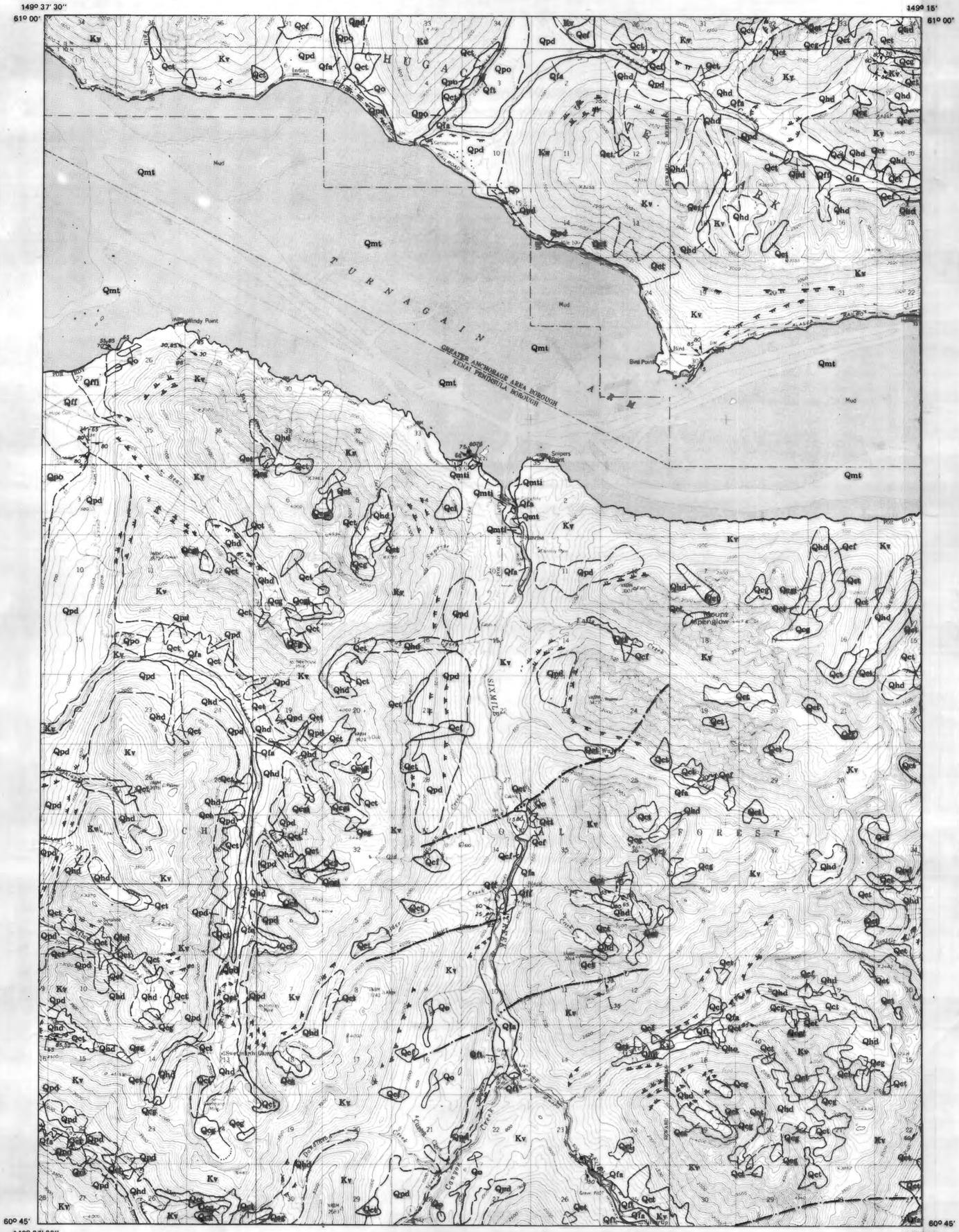
ALASKA DIVISION OF GEOLOGICAL &
GEOPHYSICAL SURVEYS

REPORT OF INVESTIGATIONS 84-22
PLATE 1



Base from U. S. Geological Survey
Seward D-7 (1951) Quadrangle, Alaska

ALASKA

QUADRANGLE LOCATION

SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 100 FEET

DATUM MEAN SEA LEVEL

APPROXIMATE MEAN
DECLINATION, 1951

Mapped from 1:60,000-scale color-infrared aerial photographs (NASA-Ames, accession no. 2662, August 1978). Field checked by R.A. Combellick and J.H. Ewing, June 21-July 4, 1983. Bedrock geology by Tysdal and Case (1979). Reviewed by S.E. Rawlinson. Cartography by J.H. Ewing.

