



## Town of Freedom BOARD OF SELECTMEN

Monday, April 4, 22

Effingham Planning Board  
Attention: Theresa Swanick, Chair  
68 School Street  
Effingham, NH 03882

**RE: Input Regarding a Development of Regional Impact (DRI) for a Proposed Gas Station within the Ossipee Aquifer / Groundwater Protection District in Effingham, NH**

Dear Ms. Swanick and fellow board members,

The Freedom Board of Selectmen thank you for recognizing the regional impact of this project. We have the highest respect for local control of site development. The town of Freedom is concerned about the water quality that is critical to the town's success. As a town, we have taken steps to protect water quality and are concerned that this project will degrade our efforts. We have carefully reviewed the proposed site plan for this new development with support of our town's Conservation Commission. Scientific data provided by Dr. Robert Newton for the site illustrates our concerns.

Freedom relies on the Ossipee Aquifer through use of private and public wells. The risk of an accident with its potential negative impact on public health and environmental quality of the surrounding communities is too high.

We strongly believe that especially vulnerable resources such as this stratified drift aquifer require protection. It is clear to us that specific characteristics of the land at this location and its prior history as a gravel pit are particularly problematic. In addition, the current erosion and stormwater management plan submitted by the applicant is inadequate. A significant risk to the aquifer exists not only if a major accident occurred, but also from the continuous low level and smaller contamination events that the gas station will almost certainly produce. If siting of this project is allowed to continue then we would request additional protection of the aquifer with engineered and installed oil/water separator tanks like those described in EPA/600/R-20/214, *Current Best Practices in Maintaining Hydraulic Control at Fueling Facilities*.

To illustrate and substantiate our concerns please accept the following.

Respectfully submitted,

Freedom Board of Selectmen:

Leslie R. Babb

Ernest F. Day, Jr.

Melissa M. Florio

## Effingham Site Plan Review, Section I

- I Stormwater Drainage: No increase in the peak flow of surface runoff should be permitted if such increased runoff passes beyond the property lines of the parcel upon which the development occurs unless it is within an approved public storm drainage system.

### Testimony:

- While there appears to be no significant increase in impervious surfaces that would lead to increase in the peak flow (except perhaps a needed impervious base for the dumpster that is not shown on the plan), there will be significantly increased flow off the site because of a swale added to the site per the plan. This purpose of this swale is to direct significant amounts of additional stormwater runoff into the infiltration basin shown of the plan between the site and Route 25. **See Exhibit A.**
- While the letter from Paul King to Mark McConkey characterizes this as a "huge natural retention basin," it is not structured to retain runoff. It will direct the runoff directly into a primary recharge area of the aquifer. **See Paul King letter to Mark McConkey dated 3 October 2021 attached.**
- The infiltration basin is NOT on Meena property. It belongs to the Department of Transportation which created it during the reconstruction of Route 25. Meena has no right to send runoff into this basin.



Figure 1. Aerial photograph of Meena, LLC site in 2015, showing excavated cliff face (red) and infiltration basin (blue).

\*Source: Dr Robert M Newton Presentation Jan. 28, 2022

## Exhibit A

The current Stormwater management Plan provided to the Effingham Planning board from the applicant indicates further measures to direct all stormwater from the site into the infiltration basin. Any accidental gasoline discharge, spills or other such contamination on site will be carried directly into the infiltration basin. Once it has entered the aquifer it will be transported quickly making remediation practically impossible.

