

October 19, 2016

Planning Board
60 Pleasant Street
P.O. Box 550
Newburyport, MA 01950

Re: Evergreen Commons OSRD
Newburyport, MA

Dear Board Members:

Northeast Geoscience, Inc. (NGI) is writing to provide reply to issues raised in letters from AECOM to the City of Newburyport Director of Planning and Development dated October 13, 2016, from Geosphere to the Planning Board Chairman dated October 17, 2016 and from the City Engineer to the Office of Planning and Development dated October 18, 2016 regarding the proposed Evergreen Commons Open Space Residential Development (OSRD) in Newburyport, MA.

AECOM states that the Evergreen Valley Golf Course "may have represented a lower risk to groundwater than a normal golf course" due to conditions included in the 1985 special permit. Table 1 is a list of pesticides, herbicides, fungicides, bactericides, fertilizers and soil wetting agents applied to the golf course during the last 18 months. Use and storage of these products in the Zone II Recharge Area does represent a risk to groundwater and Well No. 2 as noted in the TEEM Zone II Report. Construction of the Evergreen Commons OSRD will eliminate this risk.

The AECOM letter identified projected increases in sodium in Well No. 2 from the current average concentration of 26.6 mg/L to 28.7 mg/L under post development conditions as a potential to "have adverse health effects". NGI disagrees with this statement. The average current concentration of sodium in water from the Newburyport water treatment plant sourced from three reservoirs and Well No. 1 is 39.5 mg/L (24 samples collected from 1994 to present). No one is suggesting that the water from the treatment plant has the potential to cause adverse health effects. The projected concentration in Well No. 2 is lower than the current concentration in water from the treatment plant. Geosphere correctly did not identify sodium as a potential threat to Well No. 2 in their review.

The primary sources of sodium in Newburyport's drinking water are road salt applied to roadways for de-icing and sodium included in water treatment chemicals. Both of these sources are under the control of the City of Newburyport Department of Public Services (DPS). NGI does not perceive the projected sodium concentration in Well No. 2 as public health risk. However, if your consulting engineer has a different opinion, alternative de-icing agents or water treatment chemicals could be used, or DPS could implement low salt areas in Zone II. The Evergreen Commons OSRD has no ability to dictate the City road maintenance activities.

AECOM states that “an increase in sodium levels at Well No. 2 would constitute contamination of the Well No. 2 supply” and by inference would not be allowed in Zone II. This extreme interpretation of the Water Resource Protection Ordinance has significant implications. In essence, it means that any proposed land use in Zone II that includes roads, driveways or sidewalks that require maintenance in the winter, new lawn areas or cropland or any other land use that will introduce any concentration of any substance to the water is not allowed. If AECOM’s incorrect interpretation of the ordinance is implemented, land owners in Zone II will be affected and future development and redevelopment in Zone II will be indirectly prohibited.

Section XIX-G. of the Water Resource Protection District Ordinance includes requirements on the size of individual septic systems in Zone II, and limits flows for proposed systems to 440 gallons per day of sewage discharge per acre lot. This provision is included to limit the amount of nitrogen that will reach the City wells and to keep the concentration below 5 mg/L. The presumption is that septic systems constructed in accordance with Title 5 and these provisions will not adversely affect water sources. AECOM’s interpretation of the ordinance would suggest that any increase in nitrate at a well would constitute contamination of the well, and would be prohibited. NGI concludes that AECOM has incorrectly interpreted the ordinance.

The AECOM letter includes the statement “Any new development will increase the risk of contamination”. They are essentially suggesting the City prohibit new development in Zone II. The Water Resource Protection Ordinance applies to all new construction, reconstruction (like repairing or expanding and existing home), or expansion of existing buildings and new or expanded uses in the district. Prohibiting these activities would have significant ramifications for current land owners and property values and is not consistent with the intent of the ordinance.

AECOM’s letter and the City Engineer’s letter discuss emerging contaminants such as 1,4-Dioxane, chlorates, PFC, and PFASs, and suggests that these compounds are somehow relevant to consideration of the Evergreen Commons OSRD. None of these compounds are proposed to be used on the project. AECOM also states that “Even if these occur at trace levels in groundwater, their very occurrence undermines public confidence in their drinking water supply” and “the public supplier may need to deactivate or abandon the supply”. NGI concludes that AECOM’s unsubstantiated speculation about possible future issues that are unrelated to this project do not help inform the Planning Board’s decision on this project.