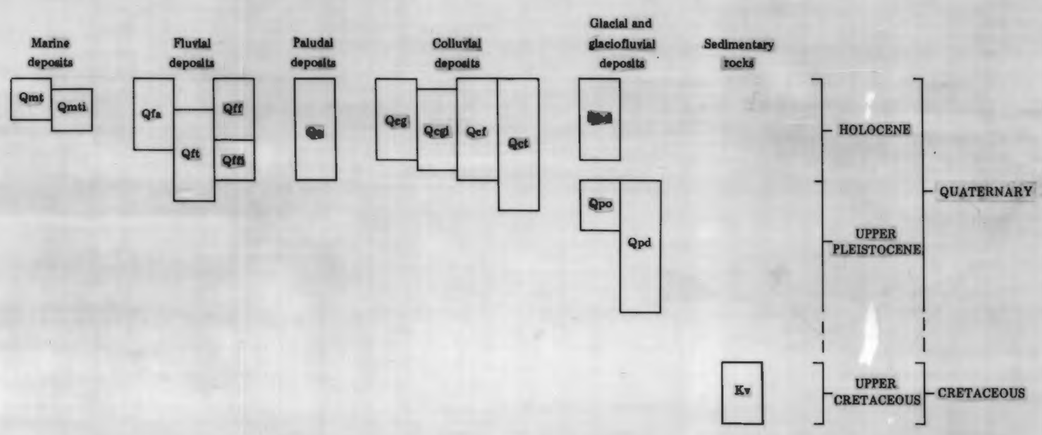
SURFICIAL-GEOLOGIC MAP OF THE SEWARD D-7 QUADRANGLE, ALASKA

by

R.A. COMBELLICK

1984

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Qmt ACTIVE TIDAL DEPOSITS—Moderately to very well sorted fine sand, silty fine sand, sandy silt, and silt deposited in modern intertidal estuary. Laminated to thin bedded, parallel and cross stratified. A thickness of about 7 m was measured in a borehole near Portage; unit overlies at least 300 m of interlayered and interfingering estuarine, shallow-marine, glacial(?), and stream sediments that fill the Turnagain Arm fjord (Bartsch-Winkler and others, 1983). Low to moderate permeability; poor to fair drainage.

Qmti INACTIVE TIDAL DEPOSITS—Moderately to well-sorted silt and sandy silt with minor clay and organic material; deposited in former intertidal environment that is presently above normal tide range. Laminated to thin bedded. Generally vegetated with grasses, willow, alder, and lupine. Low to moderate permeability; poor to fair drainage.

Qfa FLOOD-PLAIN ALLUVIUM—Moderately to well-sorted cobbles, pebbles, sand, and minor silt deposited by modern rivers. Thin to medium bedded, with subrounded to well-rounded pebbles and cobbles. Lithologies dominated by graywacke and phyllite of the Valdez Group. Surface material consists primarily of cobbles, pebbles, and sand in and near active channels and primarily silt and sand in adjacent areas that are subject to infrequent overbank flooding. Moderate to high permeability; good drainage.

Qft TERRACE DEPOSITS—Moderately to well-sorted cobbles, pebbles, sand, and minor silt deposited by former streams at elevations up to 20 m above modern flood plain. Thin to medium bedded, with subangular to well-rounded pebbles and cobbles. Lithologies dominated by graywacke and phyllite of the Valdez Group. Surface flat and incised by modern streams. Moderate to high permeability; good drainage.

Qff ALLUVIAL-FAN DEPOSITS—Poorly to moderately sorted boulders, cobbles, pebbles, and sand with minor silt deposited by streams at valley mouths. Medium to thick bedded with subangular to rounded pebbles and cobbles and angular to subangular boulders. Thickness up to 100 m. Surface generally smooth but dissected by one or more stream channels. Surface slope <15° and slightly concave. Moderate to high permeability; good drainage.

Qfi INACTIVE ALLUVIAL-FAN DEPOSITS—Poorly to moderately sorted boulders, cobbles, pebbles, and sand with minor silt deposited by former streams at valley mouths. Similar to alluvial-fan deposits (Qff) but partially eroded by modern streams.

Qo ORGANIC DEPOSITS—*Sphagnum*, sedge, and woody peat with minor organic-rich silt primarily in glacier-scoured bedrock depressions on valley floors. Maximum thickness 3 m. Generally overlie local basin fillings of gray, pebbly clay of unknown thickness that may have been deposited subglacially as lodgment till (Qpd) or in proximal glaciomarine or glaciolacustrine environments. Vegetated with sedge grasses, *Sphagnum* moss, other small plants, and few trees. Poor drainage.

Qeg ACTIVE ROCK-GLACIER AND PROTALUS-LOBE DEPOSITS—Poorly sorted, angular boulder rubble, with varying proportions of cobbles, pebbles, and sand. Active glacierlike movement is indicated by steep terminus, concentric surface ridges, elongation, lobate form, crevasses, and little or no vegetation. Originated from preexisting till and talus deposits; includes lobate and tongue-shaped rock glaciers of Domaradzki (1951) and protalus lobes of Richmond (1962). Generally restricted to northeast- to northwest-facing slopes above 600-m elevation.

Qcgl INACTIVE ROCK-GLACIER AND PROTALUS-LOBE DEPOSITS—Poorly sorted, angular boulder rubble, with varying proportions of cobbles, pebbles, and sand. Inactivity indicated by subdued surface features, lack of steep terminus, and presence of thin (<10 cm), discontinuous soil that supports grasses, mosses, and small bushes.

