

# ECR

Environmental Consulting & Restoration, LLC

## **WETLAND REPLICATION & BUFFER MITIGATION NARRATIVE**

**14 Kents Lane, Hingham**

**Date: Nov. 25, 2025, Revised: Dec. 1, 2025**

### **1.0 Introduction**

This wetland replication and buffer mitigation narrative and accompanying plan have been prepared to accompany the Notice of Intent application prepared by Morse Engineering Co, In. (Morse) for the project located at 14 Kents Lane in Hingham (the site). The proposed project includes 24 square feet of wetland impacts. To mitigate these impacts and meet the performance standards set forth by the MA Wetland Protection Regulations (310 CMR 10.00), the proposed project includes 48 square feet of wetland replication, a 2:1 ratio. The proposed project also includes 830 square feet of buffer mitigation. This narrative and plan have been designed in accordance with the Massachusetts Inland Wetland Replacement Guidelines, Second Edition (September 2022).

### **2.0 Existing Conditions**

The site is located to the south of Kents Lane Way and consists of a single-family home with a paved driveway, deck to the rear, maintained lawn, landscaped areas, etc. Environmental Consulting & Restoration, LLC (ECR) delineated the limits of wetland resource areas on and near the site. A wetland system is located to the rear and southwest of the home, which flows through a narrow pipe under the rear yard of the home. The pipe connects to a wetland to the east-southeast of the home. The proposed project involves extending the existing pipe approximately 5 linear feet off the southwest side of the home and altering 24 square feet of vegetated wetlands.

The replication area and buffer mitigation area have been designed with a diversity of native species to improve native biodiversity and wildlife habitat value. The replication area has been designed in the immediate vicinity of the impacted wetland and hydrologically connected. The wetland replication area will be excavated to establish appropriate hydrology and hand-planted with native wetland shrubs, then seeded with a wetland seed mix. In addition to the wetland species that will be planted, it is anticipated that native wetland species will become established once appropriate wetland hydrology is established.

### **3.0 Wetland Replication Construction Sequence**

Construction of the wetland replication area has been designed to minimize erosion, prevent sediment from entering adjacent wetlands, and to minimize the establishment of planted vegetation. The area will be constructed per the following:

1. A survey crew shall stake out the limits of the proposed 48 square foot wetland replication area as identified on the site plan.
2. Prior to any earthwork activities, sediment control barriers shall be installed along the limit of the wetland replication area. Please note that a minor amount of vegetation clearing will be necessary to install the erosion control line.
3. The wetland replication area shall be cleared of vegetation to include the removal of root balls/stumps.
4. Upon clearing of the vegetation within the wetland replication area, the area will be excavated. The area will be excavated to a depth of approximately 6 to 8 inches below the designed level of the wetland replication area. Several test pits within the

replication area will be performed by the supervising wetland scientist to determine the elevation of existing subsurface hydric soils so that the construction elevation can be coordinated with the excavator operator. The excavated sediment will be removed from the site or used on site within the upland project area as fill. Minor modification to this grading plan may be made in the field by the wetland scientist in response to subsurface hydrologic conditions. The supervising wetland scientist will inspect the sub-grade of the replication area to ensure that the proper hydrology has been established.

5. The replication area will then be backfilled with 6 to 8 inches of wetland soils appropriate for the site. Prior to filling the existing BVW for the proposed project, the top organic layers (O and upper A soil horizons) could be excavated and stockpiled outside of the wetland for use in the wetland replication area. If this soil is not suitable for the replication area, then new high organic soil will be spread over the entire wetland replication area. Clean leaf or commercially available compost may amend the soils to achieve a high organic content. These soils will then be graded to achieve a slight hummock and hollow micro-topography, similar to that of a natural wetland substrate. Please note that the supervising wetland scientist shall evaluate these soils prior to replacement activities.
6. A sediment control barrier will be placed along the upgradient edge of the wetland replication area.
7. The existing Virginia Rose will be excavated from the altered wetland area and saved to be transplanted to the replication area.
8. Replication area plantings will take place once the above listed tasks have been completed. The species, size, and quantity of the plantings will follow the Planting Palette found in Table 1 below. The spacing of shrubs are in accordance with the guidelines established in DEP’s Massachusetts Inland Wetland Replacement Guidelines – 8 to 10 feet apart for shrubs. Using shrubs spaced 8 feet on center requires 2 shrubs to vegetate the 48 square foot replication area. Prior to delivery to the site, the supervising wetland scientist will visit the nursery providing the planting stock to ensure that the specimens are healthy, free from pests, and suitable for use with the replication area. Any planting substitutions must be approved by the wetland scientist. Planting within the wetland replication area will conform to the plans or will be completed in accordance with directions provided in the field. Only plant materials native and indigenous to the region shall be used. Species not specified in the replication plan shall not be used without written approval from the permitting agency.

