



Nantucket Land Council

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May 7, 2021

Ms. Ashley Erisman, Chair
Nantucket Conservation Commission
2 Bathing Beach Road
Nantucket, MA 02554

Re: 'Sconset Beach Preservation Fund 2020 Annual Report

Dear Commissioners,

The Nantucket Land Council, Inc. is a 501(c)(3) member supported non-profit organization. We have reviewed the 2020 Annual Report submitted on behalf of 'Sconset Beach Preservation Fund and Mr. Greg Berman's independent review of the report. We are providing comments from our technical consultants, Applied Coastal Research and Engineering, Inc. regarding these materials. Please find these comments attached. We will be attending the May 17th public hearing and will be available for comments and questions regarding this letter.

Thank you for your time.

Sincerely,

RJ Turcotte
Resource Ecologist





RESEARCH AND ENGINEERING, INC.

May 6, 2020

Emily Molden
Nantucket Land Council, Inc.
6 Ash Lane
PO Box 502
Nantucket, MA 02554

Re: Comments regarding SBPF's 2020 Annual Review of Sconset Geotextile Tube Project Report

Dear Emily,

Applied Coastal Research and Engineering, Inc. (Applied Coastal) has been providing technical guidance and support to the Nantucket Land Council Inc. for more than 20 years concerning coastal processes and related scientific and engineering issues along the shorelines of Nantucket. As part of the on-going support of the Land Council, Applied Coastal has reviewed the supporting technical information supplied by the Applicant (Sconset Beach Preservation Fund (SBPF)) as part of the 2020 Annual Review of Sconset Geotextile Tube Project report developed by Epsilon Associates, dated March 16, 2021. The comments below follow closely with comments made on previous Annual Reviews since SBPF and their consultants have failed to rectify the most serious concerns regarding the placement of mitigation, management mitigation template and failure to meet the conditions set forth in the Order of Conditions.

The Annual Review provides a wide range of data, analysis, and interpretation of the monitoring information collected on behalf of SBPF. The data in the Annual Review continues to confirm that erosion along the eastern coastline of Nantucket has increased since the geotube revetment was installed in the winter of 2013/2014. A number of the incorrect conclusions which have been presented year after year in the Annual Reviews, other submittals to the Commission, and repeated again in the 2020 Annual Review are inaccurate do not reflect an appropriate background in coastal processes which is required to accurately understand and interpret the data presented. Based on flawed interpretation of the data, the Epsilon's review draws inaccurate conclusions regarding the severity of erosion being experienced along the unprotected shorelines, the impacts associated with inadequate performance of the mitigation template to provide sediment to the littoral system as required as a condition of the project, along with inaccurate interpretation of data and analysis regarding how the mitigation volumes were determined based on SBPF's own studies and reports. The following comments also include the information and analysis presented in Mr. Berman's review of the Annual Review dated April 16, 2021 and Dr. Kreibel's letter dated May 5, 2021.

Mitigation

The 2019 Annual Review clearly showed that SBPF had been out of compliance with the Order of Conditions set by the Nantucket Conservation Commission and Massachusetts Department of Environmental Protection (MassDEP) since 2016. As if December 2019 SBPF had

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failed to place 35,009 cubic yards of mitigation, which is more than entire year of sediment contributions (annual contribution should be 20,834 cubic yards) that were not available to mitigate for impacts on adjoining shorelines resulting from SBPF's geotextile tube revetment. The 2020 Annual Review confirms the SBPF has continued to disregard the conditions set forth in the Order of Condition by failing to place the prescribe volume of sediment in the mitigation template. The sediment deficit is now 46,537 cubic yards through December of 2020, which is over two years of annual mitigation that has not been placed on the template or within the littoral system.

The deficiency of required mitigation volume by SPBF is confirmed again in Mr. Berman's Independent Review and Dr. Kriebel's letter. Though each use slightly different time periods and hence report different volumes, the accounting of the sediment deliveries show a continued lack of sediment being placed in the template. The conclusion of 2020 represented the fifth year that SBPF has been in violation of the Failure Criteria set forth in the Order of Conditions relative to mitigation. Special Condition 34 states,

