7152 III NE IMENA 40 MI. (GILLHAM) GILLHAM 3.7 MI.

Gravel Pit

Grave Fit &

Mapped, edited, and published by the Geological Survey

10,000 foot grid based on Arkansas coordinate system, south zone

Red tint indicates areas in which only landmark buildings are shown

Fine red dashed lines indicate selected fence and field lines where

Blue hatching indicates areas to be submerged by De Queen Reservoir

generally visible on aerial photographs. This information is unchecked

UTM GRID AND 1966 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Topography by photogrammetric methods from aerial

photographs taken 1964. Field checked 1965-66

Polyconic projection. 1927 North American datum

1000-meter Universal Transverse Mercator grid ticks,

Areas covered by dashed light-blue pattern

are subject to controlled inundation

Control by USGS and USC&GS

zone 15, shown in blue

ARKANSAS-SEVIER CO.

7.5 MINUTE SERIES (TOPOGRAPHIC)

INTERIOR-GEOLOGICA SURVEY, WASHINGTON D. C. 1967 34°00' 15'

\_\_\_\_\_\_ Light-duty \_\_\_\_\_\_

DE QUEEN, ARK.

N3400---W9415/7.5

ROAD CLASSIFICATION

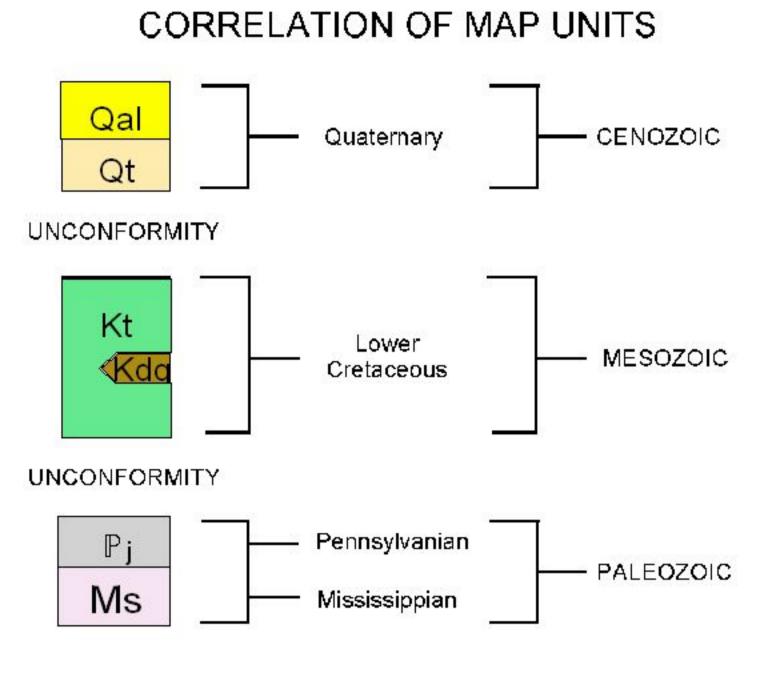
Medium-duty \_\_\_\_\_ Unimproved dirt \_\_\_\_\_

U. S. Route State Route

QUADRANGLE LOCATION

Funded by the Arkansas Geological Commission in

cooperation with the United States Geological Survey, STATEMAP No. 1434-94-A-1223



## DESCRIPTION OF MAP UNITS

Alluvium (Quaternary) - Variably sized gravel overlain by unconsolidated sand, silt, and clay comprises this unit. This unit occurs in the floodplains of streams and rivers. The sediments form a rich loam and are excellent for agriculture. Gravels, primarily novaculite, originated in the Ouachita Mountain region and from local Cretaceous formations. Thickness varies from 0 to 25 feet. Areas of alluvium are presently receiving sediment deposition.

