

August 14, 2023

Bolton Planning Board
c/o Michael J. Gorr
Planning Board Chair
633 Main Street
Bolton, MA 01740

RE: Nitsch Project #14252.5
Spectacle Hill Road
Subdivision – Second Review
Bolton, MA

Dear Planning Board Members:

Nitsch Engineering received and reviewed the plan set for the proposed subdivision for Spectacle Hill Road located in Bolton, Massachusetts. The Applicant is proposing to subdivide approximately 31 acres of land off South Bolton Road into six (6) lots. The subdivision is in the Residential Zone. Nitsch Engineering received and reviewed the following documents:

1. A plan entitled, "Proposed Farmland + Open Space Planned Residential Development (FOSPRD)" dated July 2022, revised on July 24, 2023, prepared by Haley Ward, INC. (18 Sheets);
2. A report entitled, "Stormwater Management System Design Report" dated July 15, 2022, revised July 25, 2023, prepared by Haley Ward, INC. (127 Pages);
3. A letter entitled, "Request for Waivers" dated July 25, 2023, prepared by Haley Ward, INC.;
4. A letter entitled, "Response to Comments" dated July 25, 2023, prepared by Haley Ward, INC.;
5. A plan entitled, "Pre-Development Watershed Plan" dated July 15, 2022, prepared by Haley Ward, INC.;
6. A plan entitled, "Post-Development Watershed Plan" dated July 15, 2022, prepared by Haley Ward, INC.;
7. A form entitled, "Soil Suitability Assessment for On-Site Sewage Disposal"

Nitsch Engineering reviewed this information to determine conformance to the Stormwater Management (Section 5233.) of the Planning Board Rules and Regulations governing the Subdivision of Land, last revised November 2015. As well as conformance to the Massachusetts Stormwater Handbook. Nitsch Engineering's original comments are in normal type font, Haley Ward, Inc. responses are in *italics*, and Nitsch Engineering's latest comments are in **bold**. Nitsch Engineering offers the following comments.

OVERVIEW

The existing site is approximately 30.80 acres (1,341,648± square feet) and is located east of Interstate 495, off South Bolton Road in Bolton, Massachusetts. The site is in the Residential zoning district in a primarily wooded area. The westerly and southeastern sections of the site consists of wetlands.

The Applicant proposes a 6-lot, single family residential subdivision consisting of 328 linear feet of roadway with associated drainage within the roadway. Drainage from the new project will sheet flow into deep sump hooded catch basins where stormwater will be initially treated, then it will be conveyed through a closed drainage system and discharge through a flared end section into a proposed stormwater basin. The proposed stormwater basin's side slopes and bottoms will be loamed and seeded to establish vegetation. The proposed stormwater basin has been designed to hold and infiltrate stormwater for smaller storms up to and including the 25-year storm event. In the event of larger stormwater events such as the 100- year storm, there is an overflow spillway as a secondary outlet for stormwater to discharge.

The subdivision has been designed as a Farmland & Open Space Planned Residential Subdivision. The new lots within the subdivision will be serviced by private on-site septic systems and private on-site wells.

The site is not within an Area of Critical Environmental Concern (ACEC), Outstanding Resource Water Area (ORW), Interim Wellhead Protection Area (IWPA), Zone I, or Zone II. The site is located within National Heritage & Endangered Species (NHESP) Estimated Habitats of Rare Wildlife and Priority Habitats of Rare Species. Information was obtained from the Massachusetts Geographic Information System (MassGIS). The site is in Flood Zone X, an area of minimal flood hazard. Wetlands are present on site.

PLANNING BOARD SUBDIVISION RULES AND REGULATIONS

1. Section 5233 (a.3) states that the drainage calculations shall be accompanied by a plan showing pre and post development drainage sub-catchments, flow paths for time of concentration, points of analysis and location of soil tests. Nitsch recommends the applicant to provide a plan that reflects this information or request a waiver.

This information was included in the original submittal; copies will accompany the revised materials.

This item has been addressed.

2. Section 5233 (b.2) states that watershed analysis shall be performed by a registered Civil Engineer and must be submitted with the definitive plan. Nitsch recommends the Applicant to submit the watershed analysis or request a waiver.

A detailed Stormwater Management System Design Report was included in the original submittal. This report was revised per some of the peer review comments. The updated report is included in the revised materials.

This item has been addressed.

3. Section 5233 (3.a) states that all stormwater basins shall have a minimum of two (2) test holes, performed by a Massachusetts Soil Evaluator. The bottom of the basin shall be a minimum of 2 feet above the estimated seasonal high-water table. Nitsch recommends the Applicant provides this information.

