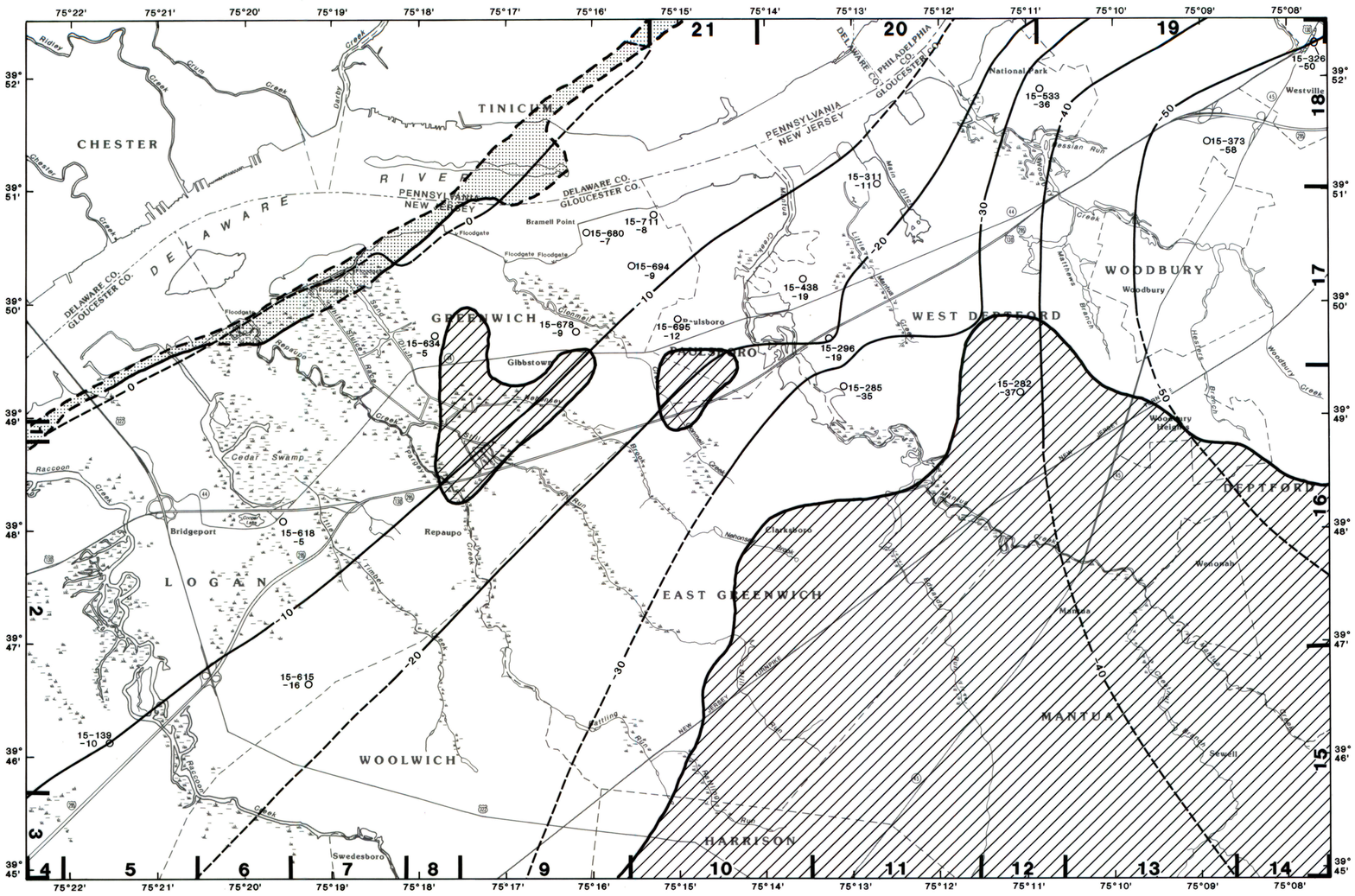
Prepared in cooperation with
GREENWICH TOWNSHIP, NEW JERSEY, and the
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION






Base from U.S. Geological Survey, 1:24,000 quadrangles, Bridgeport, 1967; Woodbury, 1967

EXPLANATION

SUBCROP OR OUTCROP OF THE LOWER AQUIFER OF THE POTOMAC-RARITAN-MAGOTHY AQUIFER SYSTEM

AREA IN WHICH THE HYDRAULIC GRADIENTS INDICATE A POTENTIAL FOR DOWNWARD LEAKAGE OF WATER FROM THE MIDDLE AQUIFER TO THE LOWER AQUIFER OF THE POTOMAC-RARITAN-MAGOTHY AQUIFER SYSTEM

-20- POTENTIOMETRIC CONTOUR--Shows altitude of water level. Dashed where inferred. Contour interval is 10 feet. Datum is sea level

CONTACT BETWEEN HYDROGEOLOGIC UNITS--Contacts are dashed where approximate. Contacts that cross the Delaware River are speculative

8 BOUNDARY FLUX ZONE--Lines around the boundary of the map indicate the "zone" or extent of a boundary line for which the flux into or out of the region was calculated. Number in the center of the zone is used to refer to table 11, which lists the calculated flux for each zone

15-634 -5 WELL LOCATION--Upper number is U.S. Geological Survey well number (see table 2). Lower number is water level, in feet above or below sea level (see table 8)

SCALE 1:48 000

1 ½ 0 1 MILE
1 .5 0 1 KILOMETER

## 11a.--POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER OF THE POTOMAC-RARITAN-MAGOTHY AQUIFER SYSTEM IN THE REGION OF GREENWICH TOWNSHIP, GLOUCESTER COUNTY, NEW JERSEY, AUGUST TO SEPTEMBER 1986.

