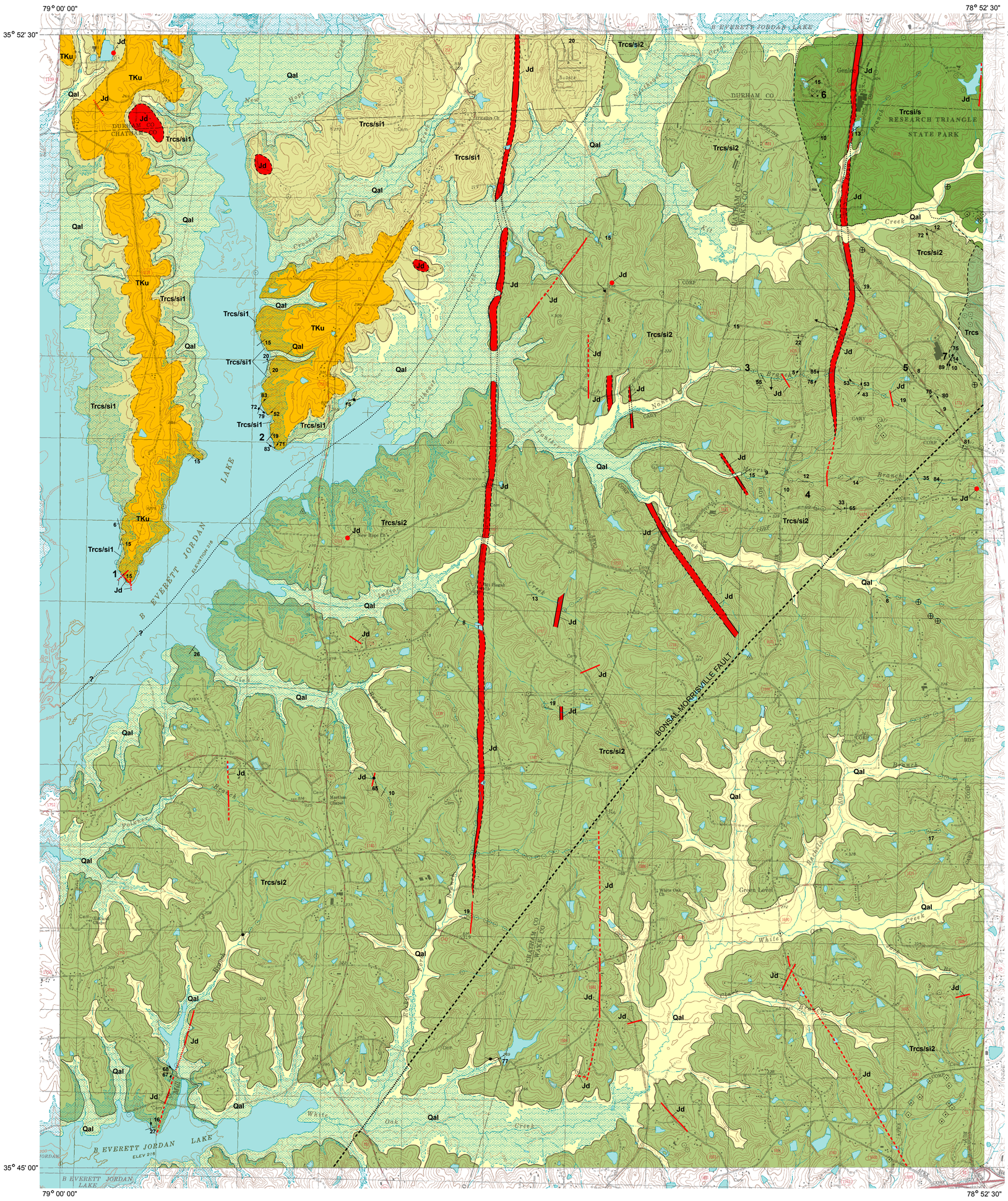
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF LAND RESOURCES

NORTH CAROLINA GEOLOGICAL SURVEY
OPEN FILE REPORT 98-3



EXPLANATION

SEDIMENTARY ROCKS

Qal - alluvium: tan to light-gray, unconsolidated stream deposits of clay, silt, sand, and gravel, subrounded to rounded; poorly to well-sorted, generally poorly stratified; occurs in floodplains along stream valleys; mapped on the basis of topography.

