

UNCONSOLIDATED AQUIFER SYSTEMS OF HUNTINGTON COUNTY, INDIANA

Five unconsolidated aquifer systems have been mapped in Huntington County: the Till Veneer, the Bluffton Till, the Bluffton Till Subsystem, the Bluffton Complex, and the Wabash River and Tributaries Outwash Subsystem. Boundaries of these aquifer systems are commonly gradational and individual aquifers may extend across aquifer system boundaries.

In Huntington County, the thickness of unconsolidated sediments is quite variable. Bedrock is at or near the surface in places along the Wabash River and some tributaries. However, the thickness of unconsolidated sediments exceeds 250 feet in places near the Grant County line and is also over 250 feet thick in the northwest corner of Huntington County. Elsewhere in the county, the unconsolidated deposits are commonly 75 to 125 feet thick. In Huntington County only about 20 percent of the reported wells are finished in the unconsolidated deposits.

Regional estimates of aquifer susceptibility to contamination from the surface can differ considerably from local reality. Variations within geologic environments can cause variation in susceptibility to surface contamination. In addition, man-made structures such as poorly constructed water wells, unplugged or improperly abandoned wells, and open excavations can provide contaminant pathways that bypass the naturally protective clays.

Till Veneer Aquifer System

In Huntington County, the Till Veneer Aquifer System encompasses areas where the unconsolidated material is predominantly thin till overlying bedrock. This system is mapped primarily in the southeastern quarter of the county, along the Wabash River, and along the Little River. In these areas, this thin till is chiefly the product of the deposition of Wisconsin glacial till over an eroded bedrock surface. This system has the most limited ground-water resources of the unconsolidated aquifer systems in the county. Total thickness of the Till Veneer Aquifer System generally ranges from about 25 to 50 feet.

There is little potential for ground-water production in this system in Huntington County. Potential aquifers within this system include thin isolated sand and/or gravel layers. Therefore, very few of the reported wells penetrating this aquifer system in the county are completed in unconsolidated materials, which are bypassed in favor of the more productive underlying bedrock.

This system is not very susceptible to contamination from surface sources because the near-surface materials generally have low permeability. However, there are areas where unconsolidated deposits are extremely thin or absent. These areas are very susceptible to contamination.

Bluffton Till Aquifer System

The Bluffton Till Aquifer System primarily consists of thick clay with thin intratill sand and gravel layers. In Huntington County, this system ranges in thickness from about 50 feet to more than 180 feet, but is typically 75 to 125 feet thick. Saturated aquifer materials include sands and/or gravels that commonly range from 5 to 15 feet thick and are generally overlain by 40 to 100 feet of till.

This aquifer system is capable of meeting the needs of domestic and some high-capacity users; however, most wells are completed in the underlying bedrock aquifer in Huntington County. Wells producing from the Bluffton Till Aquifer System are generally 75 to 125 feet deep. Domestic well capacities are typically 10 to 40 gallons per minute (gpm) and static water levels are commonly 30 to 50 feet below surface.

The Bluffton Till Aquifer System has a low susceptibility to surface contamination because intratill sand and gravel units are generally separated from the surface by till layers within the system.

Bluffton Till Aquifer Subsystem

Areas where unconsolidated materials are generally greater than 50 feet in thickness, yet have little aquifer potential, are mapped as Bluffton Till Aquifer Subsystem. This system is typically less than 80 feet thick in Huntington County. Potential aquifer materials include thin, intratill sand and gravel deposits that are commonly less than 5 feet thick. Where present, aquifer materials are overlain by that is generally 30 to 70 feet thick.

This system is capable of meeting the needs of some domestic users. However, about 95 percent of wells constructed in the area mapped as Bluffton Till Aquifer Subsystem in this county bypass the unconsolidated materials and use the underlying bedrock aquifer. The few wells utilizing this unconsolidated aquifer system in Huntington County are completed at depths of 52 to 139 feet. The Bluffton Till Aquifer Subsystem is generally not very susceptible to surface contamination because its intratill sand and gravel units are overlain by thick till deposits.