**TABLE 1 – WETLAND REPLICATION PLANTING PALETTE**

<b>SPECIES</b>	<b>SIZE (height)</b>	<b>NUMBER</b>
Virginia Rose ( <i>Rosa virginiana</i> )	Transplant	1
Sweet Pepperbush ( <i>Clethra alnifolia</i> )	1.5 to 2 feet	2
Total		3

**SEED MIX**

The remaining wetland replication area to be scratched and seeded with a wetland seed mix at the rates specified by the supplier (see seed mix on the attached plan). The side slope from the wetland replication area/buffer zone will be scratched and seeded with a buffer zone seed mix at the rate specified by the supplier (see seed mix on the attached plan).

9. All plantings to be spaced randomly at the discretion of the wetland scientist to simulate natural growth patterns.
10. Upon completion of planting, the root zones of the plants will be mulched with a 1- to 2-inch-thick layer of leaf litter or other natural organic mulch.
11. The sediment control barriers shall be disassembled and properly disposed of following site stabilization and approval by the Conservation Officer. Sediment collected by these devices will be removed and disposed of in a manner that prevents erosion and transport to a waterway of wetland.
12. A maintenance schedule for irrigation and pruning (as necessary) will be established by the contractor.
13. The replication area will be inspected each fall for non-native invasive plant species for a two-year period. If non-native invasive species are found, they will be uprooted and removed from the area.
14. Long-term monitoring of the wetland replication area will be conducted as directed in the Monitoring section of this report.

#### **4.0 Buffer Zone Mitigation Construction Sequence**

The proposed project also includes 830 square feet of buffer zone mitigation, which includes the following tasks:

1. A survey crew shall stake out the limits of the proposed 830 square foot buffer mitigation area as identified on the site plan.
2. Prior to any earthwork activities, sediment control barriers shall be installed along the limit of the wetland replication area. Please note that a minor amount of vegetation clearing will be necessary to install the erosion control line.
3. The existing lawn will be removed to expose the topsoil. The area will then be supplemented with a light layer of clean loam (1-2 inches).
4. The area will then be hand planted with a mix of native shrubs and saplings suitable for the buffer zone. Following the DEP's spacing requirements, a total of 15 shrubs and 4 saplings are proposed to be hand planted at 8 feet and 15 feet on center, respectively. Table 2 below indicates the species, size and quantity of plants for the mitigation area:

**TABLE 2 – BUFFER MITIGATION PLANTING PALETTE**

<b>SPECIES</b>	<b>SIZE (height)</b>	<b>NUMBER</b>
Black Chokeberry ( <i>Aronia melanocapa</i> )	1.5 to 2 feet	5
Common Juniper ( <i>Juniperus communis</i> )	1.5 to 2 feet	5
Witch Hazel ( <i>Hamamelis virginiana</i> )	1.5 to 2 feet	5
Flowering Dogwood ( <i>Cornus florida</i> )	5 to 6 feet	4
Total		15 shrubs 4 saplings

#### **SEED MIX**

The remaining area will be scratched and seeded with a buffer zone seed mix at the rate specified by the supplier (see seed mix on the attached plan).

5. Upon completion of planting, the root zones of the plants will be mulched with a 1- to 2-inch-thick layer of leaf litter or other natural organic mulch
6. The erosion controls, maintenance and monitoring will be completed following the same details as noted for the wetland restoration area.

