

United States
Department of
Agriculture

Soil
Conservation
Service

Northeast NTC
160 East 7th Street
Chester, PA 19013

Subject: SOI - Reports - Trip Report -
Geomorphic Investigation in Delaware
and Maryland, 2-6 November 1987

Date: November 9, 1987

To: Rodney F. Harner
Head, Soil Staff
Midwest NTC
Soil Conservation Service
Lincoln, NE

File code: 430-7

Purpose:

To provide geomorphic assistance for differentiating near-surface Coastal Plain deposits in Delaware and Maryland

Participants:

James Doolittle, Soil Specialist, NENTC, SCS, Chester, PA
Earling Gamble, Soil Scientist, MWNTC, SCS, Lincoln, NE

The following were present part of the time:

Doyle Brown, Soil Scientist, Department of Natural Resources and
Environmental Control, Dover, DE
John Burns, Soil Scientist, Department of Natural Resources and
Environmental Control, Dover, DE
Richard Hall, State Soil Scientist, SCS, Dover, DE
Lyle Jones, Soil Scientist, Department of Natural Resources and
Environmental Control, Dover, DE
Derrick McDowell, Soil Scientist, Department of Natural Resources and
Environmental Control, Georgetown, DE
Carolyn, Olson, Research Geologist, USGS, Reston, VA
Martin Rabenhorst, Ass't Professor, U. of Maryland, College Park, MD
Russell Rebertus, Ass't. Professor, U of Delaware, Newark, DE
Chris Smith, Soil Scientist, SCS, Somerset, NJ
Barry Sullivan, Soil Scientist, Department of Natural Resources and
Environmental Control, Dover, DE
Joanne Wolfe, Soil Scientist, Department of Natural Resources and
Environmental Control, Dover, DE

Activities:

Time was spent observing soils and landscapes in the field in Newcastle and Sussex Counties, Delaware, and in Dorchester County, Maryland. The occurrence and distribution of surficial aeolian deposits of silts in Newcastle County and sands in Sussex and Dorchester Counties were studied and discussed in the field.

Comments:

This report addresses field problems germane to the GPR and is to supplement the report filed by Earling Gamble.

Rapid changes in land use and evolving concepts of soils have resulted in the need to update the soil surveys in the Delmarva Peninsula. Investigations are presently underway in Delaware to meet the needs of

updates. Since 1986, SCS and the University of Delaware have studied the variability and distribution of silty aeolian sediments in northern Delaware. Variability of loess thicknesses within delineated areas of Matapeake soils has been studied and reported by Rebertus, Doolittle, and Hall (in preparation). Further studies have been initiated to examine the composition and variability of soils within areas of Matapeake soils and to trace and document the areal extent and distribution of the silt mantle in northern Delaware. Dr. Carolyn Olson has become an active participant in this study as the USGS is interested in infiltration and surficial sediments in the Delmarva Peninsula.

Time spent in the field in Newcastle County greatly assisted the development of research strategies for the loess study. It is noted that the loess deposits in northern Delaware are discontinuous and variable in thickness. After preliminary probe observations and on the bases of earlier field work, it was decided that an intensive investigation of a small but representative watershed in northern Delaware is needed prior to a more extensive regional survey of the loess distribution in Delaware and Maryland. This study will help clarify the differentiation and classification of Matapeake and Sassafras soils, and characterize the composition of map units and the variability in loess thicknesses and surface textures. A small watershed, in the areas immediately north of the towns of Odessa and Middletown was selected for this study.

In Sussex County, areas of Evesboro loamy sand, loamy substratum, occupy about 165,000 acres (27 percent). The composition of this map unit is quite variable (see my trip report of 22 November 1985). Prior to a soil survey update, Richard Hall would like to have a more intensive survey of areas mapped as Evesboro loamy sand, loamy substratum, to (i) determine if the unit should and can be subdivided into several map units and, if possible, (ii) redefine and rename areas of this map unit based on line transects data.

The GPR works exceptionally well in areas of Evesboro soils and field techniques have been developed to accomplish the required tasks in Delaware. If the state of Delaware requests GPR assistance, the task of recorrelating areas of Evesboro loamy sand, loamy substratum can be accomplished in two to three weeks with the GPR. If requested, this task should be accomplished during a time(s) of the year when fields are free of crops and with the cooperation of the field office to obtain access and owners permission to conduct radar traverses on their land.

JAMES A. DOOLITTLE
Soil Specialist (GPR)

cc: Earling Gamble, Soil Scientist, MWNTC, SCS, Lincoln, NE