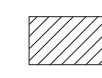


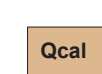




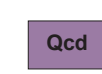
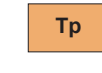
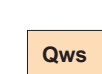
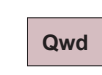



**SURFICIAL GEOLOGY OF THE ROCKY HILL QUADRANGLE,  
SOMERSET AND MERCER COUNTIES, NEW JERSEY**







by  
Scott D. Stanford  
2002

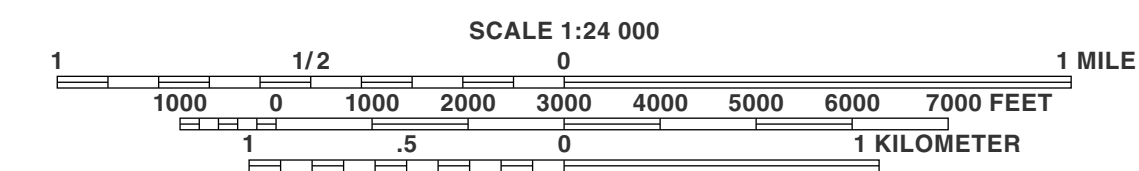
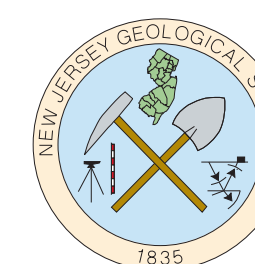
**MAP UNITS**

Age of unit indicated in parentheses. For units spanning more than one period, principal age is listed first.  
Order of map units in list does not necessarily indicate chronologic sequence.

-  **ARTIFICIAL FILL**—Sand, silt, clay, gravel; brown, gray, yellowish brown; may include angular fragments of shale, sandstone, and diabase bedrock. May also include demolition debris (concrete, brick, asphalt, glass) and trash. As much as 30 feet thick. Many small areas of fill in urban areas are not shown.
-  **Qal** **ALLUVIUM** (Holocene and late Pleistocene)—Sand, silt, minor clay; yellowish brown, reddish brown, dark brown, gray; and pebble-to-cobble gravel. Some organic matter. Sand is chiefly quartz and shale fragments with some mica. Gravel is shale fragments, with some quartz, quartzite, diabase, and hornfels. As much as 20 feet thick. Deposited in floodplains, channels, and groundwater seepage areas.
-  **Qalb** **ALLUVIUM AND BOULDER LAG** (Holocene and late Pleistocene)—Silt, sand, minor clay and organic matter, dark brown, brown, very pale brown, with many rounded to subrounded boulders and cobbles of diabase and, locally, hornfels. As much as 10 feet thick (estimated). Deposited in floodplains, channels, and ground-water seepage areas on Sourland Mountain and Rocky Hill. Boulders are residues from winnowing of weathered diabase.
-  **Qcal** **COLLUVIUM AND ALLUVIUM** (Holocene and late Pleistocene)—Interbedded alluvium and colluvium in headwater valleys. As much as 15 feet thick.
-  **Qaf** **ALLUVIAL FAN DEPOSITS** (Holocene and late Pleistocene)—Sand, silt; reddish brown, brown; and pebble gravel. As much as 15 feet thick. Forms small fans at mouths of steep streams.
-  **Qe** **EOLIAN DEPOSITS** (late Pleistocene and Holocene)—Fine-to-medium sand, very pale brown to reddish yellow. As much as 5 feet thick. Forms sand sheets.
-  **Qtl** **LOWER TERRACE DEPOSITS** (late Pleistocene)—Sand and minor silt; reddish brown, yellowish brown, reddish yellow; pebble gravel and minor cobble gravel. Sand is chiefly quartz and red and gray shale fragments with some mica. Gravel is quartz, quartzite, gray and red shale and siltstone, with minor diabase, hornfels, gneiss (in deposits along the Millstone River), and chert. As much as 30 feet thick. Forms stream terraces with surfaces 5 to 20 feet above the modern floodplain.
-  **Qcs** **SHALE COLLUVIUM** (late Pleistocene)—Sandy, clayey silt; reddish brown, brown, gray; many angular chips and fragments of shale and, locally, hornfels. As much as 10 feet thick. Deposited by downslope movement of weathered shale and hornfels.
-  **Qcd** **DIABASE COLLUVIUM** (middle and late Pleistocene)—Sandy, clayey silt to sandy, silty clay; reddish yellow, brown, gray; some to many angular to subrounded pebbles, cobbles, and boulders of diabase and, locally, gray hornfels. As much as 25 feet thick. Deposited by downslope movement of weathered diabase and hornfels.
-  **Qtp** **PENSAUKEN FORMATION** (Pliocene)—Clay, sand, and silt; reddish yellow; pebble gravel and minor cobble gravel. Sand is chiefly quartz with some weathered feldspar and minor mica. Gravel is chiefly quartz and quartzite with some chert. As much as 15 feet thick. In deeply weathered erosional remnants of a dissected river plain.
-  **Qws** **WEATHERED SHALE**—Silty clay to sandy silt; reddish brown, pale red, reddish yellow, gray; some to many angular chips and fragments of shale and, locally, hornfels, and, below 150 feet in elevation in the Millstone Valley, a few quartz, quartzite, and chert pebbles left from erosion of the Pensauken Formation. As much as 15 feet thick, generally less than 3 feet thick.
-  **Qwd** **WEATHERED DIABASE**—Silty clay to clayey sand; yellow, reddish yellow, light gray; some to many angular to subrounded pebbles, cobbles, and small boulders of diabase. On Rocky Hill, below 330 feet in elevation, a few quartz, quartzite, and chert pebbles and cobbles left from erosion of a late Miocene fluvial deposit (the Beacon Hill Grave) may be present on the surface and in the upper several feet. As much as 20 feet thick.
-  **r** **BEDROCK OUTCROP**—Diabase or shale outcrop, surficial material absent. Many small outcrops not shown.

**MAP SYMBOLS**

-  **Contact**—Contacts of alluvium and lower terrace deposits are well-defined by landforms and are drawn from 1:12,000 scale aerial stereophotos. Contacts of other units are approximately located based on both landforms and field observation points.
-  **Material observed**—In hand-auger hole, exposure, or excavation.
-  **Bedrock strike ridge**—Low ridge parallel to strike of bedrock. Drawn from airphotos.
-  **Pensauken lag**—Pebbles and a few cobbles of quartz, quartzite, and chert left from erosion of the Pensauken Formation. Only concentrated lags are mapped; sparsely distributed lag pebbles are widespread below 150 feet in elevation in the Millstone Valley.
-  **Boulder field**—Boulders of diabase with little or no matrix material. Of possible periglacial origin. Does not include boulder concentrations formed by stream winnowing (unit Qalb).
-  **Quarry**—Line marks perimeter of excavated area at time of mapping. Diabase outcrop, quarried rock, and stripped surficial material occur within perimeter.



CONTOUR INTERVAL 20 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MN N  
1981 MAGNETIC NORTH  
DECLINATION AT CENTER  
OF SHEET IS 11.5°



LOCATION IN  
NEW JERSEY

