

Offshore Glaciolacustrine Deposits of Glacial Lake Agassiz: The Sherack Formation in Grand Forks County, North Dakota



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2024

DEPTH AND THICKNESS OF THE SHERACK FORMATION

This map depicts the extent and thickness (depth) of the Sherack Formation in Grand Forks County. The Sherack Formation consists of thinly laminated silt and clay deposited in the offshore environment of glacial Lake Agassiz during latest Wisconsinan time. It is the uppermost offshore unit found in the Red River Valley and may be overlain by a thin layer of overbank silts and clays or truncated by alluvial deposits from modern rivers such as the Turtle and Red Rivers and other smaller coulees and drainages. It was deposited in the eastern half of the county and covers an area of 504 square miles (1,374,822,495 acres). It is more laterally extensive in the northern portion of the county and generally thins from the depositional center, generally coincident with the alignment of the Red River main stem, towards the Lake Agassiz shorelines in the east. Lithologically, the Sherack Formation contains, on average, 49% clay, 47% silt, with minor amounts (5%) of sand. The Sherack Formation lies directly above the Brenna Formation throughout the Red River Valley and is less problematic as an engineering geologic unit than the underlying Brenna, as it has favorable geotechnical characteristics for highway and light horizontal construction. The Sherack Formation occurs at land surface directly below a thin layer of surficial soils and is generally 19 feet (5.8 m) thick across most of the county, thickening gradually from west to east.

A Alluvium Areas of modern rivers and streams that have eroded into the offshore deposits of the Sherack Formation. The Sherack Formation may be thin or absent in these areas having been replaced with alluvial deposits.

Sherack Formation Depth Contour (feet)

