

Stormwater Management System Report

VINEYARD WIND

PROPOSED OPERATION AND MAINTENANCE FACILITY

69 BEACH ROAD TISBURY, MASSACHUSETTS

Prepared for:

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Project No. PR-2119

FIELD
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CONSULTING ENGINEERS

Preface

Stormwater Management Standards Compliance Checklist



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

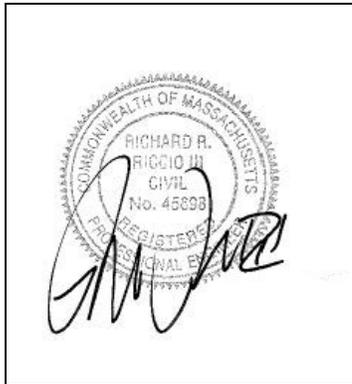
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



Signed and Stamped Electronically 3/4/2022

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only) (No net increase in impervious area)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
 - Credit 1
 - Credit 2
 - Credit 3
- Use of "country drainage" versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): Subsurface Recharge Facility

Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - Static
 - Simple Dynamic
 - Dynamic Field¹
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - Site is comprised solely of C and D soils and/or bedrock at the land surface
 - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - Solid Waste Landfill pursuant to 310 CMR 19.000
 - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The ½" or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs) - NOT APPLICABLE

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does **not** cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas -

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopment and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - Limited Project
 - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - Bike Path and/or Foot Path
- Redevelopment Project
- Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- The project is **not** covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - Name of the stormwater management system owners;
 - Party responsible for operation and maintenance;
 - Schedule for implementation of routine and non-routine maintenance tasks;
 - Plan showing the location of all stormwater BMPs maintenance access areas;
 - Description and delineation of public safety features;
 - Estimated operation and maintenance budget; and
 - Operation and Maintenance Log Form.
- The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

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Section 1

Hydrologic Overview

1.0 INTRODUCTION

1.1 Project Description

The applicant, Vineyard Wind, is proposed to perform a redevelopment of an existing developed piece of land known as 69 Beach Road in the Town of Tisbury, Massachusetts to construct a new Operation and Maintenance Facility for their proposed offshore wind farm project. The primary goals/objectives of the proposed project are to:

- Create a centralized control facility that has the unique ability to provide operational and maintenance services for offshore wind farms;
- Reduce global green-house gases by providing O&M services required to support offshore wind farms;
- Economic growth and job creation on Martha's Vineyard;

The proposed project includes a number of improvements to the facility includes but is not limited to the following:

- Demolition and removal of any existing structures and foundations on the subject parcel.
- Removal of existing asphalt surfaces.
- Construction of raised Operation and Maintenance Building conforming with FEMA Flood Zone Requirements for construction in Special Flood Hazards Areas.
- Construction of gravel parking areas beneath the proposed Operation and Maintenance Building.
- Construction of stormwater management facilities to handle the roof runoff from the proposed building.

1.2 Hydrologic Overview and Stormwater Management System Summary

The Dukes County Soil Conservation Service (SCS) mapping for this area indicates one major soil type, Urban Land, in the project area. The soil classification is as follows:

- Urban Land (602B), 0 to 8 percent slopes

As described above and further shown on the site plans, the proposed project will consist of the redevelopment of the portion of the site now known as 69 Beach Road for a proposed Operation and Maintenance Building to support the operations of Vineyard Wind. In existing conditions there is substantial impervious surfaces on the site which will be removed following the project. Existing runoff currently collects in a low area on the site in the location of a prior building. A portion of the runoff also flows towards Beach Road.

The proposed project will consist of the construction of an approximately 11,000 SF building to be raised to conform with existing FEMA Flood Zone Requirements for construction in Special Flood Hazard Areas. The building will be constructed on piers such that the area beneath the building will be available for parking. The building will also be serviced by a sidewalk, ramps, and concrete loading area as shown on the site plans. The applicant is proposing a gravel parking area beneath the building to minimize the amount of impervious surface on the site in post-developed conditions.

As shown on the attached Existing and Proposed Impervious Areas Sketch Plans, there is a substantial reduction in the overall impervious surfaces on the site. In existing conditions, approximately 85% of the parcel is covered in impervious surface and this will be reduced to approximately 48%. It should be noted that this 48% coverage

includes the building, which will be substantially raised above finished grade and the surface beneath the building will actually be pervious gravel. Given the reduction in overall impervious areas on the site, there will be a significant reduction in the rates and volumes of runoff produced by the site; however, the site is also proposed to be raised above existing grades. In order to minimize the potential for adverse impacts to adjacent properties, the applicant is proposing a number of stormwater management features to capture runoff and allow it to infiltrate into the underlying pervious material. These include a roof drain recharge system sized to capture and retain the 25-year storm of the proposed building and a crushed stone infiltration trench at the toe of the fill slope to intercept and infiltrate surface runoff prior to leaving the property.

The proposed stormwater management system incorporates a number of Best Management Practices (BMPs), as prescribed in the Department of Environmental Protection Stormwater Management Handbook. These practices include structural and non-structural measures providing stormwater quantity and quality management. These BMPs will function to minimize potential adverse water quality impacts to the surrounding wetland ecosystem. The following sections describe the temporary and permanent stormwater BMPs proposed for the site development.

The proposed stormwater management plan has been developed based on the projected site conditions and the present condition of the water resource areas that receive stormwater runoff from the site. The proposed BMPs have been designed to comply with the Massachusetts Stormwater Management Handbook. As described above, the runoff from the proposed roof areas will discharge to a subsurface recharge system which will take advantage of the underlying pervious soils and promote recharge on the site. Recharge volume calculations have been provided in Section 2 to show that more than adequate recharge volume has been provided on the project site to handle the Required Recharge Volume of the new building. As previously mentioned, there is a substantial reduction in the overall impervious area on-site which will serve to significantly reduce the amount of runoff produced following construction.

1.3 Select Structural Best Management Practices (BMP's)

Subsurface Recharge System

Runoff from the clean roof drains from the new building will be discharged to a subsurface roof drain recharge system located on-site. The subsurface system will consist of plastic parabolic Cultec Contactor leaching chambers on a bed of double washed stone. This system will achieve recharge to the groundwater through the underlying pervious soils. The roof drain recharge system has been sized to retain the 25-year storm event and will be allowed to overtop in the larger storm events through "wye" cleanout structures on the roof drain header system adjacent to the building. These "wye" fittings will discharge to stone splash pads to minimize the potential for erosion at the building.

1.4 Select Non-Structural Best Management Practices (BMP's)

Stormwater Management System Maintenance Program

All structural components of the existing stormwater management system will be inspected and maintained on a regular basis in accordance with the requirements of the Stormwater Management Policy. A detailed Stormwater Management System Operation and Maintenance Plan has been prepared in accordance with the Stormwater Management Standards and Stormwater Management Handbook prepared by the Massachusetts Department of Environmental Protection.

1.5 Regulatory Compliance

The Massachusetts Stormwater Handbook, Volume 3 (February, 2008), has been used as the primary guidance for the selection and design of permanent non-structural and structural BMPs for the long-term protection of existing resource areas. The Stormwater Management Plan developed for this project incorporates water quality controls that will protect surface and groundwater resources, wetlands and adjacent properties from potential impacts due to increased impervious areas on the site.