Terrace Deposits(Quaternary) - Terrace deposits generally grade from basal gravel to silt and clay at the top. Gravels, primarily novaculite, originated in the Ouachita Mountain region and from local Cretaceous formations. Thicknesses vary, but are generally less than 50 feet. Terraces are topographic features which are former floodplains of the river. The sediments form a rich loamy soil. The basal gravel is sometimes utilized for water well production and gravel mining operations.

group is exposed in a east-west trending belt and dips to southward approximately 100 feet per mile. Sediments comprising this unit originated to the north in the Ouachita Mountain region and were deposited following a major unconformity an upturned and eroded Paleozoic surface in a near-shore marine environment. Members of the Trinity Group exposed are the Pike Gravel, Holly Creek Sand, the DeQueen Limestone, and the Paluxy Sand. The Paluxy Sand Member is composed of cross-bedded medium- to fine-grained quartz sand, minor gravel, and bedded gray, light-gray, and brown clay. Sands weather from yellow to orange-red in color. The thickness of the unit on the quadrangle is approximately 350 feet. Near the base of the Paluxy Sand Member, sandstones with barite cement form topographic highs. The DeQueen Limestone Member is composed of interbedded gray fossiliferous limestone, gray and green calcareous clay, very fine quartz sand, and silt. The thickness of the limestone beds vary, but rarely exceed 36 inches. Ripple marks, mud cracks, and worm trails are common on the upper surface of the limestone slabs. Clays weather yellow-brown and are sticky. The

Trinity Group (Lower Cretaceous) - The Trinity Group consists of gravel, sand, clay, gypsum, celestine, and barite. The

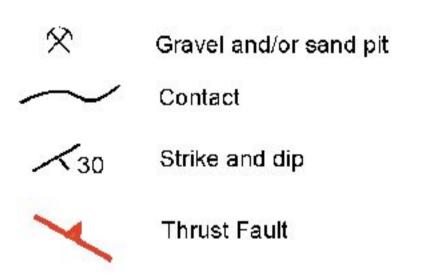
thickness of the member is approximately 75 feet in the mapped area. Fossils present are primarily brackish-water molluscan fauna, the most common being the Ostrea franklini. This member corresponds in part to the Ferry Lake anhydrite in the subsurface of southern Arkansas. The Holly Creek Member is composed of cross-bedded gray, fine- to very fine-grained quartz sand, gravel, and clay. Sands commonly weather yellow to red in color. Clays are typically gray to brown in color. The Ultima Thule gravel lens is a part of and clay lenses occur within the gravel unit, while sand generally fills the interstitial spaces around the gravel. Iron-oxide-cemented conglomerates may be present locally. The thickness of the Ultima Thule in the mapped area is 10 to 20 feet. The thickness for the entire member on the quadrangle is approximately 250 feet.

The Pike Gravel Member is a bedded gravel composed of novaculite, sandstone, quartzite, and quartz. The basal 1 to 2 feet of the unit contains a higher percentage of cobbles and boulders, some up to 24 inches in diameter. The average size of the gravel is 1/2 to 10 inches in diameter. Minor sand and clay intervals are within the gravel, while sand commonly fills the interstitial spaces around the gravel. The gravel beds form ridges because of their resistance to erosion. Reddish staining, due to weathering of iron bearing minerals, is present on the gravels. Iron-oxide-cemented conglomerates may be present locally. The thickness of the Pike Gravel on the quadrangle ranges from 10 to 30 feet.

Jackfork Sandstone (Pennsylvanian) - The Jackfork Sandstone contains many alternating layers of grayish-black shale and silty to quartzose, fine- to medium-grained, light-gray sandstone. Shales weather reddish- to tannish-gray in color. The sandstone weathers white to reddish-brown in color. Some granule-conglomerate intervals occur in massive quartzose sands in both the upper and lower portions of the formation. Thin intervals of black siliceous shales with some pinkish siderite laminae are sometimes present. Occasional debris flows containing clasts of shale, sandstone, and siderite occur and are 5 to 15 feet thick. Some slurried silty throughout the unit. In the Athens Plateau, the Jackfork Sandstone has a total thickness of about 7,000 to 7,500 feet. In the quadrangle about 900 feet of the uppermost Jackfork Sandstone and thick conformable sequences of younger Pennsylvanian strata are absent due to overlap by Lower Cretaceous strata. The formation is conformable with the underlying Stanley Shale. A major unconformity exists in some locations where the Pike Gravel Member of the Trinity Group (Lower Cretaceous) overlies the formation.

