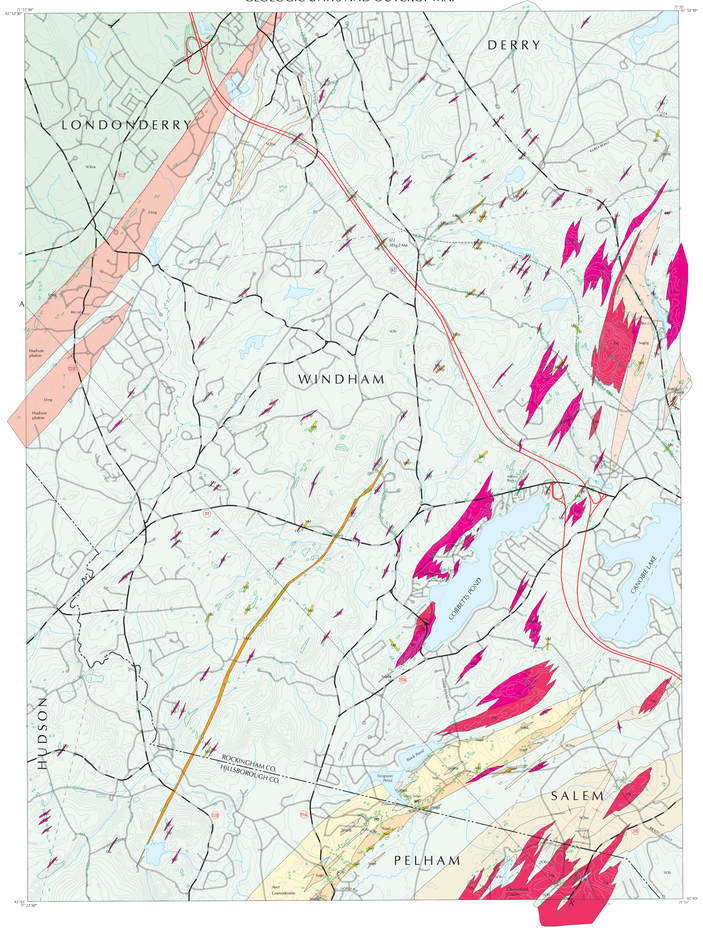
U.S. Department of the Interior
U.S. Geological Survey

Prepared in cooperation with the
New Hampshire Department of Environmental Services, Water Division

OPEN-FILE REPORT 99-8-A, v. 1.0
Plate 1 of 1
Explanatory pamphlet accompanies map

GEOLOGIC UNITS AND OUTCROP MAP



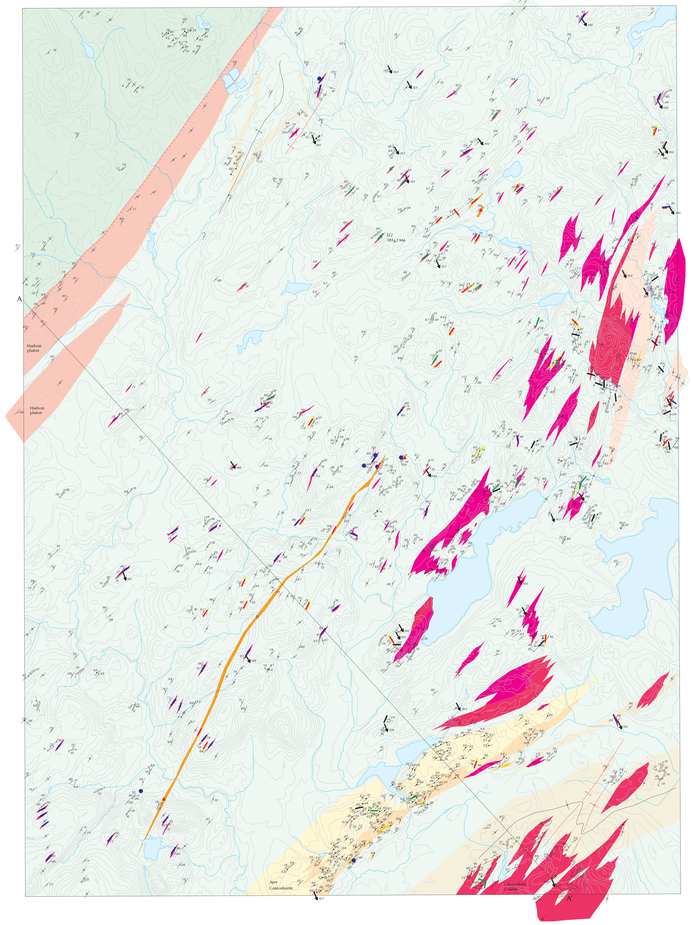
Topography from the Windham, NH 7.5' quadrangle (1953 edition)
Contour Interval: 20 feet
Projection: Universal Transverse Mercator Projection System
Universal Grid (Zone 19) / Horizontal Datum of 1983
Roads, hydrography, and political boundaries from the NH GRANIT system, State of New Hampshire

