To: Sherborn Zoning Board of Appeals, ZBA **Date: January 15, 2024**

From: Thomas Trainor, 97 Washington Street, Sherborn MA

Subject: Comments for ZBA on the proposed 40B Farm Road Homes: Public vs Private Water Supply

Chair Novak,

As a resident of Sherborn for the past 28 years I have been following closely for the last several months the ZBA hearings for the proposed Farm Road Homes 40B development project. I have been dismayed to see the project proponents are continuing to insist on the reliance by the many future residents of this 32-unit multi-family affordable housing complex (76 bedrooms) on an apparent set of seven "independent" and private wells for water supply, each of which ostensibly would have shared-ownership and be maintained by a small number of the condo owners per well (presumably 4 to 5 housing units per well), with no coordination allowed (per MassDEP) by the future condo owners association (unlike the case for all the other physical/capital components of the development that will require attention in the coming decades by the homeowners collectively: setup of sufficient reserve funds, maintenance, repairs, replacement etc. of the sidewalks, driveways, roofs, solar panels, septic system components (including eventually a large septic system replacement), regular septic tank pumping, etc. etc.).

I would like the ZBA to be aware of a recent study conducted in Massachusetts on the practical differences now found in private well water quality versus public water supply (PWS) systems. The non-profit RCAP Solutions (Worcester MA, https://www.rcapsolutions.org/private-wells/), with funding from The Health Foundation of Central Massachusetts (https://hfcm.org/about-us/), sampled during years 2020-22 a total of 502 private drinking water wells in 24 MA towns with a high percentage of private wells, including Sherborn, for 13 common drinking water quality parameters. The study found that 32% of the wells sampled exhibited levels of contaminants exceeding MassDEP health standards (public water supply standards) and/or were suggestive of potential health risks. See a summary with more details on this RCAP study in Appendix I, a 2-page pdf, which is available also at: https://www.whatsinyourwellwater.org/wp-content/uploads/2023/01/2020-2022-Private-Well-Program-Water-Testing-Results.pdf

This troubling water quality finding for homeowners in 8 representative MA towns must be contrasted with MassDEP data for all public water systems in the state during the same timeframe showing only 4.5% in exceedances, suggesting a seven-fold increase in water quality risks for the private well owners.

In Sherborn, 41 residents availed themselves of this free RCAP testing program, and 42% of these local samples (18 homes) did not meet MassDEP water quality guidelines, primarily due to 15 samples exhibiting the presence of Total Coliform Bacteria. Complete details on the Sherborn aspect of the larger project are include here in Appendix II, 1-page pdf press release summary from the local RCAP-partner, the Sherborn Groundwater Protection Committee, also available at: https://www.sherbornma.org/488/Sherborn-RCAP-Residential-Well-Testing-R

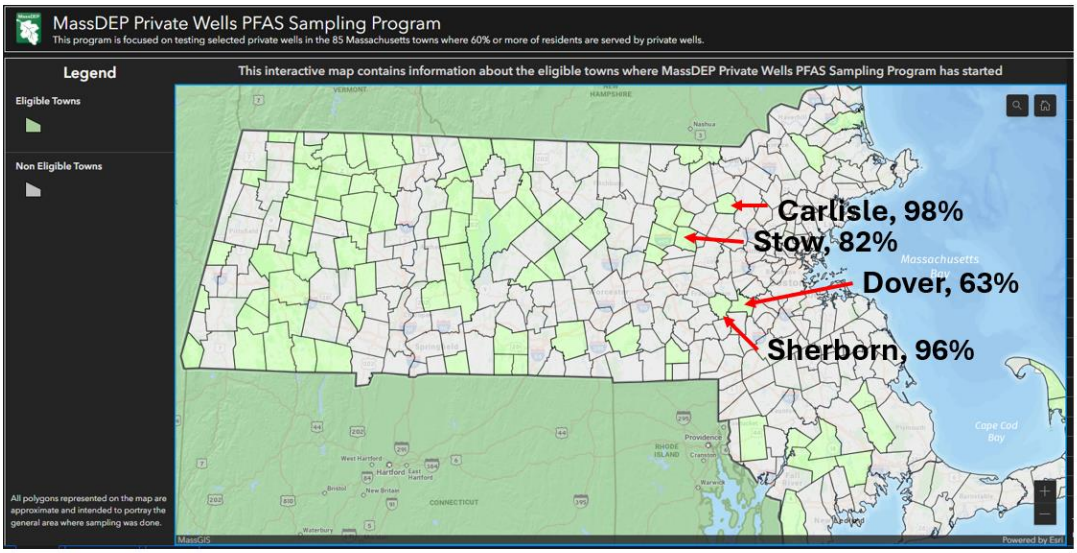
Clearly, the stronger and regular oversight of public water supplies (initial well siting, control of land use within the surrounding protective zones, system installation, future operation, and on-going maintenance, and annual oversight by the MassDEP and the PWS well owners hired professionals) versus private homeowners drinking water wells and local Board of Health oversight makes a big

