TOWN OF FRAMINGHAM
Board of Health
Memorial Building, Room 221
150 Concord Street
Framingham, MA 01702-8368

Board of Health
Michael R. Hugo, Esq., Chairman
Nelson Goldin, Secretary
David W. Moore, M.D.

Interim Director of Public Health
Robert T. Cooper, Interim Director

Tel: (508) 532-5470
Fax: (508) 620-4833
health@framinghamma.gov

BY EMAIL AND HAND DELIVERY

May 30, 2013

Ms. Amanda Loomis, Interim Director
Planning Department
Memorial Building
150 Concord Street
Framingham, MA 01702

RE: BOH 2nd Set of Comments on 45 Nixon Road, Definitive Plan for Ford's Hill Estates Dated February 12, 2013, Connorstone Engineering, Inc. 8-Lot Subdivision, 43B/45 Nixon Road, Framingham, MA Nexum Development Corp. (Owner)/Paul Croft (Applicant)

Dear Ms. Loomis:

The Framingham Board of Health (BOH) provided you and the Planning Board with our comments and concerns (see BOH letters dated May 8, 2013 and May 24, 2013 to Ms. Amanda Loomis, Planning Department and) regarding the "Definitive Plan for Ford's Hill Estates, 8-Lot Subdivision at Nixon Road" (Definitive Plan) dated February 12, 2013. The Definitive Plan was submitted to the Planning Board by Nexum Development Corp. (Nexum) by the applicant, Mr. Paul Croft of 23 Mill Street, Natick, MA (Applicant) and Connorstone Engineering, Inc. of Northborough, MA (Mr. George Connors, Counselor At Law). The proposed development is an 8-lot subdivision on the entire parcel of 45 Nixon Road (15.8 acres) and a portion of 43B Nixon Road (approximately 6 acres) in Framingham, MA ("the project"). The total project encompasses approximately 21.8 acres, based on the information in the Definitive Plan. [Note: Additional perc testing has been conducted on adjacent property on Nixon Road by the applicant; at the present time it is unclear what the plans are, if any, for the adjacent property.] As stated previously, the BOH's future involvement on this project includes, at a minimum, potable water well permits and septic system permits for the eight houses proposed for this development.

This letter provides the BOH's followup comments to reiterate our stated position with regard to this proposed development. In addition, Mr. Connors/Connorstone Engineering provided a response letter dated May 13, 2013 to the Planning Board, which addressed some (not all) of the BOH comments. Therefore, we are including our comments on Connorstone's May 13, 2013 responses as well, as an attachment to this letter.

An additional set of revised plans was received on May 28, 2013 by the Health Department, with additional letters from Connorstone. It is unclear what has changed in the plans, and we do not feel two days is sufficient

time to review these changes in depth; however, the submittals do not change the overall concerns about the private well/water supply for the proposed development. Mr. Connors' May 23, 2013 cover letter to the Planning Board states that "With the revised plans and Connorstone responses it appears the above information brings the project plans current with all various departmental and consultant letters and reviews as of May 22, 2013." The BOH objects to this statement, as we do not concur that Connorstone has answered the fundamental question asked previously, which was to commit to demonstrating that the water supply could suffice during peak summer usage and using actual, on-site data from all eight proposed wells to demonstrate whether or not the water supply has a significant effect on the private wells of abutting owners. As stated in Mr. Hugo's letter, "…in order for the BOH to recommend a favorable disposition of this issue, we must first have evidence that the new constructions before [the Planning Board], can be completed with no significant impact upon the others who share the same water table in that neighborhood." Even though the lots are proposed as individual lots, the effect of an additional eight wells in the same development have the potential to adversely affect the nearby existing private wells; the only way to determine this is to conduct pump tests of the proposed wells simultaneously.

The BOH also noted in the May 8, 2013 letter that we will not approve the proposed wells until there has been a pump test of the wells for this development, that must be conducted between mid-August and mid-September. We reiterate that the information provided in the current Definitive Plan is insufficient to determine:

(1) if the proposed drinking water wells will produce sufficient water, or if they will produce water that meets acceptable drinking water criteria, and/or
(2) whether or not the installation and use of the proposed drinking water wells will impact the individual private water supply wells of the surrounding neighborhood.

