

# BEDROCK GEOLOGIC MAP OF THE WILTON 7.5' QUADRANGLE, MUSCATINE AND CEDAR COUNTIES, IOWA

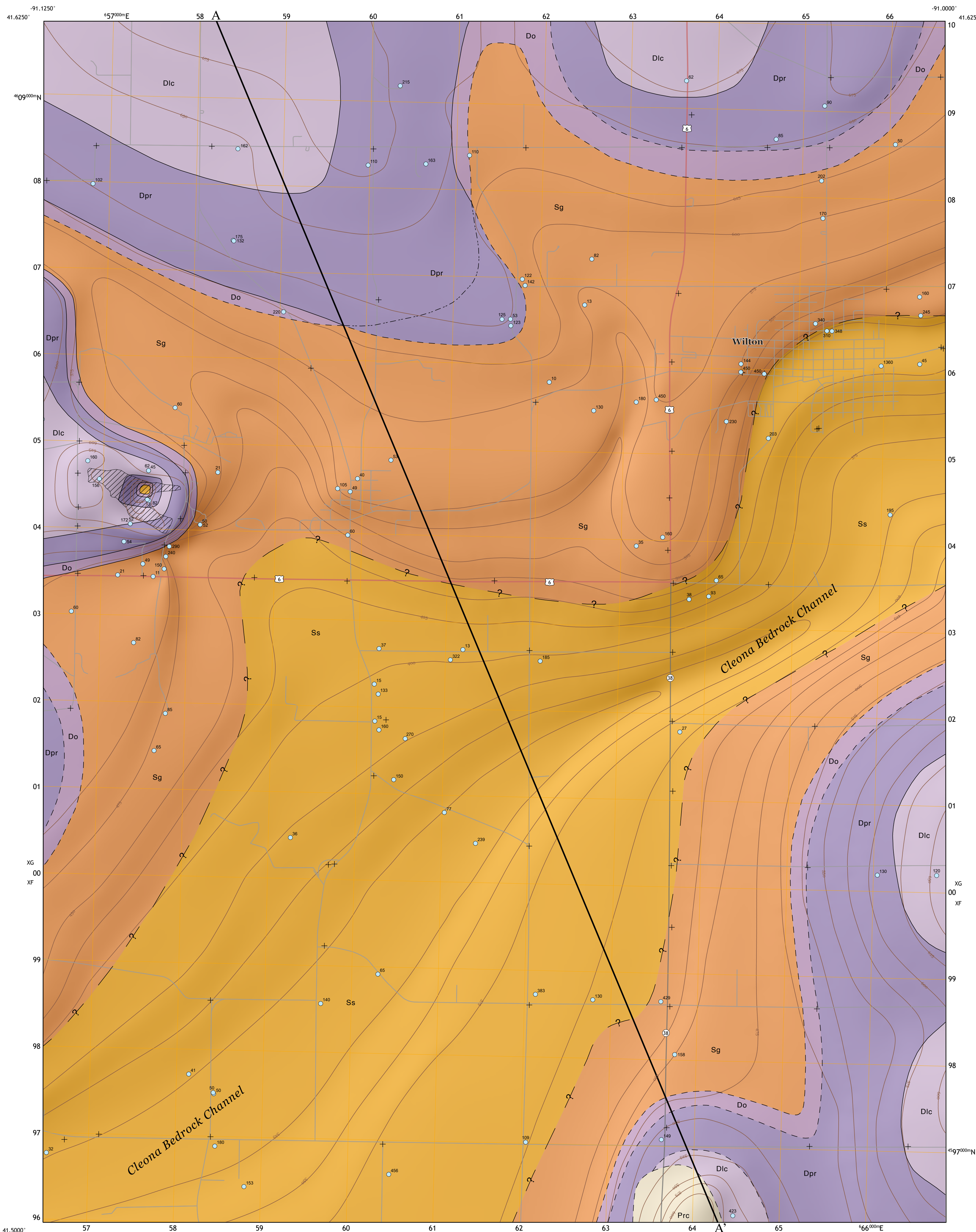
IOWA

Iowa Geological Survey

Open File Map: OFM-24-1

Keith Schilling, State Geologist  
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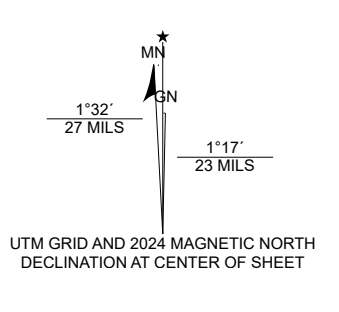
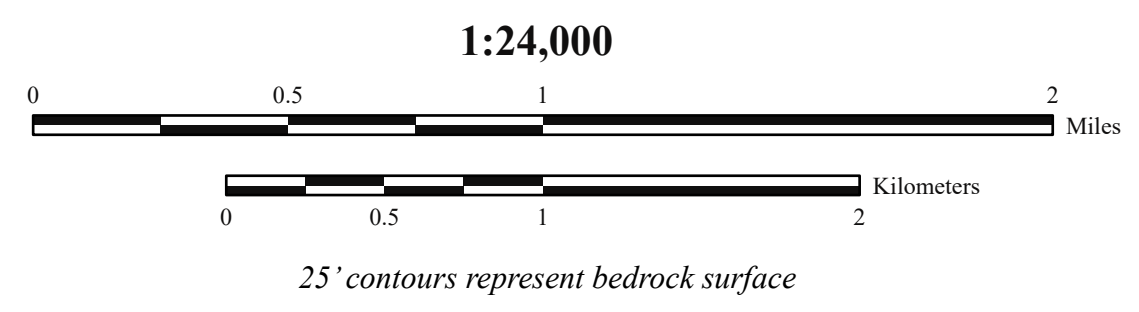
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Base map from U.S. Geological Survey (USGS) Wilton 7.5' Quadrangle map, published by the USGS in 2022. Bedrock topography raster created internally for this map project Wilton\_BR\_3m.mxd, version 7/01/24 (ArcGIS Pro 3.2). Map projection and coordinate system based on Universal Transverse Mercator (UTM) Zone 15N, datum NAD83.

The map and cross-section are based on interpretations of the best available information at the time of mapping. Map interpretations are not a substitute for detailed site-specific studies. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

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ADJOINING QUADRANGLES		
1	2	3
4	5	6
7	8	