\*Source: Meena, LLC Site Plan Application

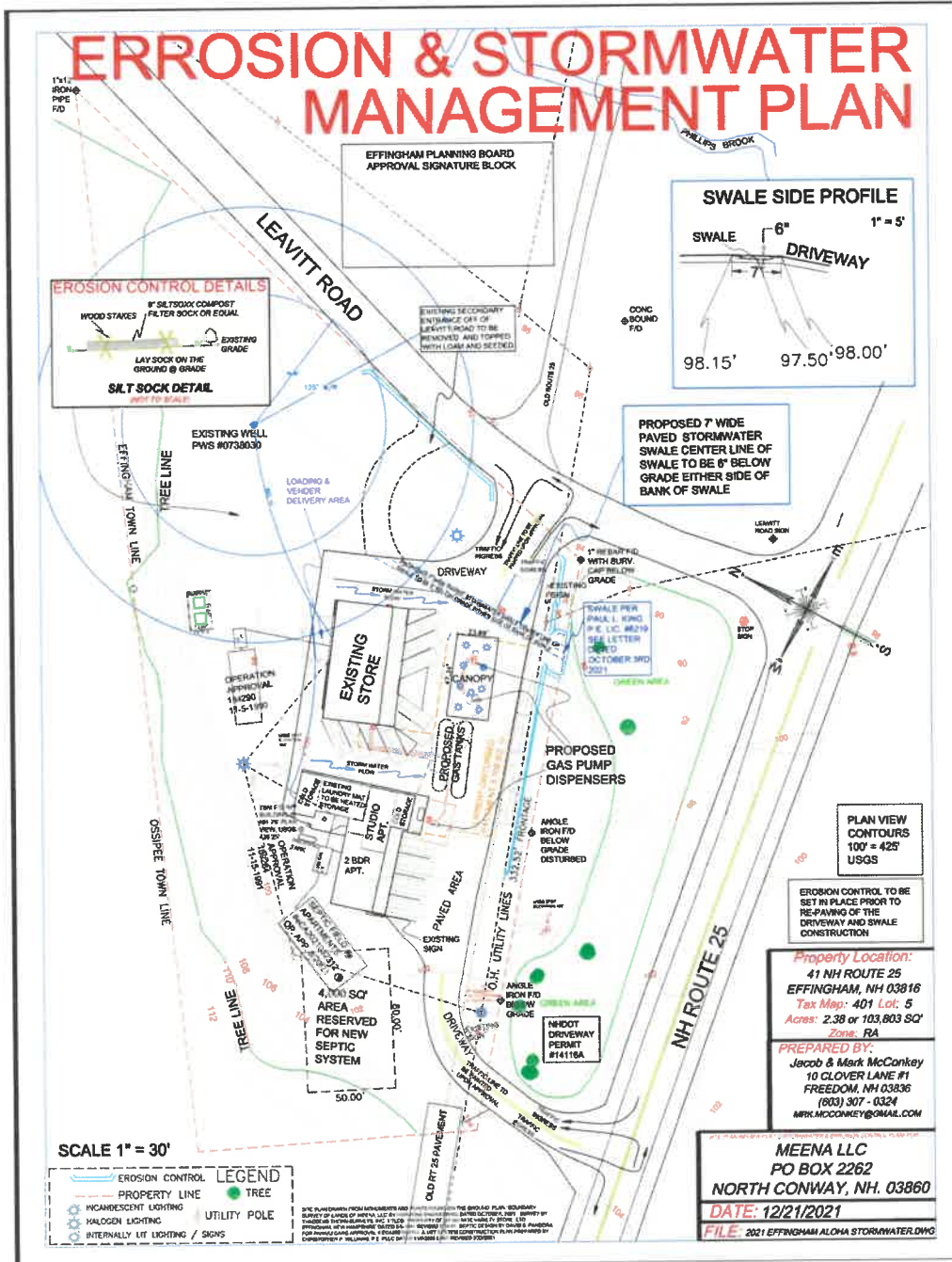


Exhibit A, continued

**Paul L. King**

*Land Surveying & Civil Engineering*

Licensed Land Surveyor  
Professional Engineer  
Licensed Septic Designer

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Tamworth, NH 03886

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3 Oct 2021

Mark McConkey  
Clover Lane  
Freedom, NH 03836

Re: Boyles Family Market, Effingham, NH Tax Map 401, Lot 5

Hi Mark:

You inquired about the stormwater drainage at the above referenced site. The existing conditions and the proposed conditions have the same amount of impervious areas. Thus, there will be no additional runoff and no need for any engineered stormwater drainage design. The existing minimal runoff, flows southeasterly to a huge natural detention basin, between the site and Route 25. There is no evidence of any ponding or any other problems at this basin.

