

Hingham Yacht Club

Buffer Zone Mitigation Plan

1. Location and Scope

“Area 3” as identified on the Proposed Landscape Plan for Hingham Yacht Club prepared by Environmental Consulting & Restoration, LLC (ECR), dated October 5, 2021, is a triangular Coastal Bank area of approximately 2,400 SF along Downer Avenue near its intersection with Marion Street (Appendix A). This area was historically dominated by Japanese Knotweed (*Reynoutria/Polygonum cuspidatum*). Due to the proposed addition of a 160-square-foot concrete pad for the relocated trash enclosure, the Applicant is proposing to add 320 square feet of mitigation planting to offset the new impervious surface at a 2:1 ratio. The proposed planting area is within Area 3 on the ECR plan, located near the Marion Street corner adjacent to the existing boat barn, as shown by the green polygon on the site survey plan in Figure 1. This plan adopts the plant species specifically designated for Area 3 on the 2021 Landscape Plan, at planting quantities and density sized specifically for the 320 SF mitigation sub-area (see Section 5 methodology note), supplemented with Hingham Conservation Commission standard mitigation planting/monitoring notes adapted for a coastal bank setting.

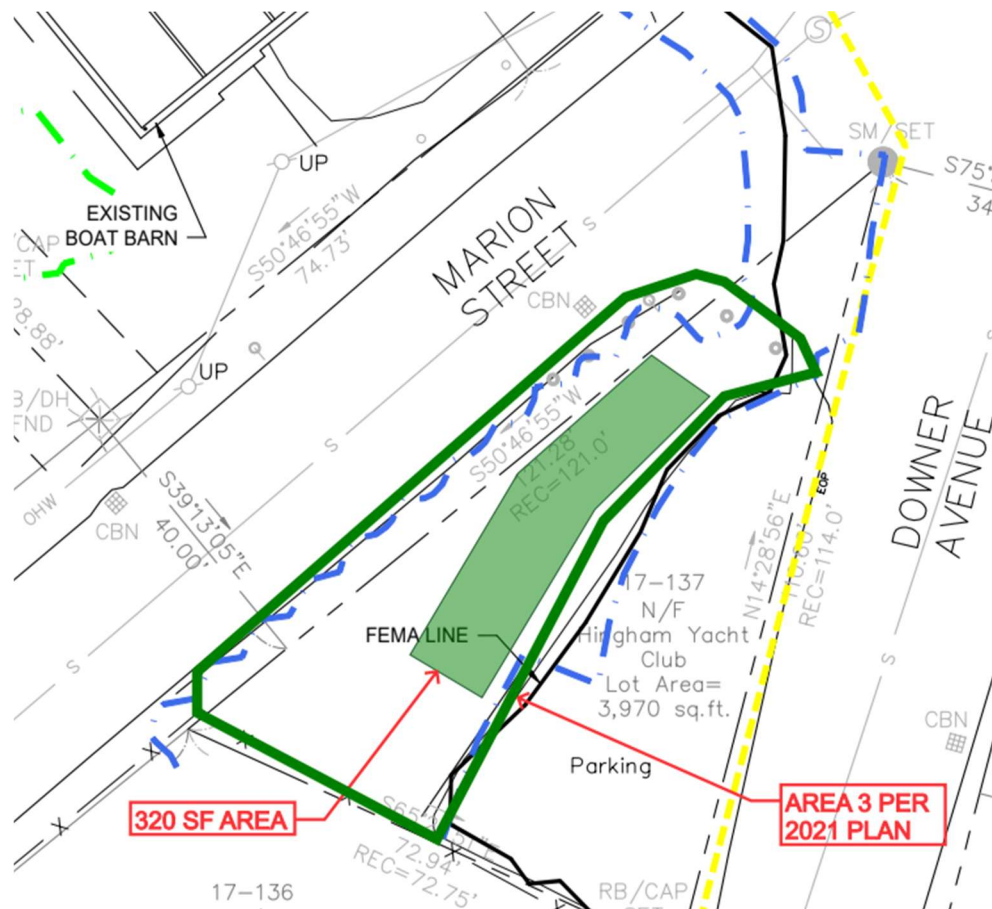


Figure 1 Proposed 320-square-foot mitigation area

2. Existing Conditions

- Area 3 has historically been dominated by Japanese Knotweed, a non-native invasive plant.
- The Japanese Knotweed was removed and the area is currently covered in wood chips.
- The area is located on the coastal bank, landward of the more wave-exposed bank face, bordered by the paved parking area and Downer Avenue.