Geosphere speculates that the proposed sewer system for Evergreen Commons will leak and untreated wastewater will be introduced to groundwater. Existing residential development on Boyd Drive, Briggs Ave, Brown Ave, Azalea Road, Laurel Road and Ferry Road are all served by City sewer services with collection systems that are 30 to 50 years old. Water quality test results for Well No. 2 provide no evidence of historical discharges from sewer lines in the area. The proposed sewer collection system in Evergreen Commons will be constructed using modern methods and materials, pressure tested for leaks following installation, inspected by the City prior to acceptance and should be less prone to leaks than the existing sewer lines near Well No. 2.

Geosphere states that the development of the Evergreen Commons OSRD will limit the ability of the City to relocate or expand Well No. 2. NGI evaluated this in the Water Resources Impact Evaluation Report and concluded that this is not the case. There is adequate space on the City owned land around Well No. 2 to allow for the installation of a replacement well for Well No. 2.

Geosphere (formerly TEEM) delineated the Zone II Recharge Area for Wells No. 1 and No. 2 and identified the Evergreen Golf course as a potential source of contamination in 1999, but did not identify housing. Between 1999 and 2016 this position has been reversed. Geosphere now apparently views residential development in Zone II as a more significant threat to Well No. 2 than the golf course. Geosphere's opinion on this topic has been inconsistent.

Geosphere has characterized the proposed development as an unregulated group of potential sources of contamination. The proposed Evergreen OSRD is residential development just like the development on Boyd Drive, Briggs Drive and the other streets in the area. The project proponent has proposed a home owners association (HOA) with lawn care services to be coordinated by the HOA using a licensed professional lawn care service. The HOA can be regulated as a single entity just as the golf course is regulated today.

The City Engineer's letter states "In addition, glyphosate (main pesticide ingredient in Roundup®) and other toxins have reached the *monitoring* wells, as stated in the NGI letter". Glyphosate is an herbicide and was not detected in any of the samples collected by NGI or the Newburyport Water Department and NGI did not state that it was in any letter.

In summary, NGI concludes that the proposed Evergreen OSRD is preferable to the existing golf course, is consistent in character with existing residential development and is an allowed use under the Water Resource Protection Ordinance. Statements by AECOM and Geosphere that the proposed development will degrade the water quality in Well No. 2 are not supported by scientific analysis. By contrast, the high quality of the water in Well No. 2 is direct evidence provided by an independent certified laboratory that residential development is not degrading the water quality in Well No. 2. By extension, there is no reason to conclude that the Evergreen Commons OSRD will contribute to the contamination of Well No. 2.

Please do not hesitate to contact me with any further questions.

Sincerely:

Northeast Geoscience, Inc.

A handwritten signature in black ink, appearing to read "J. Billings", with a stylized flourish at the end.

