

# Surficial Geology of the Rochester (Iowa) 7.5' Quadrangle

## COOPERATIVE MAPPING WITH THE NATURAL RESOURCE CONSERVATION SERVICE (NRCS) SURFICIAL GEOLOGIC MAPS OF THE ROCHESTER AND BENNETT 1:24,000 QUADRANGLES PHASE 1

Iowa Geological Survey  
Open File Map OFM-06-3  
July 2006

prepared by  
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Supported in part by the U.S. Geological  
Cooperative Agreement Number 05HQAG0086  
National Cooperative Geologic Mapping Program (STATEMAP)

### ACKNOWLEDGEMENTS

Recognized for contributions to map's production: Andy Astell, Dave Puh, Heather Buresh, Brian Witke, Mary Pat Heitman, and Lois Bair (all from the Iowa Geological Survey). Digital cartography was provided by Jim Gigherano (IGS). Drilling was provided under contract with Aquadit of Swisher, Iowa; a special thanks to drilling crew members who worked at times in challenging drilling conditions. Kathy Wicks and Ryan Demore (NRCS) provided drilling and core description assistance as well as discussion of mapping strategy and unit characterization. A special thank you to all the landowners who graciously allowed access to their land for drilling. A thank you to the Iowa Department of Natural Resources for allowing access on public lands for drilling. Also, thanks to the Cedar and Scott County Engineer's offices for providing access to their boring logs.

### LEGEND

#### Description of Map Units

##### Cenozoic

##### Quaternary System

##### Hudson Episode

- Qal - Alluvium (DeForest Formation-Undifferentiated)** Variable thickness less than 1 to 5 meters (3 to 16 feet) of very dark gray to brown, noncalcareous to calcareous, stratified silty clay loam, clay loam, loam to sandy loam alluvium and colluvium in stream valleys, on hill slopes and in closed depressions. May overlie Pre-Illinoian (Wolf Creek or Alluvium Formations) glacial till or Soak Creek Formation sand and gravel. Associated with low-relief modern floodplain, closed depressions, modern drainageways or toe-slope positions on the landscape. Seasonal high water table and potential for frequent flooding.
- Qall - Cedar River Valley - Low Terrace/Modern Channel Belt (DeForest Formation-Camp Mbr and Roberts Creek Mbr.)** Variable thickness of less than 1 m to 5 m (3 to 16 feet) of very dark gray to brown, noncalcareous, stratified silty clay loam, loam, or clay loam, associated with the Holocene channel belt of the Cedar River valley. Overlies Soak Creek Formation sand and gravel. On low lakes and meander scars are common features associated with this terrace level. Fine sediment alluvium thickness varies from 5 m (16 ft) in higher areas to 2 m (6 ft) along the river course and in lower lying areas. Seasonal high water table and frequent flooding potential.
- Qalt - Cedar River Valley - High Terrace (DeForest Formation-Gander and Corrigan Mbr.)** Variable thickness of less than 1 m to 3 m (3 to 10 ft) of very dark gray to brown, noncalcareous, silty clay loam, loam alluvium or colluvium. Overlies sand and gravel of late Wisconsin age (Soak Creek Formation) or early Holocene age. Occupies terrace and valley margin position 2.5 meters (8 to 10 ft) above the modern floodplain. Eolian materials composed of Peoria Formation sand facies are common on the terrace surface. Seasonal high water table and rare flooding potential.