I do recommend, when the site is paved, a gentle swale in the pavement at the northeast end of the gas pump area. This gentle swale should direct any runoff southeasterly toward the basin, instead of toward Leavitt Road.

Also, there is no need for a NH Alteration of Terrain permit, because the disturbed area is less than 100,000 sq ft and it does not fit into any other category requiring a permit.

If you need any further assistance, please let me know.

Sincerely,



*Paul L King*

Paul L. King, PE

## Effingham Site Plan Review, Section J

- J. Pollution Control: To avoid undesirable and preventable elements of pollution such as noise, smoke, soot, particulate, or any other discharges into the environment which might prove harmful or a nuisance to persons, structures, groundwater, or adjacent properties. The applicant will employ the standards and technology available at the time. No plan shall be approved which does not appropriately protect groundwater and other natural resources from adverse conditions caused by the development.

### Testimony:

In granting a variance for the applicant to operate a gas station on this site, the Effingham Zoning Board of Adjustment (ZBA) deliberated about the risk of spills and contamination and decided they could rely on the new Underground Storage Tank (UST) technology to prevent these events. Neither the ZBA nor the DES managers who approved the UST plan considered the fact that the site was a gravel pit over a primary recharge area for the aquifer and what that means when spills inevitably occur. We urge the planning board to make its own determination on both the inevitable spills and contamination and the impact the topography of the site has as it deliberates whether this application meets the town's pollution control standards.

### Spills and Contamination

While UST and dispensing designs have improved, they are not fail safe. For example, please consider a control measure as simple as positive limiting barriers (PLB's), as stated in the SPCC document, that can contain 9.87 gallons of gasoline in the event of a dispensing spillage onto the ground. A recent survey of accidental spills at gas stations in Carroll County show many over 20 gallons each that would overwhelm the PLBs even if they were meticulously maintained. Given that sand used in our area often fills the PLBs entirely, their containment volume is even less. It's quite possible that a gasoline spill will escape the immediate area and enter the groundwater facilitated by a stormwater plan that transports contaminants offsite and directly into the groundwater.

Figure 2 is a small example of how reality can deviate from design and why caution in siting of a project that presents significant risks to groundwater is so important.

Town	Gallons	Cause
Moultonborough	20	Drive-off with hose attached
North Conway	20	Car gas tank leaked
Bartlett	45	Snow plow hit pump
Wakefield	25	Fill shutoff failed
Ossipee	30	UST overflow during refill
Wolfeboro	20	Gas pump leak

Figure 2 Recent Spills in Carrol County

\*Source: Dr Robert M Newton Presentation Jan. 28, 2022

According to the NH DES Fact sheet, NH DES DWGB-22-20, Preventing Groundwater Contamination at Gas Stations 2020, although underground storage systems have improved, they are not without fault and still contribute to site contamination as documented in numerous places throughout New Hampshire. Additionally, DES has documented that accidental discharge and spills carried off by stormwater has occurred at a significant rate and is likely to continue.

As a result, DES has recommended that local municipalities restrict siting of gas stations where risk to groundwater contamination exists and establishes setbacks to protect water from pollution.

**Exhibit B** illustrates the documented travel distances from gasoline contamination sources and the recommended setbacks.

	Minimum Standard	Meena Site
Gasoline USTs and public water supplies (PWSs)	500 feet	<200 feet
(Diesel) Other USTs and PWSs	400 feet	<200 feet

The proximity of this project violates the siting setback for the existing public water supply and by extension the primary recharge area that enters the aquifer according to Env-Wm 1401.28 (ac), please see Exhibit B.

**Exhibit B**  
Excerpt from NH DES DWGB-22-20  
Preventing Groundwater Contamination at Gas Stations  
2020

NH DES has published information that The US Geological survey detected MtBE in 40% of public wells in Rockingham County and found a correlation between MtBE concentration and proximity to underground storage tanks. NHDES has stated that they do not always have the resources to verify that setbacks are being met and this should come up in local site plan reviews.