Qcf COLLUVIUM AND ALLUVIUM, UNDIFFERENTIATED—Poorly sorted, subangular to very angular boulders, cobbles, and pebbles with minor sand and silt; deposited at base of gullies along cliffs and steep slopes by a combination of water transport and mass wasting; potentially unstable. Up to 10 m thick, with cone-shaped, steep (>15°), channeled surface. High permeability; good drainage.

Qct TALUS DEPOSITS—Poorly sorted boulders, cobbles, pebbles, and minor sand deposited at the base of cliffs and steep slopes by debris falls; nonstratified and potentially unstable. Surface generally steep and irregular. Very high permeability; excellent drainage.

Qhd HOLOCENE DRIFT, UNDIFFERENTIATED—Poorly sorted boulders, cobbles, pebbles, sand, and silt deposited as lodgment or ablation till or water-washed ice-contact deposits. Locally thin (<30 cm) and discontinuous over bedrock. Till is nonstratified except where reworked. Ice-contact deposits are thin to medium bedded. Contains angular to subangular cobbles and boulders that are up to several meters diameter. Generally irregular surface. Low to moderate permeability; fair to good drainage.

Qpo PLEISTOCENE GLACIOFLUVIAL DEPOSITS, UNDIFFERENTIATED—Moderately to well-sorted cobbles, pebbles, and sand with minor silt; deposited as outwash trains, fans, and fan deltas. Cobbles and boulders are subangular to well rounded and up to 50-cm diameter. Thin to medium bedded, with planar beds dipping locally up to 20° in fan-delta deposits. Maximum thickness 30 m. Moderate to high permeability; good drainage.

Qpd PLEISTOCENE DRIFT, UNDIFFERENTIATED—Poorly sorted, angular to subangular boulders and cobbles, with pebbles, sand, and silt; deposited as lodgment or ablation till. Locally weathered to medium brown, although most exposed cobbles and boulders lack well-developed weathering rinds. Generally dense and nonstratified except where reworked. Locally thin (<30 cm) and discontinuous over bedrock. Smooth to slightly irregular surface. Clay-rich facies may underlie organic deposits (Qo) in glacier-scoured bedrock depressions on valley floors. Very low permeability in clay-rich areas; moderate to high permeability where reworked. Poor to good drainage.

Kv SEDIMENTARY ROCKS, UNDIFFERENTIATED (Valdez Group; Tysdal and Case, 1979)—Medium- to dark-gray, tabular, thin- to thick-bedded sandstone and mudstone. Sandstone is very fine to very coarse grained feldspathic litharenite (graywacke) composed mainly of subangular to very angular quartz, plagioclase feldspar, and fine-grained sedimentary- rock fragments in a matrix of silt, chlorite, and minor muscovite and biotite; other common constituents include potassium feldspar, polycrystalline quartz, and felsic plutonic- and volcanic-rock fragments. Calcite present as minor veinlets and cement and partially replaces feldspar, matrix, and argillaceous-rock fragments. Mudstone beds are generally dark gray, laminated to massive, phyllitic, and exhibit fracture cleavage subparallel to bedding planes; silt laminae, where visible, are locally modified by secondary folding. Unit discontinuously covered by thin (<30 cm) drift or colluvium on slopes and frost-shattered debris at high elevations. Displays well-developed joints in one to four directions.

MAP SYMBOLS

Contact; dashed where approximately located, dotted where concealed.

Fault or lineament from aerial photographs; not checked or identified on the ground; dotted where inferred.

Former ice margin, inferred from side-glacial erosional or depositional features; tick marks toward ice.

Strike and dip of fracture cleavage; normally parallel or subparallel to foliation and bedding

75 Inclined

Vertical

Strike and dip of joints

85 Inclined

Vertical

REFERENCES CITED

Bartsch-Winkler, S.R., Ovenshine, A.T., and Kachadoorian, Reuben, 1983, Holocene history of the estuarine area surrounding Portage, Alaska as recorded in a 93-m core: Canadian Journal of Earth Sciences, v. 20, no. 5, p. 802-820.

Domaradzki, J., 1951, Blockstrome in Kanton Graubunden: Ergebnisse der Wissenschaft Untersuchungen der Schweiz, Nationalparks N.S., v. 3, p. 173-235.

Richmond, G.M., 1962, Quaternary stratigraphy of the La Sal Mountains, Utah: U.S. Geological Survey Professional Paper 324, 135 p.

Tysdal, R.G., and Case, J.E., 1979, Geologic map of the Seward and Blying Sound Quadrangles, Alaska: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-1150, scale 1:250,000, 1 sheet.

METRIC CONVERSION FACTORS

To convert centimeters (cm) to inches (in.), multiply by 0.39.
To convert meters (m) to feet (ft), multiply by 3.28.

This report is a preliminary publication of DGGS. The author is solely responsible for its content and will appreciate candid comments on the accuracy of the data and suggestions to improve the report.