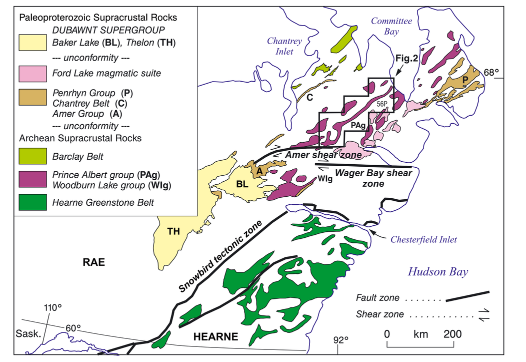


Figure 1: Map showing the location of the study area relative to the main lithotectonic features of the western Churchill Province.

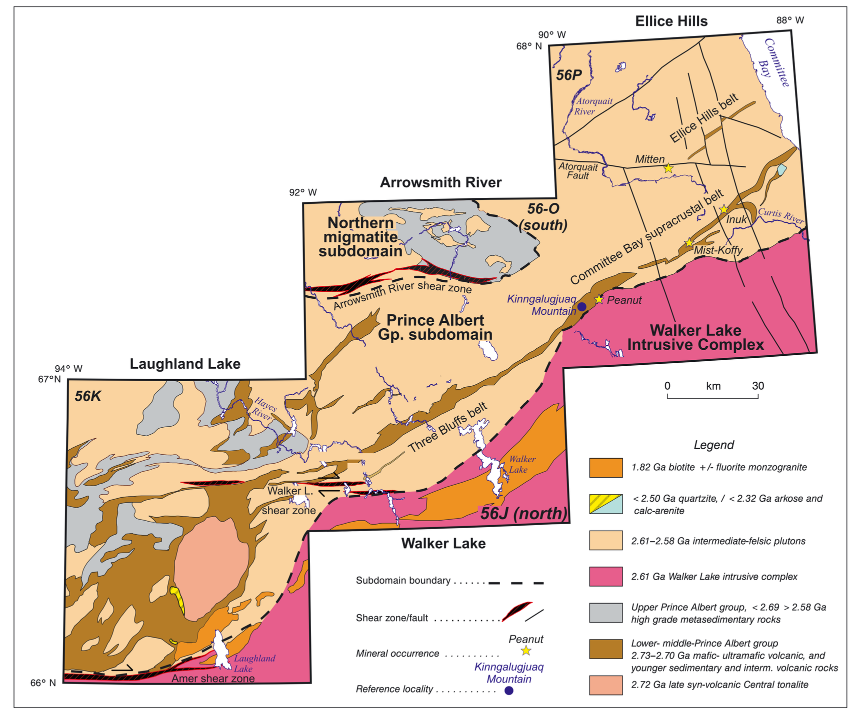


Figure 2. Schematic geological map of the Committee Bay belt showing the distribution of rocks comprising the southern Walker Lake intrusive complex, the central Prince Albert group subdomain and the northern migmatite subdomain.

Figure 3. Bedding-plane view of polygonal jointing in the upper part of akomatiitic basalt flow (unit Ak). Hammer for scale is 22 cm long.UTM 411759, 7500657.

Figure 4. Contact, immediately to the right of the hammer, between orange weathering (o), cumulate and green weathering (g) spinifex zones in a ca. 5 m thick komatiite flow (unit Ak). Hammer for scale is 1 m. UTM 391348, 7490077.

Figure 7. Fine-grained, massive biotite-garnet semipelite from the northeastern end of the Committee Bay supracrustal belt (unit Aps). Mechanical pencil for scale is 15 cm. UTM 448279, 7492621.

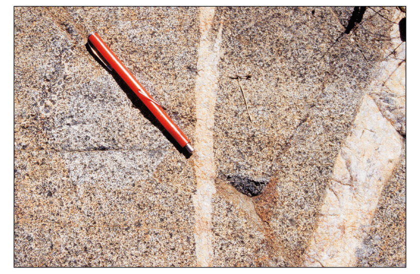


Figure 9. Massive, medium-grained hornblende quartz diorite (unit Adi) cut by veins of medium-coarse grained biotite monzogranite (unit Ag). Pencil magnet for scale is13 cm. UTM 444540, 7508789.

