

**Project Narrative for Proposed Erosion Control and Restoration Work**  
**Along the Revetment**

**at**

**29 Bel Air Road, Hingham, MA**

Submitted by:

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## Project Narrative for 29 Bel Air Road

### Introduction

The applicant and homeowner Robert P. Sullivan, as Trustee of the 29 Bel Air Realty Trust, proposes to perform erosion control and restoration/stabilization work on the earthen portion of the Coastal Bank located under the existing sundeck. The proposed work will stabilize the earthen portion of the Coastal Bank using gabion mattresses. The earthen portion of the Coastal Bank consists of approximately 930 sf of land area having a length of 90 feet and a varying width averaging about 10 feet. The width of the earthen portion of the Coastal Bank extends from the revetment's top surface landward edge to the landward edge of the sundeck. Again, as stated above, this earthen area of the Coastal Bank is located below the sundeck and is part of the existing plateau in the Coastal Bank that supports the sundeck. Approximately half of the plateau is composed of the top surface area of the boulder revetment and the landward half of the plateau is comprised of the earthen portion of the Coastal Bank to be stabilized. The erosion control work will also restore a six-inch wide strip of the lawn area on the coastal bank running parallel with the landward edge of the sundeck at the toe of slope of the lawn area where it abuts the landward edge of the earthen portion of the plateau.

The proposed restoration maintenance work will include the installation of a total of five new helical piles on the seaward face of the existing 12.5'X10' and 4'x7.5' sheds located at the east and west end of the sundeck respectively. The proposed helical piles will be drilled in the earthen portion of the plateau approximately 5' off the top landward edge of the boulder revetment. The sheds are beginning to experience differential settlement due to the erosion that is occurring on the earthen portion of the Coastal Bank's plateau. The existing sundeck running in an east-west direction along the top of the boulder revetment and earthen portion (plateau in the coastal bank) is approximately 90' in length. The sun deck is in good structural condition and will not be altered with the exception of the removal of some decking to facilitate the restoration and erosion control work. It is anticipated that most of the decking removed to perform the restoration work will be able to be re-used.

The proposed restoration work is located in the FEMA Flood Zone VE el.22 which is a protected resource area under the Wetlands Protection Act known as Land Subject to Coastal Storm Flowage (LSCSF). The work is also located in Coastal Bank. The "Top of Bank" is based on DEP Wetlands Protection Program Policy 92-1, Standard B, Figure 2. The proposed restoration work is also located within Buffer Zone to a Coastal Beach, Tidal Flat, Land Containing Shellfish (LCS) and a sparse Salt Marsh.

The design team includes Gregory J. Tansey, P.E., of Patriot Permitting & Engineering (PPE), Stanley M. Humphries, Senior Coastal Geologist, of Environmental Consulting & Restoration (ECR), and Adam J. Brodsky, Esq., of Drohan Tocchio & Morgan, P.C. (Copies of professional resumes of Mr. Tansey and Mr. Humphries are attached). The proposed project is designed to comply with the requirements of the Wetlands Protection Act, G.L. c. 131, §40 (WPA), and the Town of Hingham Wetland Bylaw (the "By-law"). The applicant will demonstrate by clear and convincing evidence that the proposed work and its natural and consequential impact and effects

will not adversely affect the wetland values of the By-law, particularly with respect to storm damage prevention and flood control. By allowing the natural and unrestricted flow of wave action to the revetment while protecting the restored portion of the Coastal Bank, the project dramatically reduces the threat of damage resulting from flooding and improves public safety and preserves and protects the stability of the Coastal Bank.

### **Site Conditions**

The property contains approximately 13,500 square feet and is improved by a dwelling, revetment, sundeck, and dock. The existing vegetation on the lot includes a manicured and well-maintained lawn with a few shrubs and mature trees dispersed intermittently along the perimeter of the site. The vegetative ground cover serves to stabilize the ground surface and minimize erosion caused by stormwater runoff. The geometric shape of the lot is rectangular running from Bel Air Road to Hingham Bay. The site is protected by an existing, licensed, boulder revetment that resides along the shoreline at the north side of the lot. The overall topographic grade of the site can be described as being relatively flat in the front yard area and having a steeper but gentle grade running to the north along the east and west sides of the dwelling. The rear yard consists of a narrow plateau off the rear (north) side of the dwelling and then makes a defined steeper slope down to the revetment. This sloped lawn area is a portion of the Coastal Bank. The site also has decorative hardscaped walkways and patios for accessing the front and rear yard areas. The revetment has a wooden sundeck located on top of it and runs the full lot width (90'+/-) of the site. The wooden sundeck is accessed from the rear patio via a wooden landscaped stairway running on top of the sloped lawn area portion of the Coastal Bank. The revetment stairway and sundeck are authorized under a Chapter 91 license issued in 1999. The top of the revetment (Elev. Varies 10.1'-10.6') is above mean high water (Elev. 9.89').

