 NAIP Digital Orthophoto



1961 Magnetic North
Declination at Center of Sheet

Cartographic Compilation: E.L.Kadrmas & S.S.Kranich

This geologic map was funded in part, by the USGS National Cooperative Geologic Mapping Program.