

Why Andover Township Needs a Hydrogeology Report

Approximately one-fifth of the Andover Township is underlain by the *Germany Flats Aquifer*, the largest source of water for the entire county. The aquifer is overlain in some places by deep glacial deposits and underlain by a variety of limestone or dolomite bedrock. In other places, these carbonate rock formations are at the surface. *Even though water is abundant in this area, the township must still be concerned about maintaining the purity of it, given the coarseness and permeability of the overlying sand and gravel.*

By contrast, the hilly terrain on either side of the Great Limestone Valley consists of dense granite, gneiss, shale, and slate. These act as water recharge areas to the Limestone Valley and are complex geologic systems that are an unpredictable source of drinking water, since the formations may be well- or poorly-fractured and vary widely in their ability to transmit water. Wells in these areas depend upon fractures in the rock. Under certain conditions, new wells drilled into such fractures can undermine the yield of existing wells.

In 2008, The Environmental Commission was awarded a Smart Growth Planning Grant by the Association of New Jersey Environmental Commissions, and matching funds from the township, to prepare a Hydrogeology Report. *This report will plot out the carrying capacity of properties in Andover Township based on the availability of water and the type of underlying geologic formations, in order to protect both the quality and quantity of our drinking water.*

By undertaking these tasks, the Environmental Commission expects to provide a professional analysis that

- identifies different hydrogeologic zones that have varying capacity for recharge,
- determines dependable yields for each hydrogeologic zone,
- evaluates potential adverse impacts to water quality from wastewater facilities or other human activity,
- includes a nitrate-dilution model to calculate septic recharge,
- pinpoints Karst structure zones and recommends procedures for evaluating them.

The Hydrogeology Report will act as a valuable planning and evaluation tool for the governing bodies of the township, as well as an additional basis for establishing protective ordinances, where necessary.

As a community that is located in the headwaters of both the Paulinskill and Pequest River basins, it is incumbent upon Andover Township to meet State Plan mandates to protect irreplaceable watersheds. The State Plan's Vision for 2020 recommends watershed-based planning, and protection of wells and aquifer recharge areas, based on characterizing each area and developing appropriate management plans for land use and water quality protection based on local conditions.

The Hydrogeology Report will help community leaders interpret environmental and planning issues as they relate to the water supply and geology of the Township.