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CONSERVATION

Open Space Committee concerns regarding 3 Berry Farms Road development. The goals of the Open Space Committee (OSC), as stated in the Town Open Space and recreation Plan of 2018, are to promote resource protection, community, and habitat preservation, enhance recreational opportunities for residents and visitors and preserve the town's character.

The OSC has concerns regarding the impacts of the 3 Berry Farms development plan on Wetland protection and conservation of natural resources. Moreover, we present concerns regarding the impact of the proposed high-density housing on forest ecosystem services of health provision to the town.

Our points are presented below.

Regarding Wetland Protection per-se

As stated in the Stormwater management report for the subdivision plan, prepared by Fiske Hill East Realty Trust dated November 20, 2020, the area is composed of 42.3% Group C soils, 6% Group D Soils, and 24.7 % Group C/D Soils (which is considered Group D for runoff applications). These soils are described as:

Group C: "Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission"

Group D: "Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission."

These soils are related to increased runoff and, therefore, can cause increased pollution and sedimentation of wetlands. Because of this, careful attention to wetland protection and fulfillment of the wetland protection act and Sturbridge bylaws are essential, in addition to the remediation measures proposed by the developers.

Even though impacts to wetlands were minimized in the proposed planning, the proposed development intersects the 100' state regulatory zone and the 200' town bylaw.

Given the above, the open space committee requests that Conservation Commission enforces the MA Wetlands Protection act and Sturbridge Wetland Bylaw.

We recommend that Fiske Hill East Realty Trust develop a housing plan that does not directly overlaps with the 200 feet wetland buffer. Moreover, we recommend increasing forest vegetative filter strips between the development and the wetland buffer to minimize runoff caused by the high precipitation events, which are becoming more frequent in the last two decades (see "other concerns" below).

Forest verges are strips of land covered by trees and other vegetation. These areas help to slow down the flow of water and reduce erosion, which can help to prevent sediment and pollutants

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from reaching wetlands. The trees and vegetation in forest verges can also help to filter out pollutants and nutrients that would otherwise enter the wetland.

In addition to protecting wetlands from pollution and erosion, forest verges can provide a habitat for many plant and animal species dependent on wetland ecosystems. For example, birds, insects, and other wildlife may use the trees and vegetation in forest verges for nesting, shelter, and food. Overall, forest verges can play a critical role in protecting and maintaining the health of wetland ecosystems, and they are an essential tool for conservation and restoration efforts.

Regarding the impact on habitat and biodiversity

Regarding habitat preservation, the Developmental Impact Statement presents a non-compelling “No Significant Adverse Impact Analysis”. Besides the clear overlap with MA Wetlands Protection Act and Sturbridge Bylaws wetland buffer zones, the report does not justify the claim that “*E-series BVW/Vernal Pool also appear to offer greater wildlife habitat value in comparison to the southerly A-series Vernal Pool*”.

The summary of the Developmental Impact Statement says, “Proposed work within the 200-foot Buffer Zone has been minimized and the proposed project has been designed to protect the interests and values associated with the on-site BVWs and Vernal Pools and to have no significant adverse impacts on these Resource Areas.” **Significant impact on wildlife is not described nor assessed in this report.**

Article 5 365-5.6 E of the Sturbridge Wetlands Bylaw state that “Any work with in the 200-foot buffer zone to a vernal pool shall not cause a significant adverse impact to any function of a vernal pool. It shall not result in a measurable decrease in extant wildlife populations or biological community composition, structure and species richness of the site or in the vicinity, exclusive of the present or future state of adjacent or nearby property, or impair, damage or reduce in value for wildlife purposes identified specific habitat features. The Commission shall take into account indirect effects, including but not limited to effects of nearby human activities, on a case-by-case basis.”

The proposed plan not only overlaps with the 200’ regulatory buffer zone, but will also affect the upland habitat needed for the survival of wetland and vernal pool species.

Upland terrestrial habitat is essential for the survival of amphibian populations. Moreover, these areas act as habitats for mammals and birds. Rittenhouse and Semlitsch (2007) indicate that 50% of adult amphibians spend the non-breeding season within 100 to 656 feet of the breeding site, with frogs using habitats more than twice as far from breeding sites than salamanders. Juveniles and female amphibians use resources further away to decrease competition. Preserving only the 200 feet buffer surrounding wetlands and vernal pools will affect more than 50% of the adult vernal pool and wetland populations and may have a greater impact on juvenile and female individuals. The same study reports that 95% of salamanders were found at 803 feet from breeding sites. .

