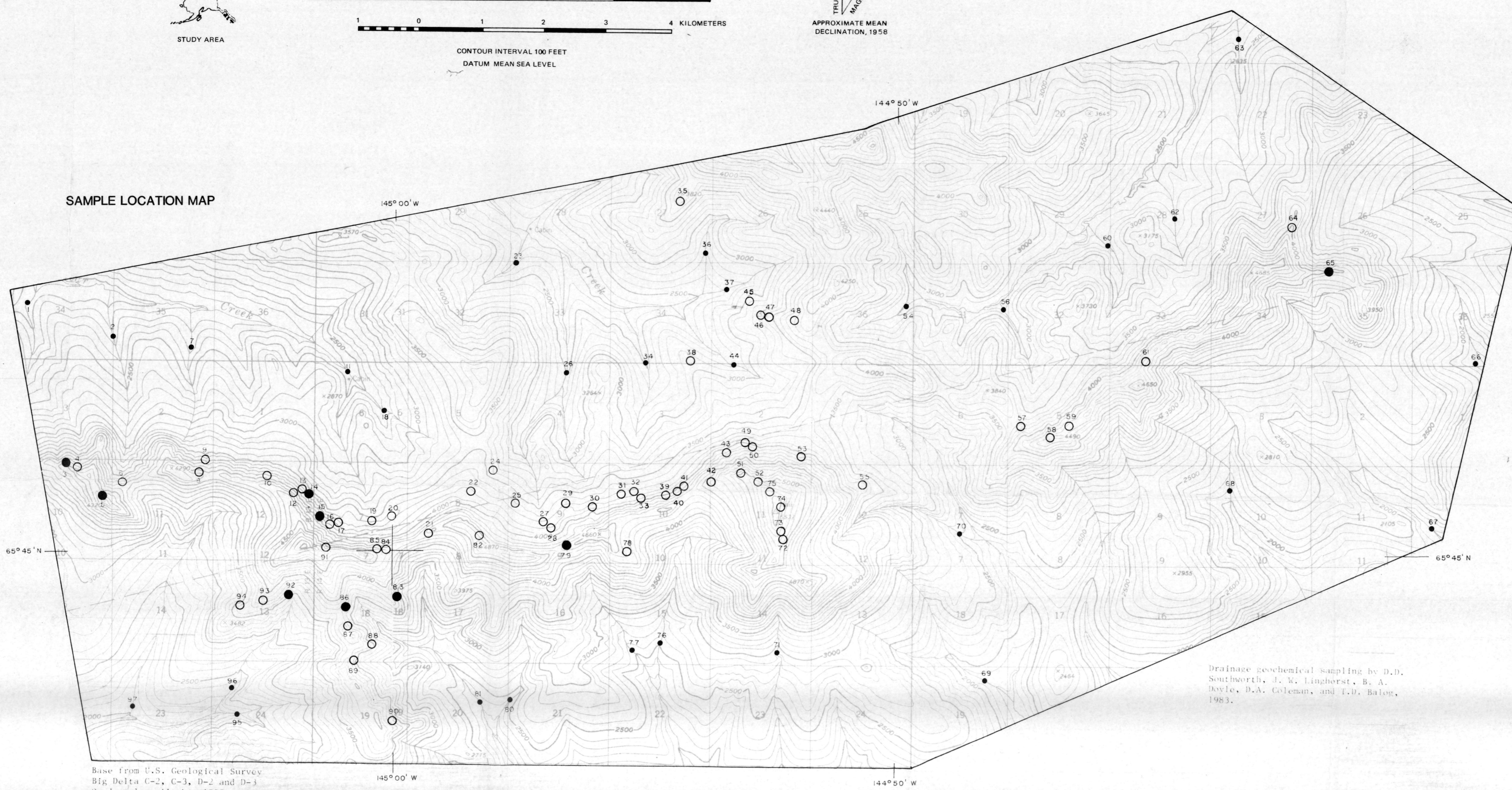
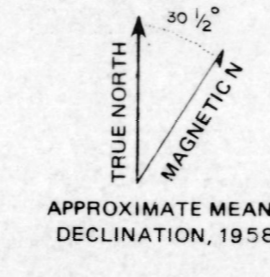
