ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

DESCRIPTION OF MAP UNITS

IGNEOUS ROCKS

- Qb — BASALT FLOWS AND VENT DEPOSITS (Quaternary)
- LKg — GABBRO DIKES (Late Cretaceous)
- EKs — SYENITE(?) DIKES (Early Cretaceous)

METAMORPHIC ROCKS

SEDIMENTARY AND IGNEOUS ROCKS METAMORPHOSED TO BLUESCHIST FACIES: NOME COMPLEX

SOLOMON SCHIST

- Ds — QUARTZ-WHITE MICA SCHIST (Devonian)
- Dm — MARBLE (Devonian)

METAMORPHOSED MAFIC INTRUSIONS

- DOg — WITHIN-PLATE MAFIC SCHIST AND GRANOFELS (Devonian to Ordovician)
- Omg — ISLAND ARC-LIKE MAFIC SCHIST AND GRANOFELS (Ordovician)

MIXED UNIT

- DOx — MIXED METASEDIMENTARY ROCKS (Devonian to Ordovician)
- DOl — IMPURE MARBLE (Devonian to Ordovician)
- DOms — MAFIC SCHIST (Devonian to Ordovician)
- DOm — MARBLE (Devonian to Ordovician)
- DOq — QUARTZITE (Devonian to Ordovician)
- DOqs — QUARTZITE AND SCHIST (Devonian to Ordovician)
- DOsq — GRAPHITIC SCHIST AND QUARTZITE (Devonian to Ordovician)
- DOs — SCHIST (Devonian to Ordovician)

CASADEPAGA SCHIST

- Osg — METASEDIMENTARY ROCKS AND METAGRAYWACKE (Ordovician)
- Ol — IMPURE MARBLE (Ordovician)

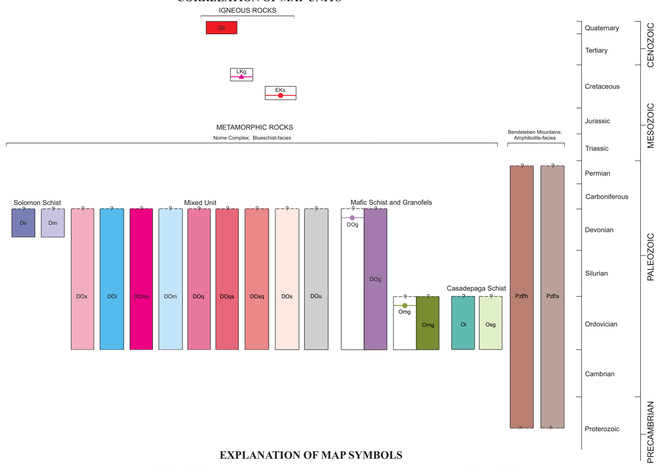
UNDIFFERENTIATED NOME COMPLEX ROCKS

- DOu — UNDIFFERENTIATED NOME GROUP ROCKS (Devonian to Precambrian)

SEDIMENTARY AND IGNEOUS ROCKS METAMORPHOSED TO AMPHIBOLITE FACIES

- PzPh — STAUROLITE SCHIST (Paleozoic to Proterozoic)
- PzPa — SCHIST AND AMPHIBOLITE (Paleozoic to Proterozoic)

CORRELATION OF MAP UNITS



EXPLANATION OF MAP SYMBOLS

CONTACTS*

CONTACT - Identity and existence certain, location inferred

FAULTS*

Dip of faults shown where measured. Arrows indicate apparent direction of relative movement; U, upthrown block; D, downthrown block

- FAULT - Identity and existence certain, location accurate
- FAULT - Identity and existence certain, location inferred
- LOW-ANGLE FAULT - Identity or existence certain, location accurate; barbs point to upper plate
- LOW-ANGLE FAULT - Identity or existence certain, location inferred; barbs point to upper plate

FOLDS

- ANTIFORM - Identity and existence certain, location inferred
- OVERTURNED ANTIFORM - Identity or existence certain, location inferred. Arrows show dip direction of limbs
- SYNFORM - Identity and existence certain, location inferred
- OVERTURNED SYNFORM - Identity or existence certain, location inferred. Arrows show dip direction of limbs

*See text for full discussion of contact and fault relationships between map units.

