PRELIMINARY SURFICIAL GEOLOGY OF THE BURDEN QUADRANGLE, COWLEY COUNTY, KANSAS

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2023

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KANSAS GEOLOGICAL SURVEY
The University of Kansas

Open-File Report 2023-9

Funded in part by the USGS National Cooperative Geologic Mapping Program

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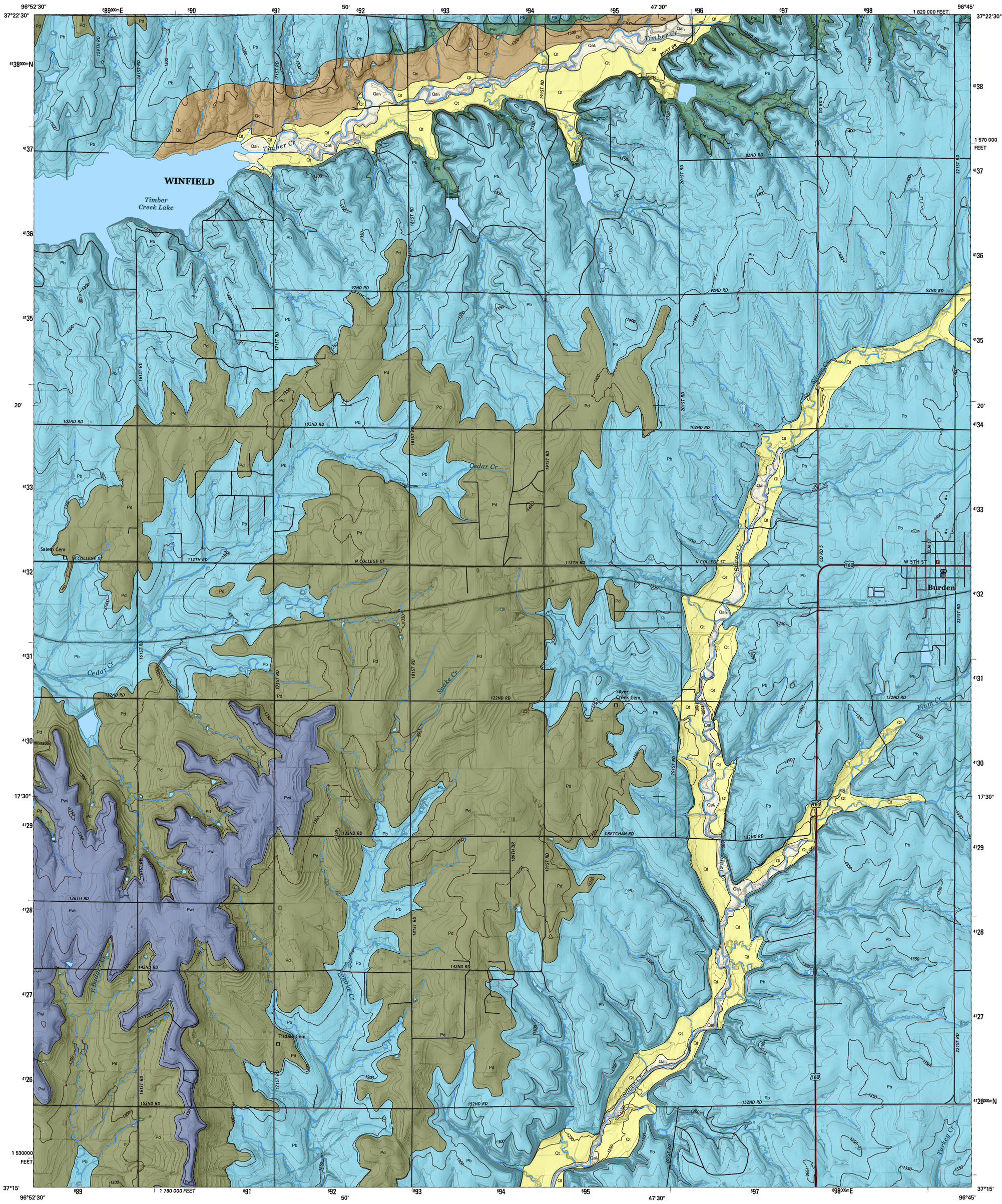
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

BURDEN QUADRANGLE
KANSAS - COWLEY COUNTY
7.5-MINUTE SERIES



GEOLOGIC UNITS

CENOZOIC

Quaternary System
Holocene

- Qal_1 — **Undifferentiated floodplain alluvium**
- Qt — **Alluvial terrace deposits**
- Qc — **Colluvial apron and alluvial fan deposits**

PALEOZOIC

Permian System
Leonardian Series
Sumner Group

- Pd — **Doyle Shale**
- Pb — **Barneston Limestone**
- Pm — **Matfield Shale**
- Pwi — **Winfield Limestone**

EXPLANATION

Geologic Unit Boundaries

——— Observed contact

SOURCES

Aber, J. S., 1994, Geologic map, Butler County, Kansas: Kansas Geological Survey, Map M-30, scale 1:50,000.

