

**DISCUSSION**

This sheet shows contours plotted on the bedrock surface, regardless of the rock type, based on subsurface data from various sources. The contour interval is 4 m (20 ft) on Manhattan Island and 30 m (100 ft) in Kings and Queens Counties. The datum is mean thickness; however, the accuracy is variable and uncertain. Therefore it should not be used for foundation design on site-specific projects. For accuracy, test borings should be made for any proposed design. The dark, more or less irregular, areas are bedrock outcrops.

The overburden material on Manhattan Island, where it is undisturbed original material, is glacial ground moraine. These materials generally are exposed in the parks on the west side of Manhattan. Glacial till, probably derived from the Triassic red beds of New Jersey judged from their color, comprise the surficial materials of lower Manhattan. Most overburden materials close to the surface in built-up areas are mixed and miscellaneous fills.

**EXPLANATION**

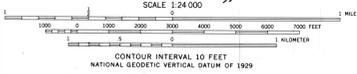
Single outcrop or area of closely spaced outcrops  
Contours on the bedrock surface, in feet

**ACKNOWLEDGMENTS**

I am indebted to the following for graciously supplying subsurface data to fill in the gaps between surface outcrops: N. Y. State Department of Transportation; N. Y. City Department of General Services, Division of Public Structures, Subsurface Bureau; Triborough Bridge and Tunnel Authority; Consolidated Edison Company; N. Y. City Transit Authority; N. Y. City Department of Environmental Protection, Bureau of Water Supply and Bureau of Water Pollution Control; U. S. Army Corps of Engineers, N. Y. District; Warren George, Inc.

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

Base from U.S. Geological Survey  
Brooklyn, 1966 (photorevised 1976);  
Central Park, 1966 (photorevised 1979);  
Jersey City, New Jersey, 1967; Tonkers, 1966  
(photorevised 1979)



Geology Mapped by Charles A. Baskerville  
1981-1983. Assisted by J.A. Harris, 1981-1983;  
Fernando Martinez, G.B. Roberts, 1981;  
Fernando Martinez, R.L. Vincent 1982.

**SHEET 3 - BEDROCK CONTOURS AND OUTCROPS**

**BEDROCK AND ENGINEERING GEOLOGIC MAPS OF NEW YORK COUNTY AND PARTS OF KINGS AND QUEENS COUNTIES, NEW YORK, AND PARTS OF BERGEN AND HUDSON COUNTIES, NEW JERSEY**

By Charles A. Baskerville

1990