Figure 12. Medium-grained, weakly foliated biotite-microcline phyric to megacrystic granodiorite to monzogranite (unit Akg). Mechanical pencil for scale is 15 cm. UTM 398032, 7504386.

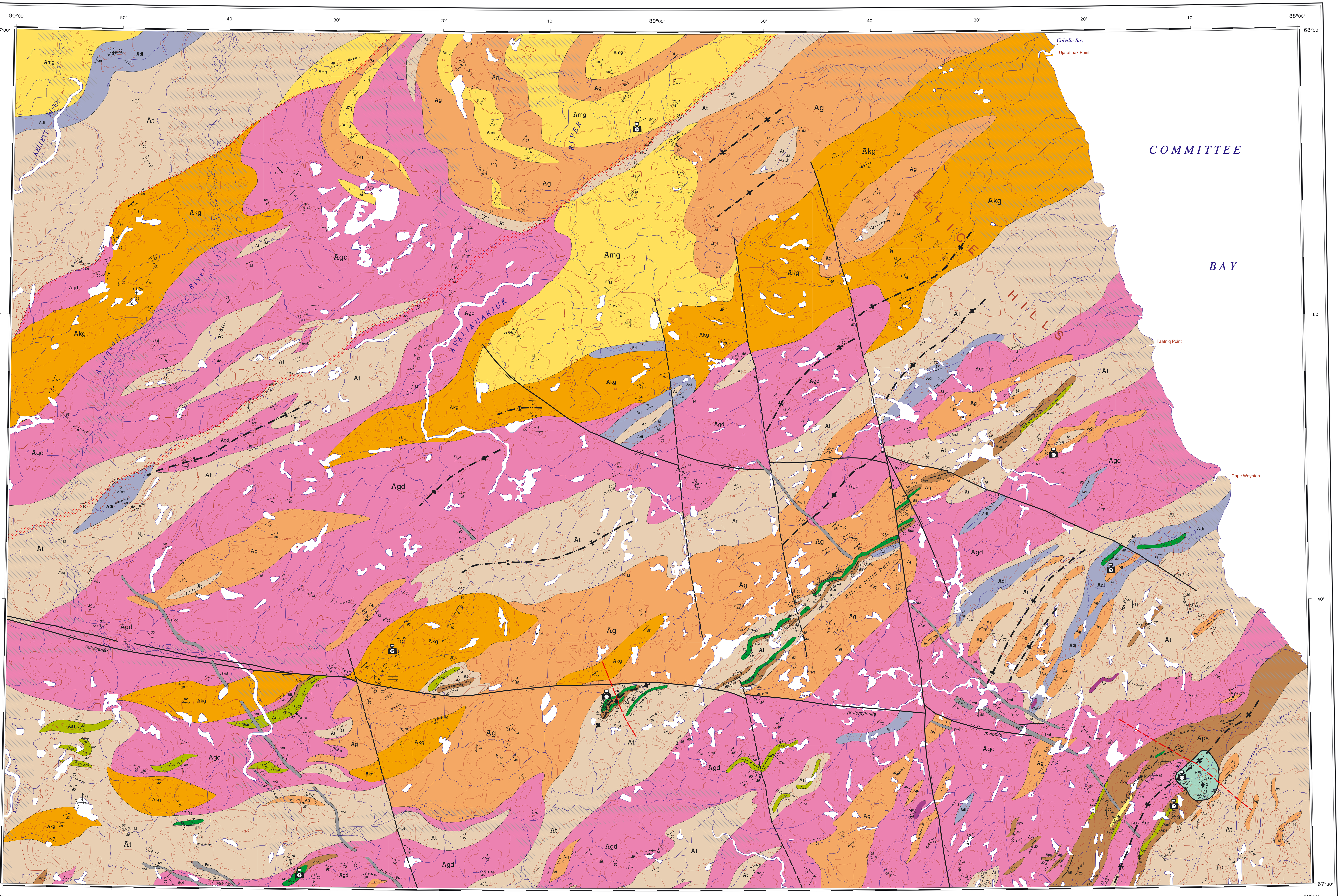
Figure 13. Cut slab photograph of foliated, weakly microcline-phyric, biotite-magnetite monzogranite (unit Ag). UTM 411595, 7528856.

