

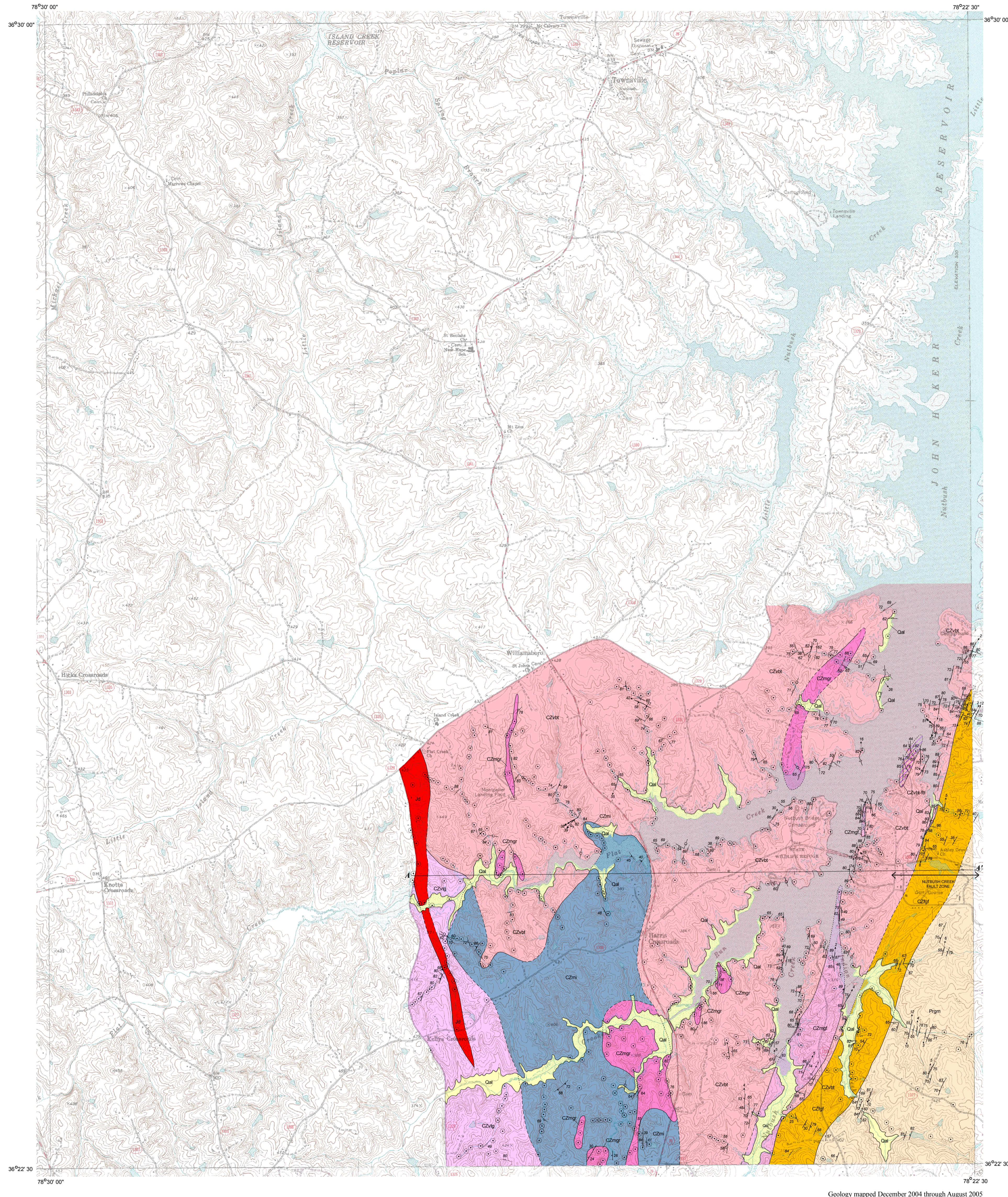


GEOLOGIC MAP OF THE SOUTHEAST PORTION OF THE TOWNVILLE 7.5-MINUTE QUADRANGLE, VANCE COUNTY, NORTH CAROLINA

By David E. Blake

Digital representation by Michael A. Medina and Philip J. Bradley

2005



DESCRIPTION OF MAP UNITS

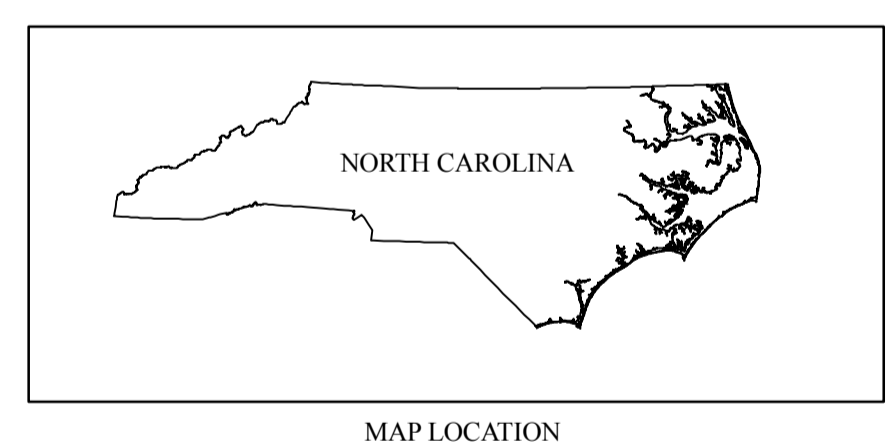
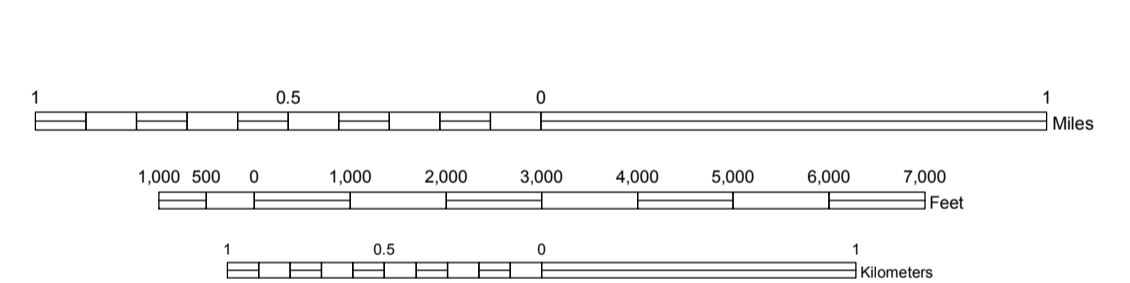
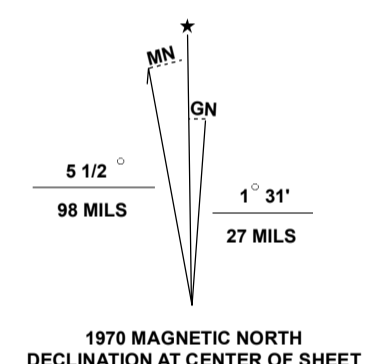
- SURFICIAL UNIT**
- Qal** - Quaternary alluvium: Unconsolidated, poorly-sorted and poorly stratified, tan to light gray deposits of gravel, sand, silt, and clay. Similar to stratified terraces along streams.
- INTRUSIVE ROCKS**
- Jd** - Diabase dikes: Steeply dipping to vertical dikes of gray to bluish-black, fine- to medium-grained, locally porphyritic plagioclase diabase, that may be olivine-bearing. Solid lines where observed, dotted lines where inferred from correlation and aeromagnetic data.
- METAMORPHIC ROCKS**
- Prgm** - Rolesville granite: Foliated, mylonitic, locally weakly banded or streaky.
- Raleigh Terrane**
- CZlgf** - Foliated felsic gneiss: Dark to light pink-red-orange, fine- to coarse-grained leucocratic (CI less than 2) felsic mylonitic to ultramylonitic gneiss. Variably foliated and lineated, and locally contains relict red-orange K-feldspar porphyroclasts and pegmatitic K-feldspar and quartz boudins. Outcrops are reminiscent of the Rain Creek Gneiss and Falls Leucogneiss.
- Carolina Terrane**