FOLIATION

- Strike and dip of inclined foliation
- Horizontal foliation
- Strike of vertical foliation

CLEAVAGE

- Strike and dip of inclined cleavage

DIKES

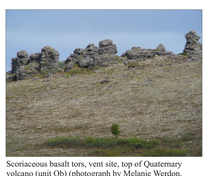
Dikes - shown on geologic map as lines where orientation recorded. Example of a dike symbol. See 'Description of Map Units' for explanation of compositional variations

MISCELLANEOUS MAP ELEMENTS

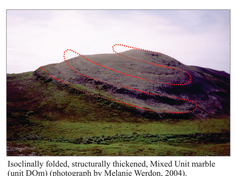
- A1 — $^{40}Ar/^{39}Ar$ LOCALITIES - Numbers refer to citations in text accompanying map
- U-Pb LOCALITY - Metavolcanic rock detrital zircon analysis
- A — A' CROSS SECTION LINE AND LABEL

Solomon Schist (unit Ds) with foliation-parallel quartz veins (photograph by Melanie Werdon, 7/10/2006).

Graphitic quartzite (unit DOq) cut by brittle, low-angle thrust fault; planar foliation above fault and highly folded foliation below fault (photograph by Melanie Werdon, 7/10/2006).



Scoriaceous basalt tors, vent site, top of Quaternary volcano (unit Qb) (photograph by Melanie Werdon, 6/25/2006).



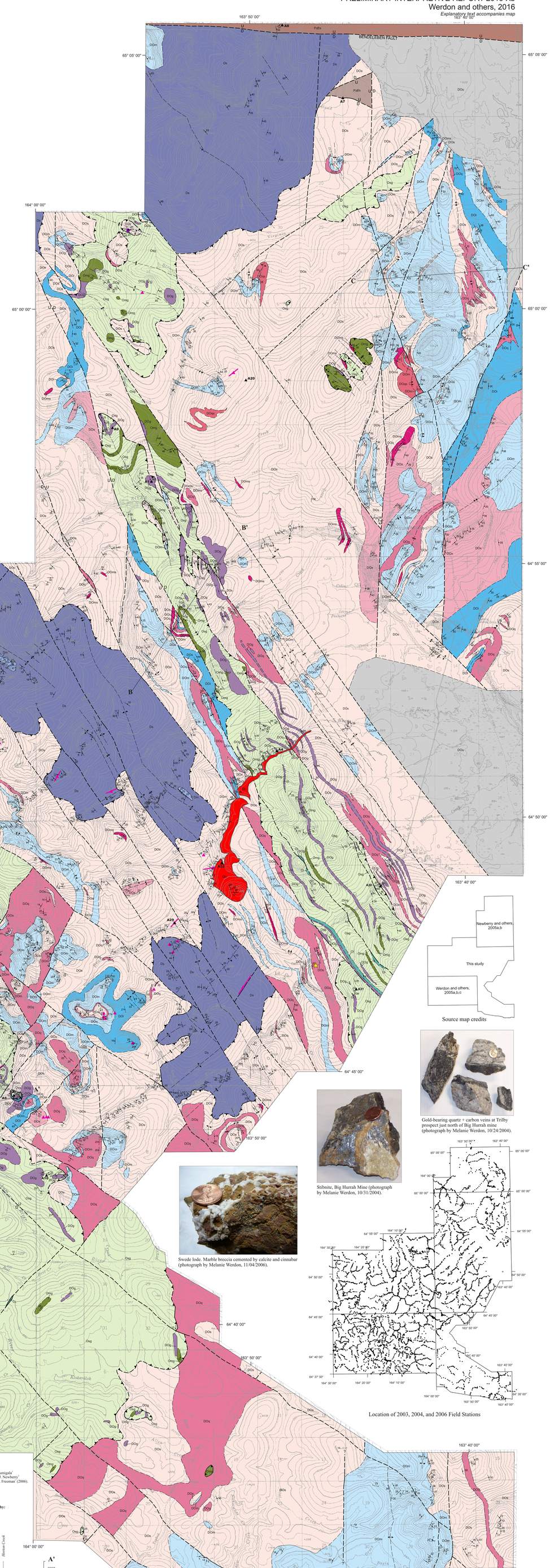
Isoclinally folded, structurally thickened, Mixed Unit marble (unit DOm) (photograph by Melanie Werdon, 2004).