- < 10
- 10 - 20
- 20 - 30
- 30 - 40
- > 40

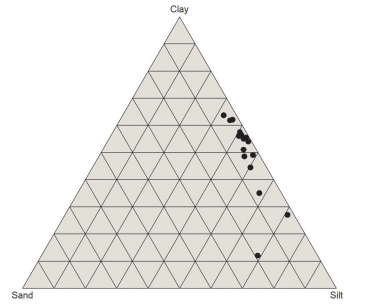
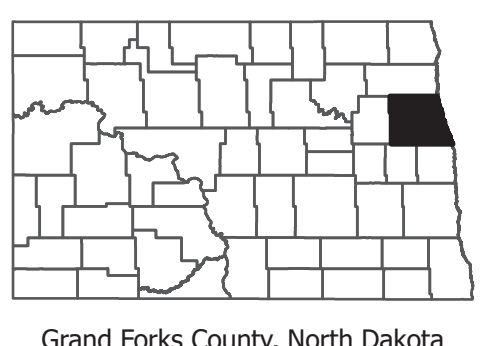
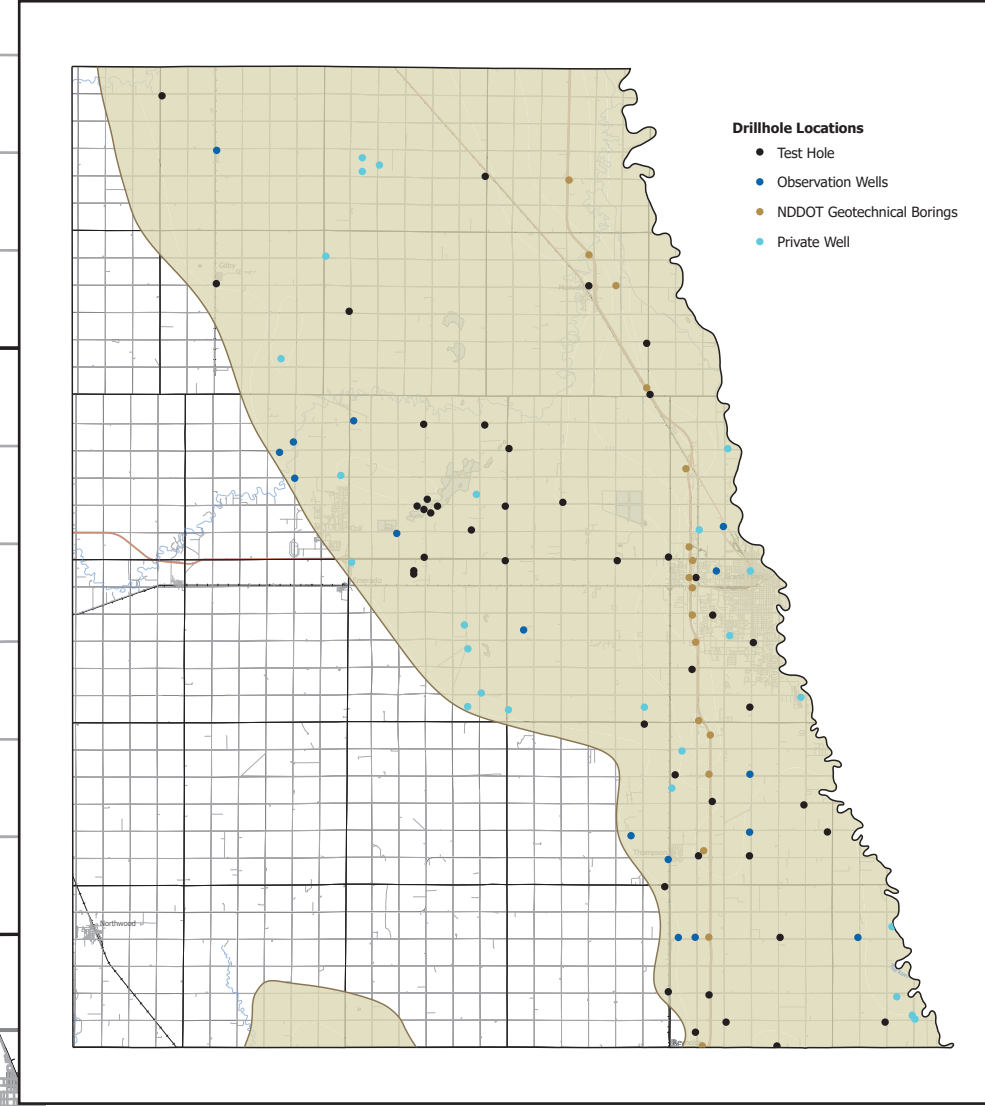
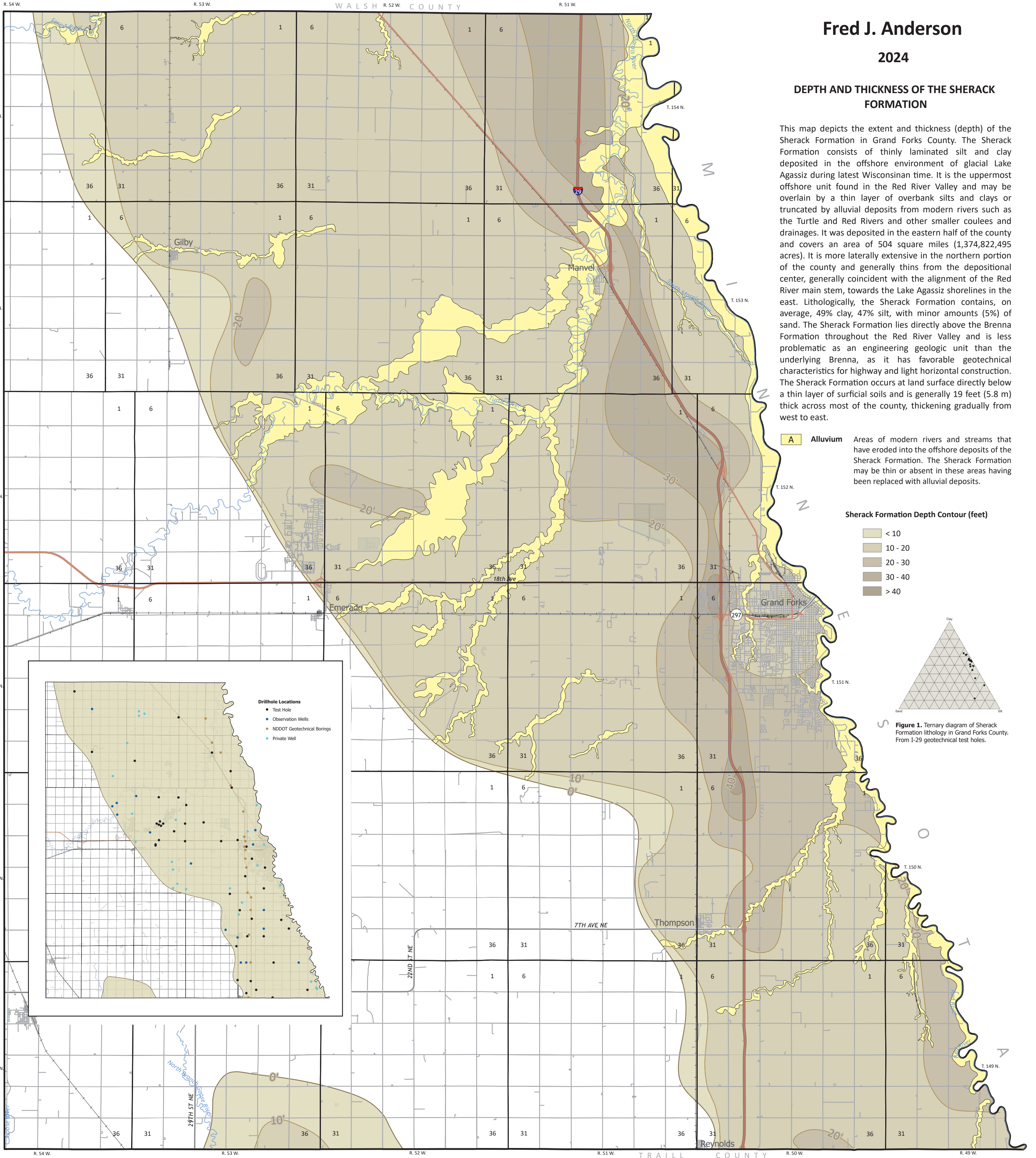
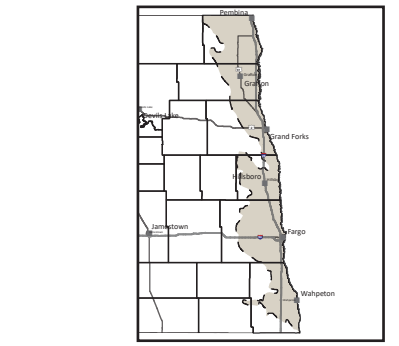


Figure 1. Ternary diagram of Sherack Formation lithology in Grand Forks County. From I-29 geotechnical test holes.



Grand Forks County, North Dakota



Location and extent of the offshore lake clays of the Sherack Formation in the Red River Valley of North Dakota.