- CZmgf** - Foliated metagranite/metagranodiorite/metatronjhemite: Local outcrops of variably foliated metamorphosed light gray, pink green, or tan colored, fine-grained granitic, granodioritic, or trondhjemitic dikes. Biotite-free to biotite-bearing outcrops that locally contain magnetic generally have a leucocratic (CI less than 5) color index and a crystalloblastic protomylonitic to ultramylonitic or phyltonitic microstructure depending upon white mica content. Outcrops may be highly fractured, forming resistant hillside and lakeside outcrops, and cobble and boulder fields.
 - CZmg** - Metagranite/metagranodiorite/metatronjhemite: Suite of metamorphosed light gray, pink green, or tan colored, fine-grained granitic, granodioritic, or trondhjemitic dikes that crosscut and contain xenoliths of biotite metatonalite and metagranodiorite of the Vance County pluton. Biotite-free to biotite-bearing outcrops that locally contain magnetic generally have a leucocratic (CI less than 5) color index and a relict plagioclase to crystalloblastic texture/microstructure. Outcrops form resistant hillside and lakeside outcrops and cobble and boulder fields that are highly fractured. Pink-green varieties dominate the outcrop population.
 - CZvtg** - Metatonalite and metagranodiorite of the felsic Vance County pluton: Gray to tan colored on weathered outcrops, and white to pinkish-white on fresh exposures. Commonly forms medium- to coarse-grained boulder outcrops. Granular saproplitic and saprock exposures display a salt-and-pepper appearance. Phenocrysts of biotite plates = mm-scale prismatic hornblende are generally conspicuous, as are rounded to subhedral, saussuritized and sericitized pale green plagioclase and gray to distinctly cobalt blue quartz phenocrysts and green fresh outcrops a blue-green tint. Locally contains foliated and unfoliated enclaves of fine-grained chlorite phyllite, metagabbro, and metatexite. Cut by mm- to meter-scale felsic metatononitic, metagranodiorite, and metatronjhemite dikes.
