

**Citizens Action Committee
Post Office Box 112
Sherborn, MA 01770**

November 4, 2015

Board of Health
Town of Sherborn
19 Washington Street
Sherborn, MA 01770

RE: The Fields at Sherborn

Dear Members of the Board of Health:

We are writing to address two issues regarding the proposed Fields at Sherborn development.

Hydrogeological Study: The Town of Sherborn recently authorized up to \$15,000 for an independent hydrogeological study of The Fields at Sherborn proposed development. We understand that the Town intends to award Nobis Engineering, Inc. a contract based on its revised October 30 quotation, which includes a discussion of priorities following the proposed Task 100 (Obtain and Review Background Information).

It is vital that Nobis address as many of the open technical requests which were previously identified by the Board of Health (BOH) in its October 8 letter to Ben Stevens of The Fields at Sherborn, LLC (Applicant), as funding allows, and which are summarized below:

1. Nitrogen loading analysis at on-site/ abutting wells and property boundaries
2. Loading analysis for viruses and other pathogens (transport model)
3. How retaining walls will affect storm water and groundwater
4. Water supply quantity, via pumping tests and/or evaluation/modeling
5. Analysis of hydrogeological conditions (soils, bedrock, flows, and contours)
6. Analysis of groundwater mounding
7. Analysis of time of travel
8. [The lack of a “biomat” in the leaching area as a result of using the FAST system – a concern raised by the BOH Agent and others]

To this end, we ask that Nobis present its recommendations to BOH in a public meeting upon completion of Task 100. With public input, the Board should then give specific direction to Nobis to ensure BOH will have enough data to make informed and supported conclusions.

Title V Permit: We understand that in addition to the BOH task of making recommendations to the Zoning Board of Appeals on whether or not to grant waivers to existing Town by-laws, BOH also has independent authority to decide whether or not to grant a Title 5 septic permit to the Applicant, under 310 CMR 15.

The materials submitted by the Applicant fall far short of justifying issuance of the requested permit. *To the contrary, we believe there is compelling evidence to deny the Title 5 permit, outlined in the following seven points:*

1. The Massachusetts Department of Environmental Protection (MA DEP) Permit for the FAST systems is invalid
 - a. The MA DEP Provisional Use Permit which the Applicant presented on October 15 had expired on August 26, 2015.¹ Use of the proposed system is simply not permitted and there is no indication that it has been renewed.
 - b. The expired Permit was for a 5-year trial period intended to evaluate performance of certain Innovative/Alternative (I/A) systems made by Bio-Microbics, under 310 CMR 15.286. The Permit required monthly sampling, and extensive reporting by Bio-Microbics over a 3-year period for each installed system.²
 - c. Even if the permit had not expired, the Applicant has not shown that Bio-Microbics will be involved in this on-going sampling or reporting.
2. The proposed system is materially different from the models previously allowed
 - a. Only MicroFAST, HighStrengthFAST, and NitriFAST (3.0, 4.5, and 9.0) models were provisionally permitted by MA DEP.³
 - b. The Applicant proposes an I/A system which includes ABC-N 9.0 with carbon feed, and MicroFAST 1.5 models,⁴ neither of which were allowed by MA DEP.
 - c. The original permit shows a Total Nitrogen (TN) target of 25 mg/L at this flow range⁵, not 10 mg/L as claimed by the Applicant.
3. The flow rate exceeds the FAST system design limits
 - a. The Applicant has consistently claimed 84 bedrooms x 110 gallons per day (GPD) per bedroom = 9,240 GPD.
 - b. The MicroFAST 9.0 and NitriFAST 9.0 models are rated “not to exceed 9,000 US Gallons per day”⁶
 - c. *The final unit, MicroFAST 1.5, is rated to only 1,500 GPD⁷, yet as shown it receives the full flow⁸, which is greater than 6 times its rating.*
 - d. We concur with the peer reviewer, BETA, and others that the bedroom count per Title 5 is in the 129-142 range, which would exceed 10,000 GPD discharge, requiring a monitored sewage treatment plant.
4. There is no evidence that 10 mg/L TN effluent can be achieved by the proposed system
 - a. No performance data from Bio-Microbics was submitted, or can be found for any of their models on their web site; the Applicant’s assertion that a 10 mg/L TN

¹ DEP approval letter for FAST system.pdf, dated 8/26/10, p.1

² Ibid., p. 2-14.