##### Wisconsin Episode

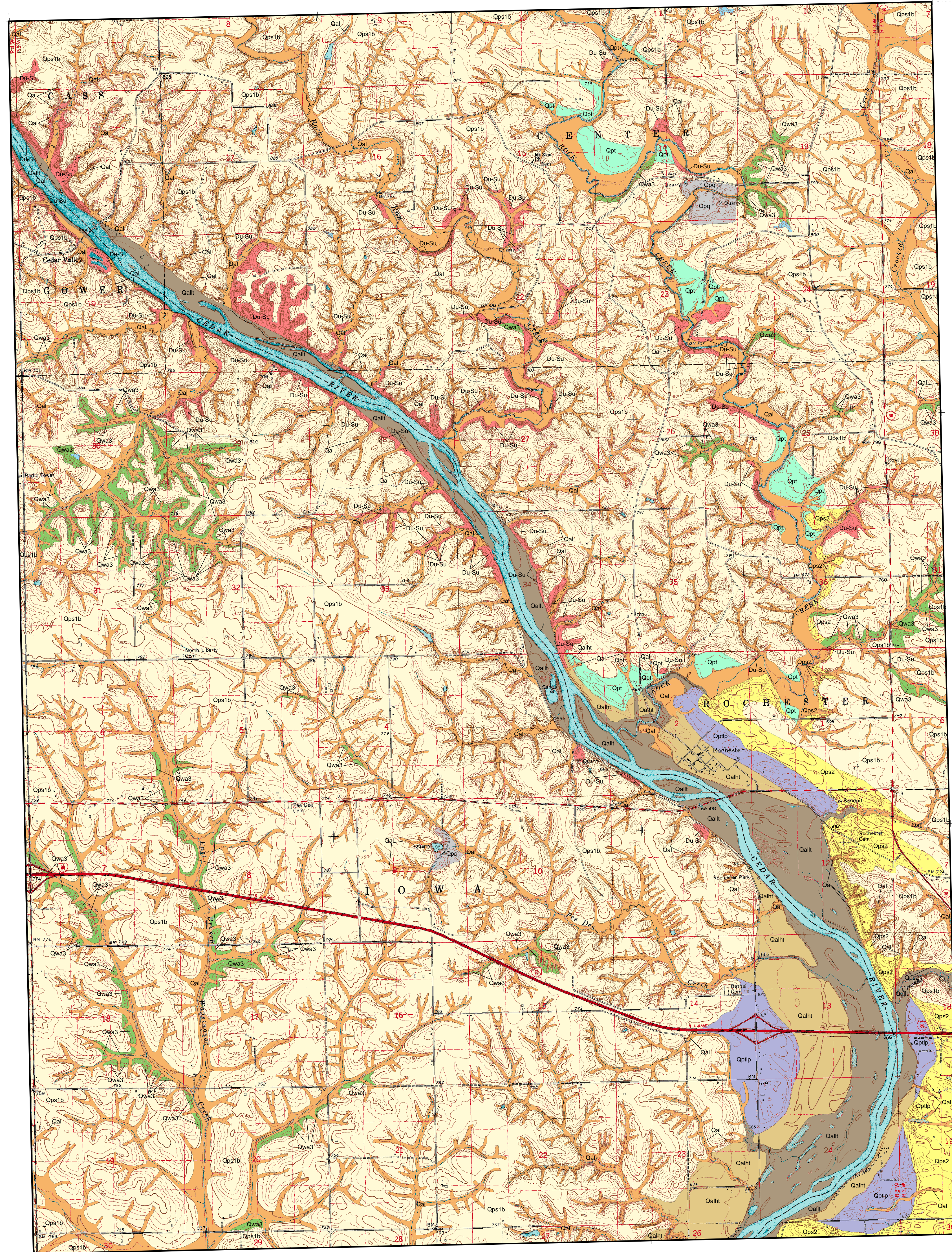
- Qplp - Late Phase High Terrace (LPHT) (Peoria Formation-silt and/or sand facies)** Two to six meters (6 to 20 ft) of yellowish brown to gray, massive, jointed, calcareous or noncalcareous, silt loam and intercalated fine to medium, well sorted, sand. Grades downward to poorly to moderately well sorted, moderately to well stratified, coarse to fine feldspathic quartz sand, loam, or silt loam alluvium.
- Qpt - High Terrace - either Late Phase or Early Phase (Peoria Formation - silt and/or sand facies)** Two to six meters (6 to 20 ft) of yellowish brown to gray, massive, jointed, calcareous or noncalcareous, silt loam and intercalated fine to medium, well sorted, sand. May grade downward to poorly to moderately well sorted, moderately to well stratified, coarse to fine feldspathic quartz sand, loam, or silt loam alluvium (Late Phase) or may overlie a Formable Geosol developed in Rocoma Silt which in turn overlies a well-exposed Sangamon Geosol developed in poorly to moderately well sorted, moderately to well stratified, coarse to fine sand, loam, or silt loam alluvium (Early Phase).
- Qplb - Loess and Intercalated Eolian Sand (Peoria Formation-silt facies)** Three to fifteen meters (10 to 50 ft) of yellowish brown to gray, massive, noncalcareous grading downward to calcareous silt loam and intercalated fine to medium, well sorted, sand. Sand is most abundant in lower part of the eolian package. Overlies massive, fractured, loamy glacial till of the Wolf Creek or Alluvium Formations with or without intervening clayey Formable/Sangamon Geosol.
- Qplc - Eolian Sand and Intercalated Silt (Peoria Formation-sand facies)** Three to ten meters (10 to 33 ft) of yellowish brown to gray, moderately to well stratified noncalcareous or calcareous, fine to medium, well sorted, eolian sand. May contain interbeds of yellowish brown to gray, massive, silt loam loess. Overlies eroded, massive, fractured, loamy glacial till of the Wolf Creek or Alluvium Formations or Devonian and Silurian-age carbonate bedrock.