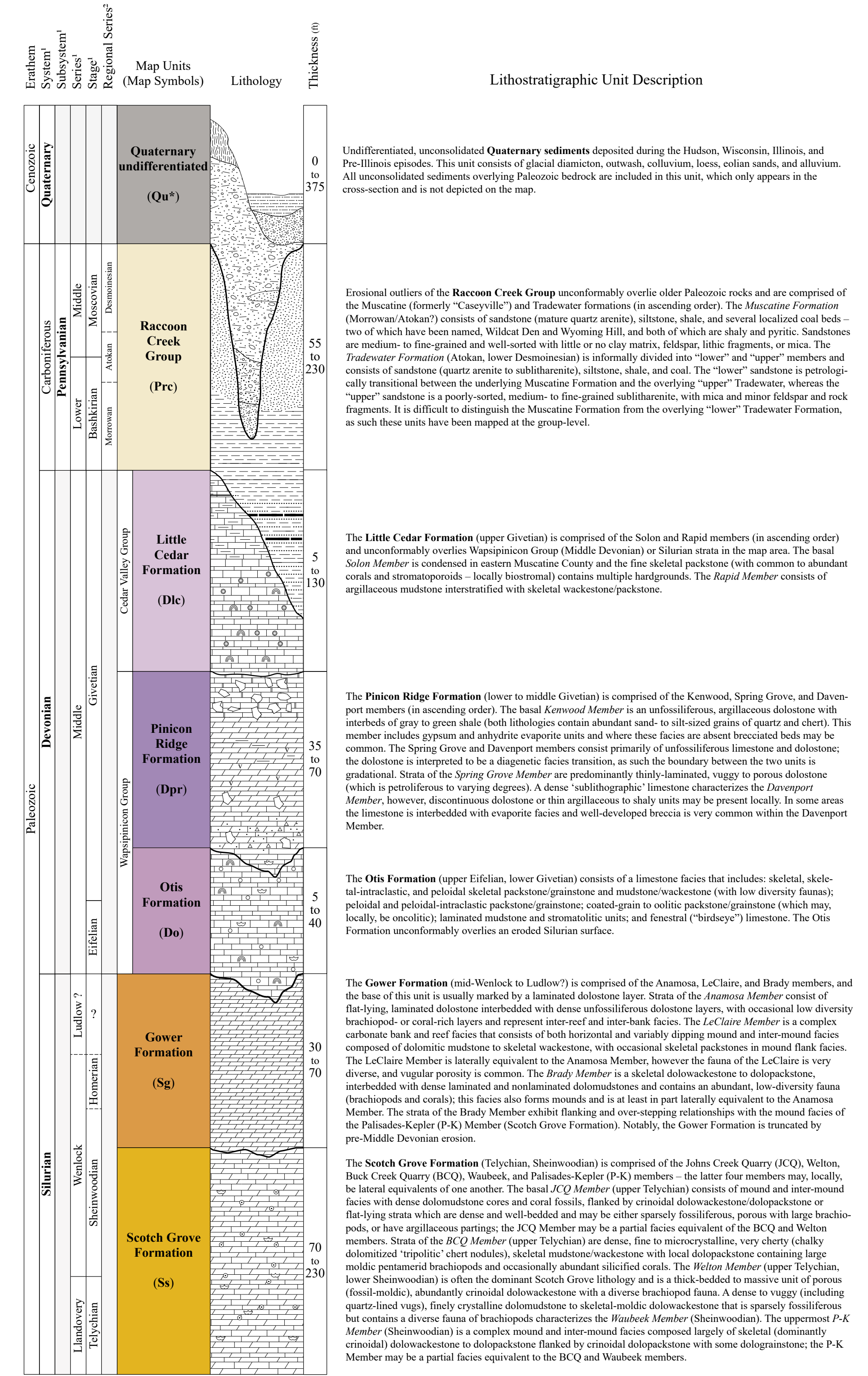
1 Rochester, IA  
2 Line City, IA  
3 Bennett, IA  
4 Atalissa, IA  
5 Durant, IA  
6 Muscatine NW, IA  
7 Muscatine, IA-IL  
8 Illinois City, IA-IL

## INTRODUCTION

The Wilton 7.5' Quadrangle in Muscatine and Cedar counties, Iowa, is located within the Southern Iowa Drift Plain (SIDP) and Iowa-Cedar Lowland (ICL) landform regions. There are no naturally occurring bedrock exposures in the map area due to burial by Quaternary materials. The SIDP is an area with surface topography defined by loess-mantled uplands and slopes, whereas the ICL is a low-relief floodplain consisting of sediment deposited by the Cedar River. The top of the till package of the SIDP in the map area is likely Pre-Illinoian-age diamicton of the Wolf Creek/Alburnett formations. The ICL is a broad, flat lowland that is comprised of outwash deposited during the Late Wisconsin Episode and the Cedar River has formed Holocene terraces in this valley. The shape of the ICL does not directly correspond with the underlying bedrock valley (Cleona Channel).

The Cleona Channel is a buried bedrock valley that trends in a southwesterly-northeasterly direction across the entirety of the map area and this channel can have a depth up to 325 feet below the modern land surface. Although entirely buried by Quaternary deposits, the bedrock surface of the