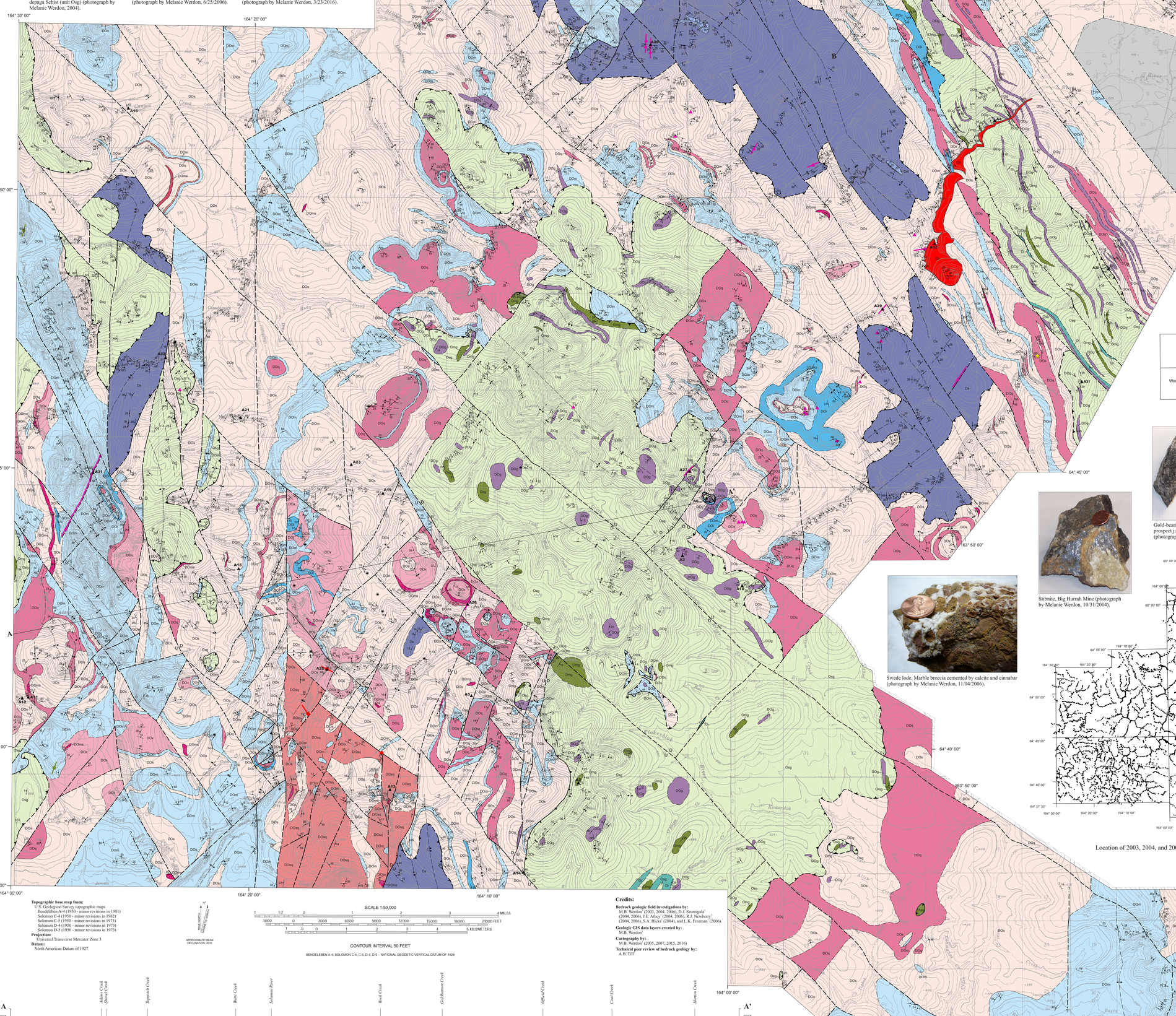
Garnet-glaucophane granofels (unit Og) (photograph by Melanie Werdon, 3/23/2016).

David Szumigala investigating Casadepaga Schist (unit Osg) (photograph by Melanie Werdon, 2004).

Late Cretaceous gabbro dike (unit LKg) (photograph by Melanie Werdon, 6/25/2006).

Early Cretaceous syenite(?) dike (unit EKs) (photograph by Melanie Werdon, 3/23/2016).





Source map credits

Gold-bearing quartz + carbon veins at Trilby prospect just north of Big Hurrah mine (photograph by Melanie Werdon, 10/24/2004).