³ Ibid., p. 1-2.

⁴ TFS Well & Septic Review Section 4.pdf, pp. 15-16.

⁵ DEP approval letter for FAST system.pdf, dated 8/26/10, p.2

⁶ TFS Well & Septic Review Section 4.pdf, p. 25 “Operating Conditions”

⁷ Ibid., p. 22 “Operating Conditions”

⁸ TFS Septic & Septic Wall Plans 10.08.15.pdf, p.1 “Treatment System Layout”

effluent can be achieved appears to be based entirely on the sales representative's cover letter.⁴

- b. Bio-Microbics actually excludes performance claims/ liability in its fine print⁹:
 - i. "BIO-MICROBICS SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE."
 - ii. "NO REPRESENTATIVE OR PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY OR TO ASSUME FOR BIO-MICROBICS, INC., ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ITS PRODUCTS"
 - c. A 1999-2007 Cape Cod study showed that only 69% of 289 single-family FAST systems were at or below the 19 mg/L target for that flow range, and the *compliance rate for multi-family systems was even lower, at 60%*.¹⁰
5. No maintenance or monitoring plan has been submitted by the Applicant
- a. Complex systems like this with active components (fans, pumps) are inherently prone to mechanical failures, leakage, and reduced performance. An enforceable plan is needed to ensure long-term health and safety of residents and abutters.
 - b. As proposed, the system shows an ongoing alkaline feed into the septic tank, but no details are provided.
 - c. The ABC-N 9.0 component requires a carbon feed, but no details are given here either, and the Applicant has not included a carbon feed in its plans.
6. There is high systemic risk
- a. The expected flow rate is above the limits for most of the subcomponents. Further, good engineering practice would require a reasonable safety margin below those limits.
 - b. The Bio-Microbics warranty is for 1 year after installation, but presumably this new I/A system will need to operate for 30 to 50 years, similar to passive septic systems.
 - c. Bio-Microbics lists several user activities which are recommended or restricted.¹¹ With over 100 residents anticipated, prohibited activities by anyone can compromise the system performance.
 - d. Key operating constraints listed by the sales representative⁴ are vague and inadequate for BOH to evaluate the performance/ risk of the system as proposed:

"This system should perform to the effluent requirements, provided the influent is as stated above, the system is installed, operated, and maintained properly. This also assumes there is sufficient alkalinity, and there are no issues with temperature or toxicity"

⁹ TFS Well & Septic Review Section 4.pdf, p. 25

¹⁰ Performance of Innovative Alternative Onsite Septic Systems for the Removal of Nitrogen in Barnstable County, MA 1999-2007, George Heufelder, et. al., pp. 15-16

¹¹ http://www.biomicrobics.com/assets/2014_DOs_DONTs.pdf

7. The ownership and liability for system failure are unclear

- a. Which party (Applicant, Homeowner, Condo Association, and/or Town) will be legally and financially liable to repair or replace a failed I/A septic system over the life of the development?
- b. Can a failed I/A septic system be repaired in place, or will it need to be relocated like a passive system would? (It appears relocation will not be possible with the proposed design).

The September 30 analysis submitted by hydrologist Scott Horsley, assumed a conservative 19 mg/L TN effluent concentration, and showed 17.6 mg/L and 16.2 mg/L at the property boundary and (at least) one of the project's drinking water wells, both in excess of the 10 mg/L limit for sensitive receptors. Per the November 3 BETA review, the "BOH8" recommendation shows that the mass balance analysis should be conducted assuming 25 mg/L, which will raise the TN levels further.

We ask that you consider these reasons as a basis to deny the 310 CMR 15 (Title 5) permit to the Applicant. In conjunction with the final Nobis Engineering study, we further ask that BOH recommend to the Zoning Board of Appeals that it should not waive any Town by-laws which BOH determines are necessary for the health and safety of its residents.

Best Regards,

Michael Barberio
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Barry Levy, M.D., M.P.H.
Addie Weiss

For the Citizens Action Committee