ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

ALASKA OPEN-FILE REPORT 156
PLATE 5 OF 5

NOTES

These geologic maps show the extent and type of unconsolidated deposits (in terms of terrain units) in four quadrangles in the Fairbanks Mining District; they were prepared by interpreting false-color infrared aerial photographs, scale 1:65,000. The interpretations are not verified by field observations, and thus are subject to revision.

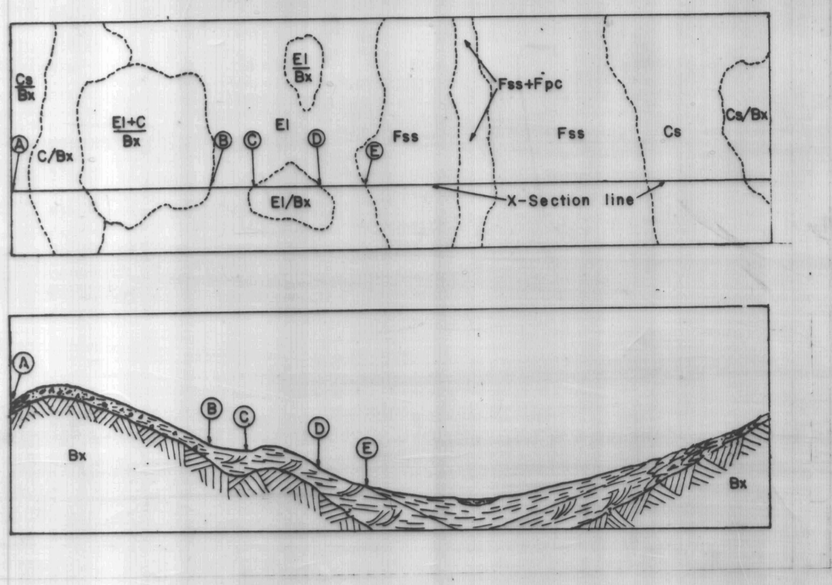
Terrain units are defined as the surficial expression of 1) a single geologic process or combination of processes that characteristically operate together, 2) the depositional surface on which the processes function, and 3) the type of material. With the exception of undifferentiated deposits--such as solifluction material--that are mapped more by form than by composition, terrain units are compositionally distinct. They are often shown with combinations of unit-description symbols (El+C, C+El). The first delineator indicates the dominant material; that is, more than 50 percent of the deposit.

Geologic processes operate at different levels of intensity based largely on the morphology of the depositional surface. Discontinuous blankets of sediment accumulate where processes operate at relatively high levels of energy (segment A - B). Depositional surfaces in these areas are often ridge crests, local bedrock highs, or the upper convex slopes of valley walls. In these locations, terrain units are shown as cover deposits overlying bedrock (C/Bx, El+C/Bx). This symbol does not necessarily indicate a specific thickness or range of thicknesses, but does imply a uniformity in thin or thick deposits within the mapped unit.

Sites where geologic processes function at a low level of intensity act as sediment traps. Resulting accumulations of detritus are often wedge shaped and thicken downslope (segment D - E). Subsequent alluviation and colluviation may contribute retransported material to these sites, thus increasing sediment thickness. There is almost always a distinct break in slope that indicates a transition point where depositional thickening begins ('B' and 'D'). Examples of areas of accumulation are swales between local bedrock highs, stream valleys, stream terraces, and concave valley slopes. These are labelled with material symbols (El, Fss).

There is an apparent change in surficial-material composition from south to north. Units in the southern part of plates 3 and 4 appear to be primarily composed of thick silts and retransported silts with little or no bedrock colluvium. From south to north, silt content appears to decrease and surficial deposits generally become more thin. Surficial deposits in the northern part of plates 1 and 2 appear to be almost entirely bedrock colluvium on valley slopes. Weathered bedrock outcrops and tors with little to no silt are present on ridge crests.

Hypothetical map view and cross section showing relationship of map units



SEGMENT	CONDITIONS
A - B	Thickness of cover material over bedrock is generally uniform. Cs/Bx, C/Bx, and El+C/Bx are distinguished primarily by vegetation, micro-relief features such as solifluction lobes, and the presence of coarse colluvium.
B - C	Cover material thickens (wedge like) and thins at 'C' because of local bedrock high. Limits are distinguished primarily by slope breaks and vegetation changes.
C - D	Cover material is generally uniformly thick, but thicker than in segment A - B.
D - E	Silt thickens (wedge like) downslope and is overlain by retransported silt beginning at 'E.'

TERRAIN-UNIT DESCRIPTIONS

Bx Undifferentiated, distinct bedrock outcrops and tors. For a detailed map of bedrock geology see Robinson (1982).

C Undifferentiated, weathered bedrock colluvium.

Cl Undifferentiated landslide deposit.

Cs Undifferentiated solifluction deposits that generally occur on north-facing slopes. Surface lobes are often quite distinct where a significant vegetation mat exists or in retransported silts (Fss), and are visible although not distinctive on bedrock colluvium (C).

El Loess (wind-borne silt) deposits (Péwé, 1977).

Ff Fluvial-fan deposits primarily along the Little Chena River; probably consist chiefly of retransported silts (Fss).

Fpa Abandoned flood-plain deposits.

Fpc Creek or small watercourse alluvium. Because we infer that retransported silt deposits (Fss) also exist in most stream deposits, the two units are used together extensively, except in the north part of the area where retransported silty deposits are probably absent.

Fpm Meander flood-plain alluvium.

Fss Retransported, silty, ice-rich, organic-rich deposits that originate from loess (El) and generally accumulate in valleys, on abandoned flood plains, and in low-energy sites on lower slopes (Péwé, 1977).

Ft Retransported material over abandoned stream terraces (C/Ft).

Ht Placer dredge tailings composed of washed and segregated stream gravels and bedrock material. Locally frozen with significant ice content (Reger, oral commun., April 1982).

Lt Thaw-lake deposits.

SYMBOLS

..... Inferred terrain-unit boundary.

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