Mr. Sullivan proposes to perform approximately 930 square feet low impact restoration work on the Coastal Bank. The vast majority of this restoration work will occur on the earthen portion of the Coastal Bank's plateau located beneath the sundeck. A 6" wide strip of the Coastal Bank's vegetative lawn cover running alongside of, and abutting the landward side of the wooden sundeck has begun to experience some minor erosion. The gabion mattress design provides a solution to stop the erosion process and to restore the strip of lawn area lost to erosion. The limits of work are shown on the site plan. Mr. Sullivan proposes an erosion and sedimentation control barrier at the limits of work. Mr. Sullivan proposes to keep the same limits of the lawn as is currently in place, typical of the neighborhood, with no lawn or other alteration within 50' of any wetland resource area other than what is necessary to perform the restoration work.

### **Resource Areas Present on Site**

There is a total of six wetland resource areas located on the site and identified as a Land Containing Shellfish (LCS, not sampled), Tidal Flats (which are defined as part of a Coastal Beach), Coastal Beach, Salt Marsh, Coastal Beach, Coastal Bank, and LSCSF.

There will be no direct impacts from the proposed project on LCS, Tidal Flat, Coastal Beach and Salt Marsh. The project is proposed within the Buffer Zone to these resource areas; however, an existing lawn is maintained in these areas so there will be no impact to a naturally vegetated condition. The only direct impacts from the project will be positive or beneficial and occur within the Coastal Bank and LSCSF.

The Coastal Bank is coterminous with the existing revetment running along the northerly side of the site mentioned above. The top of the Coastal Bank is at the first observable break in the seawall and is shown on the site plan but is located below the 100 year flood plain making the next up gradient observable break in slope the top of the coastal bank as shown on the NOI Site Plan varying between elevation 22 and 23. The Coastal Bank does not serve to provide sediment to the Coastal Beach. As such, it is significant to storm damage prevention and flood control because it is a vertical buffer to storm waters.

The LSCSF is the area located below the 22' elevation extending up to the flood Zone X/Zone VE el. 22 boundary line as shown on the site plan and FEMA map. The flood Zone X/Zone VE 22 boundary line is the limit of the 100-year storm, or 1% chance of occurring in any given year, as defined by FEMA. A FEMA flood zone having a "VE" designation indicates that the zone is a velocity zone which in turn means that it is subject to wave action (minimum of a 3-foot breaking wave).

Please note that the current FEMA flood map has mapped the onsite FEMA 100-year storm elevation at elevation 30. However, a later map revision has been issued which set the FEMA 100-year storm elevation at elevation 22.

### **Project Activities Proposed on Site**

#### 1). Erosion control and restoration work:

The proposed work involves the installation of gabion mattresses. The gabion mattresses will be 5'-0" in width x 10'-0" in length x 1'-0" in height. The gabions will be made from high density polyethylene (HDPE) geogrid. The gabions will not be made from wire. HDPE does not rust or deteriorate due to salt water contact, and is a much more stable material in coastal environments. The gabions will be laid side by side and stitched together in the long dimension to create a continuous gabion mattress for the length of the deck platform. The gabion will be filled with a loose, 3" to 8" rock mixture and contained by the geogrid which prevents the rock from migrating into the Salt Marsh. The gabion will be anchored with a 4'-0" rebar with six rebars used to anchor each mattress. The rebar will be driven into the underlying soil, and the top of the rebar bent into an "L" shape over the top cover mesh. Rock to fill the gabion system will be brought down from the driveway to the top of the existing deck. Deck boards will be removed to allow the gabions mattresses to be filled. No concrete will be used so that the gabion rock stays loose. The work will all be hand labor due to access conditions on the deck area.