difference in the average consumers drinking water quality experiences in Massachusetts. Moreover, this RCAP study may be understating this added health risk from private wells, as the study testing parameters did not include two important classes of synthetic chemical contaminants regulated by the MassDEP in public water supplies, and which pass through largely untreated by conventional Title V septic systems and larger municipal wastewater systems: 1) volatile organic compounds, VOC's; and 2) PFAS (Per- and Polyfluoroalkyl Substances).

Although at this stage of the project the developer has received ***Preliminary Approval*** from the MassDEP for these seven wells to be not regulated as a PWS, I would argue that for the future health of the 40B residents and nearby neighbors it would be clearly safer for all involved for the project not to be dependent on the oversight of the 32 condo owners on seven different private wells. Current Sherborn BOH private well regulations only require well water quality testing at time of initial well installation, and on a practical basis never again, unlike MassDEP requirements for regular testing of PWS systems.

Finaly, I would also like to make sure the ZBA is aware of our towns rather unique status in the greater metro-west Boston/eastern MA area, as to how different Sherborn is as compared to many of the other 351 MA towns/cities when it comes to our high reliance (96% of residents) on private wells. Please see the map pasted here, derived from MassDEP-sourced data:

85 Massachusetts Towns with greater than 60% residents on private wells:



% of 2015 Town Population Not Served by PWS (Ref: MassDEP, DWP, latest data available).

Towns colored in light green are 60% or greater reliant on private wells.

Map Available at: https://www.mass.gov/info-details/pfas-in-private-well-drinking-water-supplies-faq

Except for our neighbor Dover (63%), you will need to travel many miles to find another town like ours so reliant on private wells and septic systems. We as a Town, and all our regulatory Boards, need to seriously think way beyond the current MassDEP and BOH drinking water and septic regulations now in place, many of which were written many decades ago (MA Title V first adopted in 1978) before the sciences of hydrogeology, trace-level analytical chemistry, toxicology, and public health advanced to the point we are at now, where many new health and environmental risks are being identified every year.

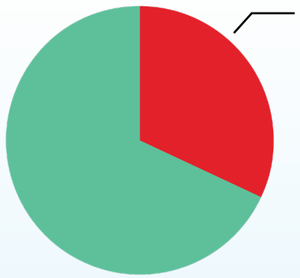
Private Well Program to Protect Public Health: Water Testing Results (2020–2022)

From 2020 to 2022, RCAP Solutions conducted **502** water quality tests across several Massachusetts towns which had a high concentration of private wells. We discovered that approximately **32%** of wells had levels of contaminants **exceeding** state health standards and/or suggesting potential health risks. State health standards are based on federal standards and are adopted by the Massachusetts Department of Environmental Protection (MassDEP).

In comparison, 2020–2022 data from MassDEP shows that only about **4.5%** of community public water systems (PWS) throughout the state had instances of contaminants **exceeding** state health standards and/or suggesting potential health risks.

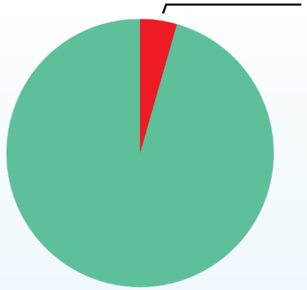
These results show that sensible, health-based regulations and oversight for drinking water wells would lead to a public health benefit. Our full findings are outlined below.