The stormwater performance standards developed by the DEP and a brief discussion on how the proposed project will achieve the standards are provided below. A Stormwater Management System Compliance Certification and Checklist is included as a Preface to this Report.

Standard 1. No new stormwater conveyances may discharge untreated stormwater directly to, or cause erosion in wetlands or waters of the Commonwealth.

- No proposed site stormwater conveyance system will discharge untreated stormwater runoff directly to resource areas or cause erosion.

Standard 2. Stormwater management systems shall be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates.

- The runoff from the site discharges to a coastal flood zone and would be subject to a waiver of Standard 2. There is a substantial reduction in the overall impervious surface on the site which would contribute to an overall reduction in peak discharge rates from the property. Additionally, the applicant is proposing a substantial roof drain recharge system which will retain and infiltrate up to and including the 25-year storm event.

Standard 3. Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

- The runoff from the roof of the proposed Operation and Maintenance Building will flow through a subsurface recharge system sized to retain the 25-year storm event. This system will provide more than adequate volume to meet the required recharge volume associated with the new impervious surfaces related to the project. Recharge calculations are provided in Section 2 of this Report.

Standard 4. Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This standard is met when:

- a) Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;
- b) Structural stormwater best management practices are sized to capture the required water quality volume as determined in accordance with the Massachusetts Stormwater Handbook; and
- c) Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

- The proposed project consists of the redevelopment of an existing commercial property and will include the substantial reduction in the impervious area on the site. This will also include the removal of paved surfaces on the property. The existing building will be constructed over a gravel parking area and there will be minimal runoff generated on the site other than from the proposed roof, which is considered clean runoff.

Standard 5. For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L.c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

- The proposed project is not considered a high intensity use with higher potential pollutant loads.

Standard 6. Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook.

- The only stormwater discharge would be from the overflow of the roof drain recharge system and would consist of clean roof water. Therefore, there would be no negative impact to any critical areas as a result of this project.

Standard 7. A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

- While portions of the project may be considered redevelopment under the Stormwater Management Standards, the project as a whole has been designed to meet all of the Standards of the Stormwater Management Handbook.

Standard 8. A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

- The proposed project covered under this Stormwater Management System Report is for the construction a new operation and maintenance building to support the operations of Vineyard Wind. The proposed development will incorporate erosion and sedimentation controls to minimize the potential for sedimentation in down gradient resources. These controls will include straw wattles/silt fence barriers, temporary stone pads at construction

entrances, silt protection in any existing stormwater management structures within Beach Road, and slope stabilization measures such as hay/straw blankets and jute matting. A Construction Period Stormwater Pollution Prevention Plan has been provided as an Appendix to this Report.

Standard 9. A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

- The Stormwater Management Plan for this project has been developed in compliance with the DEP Stormwater Management Policy. The Plan is based on a multi-dimensional approach to stormwater management that recognizes the need for proper site planning, source control of potential contaminants, and implementation of structural and non-structural treatment methods to ensure the protection of water resources in the vicinity of the site and adjacent properties. A detailed Long-Term Operation and Maintenance Plan for the stormwater management systems is included in the following sections.

Standard 10. Illicit Discharges to the Stormwater Management System are prohibited.

- An Illicit Discharge Compliance Statement has been completed and is attached to this Stormwater Management System Report.

1.6 Post Construction (Long Term) Operation and Maintenance Plan

Name and address of the Owner of Record

Vineyard Wind
700 Pleasant Street
Suite 510
New Bedford, MA 02740

1. The contractor shall be responsible for the proper inspection and maintenance of all stormwater management facilities until such time as the Stormwater Management System is accepted by the Owner. Thereafter the Owner shall be responsible for the proper inspection and maintenance of the stormwater facilities in accordance with this Operation and Maintenance Plan as well as the continuing conditions of the Certificate of Compliance on the property.
2. All Structural Best Management Practices (BMP's) should be inspected after every major rainfall event exceeding 1.0-inch for the first 6 months after construction to ensure proper stabilization, construction, and function.
3. Thereafter, regular BMP inspections should be conducted according to the following schedule:

<u>BMP Structure</u>	<u>Inspections per Year</u>
Roof Drain Recharge System	1

4. The contractor and the owner shall maintain and submit to the Conservation Commission (if requested) a BMP Inspection Report following each site inspection as recommended above. The BMP Inspection report shall identify the Date of Inspection, the name and contact number of the responsible party, specific structures inspected, specific maintenance required and observations at a minimum, inspection reports should address the following conditions:
 1. Erosion
 2. Accumulations of sediment removed from drainage structures
5. Accumulated sediment and trash should be removed a minimum of two times per year or if sediment exceeds three inches in depth.
6. All removed sediments are to be properly disposed of at a location to be approved by the Board of Health. Transportation and disposal of sediments shall comply with all applicable local, state, and federal regulations.
7. No disposal of materials shall be permitted within the buffer zones or resource areas on the project site. This prohibition applies to trash, fill material, construction debris, grass clippings, collected leaves and cut branches.
8. Any deficiencies noted during an inspection shall be reported to and corrected to the satisfaction of the project engineer and/or Conservation Commission.
9. An Operation and Maintenance Inspection Form shall be developed and copies of the completed forms shall be submitted to the Owner and Conservation Commission in accordance with the determined schedule.

10. The Owner shall either conduct the maintenance themselves or contract with a maintenance company to perform the operation and maintenance of the stormwater management system. The contact information for this company, if applicable, shall be provided to the Conservation Commission for their files.

Section 2

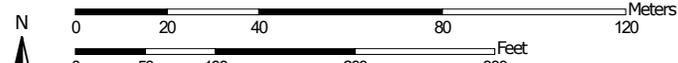
Supplemental Data

Soil Map—Dukes County, Massachusetts



Soil Map may not be valid at this scale.

Map Scale: 1:1,640 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

3/3/2022
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.
 Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dukes County, Massachusetts
 Survey Area Data: Version 18, Sep 2, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Nov 5, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
64A	Pawcatuck and Matunuck mucky peats, 0 to 2 percent slopes, very frequently flooded	0.1	0.5%
602	Urban land	9.4	83.5%
608	Water, ocean	0.3	2.6%
610	Beaches, sand	0.1	0.9%
700A	Udipsamments, wet substratum, 0 to 3 percent slopes	1.1	9.8%
801	Nagunt sand, 0 to 1 meter water depth	0.3	2.7%
Totals for Area of Interest		11.2	100.0%

RECHARGE VOLUME CALCULATIONS - POST 1

Client:	Vineyard Wind	Job No.	PR-2119
Project:	Operation and Maintenance Building	Date:	3/3/2022
Location:	Beach Road, Tisbury	Design by:	Foth

RECHARGE VOLUME CALCULATIONS

HYDROLOGIC SOIL GROUP	A
UNIT VOLUME (in.) =	0.60
IMPERVIOUS AREA (s.f.) =	11,000
RECHARGE VOLUME (cu.ft.) =	550

AVAILABLE VOLUME CALCULATION (CULTEC FIELD)

14 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 105.50' Row Length +12.0" End Stone x 2 = 107.50' Base Length

