

To: Sherborn Zoning Board of Appeals (Z McBride, ZBA Chair) **Date: 10-21-24**

From: Sherborn Groundwater Protection Committee (T Trainor, GPC Chair)

Subject: Groundwater Protection Committee Comments to the ZBA on the proposed Brush Hill Homes (34 Brush Hill Road) 40B.

Several initial groundwater protection related concerns of the GPC were raised in discussions about this project and are now shared here with the ZBA. Documents posted at the town's Land Development website for this project (available online as of 10-20-24) were reviewed. Two particularly pertinent posted documents include:

- Scott Horsley, hydrogeology consultant for the abutters, comment letter to the ZBA (9-30-24).
- Tetra Tech, Town peer reviewer, letter to the ZBA (10-17-24).

Septic System:

Our 1,500+ wastewater disposal systems (septics) in Sherborn, a town near 100% dependent on private wells and septic systems, represent the major past and ongoing sources of groundwater contamination within our borders. We as an appointed advisory committee have been studying groundwater quality issues and trends and recently prepared a summary of the challenging Sherborn-wide situation which we would like to incorporate, in its entirety, within this ZBA comment letter concerning the Brush Hill Homes project (see attached pdf file, "**GPC Comments to the Select Board on our Sherborn Groundwater Quality Concerns – Nitrate and PFAS, 9-26-24**"). This additional document provides important local background which will help support several of our concerns on this project, which represents a major increase in septic density for the site and surrounding area.

1. This project as proposed includes 8 dwellings with 16 bedrooms, and MA Title V septic combined flows of 1,760 gpd. As is explained in the hydrogeology consultant Scott Horsley's comment letter to the ZBA, the design of the proposed leach field appears to result in insufficient separation of the wastewater disposal system to the known shallow groundwater table, when anticipated groundwater mounding is properly accounted for. This fact, plus the observed soils characterization in the proposed leach field (low permeability glacial till and shallow water table - see recorded discussion at the most recent Sherborn Board of Health meeting of 10-16-24 where additional perc testing was requested of the applicant), raises serious concerns as to the adequacy of the proposed system for pathogen treatment.
2. We respectfully question the statement # E.1 in the Tetra Tech letter, "*E.1 The design of the Soil Absorption System (SAS) appears to meet the requirements of Title 5.*" – We would suggest that this important concern is both still "open", and the purview of the local Board of Health, per the Horsley letter and the regulations in Title V:

"Title 5 (310 CMR 15.003) provides flexibility for the Board of Health (Local Approving Authority) to apply "additional criteria" to ensure that the system is "protective of public health, safety, and the environment" (see excerpt below). In this case the Board should require the groundwater mounding analysis and require that the 4 feet of separation is maintained in post-development conditions."

And text from 310 CMR 15.000:

“15.003: Coordination with Local Approving Authorities

(1) In general, full compliance with the provisions of 310 CMR 15.000 is presumed by the Department to be protective of the public health, safety, welfare and the environment. Specific site or design conditions, however, may require that additional criteria be met in order to achieve the purpose or intent of 310 CMR 15.000.

(2) The approval of any system, including the issuance of Disposal System Construction Permits, Local Upgrade Approvals, and Certificates of Compliance, shall be by the Local Approving Authority, ...”

Further, from the recent GPC analysis of Sherborn groundwater quality issues (nitrate, PFAS) in the more densely developed Sherborn RA zoning district (1-acre minimum lot sizes) having greater septic density (# septic systems/acre or total flow per acre), we feel that the total septic flow here will undoubtedly in the future negatively affect one or more of the proposed development's drinking water wells downgradient just over the 150 ft distance from this large leach field. This Title V “150 ft” separation may be protective of pathogen (bacteria, virus) contamination from single home septic systems, but as has been learned of late, the fate and transport of chemical constituents such as nitrate and PFAS may go far beyond such a short distance, particularly for wells drilled into bedrock which depend on fractures that draw on groundwater emanating from the surface overburden layer surrounding the septic field.

