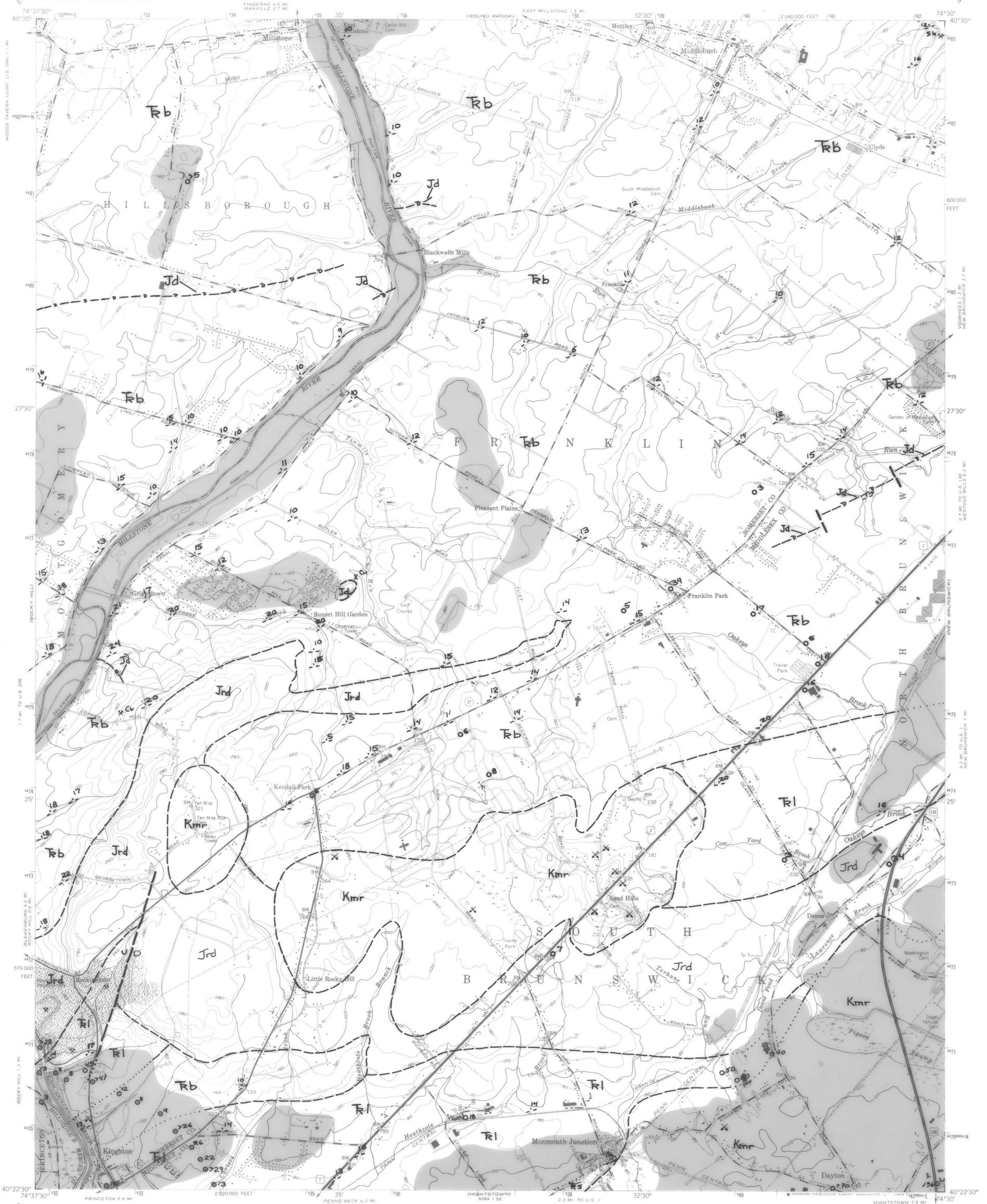
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
NEW JERSEY GEOLOGICAL SURVEY

GEOLOGIC COMPILATION MAP
MONMOUTH JUNCTION QUADRANGLE, NEW JERSEY
OPEN FILE MAP NO. 1



CORRELATION OF MAP UNITS

Kmr	Upper Cretaceous
UNCONFORMITY	
Jrd | Jd	Jurassic
Trb Trl Trs	Triassic

DESCRIPTION OF MAP UNITS

Kmr MAGOTHY AND RARITAN FORMATIONS (Undifferentiated)-
MAGOTHY FORMATION-Interbedded thin- to thick-bedded, light-colored sands and dark-colored clays. Individual sand and clay units range from thin laminae to lenses up to 50 feet thick. Sands are predominantly medium- to fine-grained quartz. Coarse sand beds occur sparingly and gravel beds up to two inches thick occur near the base of the formation. Mica and feldspar are common. Heavy minerals are a minor constituent. Horizontal bedding and cross-bedding are common. Clays are dark-gray to black, micaceous, silty, and weather to brown, red or white. Lignite and pyrite are common in both sands and clays. Upper and lower contacts are unconformable. Thickness at outcrop ranges from 25 to 200 feet.
RARITAN FORMATION-Interbedded thin- to thick-bedded, light-colored sands and light- and dark-colored silty clays and clayey silts. Individual sand and clay units form distinct lenses up to 50 feet thick. Sands are primarily medium-grained but fine and coarse sands are common. Gravel may be present, particularly near the base of the formation. Quartz is the primary sand constituent. Mica and feldspar are minor constituents. Heavy minerals include zircon, tourmaline, rutile and locally staurolite. Silty clays and clayey silts are micaceous and red, white, yellow, dark-gray or black. Siderite is common in the black clays. Lignite is common in both sands and clays. Upper and lower contacts are unconformable. Thickness at outcrop ranges from 150 to 300 feet.

