

**ACIAL ICE-LAID DEPOSITS**

- Thin Till
- Thick Till
- End Moraine deposits

**ACIAL MELT-WATER DEPOSITS**

**Deposits**

- Fines (very fine sand, silt, and clay)

**Coarse Deposits**

- Gravel
- Sand and Gravel
- Sand

**Unsorted Coarse Deposits**

- Gravel overlying Sand and Gravel
- Gravel overlying Sand
- Sand and Gravel overlying Sand
- Sand and Gravel overlying Sand overlying Sand and Gravel
- Sand overlying Gravel
- Sand overlying Sand and Gravel

**Sorted Coarse Deposits Overlying Fine Deposits**

- Gravel overlying Sand overlying Fines

**POSTGLACIAL DEPOSITS**

- Floodplain Alluvium
- Alluvium overlying undifferentiated Coarse deposits (g, sg, s)
- Alluvium overlying Sand
- Alluvium overlying Fines
- Alluvium overlying undifferentiated Coarse deposits overlying Fine deposits
- Alluvium overlying undifferentiated Fine deposits overlying Coarse deposits
- Swamp deposits
- Swamp deposits overlying Sand
- Swamp deposits overlying Fines
- Swamp deposits overlying Sand overlying Fines
- Swamp deposits overlying Fines overlying Sand
- Salt-Marsh and Tidal-Marsh deposits
- Salt-Marsh and Tidal-Marsh deposits overlying Sand
- Salt-Marsh and Tidal-Marsh deposits overlying Fines
- Talus
- Beach deposits
- Artificial Fill

\* Alluvium may be overlying any of the Coarse deposits (g, sg, s)

**Grain-size classification**

|                         |         | GRAIN SIZE DIAMETER |          |                  |                       |             |             |           |                |                       |      |       |       |    |
|-------------------------|---------|---------------------|----------|------------------|-----------------------|-------------|-------------|-----------|----------------|-----------------------|------|-------|-------|----|
|                         |         | 10                  | 2.5      | .16              | .08                   |             |             | .04       | .02            | .01                   | .005 | .0025 | .0015 | in |
|                         |         | 256                 | 64       | 4                | 2                     | 1           | .5          | .25       | .125           | .068                  | .004 |       |       | mm |
| Boulders                | Cobbles | Pebbles             | Granules | Very Coarse Sand |                       | Coarse Sand | Medium Sand | Fine Sand | Very Fine Sand |                       | Silt | Clay  |       |    |
| <b>GRAVEL PARTICLES</b> |         |                     |          |                  | <b>SAND PARTICLES</b> |             |             |           |                | <b>FINE PARTICLES</b> |      |       |       |    |

Grain-size classification (modified from Wentworth, 1922)

Unconsolidated glacial and postglacial deposits, that range from a few feet to several hundred feet in thickness, overlie the bedrock (see Fig. 1). These deposits are composed of a wide range of the areal extent, subsurface, grain-size, and textural distributions of these surficial materials. The current research is designed to highlight the relationship between the depositional origins and the distribution of the character of the materials portrayed. Most of Connecticut's surficial material is glacially derived, and can be divided into two broad depositional categories: Glacial Ice-land deposits (fills and moraine) which are generally deposited in the western half of the state, and Glacial Melwater deposits (stratified deposits) which are most commonly concentrated in valleys and lowlands. A major ongoing research project is to determine the depositional influence their distribution and character have historically influenced depositional patterns throughout the state.

For a complete description of surficial materials map units, and further information concerning their thickness and modes of occurrence, please refer to the published Surficial Materials Map of Connecticut and the companion Quaternary Geologic Map of Connecticut and Long Island Sound Basin (see Data Sources).