Figure 14. Medium-grained, moderately foliated biotite-muscovite phyric monzogranite (unit Amg) from the northern part of the map sheet. Strike symbol is 5 cm in length. UTM 415044, 7538453.

Figure 17. Sectional view of bedding contact between calc-arenite and arkose, with overprinting foliation in the Paleoproterozoic sedimentary rocks (unit PFL) near the southwest coast of Committee Bay. UTM 448974, 7494664.

Map Number	Sample Number	Rock Type	Easting	Northing	UTM Zone (NAD83)	Maximum age (detrital)	Crystallization age	Source
1	SNB-02-2490B	Psammite (unit Aqz) interbedded with komatiite at the Mitten showing	412340	7500795	16	2687 +/- 10 Ma		T. Skulski et al., (unpublished)
2	SNB-02-2490D	Foliated (S2) muscovite granite sill (unit Amg) that cuts psammite at the Mitten showing	412340	7500795	16		2577 +/- 18 Ma	T. Skulski et al., (unpublished)
3	SNB-02-431	Foliated (S2) metamorphosed Paleoproterozoic subarkose (unit PFL) that overlies crossbedded calc-arenite	450749	7494071	16	2321 +/- 16 Ma		T. Skulski et al., (unpublished)

Table 1: U-Pb geochronology for samples from the Ellice Hills area, Nunavut. Locations are shown on the map with labelled black diamonds.



OPEN FILE 1794

GEOLOGY

ELLICE HILLS

NUNAVUT

Scale 1:100 000/Échelle 1/100 000

Universal Transverse Mercator Projection
North American Datum 1983
© Her Majesty the Queen in Right of Canada 2004

Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983
© Sa Majesté la Reine du chef du Canada 2004

Geology by H.A.I. Sandeman, T. Skulski, M. Sanborn-Barrie, J. Brown, D. Byrne, C. Carson, C. Deyell, T. MacHattie, D. Panagapko, and M. Young, 2002

Compilation by H.A.I. Sandeman, 2002-2003

Co-ordinated through the auspices of the Committee Bay Targeted Geoscience Initiative Project

Digital data preparation by C. Gilbert, Canada-Nunavut Geoscience Office (C-NGO)

Digital cartography by R.L. Allard, and M.J. Coulthart, Earth Sciences Sector Information Division (ESS Info)

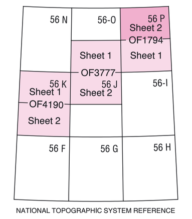
This map was produced from processes that conform to the ESS Info Publishing Services Subdivision Quality Management System, registered to the ISO 9001: 2000 standard

Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Digital base map from data compiled by Geomatics Canada, modified by ESS Info

Proximity to the North Magnetic Pole causes the magnetic compass to be erratic in this area
Mean magnetic declination 2004, 20°57'W, decreasing 20.8' annually. Readings vary from 18°23'W in the SW corner to 23°29'W in the NE corner of the map

Elevations in metres above mean sea level. Contour interval of 40 metres



LEGEND

This legend is common to sheet 1 and sheet 2 of Open File 1794.
Coloured legend blocks indicate map units that appear on this map.
Not all map symbols shown in the legend necessarily appear on this map.

QUATERNARY

Quaternary cover; predominantly tills and fluvioglacial sediments.

PROTEROZOIC

PMd — *MacKenzie diabase dykes (ca. 1267 Ma).*

Pgr — *Monzogranite (Hudsonian): fine- to medium-grained, salmon to orange, biotite+magnetite±fluorite monzogranite, massive to locally variably foliated, contains abundant inclusions of older lithologies (Fig. 18).*

PFL — *Arenite: fine- to medium-grained, mm-scale laminated, reddish, interbedded with m-scale bedded and locally crossbedded calc-arenite (Fig. 17). Possibly correlative with the Folster Lake Group exposed on Melville Peninsula.*

ARCHEAN

Ag — *Monzogranite: fine- to medium-grained, white to pink, variably foliated and lineated, biotite±magnetite, monzogranite (Fig. 13).*

Amg — *Monzogranite to syenogranite: medium-grained, white to buff, variably foliated and lineated, biotite+muscovite, locally potassium feldspar porphyritic, monzogranite to syenogranite (Fig. 14).*