Wilton 7.5' Quadrangle is dominated by Middle Devonian (Givetian) strata of the Little Cedar Formation (Cedar Valley Group) and the Pinicon Ridge and Otis formations (Wapsipicon Group). Silurian strata of the Gower and Scotch Grove formations make up the bedrock surface of the Cleona Channel. In the west-central area of the quadrangle these Paleozoic stratigraphic units, specifically the Devonian succession, are exposed in the Moscow Quarry (Wendling Quarries Inc.). In the southeastern portion of the quadrangle there is a small erosional outlier of Lower and Middle Pennsylvanian strata of the Raccoon Creek Group (Muscatine [formerly "Caseyville"] and Tradewater formations), which unconformably overlie Middle Devonian strata. Due to sparse well data and the lack of bedrock exposures within the quadrangle, the contacts between these stratigraphic units are concealed and have been dashed on the map and the contact between the Gower and Scotch Grove formations is concealed and its location is inferred. Further detail about the bedrock elevation and Quaternary thickness in the Wilton 7.5' Quadrangle can be found on the accompanying map (IGS Open File Map OFM-24-02), whereas further detail about the Quaternary geology can be found on the Surficial Geologic Map of the Wilton 7.5' Quadrangle of Muscatine and Cedar Counties, Iowa (IGS Open File Map OFM-22-08).

