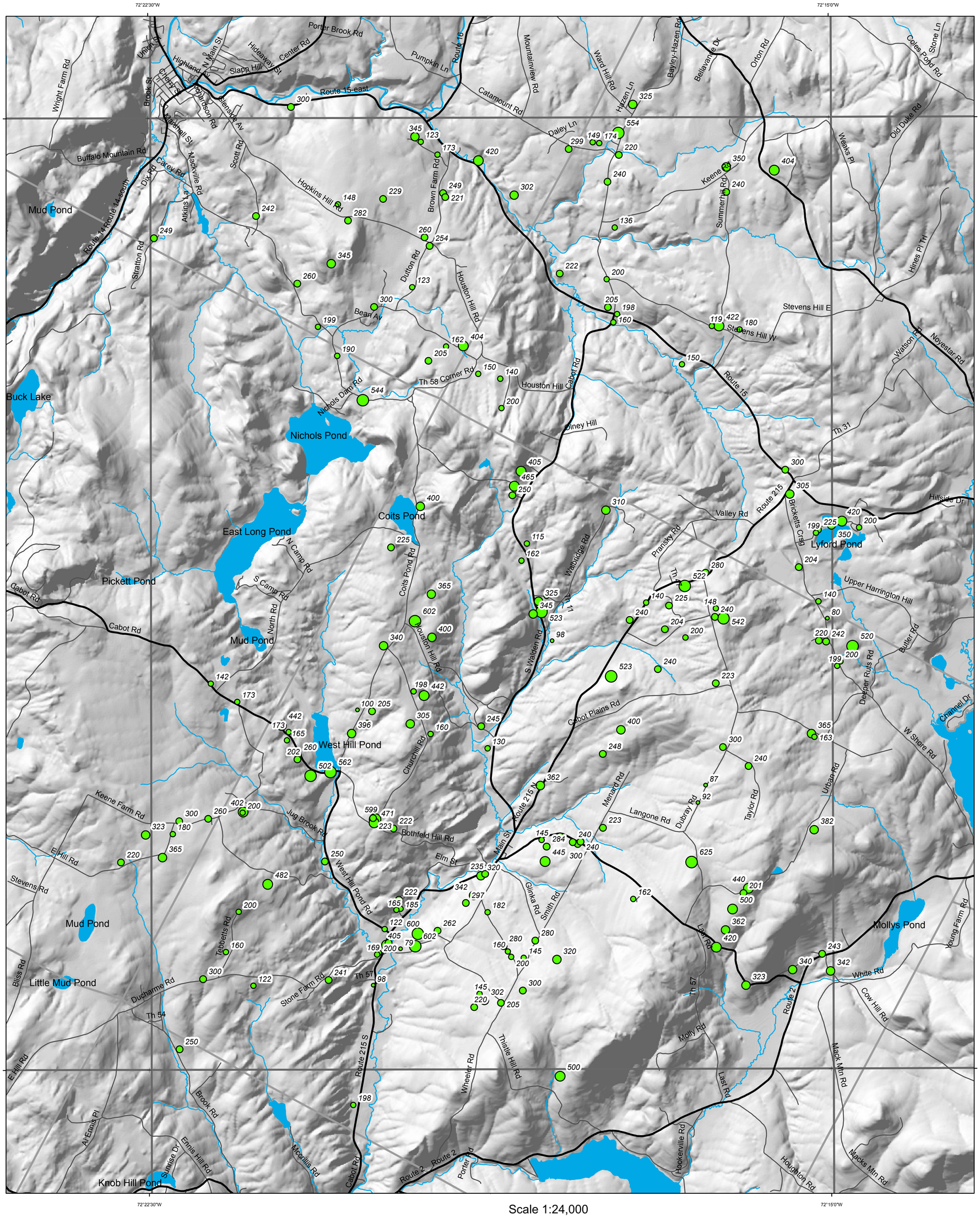


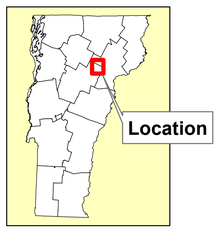
Bedrock Well Depth

Well Depth (in feet)

- 79.0 - 100.0
- 100.1 - 200.0
- 200.1 - 300.0
- 300.1 - 400.0
- 400.1 - 500.0
- 500.1 - 625.0
- Major Roads
- Minor Roads
- Quadrangle Boundaries
- Town Boundaries
- Streams
- Water Bodies

EXPLANATION

This plate shows well depth in feet. Depths are indicated by the labels, as well as the size of the green symbols. The mean well depth is 271.8 feet and the median value is 240 feet. Statewide, the mean depth of bedrock wells is 290 feet. Thus, the wells in the quadrangle are being completed at depths that are somewhat less than the statewide average.



