DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared In Cooperation With
THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES

OPEN-FILE REPORT 89-430

SCALE 1:24 000

1 ½ 0 1 MILE

1 .5 0 1 KILOMETERS

CONTOUR INTERVAL 3 METERS

Geology by Gregory D. Gephart, 1987, and John P. Schafer, 1988. Compiled by Carl Koteff, 1989

SURFICIAL GEOLOGIC MAP OF THE HAMPTON 7.5 MINUTE QUADRANGLE (EAST HALF OF THE EXETER 7.5 X 15 MINUTE QUADRANGLE), NEW HAMPSHIRE-MASSACHUSETTS

By

CARL KOTEFF, GREGORY D. GEPHART, AND JOHN P. SCHAFER

1989

DESCRIPTION OF MAP UNITS

A layer of windblown sand and silt, generally mixed with underlying glacial deposits, is present over most of the map area but is not shown.

b — BEACH AND DUNE DEPOSITS—Mostly fine to medium well-sorted sand, with scattered gravel deposits. Most of the dunes have been beveled or destroyed by construction. Large areas of riprap are present away from recreational beaches but are not shown.

sm — SALT MARSH DEPOSITS—Partly decomposed organic material mixed or interbedded with estuarine silt, clay, and sand

sw — FRESH-WATER SWAMP AND MARSH DEPOSITS—Muck, peat, silt, and sand underlying poorly drained lowland areas. Thicknesses range from a few feet to perhaps tens of feet. Swamp deposits along streams generally contain less peat and more silt and sand than do deposits away from streams

mn — MARINE NEAR SHORE GRAVEL AND SAND—Pebble, cobble, and boulder gravel and sand. Reworked from glacial deposits by marine wave and current action. Produced at the time of marine submergence, during and after ice retreat. Some deposits are beaches formed at a former shoreline; others were formed at depths of a few feet to a few tens of feet below water level

ms — MARINE SAND—Fine to locally coarse sand, a few feet to as much as 10 ft thick, deposited on the sea bottom; may contain thin beds of silt and clayey silt. Generally intertongues downward and seaward with marine silt and clay (msc) and in places forms a thin blanket a few feet thick over the marine silt and clay. Laps onto older surficial deposits such as stratified glacial sand and gravel (gs) and till (t). Shoreward, may coarsen upward into gravelly near shore deposits (mn)

msc — MARINE SILT AND CLAY—Clayey silt, silty clay, and fine sand deposited on sea bottom. In some places grades upward and is interbedded with marine sand (ms). Highly variable in thickness. Unconformably overlies older glacial deposits and bedrock

gs — STRATIFIED GLACIAL SAND AND GRAVEL—Sand, and pebble to cobble gravel, well- to poorly sorted and stratified as much as 50 feet thick. Deposited by glacial meltwater streams from the retreating ice sheet. Most deposits are deltas built into the high sea, which at the time of ice retreat ranged from about 100 ft above present sea level at the southwest corner of the map to about 130 ft at the northwest corner. The deposits in the quadrangle probably represent successive northwest-retreating positions of the ice margin. The original form and altitude of many of the deposits in the quadrangle is not well known because of reworking by wave and current action and partial covering by the resulting deposits. The material reworked is not shown on the map

t — TILL—Poorly to non-sorted mixture that ranges from clay-size particles to large boulders but is dominantly silt to pebble sizes. Locally includes small irregular masses of sorted and stratified sand and gravel. Matrix ranges from very loose and sandy to very compact and silty. Consists of material deposited directly by the ice sheet, with little or no modification by meltwater. In some places, mantles bedrock thinly (to about 10 ft) and discontinuously

af — ARTIFICIAL FILL—Earth-fill material in road and railroad embankments and made land. Many small bodies not shown on map.

BEDROCK EXPOSURES—Ruled pattern indicates areas of numerous outcrops and discontinuous, thin (less than 10 ft) surficial cover

Contact

70 E — Glacial grooves and striations—Observation is a tip of arrow. Number is in degrees east or west of south

Pit in surficial materials—Extent of large pit shown by hachures

28(85) • — Well or test boring reported as ending at or in bedrock. Number is depth to bedrock. Altitude of bedrock surface in feet above mean sea level is shown in parentheses. Information from Water Well Board, New Hampshire Department of Environmental Services, Water Resource Division. NOTE: Although the well data are given in feet, the map contour interval is metric. To obtain the metric equivalents of altitude and depth to rock, multiply by 0.3048

MATERIALS OBSERVATIONS

Surficial materials in exposures. Letters indicate texture in decreasing order of abundance. Numbers indicate thickness in feet

$$\frac{\text{3 - 10 spc}}{\text{20 sp}}$$

- b boulder
- c cobble
- p pebble
- s sand (as separate beds; not including sand in matrix of gravel)

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