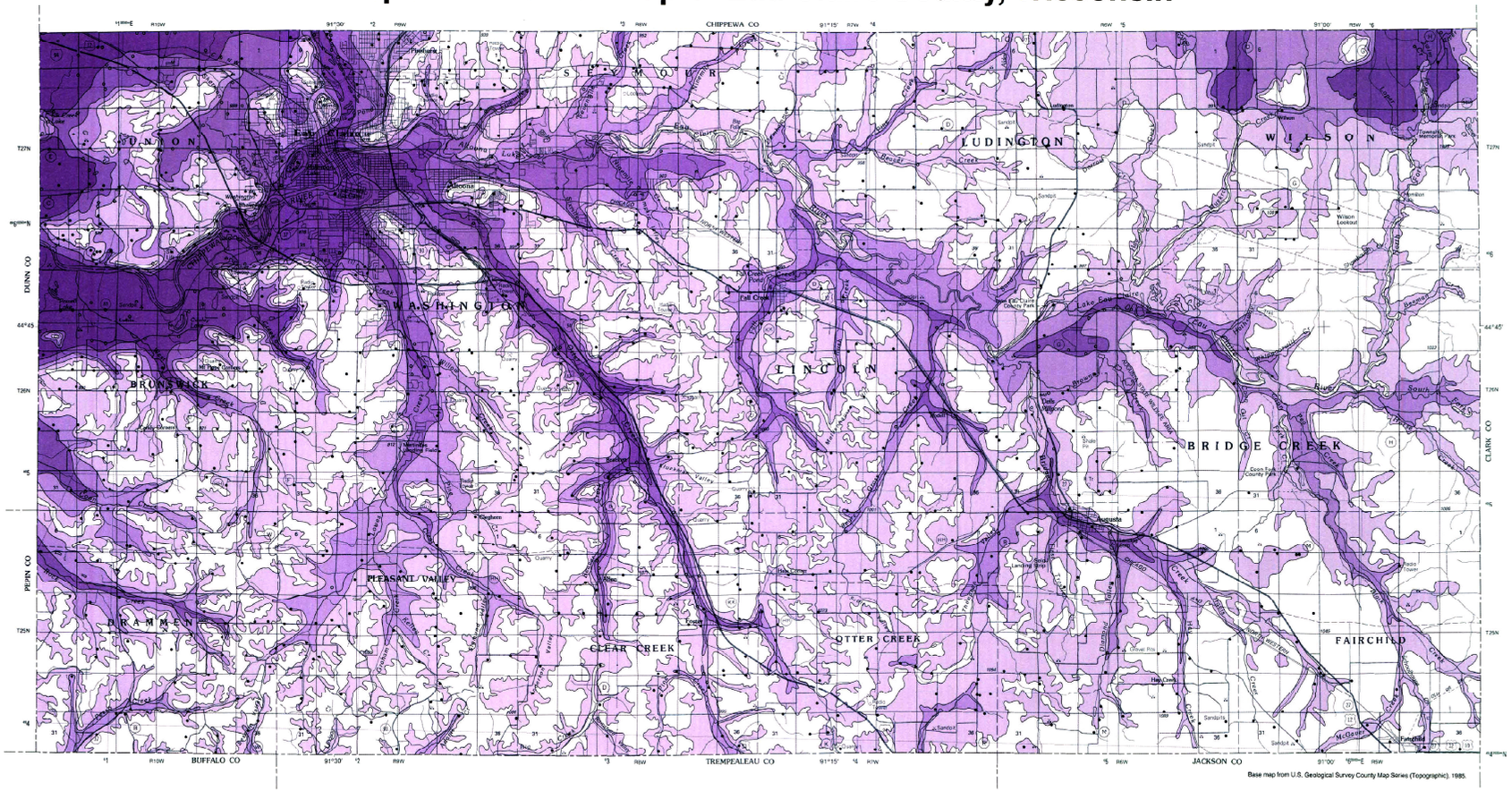
Depth to Bedrock Map of Eau Claire County, Wisconsin

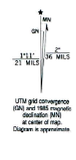


Base map from U.S. Geological Survey County Map Series (Topographic), 1985.

