

EXPLANATION

This map illustrates potential sources of various geologic materials useful for construction. Field observations indicate that each geologic unit, e.g., stream alluvium, has a definite composition or range of composition wherever that unit is found.* Therefore, the presence of the materials is interpreted from the distribution of geologic units on plate 1, the geologic map of this quadrangle.

This map is generalized; it does not attempt to show exact locations of specific materials. The intent is to indicate general areas that deserve consideration for certain materials and to eliminate other general areas from consideration for these materials. Local variations frequently occur, especially near unit boundaries. Potential uses of map units are qualitatively summarized in the table below, which shows potential availability of various construction materials in each geologic-materials map unit. Precise economic evaluations of specific deposits as sources of construction materials will require detailed examination of each deposit, including areal extent, volume, grain-size variation, thickness of overburden, thermal state of the ground, and depth to the water table as well as logistical factors, demand, and land ownership.

DESCRIPTION OF MAP UNITS

GS GRAVEL AND SAND—Channel fillings of former glacial meltwater streams and alluvium beneath modern flood plains. Composed of pebble-cobble gravel and gravelly medium to coarse sand with rare to occasional boulders; well sorted; medium to thick bedded; thickness ranges from less than 1 m to more than 3 m; thawed, except in active layer subject to seasonal freezing; locally cemented by iron and manganese oxides; high permeability except where cemented; depth to water table moderate to shallow; overburden is surface vegetation mat less than 0.5 m thick and eolian silt 9 to 30 cm thick, although local depressions contain peat 3 m or more thick.

GSm CHIEFLY GRAVEL AND SAND—Complex mixtures of kame-esker deposits and undifferentiated ice-contact deposits. Composed of pebble-cobble gravel with some medium to coarse sand, trace to some silt, and occasional boulders; locally contains layers and lenses of clean, medium to coarse sand; well to poorly sorted; thin to massively bedded; thickness greater than 4 m; thawed, except in active layer of seasonal freezing; uncemented, except locally well cemented by iron and manganese oxides deposited by ground water in well-sorted sand or gravel layers; surface drainage excellent to moderate; depth to water table moderate to deep; overburden is surface vegetative mat less than 0.5 m thick and eolian silt 9 to 30 cm thick.

GSp CHIEFLY MIXED COARSE- AND FINE-GRAINED MATERIAL—Till; most commonly consists of pebble-cobble gravel with some sand and silt and occasional to numerous boulders; sorting poor, although locally well sorted where reworked by meltwater streams or where readvances incorporated outwash or kame-esker alluvium; thickness ranges from 2 m to more than 6 m; thawed, except in active layer of seasonal freezing; uncemented, but lodgment till commonly semiconsolidated because of weight of overriding glacier, enabling molds to remain on free faces when clasts are removed; very low to moderate permeability; surface drainage moderate to poor; depth to water table moderate to deep; overburden is surface vegetative mat less than 0.5 m thick and 9 to 30 cm of eolian silt, except in kettle depressions where there may be several m of peat.

MC CHIEFLY SILT AND CLAY—Tidal-flat deposits. Composed of silt and clay with trace to some fine sand; well to moderately sorted; finely laminated to thick bedded; thickness generally more than 3 m; thawed, except in active layer subject to seasonal freezing; low permeability, surface drainage poor; depth to water table moderate to shallow; overburden is surface organic mat less than 0.5 m thick.

Pt CHIEFLY PEAT—Swamp deposits. Composed of interlayered woody *Sphagnum* and sedge peat; organic silt and sand, locally marly; thin to thick bedded; thickness ranges from less than 1 m to more than 6 m; commonly frozen at depths greater than 0.7 m with high ice content; uncemented, except where well cemented by ice; permeability good except very poor where frozen; surface drainage poor; shallow water table; no overburden.

SYMBOLS

- Approximate geologic contact
- ? Questionable occurrence

POTENTIAL AVAILABILITY OF VARIOUS CONSTRUCTION MATERIALS IN GEOLOGIC-MATERIALS MAP UNITS, ANCHORAGE C-7 SE QUADRANGLE, ALASKA

Probability of locating good sources of _____ 1

| Map unit | Composition | Gravel and sand | Sand | Mixed coarse- and fine-grained material | Clay | Crushed aggregate | Riprap armor rock | Building stone |
|----------|---|-----------------|----------|---|----------|-------------------|-------------------|----------------|
| GS | Gravel and sand | Good | Good | Poor | Nil | Good | Nil | Nil |
| GSm | Chiefly gravel and sand | Moderate | Moderate | Poor | Nil | Moderate | Nil | Nil |
| GSp | Chiefly mixed coarse- and fine-grained material | Poor | Poor | Good | Poor | Poor | Nil | Nil |
| MC | Chiefly silt and clay | Nil | Nil | Nil | Moderate | Nil | Nil | Nil |
| Pt | Chiefly peat | Nil | Nil | Nil | Poor | Nil | Nil | Nil |

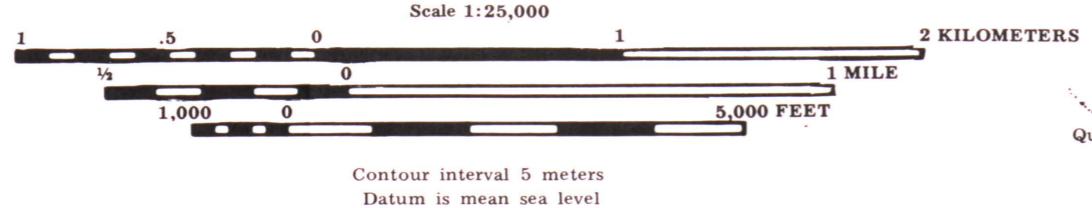
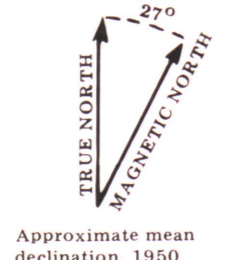
¹The imprecise terms "good," "moderate," "poor," and "nil" are purposely used to indicate the relative probability of locating good deposits of each construction material in the various map units. No definite values are assigned to each term, but they may indicate a probability of 80 percent or more for "good," 30 percent to 80 percent for "moderate," less than 30 percent for "poor," and essentially zero chance for "nil."

*Estimated percentages of sand and silt, based on field observations, are indicated by the terms "some" and "trace." "Some" implies a general composition of 12% to 30%. "Trace" implies a $\leq 4\%$ composition of 4% to 12%. Estimated percentages less than 4% were not recorded in the field.



Base from 1974 advance print of U.S. Geological Survey orthophoto map prepared from 1:75,000-scale aerial photographs taken August 21, 1974.

Based on field reconnaissance May-June 1977 and June-July 1978 and on aerial photograph interpretation, November 1977 through January 1978. Field assistance by Richard D. Reger. Reviewed by Jeffrey T. Kline, James R. Riehle, and Randall G. Urdike.



GEOLOGIC MATERIALS MAP OF THE ANCHORAGE C-7 SE QUADRANGLE, ALASKA

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1981