

Surface Geology

Bismarck Quadrangle, North Dakota

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UNIT DESCRIPTIONS

QUATERNARY SYSTEM

RECENT

OAHE FORMATION

- Qe** **Excavations**
Excavations visible on aerial photographs taken between 1938 and 1972. Most of these were likely gravel or borrow pits that were later filled with construction fill. Sediments within these covered excavations are generally multi-colored and poorly sorted. Although primarily silt and clay, they may also contain pebbles and rocks as well as pieces of discarded concrete, asphalt, or wood. Thickness is highly variable. Settling appears to have taken place within these filled excavations in the vicinity of Bowen Avenue.
- Qf** **Construction Fill**
Construction fill placed in a natural depression. Construction fill generally consists primarily of silt and clay but may also contain waste concrete, asphalt, and wood.
- Qls** **Landslide Deposits**
A moderately to poorly sorted combination of soil, unconsolidated sediments, and sedimentary rocks that have slid down the local slope under their own weight. Most prevalent along valleys, ravines, and hillslopes.
- Qfd** **Garbage Dump**
Municipal waste that was routinely burned after it had been dumped in a hole or onto a pile.
- Qal** **Alluvium**
Moderately sorted lenses of sand, silt, clay, and occasionally gravel. Typically grayish brown to dark brown, moderately to obscurely bedded, and often contains aquatic shells and plant fragments. These Recent deposits are up to 50 feet thick in the Missouri River floodplain and up to 15 feet thick along creeks in the area.
- Qp** **Pond Sediment**
Typically laminated, dark brown to black, silt and clay found in topographically low areas. These deposits are generally less than 10 feet thick in this area.
- Qw** **Windblown Sediment**
Moderately to well sorted, grayish brown to tan, sand and silt. These sediments are present in this area as a mantle, slightly modifying the underlying topography. These deposits are generally less than 10 feet thick in this area.

PLEISTOCENE

COLEHARBOR GROUP

- Qat** **Alluvial Terrace Deposits**
Typically consist of gravel and medium- to coarse-grained sand. The gravel consists primarily of pebble- to cobble-sized igneous rock and locally derived rock fragments and is commonly iron stained and occasionally iron cemented. Overall, the unit is poorly sorted but it generally contains well-sorted sand lenses. These quartz sand lenses typically contain thin layers of lignite and clinker fragments. The sand and gravel lenses commonly range in thickness from 10 to 20 feet and are typically overlain by three to 10 feet of windblown silt. Alluvial deposits are generally found on terraces 20 to 50 feet above the Missouri River, between elevations of 1,640 to 1,700 feet and between elevations of 1,700 and 1,800 feet adjacent to Hay Creek. Terrace deposits are easily identified in aerial photographs and on the ground by flat surface topography and the presence of steep cliffs or hillslopes on the river side of the deposit.
- Qg** **Glacial Till**
A poorly sorted mixture of pebbly, gray to brown sand, silt, and clay. Till once mantled the entire area, but erosion has generally confined it to the uplands in this area. The uplands are generally well vegetated and till exposures are limited.
- Qo** **Outwash**
Consists of moderately to poorly sorted sand and gravel deposited by melting glacial ice. Deposits found along a major drainage in north Bismarck.

