

Army Corp?

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November 5, 2007

Acton Conservation Commission
472 Main Street
Acton, MA 01720

Re: Notice of Intent
Lots 2C & 3 Spring Hill Road
Jeanson Homes, Inc.
6562



Dear Commission Members:

At the request of Jeanson Homes, Inc [applicant] and William & Deanne Angel [owners] this office is filing the enclosed Notice of Intent [NOI] under the Town of Acton Wetland Protection Bylaw [Bylaw] utilizing forms for filing under the Wetlands Protection Act [WPA]. To our knowledge the Commission has not prepared forms for this purpose and in the past we have utilized the WPA forms for all filings with the Commission.

A NOI for the proposed alterations has been filed under the WPA and the Department of Environmental Protection [DEP] has issued a Superseding Order of Conditions [SOOC] properly controlling the proposed alterations. The SOOC was not appealed by the Commission or other interested parties.

The plans and calculations prepared referenced by the SOOC have been filed with this NOI. Our plan entitled "Alternative "Common Drive" w/ Alternative Crossing" is also included with this NOI. These documents are being utilized to allow commonality with the project as regulated by the SOOC.

We recognize that the Purpose of the Bylaw and the Regulations adopted under the Bylaw, with the exception of designating the buffer zone as being a resource area and prescribing offsets between types of alterations and resource areas, do not differ from 310 CMR 10.000. This letter will provide a discussions pertaining the proposed alterations not adversely impacting the Purpose of the Bylaw.

Each Purpose will be discussed as a separate item. However, it should be realized that there is a interrelationship between certain aspects of the listed purposes. We noted that in its denial of the NOI subject to the SOOC, the Commission stated that statements provided by this office pertaining to the alterations not adversely impacting the Interests of the WPA and the Purpose of the Bylaw were based on conjecture. We will make every reasonable effort to provide the Commission with additional data pertaining to the

statements contained below when requested by the Commission to further document there being no adverse impacts due to the proposed development.

Public and/or Private Water Supply

The site is located in the upper extremity of Spencer Brook, a tributary to the Concord River. Based on Mass GIS Data there are no Public water supplies in the Spencer Brook tributary area.

This area of Acton and nearby sections of Concord relies upon private wells for water supplies. The wells are rock wells that obtain water from fissures in the bedrock and consist of steel casings extending through surficial soils that are grouted into the bedrock to provide a seal that will preclude the entrance of water at the surficial soil/bedrock interface.

The proposed alterations will not decrease the depth of soils over bedrock except in the area of the proposed houses that will be covered with concrete slabs.

Subsurface sewage disposal systems will be constructed in strict conformance with Title 5 and the more restrictive regulations of the Acton Board of Health. Systems constructed to meet only the requirements of Title 5 have been found not to impact properly constructed and maintained private wells.

Section F4.4 of the Commission's regulations provide exemptions for Septic Systems.

Chemicals for ice control should not be expected to be utilized on the driveways due to there construction, horizontal and vertical alignment, exposure to sunlight and usage. The Commission may prohibit the use of chemicals for ice control.

Areas in which vehicles are expected to be parked are located outside of the buffer offset prescribed by the Bylaw.

Chemicals utilized for lawn maintenance can be controlled by the Commission and based on The Massachusetts Buffer Manual the buffer widths provided are sufficient to provide protections.

Lawns are shown to be located outside of the buffer offsets prescribed by the Bylaw.

The construction and maintenance of the proposed residences, their appurtenances, yards, and the driveway will have no greater impact on private water supply than Town Roads and other residential uses in the Spencer Brook drainage area.

Groundwater Protection

The property is located in Acton's Groundwater Protection Zone 4 and residential uses in this zone are excluded from the permitting and requirements required in other Zones.

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Groundwater Protection Zone 4 consists of areas located on ground moraines, as is this property, or drumlins. These land forms consist of glacial till. Till soils are generally considered to have limited potential for groundwater supply and residential uses allowed by the Acton Zoning Bylaw and Title 5 are not expected to result in impacts to groundwater.

The plans show stormwater management works to be provided to collect and recharge runoff from impervious surfaces and maintain the existing flow of groundwater to the wetlands.

Properly designed and maintained subsurface sewage disposal systems have been found to not adversely impact groundwater. Most constituents of domestic sewage are removed by subsurface sewage disposal systems. Nitrate nitrogen is not removed. To limit its impact to acceptable levels Title 5 has limited septic systems in nitrogen sensitive areas to 110 gallons per day per 10,000 square feet. The proposed plans result in a loading rate of 110 gallons per day per 28,000 square feet, or approximately 1/3 that allowed by regulations.

Nitrogen is utilized by plants and it should be expected that attenuation of nitrate nitrogen will occur prior to groundwater reaching areas that could result in significant impacts.

Surface Water Protection

The two streams that flow through the property are not shown to be perennial on the latest USGS Quadrangle, do not have sufficient tributary areas to be, and have been demonstrated by observation not to be perennial.

The streams join together downstream of the proposed crossing and upstream of the excavated fire pond.

