

EcoTec, Inc.

ENVIRONMENTAL CONSULTING SERVICES

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March 27, 2023

Sturbridge Conservation Commission
Center Office Building
308 Main St
Sturbridge, MA 01566

Re: Notice of Intent
68 Paradise Lane, Sturbridge
Applicant: Jeffrey Buchanan

Dear Commission Members:

This letter is written to provide responses to the agent's comments, The comment is in italic followed by responses as follows:

Staff Notes:

Proof of abutter notifications required to open hearing.

Response: No response needed

Proof of legal ad received.

Response: No response needed

DEP File # issued w/ no comments.

Response: No response needed

Site visit was postponed due to weather conditions and needs to be rescheduled.

Response: No response needed

Project is not within Priority or Estimated Habitat.

Response: No response needed

Site contains Bank associated with Big Alum Pond and 2 Bordering Vegetated Wetlands along the eastern and western sides of the property. Bank is an existing concrete wall with stairs.

Response: No response needed

Majority of property is within the 25' no disturb setback and all of site within the 50' no build setback. (see: <https://ecode360.com/35319582> for SWB Regs on new structures)

Response: EcoTec provided a detailed compliance evaluation to demonstrate that the project complies with the Town of Sturbridge Wetlands Protection Bylaw regulations with respect to small lakefront lots. This section of the regulations provides specific waiver procedure and requirements for small lakefront lots.

BVW lines require verification. Unless the BVW line is clearly distinguishable, wetland verification is not possible or recommended at this time of year.

Response: The BVW delineation was conducted in accordance with MassDEP policy and due to the disturbed nature of the property, the delineation was based upon hydric soil indicators and the soil colors. The soil colors allow for an evaluation to be conducted at any time of year. The Commission routinely reviews delineations throughout the year. Therefore, it is unclear why it is stated that verification is not possible or recommended at this time of year.

In addition, there was a question regarding a portion of the lawn downgradient of the existing well. It appeared that the well was surcharging and discharging into a portion of the lawn. This is not unexpected given that the house is not being used and water is not being pumped from the well. The Conservation Commission questioned this area during the inspection and a soil sample was evaluated, but the Commission was pressed for time so a detailed evaluation could not be performed. Therefore, EcoTec conducted three soil test pits starting at the well and extending downgradient through the wettest portion of the lawn to provide a detail of the soils observed to determine if the wetland boundary should be revised. The results are as follows:

Test Pit #1

Horizon	Depth	Matrix Color	Redoximorphic Feature Color	Soil Texture
A	0-14	10YR 3/2	none	gravely sand

Test Pit #2

Horizon	Depth	Matrix Color	Redoximorphic Feature Color	Soil Texture
A	0-5	10YR 3/2		Fine sandy loam
Bw	5-13	10YR 4/4	20% 10YR 4/3 5% 2.5YR 3/4	Fine sandy loam

Test Pit #3

Horizon	Depth	Matrix Color	Redoximorphic Feature Color	Soil Texture
A	0-8	10YR 3/2	none	

Bw	8-12	10YR 4/3	20% 10YR 4/4	Course sand
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These soil conditions show a high groundwater elevation due to the presence of redoximorphic features in the soil. However, based upon an analysis of the soils colors the soils don't meet the classification requirements to be considered a hydric soil. As such, it is EcoTec's opinion that the delineated wetland boundary on the site accurately represents the wetlands on the site.

50 feet of BVW impacted noted in NOI. 55 feet noted on plan. Engineer to verify. Bank impact proposed for addition of pipes to allow weeping. Bank impact to be articulated and added. The addition of pipes to drain the area may impact the areas ability to function as a wetland and it should be reviewed if this will benefit the wetland or be detrimental.

Response: Both the NOI application and plans note that 50 square feet of BVW is proposed to be filled. Therefore, there is no conflicting information. The proposed weep holes are proposed to be cored into the wall below the water elevation to match the existing holes beneath the stairs. The proposed pipes will consist of two 4-inch pipes at elevation 722.5, which will allow the groundwater to drain through the wall to mimic the current condition. The NOI application has been revised to clarify this and is appended to this letter.

