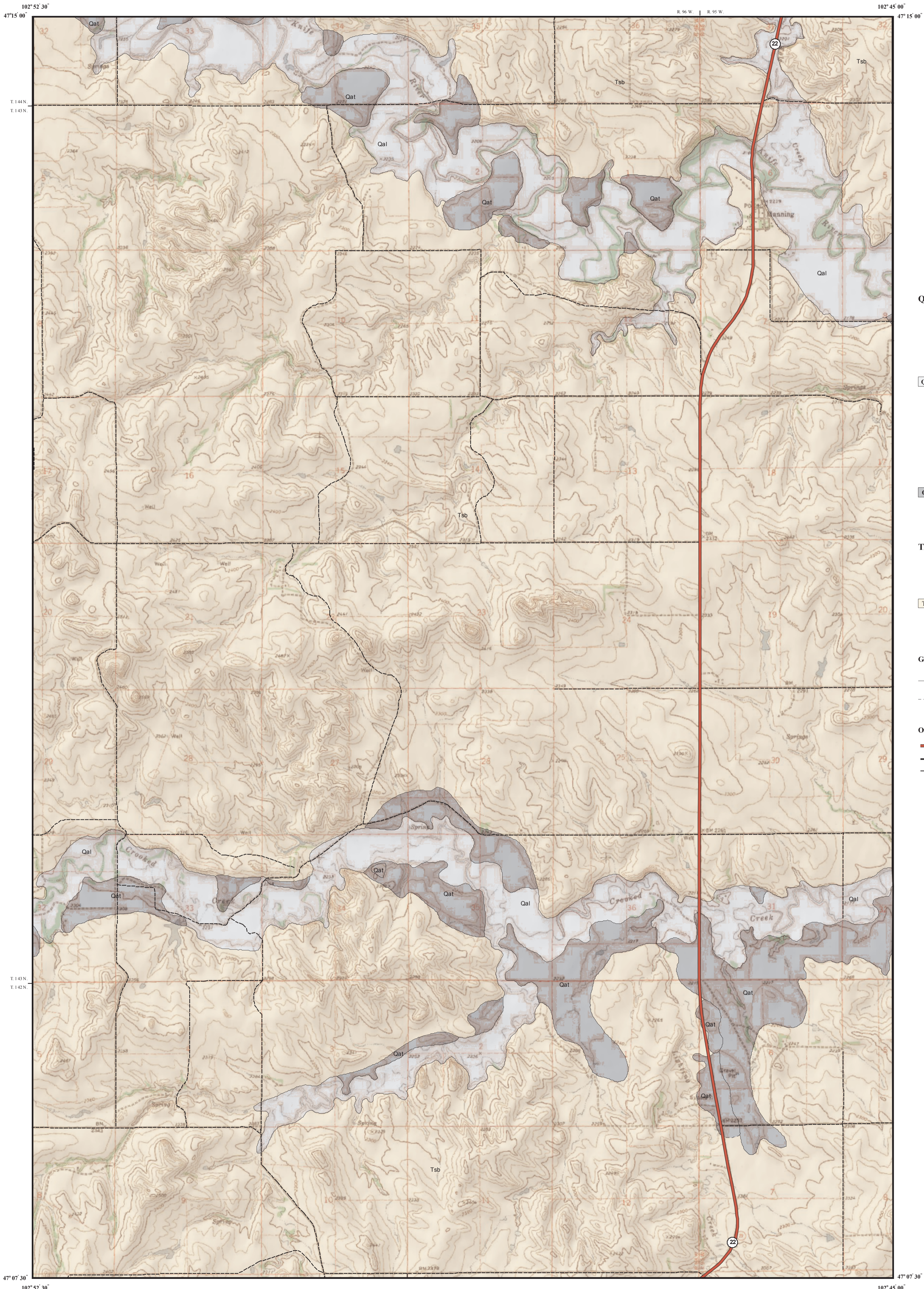


# Surface Geology

## Manning 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

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

#### TERTIARY SYSTEM

##### PALEOCENE

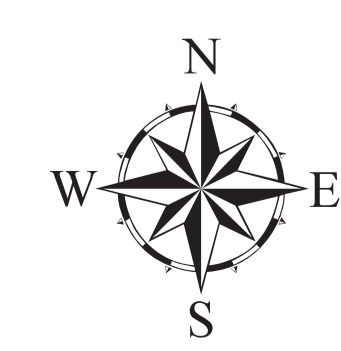
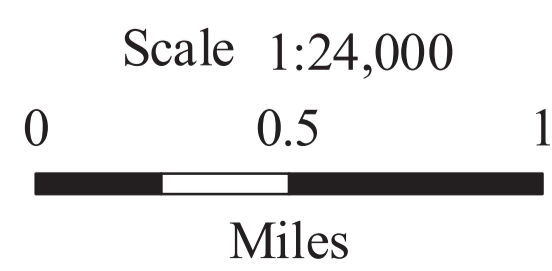
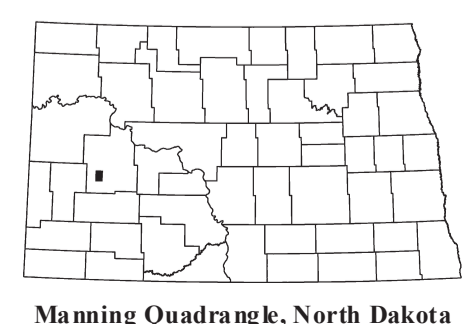
**Tsb** SENTINEL BUTTE FORMATION  
Alternating beds of grayish brown to gray sandstone, siltstone, mudstone, claystone, and lignite.

#### Geologic Symbols

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

#### Other Features

- 22 State Highway
- Paved Road
- - - Unpaved Road



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

Lambert Conformal Conic Projection  
Standard Parallels 47° 07' 30" and 47° 15' 00"