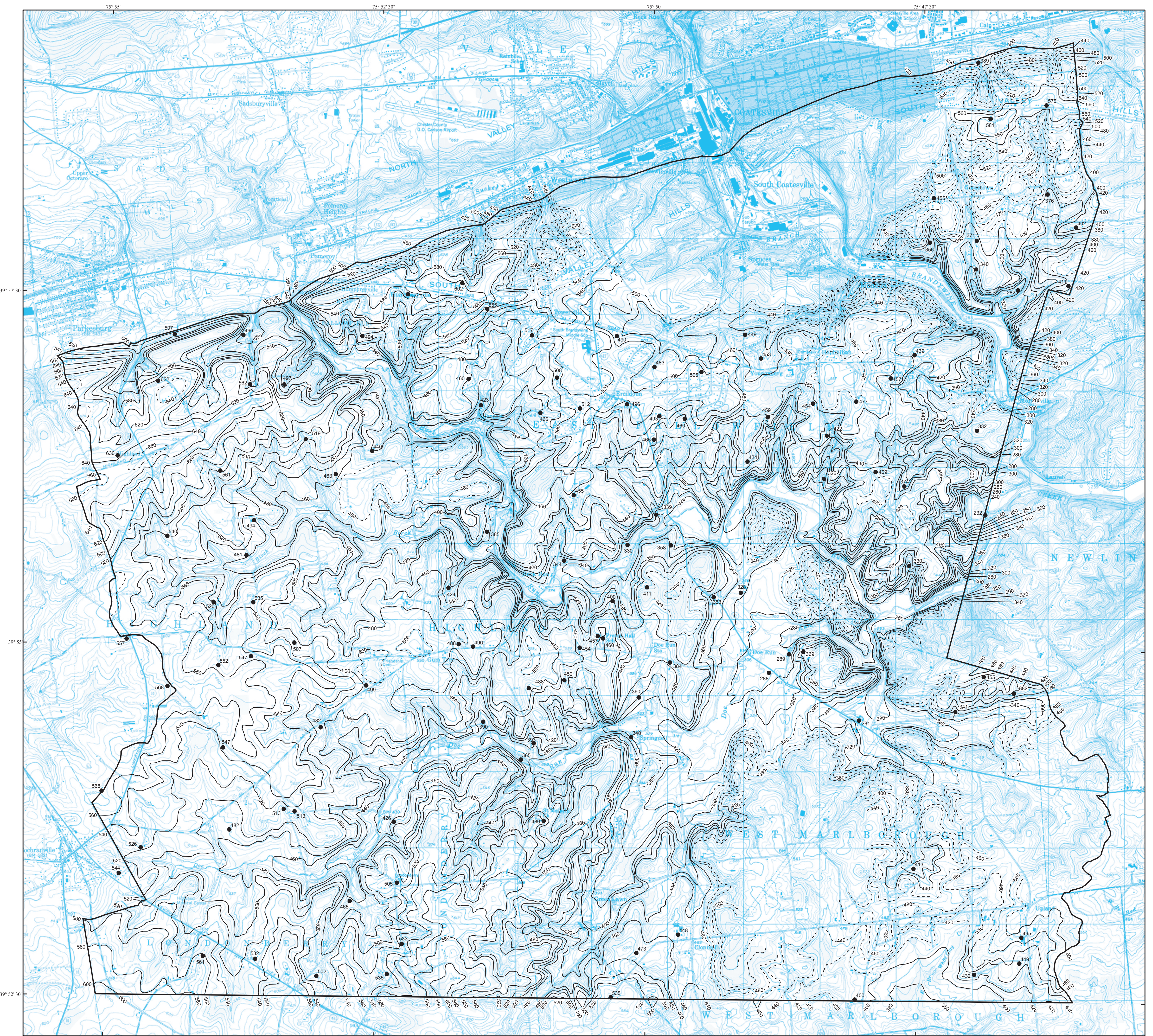
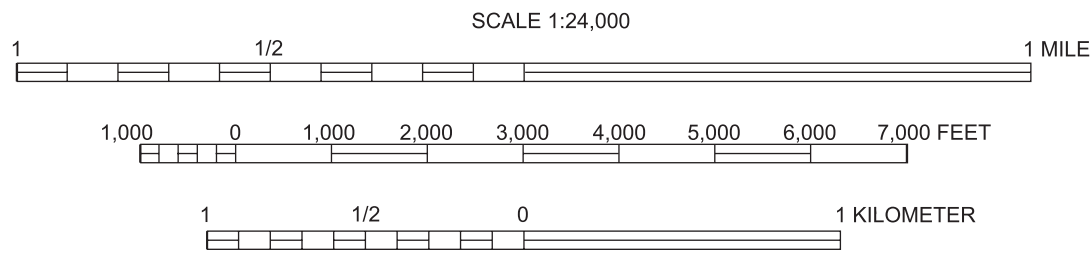




Base from U.S. Geological Survey Bayview, MD-PA, 1:24,000, 1997, 10-foot contours; Kennett Square, PA-DEL, 1:24,000, 1993, 10-foot contours; Newark East, DEL, 1:24,000, 1993, 10-foot contours; Newark West MD-DEL-PA, 1:24,000, 1992, 10-foot contours; Oxford, 1:24,000, 1992, 10-foot contours; West Grove, PA, 1:24,000, 1999, 10-foot contours; Universal Transverse Mercator Projection, Zone 18, North American Datum of 1983; National Geodetic Vertical Datum of 1929



INTRODUCTION

Since 1984, the U.S. Geological Survey (USGS) has been mapping the altitude and configuration of the potentiometric surface in Chester County as part of an ongoing cooperative program to measure and describe the water resources of the county. Areas where the potentiometric surface has been mapped are shown on figure 1 (sheet 2). These maps can be used to determine the general direction of ground-water flow and are frequently referenced by municipalities and developers to evaluate ground-water conditions for water supply and resource-protection requirements (Wood, 1998).

