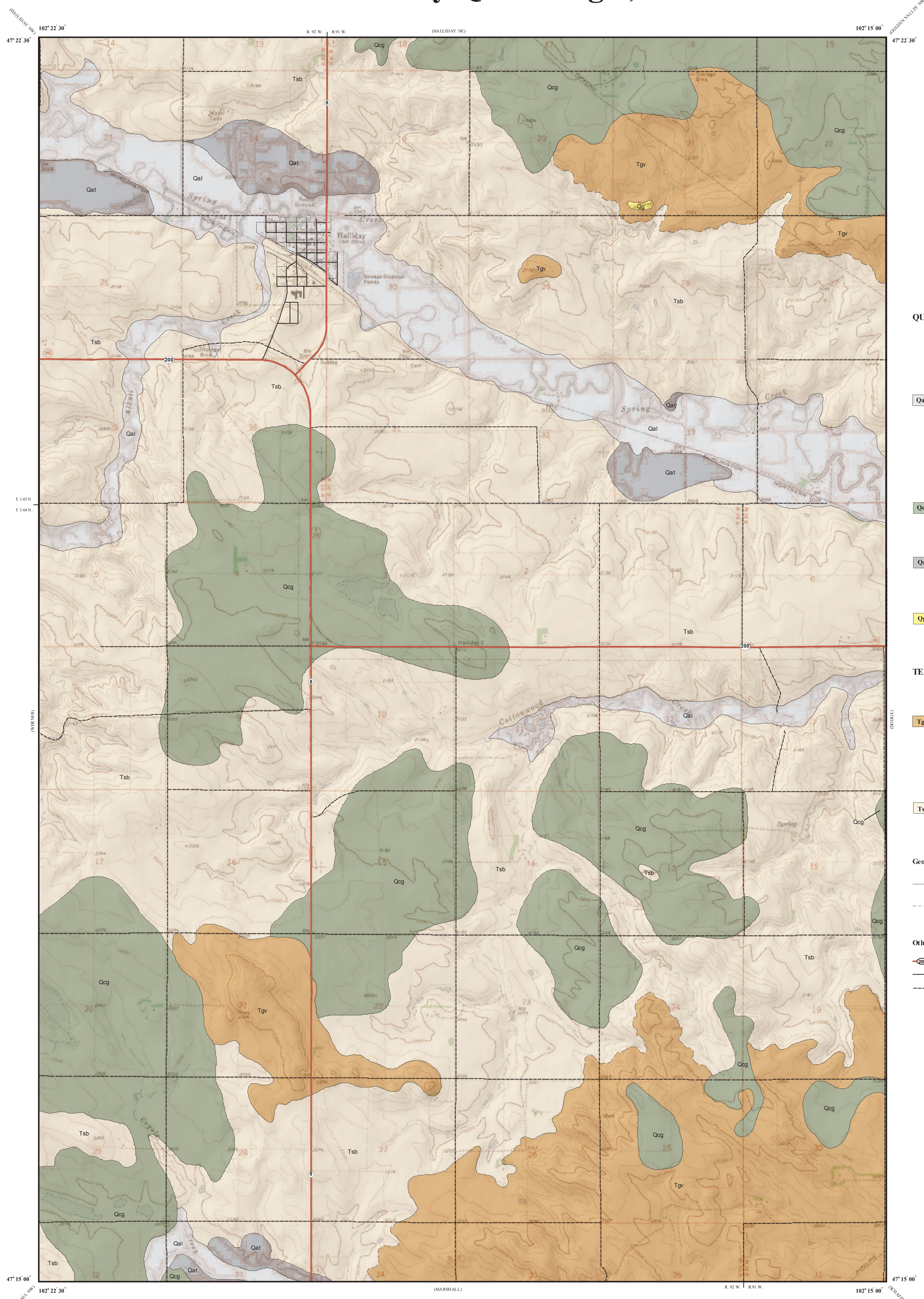


Surface Geology

Halliday Quadrangle, North Dakota

Edward C. Murphy

2004



UNIT DESCRIPTIONS

QUATERNARY SYSTEM

RECENT

OAHE FORMATION

Qal Alluvium
Brownish gray to black sand, silt, clay, and lenses of gravel; floodplain deposits (typically less than 30 feet thick) along recent drainages. Not differentiated where it overlies Qac.

PLEISTOCENE

COLEHARBOR GROUP

Qcg Glacial Deposits
Grayish brown, sandy, silty, bouldery clay with lenses of sand and gravel (glacial till). May occasionally include thick deposits of glacial outwash. Generally preserved as a veneer in the uplands.

Qat Terrace Deposits
Five- to 20-foot-thick layers of sand and gravel (consisting primarily of siltstone, chert, flint, agate, petrified wood, siltstone) found beneath flat to gently undulating slopes adjacent to many of the major creeks and rivers.

Qg Sand and Gravel Deposits
Layers of sand and gravel found in two primary deposits, as glacial outwash draping over pre-existing topography or as sand and gravel derived primarily from Arikaree and Golden Valley strata, capping narrow, sinuous ridges.

TERTIARY SYSTEM

EOCENE-PALEOCENE

Tgv GOLDEN VALLEY FORMATION
Camels Butte Member:
Alternating beds of yellowish brown to brown, micaceous sandstone, siltstone, mudstone, claystone, and lignite.
Bear Den Member:
Brightly colored, kaolinic claystone, mudstone, and sandstone typically overlain by a thin siliceous bed (siltstone) or lignite.

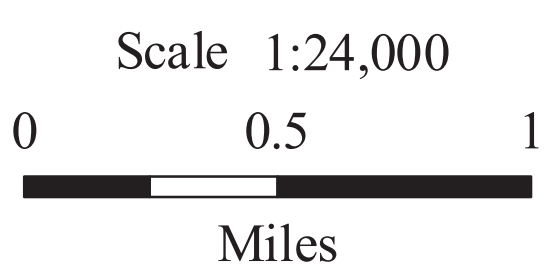
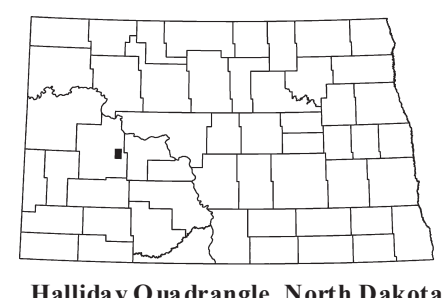
Tsb SENTINEL BUTTE FORMATION
Alternating beds of grayish brown to gray sandstone, siltstone, mudstone, claystone, and lignite.

Geologic Symbols

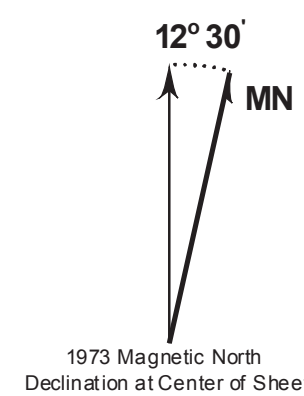
- Known contact between two geologic units.
- - - Approximate contact between two geologic units.

Other Features

- State Highway
- Paved Road
- Unpaved Road



Lambert Conformal Conic Projection
Standard Parallels 47° 15' 00" and 47° 22' 30"



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