In addition, Connorstone's May 23, 2013 cover letter to the Planning Board notes that "the cistern [for fire protection water supply] still remains on the submitted drawings until such time as the [Planning] Board decides if a waiver is appropriate." The BOH also notes that if the cistern is not implemented as part of this project, and fire protection systems rely on the project's private wells, the effects of this additional water use must be evaluated and this information included with responses to our other water supply questions noted above.

Therefore, we cannot provide the Planning Department with our approval for this project at the present time.

Additional detailed responses are provided separately in the attached document. Thank you for this opportunity to provide the Planning Department with these comments.

Very truly yours,

Robert T. Cooper, Interim Director
Health Department

cc: Members of Framingham Board of Health
File

Framingham Health Department/Board of Health
Responses to Connorstone letter of May 13, 2013
May 31, 2013

The Framingham Health Department/Board of Health (FBH) has reviewed the Connorstone Engineering letter dated May 13, 2013 and is submitting the technical responses below to the Planning Board. Our responses are shown below in italics. In summary, the FBH appreciates the detailed technical response to comments provided by Connorstone and agrees with many of the comments but still has reservations about a number of the opinions expressed in the response letter. The FBH is providing feedback on the comments and itemizes those areas where more data or analyses may be required.

Connorstone Comment regarding Potable Water Wells

This site, like any other, will necessarily have to meet the requirements for wells. Each lot development will follow the protocol for permits, installation, testing and commissioning of the wells.

If a fire cistern is required it will not become a constant draw on a well; it will be filled initially and then periodically 'topped off.' However such a cistern may be waived in favor of sprinkler systems in the houses. This cistern, if required, can be conditioned to be filled at a very slow rate of 1 gpm prior to commissioning.

The GIS plan showing the surrounding wells juxtaposed with the proposed wells shows a distribution pattern of proposed individual well placements at a rate commensurate with the rural sections of land abutting the site, and a lesser density that that of the abutting Dartmouth Drive. This proposed site has the right to be developed in accordance with the underlying zoning.

FBH Response
The applicant must install the water wells to determine the ability of the aquifer to provide sufficient water to the proposed houses in accordance with Board of Health requirements. Following the initial comments by FBH the applicant has submitted a study by NGI regarding the potential for water adequate water supply. In this study NGI mentioned that "It is not possible to guarantee that all of the wells drilled at a site will have sufficient yield, and some wells drilled in the area have limited yields." It is premature to determine whether wells will have adequate capacity or not as the logical first step is to install the wells and test them to ensure adequate supply. Whether or not they will affect other neighboring wells can be determined through an adequately long aquifer test to discern whether impacts are actually observed at neighboring wells. The applicant should install wells of sufficient capacity and propose a test plan for review by the FBH to determine whether neighboring wells are impacted.

Connorstone Comment regarding Septic Systems

Each septic system will be designed and submitted to the Board of Health for approval.

FBH Response:
Agreed applicant will submit design and the FBH will approve if meet design requirements. The Planning Board's consultant, Horsley Witten, is providing significant comments on the septic system testing as well.

Connorstone Comment regarding Existing Structures

At the appropriate time a demolition permit will be applied for to raze the existing house. Work will conform to the applicable regulations.

FBH Response:
Agreed that the work should be done in accordance with the regulations.

Connorstone Comment regarding MEPA

This site does not implicate MEP A. Development in the area is not being segmented. 45 Nixon Road and the adjacent 43B land comprises approximately 22 acres, is under the ownership of Nexum Development, and is not connected through any ownership interests to land of Wayside Inn Realty Trust, the Feindel properties, or the Whittemore properties.

There is not a "... *current development of five lots underway at 50, 50B, 52A, 52B and 52C Nixon Road being developed by the same entity..*" one house is existing and is incorrectly included in that statement by the BOH. Further the Board has noted that 4 well permits applied for.

The applicant did not test "... *many other areas of43B Nixon Road in December 2012"* as stated in the BOH letter. The applicant did test on land of others abutting and removed from 43B Nixon Road.

There has been extensive testing on lands adjacent to this current subdivision; however there is only the 8 lot project on a 500 foot cul-de-sac, on land of Nexum Development being the subject matter of this permitting effort, and with an existing house the net increase in lots is actually only 7.

FBH Response:
The Town has been told varying plans for this development project and will continually evaluate whether MEPA has been triggered as modifications to the proposed plan are developed to ensure segmentation is not pursued.