## **5.0 Planting Requirements**

Within the wetland replication and buffer mitigation areas all shrubs and saplings will be installed in a hole 1.5 feet larger than the ball of the plant and the hole will not be deeper than the depth of the root ball. The hole will be backfilled with soil of the same mix as existing within the surrounding area and compost or other organic amendments will be added to the backfill to increase water-holding capacity. Watering will be of sufficient quantity to penetrate the soil to a depth of eight inches, which will meet the moisture needs of the plant without saturating the soil. All plantings will be done by hand during early spring (March 15<sup>th</sup> to April 30<sup>th</sup>) or late fall (October 15<sup>th</sup> to November 15<sup>th</sup>) seasons and supervised by a qualified wetland scientist. Please note that wetland seed mix germination is optimal in the spring season when soil temperatures are above 45 degrees. If necessary, the plants may require a hand sprayed application of deer repellent to prevent plant death by browsing deer.

## **6.0 Hydrology**

The wetland replication area has been designed to achieve appropriate hydrology to support the proposed plantings. Hydrology for the wetland replication area will be provided primarily through groundwater. The proposed elevations of the replication area will be confirmed by the supervising wetland scientist during the start of excavation activities and will be similar to that of the adjacent wetland areas. It is anticipated that the replicated vegetated wetland will receive the necessary hydrology.

## **7.0 Sediment Control**

The placement of sediment controls will be necessary to ensure protection of the BVW and wetland replication area. The sediment controls shall be monitored and maintained until all exposed surfaces are stabilized.

## **8.0 Supervision**

The construction of successful wetland replication and mitigation areas often require minor field adjustments in grading or planting. When directly overseen by an experienced professional, these minor modifications can be made to provide the hydrologic conditions necessary to support wetland vegetation and functions. Construction of the wetland replication area, including fine grading, soils placement, and planting will be done under the supervision of an experienced wetland scientist. The wetland scientist will monitor the phases of the replication area construction work for compliance with all applicable local, state, and federal wetland permits.

## **9.0 Monitoring**

The wetland replication and buffer mitigation areas will be monitored in accordance with the anticipated Order of Conditions. At a minimum, the areas will be monitored for the first two growing seasons following construction. Monitoring reports will be submitted to the permitting agency no later than December 15<sup>th</sup> of each year. The first year of monitoring will be the first year that the site has been through a full growing season after completion of construction and planting. For monitoring purposes, a growing season starts no later than May 31. Each monitoring report should include photographs and recommendations such as remedial actions to maintain plants, additional plantings, etc. The intent of the replication and mitigation is to achieve 75% re-establishment within two years. In the event that any plantings within these areas are found to be unviable or dead, they will be replaced with like kind and size at the expense of the property owner. Replacement of plantings will take place when found or as soon

as seasonal weather permits. Any such replacement work will be included in the monitoring reports for that period. Monitoring for invasive species should also be conducted and handpicked before becoming widespread and established. Each monitoring report should project potential succession patterns based on observed establishment of vegetation. The final monitoring report should be accompanied by an as-built plan. The final monitoring report should indicate the conditions at the replication and mitigation sites and describe in detail how the functions of the impacted wetland have been replaced by the development of the replication/mitigation.

## **10.0 Conclusion**

Based on my education, training and experience, it is my professional opinion that this Wetland Replication & Buffer Mitigation Narrative and Plan comply with the guidelines established by the Massachusetts Inland Wetland Replacement Guidelines, Second Edition (September 2022) and when properly implemented will improve the values and functions of the section of BVW proposed for alteration as part of the proposed project at the site.

## **12.0 Attachments**

Included with this Wetland Replication & Buffer Mitigation Narrative are the following attachments:

1. Wetland Replication & Mitigation Plan

Should you require additional information or have questions on the information contained above, please contact ECR, LLC at 617-529-3792.

