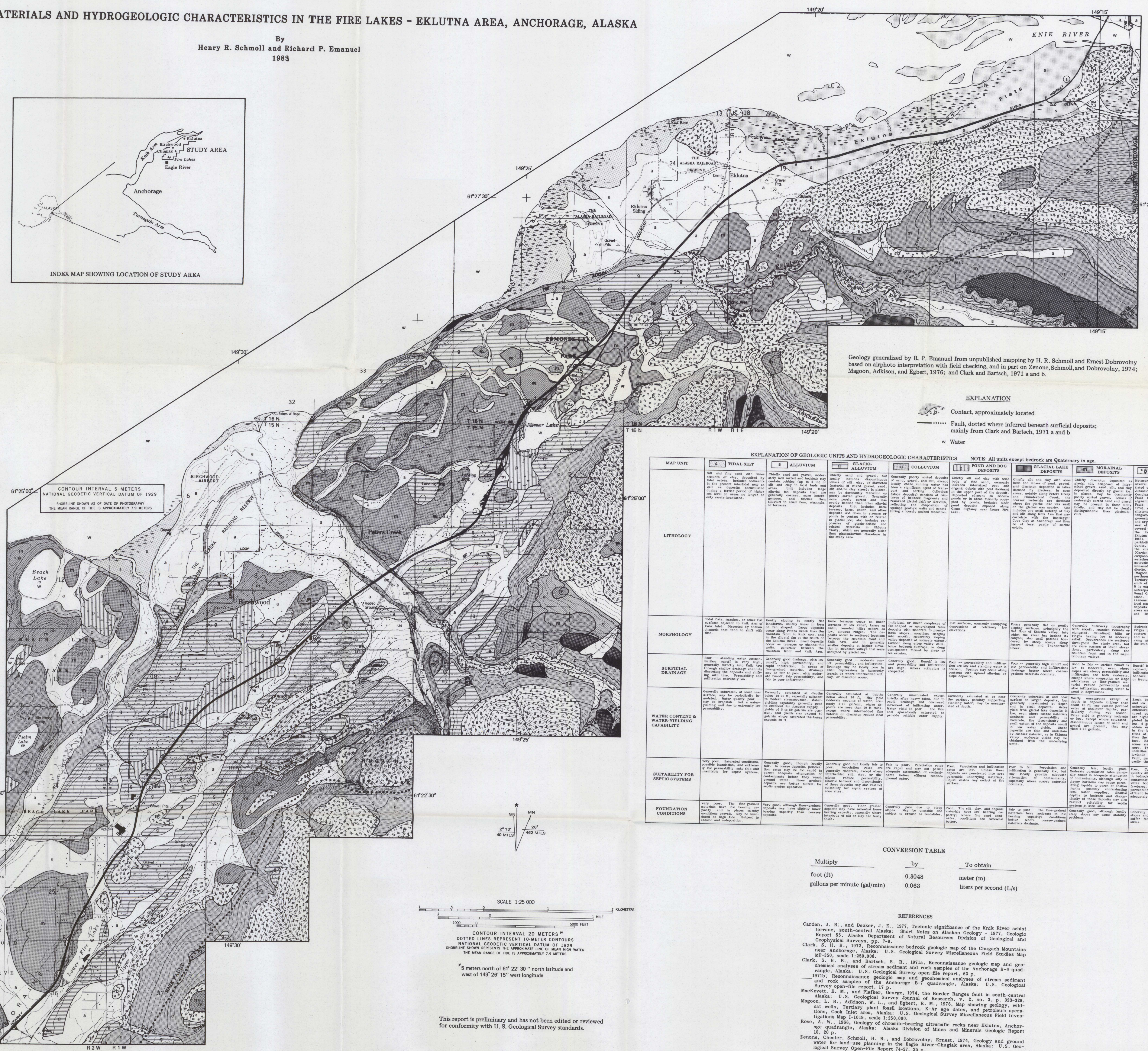