Magnetic declination
14.7 degrees west, 2016

Scale 1:24,000

Miles: 0 1 2

Kilometers: 0 1 2 3 4

Base map from U.S. Geological Survey.
Coordinate System: Vermont State Plane, meters, NAD 83.
Geographic coordinates shown at topo corners are in NAD 83.

Digital cartography by George Springston, June 30, 2016.
Research supported by the Vermont Geological Survey,
Dept. of Environmental Conservation, VT ANR.

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Published by:
Vermont Geological Survey, Marjorie Gale, State Geologist
Department of Environmental Conservation
1 National Life Drive, Davis 2
Montpelier, VT 05620-3902
http://dec.vermont.gov/geological-survey

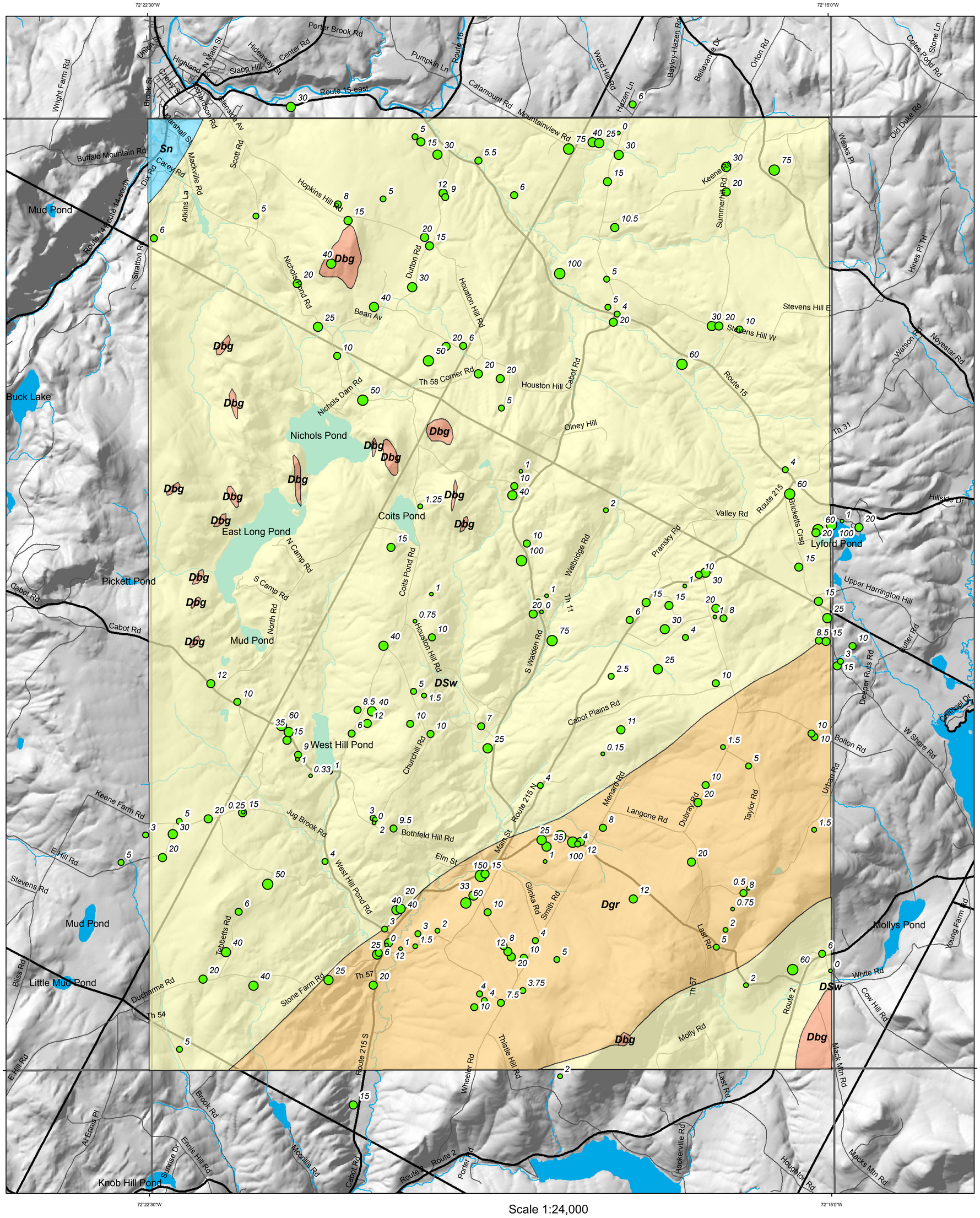
VERMONT
AGENCY OF NATURAL RESOURCES
Vermont Geological Survey