K/Tu - post-Chatham Group undifferentiated sediments: dark, yellowish-orange, or brownish-yellow, to yellow-gray; friable to moderately indurated; granular, pebbly or cobbly, clayey, medium- to very coarse grained subarkoses and sublitharenites and sandy clays; in exposures along shores of B. Everett Jordan Lake, the base of unit is in angular unconformable relationship with the underlying Triassic rocks; above this contact, typically lies a 10-30 centimeter zone of small pebbles and granules; thin, scattered zones of quartz and/or lithic pebbles or cobbles, locally imbricated, are widespread; 5-10 centimeter cosets of grade, or cross-stratified strata are common; feldspar grains are generally bright white and altered to kaolin. Distinctive constituents of the unit include common to abundant rose quartz, very fine grained heavy minerals (euhedral garnets, and ilmenite), pebbles to cobbles of white, foliated, kaolinitic, siliceous metamorphic rocks and petrified wood. On drainage divides, irregular, linear or patchy, isolated outliers of tan to reddish-orange, very fine to very coarse grained, subrounded to rounded, quartz sandy soil or clayey, quartz sandy soil occurs ranging in thicknesses from less than one meter up to greater than three meters; subrounded to rounded quartz pebbles ranging from 0.5 to 6 cm are common, found either as surface float or above a nonconformable base of the sandy soil. In places the sediment rests on older rocks in indistinct contact; rose quartz pebbles and very fine grained heavy minerals are common to abundant; the provisional limits of these undifferentiated sediments are indefinite. Road cuts or other excavations have revealed a few outcrops of this unit; the deposit may be found to be more or less extensive than shown.

INTRUSIVE ROCKS

Jd - diabase: dikes, predominately vertical, greenish-black, fine- to medium-grained; composed mainly of plagioclase, pyroxene, and olivine; mapped on the basis of field observation, aeromagnetic survey, and topographic expression.

CRYSTALLINE ROCKS

Trcs - sandstone: reddish-brown to dusky red, irregularly bedded to massive, poorly to moderately sorted, muddy, fine- to medium-grained, lithic arkoses with martix supported granules and pebbles; light-green, circular to elliptical reduction spots 1-2 centimeters in diameter are notable; beds are tabular, 1-2 meters in thickness, with good lateral continuity.

Trcsi/s - siltstone with interbedded sandstone: reddish-brown, extensively bioturbated, micaceous siltstone, locally calcareous, with thin, discontinuous stringers of limestone and chert; zones of calcareous concretions and nodules; interbedded sandstone is typically fine- to medium-grained, micaceous, feldspathic, occurring in beds less than one meter thick; in the Triangle Brick quarry exposure, the unit contains fossiliferous shale and micrite.

Trcs/si2 - sandstone with interbedded siltstone: cyclical depositional sequences composed of grayish-pink to pale-red, micaceous, coarse- to very coarse grained, pebbly, crossbedded lithic arkose that fines upward through medium and fine-grained sandstone to reddish-brown, bioturbated siltstone and mudstone; locally, mudstone contains pedogenic carbonate concretions, accreted nodular layers and root casts; sequences are typically two- to five-meters thick.

Trcs/si1 - sandstone with interbedded siltstone; pinkish-gray to light gray, fine- to medium-grained, micaceous arkoses and lithic arkoses, typically trough cross-bedded sequences of approximately one meter containing 20- to 30- cm-thick cosets; fine-grained biotite and very fine grained heavy minerals are distinctive accessories; unit includes interbedded reddish-brown bioturbated mudstone and pale-red, muddy, fine-grained sandstones; locally (along the shores of B. Everett Jordan Lake) one-meter-thick sequences of cross-bedded sandstones fine upward into ripple cross-laminated siltstone.

Quaternary: Qal
Cretaceous (?) to Tertiary (?): KTu
Early Jurassic: Jd
Late Triassic: Trcs, Trcsi/s, Trcs/si2, Trcs/si1

SYMBOLS

- geologic contact, well located
- geologic contact, approximately located - for sedimentary units, also represents gradational and intertonguing relationships
- geologic contact, concealed
- fault, strike and dip: bar and ball on down thrown side; observable in outcrop but fault cannot be traced
- ? query indicates uncertainty about placement of contact
- 17 inclined beds, strike and dip
- inclined beds (approximate strike and dip)
- 6 inclined joint, strike and dip
- vertical joint
- outcrop, observation point
- outcrop, K/Tu observation point
- horizontal beds
- 35/43/27 multiple joints
- split spoon borings
- clay pit, active
- Jd diabase outcrop, no trend determined
- fluvial transport direction
- 3 outcrop locality referred to in text

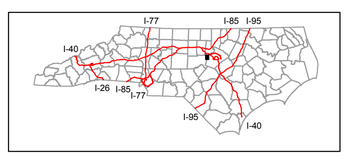
0.5 0 0.5 1 1.5 Miles
2000 0 2000 4000 6000 Feet
500 0 500 1000 1500 Meters

1:24,000 SCALE
CONTOUR INTERVAL 10 FEET

Base topographic map is digital raster graphic image of the Green Level 7.5-minute quadrangle (1993), Lambert Conformal Conic projection, North Carolina State Plane NAD 83 meters coordinate system.

N W E S

LOCATION OF THE GREEN LEVEL 7.5-MINUTE QUADRANGLE, NORTH CAROLINA



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

GEOLOGIC MAP OF THE GREEN LEVEL 7.5-MINUTE QUADRANGLE, CHATHAM, WAKE, AND DURHAM COUNTIES, NORTH CAROLINA

BY MARY E. WATSON

Digital representation by Michael A. Medina

2001