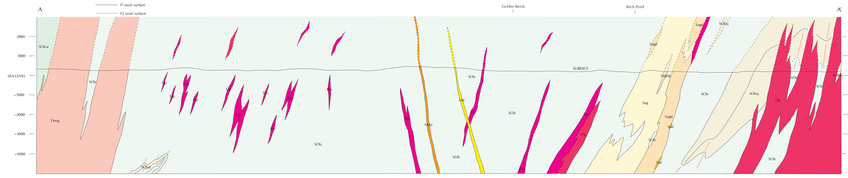
Geology mapped by Walsh and Clark in 1998,
Digitized by Walsh, Clark, and James Reddy[1].

SCALE 1:24000

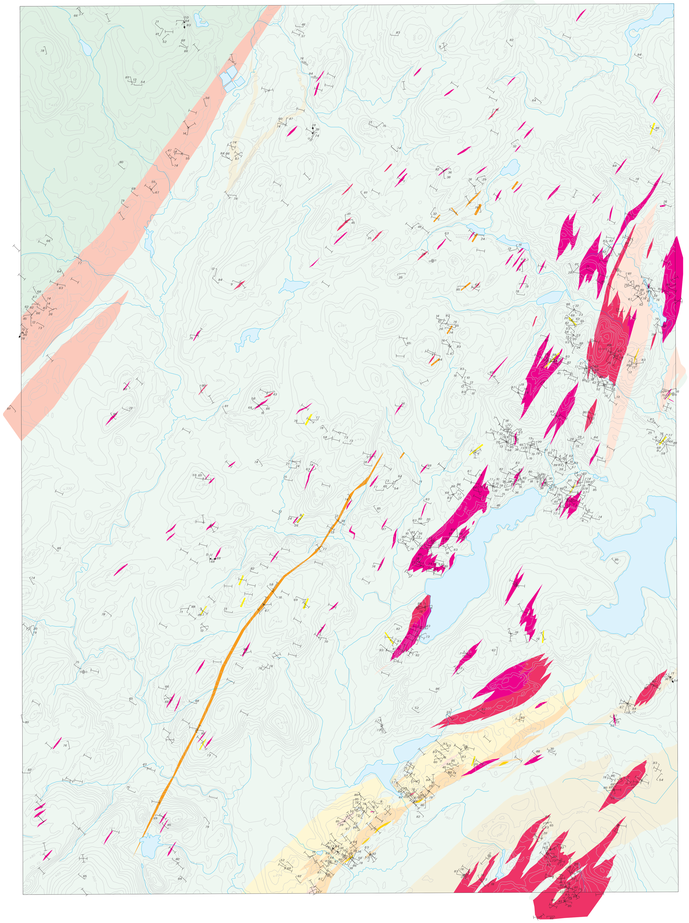
Approximate Mean Declination
16°00' West, 1983

DUCTILE STRUCTURE MAP





BRITTLE STRUCTURE MAP



INDEX TO GEOLOGIC MAPPING

LOCATION OF MAP

Bedrock Geologic Map of the Windham Quadrangle Rockingham and Hillsborough Counties, New Hampshire

by
Gregory J. Walsh[1] and Stewart F. Clark, Jr.[1]

1999

Correlation of Map Units

INTRUSIVE ROCKS — METASEDIMENTARY ROCKS

Post-Metamorphic Intrusive Rocks

Mesozoic — White Mountain Plutonic-Volcanic Suite

Syn- to Post-Metamorphic Intrusive Rocks

Devonian — New Hampshire Plutonic Suite

Silurian — Ayer Granodiorite

Metasedimentary Rocks of the Merrimack Trough

Ordovician — Berwick Formation

Simplified Description of Map Units

Minerals listed in order of increasing abundance
(see accompanying text for complete description)