 - CZvt** - Biotite metatonalite and metagranodiorite of the intermediate Vance County pluton: Dark to intermediate gray-blue, mesocratic (CI greater than 25-50), and coarse-grained metatonalite and minor metagranodiorite. Commonly forms medium- to coarse-grained boulder outcrops. Granular saproplitic and saprock exposures display a dark salt-and-pepper appearance. Biotite phenocrysts = mm-scale prismatic hornblende just rounded to subhedral, saussuritized and sericitized pale green plagioclase and gray to distinctly cobalt blue quartz phenocrysts and green fresh outcrops a blue-green tint. Locally contains foliated and unfoliated enclaves of fine-grained chlorite phyllite, metagabbro, and metatexite. Cut by mm- to meter-scale felsic metatononitic, metagranodiorite, and metatronjhemite dikes.
 - CZvt-ft** - Fault breccia zone: Silicified and highly fractured zone overprinting CZvt.
 - CZmi** - Mixed suite of meta-intrusives: Variably colored and grained sized exposures depending upon the presence of mafic, intermediate, or felsic metaplutonic rocks. Local outcrops of metabasalt and chlorite phyllite are associated with dark green-black, fine- to medium-grained metagabbro cut by blue-gray to green-black, fine- to medium-grained metatexite. Both rock types are cut by dikes and larger bodies of fine- to medium-grained leucocratic metatronjhemite-metagranite having variable K-feldspar and biotite percentage. Mafic and intermediate varieties display saussuritic and sericitic formation, and local chloritization to phyllite.