Private Wells Sampled by RCAP Solutions (2020–2022)



32% of private wells sampled in 2020–2022 **had levels of contaminants** exceeding state health standards and/or suggesting potential health risks

MassDEP Data for Community Public Water Systems in Massachusetts (2020–2022)

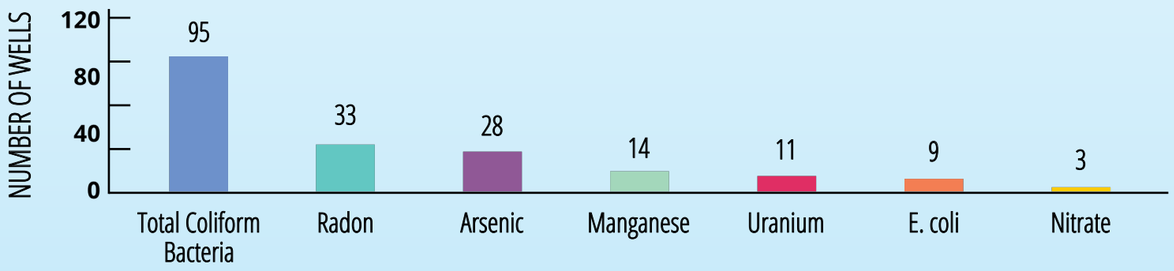


4.5% of community public water systems sampled in 2020–2022 **had levels of contaminants** exceeding state health standards and/or suggesting potential health risks

Results by Town: Data within each town ranged from **8% to 58%** of wells having levels of contaminants **exceeding** state health standards and/or suggesting potential health risks.

Private wells vs. community public water systems, what's the difference? Private wells usually supply water to an individual residence. These wells, which draw their water from the ground, **are not** subject to any statewide health-based regulations. Community public water systems supply drinking water to the greater public on a daily basis (e.g., at gas stations, campgrounds, etc.) and **are** subject to statewide health-based regulations, as are larger-scale public water systems that serve major cities and towns.

Most Common Contaminants Found Exceeding State Health Standards



RCAP Solutions

THE HEALTH FOUNDATION OF CENTRAL MASSACHUSETTS

About the Private Well Program to Protect Public Health and the Coalition for Safe Drinking Water

The **Private Well Program to Protect Public Health** is a community partnership program funded by The Health Foundation of Central Massachusetts. This program has tested well water quality throughout Massachusetts, educated homeowners on what their water test results showed, and worked directly with homeowners if there was a need for remediation efforts.

The program's goal is to move the Massachusetts legislature to enact statewide private well regulations that would ensure all residents have equitable access to healthy drinking water. Thus, the **Coalition for Safe Drinking Water** has been formed as a way to engage a wide range of stakeholders in working together to ensure safe drinking water for all Massachusetts residents. For more information, visit: **WhatsInYourWellWater.org**

COALITION FOR SAFE DRINKING WATER

Water Quality Standards and Potential Health Impacts

Massachusetts Maximum Contaminant Levels (MCLs) are a set of guidance levels for various contaminants that could potentially be found in drinking water. These levels are based on U.S. Environmental Protection Agency (EPA) federal standards for drinking water, though MassDEP has adopted more stringent standards for public water systems in some cases.

