North Dakota Geological Survey
24K: Arge - sg

Surface Geology
Argusville Quadrangle, North Dakota

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EXPLANATION

GEOLOGIC UNITS IN MAP AREA

ANTHROPOGENIC DEPOSITS

Af — **FILL DEPOSITS:** Cut and fill materials consisting dominantly of silts, clays, and sands from adjacent nearsurface formations placed by artificial means. Used in construction of highway crossover ramps, wastewater ponds and drainage improvement embankments.

ANTHROPOCENE

QUATERNARY PERIOD

HOLOCENE EPOCH

GEOHAZARDS

Hls — **LANDSLIDE DEPOSITS**
A mass of material that has moved downslope. Includes earth flows, slumps, and areas of soil creep.

Hlsa — **LANDSLIDE DEPOSITS: RECENTLY ACTIVE**
Slumps along the Sheyenne river active between 2008 and 2020.

OAHE FORMATION

UNCONSOLIDATED AND GLACIAL SURFICIAL DEPOSITS

Hpso — **POND AND SLOUGH SEDIMENTS:** Dark brown to black obscurely bedded clay, silt, sand, and organic debris generally one to three feet in thickness. Modern pond and slough sediments in oxbow lakes and cutoff meanders created by anthropogenic channel modifications.

Hal — **ALLUVIUM:** Clay, silt, sand, and disseminated organic debris, obscurely bedded, black to brown-gray, associated with sand and gravel of older river channel sediment. Glaciofluvial and modern fluvial deposits associated with the Sheyenne River on the Lake Agassiz plain.

Hs — **SHERACK FORMATION:** Glaciolacustrine, yellow gray, thinly laminated silt, clay, and silty clay. Deposited as offshore sediments of Glacial Lake Agassiz. Ranges in thickness from 12 feet (3.6 m) to 39 feet (11.9 m) below land surface.

PLEISTOCENE EPOCH

COLEHARBOR GROUP

Qb — **BRENNA FORMATION:** Glaciolacustrine, brown (upper-weathered) to very dark-gray, slightly laminated to unbedded clay, and silty clay. Calcareous nodules present with slickensides common, soft to very stiff. Deposited as offshore sediments of Glacial Lake Agassiz. Commonly 60 feet (18.3 m) thick occurring at depths ranging from 12 feet (3.6 m) to 39 feet (11.9 m) below land surface.

Qct — **SUBGLACIAL TILL:** Gray to dark-gray and olive silty clay with sand and coarse to fine gravel (undifferentiated). Sediment deposited by glacial ice of Late Wisconsinan age. Multiple tills (diamicton) are likely within this group. The Red Lake Falls /Goose River Formations are the uppermost tills in this area.

Qcs — **SAND & GRAVEL:** Fine gravel to fine sand with shale pebbles and gray clay common. Deposited as ice-contact glacial outwash. Part of the West Fargo Aquifer System.

-Unconformity-

CRETACEOUS BEDROCK

GEOLOGIC UNITS IN CROSS SECTION

BEDROCK

Ku — **SHALE (undifferentiated):** Dark-gray to gray-brown, clayey carbonaceous shale. Marine offshore sediment of the Belle Fourche, Mowry, or Skull Creek Formations.

-Nonconformity-

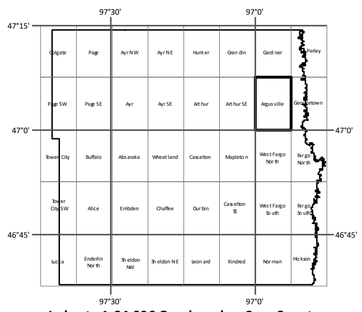
PRECAMBRIAN BASEMENT

p€w — **WEATHERED GRANITE:** Green-gray to white, clayey with granite pebbles and fragments. Occasional angular quartz grains. Depth of weathered zone inferred from drillhole lithologic logs.

p€ — **GRANITIC ROCKS:** Archaen age basement rocks of the Superior Province.

Ice-drag marks – Established from aerial photographs and LiDAR. Low linear ridges and shallow grooves made by glacial icebergs or floating lake ice in contact with the lake bottom.

Geologic contact



Index to 1:24,000 Quadrangles, Cass County

Argusville Quadrangle, North Dakota

2019 Magnetic North
Declination at Center of Sheet

Scale 1:24,000

0 0.5 1

Miles

Lambert Conformal Conic Projection

Standard Parallels 47°0'0" 47°7'30" N