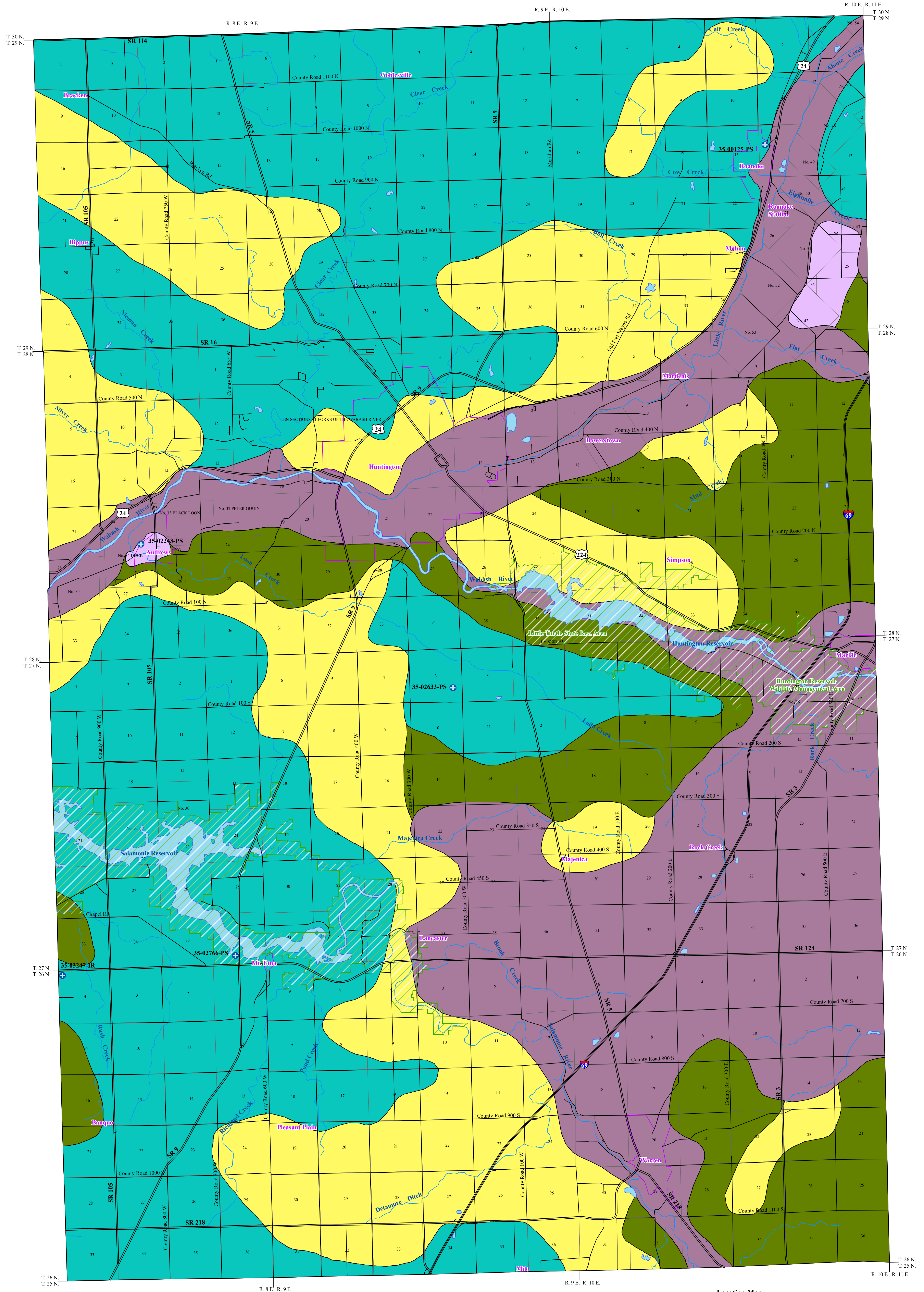
Bluffton Complex Aquifer System

The Bluffton Complex Aquifer System is mapped over a large portion of northern and southwestern Huntington County. This aquifer system is characterized by deposits that are quite variable in materials, thickness, and aerial extent. Sand and gravel aquifer deposits are commonly overlain by a thick till. This system exhibits alternating layers of outwash and till of variable thickness above the main aquifer. In Huntington County, the Bluffton Complex Aquifer System is generally 100 to 225 feet thick.