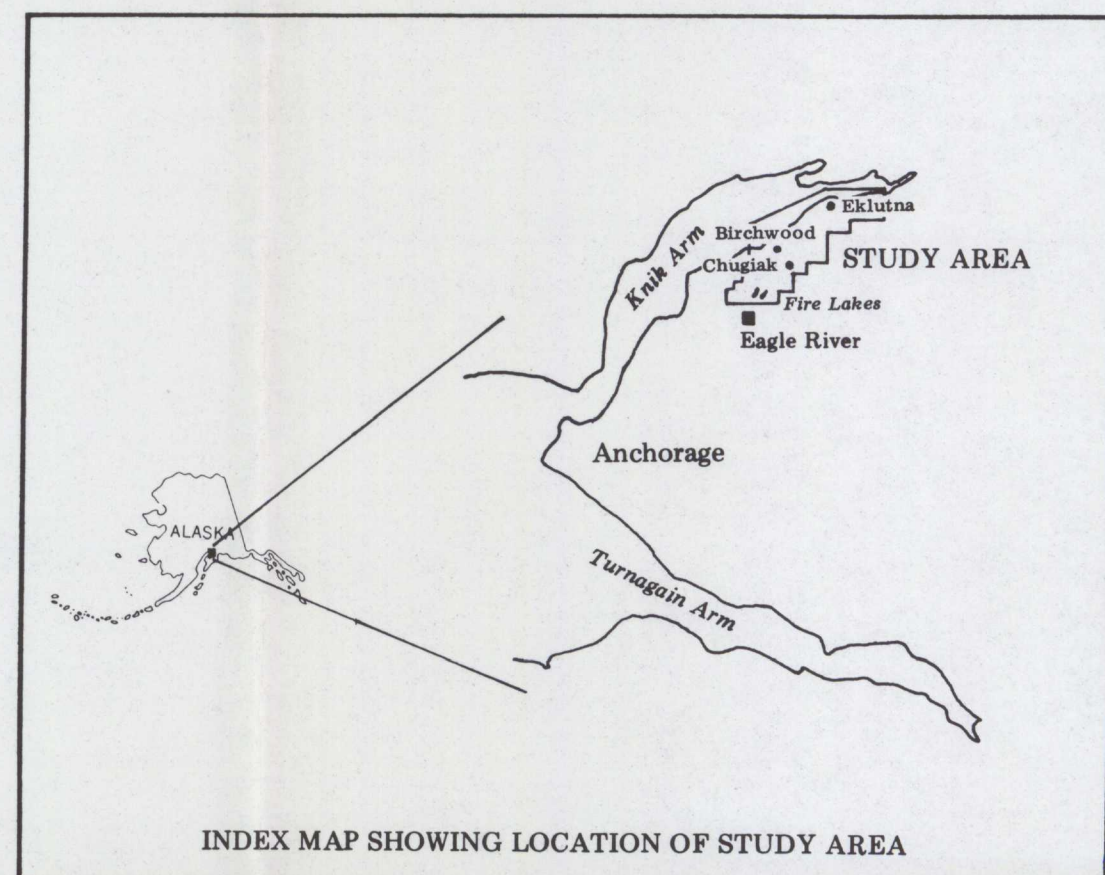