Scale 1:100,000

KILOMETERS 0 1 2 3 4 5 6 7

MILES 0 1 2 3



UTM grid convergence (GN) and 1985 magnetic declination (MN) at center of map. Diagram is approximate.

Cartography by D.L. Patterson and D.C. Endrizzi

D.M. Johnson, 1993

Miscellaneous Map 37

A product of the Eau Claire County Groundwater Resource Investigation, a joint project of the Wisconsin Geological and Natural History Survey and the Eau Claire County Board of Supervisors.

Depth to bedrock categories

- 0–5 ft — bedrock at or near the land surface
- 5–25 ft — bedrock often exposed in roadcuts, streambeds, and excavations
- 25–50 ft — bedrock usually intersected by water wells and other borings
- 50–100 ft — bedrock intersected only by deep drillholes
- 100+ ft — bedrock intersected only by deep drillholes

approximate depth to bedrock, in feet below land surface

○ well that does not intersect bedrock • well that intersects bedrock

In Eau Claire County, bedrock is composed almost entirely of Cambrian sandstone, siltstone, and small amounts of shale. The Mount Simon Formation of the Elk Mound Group is the most extensively exposed unit. Cambrian rock is absent in the stream valleys of the northeast, where Precambrian basement rock is exposed, and is up to more than 250 feet thick in the southwest part of the county. In the hills of southern Eau Claire County, the Mount Simon is overlain by younger Cambrian sandstone, dolomite, and shale of the Elk Mound Group (the Eau Claire and Wonewoc Formations), the Tunnel City Group, and the St. Lawrence and Jordan Formations of the Trempealeau Group. The strata dip gently to the southwest.

Surficial deposits in Eau Claire County, which are up to 200 feet thick in the Chippewa River valley and absent in places in upland areas where bedrock occurs at the surface, consist primarily of residuum and materials of glacial and alluvial origin. Three glacial episodes have deposited surficial materials in Eau Claire County: the pre-Illinois, Illinois, and Wisconsin (oldest to youngest) (Baker, 1984). Pre-Illinois lake sediment of the Kinnickinnic Member of the Pierce Formation was deposited in lakes that were dammed by ice that blocked the westward drainage of the Chippewa River and its tributaries; this material is absent in the uplands of the north and southwest and where it has been eroded. A red sandy till deposited in the northeastern part of the county during the Illinois Glaciation and derived from the Superior Basin is included in the River Falls Formation. During the Wisconsin Glaciation, the Laurentide Ice Sheet advanced into the northeastern corner of the county, where it deposited till and outwash.

Since glaciation, slope processes have reworked the glacial sediment as well as residual materials on bedrock. This reworking of sediment has resulted in the accumulation of colluvial deposits at the base of slopes. Figure 1 shows a cross section of a typical stream valley and the relationship of the bedrock to surficial deposits.

The depth to bedrock map presented here provides a general guide to the thickness of surficial materials. It is based on well records, the Eau Claire County soil survey (Soil Conservation Service, 1977), and field observations. The distribution of surficial deposits combined with the effects of erosion and mass wasting can cause significant differences in the depth to bedrock over short distances. Because of local complexity, this map should be used only as a guide to the general thickness of the materials. Detailed site-specific investigations, including drilling, are necessary to verify local conditions.

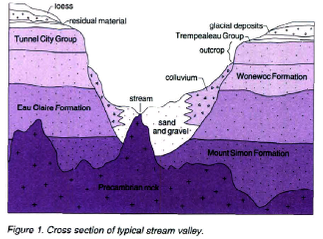


Figure 1. Cross section of typical stream valley.

Sources of information

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