DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS INVESTIGATIONS SERIES
MAP I–1074–C (SHEET 2 OF 2)

IN MOUNTING OVERLAP TO LINE

Base from U.S. Geological Survey, 1974

SCALE 1:125 000

2 1 0 2 4 6 8 10 MILES

2 1 0 2 4 6 8 10 KILOMETERS

CONTOUR INTERVAL 50 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

INTERIOR—GEOLOGICAL SURVEY, RESTON, VA—1979—G76050

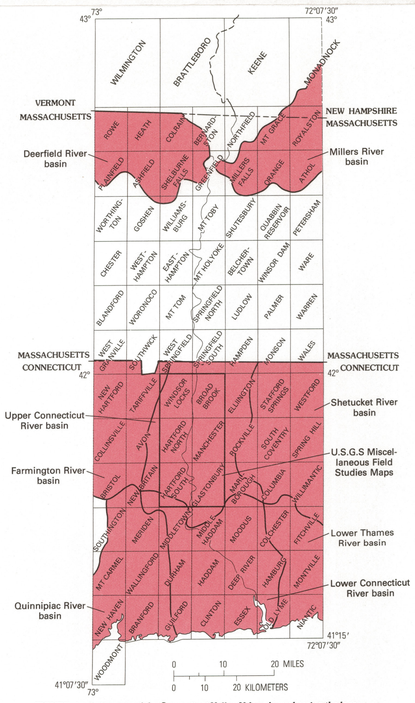


FIGURE 1.—*Index map of the Connecticut Valley Urban Area showing the location and names of topographic quadrangles. Shaded areas in red are referenced in "Sources of data."*

INTRODUCTION

The Connecticut Valley Urban Area covers about 5,000 square miles from New Haven and New London, Conn., on Long Island Sound north to Brattleboro, Vt., and Keene, N. H. Major cities within the project area include New Haven and Hartford, Conn., and Springfield, Mass. Commuter traffic to these urban centers reaches almost all parts of the project area. Interstate routes provide major north-south and east-west transportation corridors. Urbanization and industrial development are likely to continue within this central valley area of New England. If anticipated growth is to be accomplished in an orderly manner and with a minimum of adverse environmental effects, information on the nature and distribution of natural resources will be necessary. The objective of the Connecticut Valley Urban Area Project (CVUAP) is to anticipate this need by providing geologic, hydrologic, and topographic information to aid in planning and resource management. This information is presented in the form of maps, each showing a single resource characteristic or combination of related characteristics of the land surface, earth materials, or water resources at a common scale and in a simplified format. This is one in a series of CVUAP maps.

USE OF CVUAP MAPS

Regional and local planners and other decisionmakers responsible for resource management should find these maps helpful in land-use analysis. Because statutory regulations, technological capabilities, available funding, and local land-use priorities vary from place to place and can be expected to change with time, these maps are designed to provide a resource-data base with maximum flexibility for long-term usefulness. The maps can be used in various combinations, as in a series of overlays, according to the specific needs of a particular planning problem. As planning criteria change, the selection of pertinent resource-characteristic maps can be adjusted to meet the changing needs.

These maps are at a scale of 1:125,000 (1 inch equals about 2 miles). The average line width on these maps would be more than 50 feet wide on the ground, and the smallest area easily distinguished would be more than 40 acres. In addition, the units portrayed on the maps and the method of data collection were designed for 1:125,000-scale presentation. Therefore, CVUAP maps or maps derived from them are not intended to replace onsite investigations, and they should not be enlarged or otherwise manipulated in an attempt to increase map resolution.

PURPOSE OF THIS MAP

This map shows the distribution and thickness of the principal fine-grained deposits. These are large, continuous deposits of fine-grained sediments, deposited in large glacial lakes. They usually occur as discrete alternating layers of clay, silt, and very fine sand (varves), but they may also occur as thick beds of relatively pure clay, silt, or very fine sand. The deposits are commonly coarser near the top of the deposit and become finer with depth.

The principal fine-grained deposits commonly overlie a thin layer of till (hardpan) usually less than 20 feet thick, but in places 100 feet or more thick. Locally, the fine-grained deposits are exposed at the surface, but more often they are covered with sand or gravel ranging from a few feet to more than 50 feet thick. Locally the deposits may overlie or contain lenses of sand or gravel.

LAND-USE PLANNING

The properties of these fine-grained deposits are distinctive, and their effects should be considered in land-use planning. When wet, they may become exceedingly mobile under stress and thus cause problems of landsliding, foundation failure, uneven settling, and other engineering problems. In addition, they have a relatively low permeability—water or liquid wastes move through them very slowly. Production of ground water is generally low from saturated deposits of fine-grained materials. Precipitation does not soak readily into the ground in areas of near-surface fine-grained material, often resulting in temporary ponding and wet ground in flat-lying areas. Rapid runoff is common in sloping areas underlain by fine-grained deposits and may cause serious problems of flash flooding.

On the other hand, the presence of the principal fine-grained deposits may encourage some land uses. The low permeability of fine-grained deposits and their potential for renovation of some kinds of liquid wastes may make them a desirable host material for some waste-disposal sites. The silt and clay fractions of fine-grained deposits are also a source of material for bricks, expanded aggregate, and other construction materials.

