The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

June 21, 2019

MANISHA P HEIDERSCHEIDT 2010 REV TRUST
C/O BENEDICT G & MANISHA P HEIDERSCHEIDT TRUSTEES
21 CAVERNO DR
LEE NH 03824

RE: File #2019-00695 - Manisha Heiderscheidt 2010 Revocable Trust
Durham Tax Map/Lot # 12/1-8

Dear Mr. and Mrs. Heiderscheidt:

The New Hampshire Department of Environmental Services (NHDES) Wetlands Bureau has completed its review of your application and on June 21, 2019 determined that the proposed project to dredge and fill 258 square feet of tidal wetland and impact 1,988 square feet within the previously-developed upland tidal buffer zone for shoreline stabilization and construction of a stone patio and access way to an existing tidal docking structure does not comply with RSA 482-A and NH Administrative Rules Env-Wt 100 through 900. The application has therefore been denied.

This decision was determined based on the following findings:

STANDARDS FOR APPROVAL:

1. This is a Major Project per NH Administrative Rule Env-Wt 303.02(a), projects in sand dunes, tidal wetlands, or bogs, except for repair of existing structures pursuant to Env-Wt 303.04(v).
2. Pursuant to RSA 482-A:11, Administrative Provisions II., decisions of the department or council under this chapter shall be consistent with the purposes of this chapter as set forth in RSA 482-A:1.
3. Pursuant to NH Administrative Rule Env-Wt 302.04(a)(2), for any major or minor project, the applicant shall demonstrate by plan and example that the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.
4. Pursuant to NH Administrative Rule Env-Wt 302.04, Requirements for Application Evaluation, (d)(1), the Department shall not grant a permit if there is a practicable alternative that would have less adverse impact on the area and environments under the department's jurisdiction.
5. Pursuant to NH Administrative Rule Env-Wt 302.04(a) and (c), Requirements for Application Evaluation, the applicant must demonstrate by plan and example that each factor listed has been considered in the design of the project.
6. Pursuant to NH Administrative Rule Env-Wt 302.04, Requirements for Application Evaluation, (e)(2), the Department shall not grant a permit if the requirements of NH Administrative Rule Env-Wt 302.03 are not met or the applicant has failed to document consideration of factors as required in NH Administrative Rule Env-Wt 302.04(a) and (c).
7. Pursuant to NH Administrative Rule Env-Wt 404, Criteria for Shoreline Stabilization, shoreline stabilization shall be done by the least intrusive but practical method.

FINDINGS OF FACT:

1. On February 06, 2019, a pre-application meeting was held at NHDES in Portsmouth.
2. On March 01, 2019 the NHDES received an administratively complete application to dredge and fill 258 square feet of tidal wetland and impact 1,988 square feet within the previously-developed upland tidal buffer zone for shoreline stabilization and construction of a stone patio and access way to an existing tidal docking structure located along 77 linear feet of shoreline frontage on Little Bay.
3. The existing shoreline is comprised of a mixture of randomly placed stone and vegetation at a 1:1 to 2:1 slope.
4. The proposed method of shoreline stabilization included placement of riprap protection at the toe of slope and a proprietary engineered system of plastic-wrapped soil lifts at a 1:1 slope plus plastic slope protection at a 2:1 slope above that. The proposed products consist of flexible plastic erosion control material (high performance turf reinforcement mat (HPTRM)), filled with soil and include a structural element within each lift for added reinforcement. Each lift and the matted slope above was proposed to be seeded and planted with live stakes of native shrub species. The plastic material is designed to stay in place permanently.
5. The proposed stone patio is located at the top of slope and consists of a 12 foot by 7.25-foot gravel area contained within a 1-foot-thick granite band (totaling 115.5 square feet, thereby maximizing the allowable limit on accessory structures, per NH Administrative Rule Env-Wq 1405.03(c)).
6. In correspondence dated February 08, 2019, the NH Fish and Game Department (NHFG) cited concern for the potential of the plastic material to degrade over time thus contributing to micro plastics pollution in the marine environment.
7. There is also documented concern for the risk of fish and wildlife to become entangled in plastic mesh erosion control products.
8. In a review letter dated February 25, 2019, NHB cited the presence of an exemplary natural community in the vicinity of the proposed project. The NHB review letter requested a site plan, planting plan, stabilization methods and description of proposed impacts to the exemplary natural community.
9. In correspondence dated March 19 and 29, 2019, the NH Natural Heritage Bureau (NHB) also questioned the necessity for such a robust synthetic engineered solution given the slope and existing condition of this shoreline compared to similar shoreline stabilization projects in the vicinity which have used non-plastic biodegradable materials (coir). NHB further raised concern regarding the potential for the plastic material to degrade over time thus contributing to micro plastics pollution in the marine environment.
10. The project is located on the shoreline of Little Bay in Durham, within an area identified by NHFG as Highest Ranked Habitat in the State, per the NH Wildlife Action Plan.
11. Impacts are proposed within 20 feet of both abutting properties (Durham tax map/lot numbers 12/1-6 and 1-10). In accordance with NH Administrative Rule Env-Wt 304.04, signed authorization was obtained from both abutting property owners.
12. Technical review of the application and correspondence with NHFG and NHB found the applicant did not adequately demonstrate by plan or example alternative methods of shoreline stabilization that may meet the intent of the proposed project; such as reconfiguration of the existing armor, enhancing the existing vegetation or the use of biodegradable erosion control products.
13. On April 17, 2019, NHDES issued a request for more information. The request stated that the proposed project did not appear to be the least impacting alternative, based on the information provided and based on similar projects that have utilized less-impacting methods. The request called for demonstration that anticipated turbulence, flows, restricted space or other similar factors rendered traditional vegetative and/or fiber-based (coir) matting erosion protection impractical.
14. On May 24, 2019, NHDES received a response to the April 17, 2019 request for more information. In the response, the applicant's agent reiterated the initial proposal and qualitatively emphasized the need for reinforced structural stability. The proposed granite and gravel patio at the top of slope presumably contribute to the need for reinforced structural stability.

