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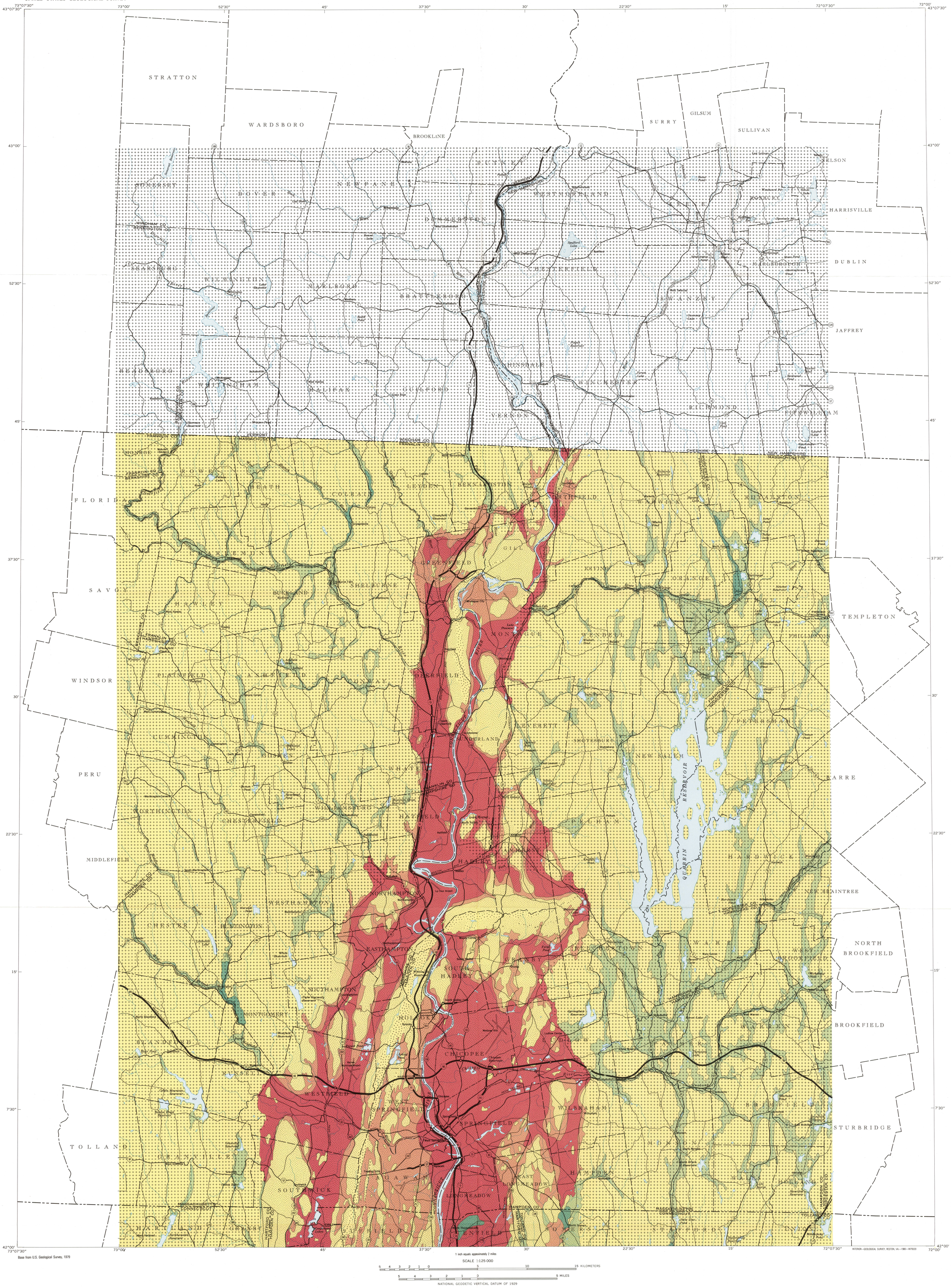
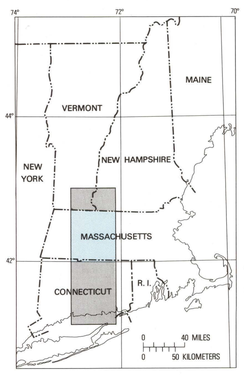
MAP I–1074–I





CONNECTICUT VALLEY URBAN STUDY AREA

EXPLANATION

GROUND-WATER AVAILABILITY

This map is a guide to areas suitable for exploration and development of ground water within the north part of the Connecticut Valley Urban Area. The two major types of water-bearing materials are bedrock and unconsolidated deposits. The entire area is underlain either by sedimentary or crystalline (igneous and metamorphic) rocks that are discontinuously covered by unconsolidated deposits of stratified drift or till.