Sincerely,  
Environmental Consulting & Restoration, LLC



Brad Holmes, Professional Wetland Scientist #1464  
Manager

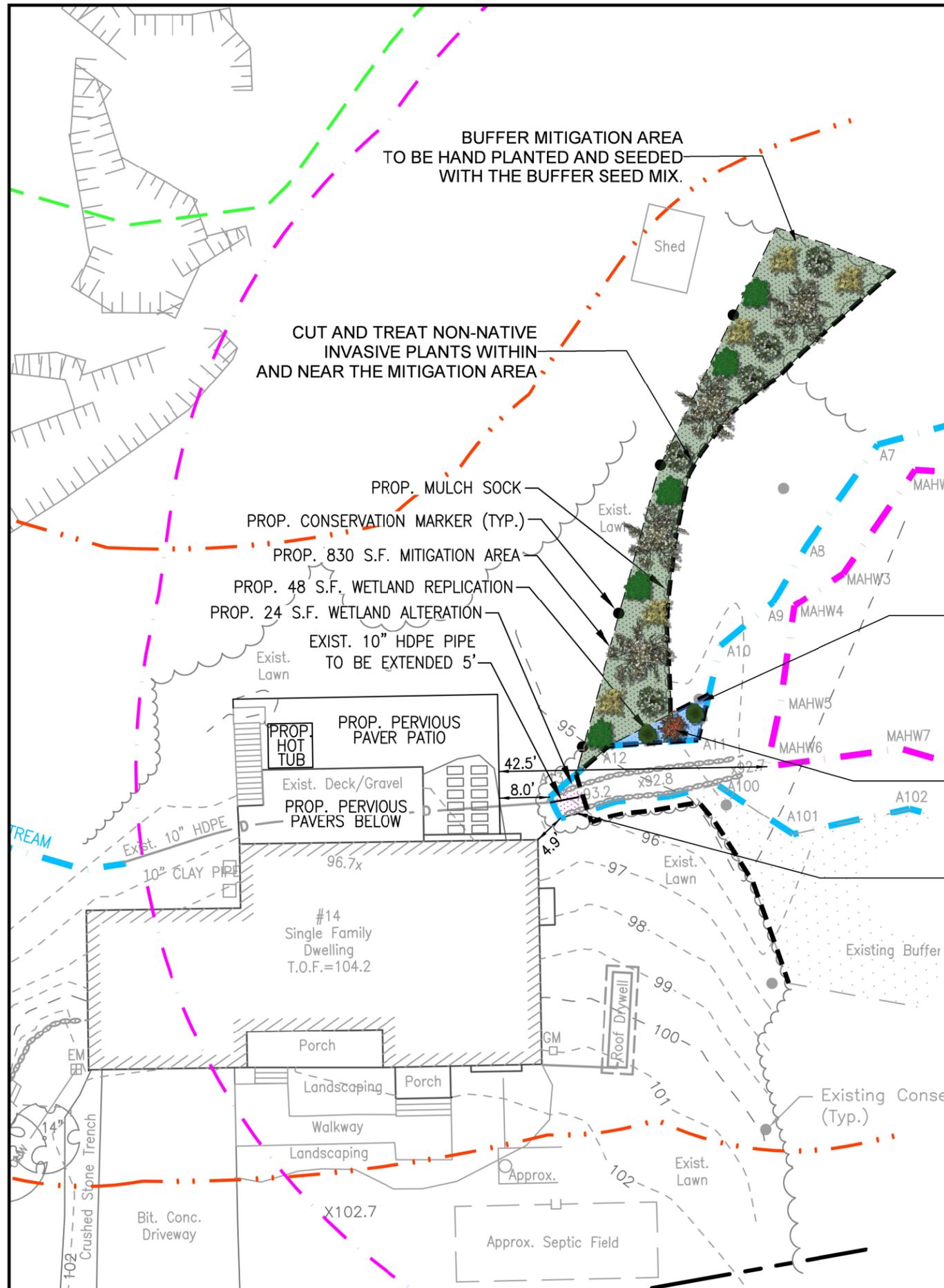


# Proposed Restoration & Mitigation Plan

14 Kents Lane, Hingham

Date: 11/25/25, Rev: 12/1/25

Prepared By: Environmental Consulting & Restoration, LLC



Plant Legend					
Symbol	Qty	Common	Botanical	Size	Key
	5	Black Chokeberry	<i>Aronia melanocarpa</i>	1.5 - 2 ft.	Buffer
	5	Common Juniper	<i>Juniperus communis</i>	1.5 - 2 ft.	Buffer
	4	Flowering Dogwood	<i>Cornus florida</i>	5 to 6 ft. high	Buffer
	5	Witch Hazel	<i>Hamamelis virginiana</i>	1.5 - 2 ft.	Buffer
	1	Virginia Rose	<i>Rosa virginiana</i>	1.5 - 2 ft.	Transplant
	2	Sweet Pepperbush	<i>Clethra alnifolia</i>	1.5 - 2 ft.	Wetland