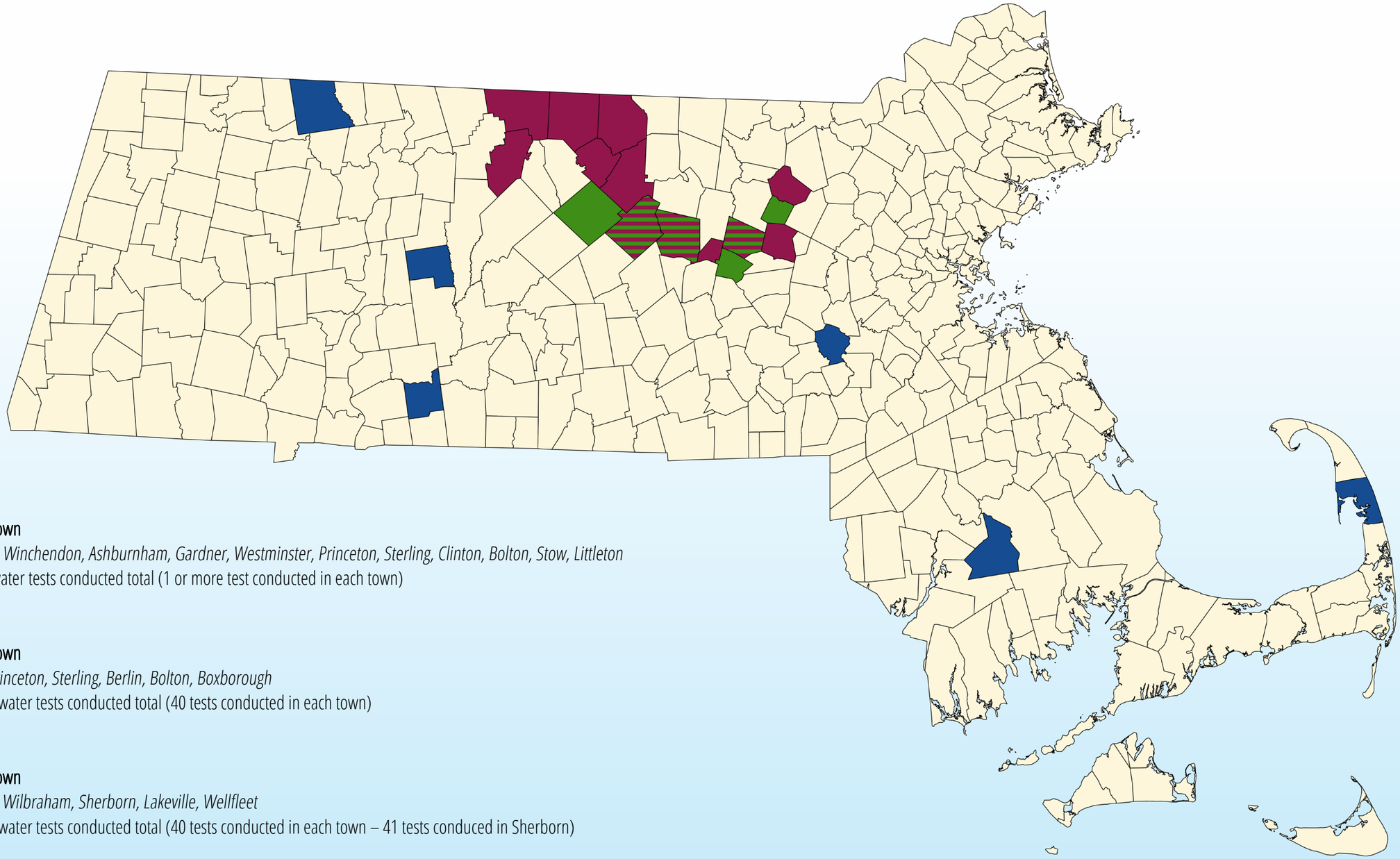
There are several potential health problems that can occur if contaminated water is consumed. In addition, contaminants may impact the aesthetic of drinking water (e.g., taste, color, odor) or a home's infrastructure.

Contaminant	MCL	Examples of Potential Health Risks
Arsenic	.010 mg/L	Cancer, skin damage, circulatory system problems
E. coli	Present/absent	Gastrointestinal illness
Nitrate	10 mg/L	Can cause death in babies younger than 6 months
Radon	10,000 pCi/L	Cancer
Total Coliform Bacteria	Present/absent	Gastrointestinal illness
Uranium	.030 mg/L	Cancer, kidney toxicity
Manganese	.3 mg/L	Neurological effects

Source: *EPA and MassDEP. MCLs are measured in parts per liter. "Present/absent" indicates contaminant exceedance is determined by presence or absence.*

Private Well Program to Protect Public Health: Water Testing Communities (2020–2022)

From 2020 to 2022 RCAP Solutions conducted **502** water quality tests across several Massachusetts towns which had a high concentration of private wells. The map below highlights the towns in which private well water testing occured. We discovered that approximately **32%** of wells had levels of contaminants **exceeding** state health standards and/or suggesting potential health risks.



Key:

2020 Targeted Town
Royalston, Athol, Winchendon, Ashburnham, Gardner, Westminster, Princeton, Sterling, Clinton, Bolton, Stow, Littleton
21 private well water tests conducted total (1 or more test conducted in each town)

2021 Targeted Town
Hubbardston, Princeton, Sterling, Berlin, Bolton, Boxborough
240 private well water tests conducted total (40 tests conducted in each town)

2022 Targeted Town
Colrain, Pelham, Wilbraham, Sherborn, Lakeville, Wellfleet
241 private well water tests conducted total (40 tests conducted in each town – 41 tests conduced in Sherborn)

Sherborn Groundwater Protection Committee - Press Release – For Immediate Distribution, Jan 3, 2023

"Sampling of Sherborn Residential Wells Finds High Frequency of Coliform Bacteria"

The Sherborn Groundwater Protection Committee (GPC) provided an opportunity this past summer for Sherborn residents to have their home well water sampled and tested for the most common contaminants of concern in our area. Homes were selected on a first come, first served basis following an announcement of the free program on the Town website and a call to enroll. The water from 41 Sherborn residential wells was tested at no-cost to the residents. The testing included the following water quality parameters: the presence of coliform bacteria; and the concentrations of: Nitrate and Nitrite, Uranium, Radon, Arsenic, Chloride, Copper, Fluoride, Iron, Lead, Manganese, and Sodium; plus, water Hardness and pH levels.

