U. S. GEOLOGICAL SURVEY
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Preliminary geologic map of Seattle and vicinity, Washington
by Waldron, Leisch, Mullineaux, and Crandell

EXPLANATION

f | m

Artificial fill (f) and modified land (m)
Modified land; areas leveled by cut and fill

Recent

Qa
Alluvium
Chiefly sand and silt but includes clay and peat. South of Renton and Tukwila these sediments are 15 to 25 feet thick and overlie sand and gravel. Mostly sand and gravel in Cedar River valley

Qb
Beach deposits
Chiefly sand, may include interbedded organic material. Deposits in places are veneers of sand and gravel less than 2 feet thick on older deposits

Qp
Peat

Ql
Landslides
Only most prominent slides south half of map area and west of Lake Washington are shown. All Pleistocene deposits are susceptible to sliding where they crop out in steep slopes. The least stable deposit is Qc, the most stable is Qf

Qsc
Lacustrine sediments
Chiefly unconsolidated silt, clay, and fine sand generally less than 10 feet thick

Pleistocene — Vashon drift

Qvs
Younger sand
Sand, fine to medium; loose. Generally overlies Qt. Contains minor amounts of gravel. Mostly less than 20 feet thick

Qvg
Younger gravel
Chiefly sand and pebble gravel. Commonly overlies Vashon till. As much as 100 feet thick

Qt
Vashon till
Compact, concretelike mixture of silt, sand, gravel, and clay. As much as 150 feet thick, but generally less than 50 feet. Upper 2 to 5 feet generally a loose, silty sand and gravel

Qog
Older gravel
Chiefly sand and pebble gravel. Lies beneath Vashon till. As much as 200 feet thick

Qos
Older sand
Chiefly medium sand; loose. As much as 300 feet thick

Qcg / Qc
Older clay, till, and gravel
Silt, clay, fine sand, and till, very compact; locally includes lenticular sand and gravel shown as Qcg where mappable

Qu
Undifferentiated deposits of Pleistocene age

QUATERNARY

Oligocene

Tb
Sedimentary rocks of Oligocene age
Chiefly tuffaceous sandstone and conglomerate; compact but poorly cemented. At least 2500 feet thick

Middle and upper Eocene — Puget group

Tr
Renton formation
Arkosic sandstone, shale, and coal. Compact but generally poorly cemented. Sandstone ranges from firmly cemented and hard to uncemented and loose. At least 2000 feet thick

Tt / Tta
Tukwila formation
Chiefly sandstone, conglomerate, and breccia that consist of volcanic rock fragments; compact and tough; includes beds of poorly cemented arkosic sandstone (Tta). At least 3000 feet thick

Middle Eocene

Td
Sedimentary rocks of middle Eocene age
Conglomerate, sandstone, siltstone, and shale; partly of marine origin. Consists chiefly of volcanic rock fragments

Ti
Intrusive rocks
Pyroxene andesite and basalt; very hard and compact. Rock breaks into large and small blocks along joints

TERTIARY

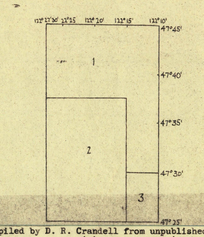
Contact
Dashed where approximately located

Contact, indefinite or inferred

Fault, showing relative movement
U, upthrown side, D, downthrown side

30 Strike and dip of beds

All contacts east of this line are short dashes (inferred)



Compiled by D. R. Crandell from unpublished geologic maps by (1) B. A. Leisch (field work in 1951-52 and 1953-56), revised in part by D. R. Crandell in 1960; (2) H. H. Waldron (field work in 1954-59); and (3) D. R. Mullineaux (field work in 1957-58). Table showing engineering properties of map units prepared by D. R. Mullineaux.

Preliminary geologic map of Seattle and vicinity, Wash., by H.H. Waldron, B.A. Leisch, D.R. Mullineaux, and D.R. Crandell

~~Washington State (Seattle area) Geol. 1:24,000. 1961.~~
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