The fire pond is located in the northeast corner of Lot 2C and has an overflow under Spring Hill Road. Residents have reported that the fire pond dries up. During the site visit with the representative of DEP the pond was observed to be below the outlet culvert.

The proposed crossing will consist of a three sided culvert resulting in no alterations to the stream channel and its capacity to carry runoff.

The stream over which the driveway is to pass flows across the horse pasture north of the site. Its straight alignment indicates that it has been altered and the easterly bank of this stream in the area of the crossing was altered during the excavation of the fire pond.

The stream that flows across the property from west to east has a larger drainage area and its wetland system appears to be connected to a wetland system tributary to Nashoba Brook. The continuity of the wetland system has been interrupted by residential driveways and Spring Hill Road.

With the exception of the driveway required to connect the buildable portions of the site to Spring Hill Road, all proposed alterations are beyond the buffer offsets prescribed by the bylaw.

As stated in Appendix A of The Massachusetts Buffer Manual, low density residential development may only require 35-50 feet of buffer width between altered areas and surface waters to provide protections. With the exception of small areas along the access driveway, buffer widths exceeding 35 feet are provided between the driveway and the streams or fire pond. The manual also states that required buffer widths vary with the nature of the site. At this site the flat topography and limited tributary drainage area near the fire pond and main stream will result in minimal runoff, uniform dispersal of runoff and decrease the needed width of the buffer.

Twenty vehicle trips per day are expected to take place along the driveway and vehicles are expected to be parked over 100 feet from surface waters.

The site has been graded to disperse runoff and not concentrate runoff which could carry materials into wetland areas. The preservation of the large wetland areas on site will further disperse materials prior to runoff reaching surface waters.

The Commission can limit the application of salt control chemicals, fertilizers, herbicides, pesticides and other materials that it may expect could cause surface water impacts.

Flood Control

One of the reasons bordering vegetated wetlands are required to be protected is they have been found to allow for the storage of flood waters above normal surface water levels. At this site only 928 square feet of wetlands will be required to be filled to allow access to the buildable upland area. The plan shows 961 square feet of compensatory wetlands to be created directly adjacent to the wetland to be altered.

The compensatory wetland area will provide for flood storage equal to that lost due to the required wetland crossing.

As shown by the calculations filed with the NOI, pre and post development runoff will remain the same.

Erosion and Sedimentation Control

A systems approach to erosion and sedimentation control has been developed for the necessary construction at this site which sets a construction sequence and specifies erosion control measures to mitigate causes of erosion and control and intercept any products of erosion generated.

The construction sequence sets a schedule that is not dependent on the season of construction but does require adaptation of the methods utilized to changes in weather and site conditions.

It is the opinion of this office that using a system approach that relies on decreasing the potential for erosion to occur provides for greater protection than “bottom of the line” collection measures that entrap and store products of erosion near wetland resource areas.

An NPDES Permit will be filed and the monitoring and reporting required by the permit will be performed providing further assurances that the construction activities will not result in alterations of areas beyond the limits of construction.

Storm Damage Prevention

As shown by the stormwater management calculations the proposed recharge systems have sufficient capacity to recharge a 24 hour, 100 year storm event with the increase in runoff resulting from both additions of impervious surfaces and changes in the nature of landscape surfaces.

Care has been taken in grading the site to facilitate the dispersal of stormwater runoff as evenly as reasonably possible along the perimeter of the area of alterations. By dispersing the runoff the ability of the vegetation in the buffer zones and bordering vegetated wetlands [BVW] to slow down runoff and decrease runoff velocities should not be measurably impacted.

The onsite bordering vegetated wetlands [BVW] parallel to Spring Hill Road is flat and contains localized depressions. Flow from the site is via the fire pond and is controlled by the culvert under Spring Hill Road.

As shown by the site plan, the pond outlet elevation is 189.6 and the wetland has an elevation of 195 near the northwestern property line. Allowing for a 5 foot high rise in water above normal levels over 10 acre feet of stormwater is stored on the site. The capacity of the on site wetland resource areas to store stormwater runoff will not be diminished and Storm Damage Prevention will not be impacted by the proposed development.

Water Pollution Prevention

With the exception of the required shared driveway required to provide access to the 2.62 Acres of uplands on which the houses are to be located, all areas of human activities have been offset from the BVW as required by the Bylaw.

To assure that rear yards do not “creep” further into the 50 foot “no disturbance zone” required by the Bylaw, barrier walls are proposed to contain human activities in the rear yards of the homes.

Three car garages are proposed and it should be expected that overnight storage of vehicles will be enclosed. Other vehicles, such as those used by guests, will be parked over 75 feet from the BVW.

Ice control chemicals are not expected to be required and the Commission may limit their use.

The Commission may also limit the use of fertilizers, pesticides and herbicides although their use at this site should not result in water pollution.

With the dispersal of runoff along the edges of the proposed alterations, the ability of the natural vegetation to retain nutrients and other substances should not be impacted and the opportunity for water pollution should not be increased by the proposed activities beyond that which should be expected for other residential homes constructed within or outside the jurisdiction of the Commission.