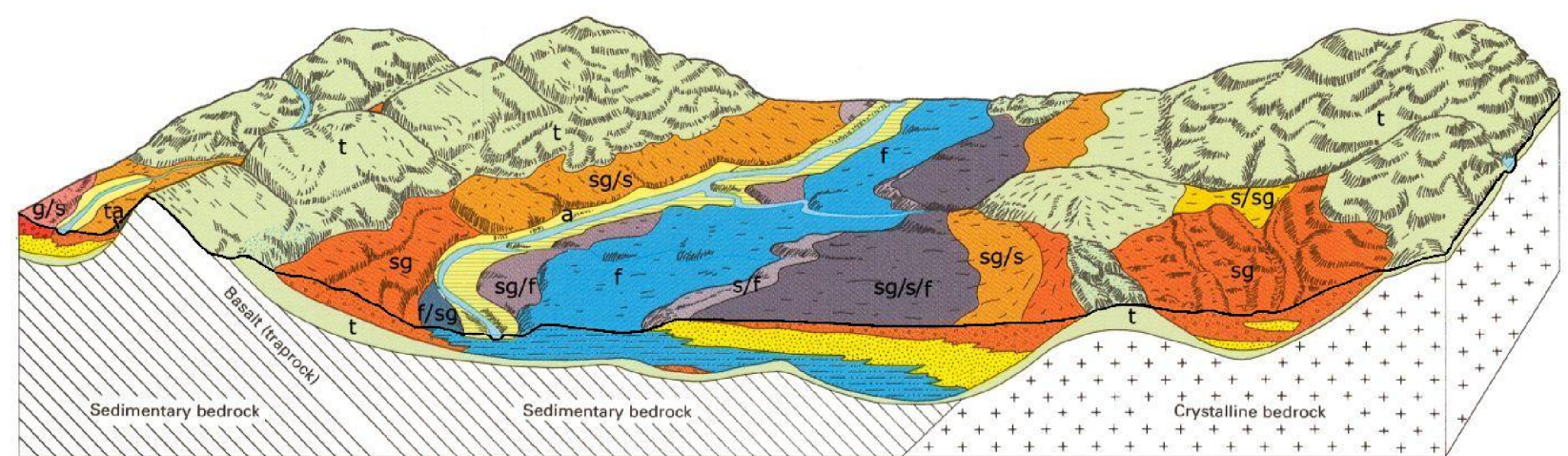
**Glacial Ice-Laid Deposits** (tilts and moraine) were derived directly from the ice and consist of nonsorted, generally nonstratified mixtures of grain-sizes ranging from clay to large boulders. These ice-laid deposits are predominantly till, but sand and gravel can be sparse to abundant. Some tills contain lenses of sorted sand and gravel and occasionally masses of laminated fine-grained sediment. The lack of sorting and stratification typical of ice-laid deposits is evidence that they are deposited directly from the meltwater, mediorose sources of groundwater and unsaturated for systems. Till blankets the bedrock surface in variable thicknesses and commonly underlies glacial deposits of Block 2 and Block 3. End moraine deposits (primarily abraded till) occur principally in southeastern Connecticut.

**Glacial Meltwater deposits** (stratified deposits) were laid down in glacial streams, lakes and ponds which occupied the valleys and lowlands of Connecticut as the last ice sheet melted away to the north. They are often composed of layers of well-to-poorly sorted sands, gravels, silts and clays with few to no boulders, and owing to their water-related depositional origins they have many

characteristics that are favorable for development. Because water is a better sorting agent than ice, glacial meltwater deposits are commonly better sorted, more permeable, and better aquifers than ice-laid deposits. They can be good sources of construction aggregate, and are relatively easy to excavate and build highways and buildings on.

Melwater deposits are depicted using four basic texturally-based map units: gravel, sand and gravel, sand, and fines. To the extent that it is known or can be inferred, the subsurface texture and thickness of these units is indicated by the thickness of the unit. In many places similar conditions persisted for the entire time that a melwater deposit was being laid down, and a single map unit (e.g. s-sand) is sufficient to describe the entire melwater sequence. Areal and vertical texture/variability can occur within the melwater sequence, but this is not shown. The thickness of the melwater sediment varies with each melwater setting (stream, delta, lake, etc.), and settings can change over time. High-energy depositional environments near glacial margins (proximal) tend to favor the deposition of coarse-grained sediments, but as the glacial margins melt back, less energy is available and finer grained silt/clay deposits become predominant. Where more complex stratigraphic relationships existed because of changing conditions during deposition, "stacked" map units are used to characterize the melwater sequence. The thickness of the melwater sequence in these cases is the sum of the thicknesses of the melwater units. Where postglacial deposits overlie melwater deposits, this relationship is also shown (e.g. a/s - alluvium overlying sand).

**Postglacial Sediments** (primarily floodplain alluvium and swamp deposits) are less widely distributed and are typically thinner than the glacial deposits that they overlie, but they are locally important ecological, agricultural, commercial, and recreational resources. Talus, a result of rockfall at the base of steep bedrock (primarily trap rock) cliffs, provides a cool damp ecological niche. Beach, marsh and swamp deposits are key ecological elements of coastal and poorly drained inland settings. Deposits of floodplain alluvium are largely composed of sands, gravels and silts that have been reworked from glacial deposits and mixed with organic matter which increases their fertility. Despite their flood-prone nature, low, flat, fertile floodplains have historically been attractive for agricultural uses and development related to water-dependent commerce.