Comments related to the FBH Well Regulations

1. **Connorstone Comment regarding Maximum Yield Estimate** The town regulations of "...*200 gallons per bedroom per day at 20 lbs. P.S.I* "is not fully explained by the BOH review letter, it goes on to say *"...at the highest fixture serviced"* This should be read to be criteria for adequacy of flow where it incorporates a pressure term in the equation (e.g. the shower head on the second floor is required to be able to deliver this quantity of water at that pressure). Additionally the BOH regulations for wells apply to the criteria for a well not the actual use. DEP (310 CMR 15.203, and provides further "*Any design flow established by the Department pursuant to 310 CMR 15.203(6), shall be based on 200% of average water meter readings in order to assimilate maximum daily flows or on other methods determined to be appropriate by the Department"*) and Framingham BOH septic system flow are based on 110 gallons per day per bedroom, which assumes two persons per bedroom. The actual use of water is therefore a theoretical maximum of 440 gallons per day for a 4 bedroom house. In fact the actual use is less with the use of water saver devices and lesser occupancy of the house.
   FBH Response:

   The applicant has raised a question about whether the well yield needs to be 110 gpd/bedroom or 200 gpd and whether the 200 gpd is related to the water fixture pressure because of the term 20 pounds psi in the requirement. It would be highly unusual to provide plumbing fixture instantaneous flow rate in terms of gallons per day but rather are more commonly in gallons per second or gallons per minute as an instantaneous rate. Further note that the Massachusetts DEP Private Well Guidelines on page 39 require wells to yield 110 gallons per bedroom x number of bedrooms plus one bedroom x 2 (safety factor) which is equivalent to 110 x 5.5 x 2 = 1210 gpd or 269 gallons per the 4.5 bedrooms envisioned by the applicant. The 200 gpd per bedroom rate proposed by the BOH is actually less than the MassDEP guideline rate. If the Applicant has information about the intent of the 200 gpd when written that is inconsistent with use in this review then please provide that information. Also note that the applicant should provide information on the size of the pressure tank for the home per section 2E of the standard.

2. **Connorstone Comment regarding Well Flow Demand Breakdown** is capsulated below. DEP septic system design criteria provides for 110 gallons per day per bedroom with two persons per bedroom occupancy. DEP (see above) provides for water meter readings as an alternative in situations where there is no criteria but only where the DEP has no category (here there is -Single Family house) but any water meter reading must be doubled. Therefore the 110 gallons per day per bedroom is a reasonable estimate of maximum daily demand on a peak day.

   Generally the following approximates the fixture uses:
   - Toilet -19 gallons per day
   - Bathing & hygiene -15 gallons per day ·
   - Laundry -eight gallons per day ·
   - Kitchen -seven gallons per day
   - Housekeeping -one gallon per day

   TOTAL 50 GALLONS

   However new construction provides 'water saving' fixtures which will reduce the use. The following chart highlights how much water can be conserved by installing water-saving equipment in place of conventional plumbing fixtures, fittings and appliances:

   Fixture/Fitting/Appliance Water Use In Gallons Per
   Conventional Toilet 3.5 flush
   Low Consumption Toilet 1.6 flush
   Conventional Showerhead 3-10 min.
   Low-Flow Showerhead 2-2.5 min.
   Faucet Aerator 3-6 min.
   Flow Regulating Aerator .5-2.5 min.
   Top-Loading Washer 40-55 load
   Front-Loading Washer 22-25 load
   Dishwasher 8-12 load

   FBH Response:
   The applicant has not described whether any water will be used for irrigation as requested by the FBH. Also the FBH asked whether a separate well would be used for collective irrigation water and no response was provided.

3. **Connorstone Comment regarding Fire Water Supply** to a cistern is supplied by a separate well. The demand will be 40,000 gallons as a onetime initial filling and then replenishment after each use of some much lesser amount, where each use would be either testing or a fire occurrence. The pump can be set to replenish at a rate of 1 gpm. Water will be refilled via a float sensor in the tank, similar to the pump chamber, calling for the well pump to be activated. The tank will not freeze, nor will the pipes where they are to be buried with 4-5 feet of cover.

   FBH Response:

   The applicant should propose a location and test the fire well for supply. The FBH has heard neighbors opinions that that past filling of the swimming pool on the applicant's property had negative consequences for the neighbor wells. The applicant commitment to filling the fire water cistern at a slow rate to minimize impacts is appreciated, but the impact of water withdrawal for the cistern, if used, must be evaluated.

4. **Connorstone Comment regarding Perchlorate Sampling and Analysis**. Each well will be tested for the required parameters.