The proposed shared driveway has been designed with recharge trenches that will collect runoff and disperse into the root zone of vegetation in the upland and wetlands to enhance the removal of nutrients and other substances. The trenches will also retain particulate matter which has been found to transport 70 to 80 percent of phosphorus reaching inland surface waters. Limiting the introduction of phosphorus is a major method of decreasing eutrophication of inland surface waters.

Fisheries

A variety of fish have been reported to have been caught from the fire pond by neighborhood children. It should be expected that only fish capable of living under low oxygen conditions should be sustainable in the fire pond.

As only 928 square feet of the 114,017 square feet of wetland resource areas on the site are to be altered, and the altered area is to be replaced, the project should have no impact on the production of food to sustain the fish found within the fire pond.

During periods of low water the fire pond is a groundwater pond which limits the impact of thermal gain from sunlight and ambient air temperatures. The proposed driveway will result in the removal of a narrow corridor of trees along the spoils resulting from the excavation of the fire pond and leave in excess of 20 feet of the existing vegetation between the driveway and the pond. This vegetated buffer and the trees to remain on the southerly side of the driveway will provide for shade and water temperatures should not adversely rise due to the proposed alterations.

Freshwater Shellfish

The oxygenated water required to sustain freshwater shellfish such as muscles on a long term basis are not present in the vicinity of this site.

Crayfish may be found in the fire pond if oxygen levels and if debris such as logs and rocks are sufficient to sustain them. The proposed alterations will not change their habitat.

Protection of Endangered and/or Threaten Species

The Massachusetts Natural Heritage and Endangered Species program does not designate this site as habitat for endangered and/or threatened species, nor areas in the vicinity of the site or in the downstream drainage area of Spencer Brook.

The placement of a Conservation Restriction on 76 percent of the site or 3.95 Acres will provide for protection of species utilizing the area.

The area subject to the Conservation Restriction includes the entire wetland system extending from east to west across the site.

Wildlife and Wildlife Habitat

Some species of wildlife found in this section of Acton have become well adapted to the presence of humans and the alterations resulting from development. Other species seem to obtain certain benefits from the presence of humans and the alterations resulting from land development.

The preservation of 113,088 square feet [99.2 percent] of the existing 114,017 square feet of the site's wetland resource areas and 75 percent of the area within 100 feet of the resource areas will allow the portion of the site generally considered to be most important for wildlife habitation to remain viable.

The east west wetland system is the most important to wildlife as the wetland extending along the northerly flowing intermittent stream is interrupted by the presence of the horse farm directly to the south of the site. The east west wetland system will not be altered.

Conformance with the Acton Wetland Protection Bylaw Rules and Regulations has resulted in the "clustering" of alterations in the southerly portion of the site. This clustering preserves a large continuous area exceeding three acres in size adjacent to Springhill Road for wildlife habitat.

Bylaw Section F4.5

Section F4.5 of the Bylaw defines limited projects as those being listed under 310 CMR 10.53(3). Access across a wetland resource area by a driveway to an upland area where alternative access is not available is listed as a limited project by 10.53(3)(e) and the Regulation does not regulate access to a site to only one crossing.

The first paragraph of 10.53(3) states that the Commission shall consider the magnitude of the alteration and the significance of the project site to the interests identified by the

WPA. As shown by the discussions pertaining to the Purposes of the Bylaw, the project in its entirety does not impact or is significant to the Purposes of the Bylaw.

In issuing the SOOC DEP found that the alterations were a limited project and met the standards of 10.53(3). The Commission and other parties of interest did not appeal this ruling. Our review of the Bylaw finds that with the exception of establishing offsets between certain alterations and wetland resource areas, the Bylaw is not stricter than 310 CMR 10.00.

As the crossing is a limited project and only this portion of the proposed alterations do not conform to the regulations established under the Bylaw the Commission must issue an OOC properly regulating the project unless it finds the alterations significantly and adversely impact the Purposes of the Bylaw.

Vernal Pool

The presences of one or more potential vernal pools have been reported to exist on the site. One such site is shown on the plan and we believe that this area is the reported potential vernal pool closest to the alterations.

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We found stained leaves leading into and out of the basin to surface waters indicating that this area does not represent a closed basin as described under Section F3.14.

No alterations are proposed within 100 feet of this area and this area is well within the contiguous 3.17 Acre Conservation Restricted area.

Summary

We believe this letter and other materials submitted with the Notice of Intent clearly demonstrates that the construction of two single family homes on 5.19 Acres of property will not significantly or adversely impact the Purposes of the Bylaw and that the proposed alterations conform to the requirements of the Bylaw and good development practices.

If the Commission should require additional copies of data, find this submission lacking in any manner or require additional information prior to the public hearing please inform us.

Very truly yours,
Mark T. Donohoe, PE

cc: Jeanson Homes, Inc
William and Deanne Angel


For:
Acton Survey & Engineering, Inc.