Open space requests information on the amount of land disturbed during construction and the final project within the 200 feet regulatory zone, and within 600 feet from the higher water mark of wetlands and vernal pools in the area.

Forest connectivity can significantly promote wetland habitat by allowing wildlife movement between forests and wetlands. Many wetland plants and animals require a complex mosaic of habitat types, including forested and open wetland areas, to meet their life cycle needs. Promoting forest connectivity between wetlands allows the creation of a network of habitats that can support a wide range of plant and animal species. In addition to providing habitat for wildlife, forest connectivity can also help maintain the ecological functioning of wetland ecosystems by allowing for the movement of nutrients and water between different parts of the landscape. This can help preserve the water balance of wetland areas and promote the growth of wetland vegetation.

The proposed project includes a crossing to facilitate the movement of species across wetlands. This is not enough to maintain habitat connectivity nor guarantees the use of this corridor by species.

To enhance wetland and upland habitat, the open space committee requests the project proposers to move the development further away from wetlands and vernal pools and decrease housing density by increasing lot size. In addition, we request maintaining swaths of forests between the lots to increase upland forest connectivity, support wetland connectivity, and decrease the impact of the development on the surrounding habitat.

Other Concerns entailing forest ecosystem services

An urban heat island happens when urban areas become warmer than surrounding rural areas, especially at night. This is because the buildings, roads, and other infrastructures absorb heat during the day and release it at night, keeping built-up areas warmer. Trees mitigate the heating effect; a decline in tree cover leads to less shade and less cooling through evaporation. In addition, the heat island effect can lead to uncomfortable and dangerous conditions during heat waves, especially for vulnerable populations such as the elderly or those with pre-existing health conditions.

The community profile for the town of Sturbridge published by the Massachusetts Environmental Public Health Tracking (1) reports that 18 % of the Sturbridge population is above 65 years of age, and 13% has at least one disability.

Over the past couple of decades, Massachusetts experienced increased heat waves. Since the mid-20th century, prolonged hot weather periods have doubled and become more frequent and intense. Moreover, the days with temperatures above 90 °F increased, and those below freezing decreased (*Massachusetts Department of Public Health Bureau of Environmental Health - Online report 2023*).

According to the United States Drought Monitor, the state experienced severe to extreme drought conditions in 2016 and 2020 and moderate to severe drought in several other years in the past two decades. These drought events can significantly impact agriculture, water resources, and other sectors. Following current precipitation trends, this smaller amount of rainfall is expected to happen as heavy precipitation events causing flooding and increasing surface runoff, moving pollutants to watersheds, lakes, and drinking water reservoirs.

Increased droughts exacerbate the urban heat island effects. The Massachusetts Department of Public Health- Bureau of Environmental Health reported in its 2017 community profile for Sturbridge, that the age-adjusted rate per 100,000 people of emergency room visits due to heat stress was 17.8, while the statewide rate was 13.1. This indicates that our town is highly vulnerable to increased heat waves and droughts.

Forested green spaces mitigate the impact of the increase in heat waves. They act as natural air conditioning systems for neighborhoods and towns. Forests help cool towns and neighborhoods by providing shade that reduces the heat absorbed by buildings and other structures like roads and parking spaces. Forests also release water vapor through a process called evapotranspiration. Sturbridge presents a higher rate of heat-related emergency room visits than the state, even though the percentage of forest cover is higher than the statewide average (82% Sturbridge vs. 74.8 statewide). This pattern can be due to the spatial distribution of forest within the town, with areas of higher density of impervious surfaces and buildings not surrounded by connected forest areas.

The proposed plan for the "Blueberry Hill Estates - 3 Berry Farms Road - Site Plan & Special Permit" 4/1/2022 revised on Rev. 11/10/22 for 71 units is described as an adult-only development with at least one person living in the site being older than 55 years old. As heat waves and droughts continue, it is essential to propose a plan that will not increase the health burden to its resident. The proposed plan has areas described as open spaces. However, it does not explicitly describe the land cover of that open space nor requires keeping forested verges between lots to maintain forest connectivity and increase shade to maintain surfaces cooler. **In order to mitigate some of the effects of this high-density development on human health, the open space committee requests the project proposers to add more space between lots that would maintain swaths of forests. This change will benefit the adult residents of this development complex by increasing shade, cooling surrounding houses, and decreasing cooling energy consumption.**