3 Rows x 36.0" Wide + 4.0" Spacing x 2 + 12.0" Side Stone x 2 = 11.67' Base Width

6.0" Base + 12.5" Chamber Height + 6.0" Cover = 2.04' Field Height

42 Chambers X 14.0 cf +0.50' Row Adjustment X 1.86 sf X 3 Rows = 589.2 cf Chamber Stormwater

2,560.6 cf Field - 589.2 cf Chambers = 1,971.4 cf Stone x 40.0% Voids = 788.6 cf Stone Storage

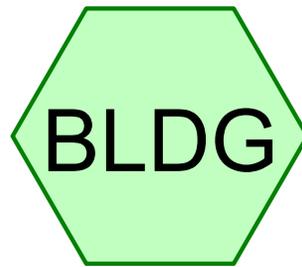
Chamber Storage + Stone Storage = 1,377.7 cf = 0.032 af

RECHARGE VOLUME PROVIDED	1,377.7	0.032
RECHARGE VOLUME REQUIRED	550.0	0.013

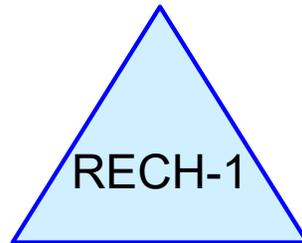
DRAWDOWN TIME CALCULATION

DRAWDOWN TIME=(REQ.RECH. VOL.)/(DES. INFILTRATION RATE "K"*BOTTOM AREA)

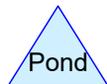
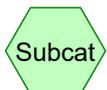
RECHARGE VOLUME PROVIDED (CF)=	1,377.7	
DESIGN INFILTRATION RATE (IN/HR)=	2.41	
BOTTOM AREA(SF)=	1,254.5	
DRAWDOWN TIME (HRS)=	5.5	OK



Proposed Operation and
Maintenance Building



Recharge System



Roof Recharge System

Prepared by Field Engineering Co. Inc.

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.253	98	Roofs, HSG A (BLDG)
0.253	98	TOTAL AREA

Roof Recharge System

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.253	HSG A	BLDG
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.253		TOTAL AREA

Roof Recharge System

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.253	0.000	0.000	0.000	0.000	0.253	Roofs	BLDG
0.253	0.000	0.000	0.000	0.000	0.253	TOTAL AREA	

Roof Recharge System

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Type III 24-hr 25-YR Rainfall=5.91"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment BLDG: Proposed

Runoff Area=11,000 sf 100.00% Impervious Runoff Depth>5.67"
Tc=6.0 min CN=98 Runoff=1.43 cfs 0.119 af

Pond RECH-1: Recharge System

Peak Elev=4.92' Storage=1,319 cf Inflow=1.43 cfs 0.119 af
Outflow=0.24 cfs 0.119 af

Total Runoff Area = 0.253 ac Runoff Volume = 0.119 af Average Runoff Depth = 5.67"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.253 ac

Roof Recharge System

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Type III 24-hr 25-YR Rainfall=5.91"

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Summary for Subcatchment BLDG: Proposed Operation and Maintenance Building

Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.119 af, Depth> 5.67"

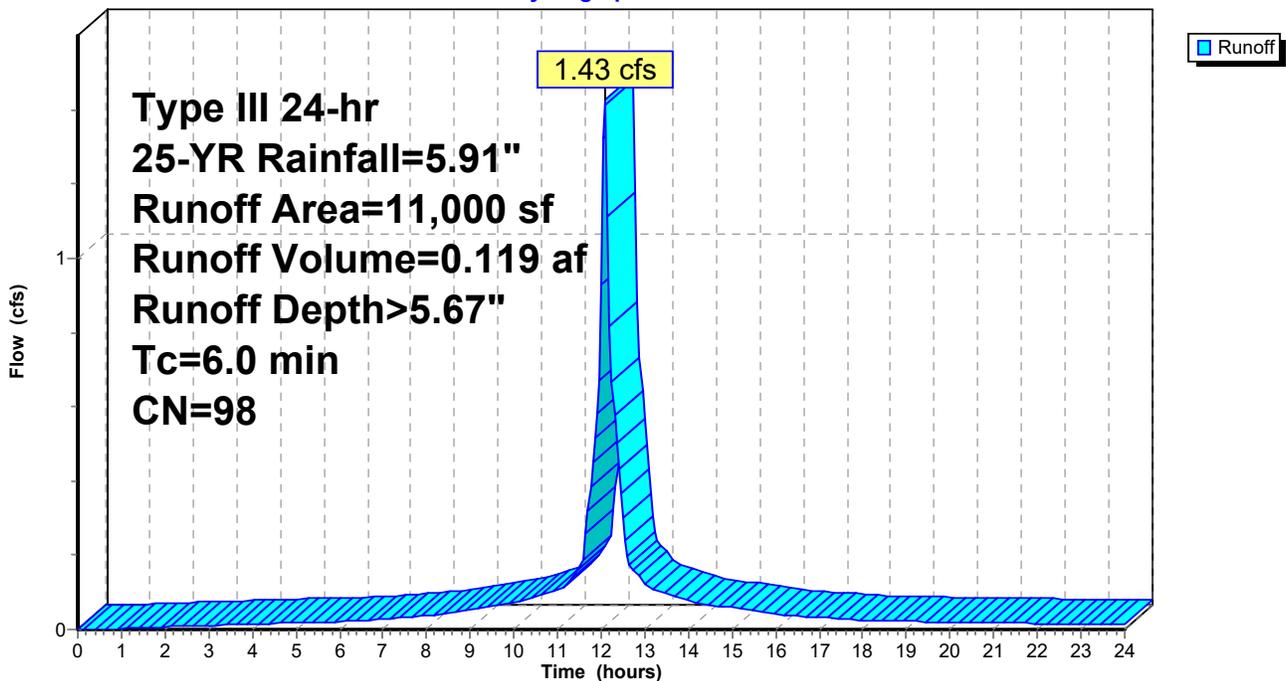
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.91"

Area (sf)	CN	Description
11,000	98	Roofs, HSG A
11,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment BLDG: Proposed Operation and Maintenance Building

Hydrograph



Roof Recharge System

Type III 24-hr 25-YR Rainfall=5.91"

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Summary for Pond RECH-1: Recharge System

Inflow Area = 0.253 ac, 100.00% Impervious, Inflow Depth > 5.67" for 25-YR event
 Inflow = 1.43 cfs @ 12.09 hrs, Volume= 0.119 af
 Outflow = 0.24 cfs @ 11.65 hrs, Volume= 0.119 af, Atten= 83%, Lag= 0.0 min
 Discarded = 0.24 cfs @ 11.65 hrs, Volume= 0.119 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 4.92' @ 12.55 hrs Surf.Area= 1,254 sf Storage= 1,319 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 28.7 min (773.7 - 744.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	3.00'	789 cf	11.67'W x 107.50'L x 2.04'H Field A 2,561 cf Overall - 589 cf Embedded = 1,971 cf x 40.0% Voids
#2A	3.50'	589 cf	Cultec C-100HD x 42 Inside #1 Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 3 rows
		1,378 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	3.00'	8.310 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.24 cfs @ 11.65 hrs HW=3.02' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.24 cfs)