NHDES has found that the average distance for traveled for gasoline constituents was 295 feet from the source with a large percentage traveling more than 300 feet.

**According to the Applicant's plans the dispensing area is approximately 100 feet from the aquifer infiltration basin. The Underground storage tanks (UST) are approximately 147 feet from the basin. There is a public well less than 200 feet from the UST and dispensing area.**

**Siting Restrictions**

Given the likelihood that UST systems will release gasoline constituents (most commonly in the form of vapor leaks from underground piping systems or overfills of the UST, vehicle tank or portable container) and the possibility that spilled fuel will be carried off the fueling area by stormwater, municipal officials interested in providing the highest possible level of protection for groundwater used for drinking water should consider restricting the siting of gas stations as they would any other land use that is likely to contaminate groundwater. If the municipality's zoning ordinance prohibits the location of certain high-risk land uses in wellhead protection areas, aquifer protection areas, or other areas of high-value groundwater, gas stations should be considered for inclusion in the list of prohibited land uses.

Municipal officials should also consider including setbacks in zoning ordinances or site plan review regulations to separate UST systems and gas station stormwater discharges from water supply wells, both public and private. A 2002 study of petroleum contamination travel distances at discharge sites in Maine found the *average* distance traveled was 295 feet for gasoline constituents and 140 feet for diesel/fuel oil constituents. About one-third of MtBE contamination plumes, one-quarter of other gasoline plumes, and one-sixth of diesel/fuel oil plumes traveled more than 300 feet.<sup>2</sup> NHDES' rules for the siting of UST systems *at new sites* (Env-Wm 1401.28 (ac)) include the following setbacks:

- 500' between gasoline USTs and public water supplies (PWSs).
- 400' between other USTs and PWSs.
- 250' between gasoline USTs and private wells.
- 75' between other USTs and private wells.
- 75' between any UST and surface water.

Municipalities that feel that these setbacks are not sufficiently protective of public or private water supplies or other water resources can establish more stringent setbacks, as well as applying setbacks to new USTs at existing sites, although NHDES does not recommend that local siting restrictions be applied to replacement USTs.

\* Source: NH DES Fact Sheet DWGB-22-20, 2020

### Topography of the site

Since the containment technology is not fail safe, the likelihood of stormwater-carried surface contamination is high. The unique characteristics of the site are such that regular and ongoing contamination of the primary recharge area of the aquifer is likely.

**Exhibit C** illustrates the special circumstances that have raised our concern. The history of this site as a gravel pit means:

- Water flows off the site to the infiltration basin—and the stormwater plan increases that!
- Excavation has removed finer filtration soils creating quicker infiltration
- The site and the off-site infiltration basin are only a few feet above a primary recharge area of the aquifer

We feel that restriction of this site from storing and dispensing petroleum products is the best course of action to protect the groundwater within the stratified drift aquifer. An accident at this location would be far-reaching and impactful and according to Dr Robert Newton, remediation efforts would likely not be successful because “in this unusual situation, you are in such permeable materials, it is unlikely you would capture everything. The solution would be that you would have to put in an alternate water supply.... You would not be successful in treating the water.”

We observed, that in The Effingham Zoning Board's conditions required the applicant provide a Stormwater Management Plan and a Spill Prevention and Countermeasure Plan for site plan review at the Planning Board. From this, we can infer that there is concern about stormwater carried contaminants into the groundwater as well as control and cleanup plans in the event of a larger accident. We share this concern.

The application details show an initial reluctance by the applicant to supply a Spill Prevention Control and Countermeasure Plan (SPCC). The one they submitted relies heavily on inherent design-based control measures meaning they are relying on the installation of new equipment and the systems used to detect leaks. The applicant states “The design specifications are themselves the prevention, control, and countermeasures.” Again, the UST designs while improved are not fail safe and persistent surface storm water contamination requires active measures to even begin to control.

The nature of the proposed facility storing and dispensing petroleum products at this site clearly increases the danger to health, life, and property. By this measure, the risk of this use is incompatible with the regulations of this section.