POST-METAMORPHIC INTRUSIVE ROCKS

White Mountain Plutonic-Volcanic Suite
Md — Diabase and lamprophyre dikes (Mesozoic)
Mdp — Porphyritic diabase dikes with plagioclase phenocrysts (Mesozoic)

SYN- TO POST-METAMORPHIC INTRUSIVE ROCKS

New Hampshire Plutonic Suite (includes Dechenford Granite and Hudson pluton)
Dp — Pegmatite (Devonian)
Dg — Biotite granite and granitic pegmatite (Devonian)
Dmg — Muscovite granite (Devonian)

Rocks of the Ayer Granodiorite (Silurian)
Sag — Porphyritic granite to granodiorite
Sagd — Granodiorite
Sagdg — Garnetiferous granodiorite
Sad — Diorite

METASEDIMENTARY ROCKS OF THE MERRIMACK TROUGH

Berwick Formation (Ordovician and Silurian)
SOs — Biotite-plagioclase-quartz granofels and schist, and calc-silicate rocks
SOsw — Well-banded biotite-plagioclase-quartz granofels and schist, and calc-silicate rocks
SOsq — Quartzite, biotite-plagioclase-quartz granofels, and calc-silicate rocks

Explanation of Map Symbols

Contacts, dotted where concealed

Outcrops (areas of exposed bedrock examined in this study)

Garnet-isograd, hatchures in the garnet zone

F1 antiform

F1 synform

F2 anticline

F2 syncline

Location and age of biotite granite dike at station 122 from Table 1 of Lyons and others (1997)

Minor Folds
Strike and dip of refolded Fn-1 (F1) axial surface
- Inclined
- Vertical

Strike and dip of Fn (F2 or undetermined age) axial surface
- Inclined
- Vertical

Strike and dip of Fn + 1 (F2) axial surface
- Inclined
- Vertical

Strike and dip of Fn + 2 (F3) axial surface
- Inclined

Planar Features
Strike and dip of bedding
- Inclined
- Vertical
- Inclined showing tops
- Vertical showing tops (ball on top side)
- Inclined, overturned

Strike and dip of layer-parallel schistosity (S1)
- Inclined
- Vertical
- Inclined, deformed

Strike and dip of dominant schistosity of undetermined age
- Inclined
- Vertical
- Inclined, deformed

Strike and dip of Sn + 1 (S2) penetrative cleavage, schistosity, or gneissosity
- Inclined
- Vertical

Strike and dip of kink bands, younger than S2 but older than S3
- Inclined
- Vertical

Strike and dip of Sn + 2 (S3) crenulation cleavage
- Inclined

Strike and dip of dikes
- Generalized strike but no dip, Sagdg
- Inclined, Dp
- Vertical, Dp
- Location of dike, but no strike or dip, Dp
- Inclined, Dg
- Vertical, Dg
- Location of dike, but no strike or dip, Dg
- Inclined, Md or Mdp
- Vertical, Md or Mdp
- Location of dike, but no strike or dip, Md or Mdp
- Generalized strike of vein

Strike and dip of brittle fault; U → up and D → down
(shown on Brittle Structure Map)
- Inclined

Strike and dip of fracture zone (shown on Brittle Structure Map)
- Inclined
- Vertical

Strike and dip of joint (shown on Brittle Structure Map)
- Inclined
- Vertical

Linear Features
Trend and plunge of fold axes and lineations
- Refolded F1 fold axis
- Fn fold axis
- Fn + 1 fold axis
- Fn + 2 fold axis
- Intersection between layering and Sn
- Intersection between Sn and Sn + 1
- Slickensides on brittle fault (shown on Brittle Structure Map)
- Trend of glacial striations or grooves (shown on Ductile Structure Map)

Other Features (shown on Ductile Structure Map)
- Quarry or prospect
- Spring

This plate was compiled from the digital bedrock geologic information for the Windham quadrangle located in Rockingham and Hillsborough Counties, New Hampshire. The database was digitally compiled in ARC/INFO version 7.0.4. The topography was obtained from a photographic negative separate of contour lines from the Windham (1953 edition) U.S.G.S. 7.5 minute topographic quadrangle. The negative was scanned on an Acuatech Eagle scanner. The raster image was vectorized using GTX OSR Contour version 2.00 by GTX Corporation, Inc., and converted into an unattributed line coverage in ARC/INFO.

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards (or with the North American Stratigraphic Code). Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

This plate and the accompanying text are part A and the database is part B of this Open-File Report; both parts are available from: U.S. Geological Survey, Information Services

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