3. Invasive Species Control

Per the approved 2021 Landscape Plan, Japanese Knotweed control shall proceed as follows prior to any planting:

1. Japanese Knotweed within Area 3 shall be treated with herbicide by a Massachusetts-licensed herbicide applicator.
2. Following a minimum two-week waiting period after herbicide treatment, the treated Knotweed shall be cut and removed from the site.
3. Grubbing (excavation and removal) of the Knotweed root mass shall be performed where practicable to reduce the potential for regrowth.
4. The area shall be top-dressed with clean loam, if necessary, to prepare the soil surface for planting.

4. Site Preparation

- All remaining debris and any other non-native or invasive vegetation encountered shall be removed by hand prior to planting.
- A light layer of clean loam/compost mix may be spread by hand to supplement existing soil where needed for plant establishment.
- No grading or excavation beyond that needed for the Knotweed root grubbing (Section 3) and planting holes is proposed; the existing bank profile and grade will not otherwise be altered.
- Sediment control: a mulch sock shall be installed along the limit of the planting area, between the work area and the parking area/roadway, prior to the start of mitigation work. No straw, hay, or synthetic erosion control products are allowed within the Buffer Zone.

5. Planting Plan

The species below are carried forward directly from the Area 3 designation on the 2021 Landscape Plan. All are native, straight (non-cultivar) species appearing on CZM's Coastal Bank Plant List, consistent with the Conservation Commission's direction. Quantities are sized to the 320 SF mitigation sub-area using a planting density (shrubs at roughly 5 to 6 ft on-center in clusters; grasses at roughly 24 in. on-center) broadly consistent with the spacing shown for these species elsewhere on the 2021 plan. A supplemental native seed mix fills the remaining ground between container plantings for erosion control and full coverage, consistent with the Commission's standard mitigation planting notes.

Species (Common / Scientific)	Type / Size	Qty	Source	Notes
Bayberry (<i>Myrica pensylvanica</i>)	Shrub, 1.5–2 ft. high	4	Species per 2021 Plan (Area 3); quantity sized to 320 SF	On CZM Coastal Bank Plant List as Northern Bayberry (<i>Morella caroliniensis</i> , synonym); salt/wind tolerant, wildlife food value; planted in 1–2 informal clusters
Beach Plum (<i>Prunus maritima</i>)	Shrub, 1.5–2 ft. high	4	Species per 2021 Plan (Area 3); quantity sized to 320 SF	On CZM Coastal Bank Plant List; deep-rooted bank stabilizer, high salt tolerance; planted in 1–2 informal clusters
Switch Grass (<i>Panicum virgatum</i>)	Grass, 1-gal. pot	18	Species per 2021 Plan (Area 3); quantity sized to 320 SF	On CZM Coastal Bank Plant List (both Exposed and Sheltered categories); fibrous roots for erosion control; distributed as the primary ground layer at roughly 24 in. o.c.
Native seed mix (supplemental) (e.g., Little Bluestem, Red Fescue, Seaside Goldenrod)	Seed, broadcast	Full 320 SF area	Proposed addition per Hingham mitigation notes	Broadcast across the full 320 SF between container plantings for erosion control and complete coverage; exact mix subject to Conservation Officer approval

All plant material shall be native, straight species only – no cultivars, ‘nativars,’ hybrids, or non-native species. Any substitution must be approved by the Conservation Officer prior to purchase or installation. Plants shall be hand-planted.