BLSF noted at elevation 723.4. Appears to slightly fall on the property 724 shown on the property however small amount of work may be within the BLSF for the replication. Engineer should verify if any work is within BLSF.

Response: The top of the existing retaining wall varies between 723.6 and 724.0. Therefore, the entire wall is above the 723.4 elevation. Therefore, there is no BLSF on the site.

New structure is within the 25' no disturb and 50' no build setback. Structure has been moved out of the 50' no build associated with the lake, which is an improvement, but does increase in footprint within 25' of the BVWs.

Response: EcoTec provided a detailed compliance evaluation to demonstrate that the project complies with the Town of Sturbridge Wetlands Protection Bylaw regulations with respect to small lakefront lots. This section of the regulations provides specific waiver procedure and requirements for small lakefront lots.

Wetland encompasses part of lawn area that is over the shoreline stairs. Stair repairs recently made. Weeping pipes installed. Pipes had previously been located here and failure of pipes may have assisted with wetland expansion in the area. Project team is proposing to regrade area to direct runoff away from the stairs and fill portion of wetland at stairs.

Response: This was proposed to correct the issue and was discussed during a preliminary discussion with the Planning Board and Conservation Commission staff. The project team was asked to review this to see if a solution could be made to resolve this problem. The proposed project is intended to both resolve the issue and replicate and restore portions of the turf BVW.

Proposing 55 sq feet of impact and replication of 105.

Response: The project proposes 50 square feet of impact with 55 square feet of replication and 110 square feet of restoration by replanting with native ferns and shrubs. This information is depicted on the site plans.

Improvements proposed to stormwater here to include providing a deep sump catch basin for road runoff treatment and a vegetated bioretention area. These will be beneficial but could be improved by expanding retention areas. The ~50 ft drain pipe could be reduced to provide for a larger retention area.

Response: The drain pipe was shortened and the bioretention areas was increased to address this comment.

Additional improvements made within the wetland on the western side to remove accumulated sediment at culvert outlet. Is this on the subject parcel? Corrective grading proposed here also.

Response: This is proposed within the right-of way. Because the R.O.W is private the adjacent property owners have rights to the centerline. Therefore, this work is proposed within an area that the owner has rights to.

Project includes dry wells for roof runoff infiltration. Do these areas support these structures? Depth to groundwater concerns?

Response: It has been the project team's experience that the Sturbridge Conservation Commission likes to see infiltration provided. The engineer has proposed the use of shallow infiltration systems due to the presence of high ground water. The drywell structures proposed were 18" in depth and have been revised to be 12" structures. The bottom of the lakeside structure is proposed at current existing grade and likely would meet the 2' offset. The bottom of the roadside structure is proposed about 12" below existing grade and may not meet the 2' offset. The 2' offset to groundwater is meant to provide treatment prior to infiltration into the groundwater table. The water proposed to be conveyed to these systems is only roof runoff which is considered clean and does not require treatment. These systems will provide an improvement over existing conditions, especially during the summer and fall months when groundwater level tends to subside. In addition, this will prevent warm roof runoff from reaching the lake without being attenuated.

Staff have been to this site w/ previous owners on various occasions. They had many concerns with saturation throughout most of the site. Site was saturated on various occasions that staff visited.

Response: The site is located at the bottom of a large hillside with no stormwater controls on the road. Therefore, all runoff from the surrounding properties passes through this site. The current flow paths are directed directly toward the front door of the existing house. As such, there is an opportunity to provide some stormwater controls and to correct the site grading while the new home is constructed. This will ensure the longevity of the home while providing

water quality improvements to protect Big Alum Pond. The property owner is willing to make these modifications (at substantial cost) because he appreciates and wishes to protect the resource areas on and surrounding the property and considers these improvements worthwhile.

Engineer should provide information on depth to groundwater to verify that a partial foundation can be installed here & BMPs. Project team should describe what would be required during construction and long term if high groundwater is encountered.