Roof Recharge System

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Type III 24-hr 25-YR Rainfall=5.91"

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Pond RECH-1: Recharge System - Chamber Wizard Field A

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)

Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf

Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap

Row Length Adjustment= +0.50' x 1.86 sf x 3 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

14 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 105.50' Row Length +12.0" End Stone x 2 = 107.50' Base Length

3 Rows x 36.0" Wide + 4.0" Spacing x 2 + 12.0" Side Stone x 2 = 11.67' Base Width

6.0" Base + 12.5" Chamber Height + 6.0" Cover = 2.04' Field Height

42 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 3 Rows = 589.2 cf Chamber Storage

2,560.6 cf Field - 589.2 cf Chambers = 1,971.4 cf Stone x 40.0% Voids = 788.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,377.7 cf = 0.032 af

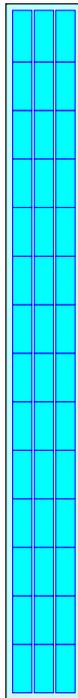
Overall Storage Efficiency = 53.8%

Overall System Size = 107.50' x 11.67' x 2.04'

42 Chambers

94.8 cy Field

73.0 cy Stone



Roof Recharge System

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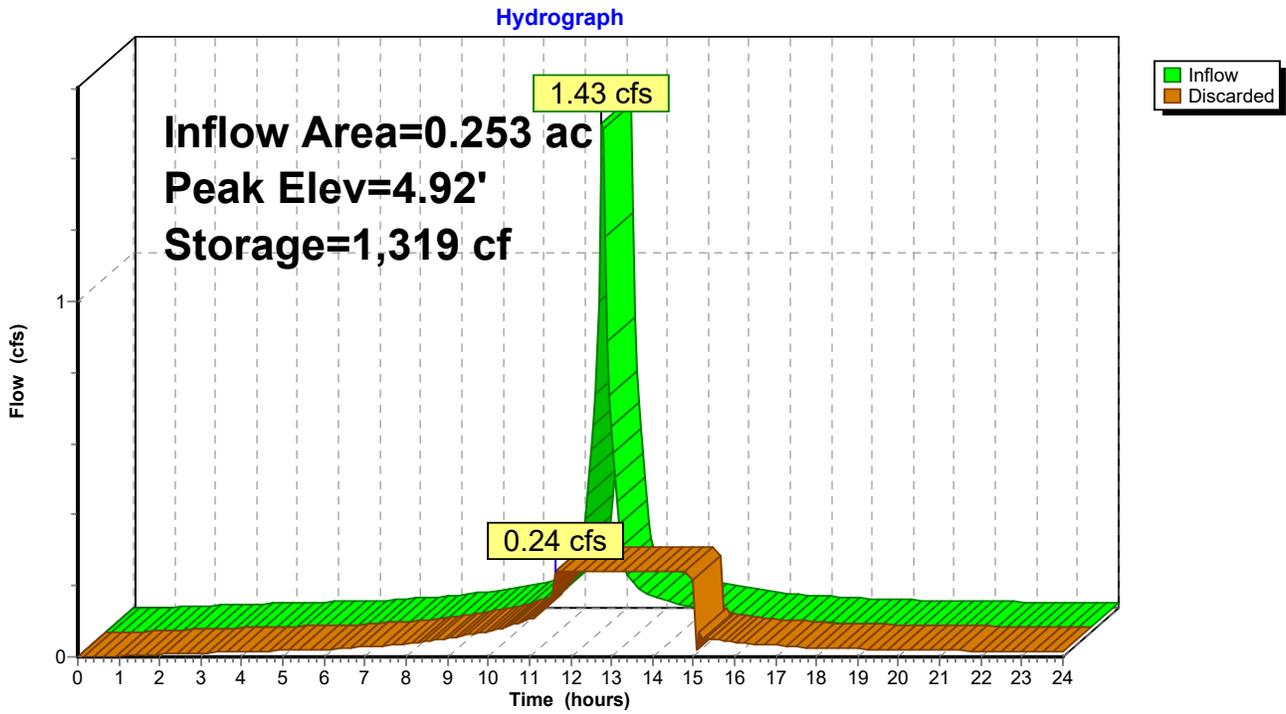
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Type III 24-hr 25-YR Rainfall=5.91"

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Pond RECH-1: Recharge System



Stormwater BMP Site Inspection Report

General Information			
Project Name	Vineyard Wind Operation and Maintenance Building		
Job No.	PR-2119	Location	29 Beach Road, Tisbury
Date of Inspection		Start/End Time	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Describe present phase of construction			
Type of Inspection	<input type="checkbox"/> Regular <input type="checkbox"/> Pre-storm event <input type="checkbox"/> During storm event <input type="checkbox"/> Post-storm event		
Weather at time of this inspection?			

Stormwater BMP: Subsurface Recharge System

Maintenance Item	Satisfactory/ Unsatisfactory	Corrective Action Needed/Additional comments
Trash Accumulation		
Structure Condition		
Frame and Cover (or Grate) Condition		

Additional comments:

Stormwater BMP: Crushed Stone Infiltration Swale

Maintenance Item	Satisfactory/ Unsatisfactory	Corrective Action Needed/Additional comments
Crushed Stone Condition		
Sediment Accumulation		
Slope Condition/Signs of Erosion		
Trash Accumulation		

Additional comments:



NOAA Atlas 14, Volume 10, Version 3
 Location name: Vineyard Haven, Massachusetts,
 USA*

