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Projected Bedrock Water Quality

HOLDEN

Uranium Probability

% Probability of Exceeding the Public Drinking Water Standard of 30 micrograms per liter (30 PPB)	City/Town Statistics Acres	Percent
<= 1.0%	4640	20
1.1% to 4.7%	3108.2	13.4
4.8% to 13.0%	0	0
13.1% to 25.4%	10345.8	44.4
Granite/Pegmatite*	0	0
No Data	5155.8	22.2
Total	23249.8	

*Areas mapped as granite and pegmatite are located outside of the USGS SIR 2011-5013 study area. Although no precise uranium probability values exist for these bedrock units, these types of bedrock generally have an increased probability of containing naturally occurring radionuclides such as radium, uranium, or radon in well water at concentrations exceeding public drinking water limits.

This map is intended to compliment the USGS Scientific Investigations Report 2011-5013, Arsenic and Uranium in Water from Private Wells Completed in Bedrock of East-Central Massachusetts: Concentrations, Correlations with Bedrock Units, and Estimated Probability Maps. That report presents the results of a statistical study of bedrock water quality based primarily on 478 samples from private wells. This is a relatively small number of samples for such a large and diverse study area. The confidence intervals around probabilities used here are broad. Users are urged to carefully read the original report.

The geologic map underlying this work is at a scale of 1:250,000 or about 4 miles per inch. Although presented on a two dimensional map, bedrock geology is a three dimensional phenomenon. Contact zones almost never go straight down. Because this town map is at a much larger scale than the original, the necessity of presenting 3D geology in only two dimensions, and the wide confidence intervals in the statistical analysis, users should interpret this map as a general indicator of expected water quality. The only way to be sure of the quality of water in any given well is to have that water tested.

MassDEP GIS

Massachusetts Department of Environmental Protection

Deval Patrick
Governor
Richard K. Sullivan Jr.
Secretary of Energy and Environmental Affairs

MAP LEGEND

Reservoir
Pond, Lake or Ocean
Fresh Water Wetlands
Cranberry Bog
Salt Water Wetlands
Perennial Stream; Shoreline
Intermittent Stream
Intermittent Shoreline
Ditch/Canal
Aqueduct
Dam
Active Rail Lines
Pipeline
Powerline
Limited Access Highway
Multi-lane Hwy, Not Limited Access
Other Numbered Highway
Major Road, Collector
Minor Road, Ramp
MA Town Boundary
MA Interstate Boundary
County Boundaries
DEP Region Boundary

Contour Interval 3 Meters

Local Police Station
State Police Station
County Sheriff Station
Fire Stations
Town Halls
Libraries
Public School
Private School
Charter School
Collaborative Program School
Special Education School
Private College
Public College
Hospital with ER
Hospital
Nursing Home
Rest Home
Prisons
Airports
MBTA Station
Seaports
Camp

Campground
Cemetery
Convention Center
Court House
Field - Playground
Fish Hatchery
Golf Course
Industrial Park
Lighthouse
Marina
Monument
Museum
Park
Pier - Wharf
Places of Worship
Post Office
Public Pool
Shopping Center
Ski Area
Sports Facility
Theater
Tower

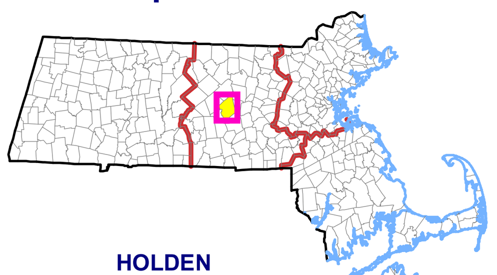
N

Mass StatePlane NAD83 Coordinates shown in RED

Map Scale 1:24000

0 2,000 4,000 6,000 8,000 10,000 Feet
0 1 2 3 Kilometers
0 1 2 Miles
1 inch = 2,000 feet 1 inch = 610 meters

Map Location



This map is for illustrative purposes only. It represents the best statewide data available at the date of printing. There are other important natural resources that are not shown on this map because the digital spatial data do not exist.

DATA SOURCES

HYDROGRAPHY: USGS/MassGIS, 1:25,000 or less. Hydrography from the USGS National Hydrography Database except within public water supply watersheds where the resolution is approximately 1:10000.