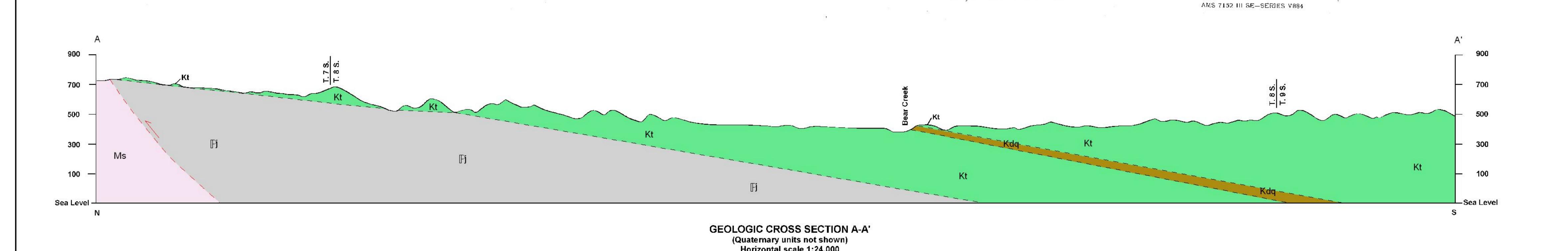
Stanley Shale (Mississippian) - The Stanley Shale is predominantly composed of sequences of gray-black shale and thin to occasionally thick, silty, feldspathic, fine- to medium-grained, light-gray to gray sandstone. Thin intervals of black chert and siliceous shale layers are present throughout the formation. Weathering of the shale often imparts an olive-gray clayey appearance, while the sandstone becomes olive-brown in color and rather friable. Small silty calcareous cone-in-cone structures, and siderite concretions occur in some shales. About 2,800 feet of the upper part of the formation is present in the quadrangle. The thickness of the Stanley Shale in the southern Athens Plateau is about 11,000 to 12,500 feet. Deep-marine turbidity-current deposits occur throughout the formation. Complex structural deformation generated by the Late Paleozoic Quachita orogeny formed several major thrust faults in the Stanley strata. Hydrothermal fluids migrated during the late stages of this tectonic event resulting in antimony and copper mineralization within some of the milky quartz veins. The Stanley is conformable with the underlying Arkansas Novaculite in the Cossatot Mountains north of the mapped area, and the overlying Jackfork Sandstone. Locally, a major unconformity exists between the Stanley Shale and the Pike Gravel Member of the Trinity Group (Lower Cretaceous).

## SYMBOLS



## REFERENCES

Bush, W. V., and Clardy, B. F., 1971, Geologic Map of the DeQueen Quadrangle, Sevier County Arkansas: Arkansas Geological Commission Open-File Report, scale 1:24,000. Dane, C. H., 1929, Upper Cretaceous Formations of Southwestern Arkansas: Arkansas Geological Survey Bulletin 1, 215 p.
Haley, B. R., and Stone, C. G., 1994, Geology of the DeQueen Quadrangle, Sevier County Arkansas:
Arkansas Geological Commission Open-File Report, scale 1:24,000.
Miser, H. D., and Purdue, A. H., 1929, Geology of the DeQueen and Caddo Gap Quadrangles, Arkansas: United States Geological Survey Bulletin 808, 195 p.



SCALE 1:24 000

1000 C 1000 2000 3000 4000 5000 6000 7000 FEET

CONTOUR INTERVAL 20 FEET

DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092

AND ARKANSAS GEOLOGICAL COMMISSION, LITTLE ROCK, ARKANSAS 72204

A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

