

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.

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.

al ALLUVIUM—Sand, silt, and a little gravel in flood plains along present day streams. Deposits probably 10 ft thick or less and underlain by adjacent deposits. Included with swamp and marsh deposits where water table is at the surface.

ds DUNE SAND—Fine- to medium sand, well sorted, as much as 15 feet thick. Derived by wind action from stratified glacial deposits.

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 coarse sand, a few feet to as much as 10 feet 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). An extensive sheet in the southern and southeastern part of the quadrangle, but only shown where estimated or measured. May be greater than 5 feet thick. 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). Some fine to coarse sand, and, rarely, fine pebble gravel, mapped as ms along the Lamprey and North Rivers is fluvial in origin, and was deposited by these streams during offlap of the sea from the glacial marine limit. The boundaries of this material, which is indistinguishable on the surface from ms, are difficult to determine and the fluvial deposits are accordingly included in the marine sand unit.

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-sorted to poorly sorted and stratified as much as 50 feet thick. Deposited by glacial meltwater streams from the retreating ice sheet. Many deposits are deltas built into the high sea, which at the time of retreat ranged from about 150 feet above present sea level at the southeast corner to about 195 feet at the northwest corner. The deposits in the quadrangle represent successive northward-retreating positions of the ice margin. The successive deposits in each drainage basin are numbered consecutively in order of deposition where the order can be determined. Similarly numbered deposits are not to be correlated between basins. The original form 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 feet) and discontinuously. Includes drumlins, and drumoidal hills, which are streamlined hills of thick till as much as 80 feet thick built and shaped beneath moving glacial ice. Exposures in drumlins elsewhere in southern New England indicate that they have cores of very compact and silty till, some with a preserved weathered zone; this till is believed to represent an older glaciation.

af ARTIFICIAL FILL—Earth-fill material in road and railroad embankments and made land. Many small bodies not shown on map. **af**—sanitary land fill; **afg**—graded areas, partly cut and partly filled.

bedrock BEDROCK EXPOSURES—Ruled pattern indicates areas of numerous outcrops and discontinuous, thin (less than 10 feet) surficial cover and areas where bedrock is known or inferred to be less than 10 feet deep.

— Contact

gs Temporary ice margin during deposition of glacial stream deposit

30E Glacial grooves and striations—Observation at tip of arrow. Number is in degrees east or west of south.

o Long axis of drumlin—Generally parallel to inferred direction of ice movement. Not shown on drumlins that are irregular or nearly circular in shape, or whose alignment has been altered by wave erosion.

→ Direction of dip of delta foreset beds

→ Direction of deposition of near-shore gravel and sand.

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

10(105) Well or test-boring reported as or ending 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.

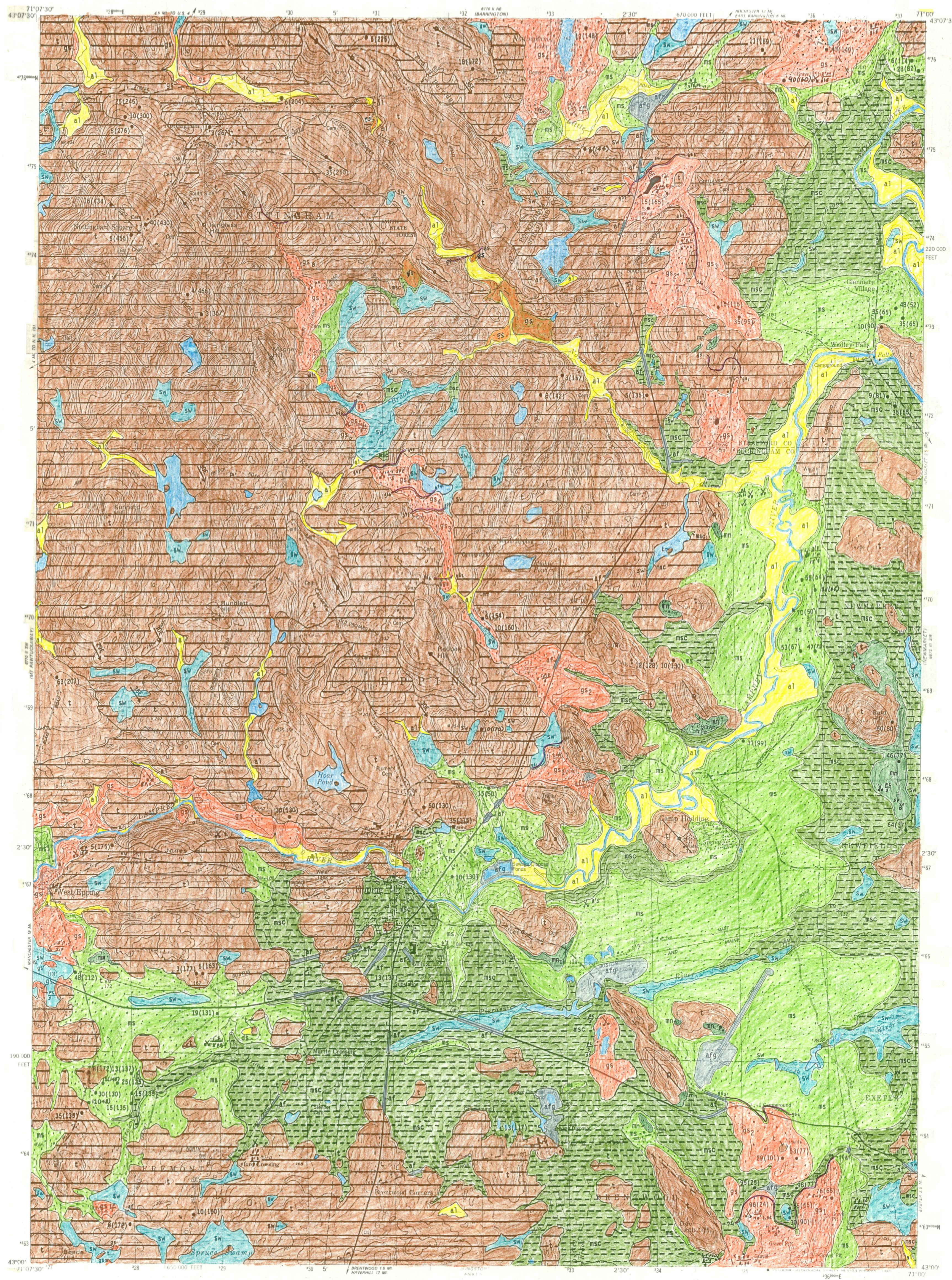
MATERIALS OBSERVATIONS

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

- x** 3-10 spc / 20 s
- b** boulder
- c** cobble
- p** pebble
- s** sand (as separate beds; not including sand in matrix of gravel)
- sc** clayey silt and silty clay

TEXTURE OF STRATIFIED DEPOSITS—Indicated to depth at least of 5 feet

- Gravel**
- Mixed sand and gravel**
- Sand, minor silt**
- Silt and clay**



**SURFICIAL GEOLOGIC MAP OF THE EPPING QUADRANGLE,
STRAFFORD AND ROCKINGHAM COUNTIES, NEW HAMPSHIRE**
BY
RICHARD GOLDSMITH