FIGURE 10.--GEOLOGIC MAP OF PART OF THE FAIRBANKS AREA, ALASKA

EXPLANATION

A blanket of sediments of Quaternary age a few inches to several hundred feet thick covers nearly all the mapped area. These sediments are not shown on the map where less than 3 feet thick.

Perennially frozen silt

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SEDIMENTARY ROCKS

QUATERNARY

Yukon-Tanana Upland

Qf

Fairbanks loess

Massive, homogeneous, unconsolidated eolian silt 3 to 100 ft thick on upper slopes and hilltops. Well sorted, less than 10 per cent clay; grains angular, consist mostly of quartz, feldspar, and mica; locally cemented by iron oxide; locally calcareous. Color buff to tan-gray when dry, brown when wet. No permafrost. Good surface drainage. Mildly susceptible to unsusceptible to frost action, locally intense if drainage poor.

Qsu | Qsf / Qso

Perennially frozen silt

Silt, undifferentiated, Qsu; consists of eolian silt 1 to 300 ft thick retransported from hills to lower slopes and valley bottoms forms low-angle alluvial fans. Massive, homogeneous, unconsolidated; well sorted, less than 10 percent clay. Grains angular, consisting mostly of quartz, feldspar, and mica; locally cemented by iron oxide. Deposit contains organic material, especially in valley bottoms. Color, buff to brown to gray. Depth to permafrost 1 to 4 ft on lower slopes and creek valley bottoms; 5 to 20 ft near contact with Fairbanks loess. Permafrost continuous except under lakes; ground-ice abundant. Impermeable frozen substratum, especially in valley bottoms, creates poor drainage. Frost action intense.

Silt 2 to 30 ft thick composing alluvial fans over flood-plain alluvium, Qsf; small organic content. Depth to permafrost 2 to 25 ft. Permafrost discontinuous; ground-ice content low; mainly interstitial. Drainage fair to good. Frost action moderate to intense.

Organic silt, 1 to 100 ft thick composing lowlands at toe of Qsu fans, Qso; unconsolidated; incorporates much organic material, both plant and animal; well sorted, less than 20 percent clay; color, brown to grayish black, locally mottled by decomposed vegetation. Depth to permafrost 1 to 3 feet. Permafrost continuous except perhaps under lakes; ground-ice abundant. Impermeable frozen substratum creates poor drainage. Frost action intense.

Tanana Lowland

Qal

Flood-plain alluvium

Well-stratified layers and lenses of unconsolidated gray silt, sand, and rounded river gravel; gravel consists mostly of quartz and gneiss and ranges from $\frac{1}{4}$ inch to 3 inches in diameter. Depth to permafrost 2 to 4 ft in older parts of flood-plain and 25 to 40 ft in some cleared areas. Permafrost discontinuous; absent beneath lakes and streams; unfrozen lenses and layers of sand and gravel. Low ground-ice content; mostly interstitial. Silt, especially in meander scars, is moderately to intensely susceptible to frost action; gravel unsusceptible.

Unconformity

Qg

Reworked creek gravel

As mapped, gravel is placer-mine dredge tailings. Undisturbed gravel is exposed in walls of excavations. Undisturbed gravel consists of well-stratified layers and lenses of poorly sorted, angular to subrounded, auriferous, sandy creek gravel; color buff to brown with much iron staining; cobbles as much as 24 inches in diameter, composed mostly of quartz, gneiss, and schist. Locally perennially frozen. Not susceptible to frost action.

IGNEOUS AND METAMORPHIC ROCKS

MESOZOIC

ad

Altered dike rock

Gray to yellowish-brown, porphyritic, medium-grained granitic rock composed mainly of quartz and feldspar. Highly weathered

PRECAMBRIAN

pCbc
(ls)

Birch Creek schist

Gray to brownish graphite, quartz-calcite and quartz-mica schist, amphibolite, quartzite, slate, and gneiss, pCbc, seamed with quartz stringers. Original bedding largely obliterated. Locally weathered to depths of more than 50 feet. Contains local pods of coarse-grained white limestone, ls

Contact

Dashed where indefinite, gradational, or inferred

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Site of railroad bridge frost action study

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Subsurface-temperature-recording site