Response: The proposed project will elevate the foundation slab elevation to 729 this will include the installation of a perimeter drain, which will discharge at elevation 725. A 4 foot frost wall and perimeter drain is required by the Massachusetts State Building Code. Any high groundwater will be captured in the perimeter drain.

Staff recommend that helical pilings be looked at to minimize disturbance and to eliminate these concerns. Staff are aware that a partial basement is preferred but this is a challenging site. Utilities could be located in the proposed garage.

Response: No garage is proposed. Rather, a utility room is proposed to house the home's mechanical systems. As discussed at the previous meeting helical pilings are not generally used for homes due to the relative short lifespan of the piers (15 year warranty). A foundation provides a long term solution and will prevent the need to replace the helical piers.

Footing drain shown to discharge just outside of the wetland.

Response: This discharge is located in a similar location to an existing drain on the site.

Alternative analysis should be provided demonstrating no alternatives to the proposal per bylaw regs. Can a narrower structure be provided or reduced parking to decrease impervious or partially impervious surfaces?

Response: EcoTec provided a detailed compliance evaluation to demonstrate that the project complies with the Town of Sturbridge Wetlands Protection Bylaw regulations with respect to small lakefront lots. This section of the regulations provides specific waiver procedure and requirements for small lakefront lots.

Could the proposed 2-car garage be minimized to expand living space and keep from expanding closer to the BVWs? Parking appears to have been significantly increased. New structure is moved away from the lake but encroaches on wetlands.

Response: No garage is proposed, due to the small size of the structure. The parking was expanded to provide for two defined parking spaces and is proposed to be pervious surface.

A waiver would be required. Mitigation provided on revised plan. All options to meet the SWB standards must be explored and documented in able to be eligible for a waiver.

Response: EcoTec provided a detailed compliance evaluation to demonstrate that the project complies with the Town of Sturbridge Wetlands Protection Bylaw regulations with respect to small lakefront lots. This provided different standards and waiver procedure for small lakefront lots.

A breakdown of the existing structure and new structure within 25' and 50' of resource areas is shown on the plan. This also includes impervious areas. What are the impervious areas used for the calculations? How much increase in parking areas (shown as permeable driveway) is proposed? Include in table.

Response: The proposed driveway is approximately 18 feet by 24 feet or 424 square feet. The house is located 24-feet from the traveled way. The existing gravel driveway is 360 square feet, which is 64 square feet larger. The proposed driveway is slightly larger, but allows for improved functionality and provides two parking spaces and prevents the need to cars to park on the lawn.

Will need an O & M Plan for all stormwater BMPS and pervious structures.

Response: We can provide an O& M plan for the structures upon approval.

The board may want to consider a vegetated buffer along the BVW lines to create a no disturb buffer and want to consider concrete bounds or other markers clearly identifying the wetlands or that no disturb buffer as outlined in SWB Regs 365-1.1 which states: "At the discretion of the Commission, concrete bounds or other appropriate permanent markers clearly delineating the twenty-five-foot "no disturb" buffer, or any alternative approved width "no disturb" buffer the Commission imposes for each property, are to be installed prior to the start of any work on-site."

Response: No response needed

We hope that these responses provide the information that the Commission and staff were seeking. We look forward to meeting with the Commission regarding this project. If you have any questions, please feel free to contact me at any time.

Sincerely,



Scott M. Morrison, PWS
Senior Environmental Scientist

17/E/SturbridgeParadise68NOILetter



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Sturbridge

City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Bank	2 4" holes drilled through the concrete wall	none-wall will remain the Bank
b. <input type="checkbox"/> Bordering Vegetated Wetland	50 1. square feet	55 2. square feet
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input type="checkbox"/> Riverfront Area	1. Name of Waterway (if available) - specify coastal or inland	

2. Width of Riverfront Area (check one):

- 25 ft. - Designated Densely Developed Areas only
- 100 ft. - New agricultural projects only
- 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? Yes No

6. Was the lot where the activity is proposed created prior to August 1, 1996? Yes No

3. Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.