North Dakota Geological Survey
24K: VlyC W - sg

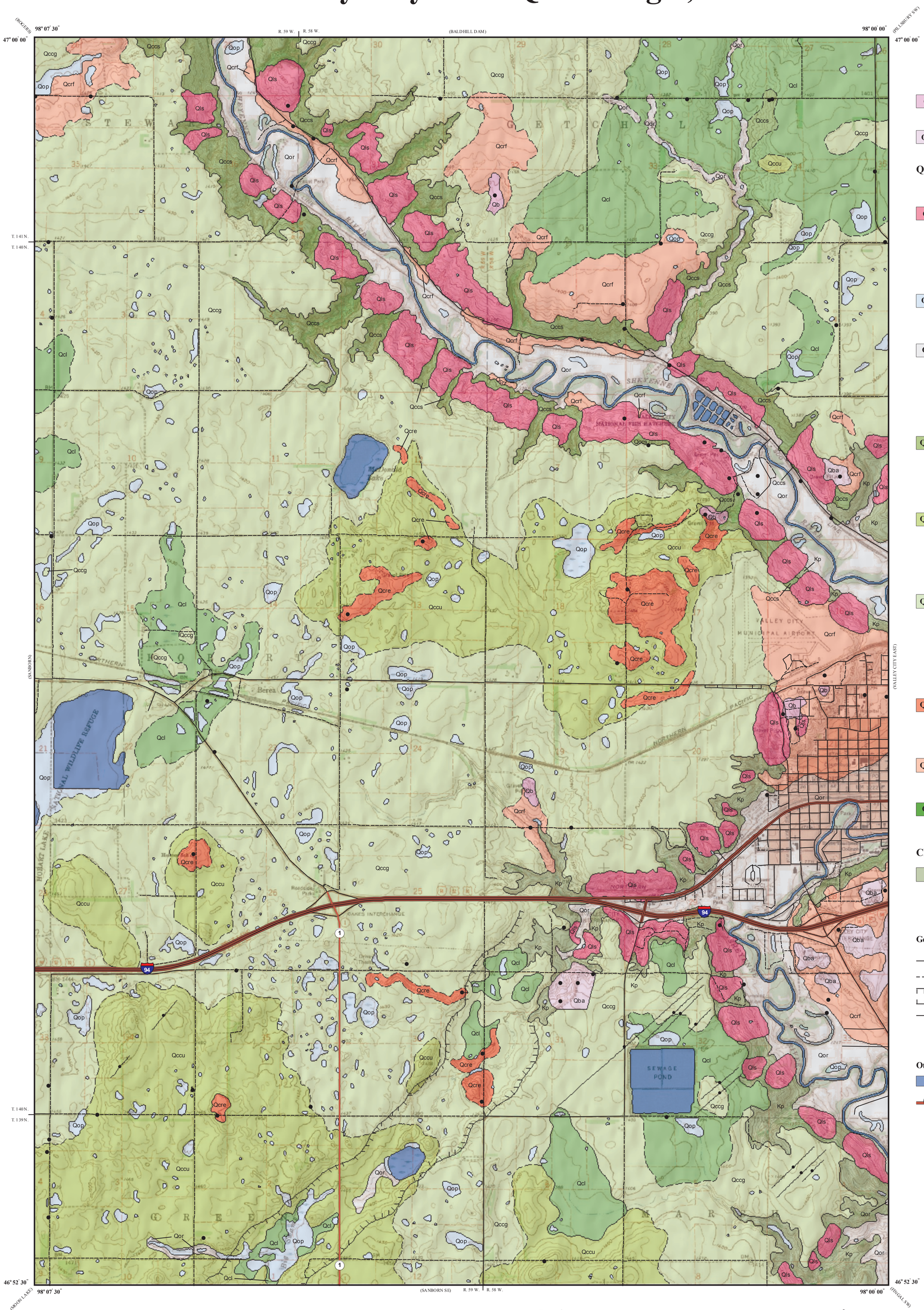
Edward C. Murphy, State Geologist
Lynn D. Helms, Director of Dept. of Mineral Resources

Surface Geology

Valley City West Quadrangle, North Dakota

Lorraine A. Manz

2008



EXPLANATION

Qb **Borrow Area (abandoned and/or reclaimed)**

Includes gravel pits

Qba **Borrow Area (active)**

Includes gravel pits and landfill.

QUATERNARY SYSTEM

HOLOCENE

Qls **Landslide**

A mass of glacial and/or preglacial material that has slumped downslope. Includes earthflows and areas of soil creep.