Latitude: 41.4524°, Longitude: -70.5995°
 Elevation: 1.97 ft**

* source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.286 (0.218-0.375)	0.354 (0.270-0.466)	0.466 (0.354-0.614)	0.560 (0.423-0.740)	0.689 (0.508-0.948)	0.785 (0.569-1.10)	0.888 (0.631-1.29)	1.01 (0.677-1.47)	1.20 (0.775-1.79)	1.36 (0.861-2.06)
10-min	0.404 (0.309-0.531)	0.502 (0.383-0.660)	0.662 (0.503-0.871)	0.795 (0.600-1.05)	0.977 (0.720-1.34)	1.11 (0.806-1.56)	1.26 (0.893-1.82)	1.43 (0.958-2.08)	1.70 (1.10-2.53)	1.93 (1.22-2.91)
15-min	0.476 (0.363-0.624)	0.591 (0.450-0.776)	0.779 (0.592-1.02)	0.935 (0.706-1.24)	1.15 (0.847-1.58)	1.31 (0.949-1.83)	1.48 (1.05-2.14)	1.69 (1.13-2.45)	2.00 (1.29-2.98)	2.27 (1.44-3.43)
30-min	0.691 (0.527-0.907)	0.856 (0.653-1.13)	1.13 (0.856-1.48)	1.35 (1.02-1.79)	1.66 (1.22-2.28)	1.89 (1.37-2.65)	2.14 (1.52-3.10)	2.44 (1.63-3.54)	2.90 (1.87-4.32)	3.30 (2.09-4.99)
60-min	0.906 (0.691-1.19)	1.12 (0.855-1.47)	1.48 (1.12-1.94)	1.77 (1.34-2.34)	2.17 (1.60-2.99)	2.47 (1.79-3.46)	2.79 (1.99-4.06)	3.19 (2.13-4.63)	3.80 (2.46-5.67)	4.33 (2.74-6.55)
2-hr	1.27 (0.974-1.65)	1.55 (1.19-2.01)	2.00 (1.53-2.61)	2.37 (1.81-3.11)	2.89 (2.14-3.92)	3.27 (2.38-4.52)	3.68 (2.62-5.25)	4.17 (2.80-5.98)	4.89 (3.18-7.20)	5.50 (3.50-8.22)
3-hr	1.51 (1.16-1.95)	1.82 (1.41-2.36)	2.34 (1.79-3.04)	2.76 (2.11-3.61)	3.35 (2.49-4.52)	3.79 (2.77-5.20)	4.26 (3.04-6.02)	4.80 (3.24-6.83)	5.58 (3.64-8.16)	6.24 (3.99-9.26)
6-hr	1.95 (1.51-2.50)	2.33 (1.81-3.00)	2.96 (2.29-3.82)	3.49 (2.68-4.51)	4.20 (3.14-5.61)	4.75 (3.48-6.43)	5.31 (3.80-7.40)	5.95 (4.05-8.38)	6.86 (4.51-9.91)	7.61 (4.89-11.2)
12-hr	2.40 (1.88-3.06)	2.86 (2.24-3.65)	3.61 (2.81-4.62)	4.24 (3.28-5.43)	5.09 (3.83-6.72)	5.74 (4.23-7.69)	6.41 (4.61-8.81)	7.16 (4.90-9.97)	8.21 (5.43-11.7)	9.07 (5.86-13.1)
24-hr	2.87 (2.26-3.63)	3.39 (2.67-4.29)	4.24 (3.32-5.37)	4.94 (3.86-6.28)	5.91 (4.47-7.73)	6.65 (4.93-8.80)	7.41 (5.35-10.0)	8.23 (5.67-11.3)	9.39 (6.25-13.2)	10.3 (6.71-14.7)
2-day	3.37 (2.67-4.22)	3.92 (3.11-4.91)	4.82 (3.81-6.05)	5.57 (4.37-7.01)	6.60 (5.03-8.52)	7.38 (5.51-9.66)	8.18 (5.93-10.9)	9.04 (6.27-12.3)	10.2 (6.84-14.2)	11.1 (7.30-15.7)
3-day	3.71 (2.96-4.62)	4.27 (3.40-5.32)	5.18 (4.11-6.47)	5.94 (4.68-7.44)	6.98 (5.34-8.96)	7.77 (5.83-10.1)	8.58 (6.25-11.4)	9.45 (6.58-12.8)	10.6 (7.14-14.7)	11.6 (7.59-16.2)
4-day	3.99 (3.19-4.95)	4.55 (3.63-5.65)	5.47 (4.35-6.80)	6.23 (4.93-7.78)	7.28 (5.59-9.31)	8.08 (6.07-10.5)	8.90 (6.49-11.8)	9.77 (6.83-13.1)	11.0 (7.39-15.1)	11.9 (7.84-16.6)
7-day	4.68 (3.76-5.76)	5.26 (4.22-6.48)	6.21 (4.97-7.67)	7.00 (5.57-8.67)	8.08 (6.23-10.2)	8.91 (6.73-11.4)	9.75 (7.13-12.7)	10.6 (7.46-14.1)	11.7 (7.96-16.0)	12.6 (8.35-17.4)
10-day	5.33 (4.30-6.54)	5.94 (4.78-7.29)	6.93 (5.56-8.52)	7.75 (6.19-9.56)	8.89 (6.87-11.2)	9.76 (7.39-12.4)	10.6 (7.79-13.7)	11.5 (8.11-15.2)	12.6 (8.58-17.0)	13.5 (8.93-18.4)
20-day	7.35 (5.97-8.93)	8.06 (6.53-9.79)	9.21 (7.45-11.2)	10.2 (8.18-12.4)	11.5 (8.94-14.3)	12.5 (9.53-15.7)	13.5 (9.94-17.2)	14.5 (10.3-18.9)	15.6 (10.7-20.8)	16.4 (11.0-22.1)
30-day	9.06 (7.39-11.0)	9.86 (8.03-11.9)	11.2 (9.06-13.5)	12.2 (9.89-14.9)	13.7 (10.7-17.0)	14.9 (11.4-18.6)	16.0 (11.8-20.2)	17.0 (12.2-22.1)	18.3 (12.6-24.1)	19.1 (12.8-25.5)
45-day	11.2 (9.18-13.5)	12.1 (9.92-14.6)	13.6 (11.1-16.4)	14.9 (12.1-18.0)	16.6 (13.0-20.3)	17.9 (13.7-22.2)	19.2 (14.2-24.0)	20.3 (14.6-26.1)	21.6 (14.9-28.3)	22.5 (15.1-29.8)
60-day	13.0 (10.7-15.6)	14.0 (11.5-16.8)	15.7 (12.8-18.8)	17.1 (13.9-20.5)	19.0 (14.9-23.1)	20.5 (15.7-25.2)	21.9 (16.2-27.2)	23.1 (16.6-29.5)	24.5 (17.0-31.9)	25.4 (17.1-33.5)