Bass, N. W., 1929, The geology of Cowley County, Kansas: Kansas Geological Survey, Bulletin 12, 203 p.

Bayne, C. K., 1962, Geology and ground-water resources of Cowley County, Kansas: Kansas Geological Survey, Bulletin 158, 219 p.

Horsch, M. L., 1980, Soil survey of Cowley County, Kansas: U.S. Department of Agriculture, Soil Conservation Service and Kansas Agricultural Experiment Station, 123 p.

Kansas Geological Survey, 2022, Water well completion records (WWC5), http://www.kgs.ku.edu/Magellan/WaterWell/index.html.

Elevation contours are presented for general reference. Used in the U.S. Geological Survey's current US Topo 1:24,000-scale topographic map series, they were generated from hydrographically-improved 1/3 arc-second National Elevation Dataset (NED) data and smoothed during processing for use at 1:24,000 scale. In some places, the contours may be more generalized than the base data used for compilation of geologic outcrop patterns. Outcrop patterns on the map will typically reflect topographic variation more accurately than the associated contour lines. Repeated fluctuation of an outcrop line across a contour line should be interpreted as an indication that the mapped rock unit is maintaining a relatively constant elevation along a generalized contour.

1-meter LiDAR hillshades and 1-meter 2020 U.S. Department of Agriculture – Farm Services Agency (USDA-FSA) National Agriculture Imagery Program (NAIP) digital imagery were used as references in the digital mapping. USGS 7.5-min 1:24,000-scale topographic maps, USDA Natural Resources Conservation Service (NRCS) soil surveys, and other geologic maps and bulletins were used to supplement the mapping. Roads and highways are shown on the base map as represented by data from the Kansas Department of Transportation (KDOT), U.S. Census Bureau, and other sources. USDA-FSA NAIP imagery also was used to check road locations.

Shaded relief is based on 1-meter hydroflattened bare-earth DEMs from the State of Kansas LiDAR Database. The DEM images, in ERDAS IMAGINE format, were mosaicked into a single output DEM and reprojected to decimal degrees. The output DEM was then converted to a hillshade, a multidirectional shaded-relief image using angles of illumination from 0°, 225°, 270°, and 315° azimuths, each 45° above the horizon, with a 4x vertical exaggeration.

This geologic map was funded in part by the USGS National Cooperative Geologic Mapping Program, award number G21AC10803 (FY2021).

This map was produced using the ArcGIS system developed by Esri (Environmental Systems Research Institute, Inc.).

This map is a preliminary product and has had less scientific and cartographic review than the Kansas Geological Survey's M-series geologic maps. The KGS does not guarantee this map to be free from errors or inaccuracies and disclaims any responsibility or liability for interpretations made from the map or decisions based thereon.

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 14S

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP,	July 2017 - September 2017
Roads	U.S. Census Bureau,	2015
Names	GNIS,	1995 - 2021
Hydrography	National Hydrography Dataset,	2001 - 2018
Contours	National Elevation Dataset,	2017
Boundaries	Multiple sources; see metadata file	2019 - 2021
Public Land Survey System	BLM,	2018
Wetlands	FWS National Wetlands Inventory	1985 - 1986

MN
GN
1°20' 24 MILS
3°9' 56 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
PG
Grid Zone Designation
14S

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

KANSAS
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Wilmot
2 Atlanta
3 Cambridge NW
4 New Salem
5 Cambridge
6 Winfield
7 Eaton
8 Dexter
ADJOINING QUADRANGLES

ROAD CLASSIFICATION

Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

BURDEN, KS
2022

SUGGESTED REFERENCE TO THE MAP

Peterson, A.E., 2023, Preliminary surficial geology of the Burden quadrangle, Cowley County, Kansas: Kansas Geological Survey, Open-File Report 2023-9, scale 1:24,000, unpublished.

Last updated 03/13/23