Jrd PALISADES-ROCKY HILL DIABASE- Concordant to discordant, predominantly sill-like intrusion of fine- to medium-grain size and sub-ophitic texture. Fine-grained near chilled margins. Composed mostly of euhedral to subhedral plagioclase laths and euhedral augite. Minor minerals include olivine or quartz, orthopyroxene, and magnetite-ilmenite. Plagioclase composition ranges typically from labradorite to andesine. A glassy groundmass is present in chilled phases. Chlorite, sericite, and uralitic amphibole are common secondary minerals. Calcite, quartz, prehnite and chalcocite have been found locally in veins and pockets. Compositionally, the Rocky Hill-Palisades Diabase is a quartz tholeiite.

Jd DIABASE- Dark-gray to black, fine- to medium-grained quartz tholeiite intrusions, occurs as dikes less than 10 feet wide.

Trb BRUNSWICK FORMATION- Predominantly red or reddish-brown shales and siltstones with lesser amounts of fine-grained feldspathic sandstone and green, yellow, gray or purple shales and argillite. The most common lithology is crumbly, reddish-brown, homogeneous siltstone alternating with tough, bioturbated, silty mudstone having channel fills of fine-grained sandstone and mudstone. Units of dark-gray, pyritic mudstone can be traced, in some cases, distances up to several miles. Burrows are common and bedding surfaces are commonly marked by mud-cracks, ripple marks, raindrop impressions and plant impressions. Illite is the common clay mineral. Chlorite is subordinate. Quartz is the predominant sand- and silt-size mineral. Feldspar, predominantly sodic plagioclase, is common. Usually altered to hornfels within 25 to 100 feet of major diabase bodies.

Trl LOCKATONG FORMATION- Primarily reddish-brown, black and gray, cyclically bedded, lacustrine siltstone. Cyclic units are commonly one to several meters thick and traceable in some cases over 12 mi. Detrital cycles and chemical cycles are present. Detrital cycles are most common in gray intervals and consist of a lower, black, pyritic shale overlain successively by platy, dark-gray, carbonate-rich mudstone, then tough, massive, gray, calcareous mudstone. Thin, ripple-bedded siltstone and fine-grained, feldspathic sandstone may be present. Sodic plagioclase, illite, and muscovite are abundant. Potassic feldspar, chlorite and calcite are common. Quartz is a minor constituent. Chemical cycles are most common in reddish-brown sequences within the upper part of the formation. A lower, 0.4-3.2 in. thick, dark-gray to black, platy, dolomitic mudstone usually disrupted by shrinkage cracks is overlain successively by massive, calcareous mudstone with shrinkage-cracked dolomitic marlstone, then a tough, gray, microbrecciated analcime- and dolomite-rich mudstone. The Lockatong Formation is commonly altered to hornfels within 400 feet of major diabase bodies. It is intergradational with the Stockton and Brunswick Formations.

Trs STOCKTON FORMATION- Light-gray, yellow, buff and red-colored arkose with subordinate red siltstone and gray to buff conglomerate. Conglomerates and mudstones commonly form distinct sedimentary units which can be traced up to several miles. The arkose contains 50 to 70 percent quartz and 15 to 40 percent feldspar. Albite-oligoclase commonly is more abundant than potassic feldspar. Planar bedding, cross bedding, and channeling are common. Mudstone is usually well-bedded and micaceous with abundant illite and muscovite and very little kaolinite. Alteration adjacent to major diabase bodies is minor. Intergradational with Lockatong and Brunswick Formations.

- Contact, approximately located
- Concealed contact
- Fault, approximately located (U Upthrown side, D Downthrown side)
- Concealed fault
- Diabase dike
- Strike and dip of beds
- Strike and dip of beds, approximately located
- Depth to consolidated bedrock (ft)
- Depth to consolidated bedrock (ft), approximately located
- Quarry
- Abandoned quarry
- Abandoned sand and gravel pit
- Abandoned shale quarry
- Abandoned copper mine
- Copper prospect

Unconsolidated Cenozoic sediments overlying named geologic unit. The maximum thickness is 140 feet. The usual range is 5 to 30 feet.

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Base from U.S. Geological Survey, 1954
Photorevised as of 1970

10,000 foot grid based on New Jersey Coordinate system.

Universal Transverse Mercator grid ticks, Zone 18, shown at 1000 meter intervals.

SCALE 1:24000

UTM GRID AND 1970 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

CONTOUR INTERVAL 20-FEET
DATUM IS MEAN SEA LEVEL

Contacts and faults modified from N.J. Geol. Surv. (undated), Bascom and others (1909), and Germine (unpub.). Additional bedrock data from Kummel (unpub.), Germine (unpub.), Husch and others (1984), and N.J. Geol. Surv. permanent geologic notes (unpub.). Extent and thickness of surficial deposits modified from Bascom and others (1909), Johnson (1950), N.J. Geol. Surv. files and permanent notes, Neumann (1976), Bureau of Engineering Research (1950-1957), U.S. Dept. of Agriculture (1962-pres.) and borings performed by the N.J. Dept. of Transportation, Bureau of Geotechnical Engineering. Mines, pits and quarries from Bell (in prep.). Descriptions modified for this quadrangle from Owens and Sohl (1969), Olsen (1980) and Van Houten (1980).

This map is an interim product and will be revised.

QUADRANGLE LOCATION

GEOLOGIC COMPILATION MAP OF THE MONMOUTH JUNCTION QUADRANGLE, NEW JERSEY

by

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1984