CONTACTS

- geologic contact
- inferred geologic contact
- concealed geologic contact
- cross section

STRUCTURAL SYMBOLS

- Observation sites are centered on the strike bar or at the intersection point of multiple symbols.
- regional foliation
 - fracture surface
 - regional shear foliation
 - compositional layering
 - slip-surface lineation
 - slip-surface surface
 - enclave foliation
 - vertical fracture surface
 - vertical regional shear foliation
 - vertical compositional layering
 - mineral stretch lineation
 - station location

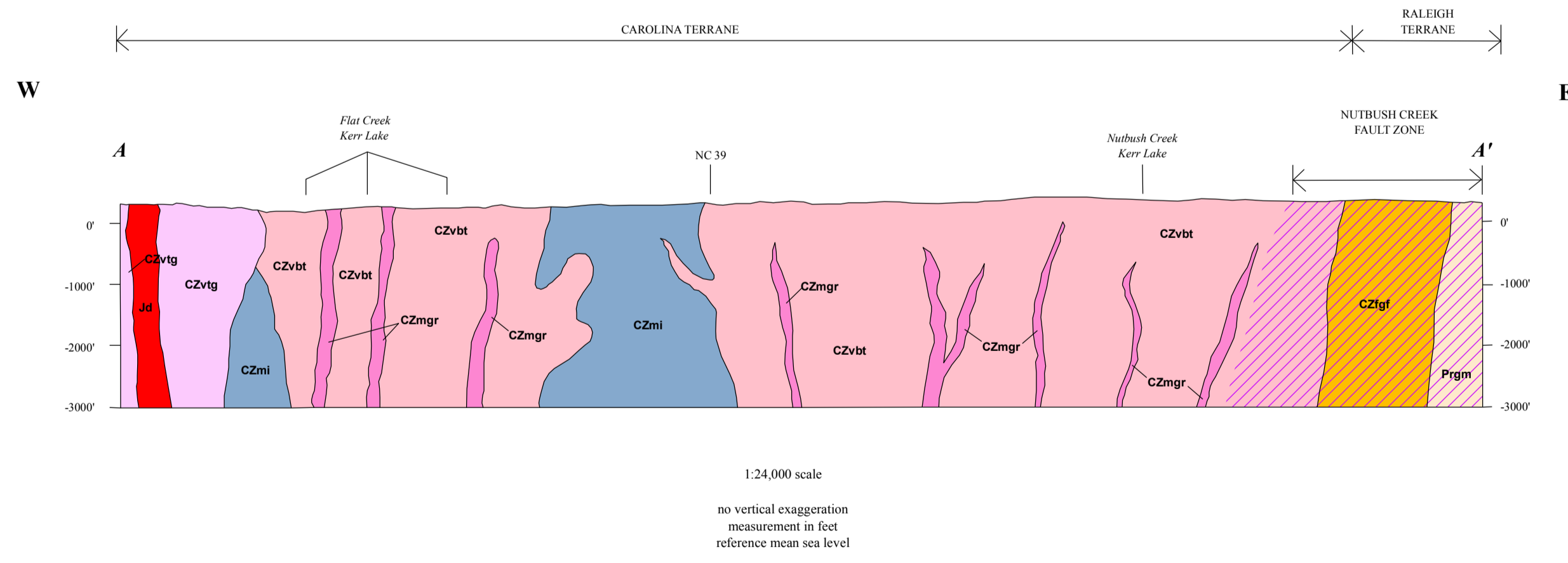


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Scan with smartphone for link to GeoPDF of map. Third party App required.



1:24,000 scale
no vertical exaggeration
measurement in feet
reference mean sea level

Geology mapped December 2004 through August 2005