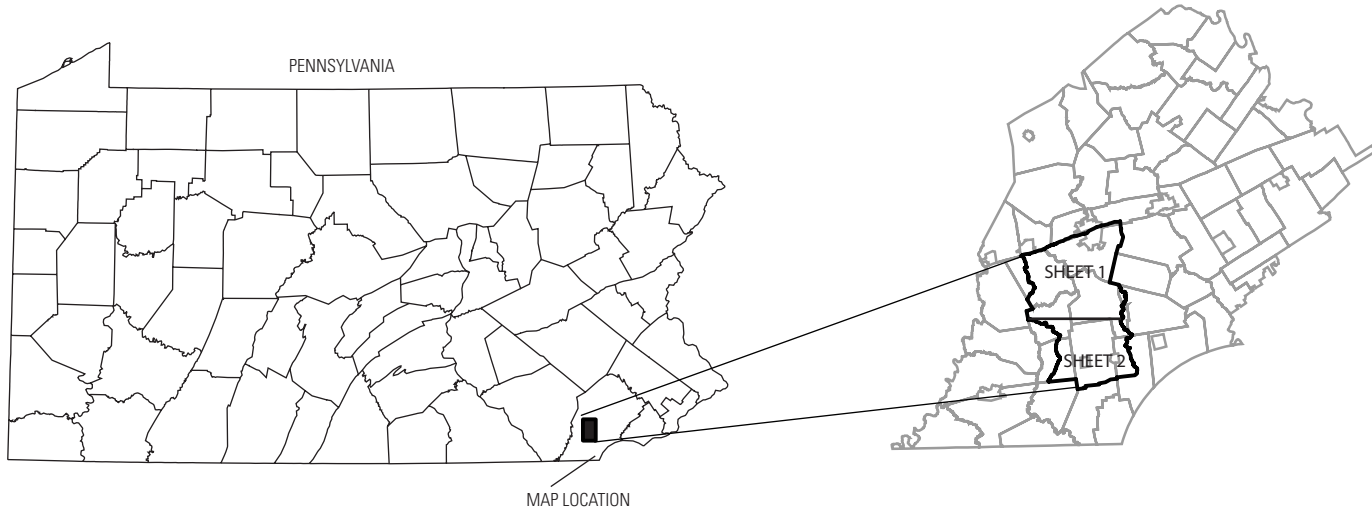
For this study, the potentiometric surface was mapped for an area in south-central Chester County. Because of the size, the mapped area was split into two sheets. The northern part of the map includes portions of Highland, East Fallowfield, Londonderry, and West Marlborough Townships and South Coatesville and Modena Boroughs (sheet 1). The southern part of the map includes portions of Londonderry, West Marlborough, Penn, London Grove, and New Garden Townships and West Grove and Avondale Boroughs. The study area is mostly underlain by metamorphic rocks of the Glenasm Supergroup including Peters Creek Schist, Octagon Phyllite, Wissahickon Schist, Cockeysville Marble, and Settlers Quartzite; and by pegmatite, mafic gneiss, felsic gneiss, and diabase (Sloto, 1994). Ground water is obtained from these bedrock formations by wells that intercept fractures.

The altitude and configuration of the potentiometric surface was contoured from water levels measured on different dates in available wells during May through July 2006 and from the altitude of springs and perennial streams. Topography was used as a guide for contouring so that the altitude of the potentiometric surface was inferred nowhere to be higher than the land surface. The potentiometric surface shown on this map is an approximation of the water table. The altitude of the actual potentiometric surface may differ from the water table, especially in areas where wells are completed in a semi-confined zone or have long open intervals that reflect the composite hydraulic head of multiple water-yielding fractures. A composite head may differ from the potentiometric surface altitude, particularly beneath hillslopes and valleys where vertical hydraulic gradients are significant.

REFERENCES CITED

Sloto, R.A., 1994, Geology, hydrology, and ground-water quality of Chester County, Pennsylvania: Chester County Water Resources Authority Water-Resource Report 2, 127 p.

Wood, C.R., 1998, U.S. Geological Survey Cooperative Water-Resources Programs in Chester County, Pennsylvania: U.S. Geological Survey Fact Sheet 067-98, 6 p.



- EXPLANATION**
- STUDY AREA BOUNDARY
 - POTENTIOMETRIC SURFACE CONTOUR--Shows the altitude of the potentiometric surface as defined by measured water levels in wells, altitudes of streams, springs, and topography. Contours are dashed where approximately located. Contour interval is 20 feet. Altitude in feet above National Geodetic Vertical Datum of 1929.
 - WATER-LEVEL MEASUREMENT SITES--Symbol gives location of site. Number is altitude of water level in feet above National Geodetic Vertical Datum of 1929. Sites outside the study area are shown if they were used to contour the potentiometric surface.
 - ALTITUDE OF STATIC WATER LEVEL IN WELL
 - ALTITUDE OF FLOWING SPRING

ALTITUDE AND CONFIGURATION OF THE POTENTIOMETRIC SURFACE IN THE UPPER WHITE CLAY CREEK AND LOWER WEST BRANCH BRANDYWINE CREEK BASINS INCLUDING PORTIONS OF PENN, LONDON GROVE, NEW GARDEN, LONDONDERRY, WEST MARLBOROUGH, HIGHLAND, AND EAST FALLOWFIELD TOWNSHIPS AND WEST GROVE, AVONDALE, MODENA, AND SOUTH COATESVILLE BOROUGHS, CHESTER COUNTY, PENNSYLVANIA, MAY THROUGH JULY 2006

By
LINDSAY B. HALE
2007