GEOLOGIC MATERIALS AND HYDROGEOLOGIC CHARACTERISTICS IN THE FIRE LAKES - EKLUTNA AREA, ANCHORAGE, ALASKA

By
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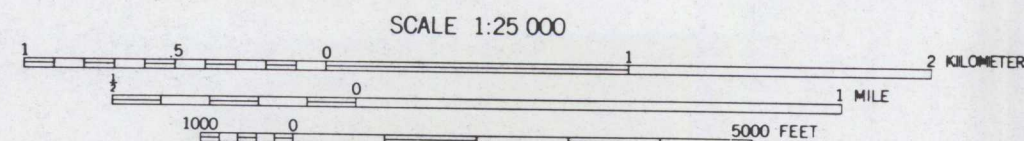


Geology generalized by R. P. Emanuel from unpublished mapping by H. R. Schmolz and Ernest Dobrovolsky based on airphoto interpretation with field checking, and in part on Zenone, Schmolz, and Dobrovolsky, 1974; Magoon, Adkison, and Egbert, 1976; and Clark and Bartsch, 1971 a and b.

EXPLANATION
 Contact, approximately located
 Fault, dotted where inferred beneath surficial deposits;
 mainly from Clark and Bartsch, 1971 a and b
 Water

CONTOUR INTERVAL 5 METERS
NATIONAL GEODETIC VERTICAL DATUM OF 1929
SHORELINE SHOWN AS OF DATE OF PHOTOGRAPHY
THE MEAN RANGE OF TIDE IS APPROXIMATELY 7.9 METERS

CONTOUR INTERVAL 20 METERS
DOTTED LINES REPRESENT 10-METER CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 7.9 METERS



This report is preliminary and has not been edited or reviewed for conformity with U.S. Geological Survey standards.

EXPLANATION OF GEOLOGIC UNITS AND HYDROGEOLOGIC CHARACTERISTICS NOTE: All units except bedrock are Quaternary in age.

