

by
T. Scott, PG.# 99

The geologic map of Volusia County, Florida was developed as a generalized base map to be utilized in predicting radon potential hazards. Funding for this effort was provided by the U.S. Environmental Protection Agency (EPA) and the Florida Department of Community Affairs. The geology of the county was mapped utilizing well cuttings, cores, natural and man-made exposures and topographic maps. Geologic units identified include formal lithostratigraphic units and informal units. Both types of units were included in order to provide a more accurate picture of the geology despite an often sparse data base. As a general rule, if the undifferentiated sediments were less than 20 feet thick, the underlying recognizable formation was mapped.

The oldest stratigraphic unit mapped in Volusia County is the late Tertiary-Late Pliocene Cypresshead Formation (Tc) (Scott, 1988). The Cypresshead Formation consists of quartz sands ranging from fine to very coarse, moderately to well sorted with common occurrences of quartz gravel. Clay is commonly present in very minor amounts and is generally kaolinitic. Mica often occurs in minor percentages, particularly in the finer grained sediments. Colors range from reddish-orange in exposed sections to olive gray in the subsurface. Huddleston (1988) suggests that the Cypresshead Formation grades laterally down dip into the Nashua Formation, a variably shelly, clayey sand. It is mapped in the western part of the county, on the Deland Ridge, and unconformably overlies the Hawthorn overlie the Cypresshead Formation in small areas of Group. Dune sands of latest Tertiary or Quaternary age (TQd) are mapped in small areas of western Volusia County. The Cypresshead was deposited in a shallow, nearshore, marine setting.

Undifferentiated Quaternary sediments (Qu) are mapped in limited portions of western Volusia County. This unit is composed of sands, clayey sands and clays occasionally containing limited numbers of mollusk shells. Surficial conditions are often swampy and there are accumulations of organic matter. These sediments were deposited under marine conditions although some fluvial reworking has occurred and Qu may contain reworked Cypresshead Formation. This unit lies unconformably(?) on the Nashua Formation or undifferentiated Pleistocene sediments. Qbd and Qr units may overlie Qu in areas where those units are recognized.

Undifferentiated Quaternary "lagoon" sediments (Qul) are mapped in southern-central Volusia County. These sediments are similar to the Qu sediments and appear to have been deposited in lagoons landward of the coastal barrier islands.

Beach ridges and dunes (Qbd) were deposited over much of the eastern half of Volusia County. The quartz sands comprising this unit are generally fine to medium grained, moderately to well sorted and unfossiliferous. The sands may contain heavy minerals. Deposits of organic material may form in the swales between dunes and beach ridges. This unit may lie unconformably(?) on undifferentiated Quaternary sediments or Nashua Formation. The surface expression of this unit controls the drainage pattern and streams follow the swales, coast parallel until encountering a larger stream perpendicularly crossing the ridges.