## STRATIGRAPHIC COLUMN AND LEGEND



<sup>1</sup> Global Chronostratigraphic Units  
<sup>2</sup> North American Regional Chronostratigraphic Units  
\*Unit Appears Only on the Cross-Section

MAP SYMBOLS	LITHOLOGIES	LITHOLOGY & FOSSIL SYMBOLS
○ <sup>240</sup> water wells with depth shown	▬ coal	▬ argillaceous zone
+ passive seismic station	▬ dolomite	○ vugs
— contact, location accurate	▬ limestone	○ crinoids
- - - contact, location approximate	▬ lithographic limestone	○ oolitic
- · - · contact, location inferred	▬ sandstone	▬ chert
— cross-section	▬ sandy limestone	▬ brachiopods
▨ quarry	▬ shale	○ corals
▨ hillshade	▬ siltstone	○ stromatolites
	▬ unlithified sediments	▬ breccia
		▬ unconformity

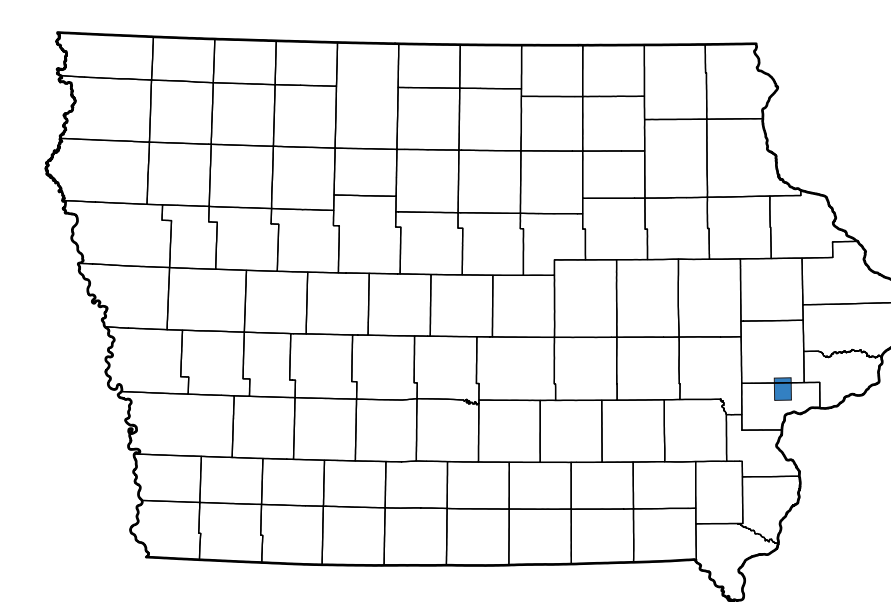
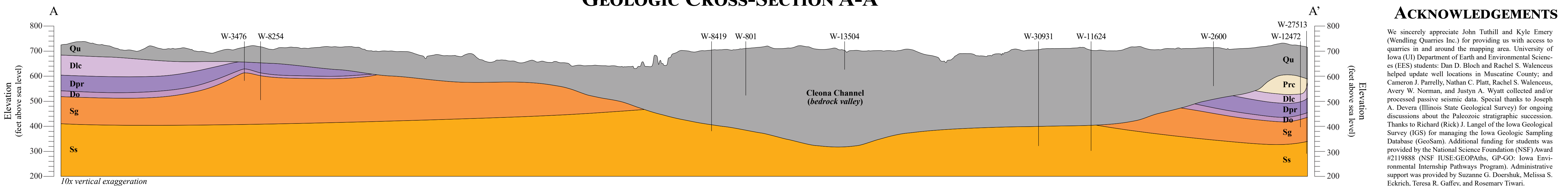


Figure 1. The location of Wilton Quadrangle in Iowa.

## GEOLOGIC CROSS-SECTION A-A'



## ACKNOWLEDGEMENTS

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