HOLOCENE/PLEISTONCENE

OAHE FORMATION

Qop **Pond and Slough Sediment**

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

Qor **River Sediment**

Dark, occasionally cross-bedded overbank sediment deposited on the flood-plains of modern streams. Contains some sand and gravel (channel sediment).

COLEHARBOR GROUP

Ice-Contact Deposits

Qccs **Till**

Poorly sorted, unbedded mixture of rock, cobbles, pebbles, gravel, sand, silt, and clay deposited by active and stagnating ice. Matrix is olive-brown silty to clayey sand; calcareous; rock fragments mainly shale with minor crystalline and limestone pebbles, cobbles, and boulders that become more dominant as size increases. Hilly, steeply sloping, bouldery surface found mainly along the slopes of the Sheyenne River valley and its tributaries. Local relief up to 200 feet.

Qccu **Till**

Poorly sorted, unbedded mixture of rock, cobbles, pebbles, gravel, sand, silt, and clay deposited by active and stagnating ice. Matrix is olive-brown silty to clayey sand; calcareous; rock fragments mainly shale with minor crystalline and limestone pebbles, cobbles, and boulders that become more dominant as size increases. Includes isolated masses of a dark yellowish-brown silty, highly calcareous till, and small areas of stratified sand and gravel. Undulating to rolling surface, bouldery in places. Local relief 20 to 100 feet.

Qccg **Till**

Poorly sorted, unbedded mixture of rock, cobbles, pebbles, gravel, sand, silt, and clay deposited by active and stagnating ice. Matrix is olive-brown silty to clayey sand; calcareous; rock fragments mainly shale with minor crystalline and limestone pebbles and cobbles. Includes small, isolated areas of stratified sand and gravel. Overlain in places by a thin (~2 to 4 feet) layer of grayish-brown silty clay. Trace longitudinal ridges (flutes) visible on air photos. Local relief 0 to 20 feet.

Glaciofluvial Sediment

Qcre **Ice-Contact Fluvial Deposits**

Poorly to well-sorted grayish-brown and very dark gray silt, sand and gravel intermixed with pebbles, cobbles, boulders and till. Cross-bedding, laminae, faults, and soft-sediment deformation structures common. Includes eskers, kames, and crevasse fill.

Qcrf **Ice-Contact Fluvial Deposits**

Moderately well sorted, cross-bedded and plane-bedded grayish-brown and very dark gray sand and gravel deposited as point bars and outwash.

Qcl **Glaciolacustrine Sediment**

Flat-bedded, thinly laminated, very dark gray sticky silt and clay overlying glacial sediment.

CRETACEOUS SYSTEM

Kp **PIERRE FORMATION**

Dark gray, fissile, non-calcareous shale with abundant small iron-manganese concretions (DeGrey Member?); marine offshore sediment. Exposed only along the slopes of the Sheyenne River valley and its tributaries. Prone to slope failure.

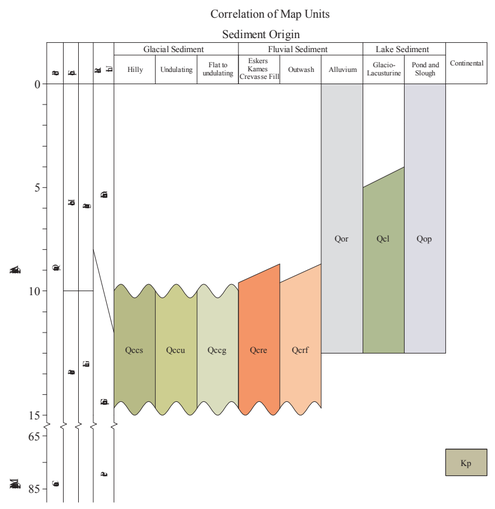
Geologic Symbols

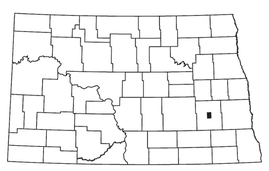
- Known contact between two geologic units.
- Approximate contact between two geologic units.
- Abandoned meltwater channel partly buried by glacial sediment.
- Crest of longitudinal glacial ridge.
- Control Points
  Test holes, observation wells, and field observations.

Other Features

- Water
- Interstate Highway
- State Highway
- Paved Road
- Unpaved Road

Correlation of Map Units





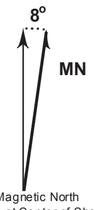
Valley City West Quadrangle, North Dakota

Scale 1:24,000

0 0.5 1

Miles

Lambert Conformal Conic Projection Standard Parallels 46° 52' 30" and 47° 00' 00"
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

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

Cartographic Compilation: Elroy L. Kadrmas