3. The septic plans show no land area designated as a “backup area”, for use when the leaching area reaches its useful life and will require replacement.
4. The Brush Hill Homes 40B design does not consider climate change and increased future precipitation and storm frequency and intensity, and the impact that would have on the groundwater table mounding at and beyond the limits of the septic system. This will negatively impact the required Title V minimum separation of the bottom of the soil absorption system and the groundwater table. The added impact of the nearby stormwater management systems should also be included in the mounding analysis.
5. The Massachusetts Department of Environmental Protection (MassDEP) is focusing efforts to evaluate PFAS contamination which has significantly impacted groundwater across the state and has resulted in the requirement for numerous private and public water supplies to treat their drinking water. The US EPA has lowered its national drinking water standards for PFAS (to 4 parts per trillion or ng/L for two common PFAS compounds) and MassDEP has stated that they intend to adopt these standards (lowered from the current MassDEP PFAS6 20 ppt standard that has been in effect for drinking water supplies). MassDEP has also stated that the source of the widespread PFAS contamination in groundwater is largely from private septic systems (refer to additional discussion in **GPC Comments to the Select Board on our Sherborn Groundwater Quality Concerns – Nitrate and PFAS, 9-26-24**).

Stormwater:

6. Stormwater plan – please see Horsley comment letter, re: required groundwater mounding analysis, groundwater vertical separation requirements, and required horizontal separation distances between stormwater infiltration systems and proposed wells for units # 4 and 5; and Tetra Tech peer review letter re: separation distances to proposed wells for units # 1 and 7.

Water Supply:

All of Sherborn is considered within a Title V “nitrogen sensitive area” due to the existence of private wells and septic, which by Title V limits septic flow to 440 gpd per acre. (see 310 CMR 15.214: *Designation of Nitrogen Sensitive Areas*, (a) *Public and Private Water Supply Protection Areas*, and 15.215: *Nitrogen Loading Limitations*).

For septic systems greater than 2,000 gpd flow, MassDEP guidance (*GUIDELINES FOR TITLE 5 AGGREGATION OF FLOWS AND NITROGEN LOADING* 310 CMR 15.216, available at: <https://www.mass.gov/doc/nitrogen-loading-and-aggregation-of-flows-310-cmr-15216-guidelines-0/download>) states, in part,: **(2) The Groundwater Quality Standard: 10 mg/l total nitrogen, and 10 mg/l nitrate-nitrogen.** Since a design flow of 2000 gpd or greater, but less than 10,000 gpd, may pose greater risks to public health and the environment, the Board of Health or DEP may require proponents of projects of this size to also meet the groundwater quality standard of 10 mg/l total nitrogen and 10 mg/l nitrate-nitrogen. The applicant must demonstrate, through a site-specific mass balance analysis, that the proposed discharge will meet the standard of 10 mg/l total nitrogen and 10 mg/l nitrate-nitrogen at the facility’s downgradient credit land property boundary or nearest sensitive receptor to ensure protection of public health and the environment. Sensitive receptors are public water supply wells, private wells, drinking water reservoirs and tributaries to drinking water reservoirs. (For more detail on mass balance analysis, see Section 7 below.). And further in this document: **“To demonstrate that a proposed facility’s discharge meets the 10 mg/l standards, the applicant must complete a hydrogeologic report with the following components: A) Hydrogeologic Assessment B) Mounding Analysis C) Analysis D) Groundwater Monitoring Program”.**

7. Given these multiple Title V requirements for proper design of a large septic system in a nitrogen sensitive area, the ZBA will want to ensure the project follows these protective measures, and the studies A-D noted above are conducted, given that this septic system at 1,760 gpd is just below the MassDEP 2,000 gpd regulation threshold for these important nitrate requirements.
8. As covered by Tetra Tech in their comment # D.1: ***The Plans indicate the Project will be served by 8 private water supply wells for each of the 8 proposed units. The Project proposes a total of 16 bedrooms with a potential resident count of approximately 32 people which may designate this Project as a Public Water Supply. The following comments are offered specific to Project water supply and related analysis or lack thereof.***
D.1 The Applicant should provide information related to the ownership of each of the private wells and if any coordination with MA DEP has been initiated. MA DEP has issued preliminary approval of a similar water supply approach on other Projects in Town

but the Applicant has not provided any similar documentation from MA DEP related to their review of the Project.

The GPC shares these public water supply concerns and long-term operation and maintenance of the water supply, given the size of the overall housing development, the associated 8-well field, and shared condo association ownership structure.