15. Although plastic (HPTRM) erosion control products have been used in a variety of stormwater management applications and inland, freshwater, bank stabilization projects, the applicant has failed to provide clear evidence or convincing unbiased case study of long-term integrity or application of HPTRM in local marine environments.
16. In correspondence dated May 06, 2019, a Professor of Biology at Sacred Heart University, stated they would "...highly recommend avoiding all plastic. [...] if the sediment covering them washes away (which it did) the UV rays of the sun break down the tubes and netting causing a huge mess. Fish and wildlife can get entangled. Waves hit the tubes like a wall and pull the sand away down the shore..."
17. The project design in Connecticut that originally proposed use of plastic slope stabilization products, described in finding #16, is currently being redesigned to use an alternative product that is biodegradable within 10 years.
18. On June 21, 2019, NHDES staff conducted a field inspection of the proposed project area. Prior field inspection had also been conducted, related to previous permit applications submitted by the property owner (NHDES Wetlands Bureau file numbers: 2018-00207, 2018-00708 and 2018-01046).

RULING IN SUPPORT OF THE DECISION:

1. The applicant failed to submit the information required for the department to review a Major Impact project proposal, therefore, the department cannot find that the project, as proposed, is the least impacting alternative and project is denied pursuant to NH Administrative Rule Env-Wt 302.04(d)(1).
2. The applicant has failed to demonstrate, pursuant to NH Administrative Rule Env-Wt 302.03(a) and Env-302.04(a)(2), that the proposal has avoided potential impacts to the maximum extent practicable, any unavoidable impacts have been minimized and the alternative proposed is the one with the least impact to wetlands or surface waters, therefore the application is denied.
3. The applicant failed to demonstrate, pursuant to NH Administrative Rule Env-Wt 404.01, that the proposed shoreline stabilization is the least intrusive but practical method, therefore the application is denied.

Any person aggrieved by this decision may appeal to the N.H. Wetlands Council ("Council") by filing an appeal that meets the requirements specified in RSA 482-A:10, RSA 21-O:14, and the rules adopted by the Council, Env-WtC 100-200. The appeal must be filed **directly with the Council within 30 days** of the date of this decision and must set forth fully **every ground** upon which it is claimed that the decision complained of is unlawful or unreasonable. Only those grounds set forth in the notice of appeal can be considered by the Council.

Information about the Council, including a link to the Council's rules, is available at <http://nhec.nh.gov/> (or more directly at <http://nhec.nh.gov/wetlands/index.htm>.) Copies of the rules also are available from the NHDES Public Information Center at (603) 271-2975.

Sincerely,

CG Adams

Collis G. Adams, CWS, CPESC
Wetlands Bureau Administrator
Land Resources Management

cc: Durham Municipal Clerk and Durham Board of Selectmen
John Chagnon and Steve Riker, Ambit Engineering Inc
ec: Amy Lamb, NH Natural Heritage Bureau
Kim Tuttle and Cheri Patterson, NH Fish and Game Department