**SURFICIAL MATERIALS DATA** – Surficial Materials shown on this map are from the Surficial Material Poly dataset which is the polygon data intended to be used in the Geologic Map of Connecticut. Based on Connecticut Department of Environmental Protection, 2001, *Geologic Map of Connecticut*, digital data published in 1995 by the Connecticut Department of Environmental Protection, in cooperation with the U.S. Geological Survey. These data were digitized from the 1:24,000-scale compilation sheets prepared for the Connecticut Sound and Long Island Sound Basins (Schäfer, J.P., London, E.H. and Thompson, W.B., 1992, U.S. Geological Survey special map, 2 sheets, scale 1:125,000).

**QUATERNARY GEOLOGY AND SURFICIAL MATERIALS DATA** – 1:24,000-scale digital spatial data of Connecticut Quaternary Geology and Surficial Materials compiled into one data set by the Connecticut Department of Environmental Protection, in cooperation with the U.S. Geological Survey. These data were digitized from the 1:24,000-scale compilation sheets prepared for both the Surficial Materials Map of Connecticut Sound and Long Island Sound Basins (Schäfer, J.P., London, E.H. and Thompson, W.B., 1992, U.S. Geological Survey special map of Connecticut and Long Island Sound Basins, and others, 2005, 1:125,000).

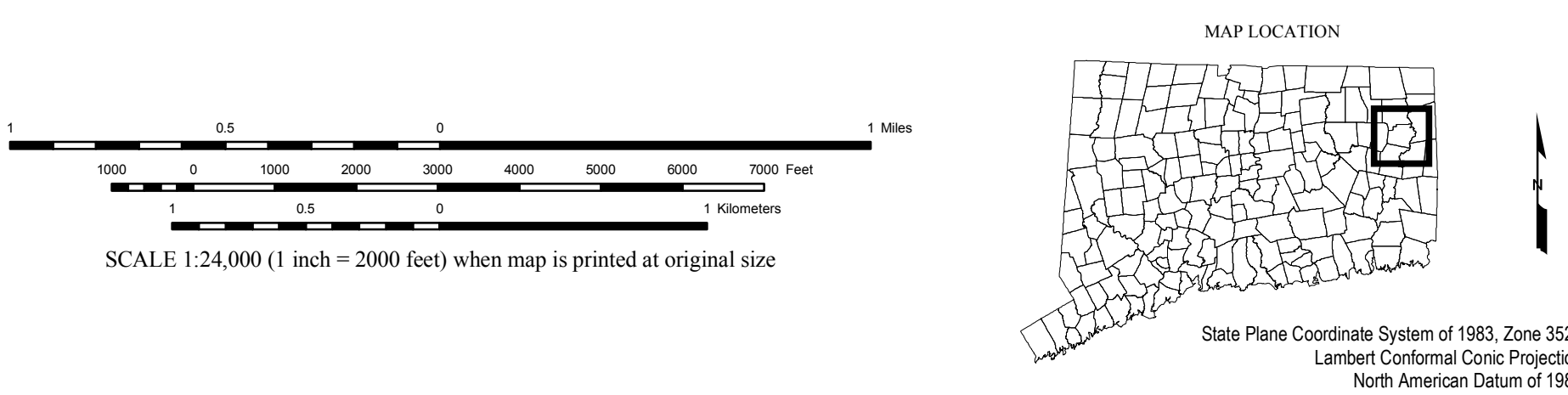
**BASE MAP DATA** - Based on data originally from 1:24,000-scale USGS 7.5 minute topographic quadrangle maps published between 1969 and 1992. It includes political boundaries, railroads, airports, hydrography, geographic names and geographic places. Streets and street names are from Tele Atlas® copyrighted data. Base map information is neither current nor complete.

**RELATED INFORMATION**  
This map is intended to be printed at its original dimensions in order to maintain the 1:24,000 scale (1 inch = 2000 feet).

QUATERNARY GEOLOGY AND SURFICIAL MATERIALS. DATA - 1:24,000-scale digital spatial data of Connecticut Quaternary Geology and Surficial Materials combined into one dataset, published by the Connecticut Department of Environmental Protection, in cooperation with the U.S. Geological Survey. These data were digitized from the 1:24,000-scale compilation sheets prepared for both the Surficial Materials Map of Connecticut, Stone and others, 1992, 1:125,000 and the Quaternary Geologic Map of Connecticut and Long Island Sound Basin, Stone and others, 2005, 1:125,000.

**OTHER GEOLOGIC MAPS** - This map is also available for individual USGS topographic quadrangles of Connecticut. Other bedrock, surficial, and quaternary (glacial) geology quadrangle maps and reports published by the Connecticut Geological and Natural History Survey, USGS, and others are also available from CT DEP.

**MAPS AND DIGITAL DATA** - Go to the CT ECO website for this map and a variety of others. Go to the CT DEP website for the digital spatial data shown on this map.



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Map is not colorfast  
Protect from light and moisture