UNCONSOLIDATED DEPOSITS

Stratified drift is the most productive source of water in the Connecticut Valley area. The highest well yields are generally obtained from thick, coarse-grained deposits located near large streams. Stratified drift occurs almost exclusively in stream valleys and lowlands. Till, popularly called "hardpan," forms a widespread but discontinuous blanket over the bedrock throughout most upland areas and extends beneath stratified drift in valleys and lowlands. At favorable locations, large diameter wells tapping till can provide small supplies of water for domestic use. Overprint patterns are used on this map to show the type of bedrock that underlies the unconsolidated rock units. The distribution of unconsolidated deposits is not shown in New Hampshire and Vermont. Along the southern margin of the map, the deposits are generally continuous with those mapped in Connecticut by Meade (1978).

AREAS UNDERLAIN BY DEPOSITS KNOWN OR INFERRED TO BE CAPABLE OF YIELDING MODERATE TO VERY LARGE AMOUNTS OF WATER (50 TO 2,000 GALLONS PER MINUTE) TO INDIVIDUAL WELLS.

COARSE-GRAINED STRATIFIED DRIFT—Deposits in the dark green areas are capable of sustaining well yields in excess of 200 gallons per minute. Deposits in the light green areas are probably coarse grained, but hydrogeologic data are not complete, and ground-water availability in these areas requires further evaluation. In the Millers and Deerfield River basins, investigations have shown that most of these deposits will not sustain well yields in excess of 200 gallons per minute. Wells capable of sustaining municipal or industrial demands commonly are dependent on recharge from adjacent streams or lakes.

AREAS UNDERLAIN BY DEPOSITS KNOWN OR INFERRED TO BE CAPABLE OF YIELDING SMALL TO LARGE AMOUNTS OF WATER (1 TO 1,000 GALLONS PER MINUTE) TO INDIVIDUAL WELLS.

FINE-GRAINED STRATIFIED DRIFT—Deposits include lake-bottom sediments of clay, silt, and fine to very fine sand and a wide-spread near-surface sand layer that covers flood plains and low river terraces. Lake-bottom sediments yield little or no water to wells, whereas wells tapping near-surface sand beds generally yield less than 25 gallons per minute. Sand and gravel is found beneath the lake-bottom deposits in many places in the dark red area. Wells tapping these deposits may yield as much as 1,000 gallons per minute. Hydrogeologic data are not adequate to map the extent of these buried coarse-grained materials. Water-saturated deposits in the light red areas are finer grained or thinner than in the dark red areas; sand and gravel does not underlie the lake-bottom sediments, and individual wells generally yield less than 25 gallons per minute.

AREAS UNDERLAIN BY DEPOSITS KNOWN OR INFERRED TO BE CAPABLE OF YIELDING SMALL AMOUNTS OF WATER (1 TO 100 GALLONS PER MINUTE) TO INDIVIDUAL WELLS.

TILL—Composed of a mixture of sand, gravel, and clay capable of yielding as much as 10 gallons per minute to large-diameter (36 inches) wells. This unit includes small areas of exposed bedrock and small areas of stratified drift that have a water-saturated thickness of less than 10 feet. The stratified drift may yield as much as 100 gallons per minute.

BEDROCK

Most homes, schools, shops, and other establishments requiring small to moderate amounts of water are supplied by wells that tap bedrock. Bedrock is at land surface in some areas but is generally covered by variable thicknesses (1 to over 300 feet) of unconsolidated deposits.

AREAS UNDERLAIN BY BEDROCK KNOWN OR INFERRED TO BE CAPABLE OF YIELDING SMALL TO MODERATELY LARGE AMOUNTS OF WATER (1 TO 300 GALLONS PER MINUTE) TO INDIVIDUAL WELLS.

SEDIMENTARY ROCKS, such as sandstone, siltstone, and shale that contain and transmit water in open fractures, pore spaces, and bedding planes.

AREAS UNDERLAIN BY BEDROCK KNOWN OR INFERRED TO BE CAPABLE OF YIELDING SMALL TO MODERATE AMOUNTS OF WATER (1 TO 100 GALLONS PER MINUTE) TO INDIVIDUAL WELLS.

IGNEOUS ROCKS—Principally basalt, popularly called "trap rock," that contains and transmits water in open fractures.

METAMORPHIC ROCKS such as gneiss and schist that contain and transmit water in open fractures.

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GROUND-WATER AVAILABILITY IN THE NORTH PART OF THE CONNECTICUT VALLEY URBAN AREA, CENTRAL NEW ENGLAND

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1980

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