What was found in the water:

The GPC partnered with RCAP Solutions, a non-profit agency in Worcester that provides support services to rural communities, to sample the well water. RCAP assisted the residents in the sampling and delivered the samples to a MassDEP-certified laboratory for testing. RCAP also maintained all records associated with the project, keeping the addresses and homeowners' names unknown to the GPC and Town. The key finding of this small sampling set was that 42% of the well tests revealed one or more contaminants that exceeded MA Maximum Contaminant Levels (MCL), which MassDEP regularly enforces for public drinking water supplies. These included 15 instances of the presence of Coliform bacteria, 2 instances of Radon, and 1 instance of Uranium above recommended levels. Potential health problems may occur if drinking water contains these substances at levels higher than drinking water standards. Coliform bacteria exist naturally in the environment, but exposure from contaminated water may lead to gastrointestinal illness. ~~R~~adon inhalation and uranium ingestion may lead to elevated risks of some cancers.

How does this Sherborn study compare to other Massachusetts communities that depend on private wells?

During 2020-2022 RCAP Solutions, with funding from the US EPA, MassDEP, and Massachusetts Environmental Health Association, conducted 502 well assessments and water tests across 24 Massachusetts towns, which like Sherborn are primarily dependent on drinking water from private wells. About 32% of these wells had levels of contaminants exceeding MassDEP health standards. In comparison, data from MassDEP for community public water supply systems throughout the state showed that only about 4.5% had reported instances of contaminants exceeding MassDEP health standards over this same period.

A closer look at coliform bacteria and What to do if testing reveals coliform bacteria in your well water:

The 17 Sherborn wells that tested positive initially for total coliform bacteria were also analyzed at the same time for the more specific E. coli. E. coli is a sub-set of coliform bacteria that is associated with the potential presence of fecal contamination. All 17 wells were negative for E. coli.

Given the high number of wells showing the presence of coliform bacteria, Sherborn homeowners are reminded to have their well water tested on a regular basis. Our Sherborn Board of Health recommends that if you do find coliform bacteria in your homes' well water, that you immediately contract with a qualified well company to have the well and entire home water supply system disinfected, along with an effort to determine and eliminate the source of the bacteria contamination. The BOH does not advise residents to carry out the disinfection steps themselves. Common sources of coliform bacteria include water or air leaks anywhere in the plumbing lines, malfunctioning septic systems, and contaminated runoff on the property from animal wastes.

How you can get your well water tested:

The full battery of tests conducted in this study can be performed by MassDEP certified labs in this area for less than about $300, and less than about $75 for just the coliform/E. coli tests. The UMASS-Amherst Extension Service has a very informative website with homeowner resources on drinking water wells in Massachusetts (please see: https://ag.umass.edu/cafe/fact-sheets/well-water), and specific to the coliform bacteria screening test they state:

"Maximum Contaminant Level (MCL) for bacteria in drinking water is zero total coliform colonies per 100 milliliters of water as established by the EPA. The total coliform test is the basic yardstick for determining the biological quality in a water supply. The test is easy to perform, inexpensive, and errs on the side of caution. The organisms in the total coliform group are called indicator organisms. The presence of coliform bacteria in drinking water indicates that a pathway for disease producing (pathogenic) organisms exists. There may or may not be pathogenic organisms in the drinking water, but you should eliminate the potential pathway to prevent them from entering the well."

A note about PFAS in local drinking water wells:

There is a new and emerging set of groundwater contaminants of concern in Massachusetts and world-wide, known as Per- and Polyfluoroalkyl Substances (PFAS) (see: https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas-in-private-well-drinking-water-supplies-faq). The GPC is currently monitoring the progress of a recently completed state-wide PFAS study on residential wells and will share the results as soon as the final MassDEP project report is issued.

For further information and any questions that you may have on maintaining your homes well, please contact:

Sherborn Groundwater Protection Committee: Email to gpc@sherbornma.org, consult webpage: https://www.sherbornma.org/groundwater-protection-commmittee

Sherborn Board of Health: Phone: (508) 651-7852, Email to health@sherbornma.org. consult webpage: https://www.sherbornma.org/board-health