6. Mulching

Following planting, mulch shall be limited to the root zones of the individual shrubs (Bayberry and Beach Plum), using a 1 to 2-inch-thick layer of leaf litter or other natural organic mulch (not spread across the entire restoration area) so that the grass/seeded herbaceous layer between shrubs can establish directly in soil contact.

7. Temporary Establishment Measures

- Temporary irrigation shall be installed and maintained through the first two growing seasons to support establishment of the plantings and seed mix.
- Temporary fencing to deter deer/rabbit browse is optional at this location: Area 3 is a narrow strip bounded by a paved parking area and roadway in an actively used yacht club setting. The Applicant may propose to omit this measure, or include it at the Commission's request.

8. Long-Term Demarcation and Management

The limits of the mitigation area (particularly along the parking area and roadway edges, where encroachment risk is highest) shall be demarcated with conservation markers, a post-and-rail fence, or an equivalent Commission-approved alternative. Once established, Area 3 is intended to remain a naturally vegetated coastal bank buffer. It shall not be mowed, mulched over its full extent, or otherwise maintained as a conventional landscaped area.

9. Monitoring and Reporting

- Area 3 shall be monitored and inspected for two full growing seasons following completion of installation, with a minimum 75% plant survival rate maintained (any failures to be replaced in kind or with another Commission-approved species).
- Monitoring shall include two site inspections per year, in mid-April and October, to assess survival/coverage, determine whether overseeding is needed, and inspect for and hand-remove any regrowth of Japanese Knotweed or other invasive species. Any invasive regrowth shall be removed by hand and disposed of in sealed trash bags, not composted on site.
- Following installation, the Applicant shall submit a written completion report to the Conservation Office including photographs of the installed plants and overall area, installation date(s), seed mix specification, and confirmation of the quantity, size, and species of plant material installed.
- Sediment controls (mulch sock) shall be removed and properly disposed of once the area is sufficiently stabilized and removal is authorized by the Conservation Officer.

10. References

- Environmental Consulting & Restoration, LLC, "Proposed Landscape Plan, Hingham Yacht Club," dated October 5, 2021 (Area 3 designation and Proposed Native Plant Legend).
- Town of Hingham Conservation Commission, "Suggested Buffer Zone Mitigation Planting Notes/Sequencing."
- Massachusetts Office of Coastal Zone Management (CZM), "Coastal Landscaping in Massachusetts – Plant List" (Coastal Bank Plant List).

APPENDIX A

2021 Proposed Landscape Plan

Hingham Yacht Club Buffer Zone Mitigation Planting Notes/Sequencing

1. Prior to the start of mitigation work, sediment control (mulch sock) will be installed along the limit of the planting area (between the planting area and adjacent areas). No straw, hay, or synthetic erosion control products are allowed within the Buffer Zone.
2. The mitigation area should be prepared for planting by removing any existing debris and non-native or invasive vegetation. Existing bark mulch shall be removed to expose the native topsoil followed by minor grading or raking as needed. If necessary, a light layer of clean loam/compost mix will be spread by hand to supplement the existing soil.
3. Once the mitigation area has been prepared, the area will be hand planted with a mix of native shrubs and grasses as approved by the Conservation Commission. All plants are to be native, straight species only; no cultivars, 'nativars', hybrids, or non-native species, are to be used. Any plant substitutions must be approved by the Conservation Officer prior to purchase and/or installation.
4. Upon completion of planting, only the root zones of the individual shrubs will be mulched with a 1 to 2-inch-thick layer of leaf litter or other natural organic mulch. The intent is to mulch the root zones only for plant establishment not the entire restoration area.
5. Following planting, the exposed soils within the mitigation area will be stabilized with a native seed mix, as approved by the Commission, to establish an herbaceous layer. Any changes to the approved seed mix must be approved by the Conservation Officer prior to purchase and/or sowing; seed specifications shall be provided for review.
6. During the first two growing seasons, temporary irrigation should be installed and maintained by the applicant/contractor to ensure the successful establishment of native vegetation.
7. Woody debris and leaf litter will be added to the mitigation area as needed in coordination with the Conservation Officer.
8. The landward limit of the mitigation area will be physically demarcated by conservation markers (to be provided by the Conservation Office) mounted on posts, a post and rail fence, or other approved alternative to prevent encroachment into the area. Once established, the intent is for the buffer zone mitigation area to remain as a naturally vegetated buffer to the adjacent resource area. Mitigation areas are not to be disturbed, mowed or maintained as a traditional landscaped area.
9. Following completion of the mitigation area installation, the applicant shall submit a written report to the Conservation office to include photographs of the installed plants and overall mitigation area, the installation date(s), seed mix specification, and confirmation of quantity, size, and species of plants installed.
10. The sediment controls will be removed and properly disposed of once the mitigation area is sufficiently stabilized and the Conservation Officer has authorized the removal.
11. The mitigation areas will be monitored and inspected for two full growing seasons following the completion of work to ensure a minimum of 75% plant survival rate. Monitoring should include two site inspections each year (mid-April and October) in order to determine if any plantings need to be replaced, if over seeding is required, and to inspect/remove any new growth of non-native invasive species. Any non-native, invasive plant growth found in the mitigation area should be uprooted and removed by hand, and placed into trash bags for disposal.