Stibnite, Big Hurrah Mine (photograph by Melanie Werdon, 10/31/2004).

Swede lode. Marble breccia cemented by calcite and cinnabar (photograph by Melanie Werdon, 11/04/2006).

Location of 2003, 2004, and 2006 Field Stations

Topographic base map from:
U.S. Geological Survey topographic maps
Bendeleben A-4 (1950 - minor revisions in 1981)
Solomon C-4 (1950 - minor revisions in 1982)
Solomon C-5 (1950 - minor revisions in 1973)
Solomon D-4 (1950 - minor revisions in 1973)
Solomon D-5 (1950 - minor revisions in 1973)

Projection:
Universal Transverse Mercator Zone 3

Datum:
North American Datum of 1927

TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 2016

SCALE 1:50,000

CONTOUR INTERVAL 50 FEET

BENDELEBEN A-4; SOLOMON C-4, C-5, D-4, D-5 – NATIONAL GEODETIC VERTICAL DATUM OF 1929

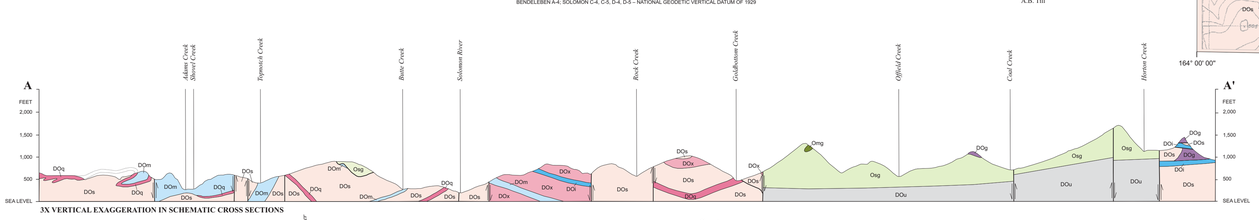
Credits:

Bedrock geologic field investigations by:
M.B. Werdon[1] (2003, 2004, 2006), D.J. Szumigala[1] (2004, 2006), J.E. Athey[1] (2004, 2006), R.J. Newberry[2] (2004, 2006), S.A. Hicks[1] (2004), and L.K. Freeman[1] (2006).

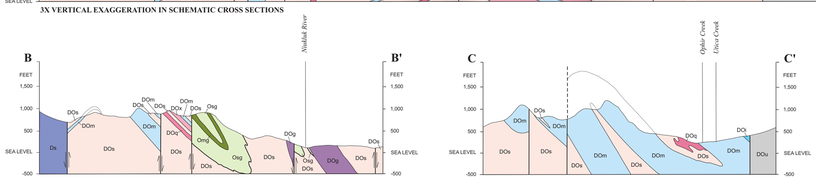
Geologic GIS data layers created by:
M.B. Werdon[1]

Cartography by:
M.B. Werdon[1] (2005, 2007, 2015, 2016)

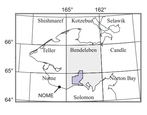
Technical peer review of bedrock geology by:
A.B. Till[3]



3X VERTICAL EXAGGERATION IN SCHEMATIC CROSS SECTIONS



MAP LOCATION



Location of Map Area

Solomon and Bendeleben Quadrangles

Big Hurrah Mine stamp mill (photograph by Melanie Werdon, 6/24/2004).

BEDROCK GEOLOGIC MAP OF THE BIG HURRAH - COUNCIL - BLUFF AREA, SOUTHERN SEWARD PENINSULA, ALASKA

by
M.B. Werdon[1], R.J. Newberry[2], J.E. Athey[1], D.J. Szumigala[1], L.K. Freeman[1], L.E. Burns[1], and S.A. Hicks[2]
2016

Affiliation:

1 Alaska Division of Geological & Geophysical Surveys, 3354 College Road, Fairbanks, Alaska, 99709
2 Department of Geoscience, University of Alaska Fairbanks, 900 Yukon Drive, Fairbanks, Alaska 99775
3 United States Geological Survey, 4210 University Drive, Anchorage, Alaska 99508

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STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
3354 College Road | Fairbanks, Alaska 99709-3707
Phone 907-451-5010 | Fax 907-451-5050
Email: dggspubs@alaska.gov | Website: dggs.alaska.gov