Akg — *Granodiorite to monzogranite: medium- to coarse-grained, variably foliated and lineated, biotite±magnetite, potassium feldspar megacrystic granodiorite to monzogranite (Fig. 12).*

AWL — *Granodiorite to monzogranite of the Walker Lake intrusive complex (ca. 2610 Ma): foliated, reddened biotite+magnetite±hornblende granodiorite to monzogranite, commonly potassium feldspar megacrystic to augen (Fig. 15), contains inclusions of supracrustal rocks and older granitoids, crosscut by Hudsonian monzogranite (unit Pgr).*

Agd — *Granodiorite: medium-grained, grey to pink, variably foliated and lineated, biotite±hornblende±magnetite, weakly potassium feldspar porphyritic granodiorite to monzogranite (Fig. 11).*

At — *Tonalite: medium-grained, grey to pink, locally gneissic but typically variably foliated and lineated, biotite±hornblende±magnetite tonalite (Fig. 10).*

Adi — *Diorite±gabbro: typically medium- to coarse-grained, variably foliated and lineated, hornblende±magnetite diorite and rare gabbro (Fig. 9).*

Apr — *Peridotite: variably serpentinized, medium- to coarse-grained, orthopyroxene porphyritic to oikocrystic peridotite sills (Fig. 8) that may be comagmatic with komatiite (unit Ak).*

Agn — *Tonalite to granodiorite: heterogeneous, fine- to medium-grained, strongly foliated and gneissic, biotite±hornblende±magnetite tonalite to granodiorite (Fig. 16) with abundant schlieren and inclusions of amphibolite, diorite and psammite.*

PRINCE ALBERT GROUP (PAg)

Aps — *Undivided PAg: includes abundant semipelite (Fig. 7) and psammite and minor pelite. Rare intermediate volcanic rocks occur southwest of Kinngalugjuaq Mountain.*

Aqz — *Quartz arenite: millimetre to decimetre scale bedded units, locally crossbedded and fuchsitic and commonly having cm-scale faserkiesel (relict sillimanite porphyroblasts: Fig. 6).*

Aif — *Iron-formation: undivided silicate, oxide and less common sulphide facies (Fig. 5).*

Ak — *Komatiite and undivided ultramafic schists: komatiite typically exhibits dark green and orange-brown layers corresponding to spinifex and cumulate layers, respectively (Fig. 4). Basaltic komatiites are locally present (Fig. 3).*

Aas — *Amphibolite and locally ultramafic schist interpreted to be derived from mafic volcanic rocks; primary pillow-forms are only rarely recognized.*

Lithological contact (approximate)
Fault (normal)
Fault (strike-slip), dextral, sinistral, inferred
Axial trace of second generation antiform (F_2)
Axial trace of second generation synform (F_2)
Axial trace of second generation synform (F_2) (overturned)
Axial trace of third generation fold (F_3) (inferred)
Bedding, with tops, overturned
Lava flow, (top, overturned)
First foliation (unknown, S_1) or sole foliation where only one planar fabric observed
Second foliation S_2 ± gneissosity (rare)
Third foliation S_3
Lineation (2nd generation, 3nd generation)
Lineation/Mineral (unknown, 1st generation, 2nd generation)
Lineation/Stretching (1st generation, 2nd generation)
M fold hinge (1st generation, 2nd generation, 3rd generation)
S fold hinge (2nd generation, 3rd generation)
Z fold hinge (1st generation, 2nd generation, 3rd generation)
Shear zone defined, strike-slip
Location of field photograph with corresponding Figure number
Geochronology sample location with corresponding number

OPEN FILE
DOSSIER PUBLIC
1794
GEOLOGICAL SURVEY OF CANADA
COMMISSION GÉOLOGIQUE DU CANADA
2004
SHEET 2 OF 2
FEUILLET 2 DE 2

Open files are products that have not gone through the GSC formal publication process.

Les dossiers publics sont des produits qui n'ont pas été soumis au processus officiel de publication de la CGC.

Sheet 2 of 2, Geology

Recommended citation:
Sandeman, H.A.I., Skulski, T., and Sanborn-Barrie, M.
2004: Geology, Ellice Hills, Nunavut; Geological Survey of Canada, Open File 1794, scale 1:100 000.