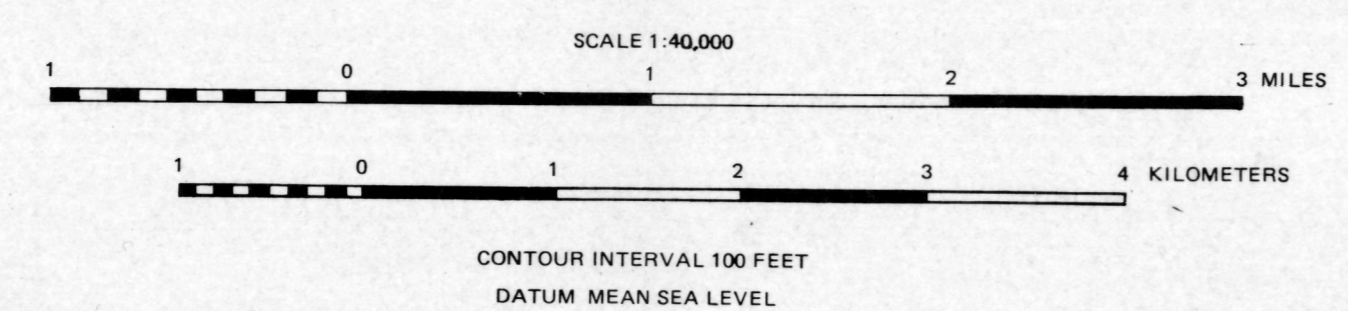
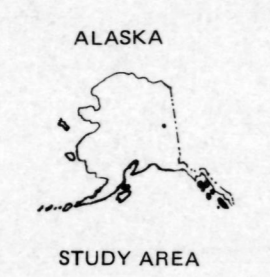