| MAP UNIT | TIDAL SILT | ALLUVIUM | GLACIAL ALLUVIUM | COLLUVIUM | POND AND BOG DEPOSITS | GLACIAL LAKE DEPOSITS | MORAINAL DEPOSITS | BEDROCK | |
|--|--|---|---|--|---|---|--|---|---|
| LITHOLOGY | Silt and fine sand with minor amounts of clay, deposited by tidal waters. Includes mudstone and siltstone. Deposits are generally unconsolidated and may be highly erodible. | Chiefly sand and gravel, moderately well sorted and bedded, may contain pebbles up to 8 in. in diameter. Includes silty sand, silty gravel, and silty clay. Deposits are generally unconsolidated and may be highly erodible. | Chiefly sand and gravel, moderately well sorted and bedded, may contain pebbles up to 8 in. in diameter. Includes silty sand, silty gravel, and silty clay. Deposits are generally unconsolidated and may be highly erodible. | Chiefly poorly sorted deposits of sand, gravel, and silt, deposited by debris flows or debris fans. Includes silty sand, silty gravel, and silty clay. Deposits are generally unconsolidated and may be highly erodible. | Chiefly silt and clay with some beds of fine sand; commonly includes interbedded peat and silt. Deposits are generally unconsolidated and may be highly erodible. | Chiefly silt and clay with some beds of fine sand; commonly includes interbedded peat and silt. Deposits are generally unconsolidated and may be highly erodible. | Chiefly silt and clay with some beds of fine sand; commonly includes interbedded peat and silt. Deposits are generally unconsolidated and may be highly erodible. | Chiefly silt and clay with some beds of fine sand; commonly includes interbedded peat and silt. Deposits are generally unconsolidated and may be highly erodible. | Includes various types of bedrock, including schist, gneiss, and granite. Bedrock is generally hard and resistant to erosion. |
| MORPHOLOGY | Tidal flats, marshes, or other flat surfaces adjacent to Kik Arm of Cook Inlet. Shaded by dashed lines. Deposits are generally unconsolidated and may be highly erodible. | Generally sloping to nearly flat bedforms, usually lower in them than the adjacent large deposits. Deposits are generally unconsolidated and may be highly erodible. | Some terraces occur in lower portions of low relief, some at some angles. Deposits are generally unconsolidated and may be highly erodible. | Individual or linear complexes of fan-shaped or cone-shaped deposits with evidence to suggest that they were deposited by debris flows or debris fans. Deposits are generally unconsolidated and may be highly erodible. | Flat surfaces, commonly occupying depressions at relatively low elevations. Deposits are generally unconsolidated and may be highly erodible. | Points generally flat or gently sloping surfaces, frequently the result of debris flows or debris fans. Deposits are generally unconsolidated and may be highly erodible. | Generally hummocky topography with some rounded ridges or mounds. Deposits are generally unconsolidated and may be highly erodible. | Bedrock occurs on steeply sloping to high relief, and is generally resistant to erosion. Deposits are generally unconsolidated and may be highly erodible. | |
| SURFICIAL DRAINAGE | Poor - standing water common. Surface runoff is very high, generally directly into Kik Arm of Cook Inlet. Permeability and infiltration are very low. | Generally good drainage, with low runoff. Surface runoff is generally moderate. Permeability and infiltration are generally moderate. | Generally good - moderate runoff. Surface runoff is generally moderate. Permeability and infiltration are generally moderate. | Generally good. Runoff is low to moderate. Permeability and infiltration are generally moderate. | Poor - permeability and infiltration are low and standing water is common. Drainage is generally poor. | Poor - generally high runoff and low permeability and infiltration. Drainage is generally poor. | Generally moderate to good drainage, with low runoff. Surface runoff is generally moderate. Permeability and infiltration are generally moderate. | Runoff is high where bedrock is exposed, and permeability and infiltration are generally low. | |
| WATER CONTENT & WATER-YIELDING CAPABILITY | Generally saturated, at least near surface. Water content is high, and permeability is low. Water yield is generally low. | Generally saturated at depths below 10 ft, especially adjacent to modern streamcourses. Water content is high, and permeability is low. Water yield is generally low. | Generally saturated at depths below 10 ft, especially adjacent to modern streamcourses. Water content is high, and permeability is low. Water yield is generally low. | Generally unsaturated except near surface. Water content is low, and permeability is low. Water yield is generally low. | Commonly saturated at or near surface, possibly supporting standing water; may be seasonally saturated at depths. | Commonly saturated at or near surface. Water content is high, and permeability is low. Water yield is generally low. | Generally saturated except at depths below 10 ft, especially adjacent to modern streamcourses. Water content is high, and permeability is low. Water yield is generally low. | Fresh bedrock has low permeability and low water content, and is generally resistant to erosion. Water yield is generally low. | |
| SUITABILITY FOR SEPTIC SYSTEMS | Very poor. Saturated conditions, generally directly adjacent to Kik Arm of Cook Inlet. Permeability is very low, and infiltration is very slow. | Generally good, though locally fair to coarse deposits, permeability may be low. Permeability and infiltration are generally moderate. | Generally good, though locally fair to coarse deposits, permeability may be low. Permeability and infiltration are generally moderate. | Fair to poor. Permeability and infiltration are generally low, and standing water is common. Drainage is generally poor. | Poor. Permeability and infiltration are generally low, and standing water is common. Drainage is generally poor. | Poor to fair. Permeability and infiltration are generally low, and standing water is common. Drainage is generally poor. | Generally fair, locally good. Permeability and infiltration are generally moderate, and standing water is common. Drainage is generally poor. | Fair. Conditions may be locally good, but permeability and infiltration are generally low, and standing water is common. Drainage is generally poor. | |
| FOUNDATION CONDITIONS | Very poor. The fine-grained material may be highly erodible, and may contain pebbles up to 8 in. in diameter. Foundation conditions are generally poor. | Very poor, although fine-grained deposits may have somewhat better bearing capacity, especially where thick. Foundation conditions are generally poor. | Generally good. Fine-grained deposits may have somewhat better bearing capacity, especially where thick. Foundation conditions are generally good. | Generally poor. Fine-grained deposits may have somewhat better bearing capacity, especially where thick. Foundation conditions are generally poor. | Poor. The silt, clay, and organic materials have low bearing capacity, and may be highly erodible. Foundation conditions are generally poor. | Fair to poor - the fine-grained material has low bearing capacity, and may be highly erodible. Foundation conditions are generally poor. | Generally good, although locally poor. Fine-grained deposits may have somewhat better bearing capacity, especially where thick. Foundation conditions are generally good. | Generally good, although some slopes and excavations may be subject to erosion. Foundation conditions are generally good. | |

CONVERSION TABLE

| Multiply | by | To obtain |
|------------------------------|--------|-------------------------|
| foot (ft) | 0.3048 | meter (m) |
| gallons per minute (gal/min) | 0.063 | liters per second (L/s) |

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