#### 2). Restoration work on an existing 12.5'x 10' and 7.5'x 4' sheds:

Restoration work to the 12.5'x10' shed will involve installing three helical anchors along the ocean side of the shed and two helical anchor piles for the 7.5'x4' shed, both of these helical

piles will also be on the ocean side of the shed. The helical anchors will be drilled in from the top of the deck. The helical anchors will be drilled so they reach approximately a 12-foot depth. A bracket system will then be attached to the top of the helical to allow the sheds to be “jacked” up vertically to re-level the sheds. The helicals will be 2 7/8ths inch in pipe diameter with an 8 inch diameter helix. The pipe steel will be schedule 40 steel.

3). Removal and restoration work on the sun deck:

The decking of the sundeck will be temporarily removed only to the extent necessary to conduct the gabion mattresses and to perform any prep work necessary for their installation. After the installation of the gabion mattress and the footings for the shed have been installed, the decking that had been removed from the sundeck will be reinstalled.

## **Performance Standards**

### **Coastal Beach (Tidal Flats) and Salt Marsh**

#### **WPA**

The project is not located within Coastal Beach (Tidal Flat) or Salt Marsh but is within the Buffer Zone to resource areas. 310 CMR 10.24(1) provides that:

For work in the buffer zone subject to review under 310 CMR 10.02(b)3., the issuing authority shall impose conditions to protect the interests of the Act identified for the adjacent resource area. The potential for adverse impacts to resource areas from work in the buffer zone may increase with the extent of the work and the proximity to the resource area.

Coastal Beaches (Tidal Flats) and Salt Marsh are significant to storm damage prevention, flood control and the protection of wildlife habitat in 310 CMR 10.27(1) and 10.32(1). There will be no adverse impact to these resource areas as the work is located landward of the stone seawall which separates these resource areas and is intended to prevent storm damage, improve flood control and protect wildlife habitat. No portion of the proposed project is located in Estimated Habitat of Rare Wildlife as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (“NHESP”). See the map figures in the supporting documents section of this filing. Additionally, this is a developed suburban lot and it does not appear to contain important wildlife habitat. Notwithstanding, the project will not adversely impact wildlife habitat.

#### **Bylaw**

Again, the project is not located within a Coastal Beach (Tidal Flat) or Salt Marsh protected under Hingham Wetland Regulations (“HWR” ) 18.2 and 18.4, respectively, but within Buffer Zone protected under HWR 22.0. Coastal Beaches (Tidal Flats) and Salt Marsh serve to

prevent storm damage, provide erosion control and flood control, and are important for wildlife, shellfish and fisheries habitat under the Bylaw.

The performance standard for work within Buffer Zone under HWR 22.0(d) requires, among other things, that:

(1) the applicant attempt to move all structures and activities as far away as possible from Resource Areas in order to protect the wetlands values of Resource Areas;

(2) except as otherwise specified, Resource Area buffers shall be retained and maintained in a naturally vegetated condition; and

(3) The Commission may require the already-altered buffer zone be restored in order to protect or improve Resource Area values.

Mr. Sullivan is not proposing to relocate the any of the existing structures closer to the Coastal Beach. The Buffer Zone is not presently in a natural, vegetated condition, and the project does not propose to alter any additional Buffer Zone. Notwithstanding, Mr. Sullivan proposes to restore the existing vegetation in the Buffer Zone (the 6" wide strip of lawn area along the landward side of the sundeck) which will improve the stability function of the Buffer Zone. The project will prevent storm damage and provide erosion control and flood control.

### **Coastal Bank**

#### **WPA**

The project is located within a Coastal Bank regulated under 310 CMR 10.30. Coastal Banks are significant to storm damage preventions and flood control as stated in 310 CMR 10.30(1). Because the Coastal Bank serves as a vertical buffer to storm waters, there can be no adverse effects on the stability of the Coastal Bank as stated in 310 CMR 10.30(6). There will be no adverse impact to the Coastal Bank as the work is intended to preserve the Coastal Bank's natural function of preventing storm damage and improving flood control by adding stability through the prevention of erosion and scour. More particularly, there will be no adverse effects on the stability of the Coastal Bank as the proposed work will promote stability by preventing erosion. The function of this type of Coastal Bank is to provide wind and wave protection from coastal storms, it does not provide sediment to the adjacent Coastal Beach.

#### **Bylaw**

The proposed restoration work is located within Coastal Bank and is protected under HWR 18.1, Coastal Banks which act as a vertical buffer protecting upland areas from storm damage, erosion and flooding.