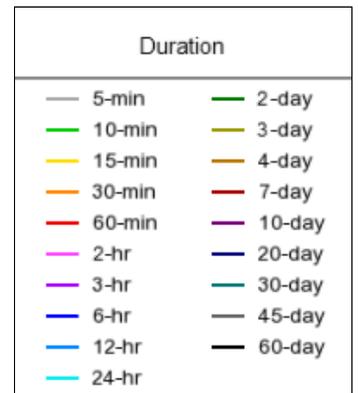
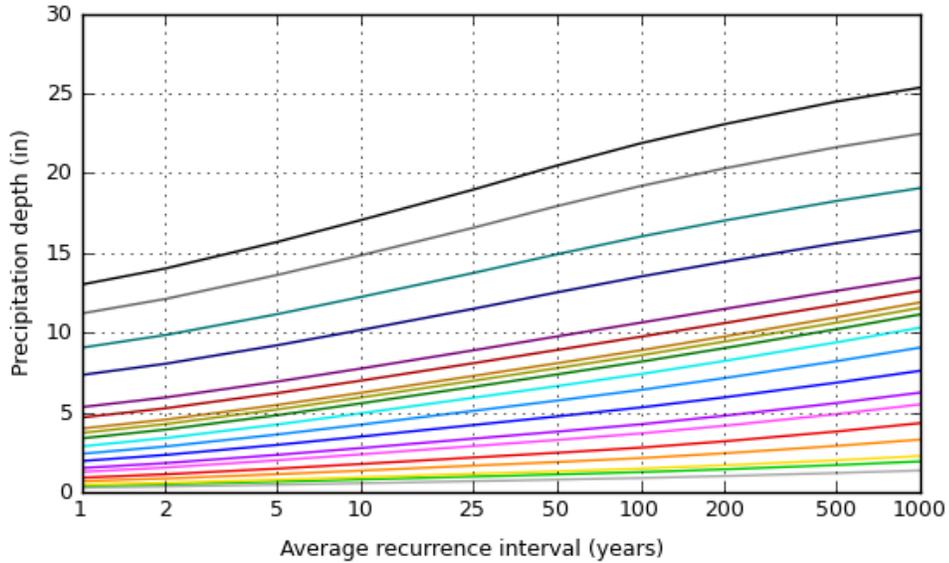
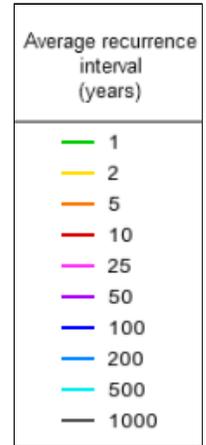
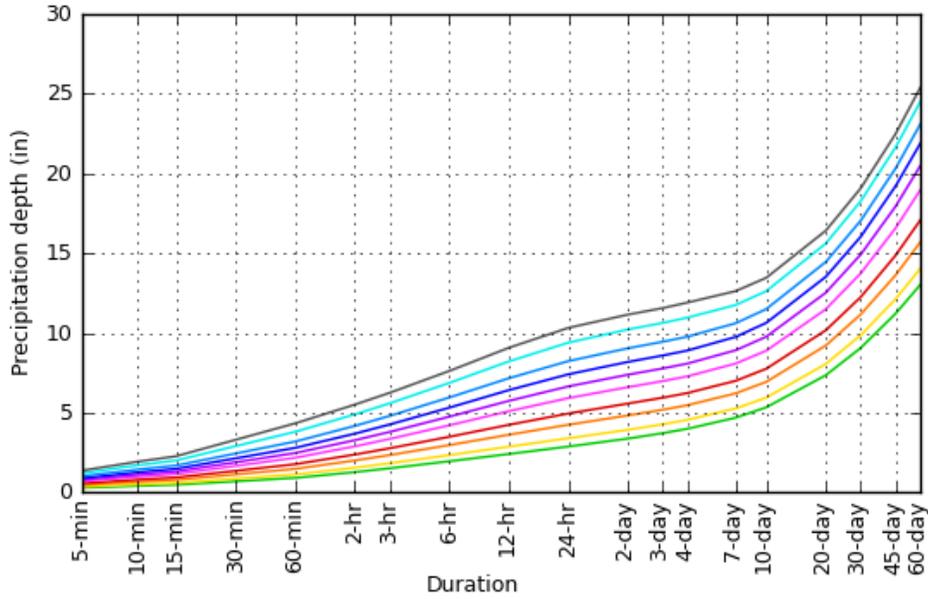
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves

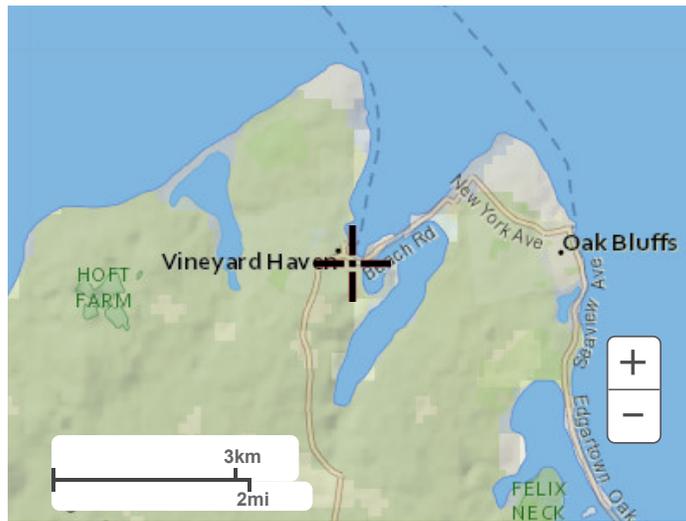
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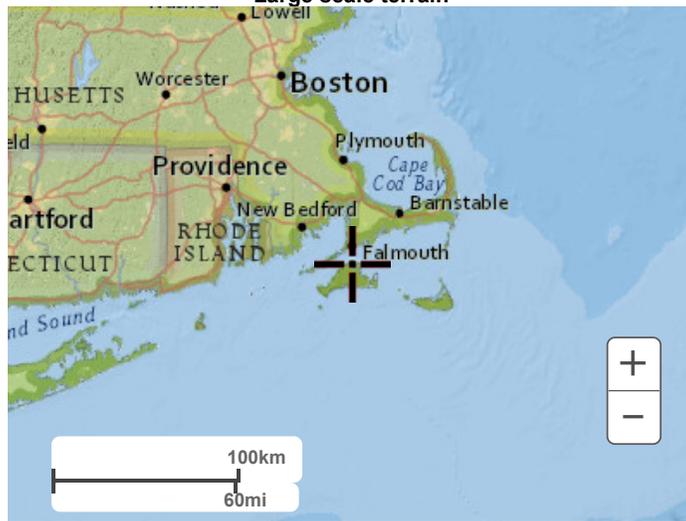
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Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

[Disclaimer](#)

Appendix A

Construction Period Stormwater Pollution Prevention Plan

Construction Period Pollution Prevention and
Erosion and Sedimentation Control Plan
Vineyard Wind Operation and Maintenance Building
69 Beach Road
Tisbury, Massachusetts

1. Narrative

The applicant, Vineyard Wind, is proposed to perform a redevelopment of an existing developed piece of land known as 69 Beach Road in the Town of Tisbury, Massachusetts to construct a new Operation and Maintenance Facility for their proposed offshore wind farm project. The primary goals/objectives of the proposed project are to:

- Create a centralized control facility that has the unique ability to provide operational and maintenance services for offshore wind farms;
- Reduce global green-house gases by providing O&M services required to support offshore wind farms;
- Economic growth and job creation on Martha's Vineyard;

The proposed project includes a number of improvements to the facility includes but is not limited to the following:

- Demolition and removal of any existing structures and foundations on the subject parcel.
- Removal of existing asphalt surfaces.
- Construction of raised Operation and Maintenance Building conforming with FEMA Flood Zone Requirements for construction in Special Flood Hazards Areas.
- Construction of gravel parking areas beneath the proposed Operation and Maintenance Building.
- Construction of stormwater management facilities to handle the roof runoff from the proposed building.

2. Construction Plan Pollution Prevention Measures and Operation and Maintenance Plan

Prior to the performance of any construction the contractors shall install erosion controls around the limits of work of the project. Erosion control measures shall consist of silt fence and straw wattles or alternative measures acceptable to the Conservation Commission. The contractors shall also install a temporary stone tracking pad at any construction entrances at the site to minimize the potential for sediment tracking onto Town roadways. Finally, silt sacks shall be installed in any existing catch basins along Beach Road in close proximity to the construction site.

Upon completion of the work and stabilization of all disturbed surfaces, the erosion controls will be removed and properly disposed of by the contractor.

3. Person or Entity Responsible for Plan Compliance

Vineyard Wind
700 Pleasant Street
Suite 510
New Bedford, MA 02740

4. Construction Plan Pollution Prevention Measures

The previously described erosion controls will be used for pollution prevention to adjacent properties as well as the surrounding coastal resource areas. Additionally, silt protection shall be installed in any stormwater

inlets within close proximity of the project site to minimize the potential for debris entering the stormwater management system. Finally, crushed stone tracking pads will be installed at any construction entrance off Beach Road to minimize the potential for tracking of sediment off of the project site.