Soil testing was performed in the stormwater basin area. The test pit locations are shown on the revised plan set and test pit logs are included in the revised materials.

This item has been addressed.

4. Section 5233 (9.b) states that catch basins shall be located, one on each side of the crowned roadway, and at all low points. It appears that CB3 and CB4 are in the sidewalk. Nitsch recommends the applicant to revise catch basins locations so that they are located in the proposed street.

All proposed catch basins are located along the curb/gutter line of the proposed roadway. The locations of CB3 and CB4 have been revised.

This Item has been addressed.

5. Section 5233 (9.f) states that all drain lines shall be reinforced concrete Class III or stronger and at a minimum of 12 inches in diameter and shall be laid on a slope of not less than 0.5 percent. The Applicant is proposing High Density Polyethylene Pipe (HDPE). Nitsch defers to the Bolton Planning board for their decision on if this is acceptable.

Proposed drain lines have been revised to reinforced concrete pipe (RCP).

The proposed 24-inch outlet drain line is HDPE. The Applicant shall revise this to RCP.

6. Section 5233 (9.h) states that backwater effects shall be taken into account in the design of the storm drainage system. The design shows a spillway at an elevation of 363.40-feet, the flared end section is located at the bottom of the storm water basin any water that fills up can back up through the drain lines until it reaches the spillway elevation. The rim elevations of CB1 and CB2 are at 363.85-feet leaving less than half a foot above where water could possibly fill up to. Nitsch recommends the applicant to allow for a larger elevation difference between the spillway and the catch basin rim elevations to reduce the likelihood of water surcharging from the catch basins in the event of a larger storm. The peak elevation of the proposed basin during the 100-year storm reaches an elevation of 363.79-feet which is just 0.06-feet less than the catch basin rim elevations.

The plans and hydrologic calculations have been revised to lower the spillway from the proposed stormwater basin by 1.15 feet to allow for a greater elevation difference between the spillway and the rim elevation of CB1 and CB2.

This item has been addressed.

7. Section 5233 (9.i) states that all inlet and outlet pipes over 15 inches in diameter shall have bar grates. Nitsch recommends the Applicant to revise the design so that the outlet at the flared end section shall have bar grates surrounding the 24-inch pipe.

A notation for a trash grate at the outlet of the 24-inch drain line has been added to the revised plans.

This item has been addressed.

GENERAL COMMENTS

8. On page eleven (11) of the drainage report provided by the Applicant, the proposed peak flow for the 25-year event is significantly greater (approximately 500 cfs greater) than the existing conditions. It appears this is a typo. Nitsch recommends the Applicant to review the drainage report and ensure that there are no additional typos.

Typographical errors have been fixed.

This item has been addressed.

9. The Erosion & Sediment Control Plan does not show drain inlets. Nitsch recommends that the applicant shows drainage inlets on the plan along with their inlet protection.

This information has been added to the revised plan set.

This item has been addressed.

10. The catch basins, drain manholes, and drain lines are not shown on the same sheet as the proposed stormwater basin. Nitsch recommends the applicant to show these together on at least one of the sheets.

Sheet 8 of the revised plan set has been revised to show this information.

This item has been addressed.

11. The pre-development area in the HydroCAD report states an area of 21.855 acres and in post-development it states an area of 21.770 acres. The total area being modeled in pre and post development should be the same. Nitsch recommends the Applicant to revise the HydroCAD model so that the areas are equal.

The hydrologic model has been revised to reflect this information.

This item has been addressed.

12. The 24-inch HDPE drain leading to the proposed basin is at the minimum 0.5% slope. Nitsch recommends raising the outlet elevation of this pipe from DMH1A to 358.67-feet. This leaves a 0.1-foot drop between inlet and outlet pipe at the drain manhole and increases the slope of the pipe to roughly 1.5%.

This drain line has been revised to reflect this recommendation.

This item has been addressed.

13. The 18-inch HDPE drain line is at 0.76% slope. Nitsch recommends raising the outlet elevation of this pipe from DMH1 to 359.55-feet. This leaves a 0.1-foot drop between inlet and outlet pipe at the drain manhole and increases the slope of the pipe to roughly 1.5%.

This drain line has been revised to reflect this recommendation.

This item has been addressed.

RECOMMENDATION

The plan generally conforms to the Town of Bolton Regulations governing the Stormwater Management and the Massachusetts Stormwater Handbook. Nitsch Engineering recommends that the Applicant provide final plans to the Board for Approval.

If the Planning Board has any questions, please call.

Very truly yours,

Nitsch Engineering, Inc.



Jad Kasti
Project Designer

JMK/SV



Steven Ventresca, PE, LEED AP BD+C
Senior Project Manager