Jay Billings

Hydrogeologist

Evergreen Valley Golf Course Turf Care Products

9/30/2016

Date	Units	Product	Unit Cost	Total Cost	Active Ingredient	Fungicide
9/3/2014	8	Prophesy 0.72G Fungicide	\$59.00	\$472.00	Propoconazole	Fungicide
9/19/2014	2	TriCure Granular 40 lb bag	\$90.00	\$180.00	Dihydrooxirane epihydrin	Soil Wetting Agent
12/16/2014	5	Fungicide IX Anderson 30	\$95.50	\$477.50	Chloroneb and Thiophanate-methyl	Fungicide
4/3/2015	7	Fungicide IX Anderson 30	\$95.50	\$668.50	Chloroneb and Thiophanate-methyl	Fungicide
4/20/2015	6	AND (17-0-17)50%MU Ggrade	\$51.80	\$310.80	Acelepryn in fertilizer	Fertilizer
5/9/2015	5	AND(28-0-3)164%Dim/0.67%	\$89.00	\$445.00	Acelepryn in fertilizer	Fertilizer
5/13/2015	2	AND(28-0-3)164%Dim/0.67%	\$89.00	\$178.00	Acelepryn in fertilizer	Fertilizer
6/22/2015	4	Prophesy 0.72G Fungicide	\$59.00	\$236.00	Propoconazole	Fungicide
6/22/2015	4	Insecticide III 1.34% Chl	\$55.00	\$220.00	Chloropyrifos	Insecticide
7/15/2015	6	AND(9-4-9)DG Biomend 40 lb	\$41.60	\$249.60	Bone meal based fertilizer	Fertilizer
7/15/2015	6	Disarm G 25 lb Bag	\$54.50	\$327.00	Fluoxastrobin 15.81%	Fungicide
7/16/2015	4	Disarm G 25 lb Bag	\$54.50	\$218.00	Fluoxastrobin 15.81%	Fungicide
8/3/2015	1	EndoROOTS 3-3-4 50 lb bag	\$72.00	\$72.00	Fertilizer with biologicals	Fertilizer
8/3/2015	5	TriCure Granular 40 lb bag	\$95.00	\$475.00	Dihydrooxirane epihydrin	Soil Wetting Agent
8/19/2015	6	Fungicide IX Anderson 30	\$95.50	\$573.00	Chloroneb and Thiophanate-methyl	Fungicide
8/19/2015	1	8.5% Betasan Weed Prevent	\$109.00	\$109.00	Bensulide	Herbicide
8/25/2015	7	Cleary's 3336 DGPro #30	\$60.00	\$420.00	Thiophanate	Fungicide
8/25/2015	7	AND(9-4-9)DG Biomend 40 lb	\$40.00	\$280.00	Bone meal based fertilizer	Fertilizer
8/26/2015	4	Cleary's 3336 DGPro #30	\$60.00	\$240.00	Thiophanate	Fungicide
8/26/2015	2	AND(9-4-9)DG Biomend 40 lb	\$40.00	\$80.00	Bone meal based fertilizer	Fertilizer
9/9/2015	8	Prophesy 0.72G Fungicide	\$59.00	\$472.00	Propoconazole	Fungicide
9/15/2015	4	Prophesy 0.72G Fungicide	\$59.00	\$236.00	Propoconazole	Fungicide
9/15/2015	2	Bifenthrin 0.1G HDG 30 lb	\$24.50	\$49.00	2-Methyl-3-phenylphenyl)methyl (1S,3S)-3-[(Z)-2-chloro-3,3,3-trifluoroprop-1-enyl]-Thiophanate-methyl and iprodione	Insecticide
4/6/2016	2	LESCO Twosome Fungicide	\$126.99	\$253.98	Iprodione	Fungicide
4/6/2016	2	18 Plus Lesco Fungicide	\$114.00	\$228.00	Fertilizer	Fertilizer
4/6/2016	4	Country Club MD 16-0-8E	\$40.00	\$160.00	Fertilizer	Fertilizer
4/6/2016	6	Country Club MD 18-3-6	\$50.00	\$300.00	Fertilizer	Fertilizer
4/6/2016	2	LESCO Green Flo 18-3-6	\$36.60	\$73.20	Fertilizer	Fertilizer
4/6/2016	2	Spectator Ultra Fungicide	\$87.29	\$174.58	Propoconazole	Fungicide
10/24/2015	6	Fungicide IX Anderson 52.8	\$126.00	\$756.00	Chloroneb and Thiophanate-methyl	Fungicide
6/3/2016	6	Prophesy 0.72G Fungicide	\$59.00	\$354.00	Propoconazole	Fungicide
6/3/2016	2	EPN N-Fuze (7-0-0) 2.5G	\$45.00	\$90.00	Fertilizer	Fertilizer
7/7/2016	2	Junction Fungicide 6 lb	\$124.05	\$248.10	Ethylenebisdiethiocarbamate, zinc and manganese	Fungicide/Bactericide
8/1/2016	7	Cleary's 3336 DGPro #30	\$59.00	\$413.00	Thiophanate	Fungicide
8/1/2016	1	ENP (12-4-6) 2.5 gal	\$81.50	\$81.50	Fertilizer	Fertilizer
8/17/2016	1	Zeta-Plex N-Fuze 2.5 Gal	\$49.75	\$49.75	Liquid ammonium sulfate with amino acids	Fertilizer

Total \$10,190.51

2016 Total \$3,182.11

2015 Total \$5,878.90