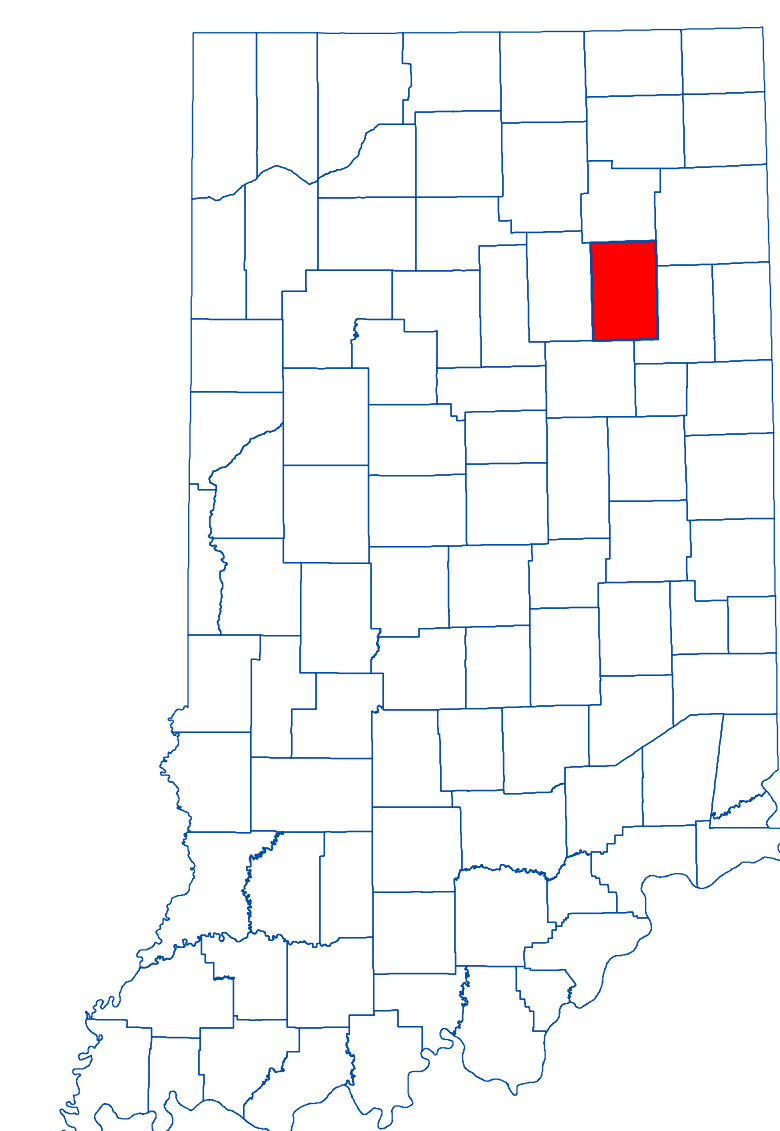
This system is capable of meeting the needs of domestic and some high-capacity users in the county. Aquifer materials in the Bluffton Complex Aquifer System are generally 10 to 25 feet thick and are overlain by a till commonly 40 to 110 feet thick. Wells in this system are typically completed at depths of 70 to 140 feet. Domestic well yields are commonly 10 to 50 gpm and static water levels are generally 35 to 60 feet below the surface. There are 4 registered significant ground-water withdrawal facilities (17 wells) utilizing this system and individual wells produce 25 to 600 gpm. The Bluffton Complex Aquifer System is not very susceptible to contamination because thick clay materials overlie the aquifer materials.

Wabash River and Tributaries Outwash Aquifer Subsystem

This system is mapped along part of the Little River in northeast Huntington County and in the vicinity of Andrews along the Wabash River. The Wabash River and Tributaries Outwash Aquifer Subsystem has the potential to meet the needs of domestic and some high-capacity users. However, only a few wells utilize this system in Huntington County. Saturated sand and gravel layers are generally 10 to 35 feet thick and are commonly overlain by silt, sandy clay, or clay ranging from 10 to 40 feet thick. There is only 1 registered high-capacity facility (3 wells) with reported yields ranging from 150 to 400 gpm. Areas within this aquifer system that have overlying clay or silt deposits are moderately susceptible to surface contamination, whereas, areas that lack overlying clay or silt deposits are highly susceptible to contamination.

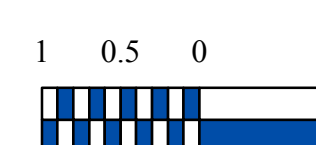
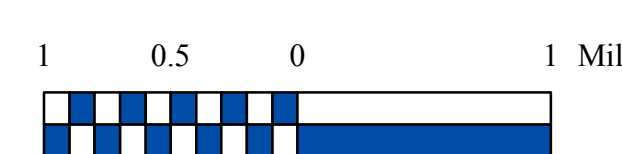
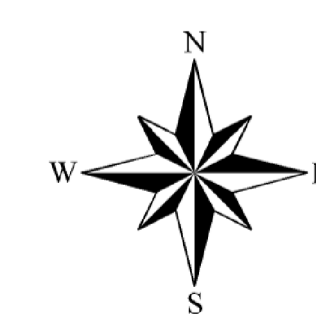


Location Map



EXPLANATION

- Registered Significant Ground-Water Withdrawal Facility
- Stream
- County Road
- State Road & US Highway
- Interstate
- Municipal Boundary
- State Managed Property
- Lake & River



Map Use and Disclaimer Statement

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This map was created from several existing shapefiles. Township and Range Lines of Indiana (line shapefile, 20020621), Land Survey Lines of Indiana (polygon shapefile, 20020621), and County Boundaries of Indiana (polygon shapefile, 20020621), were all from the Indiana Geological Survey and based on a 1:24,000 scale. Draft road shapefiles, System1 and System2 (line shapefiles, 2003), were from the Indiana Department of Transportation and based on a 1:24,000 scale. Populated Areas in Indiana 2000 (polygon shapefile, 20021000) was from the U.S. Census Bureau and based on a 1:100,000 scale. Stream27 (line shapefile, 20000420) was from the Center for Advanced Applications in GIS at Purdue University. Unconsolidated aquifer systems coverage (Grove, 2007) was based on a 1:24,000 scale.

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