The performance standard for work within Coastal Banks which act as a vertical buffer under HWR 18.1(d)(2) requires, among other things, that:

- (1) Proposed work shall not cause any adverse effect or accumulative adverse effect on the wetland values of the Coastal Bank.
- (2) The proposed project shall restrict activities as determined by the Commission to have no adverse effect on bank height, stability, bank vegetation and wildlife habitat.
- (3) The Commission may allow the projects to approach the top of such a Vertical Buffer Coastal Bank, which meet other performance standards for the Coastal Bank, or condition such projects so that they meet all the performance standards.
- (4) Notwithstanding the above, elevated walkways designed not to effect bank vegetation and bank stability may be permitted to allow for pedestrian passage over a bank, provided that the stability of the bank and wildlife habitat are not adversely affected. Public access must not be limited or impaired in any way.
- (5) Performance standards of HWR 23.0 may be imposed.
- (6) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the By-law.

Again, Mr. Sullivan is not proposing to relocate any existing structures on the Coastal Bank. The Buffer Zone is not presently in a natural, vegetated condition and the project does not propose to alter any additional Buffer Zone. Notwithstanding, Mr. Sullivan proposes to restore any vegetation needed in the Buffer Zone to improve the functioning of the Bank and associated Buffer Zone as wildlife habitat for birds and small mammals. The project will prevent storm damage, provide erosion control and flood control and will protect wildlife habitat.

### **Land Subject to Coastal Storm Flowage (LSCSF)**

#### **WPA**

LSCSF means land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater as defined in 310 CMR 10.04. There are no performance standards for work within LSCSF (and no Buffer Zone) under the WPA. It is standard practice, however, for the Department to require a special condition for a project proposing a habitable structure within LSCSF requiring conformance with the Flood-Resistant Construction requirements of the State Building Code to protect the interests of storm damage prevention and flood control.

The Flood-Resistant Construction requirements at 780 CMR: Massachusetts Amendments to the International Building Code 2009 Appendix G: Flood-Resistant Construction do not apply to this project as no new habitable structures are being proposed or expanded upon.

The elevation of the existing, nonconforming structures, the 12.5'x10' and 7.5' x 4' sheds, will prevent storm damage and provide flood control.

#### **Bylaw**

LSCSF is addressed in two separate Regulations under the Bylaw. HWR 20.0 governs Land Subject to Coastal Storm Flowage. HWR 24.0 provides Additional Protection of Special

Flood Hazard Zones. LSCSF is significant to storm damage prevention and flood control and likely significant to wildlife habitat and the prevention of pollution under the Bylaw.

### **Section 20.1.**

The performance standard under Section 20.1 requires:

(1) the proposed project shall not cause any adverse effect or cumulative adverse effect upon the wetland values of LSCSF;

(2) when LSCSF is significant to the protection of wildlife habitat, a proposed activity shall not impair the capacity of LSCSF to provide important wildlife habitat functions;

(3) when LSCSF is significant to pollution prevention, a proposed activity shall not cause ground, surface or salt water pollution triggered by coastal storm flowage or flooding. For areas within at least 100 feet of another Resource Area, activities shall minimize adverse effects in order to maintain the capability to remove suspended solids and other contaminants from runoff before it enters other Resource Areas; and

(4) for activities proposed in VE-zones, at a minimum, the historic rate of relative sea level rise in Massachusetts of 1 foot per 100 years shall be incorporated into the project design and construction.

Additionally, for activities proposed within VE-zones, the following is prohibited:

New construction or placement of new structures, including buildings, sheds, and garages. Existing buildings may be renovated or reconstructed but must be built using flood-resistant construction. Section 20.1(5).

We note that Section 20.1(5) does not apply to this project as the activities described above are not being proposed.

### **Section 20.1(5)(c)**

The project complies with this section as gabions are defined as loose, sloped stone design structures. These are not new or expansions of a coastal engineered structure which would extend laterally along the shoreline intended to protect upland areas obstruct the supply of sediment to adjacent beaches and dunes. Gabions are being proposed for the following reasons:

1. The gabion mattress is not fixed to the top of the revetment.
2. The gabion mattress is not a part of the seaward face of the revetment.
3. The gabion mattress conforms to the loose “sloped stone” design and no concrete matrix is proposed which, otherwise, would make it a solid structure.
4. The gabion mattress is not a structural component of the revetment, but provides scour and erosion prevention to the earthen portion of the Coastal Bank that abuts the boulder revetment on its landward side.

5. The gabion mattress is not exposed to the elements but is located under the sundeck and is recessed away from the seaward face of the boulder revetment.