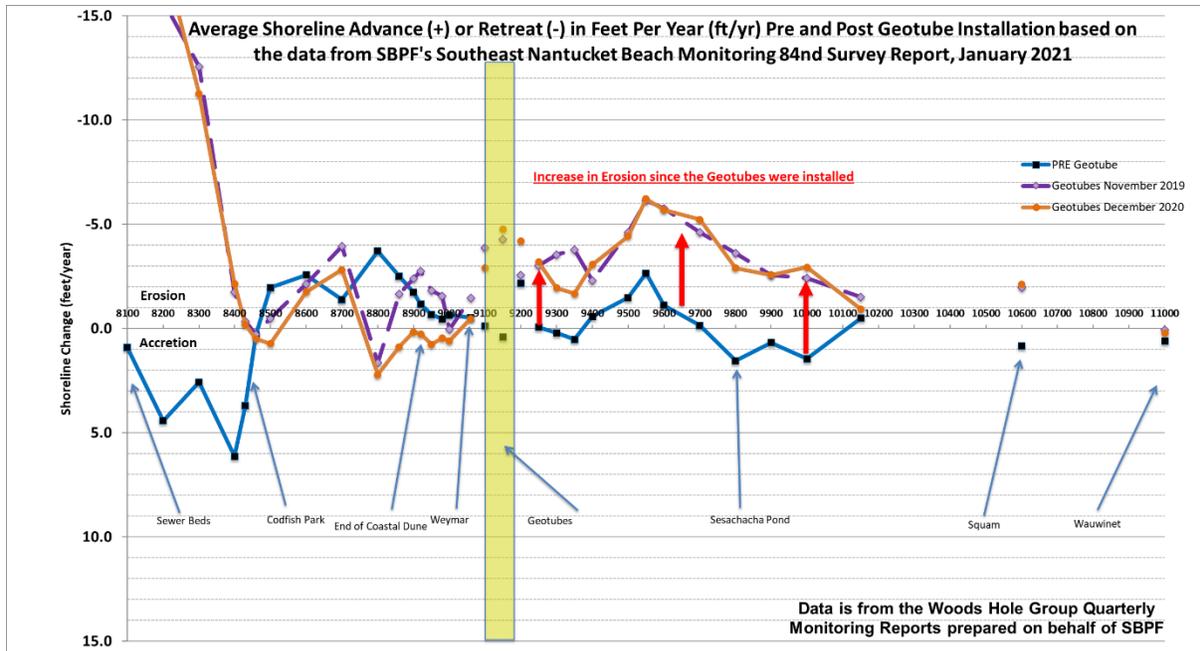
Failure of SBPF to conduct the actions set out in subsections (a) to (f) herein shall constitute a project failure ("failure criteria") if not performed within the stipulated timeframes or within such other reasonable periods of time as determined by the Commission

Condition (a) is a failure to provide the sand mitigation as required. The mitigation is required on an annual basis and it is been deficient since beginning of 2016. This is clear indication that the project is a failure, SBPF cannot keep up with the mitigation requirements of the project. The result is loss of shoreline on the neighboring beaches, as shown in SBPF's monitoring data. During the winter of 2018 when the coastline of Nantucket was impacted by a series of severe nor'easters, the sand delivery data shows that SBPF was behind in providing 25,840 cubic yards of mitigation. The geotubes remained uncovered for weeks of time between the storms, providing no mitigation sediment to the littoral system. Proper management of the mitigation volume and template by the SBPF would have minimized impacts on adjacent unprotected shoreline. Interesting the erosion damages include the unprotected residences of Baxter Road, which SBPF is working on behalf of and who are now requesting geotube revetments to address the erosion resulting from a lack of mitigation and the introduction of a revetment.

Examination of the data provide in the Woods Hole Group Monitoring reports since the geotube revetment was constructed continually shows that erosion rates have increased across a majority of the monitored shoreline. In the 2020 Annual Review Epsilon states;

After more than seven years of monitoring, there is no indication of adverse effects to adjacent beaches

It is clearly inaccurate to state that the revetment structure is not having an adverse impact on the littoral system and adjacent beaches, while the monitoring reports provided by SBPF and reviewed in the Annual Review illustrate the opposite. Below is a figure illustrating the annual erosion rates plotted in feet per year relative to the monitoring stations utilized in the Quarterly Monitoring Reports. Since the geotube revetment was constructed in the winter of 2013/2014, erosion rates along the shoreline to the north have accelerated. SBPF would like the Commission to believe that their lack of following the prescribed conditions to mitigate have not had any effect on neighboring shorelines; however, SBPF's data shows this is not the case and the geotube is having a measurable negative effect along the shoreline.