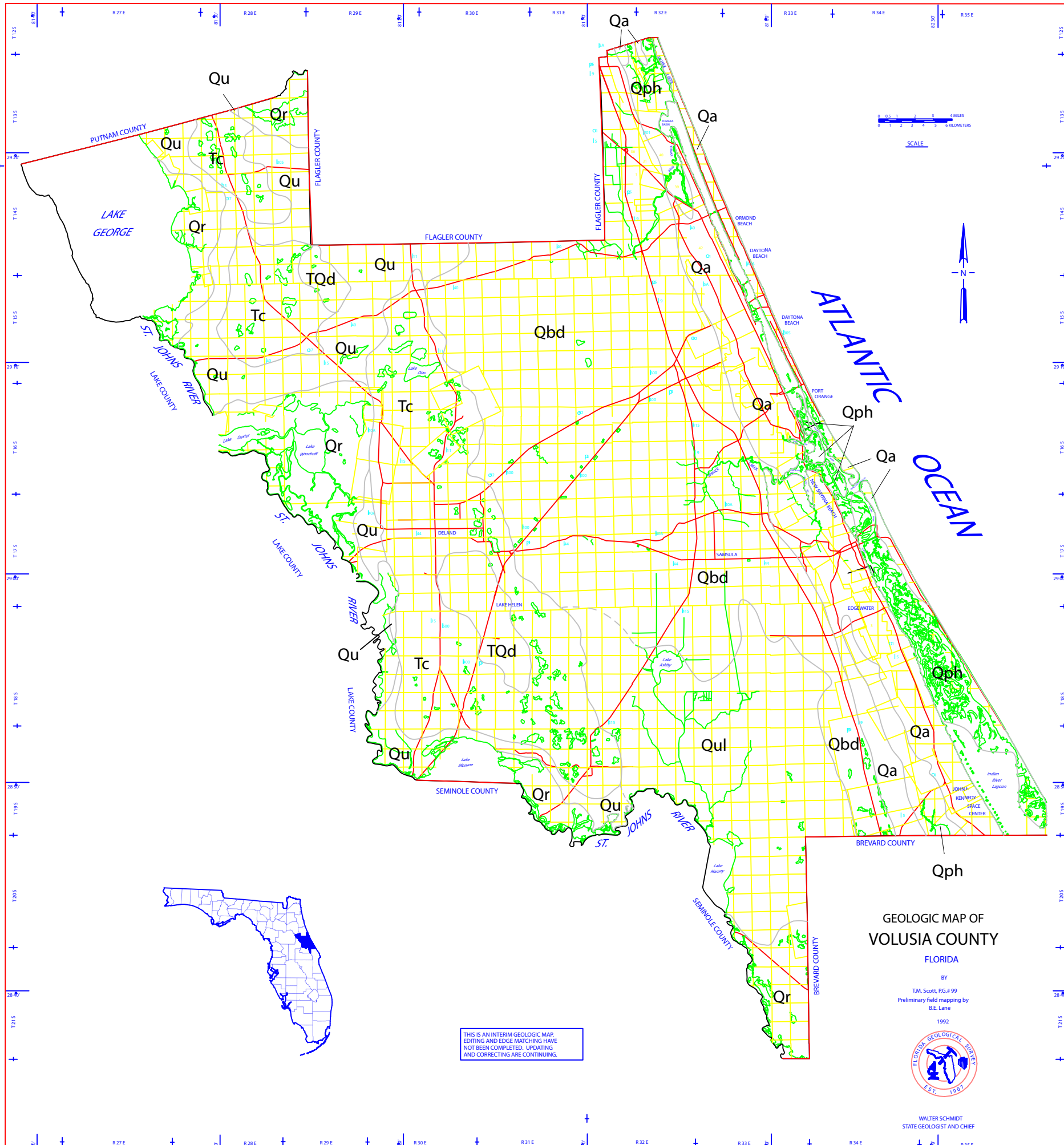
Along the present day coast the associated lagoons and coastal rivers and streams are sediments referred to as undifferentiated Pleistocene and Holocene coastal deposits (Qph). The sediments are composed of sands, silts and clays that sometimes contain varying percentages of organic matter. The sands may contain heavy minerals. The sands are poorly to well sorted depending on the depositional environment and may contain varying amounts of fossils. The depositional environments include beach, marsh and lagoonal sediments which lie unconformably(?) on older, undifferentiated Quaternary sediments or Nashua Formation. Some occurrences of the Anastasia Formation may be included in this unit due to the available data base.

The Anastasia Formation (Qa) occurs along the coast, on the barrier island, and the Atlantic Coastal Ridge, on the mainland. This unit consists of variably lithified coquina and mixtures of sand and shell. It is well exposed along the Intracoastal Waterway near Ormond Beach and in pits along the Atlantic Coastal Ridge.

Lowlands surrounding the St. Johns River and some of its tributaries in Volusia County are mapped as Holocene fluvial sediments (alluvium) (Qr). This unit is composed of quartz sands, silt, clay and "mud" (poorly consolidated, variably sandy, clayey, shelly carbonate sediments). Peat and other organic-rich sediments are often present. This unit is common below ten feet of elevation.

REFERENCES

Huddleston, P.F., 1988. A revision of the lithostratigraphic units of the Coastal Plain of Georgia: Miocene through Holocene. Georgia Geologic Survey Bulletin 104, 162p.
Scott, T.M., 1988. The Cypresshead Formation in northern peninsular Florida. In: Pickle, F.L., and Reynolds, J.G., (eds.) Southeastern Geological Society Annual Field Trip Guidebook, February 19-25, 1988, pp. 70-72.



THIS IS AN INTERIM GEOLOGIC MAP. EDITING AND EDGE MATCHING HAVE NOT BEEN COMPLETED. UPDATING AND CORRECTING ARE CONTINUING.

GEOLOGIC MAP OF
VOLUSIA COUNTY
FLORIDA

BY
T.M. Scott, PG.# 99
Preliminary field mapping by
B.E. Lane



WALTER SCHMIDT
STATE GEOLOGIST AND CHIEF