Water Well Depth, Cabot Quadrangle, Vermont

by

George E. Springston

2016



Water Wells

Yield (gallons per minute)

- 0 - 1
- 2
- 3 - 5
- 6 - 10
- 11 - 20
- 21 - 40
- 41 - 100
- 101 - 300

Bedrock Units

- Dbg Granitic Intrusive Rocks
- Dgr Gile Mountain Formation
- DSw Waits River Fromation
- Sn Northfield Formation
- Major Roads
- Minor Roads
- Quadrangle Boundaries
- Town Boundaries
- Streams
- Water Bodies

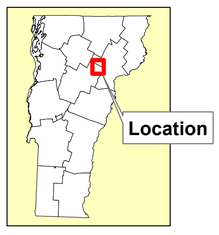
EXPLANATION

This plate shows driller's estimates of yields of bedrock wells in gallons per minute. Yields are indicated by the labels, as well as by the size of the green symbols. Bedrock geologic units from Ratcliffe and others (2011) are also shown. The mean well yield is 20.1 gallons per minute and the median value is 10.0 gallons per minute. Statewide, the mean yield of bedrock wells is 14 gallons per minute. Thus, the wells in the quadrangle have yields that are somewhat higher than average.

Yields in the Waits River and Gile Mountain Formations are compared below. No wells were located in the Northfield Formation and only a single well was located in the areas mapped as granitic intrusives.

Bedrock wells in the quadrangle that are in the Waits River Formation have a mean yield of 18.9 gallons per minute and a median yield of 11.5 gallons per minute while those in the Gile Mountain Formation have a mean yield of 21.2 gallons per minute and a median yield of 9.0 gallons per minute. The median yield values were compared using a Wilcoxon-Mann-Whitney test. With a 90% confidence limit the Waits River Formation is found to be statistically higher than the Gile Mountain Formation. However, with a 95% confidence limit (which is the commonly accepted standard) the yields are not statistically different.

Reference:
Ratcliffe, N.M., Stanley, R.S, Gale, M.H., Thompson, P.J., and Walsh, G.J., 2011, Bedrock Geologic Map of Vermont: USGS Scientific Investigations Map 3184, 3 sheets, scale 1:100,000.



Magnetic declination
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Scale 1:24,000