5. Vegetation Planning

Any disturbed surfaces will be restore to pre-existing conditions. Areas not being covered by pervious pavement, pavers, building or gravel for maintenance and storage of materials and equipment will be loam and seeded to establish vegetation and stabilize these areas.

6. Site Plan Erosion and Sedimentation Control Plan Drawings

The proposed site plans included shall serve as the erosion and sedimentation control plan drawings for the project. Erosion control measures have been specified on the plans and in the narrative and are to be approved by the Tisbury Conservation Commission prior to construction.

7. Inspection and Maintenance Log Form

A sample inspection and maintenance log form is attached.

Proposed Vineyard Wind Operation and Maintenance Building

CONSTRUCTION POLLUTION PREVENTION PLAN

INSPECTION AND MAINTENANCE REPORT FORM

INSPECTOR: _____ DATE: _____

INSPECTOR'S QUALIFICATIONS:

DAYS SINCE LAST RAINFALL: _____ AMOUNT OF LAST RAINFALL ____ INCHES

STABILIZATION MEASURES

AREA	DATE SINCE LAST DISTURBED	DATE OF NEXT DISTURBANCE	STABILIZED? (YES/NO)	STABILIZED WITH	CONDITION

STABILIZATION REQUIRED:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

STRUCTURAL CONTROLS – EROSION CONTROLS

AREA	ARE BOOMS IN PLACE	IS THERE EVIDENCE OF OVER-TOPPING OR DEBRIS LEAVING THE SITE?	IF YES, WHERE?

MAINTENANCE REQUIRED FOR EROSION CONTROLS:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

CHANGES REQUIRED TO THE POLLUTION PREVENTION PLAN:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE: _____ DATE: _____

Appendix B

Long Term Pollution Prevention Plan

Long Term Pollution Prevention Plan
Vineyard Wind
69 Beach Road
Tisbury, Massachusetts

1.0 Introduction

This Long Term Pollution Prevention Plan has been prepared in accordance with the Massachusetts Stormwater Handbook for Compliance with Stormwater Standards 4-6.

2.0 Good Housekeeping Practices/Storage Provisions

Good housekeeping practices including periodic inspections of stormwater management system components will be performed in accordance with the Stormwater Management System Operation and Maintenance Plan. It is not anticipated that any high pollutant materials would discharge directly to the stormwater management systems or adjacent properties.

3.0 Routine Maintenance of Stormwater BMP's

The Stormwater BMP's including any existing stormwater structures will all be operated and maintained in accordance with the Stormwater Management System Operation and Maintenance Plan.

4.0 Landscaping Provisions

Disposal of any landscaping waste will be prohibited from any areas being used for stormwater management as well as in the coastal wetland resource areas.

5.0 Pet Waste Management Provisions

Any pet waste will be required to be cleaned by the pet owner.

6.0 Snow Disposal Guidelines

Plowing directly into any wetland resource areas or buffer zones will not be permitted. All snow stored on site will melt and flow through the stormwater management system.

7.0 Winter Road Salt and Sand Use

Sand will be used wherever possible during the winter months.

8.0 Illicit Discharge Prevention

An Illicit Discharge Compliance Statement has been provided in this stormwater management system report. Illicit connections to the stormwater management system will be strictly prohibited. Any contractors performing work at the site will be notified of the prohibition of any illicit connections to the stormwater management system. All work done on site shall be per the approved design plans.

9.0 Training for Staff

Vineyard Wind personnel will be properly trained (as required) in the operation and maintenance of the Stormwater Management System. In addition, Vineyard Wind will work with the Town of Tisbury on the maintenance of the existing stormwater management system in the vicinity of the site.

10.0 Emergency Contacts

Vineyard Terminal would be the emergency contacts for any implementation measures that may be required on this Long-Term Pollution Prevention Plan. Emergency contact information will be posted throughout the facility.

Appendix C

Illicit Discharge Compliance Statement

Illicit Discharge Compliance Statement
Vineyard Wind Operation and Maintenance Building
69 Beach Road
Tisbury, Massachusetts

1.0 Description of Illicit Discharges

Illicit discharges are discharges to the stormwater management system that are not entirely composed of stormwater. Illicit discharges include (but are not limited to) wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease.

2.0 Illicit Discharge Prevention

The project, as designed, does not provide for any illicit connections to the proposed stormwater management system. As part of the long-term pollution prevention plan that will be on file at the Vineyard Wind, illicit connections to the stormwater management system will be strictly prohibited. Any contractors performing work at the site will be notified of the prohibition of any illicit connections to the stormwater management system.

3.0 Training for Staff

The Vineyard Wind staff will be properly trained as required to detect any unauthorized illicit discharges to the stormwater management system and eliminate them as soon as possible. It is anticipated that the Vineyard Wind personnel will be performing routine maintenance on the stormwater management system and at this time would be able to detect any unauthorized illicit discharges.

4.0 Site Map

Refer to sketch plans and proposed building drawings prepared for Vineyard Wind for locations and information on the stormwater management system associated with this project.

5.0 Certification

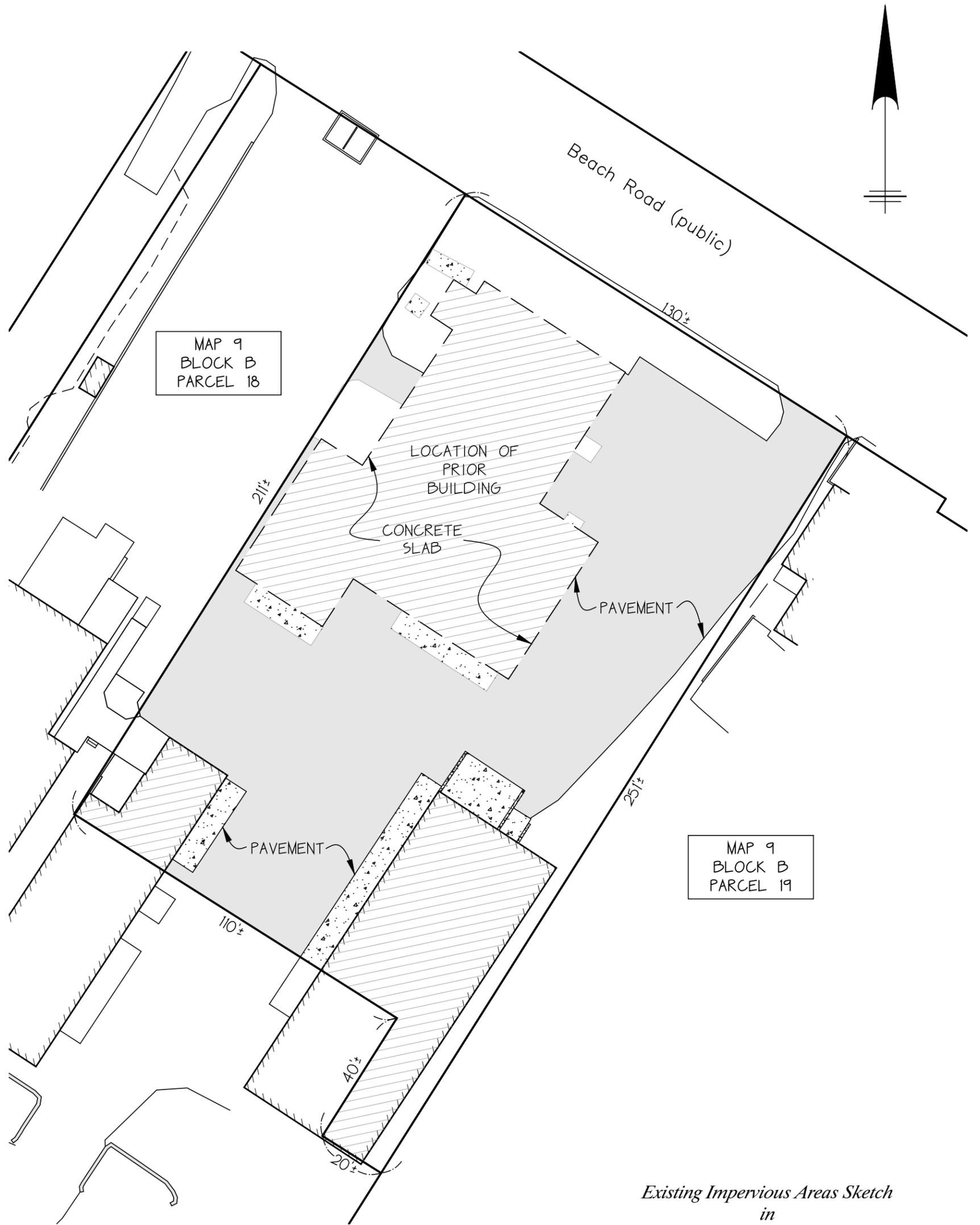
As the design plan shows, there are no provisions for illicit discharges to the stormwater management system being proposed. Additionally, there are no proposed connections between any stormwater and wastewater management systems. Illicit discharges will be prohibited to the existing stormwater management system associated with this project and staff will be trained to detect any unauthorized illicit discharges and to eliminate them as soon as possible.