Mitigation Volume

The required mitigation volume of 22 cy/lf/yr has been discussed at length numerous times prior and after construction to the geotextile tube revetment, however, it is important that the facts of how the mitigation volume was determined need to be stated to counter the misleading facts presented by Epsilon and SBPF. The determination of the mitigation volume utilized SBPF's previous studies and analysis which showed the coastal bank does indeed contribute at least a 22 cy/lf/yr (and potentially even greater volumes). This volume has been confirmed twice by MassDEP when issuing Superseding Orders of Conditions for the project and is consistent with mitigation requirements for similar projects permitted by DEP within Massachusetts. The suggestion that the mitigation volume is 1.5-1.8 times the average bank contribution is inaccurate and does not agree with SBPF's own scientific findings. This is also why MassDEP and Conservation Commission have not approved the use of an adaptive mitigation program which would lower the annual mitigation contribution. The performance of the mitigation over the last 4 years highlights that when lower volumes of mitigation are provided, the erosional pressures on unprotected shorelines is increased, and thus a mitigation approach of utilizing lower volumes has and will have an adverse impact on adjoining shorelines. Additionally, with SBPF not providing the required mitigation to the system for the last 4 years raises further questions regarding any conclusions being made relative to reduced erosion volumes from mitigation template providing evidence that sediment is being oversupplied to the littoral system when 22 cy/lf/yr is mandated. The reduction in supplied sediment over a multi-year period would obviously have a direct correlation to the reduced volumes of sediment eroding from mitigation template, therefore negating the arguments suggesting to much material is being provided.

Beach Monitoring

Again Section 5.1 of the Annual Review SBPF requests that wading shots should be eliminated from the shoreline surveys. SBPF has not conducted wading shots as required in the Order of Conditions for the project since 2018. This lapse in required monitoring, which grounds for triggering Failure Criteria under Condition 34 (b) of the Order of Conditions, has been discussed during previous Conservation Commission hearings and has not been rectified by SBPF nor their consultant Woods Hole Group which is responsible for conducting the surveys.

The proposal for the 2021 monitoring from Woods Hole Group and provided to the Conservation Commission clearly indicates that SBPF approved the deletion of the wading survey as required by the Order of Conditions. This request should be denied and all future surveys should include the wading survey shots.

The request to reduce the frequency of the monitoring surveys would jeopardize the value of the long-term dataset to evaluate the performance of the geotextile tube revetment project moving forward or potentially the expanded geotube project that SBPF has been proposing. Littoral systems are influenced on a variety of time scales. Shorter term or interrupted monitoring cycles can show the influence of shorter events (e.g., a passing sand wave, storm event, etc.). However, to accurately understand erosion rates and patterns on the scale of the eastern shoreline of Nantucket monitoring on a decadal time scale is crucial to understanding dynamics and impacts structures have upon the system. It would not serve the interests of Nantucket to reduce the frequency or requirements around the shoreline monitoring.

Conclusions

The 2020 Annual Review highlights that SBPF is in violation of three (3) out of six (6) of the failure criteria set forth in Special Condition 34 of the Order of Conditions set by the Nantucket Conservation Commission and Massachusetts Department of Environmental Protection (MassDEP). SBPF has failed to provide the required mitigation sediment (Special Condition 34 (a)) to prevent damage to adjoining beach and have been out of compliance since 2016 and have failed to place 46,537 cubic yards of sediment. The monitoring conducted by SPBF does not follow the protocols set forth in violation of Special Condition 34 (b) and has not done so since 2018. The sustained increase in erosion along the adjacent shorelines is in violation of Special Condition 34 (d) and has been ongoing since the geotubes were construction in the winter of 2013/2014. SBPF continues to request adaptive management of the mitigation template, reductions in the monitoring required, and falsely states that there is no indication of adverse effects to adjacent beaches even though their data shows the opposite. These violations are not limited to a single event, the violations have been ongoing the life of the project, and clearly show that the project is not sustainable and has failed to meet the regulatory requirements need to keep the structure in place.

Thank you for your time and if you have any questions on Applied Coastal's comments please feel free to call me at 508-539-3737.

Best,

A handwritten signature in black ink that reads "Trey Ruthven". The signature is written in a cursive style with a long horizontal line above the first name.

Trey Ruthven