##### Pre-Illinois Episode

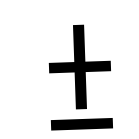
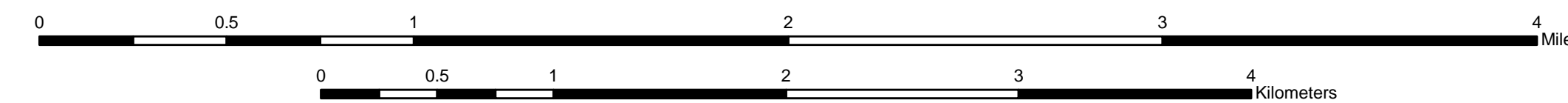
- Qwa3 - Till (Wolf Creek or Alluvium Formations)** Generally 10 to 35 m (33 to 115 ft) of very dense, massive, fractured, loamy glacial till of the Wolf Creek or Alluvium Formations with or without a thin loess mantle (Peoria Formation - less than 2 meters/6 ft) and intervening clayey Formable/Sangamon Geosol. This mapping unit encompasses narrowly dissected interfluvial and side slopes, and side valley slopes. Drainage is variable from well drained to poorly drained.

##### Paleozoic Bedrock

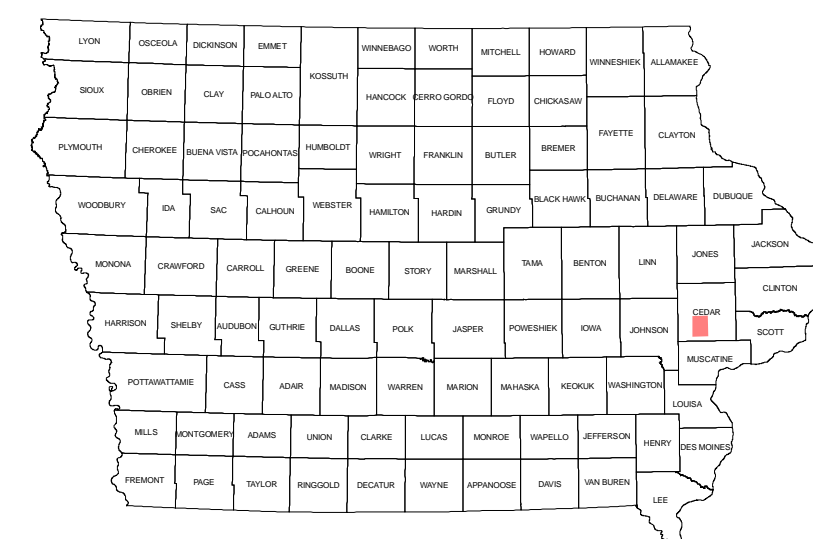
- Du-Su - (Devonian-Silurian undifferentiated)** Includes Devonian Wapsipicon Group (Ois and Pincon Ridge Formations) dolomite, limestone and shale; Devonian Cedar Valley Group fossiliferous limestone; Silurian Green Formation laminated or massive dolomite; and Silurian Scotch Grove Formation fossiliferous mound and intermountain dolomite. Pennsylvanian age sandstone outcrops may also be present.
- Qpq - Pits and Quarries** Sand and gravel pits and rock quarries.
- Water Features**



1:24,000



#### Quadrangle Location



Base map from USGS Rochester 7.5' Digital Raster Graphic (IGS GIS file DRGP45.TIF) which was scanned from the Rochester 7.5' Topographic Quadrangle map, published by US Geological Survey in 1965  
Topographic contours and land features based on 1963 aerial photography, field checked in 1965  
Land elevation contours (10' interval) based on NGVD 1929

Iowa Geological Survey digital cartographic file Rochesterquad06.mxd, version 6/28/06 (ArcGIS 9.0)  
Map projection and coordinate system based on Universal Transverse Mercator (UTM) Zone 15, datum NAD83