Bedrock geology by D.D. Southworth, 1983.

- DESCRIPTION OF MAP UNITS**
- Qnc **ALLUVIUM AND COLLUVIUM**—Boulders, gravel, sand, silt, angular rock fragments. Includes alluvium of valley floor, alluvial fan debris, and colluvium on valley sides (Weber and others, 1978).
 - Pgc **GREENSTONE AND CHERT**—Greenstone is light to dark green; fine to coarse grained; weakly developed foliation in places and at one locality contains small quartz-filled vesicles. Commonly composed of light-green to bluish-green amphibole and opaque minerals and randomly cut by thin veins of quartz, epidote, and hematite. In places chert and greenstone are interlayered. Radiolaria and conodonts in red chert indicate a Permian age for this unit (Weber and others, 1978).
 - Pgb **GABBRO DIORITE**—Medium gray to dark gray in color; medium grained. Structurally overlies peridotite. Usually occurs as patches of rubble a few meters in area; larger boulders are less common. Gabbroic rocks contain substantial amounts of plagioclase and pyroxene, with minor quartz, epidote and chlorite along with about one percent fine disseminated magnetite and trace amounts of chalcocite. Actinolite is replacing pyroxene and the alteration of feldspar is pronounced. Similar rocks along the eastern end of Nail Ridge contain hornblende as the dominant mafic mineral and are hence termed diorite.
 - Ppa **SILICA ANKERITE ROCK**—Bright orange-weathering silica-carbonate rock contains several percent disseminated fibrous and radiolarian grains. Original peridotite texture visible on weathered surfaces. Forms a layer 3 to 55 ft thick directly beneath massive serpentinite along most of north side of Nail Ridge and found locally on other sides. Occasional veinlets of unrecrystallized serpentinite. Contact with overlying and underlying units locally gradational, locally faulted.
 - Ppm **SILICA MAGNESITE ROCK**—Dominantly magnetite and fine-grained quartz, with lesser dolomite and minor opal and chalcocite. Some late cross-cutting veinlets of quartz. From less than 100 to 250 ft thick. Original texture of peridotite locally preserved and visible on weathered surfaces. Relict chromite grains rare, occasionally preserved near contact with quartz-ankerite unit, locally contains small pods of azurite and malachite. In thrust contact with underlying metamorphic rocks of quartz-ankerite rarely gradational, occasionally thrust fault.
 - Psp **SERPENTINITE**—Dark green to black, weathers dark reddish brown to greenish black to black. Massive. Dominant minerals are serpentinite, lizardite, and chromite with minor veinlets of cross-fiber clinochrysole and secondary magnetite. Forms a mass of less continuous zone about 100 to over 300 ft thick on north side of Nail Ridge. Thrust faults at base of the unit dip the ridge at about 20° to 30°. Serpentinite is dark brown in color and not well exposed.
 - Pu **PERIDOTITE, PARTLY SERPENTINIZED**—Dark green to black; weathers a reddish orange brown; massive. Primary minerals are olivine, orthopyroxene (enstatite), clinopyroxene (except where it occurs in lenses), and chromite. Secondary minerals are serpentinite, lizardite and clinochrysole replacing olivine and orthopyroxene, and magnetite, formed during serpentinization. Cross-cutting veinlets of poorly developed cross-fiber clinochrysole in a few places (Weber and others, 1978).
 - Psg **SEMISCHIST, GREENSCHIST, QUARTZITE, PHYLLITE, MARBLE, AND GREENSTONE**—Greenish gray to gray and fine to coarse grained; very quartzite to very feldspathic. Feldspar commonly microcline. Semischist interbedded with light green quartz mica schist, quartz sericite schist, and quartz chlorite epidote schist, tan and gray, fine- to medium-grained quartzite, gray and tan phyllite, and some grayish-green to dark green weakly foliated greenstone. Greenschist facies. Age unknown, but possible stratigraphic equivalent of the Tolditka schist in the northern Alaska Range and to the Klondike schist in the Yukon Territory (Weber and others, 1978).



Base from U.S. Geological Survey Big Delta C-2, C-3, D-2, and D-3 Quadrangles, Alaska, 1938.

Drainage geochemical sampling by D.D. Southworth, J. K. Lingham, B. A. Dreyer, D.A. Coleman, and L.D. Bates, 1983.

- MAP SYMBOLS**
- Contact Solid where known, dashed where approximately located, dotted where concealed or inferred, queried where questionable.
 - - - Fault Solid where known, dashed where approximately located, dotted where concealed or inferred, queried where questionable.
 - ▲-▲-▲ Thrust fault Solid where known, dashed where approximately located, dotted where concealed or inferred. Teeth on upper plate.
 - ~ Strike and dip of bedding
 - ~ Plunge and plunge of fold axes or mineral lineation
 - ~ Minor anticline, showing plunge
 - Co-located pan concentrate and stream-sediment samples
 - Rock geochemical sample location
 - Petrographic sample location
 - Azurite and malachite occurrence
 - Disseminated sulfides
 - Chromium spinel analyses location

- REFERENCES CITED**
- Weber, F.B., Foster, H.L., Keith, T.E.C., and Danielson, Cynthia, 1978, Preliminary geologic map of the Big Delta Quadrangle, Alaska: U.S. Geological Survey Open-File Report 78-529-A, scale 1:250,000.

BEDROCK GEOLOGIC MAP AND SAMPLE LOCATIONS, NAIL RIDGE AREA, EAST CENTRAL ALASKA

by
D. D. Southworth
1985

This report has not received final editing and review. The author is solely responsible for its content and will appreciate candid comments on the accuracy of the data, as well as suggestions to improve the report.