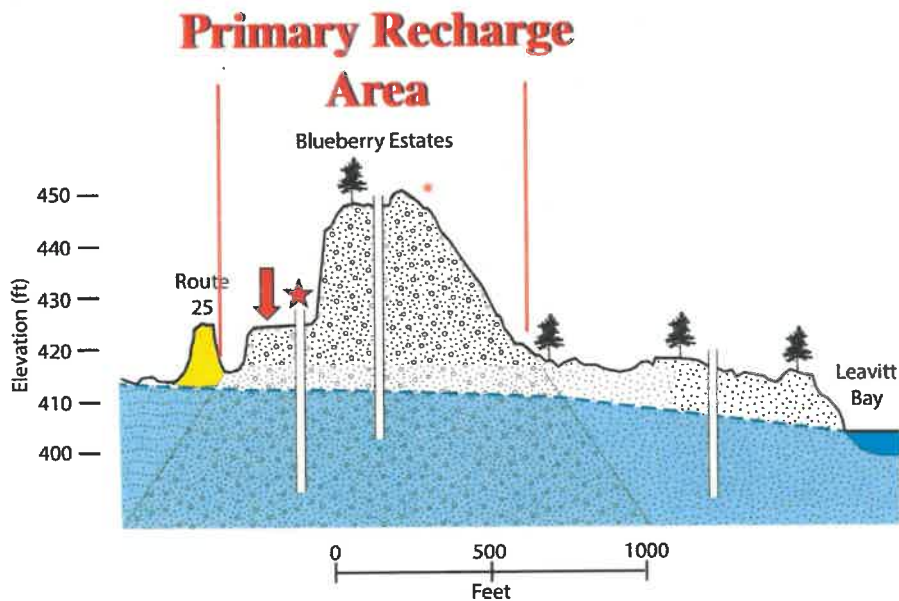
## EXHIBIT C

### Site Topography

LIDAR based contours added to aerial photograph illustrates how the contours of the former gravel pit funnel stormwater from the steep area at the behind the store into the infiltration basin along Route 25. This infiltration basin feeds directly into the aquifer.



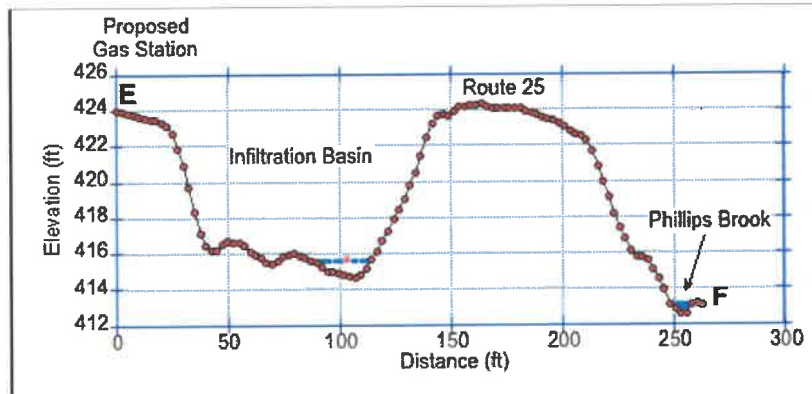
Topography of the site shows how close the gas tanks (UST's) and dispensing pumps will be to coarse material that will send runoff or leaks into the aquifer.



LIDAR based elevation graph of cross section. Illustrates the Meena, LLC (red arrow) site sits upon a primary recharge area for the aquifer that has had its finer material removed, revealing coarse material that transports water and potential contaminants directly into the aquifer very quickly. Note that there is a public water supply well on site (star).

\*Source: Dr Robert M Newton Presentation Jan. 28, 2022

The infiltration basin is just a few feet above Phillips Brook which is an exit point of ground water at this location.



LIDAR based elevation graph of cross section at the infiltration basin illustrates how the basin interacts with Phillips Brook and is an efficient recharge point for the aquifer.

\*Source: Dr Robert M Newton Presentation Jan. 28, 2022