Miles
0 1 2

Kilometers
0 1 2 3 4

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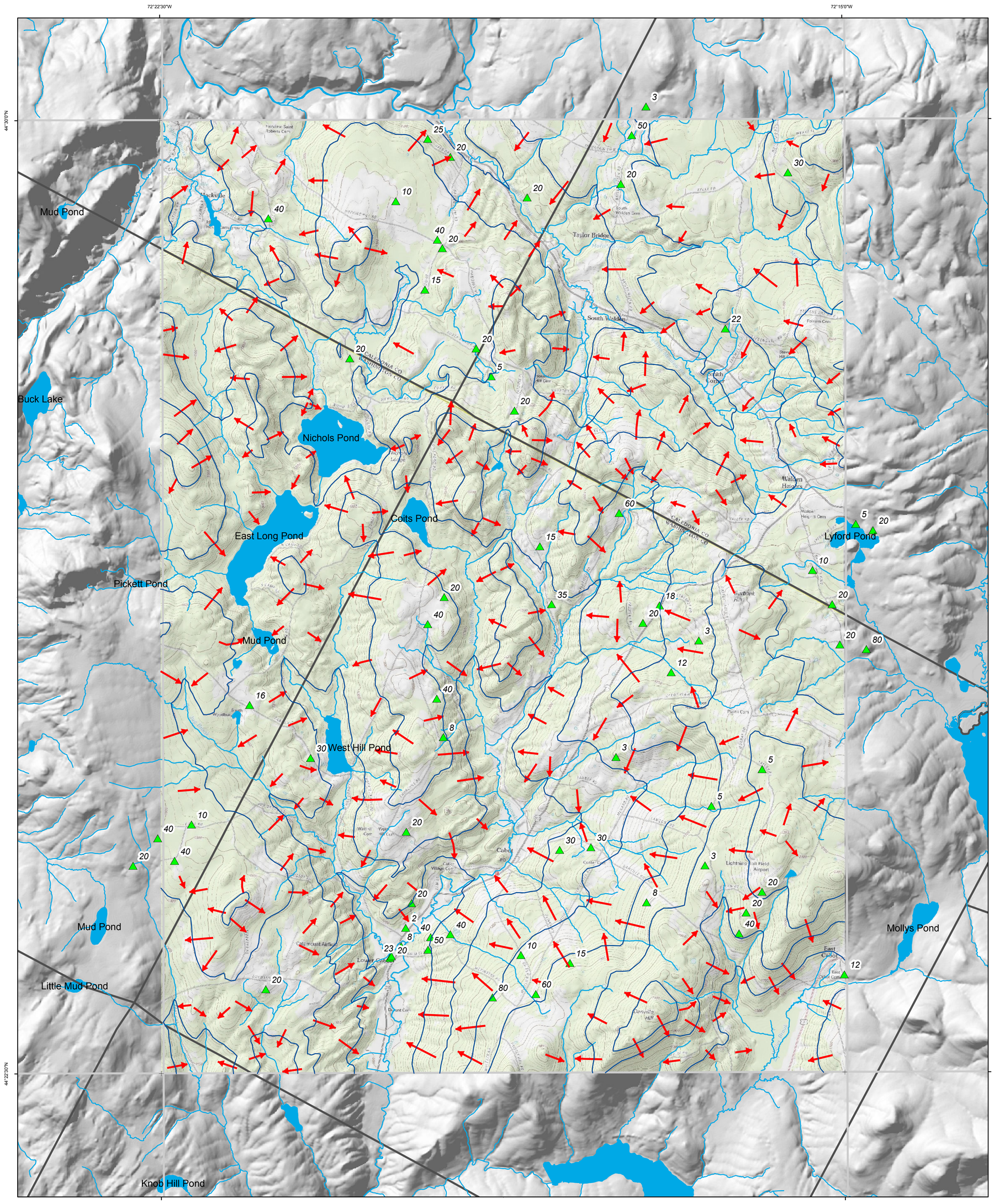
Water Well Yield and Bedrock Geology, Cabot Quadrangle, Vermont

by
George E. Springston
2016



Scale 1:24,000

Miles
0 1 2

Kilometers
0 1 2 3 4

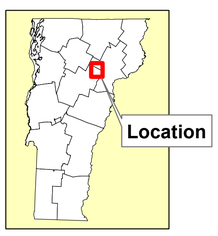
Static Water Level (feet)
Groundwater Surface
Flow Lines
Quadrangle Boundaries
Town Boundaries
Streams
Water Bodies

EXPLANATION

This plate contains information on the height of water levels in existing wells (static water levels) and groundwater flow directions. Static water levels (collected during well installation) are available for about 1/3 of the water wells in the quadrangle. Labels indicate the depth to the water surface in feet. The dark blue lines are approximate 100-foot contours of the groundwater surface. The contours are drawn on the assumption that groundwater flowing through the bedrock and surficial deposits is unconfined and that the contours on the groundwater surface will run roughly parallel to topographic contours. The red arrows are idealized groundwater flow lines. These are drawn on the assumption that groundwater will flow perpendicular to the contours on the groundwater surface and converge towards the streams, ponds, and wetlands.

The groundwater contours and flow lines shown on the map are drawn on the assumption that groundwater is generally moving from higher areas to lower areas. Confining layers in the surficial deposits or within the bedrock units may, however, result in wells that have water levels higher than the contours would indicate.

Although there is abundant opportunity for groundwater recharge over much of the quadrangle due to the relatively thin surficial deposits (see Plates 3 and 9), the recharge areas for many wells may be relatively small and thus the wells may not be able to sustain heavy withdrawal without excessive lowering of the water levels.



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Static Water Levels and Flow Directions, Cabot Quadrangle, Vermont

by
George E. Springston
2016