Flow across the boundary of any volume within the region was calculated using Darcy's Law, $Q = Kbdw\left(\frac{\partial h}{\partial \varphi}\right)\cos\Theta$, where:

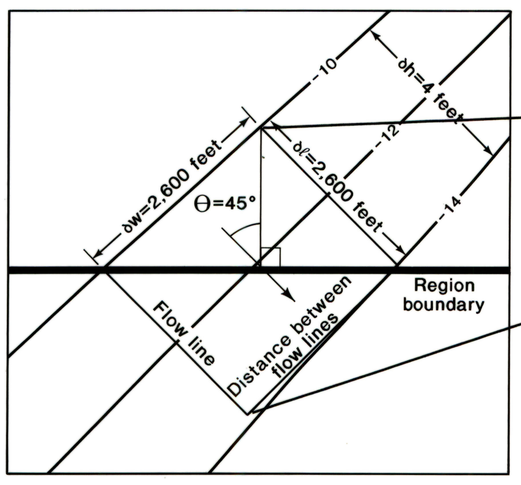
K= Horizontal hydraulic conductivity of the aquifer equals 155 feet per day (see table 5);

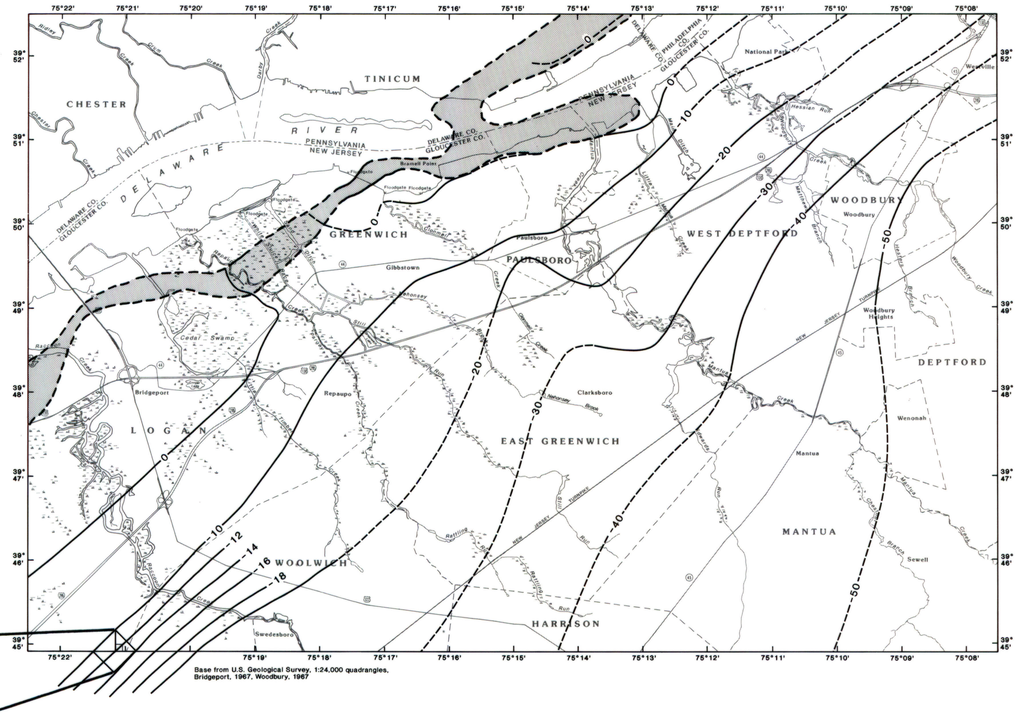
b= Thickness of aquifer equals 40 feet (from plates 7a and 7b).

$$Q = -155\text{ft/d}(40\text{ft})(2{,}600\text{ft})\left(\frac{4\text{ft}}{2{,}600\text{ft}}\right)(\cos 45°)$$

$$= -0.1312 \text{ million gallons per day}^*$$

*where negative shows flow out of model area




Base from U.S. Geological Survey, 1:24,000 quadrangles, Bridgeport, 1967, Woodbury, 1967

EXPLANATION

SUBCROP OR OUTCROP OF THE MIDDLE AQUIFER OF THE POTOMAC-RARITAN-MAGOTHY AQUIFER SYSTEM

-10- POTENTIOMETRIC CONTOUR--Shows altitude of water level. Dashed where inferred. Contour interval is variable. Datum is sea level

CONTACT BETWEEN HYDROGEOLOGIC UNITS--Contacts are dashed where approximate. Contacts that cross the Delaware River are speculative

1 ½ 0 1 MILE
1 .5 0 1 KILOMETER

## 11b.--ANALYTICAL METHODS USED TO CALCULATE LATERAL FLOW ACROSS BOUNDARIES OF THE MIDDLE AQUIFER OF THE POTOMAC-RARITAN-MAGOTHY AQUIFER SYSTEM IN THE REGION OF GREENWICH TOWNSHIP, GLOUCESTER COUNTY, NEW JERSEY