TERTIARY SYSTEM

PALEOCENE

Tc CANNONBALL FORMATION

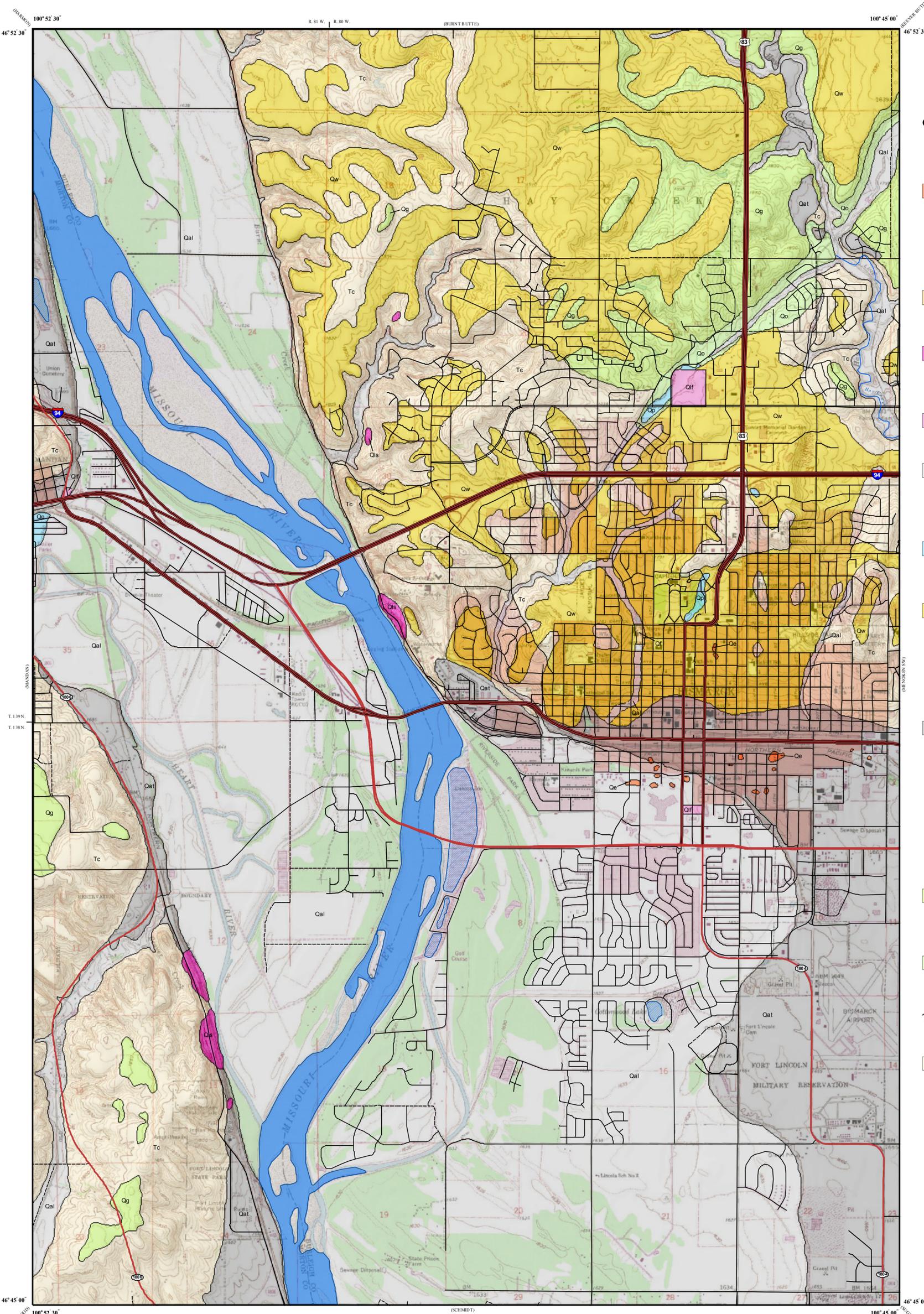
Consists of alternating beds of marine sandstone and mudstone. The sandstone is grayish green to yellowish brown, medium to fine grained, generally poorly cemented and burrowed, containing the trace fossil ophiomorpha. The poorly cemented sandstone is commonly capped by a two- to three-foot-thick, well cemented, lenticular sandstone. The mudstone is light to dark gray to black, blocky claystone and commonly is banded with lenses of white to yellowish brown silt and very fine sand. The mudstone forms smooth, rounded slopes. The maximum thickness of the Cannonball Formation in this area is approximately 300 feet.

Geologic Symbols

- Known contact between two geologic units
- - - Approximate contact between two geologic units

Other Features

- Water
Water - Intermittent
Interstate Highway
U. S. Highway
State Highway
Paved Road
Unpaved Road



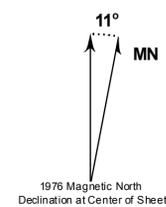
Bismarck Quadrangle, North Dakota

Scale 1:24,000

0 0.5 1

Miles

Lambert Conformal Conic Projection
1927 North American Datum
Standard Parallels 46° 45' 00" and 46° 52' 30"



1976 Magnetic North
Declination at Center of Sheet

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Cartographic Compilation: Elroy L. Kadmon