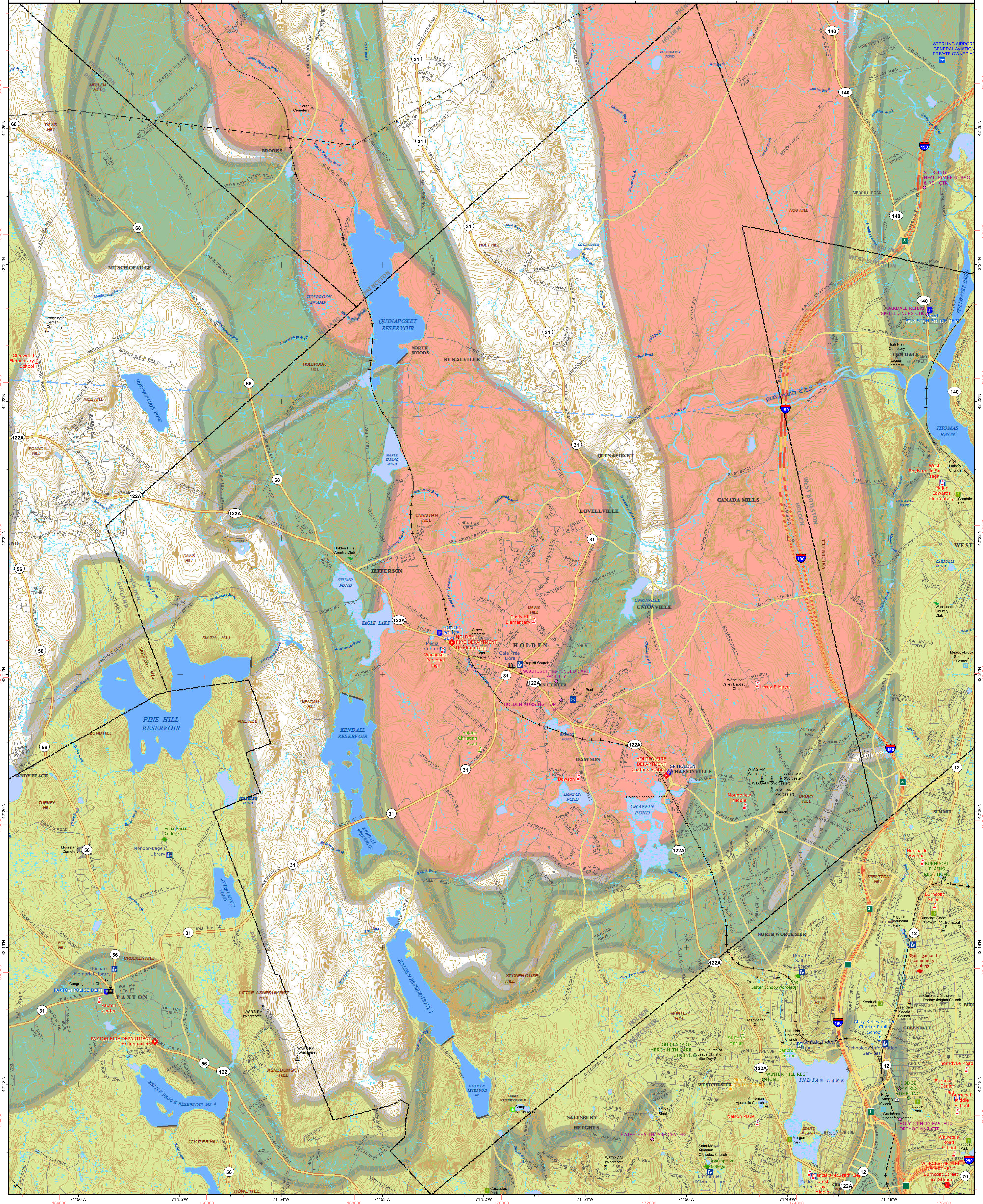
TOPOGRAPHIC CONTOURS: MassGIS, 1:5,000. 3 Meter contour elevations generated from digital ortho DTM's.

POLITICAL BOUNDARIES: MassGIS. This political boundary datalayer has been created from latitude and longitude coordinates found in the 68 volume Harbor and Lands Commission Town Boundary Atlas

ROADS: Mass Department of Transportation 1:5000. Road centerlines aligned with 1:5000 OrthoPhotos. Attributes from DOT roads database.

TRAINS AND TRANSLINES: Mass Department of Transportation Trains @ 1:5000, Pipelines and Powerlines @1:25000

GEOGRAPHIC FEATURES: USGS/MassDEP. USGS Geographic Names Information System(GNIS) features matched to parcel data or orthophoto. Hydrography names taken from NHD features and placed using Maplex.

WETLANDS: UMass Resource Mapping Project/USGS/MassDEP/MassGIS, Source Scale 1:12,000 to 1:40,000. Wetland information shown on this map consists of several wetlands datasets, including DEP Orthophoto Wetlands (1:12,000) and USGS Hydrology wetlands (1:25,000).

Map Created March, 2011