

EXPLANATION

This map is intended to serve as an aid in reconnaissance evaluation of unconsolidated materials and can be used to identify areas of potential interest.

The units on this map indicate the first material of substantial thickness (generally greater than 3 feet) encountered beneath the soil layer. The soil layer (commonly a foot or two thick) is not mapped. Other materials, different in composition, may underlie each map unit (see cross sections) or may occur as minor lenses within each map unit.

THIS MAP SHOULD NOT BE USED AS A SUBSTITUTE FOR ONSITE INVESTIGATION.

Most unconsolidated materials are mixtures of the three particle-size classes defined in the diagram below. This diagram also relates these three size classifications to the Wentworth classification (Wentworth, 1922) which can be compared with other classifications used in engineering and soil science.

PARTICLE-SIZE CLASSIFICATION					
Classification used in this report (Diameter, in inches)					
COARSE		MEDIUM		FINE	
Boulders	Cobbles	Pebbles	Sand	Silt	Clay
256	64	16	1/8	1/16	1/256
Wentworth classification (Diameter, in millimeters)					

Materials mapping involves a visual estimate of particle-size distribution in a deposit by the field geologist. Percentages of particle sizes therefore may vary somewhat from place to place beyond the limits defined in the map units below.

sg

SAND AND GRAVEL

Particle sizes range from 100 percent coarse to 25 percent coarse and 75 percent medium

s

SAND

Particle sizes range from 25 percent coarse and 75 percent medium through 100 percent medium to 50 percent medium and 50 percent fine

f

VERY FINE SAND, SILT, AND CLAY

Particle sizes range from 50 percent medium and 50 percent fine to 100 percent fine. Occurs as regularly bedded, alternating, discrete layers of silt with some sand and clay or as thick, massive beds of clay with only minor amounts of sand and silt. May also be poorly sorted, very fine sand, silt, and clay. Locally contains scattered coarse particles

t

TILL (HARDPAN)

Particle sizes range from coarse to fine in varying proportions. Some till, averaging less than 10 feet thick, is sandy, loose, and very stony; other till, commonly more than 10 feet thick, is less sandy, very compact, and less stony. Where these tills occur together, the sandy, loose till is always on top

sw

SWAMP DEPOSITS

Undecomposed to partly decomposed organic matter, generally mixed or interbedded with varying amounts of fine, medium, and coarse particles. Extent and thickness of most swamp deposits is poorly known

i

LANDSLIDE DEPOSITS

Predominantly till, locally mixed with material from adjacent deposits, that has moved downslope by falling, sliding, slumping, or flowing. Occurs in northwest corner of map. Deposits less than 300 feet in longest dimension are not mapped

af

ARTIFICIAL FILL

Fill for highways, solid-waste disposal, and other major construction
af, predominantly earth fill
aft, predominantly trash fill

b

BEDROCK (LEDGE) OUTCROP

Bedrock exposed at ground surface; may be partly covered by thin soil

w

WATER BODIES

In general, lakes and ponds greater than 5 acres, or streams wider than 200 feet

REFERENCES CITED

- Pomeroy, J. S., 1973, Preliminary bedrock geologic map of the Warren quadrangle, Worcester, Hampden, and Hampshire Counties, Massachusetts: U.S. Geol. Survey open-file report, 24 p., scale 1:24,000.
- Wentworth, C. K., 1922, A scale of grade and class terms for clastic sediments: Jour. Geology, v. 30, p. 377-392.

Base from U.S. Geological Survey, 1969

10,000-foot grid based on Massachusetts coordinate system, mainland zone; 1000-meter Universal Transverse Mercator grid ticks, zone 18, shown in black

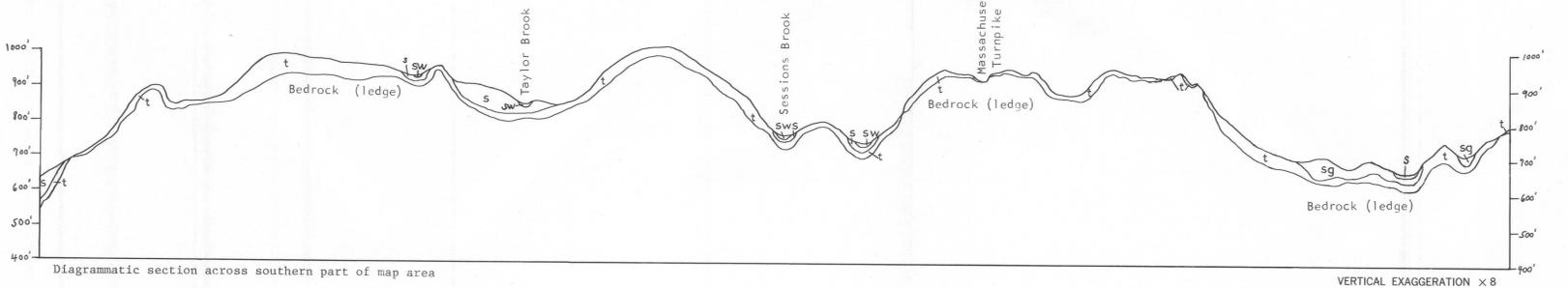
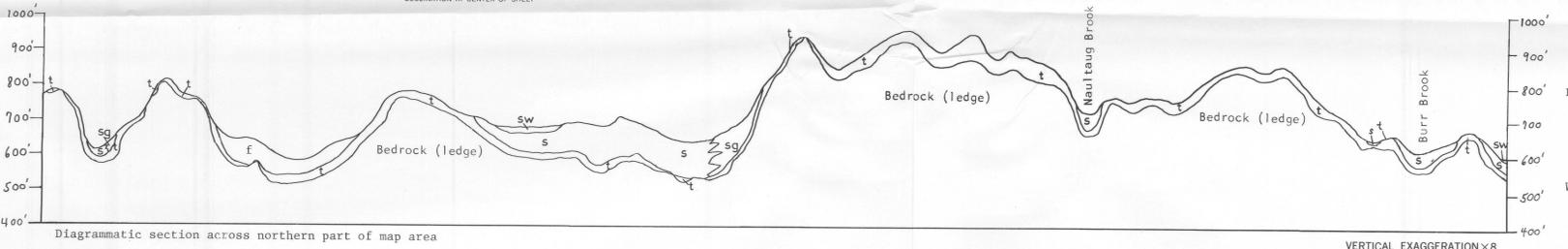
UTM GRID AND 1969 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24,000

MASS.

QUADRANGLE LOCATION

Compiled from unpublished field data of J. S. Pomeroy (1971-73) and from Pomeroy (1973)



MAP SHOWING UNCONSOLIDATED MATERIALS, WARREN QUADRANGLE, MASSACHUSETTS

By
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