



EXPLANATION

POSTGLACIAL DEPOSITS

**Littoral deposits**  
Sand aprons, Q<sub>la</sub>, consisting of beach and dune sand carried shoreward by storm waves; foredunes derived from beach sand, Q<sub>lf</sub>; beach sand, Q<sub>lb</sub>. East of The Breachway, sand is predominantly fine grained; west of The Breachway, sand is mostly medium grained. Cobbles and boulders underlie sand in some beaches and are exposed during intervals of beach erosion.

**Swamp deposits**  
Areas where water table is at, or slightly above, surface for most of year; generally characterized by organic soils; peat or muddy silt or sand.

PROGLACIAL DEPOSITS

**Deposits of glacial Lake Worden**  
Uniform fine sand fringing part of Worden Pond; probably underlies much of Great Swamp.

**Outwash plain**  
Stratified sand and gravel deposited by glacial meltwaters as broad flood plains south of the main mass of wasting ice. Locally includes deltaic facies, Q<sub>od</sub>, where deposited within the borders of glacial Lake Worden.

ICE-CONTACT DEPOSITS

**Kame**  
Low hills of sand, or sand and gravel.

**Kame terrace**  
Flat-topped to undulating terrace of sand and gravel.

**Kame plain**  
Flat-topped hill of sand and gravel surrounded by ice-contact slopes.

**Kame delta**  
Deposits of sand and gravel showing large-scale foreset bedding characteristic of deltaic deposition.

**Ice-channel filling**  
Sinuous ridges of sand, or sand and gravel.

**Ice-contact deposits, undifferentiated**  
Deposits of sand and gravel of irregular outline whose topography does not fit any of the other morphologic categories.

ABLATION-MORAINE DEPOSITS

**Till, sand, and gravel deposited on ice during earlier stages of ice wastage**

**Charlestown moraine**  
Belt of very uneven topography containing wavy narrow ridges (ice-fracture fillings and colluvial ramparts) and mounds (ice-block casts). The ridge-line of ice-fracture fillings is marked by a line of colluvial ramparts. Ice-block casts are mounds. Moraine consists of till of upland ice and some sand and gravel. In western part of belt, mounds and ice-fracture fillings are generally capped by 10-20 feet of fine sand.

**Ablation-moraine complex of the Narragansett basin ice**  
Interstratified till and sorted drift. Till is gray to dark gray and contains rock debris from the dominantly sedimentary rocks of the Narragansett basin. Topography is low and hummocky with some ice-fracture fillings.

**Ablation moraine, undifferentiated**  
Till, gravel, and sand in hummocky topography with some low ice-fracture fillings.

Ground-moraine deposits

Light-colored till and minor amounts of stratified silt, sand, and gravel; generally forms a relatively thin mantle over bedrock.

Bedrock outcrops

Artificial fill

Boulder pavement

Boulders exposed at low tide. This is a lag accumulation on a wave-cut bench eroded in gravel and till of ablation-moraine complex (Q<sub>am</sub>).

Approximate contact

Short dash is gradational or indeterminate.

Direction of glacial striae

Point of arrow on outcrop.

Pit

WT

Textural letter symbols

Show texture of material cropping out at place occupied by letter: till, T; washed till, WT; mostly sand, S; mostly gravel, G.



SURFICIAL GEOLOGY OF THE KINGSTON QUADRANGLE, RHODE ISLAND