   FBH Response:

   Agreed that the work should be done in accordance with the regulations

5. **Connorstone Comment regarding Well Water Treatment and Indicative Analyses** will be treated to address each individual wells water quality. Technology is available to address each water chemistry issue. For example filters for iron and manganese, water softeners for excess calcium, etc. As noted by the Board of Health, "*...water quality at 45/43B Nixon Road cannot be determined until wells are actually installed at 45 Nixon Road, and then tested for water quality.*" The BOH does go on to note "*Also, the Regulations indicate that treatment plans for water conditioning shall be submitted for FBH approval...*" Thus any water quality issues have an avenue to become potable sources.

   FBH Response:
   Agreed that the work should be done in accordance with the regulations and the FBH looks forward to receiving the required plans.

6. **Connorstone Comment regarding Cisterns.** The comment "*Cisterns shall be prohibited*" is taken out of context. The Well regulations refer to water for consumption and domestic demand, not for fire protection. The cistern, if required, would not provide water for human consumption or domestic uses.

   Excerpted from the Framingham Well Regulations:
   "PRIVATE WATER SUPPLY *-The term "Private Water Supply" means any water system serving or intended to serve water for human consumption or for domestic uses or purposes on one lot. The system shall include all of the sources, treatment works and distribution lines to the point where distribution takes place within the building.*
   "SEMI-PUBLIC WATER SUPPLY *- the term "semi-public water supply" means any water system serving or intended to serve water for human consumption or for domestic uses or purposes including a multiple dwelling of two or more units, or to more than one multiple dwelling under a single ownership and located on the same lot, or tow restaurants, dairies, schools, institutions, motels, mobile home parks, bottling plants, campgrounds, recreational camps for children, state forest, parks and beaches."*

   FBH Response

   The use of a cistern for the fire system should be clarified. Please clarify how the fire water will be interconnected to drinking water or kept separate. The cistern could also impact groundwater through siphoning of cistern water back into the aquifer or by gravity drainage. The use of cisterns has the potential to provide contamination to water supplies if insufficient backflow prevention is provided and if potable water systems are in any way connected to the system. Cisterns connected to the aquifer and connected to potable water systems are within the purview of the FBH. The cistern may be allowed if adequate protection is provided of groundwater and drinking water and if measures are taken to prevent bacteria and vector contamination of the water system such as the use of fine mesh screens on all cistern and well system openings and chlorinating the water.

Additionally cleanout of the cistern on an at least an annual or as needed basis whichever is more frequent may be required.

Comments regarding the text of the Definitive Subdivision Application

1. **Connorstone Comment regarding Other Potential Regulatory Impacts/Triggers**. This is a standalone project on land of Nexum Development. The concept of an additional phase is not being hidden, and discussions have been had with the Town Departments. However if there would be an additional phase submitted and/or approved it is on wholly different land. There have been significant engineering studies adjacent land. If the project does go forward with an additional phase the necessary permit applications will be made. This project does not trigger any MEPA thresholds for an Environmental Notification Form (ENF). IF THE NEXT PHASE IS PROPOSED, THE REQUIRED ENF WILL BE FILED.

   FBH Response:
   The Town has been told varying plans for this development project and will continually evaluate whether MEPA has been triggered as modifications to the proposed plan are developed to ensure segmentation is not pursued.

2. **Connorstone Comment regarding Water Balance**. Water consumption from the wells will be discharged into the septic systems thus the withdrawal will equal the return. Stormwater systems are designed to meet MassDEP's Stormwater Standards, specifically standard #3. Compliance with the standards ensures "*the annual recharge from the post-development shall approximate the annual recharge from the pre-development conditions.*"

   FBH Response:
   The applicant has already stated that fire water will be stored in a large cistern with no provision for replenishing the water to septic so the balance is not achieved. The FBH was merely commenting that there is not a 1:1 water balance but rather there will be some loss or increase considering all the aspects of the project. The use of a large holding pond will cause some evaporation or enhanced recharge from the project and the balance of these impacts is not clearly described.

3. **Connorstone Comment regarding Concerns Regarding Potential Well Yield**. The developer would agree to a fund to insure no impact results to neighboring wells, subject to a comprehensive program of testing of those wells.

   FBH Response:

   The FBH encourages a fund to address neighbor concerns. The applicant should specify an amount of funding per well and the conditions under which the fund would pay for neighborhood impacts.