PROPOSED LANDSCAPE PLAN
HINGHAM YACHT CLUB

Date: October 5, 2021

Prepared By:
Environmental Consulting & Restoration, LLC

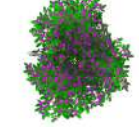
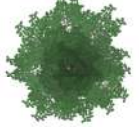
PROPOSED LANDSCAPE NOTES:

AREA 1 – Prior to site activities, non-native invasive plants consisting of Privet (*Ligustrum vulgare*), Barberry (*Berberis thunbergia*), etc. within the project area will be identified by a botanist. These plants will be cut at the base of the stem and the cut stem immediately painted with herbicide by a licensed herbicide applicator to reduce the threat of non-native plant dominance.

Upon completion of retaining wall installation and grading work, this area is to be planted with native Red Cedar trees, Arborvitae trees, and evergreen shrubs for screening. Several native Oak trees (Red & White) are also proposed to revegetate the area. A native disease resistant Flowering Dogwood tree is proposed near the barn entrance. Any bare surfaces should be covered with natural wood chips to stabilize the soil.

AREA 2 – Upon completion of retaining wall installation and grading work, a row of native Red Cedar trees and Bayberry shrubs is proposed to stabilize the slope and screen the side of the building. Two native Oak trees are proposed near the roadway. Any bare surfaces should be covered with natural wood chips to stabilize the soil.

AREA 3 – This area is dominated with Japanese Knotweed (*Polygonum cuspidatum*). Control of this non-native invasive plant is proposed prior to landscape activities. The Japanese Knotweed should be treated with herbicide by a licensed herbicide applicator. Following 2 weeks after herbicide treatment, the Japanese Knotweed should be cut and removed from the site. Grubbing of the root mass of these plants is preferred, if possible. Next the area will be top-dressed with clean loam, if necessary. Planting of a mix of native shrubs and native grasses is proposed to stabilize and vegetate this area. Any bare surfaces should be covered with natural wood chips to stabilize the soil.

Proposed Native Plant Legend											
Symbol	Qty	Common		Botanical	Size	Symbol	Qty	Common		Botanical	Size
	4	Arborvitae		Thuja occidentalis	6 to 8 ft. high		9	Inkberry		Ilex glabra	1.5 to 2 ft. high
	10	Bayberry		Myrica Pensylvanica	1.5 to 2 ft high		4	Red Oak		Quercus rubra	6 to 8 ft. high
	6	Beach Plum		Prunus maritima	1.5 to 2 ft. high		7	Sweet Fern		Comptonia peregrina	1 to 2 ft. high
	7	Eastern Red Cedar		Juniperus virginiana	6 to 8 ft. high		11	Switch Grass		Panicum virgatum	1 gallon pot
	1	Flowering Dogwood - Appalachian S		Cornus florida	5 to 6 ft. high		4	White Oak		Quercus Alba	6 to 8 ft. high