Richard R. Riccio III, P.E.

Appendix D

Impervious Coverage Exhibit Plans



	PAVEMENT: 12,362± S.F.
	CONCRETE: 1,439± S.F.
	BUILDING: 10,237± S.F.
IMPERVIOUS AREAS: 24,038± S.F. (85.0%)	

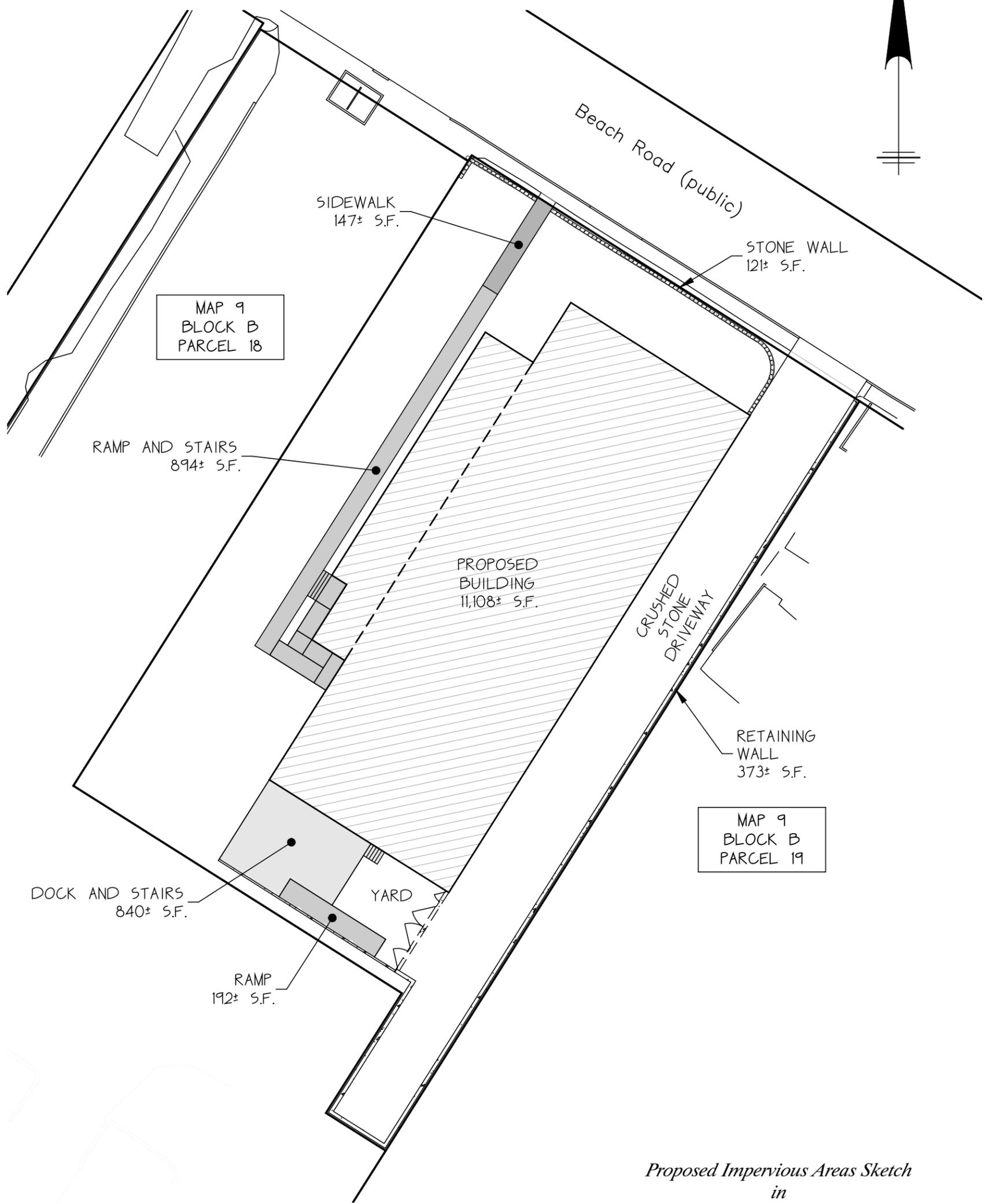
PERVIOUS AREAS: 4,236± S.F.

LOT AREA: 28,274± S.F.

*Existing Impervious Areas Sketch
in
Tisbury, Massachusetts
Assessor Parcel 9-B-18.1
69 Beach Road
prepared for
Harborwood, LLC
Scale 1"=30' February 11, 2022*

**Sourati Engineering
Group LLC**

*P.O. Box 4458
107 Beach Road, Suite 202
Vineyard Haven, MA 02568
Phone (508) 693-9933 Fax (508) 693-4933*



-  STONE WALL: 121± S.F.
-  RETAINING WALL: 373± S.F.
-  BUILDING: 11,108± S.F.
-  DOCK AND STAIRS: 840± S.F.
-  RAMP AND STAIRS: 1,086± S.F.
-  SIDEWALK: 147± S.F.

IMPERVIOUS AREAS: 13,675± S.F. (48.4%)

PERVIOUS AREAS: 14,599± S.F.

LOT AREA: 28,274± S.F.

*Proposed Impervious Areas Sketch
in
Tisbury, Massachusetts
Assessor Parcel 9-B-18.1
69 Beach Road
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Scale 1"=30' February 11, 2022*



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