4. **Impact of Water Withdrawal on Neighboring Wells**. There is no known model for such an analysis. The TRC modeling provided in the BOH report is totally inapplicable for rock formation wells. Please see attached USGS model publication, and note the use is for a water table aquifer, and is not appropriate for rock wells.

   FBH Response:

   The applicant provides no basis for the claim that bedrock groundwater modeling cannot be conducted. There is no statement in the USGS publication that the model cannot be used for

bedrock aquifers. Bedrock groundwater models are very commonly used in Massachusetts to predict groundwater flow. The applicant also appears to have concerns about models being able to simulate water table aquifers but models have been applied to water table, semi-confined and confined aquifers.

5. **Connorstone Comment regarding Mosquito and other Vector Control** are addressed by conformance to the Mass DEP Stormwater Guidelines which provides for drainage of systems in less time than the incubation period for mosquito larvae.

   FBH Response:

   The FBH was merely stating that mosquitos and vectors are a concern of the FBH and that the project must ensure that that any as built structures do not enhance mosquito or vector problems. In their May 23, 2013 letter, the applicant states a "mosquito prevention plan has been added to the Operation and Maintenance Plan" – the O&M manual was not included in the responses (only page 4 of the Stormwater O&M Plan was provided). The applicant should clarify who is responsible for this O&M program (e.g., each homeowner?).

   In addition, the responses (May 23, 2013; Item 3J) stated that "the water quality swale has an outlet set at elevation 309.5, which would maintain a permanent pool with a depth of 6 inches." Permanent standing water must be eliminated to prevent mosquito breeding habitat.

6. **Connorstone Comment regarding Stormwater Management Estimates**, comply with DEP requirements. The DEP Stormwater Management Standards require recharge (see No.2 above) to infiltrate 92% of the rainfall/runoff events, which, by DEP standards, provides the necessary recharge to minimize any loss to the receiving waters.

   FBH Response:

   The FBH requested information about the predevelopment versus post development water balance. The applicant did not address the question.

7. **Connorstone Comment regarding Groundwater Mounding**. The stormwater basins meet the DEP requirements.

   FBH Response:

   The Horsley Witten Group letter dated May 16 has expanded on the FBH comment in comments f and I of the Horsley letter. The FBH will await a satisfactory response to the Horsley Witten Group letter.

8. **Connorstone Comment regarding Bedrock Formation Discrepancy**. The drilling logs are prepared by a well driller. The difference between gneiss and granite is virtually indistinguishable to the untrained geologist, especially from cutting fragments, which the driller would have viewed. Gneiss has a different crystal pattern of virtually the same mineral ratios as granite, but has cooled at a different rate than granite.

   FBH Response

The applicant's response was unclear. Presumably the applicant is now stating that the rock is gneiss that had been misclassified as granite by the driller.

9. **Connorstone Comment regarding Stormwater Pollution Prevention Plan**. The SPPPW with the site development plans, in particular the Topographic Plans (sheets 5 & 6) and Erosion and Sedimentation Control Plans (sheets 10 & 11), provides the required contents in accordance with the General Construction Permit Section 7.2.6, SWPPP Site Map Contents.

   FBH Response:

   The Construction Stormwater Pollution Prevention Plan is a standalone document and should include within the plan all the required plans and maps and required content. The Plan should be revised to be standalone and to include all the required content.

10. **Connorstone Comment regarding Regulatory Concordance**. The requested regulatory cross-reference table has been attached.

    FBH Response:

    The FBH appreciates the addition of a regulatory cross-reference to assist in the reviewing of the plan and in plan implementation.

11. **Connorstone Comment regarding Specific Soil Management Details**. The required information related to earthmoving, and cuts and fills was provided in the Impact Statement. Estimation of stockpiles is not a requirement under the regulations.

    FBH Response

    Please be specific about where in the Impact Statement the amount of cut and fill is specified in terms of cubic yards or similar equivalent measure. The size and location of soil stockpiles is of concern as tall stockpiles can cause wind blown dust, be a nuisance and eyesore, lead to accelerated erosion and potential stormwater TSS loading and be unstable. Cut areas could result in need for dewatering which will potentially generate a waste.

12. **Connorstone Comment regarding House Demolition and Hazardous Materials** will be addressed independently with the various regulatory departments at the appropriate time, and the necessary permits will be acquired.

    FBH Response:

    Agreed that the work should be done in accordance with the regulations.