MAP PREPARATION AND LIMITATIONS

This map has been prepared from three basic sources of data: well and test-boring records; 1:24,000-scale (1"=2000') Miscellaneous Field Studies maps; and 1:48,000-scale (1"=4000') and 1:125,000-scale hydrologic reports. Figure 1 shows the types and distribution of data used for the preparation of the map. This map shows a regional picture, and its accuracy and usefulness are restricted by the method of map preparation, the map scale, the contour interval of the base map, and the thickness interval of the map units. Only relatively large, continuous deposits of fine-grained sediments were mapped; small isolated deposits were not mapped. The surface on which the clay was deposited contains small irregular depressions or high spots that produce local thickening or thinning of the fine-grained deposits. Also, the surface of these deposits may locally have been eroded away, causing further thinning of the deposits. These local conditions have not been indicated on this map.

SOURCES OF DATA

Bingham, J. W., Paine, F. D., and Weiss, L. A., 1975, Hydrogeologic data for the lower Connecticut River basin, Connecticut: Conn. Water Resources Bull. 30, 50 p.

Hansen, B. P., Gay, F. B., and Toler, L. G., 1973, Hydrologic data of the Deerfield River basin, Massachusetts—Massachusetts hydrologic-data rept. 13: U.S. Geol. Survey open-file rept., 59 p.

Hopkins, H. R., and Handman, E. H., 1975, Hydrogeologic data for the Farmington River basin, Connecticut: Conn. Water Resources Bull. 28, 49 p.

Langer, W. H., 1972, Thickness of the principal clay unit, Hartford North quadrangle, Connecticut: U.S. Geol. Survey Misc. Geol. Inv. Map I–784–E.

_____ 1973, Map showing thickness of the principal clay unit, Broad Brook quadrangle, Connecticut: U.S. Geol. Survey Misc. Field Studies Map MF–451–C.

_____ 1973, Map showing thickness of the principal clay unit, Manchester quadrangle, Connecticut: U.S. Geol. Survey Misc. Field Studies Map MF–452–D.

_____ 1974, Map showing thickness of the principal clay unit, Windsor Locks quadrangle, Connecticut: U.S. Geol. Survey Misc. Field Studies Map MF–450–C.

_____ 1974, Map showing thickness of the principal clay unit, Glastonbury quadrangle, Connecticut: U.S. Geol. Survey Misc. Field Studies Map MF–561–A.

_____ 1974, Map showing thickness of the principal clay unit, Hartford South quadrangle, Connecticut: U.S. Geol. Survey Misc. Field Studies Map MF–487–B.

Mazzaferro, D. L., 1973, Hydrogeologic data for the Quinnipiac River basin, Connecticut: Conn. Water Resources Bull. 26, 54 p.

Ryder, R. B., and Weiss, L. A., 1971, Hydrogeologic data for the upper Connecticut River basin, Connecticut: Conn. Water Resources Bull. 25, 54 p.

Thomas, C. E., Jr., Cervione, M. A., Jr., and Grossman, I. G., 1968, Water resources inventory of Connecticut, part 3, Lower Thames and southeastern coastal river basins: Conn. Water Resources Bull. 15, 105 p.

Thomas, M. P., Bednar, G. A., Thomas, C. E., Jr., and Wilson, W. E., 1967, Water resources inventory of Connecticut, part 2; Shetucket River basin: Conn. Water Resources Bull. 11, 96 p.

Wiesnet, D. R., and Fleck, W. B., 1967, Millers River Basin: Mass. Basic-Data Rept No. 11; U.S. Geol. Survey open-file rept., 29 p.

EXPLANATION

PRINCIPAL FINE-GRAINED DEPOSITS, UNDIFFERENTIATED—Thickness of principal fine-grained deposits not mapped in this area. Deposits are commonly less than 50 feet thick, but may be over 100 feet thick in some areas

THICKNESS OF PRINCIPAL FINE-GRAINED DEPOSITS

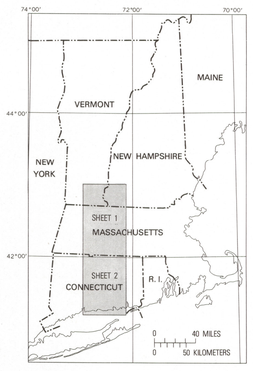
- 0–50 feet
- 50–100 feet
- 100–150 feet
- 150–200 feet
- 200–250 feet
- Greater than 250 feet

APPROXIMATE LIMIT OF PRINCIPAL FINE-GRAINED DEPOSITS

CONTOUR—Showing thickness of principal fine-grained deposits in feet

Customary (English) units of measurement are used for present purposes in preference to International System (SI or metric) units. Some conversion factors are given below.

Multiply	By	To obtain
inches	2.54	centimeters
feet	30.48	centimeters
feet	0.3048	meters
miles	1.609	kilometers
square miles	2.59	square kilometers
feet per mile	0.189	meters per kilometers
acres	0.004	square kilometers



CONNECTICUT VALLEY URBAN AREA

MAP SHOWING DISTRIBUTION AND THICKNESS OF THE PRINCIPAL FINE-GRAINED DEPOSITS, CONNECTICUT VALLEY URBAN AREA, CENTRAL NEW ENGLAND

By
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1979

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