The proposed project complies with the performance standard under Section 20.1. The proposed work shall not cause any adverse effect or cumulative adverse effect on storm damage prevention and flood control. Additionally, as stated above, the lot is predominantly a vegetated lawn area which does not support important wildlife habitat. Notwithstanding there will be no impairment to wildlife habitat. The area of LSCSF located on the site is mostly a lawn area and is not a source of pollution. This is a residential property and there is no storage of pollutants, other than household quantities of cleaners and similar products. Notwithstanding, the elevation of the proposed restoration work, its stabilizing element will entirely remove the risk of pollutants entering into the environment from flooding. Lastly, the project does not propose to alter habitable structures and hence performance standard accounting for a 1' rise in sea level in 100 years is not applicable.

Alternatives to the gabion mattresses would include additional boulders like that used on the adjacent parcel to the west or biodegradable coir logs or sand-filled envelopes. Additional boulders may not fit under the deck and would not dissipate wave runup as well as the gabions. Utilization of any coir product would breakdown within 5 years and require continuous maintenance.

#### **Section 24.0**

HWR 24.0 provides Additional Protection of Special Flood Hazard Zones. Among other requirements, HWR 24.0(6) mandates that:

- Expansion of existing structures in VE-, AE-, and A-Zones is prohibited.
- Reconstruction of existing structures must allow for free passage of flood waters.

Mr. Sullivan does not propose to expand any structures and hence the first performance standard of HWR 24.0 is not applicable. However, the second performance standard is applicable. The erosion control component of the work will consist of a stone-filled gabion mattress that will rest on the earthen portion of the plateau on landward side of the top surface of the boulder revetment. The gabion mattress will run the length of the revetment under the wooden sundeck. The seaward face of the gabion mat will be located approximately landward edge of the boulders forming the top surface of the revetment. The landward face of the gabion mattress will stop at the edge of the landward edge of the sundeck where it will interface with the restored lawn area portion of the Coastal Bank. The gabion mattress will not be visible as it will be covered by the sundeck. The gabion mattress will allow a free flow passage of flood waters but dissipate the energy of wave runup and provide bank stability by providing a high level of scour and erosion protection during the occasional storm events.

The proposed project complies with the performance standard under Section 24.0(6).

All of the purposes of Section 24.0(1) will be accomplished:

- (1) public safety will be enhanced reducing the threats to life and personal injury;
- (2) the project will eliminate new hazards to emergency response officials;
- (3) the project will prevent the occurrence of public emergencies resulting from water quality, contamination and pollution due to flooding;
- (4) the project will prevent the loss of utility services which may be damages by flooding;
- (5) the project will eliminate costs associated with the response and cleanup of flooding conditions; and
- (6) the project will reduce damage to public and private property resulting from flooding waters.

## **General Construction Methods and Sequencing**

### **Site Preparation**

Prior to the start of construction, the staging area shall be prepped by placing protective plywood and drop cloths over existing driveway hardscaped areas to be used to temporarily store and convey materials to the revetment area. The use of chutes and ramps for wheelbarrows is anticipated to facilitate the conveyance of restoration materials from the staging area to the revetment area. The use of chutes and ramps is a far less intrusive of a conveyance method than the use of heavy equipment traversing over the Coastal Bank to deliver materials to the revetment area. An erosion and sedimentation control barrier will be established at the locations as shown on the NOI Site Plan. All restoration work is to occur within this limit of the sediment barrier and the revetment. Reserve erosion controls will be on site to provide perimeter protection of the staging area should a contingency condition arise.

### **Installation of the Helical Piles**

The existing 12.5'X10' shed will have three helical anchors drilled along the seaward face of the shed in the locations shown on the NOI Site Plan. The helical piles shall be drilled as close to the front (seaward facing) joist of the shed as possible. The helical piles can be drilled using a mini skid steer equipped a pier tech drive. This piece of equipment is approximately the size of a large snow blower on rubber tracks, this is a walk behind and not a ride on piece of equipment. The mini skid steer can access the sundeck from the plywood ramps and will drill the piles from the sundeck. Once the piles have been drilled, the "L" shaped bracket will be fixed to the top of the helical anchor pile such that it extended beneath the front joist of the shed. Once the "L" bracket is secured on the helical piles, it can be adjusted to a higher elevation lifting the shed level. Once the three helical anchor piles have been installed and the "L" brackets have been adjusted to level and support the shed, the gabion mattress can be installed beneath it. A rear helical anchor pile may be required for the 12.5'x10' shed, this will have to be determined on the field. The 7.5' x 4' shed will be supported and leveled in the same as the way the 12.5'X10' shed was except that only two helical anchor piles will be necessary.

### **Erosion Control Work on the Earthen portion of the Plateau**

Our initial site investigations have revealed that a fair amount of debris from the ocean have been deposited on top of the revetment and earthen portion of the plateau due to years of wave action. The debris will be accessed by removing a portion of the decking on top of the revetment to expose the debris. All debris will be removed by hand shoveling and conveyed to the staging area via wheelbarrows where it will be properly disposed of offsite.

The earthen portion of the plateau adjacent to the landward edge of the top surface of the boulder revetment where the erosion has occurred will be cleaned out. All loose sediments and loose soils prone to erosion will be removed and disposed of in the same manner as the debris that was deposited from the wave action was removed. The existing lawn area at the limit of erosion and scour will be removed only to the extent necessary. The excavation required to remove the loose sediments and perform the necessary restoration work is expected to be approximately 6" deep running along the landward edge of the sundeck. Once the scoured-out area has been prepped, a geotechnical filter cloth will be placed on the exposed earth in the area that had been subject to scour and erosion and filled with crushed stone as shown in detail 1 on the design plan. Then a 6" thick levelling course of ¾" crushed stone will be deposited on top of the plateau, beneath the gabion mattresses and shall be graded with a slight pitch toward the sea. This will be achieved by the following process:

The crushed stone will be deposited in manageable quantities on the staging area and will be conveyed to the revetment area via chutes and wheelbarrows at the west end of the revetment. The stone will be deposited along the land ward edge of the revetment using wheelbarrows running on top of the sundeck. The stone placement will begin at the east end of the revetment and proceed to, and terminate at, the west end.

The next construction phase will be the installation of the gabion mattress. The gabion mattress proposes to use corrosion resistant polymer caging. The caging will be set on top of the revetment area beneath the sundeck. A portion of the sundeck's deck boards will have to be removed to perform this task. The gabion mattress caging will be set on the crushed stone covering earthen portion of the plateau located on the landward side of top surface of the boulder revetment. The gabion mattress will terminate at the landward edge of the sundeck. Thus the gabion mattress will not be visible. The gabion caging will then be filed with the heavy trap rock specified on the NOI site plan. The trap rock will be delivered to the site, conveyed to the sundeck area and placed into the gabion cages in like manor as the crushed stone was placed. Please note, the gabion mattress just rests on top of the revetment, it is not permanently attached to the revetment, but is anchored with rebar as shown on the site plan. The gabion mattress is a porous structure allowing un-restricted flow of water. The gabion mattress is for erosion control only.

Once the gabion mattress is in place the lawn area can be loamed and seeded up its landward face located below the landward edge of the sundeck.

The final stages of the project will consist of re-installing the deck boards on the sundeck that were removed to perform the work, the removal of the staging area, final clean up, and the removal of erosion controls.

## **Special Construction Conditions**

The following special conditions are proposed for site preparation and construction to ensure that the resource areas will not be disturbed.

1. Erosion and sedimentation control barrier to be erected prior to start of project. Location to be inspected and approved by Conservation Agent. Barrier to be maintained throughout project.
2. All material and debris to be removed from site if not used on-site. No concrete, wood, or stone to be buried on site.
3. Daily policing and cleanup of any windblown materials and debris around the site. Removal by hand.
4. No stockpiled material located outside of the limit of work. Surround any stockpile materials with erosion control barrier or cover with tarp.

Any field changes involving the dwelling, driveway or storage or removal of materials will be approved by the Commission or its Agent prior to work being performed.

## **Conclusion**

It is the opinion of both Mr. Tansey and Mr. Humphries that, based on their education, training, experience and familiarity with the project site, the proposed project complies in all respects with the requirements of the WPA and the By-law. The project will not result in any alteration to the Coastal Bank and the LSCSF that will have an adverse effect on the interests of flood control, storm damage prevention and the protection of wildlife habitat under the WPA and promotes and protects the stability of the Coastal Bank. Additionally, the proposed work within the Buffer Zone to Coastal Beach and Salt Marsh protects the wetland interests associated with the adjacent Resource Areas. Additionally, the project meets the performance standards under the By-law, and will protect the interests of flood control, the prevention of storm damage and will promote erosion control and sedimentation control, under the By-law.

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