## Proposed Wetland Seed Mix:

### FACW Meadow Mix

#### Mix Composition

- 33.2% *Carex vulpinoidea*, PA Ecotype (Fox Sedge, PA Ecotype)
- 20.0% *Elymus virginicus*, PA Ecotype (Virginia Wildrye, PA Ecotype)
- 8.0% *Carex lupulina*, PA Ecotype (Hop Sedge, PA Ecotype)
- 8.0% *Carex lurida*, PA Ecotype (Lurid (Shallow) Sedge, PA Ecotype)
- 8.0% *Carex scoparia*, PA Ecotype (Blunt Broom Sedge, PA Ecotype)
- 4.0% *Verbena hastata*, PA Ecotype (Blue Vervain, PA Ecotype)
- 3.0% *Cinna arundinacea*, PA Ecotype (Wood Reedgrass, PA Ecotype)
- 3.0% *Juncus effusus* (Soft Rush)
- 2.5% *Asclepias incarnata*, PA Ecotype (Swamp Milkweed, PA Ecotype)
- 2.0% *Heliopsis helianthoides*, PA Ecotype (Oxeye Sunflower, PA Ecotype)
- 1.2% *Aster puniceus*, PA Ecotype (Purplestem Aster, PA Ecotype)
- 1.2% *Aster umbellatus*, PA Ecotype (Flat Topped White Aster, PA Ecotype)
- 1.0% *Eupatorium perfoliatum*, PA Ecotype (Boneset, PA Ecotype)
- 1.0% *Helenium autumnale*, PA Ecotype (Common Sneezeweed, PA Ecotype)
- 0.6% *Aster novae-angliae* (*Symphotrichum n.*), PA Ecotype (New England Aster, PA Ecotype)
- 0.5% *Alisma subcordatum*, PA Ecotype (Mud Plantain (Water Plantain), PA Ecotype)
- 0.5% *Lobelia siphilitica*, PA Ecotype (Great Blue Lobelia, PA Ecotype)
- 0.5% *Penthorum sedoides*, PA Ecotype (Ditch Stonecrop, PA Ecotype)
- 0.5% *Scirpus atrovirens*, PA Ecotype (Green Bulrush, PA Ecotype)
- 0.5% *Scirpus cyperinus*, PA Ecotype (Woolgrass, PA Ecotype)
- 0.3% *Eupatorium fistulosum*, PA Ecotype (Joe Pye Weed, PA Ecotype)
- 0.3% *Onoclea sensibilis* (Sensitive Fern)
- 0.1% *Chelone glabra*, PA Ecotype (Turtlehead, PA Ecotype)
- 0.1% *Mimulus ringens*, PA Ecotype (Square Stemmed Monkeyflower, PA Ecotype)

WETLAND RESTORATION AREA TO BE HAND PLANTED AND SEEDED WITH THE WETLAND SEED MIX.

TRANSPLANT THE VIRGINIA ROSE FROM THE "WETLAND ALTERATION" AREA TO THE "WETLAND REPLICATION" AREA

RELOCATE EXISTING STONE TO THE LANDWARD SIDE OF THE REPLICATION AREA

## Proposed Buffer Seed Mix:

### Native Upland Wildlife Forage & Cover Meadow Mix

#### Mix Composition

- 34.9% *Andropogon gerardii*, 'Niagara' (Big Bluestem, 'Niagara')
- 27.0% *Panicum virgatum*, 'Cave-In-Rock' (Switchgrass, 'Cave-In-Rock')
- 21.0% *Elymus virginicus*, PA Ecotype (Virginia Wildrye, PA Ecotype)
- 9.0% *Sorghastrum nutans*, NY4 Ecotype (Indiangrass, NY4 Ecotype)
- 3.0% *Rudbeckia hirta*, Coastal Plain NC Ecotype (Blackeyed Susan, Coastal Plain NC Ecotype)
- 2.0% *Chamaecrista fasciculata*, PA Ecotype (Partridge Pea, PA Ecotype)
- 1.5% *Heliopsis helianthoides*, PA Ecotype (Oxeye Sunflower, PA Ecotype)
- 1.0% *Coreopsis tinctoria* (Plains Coreopsis)
- 0.4% *Desmodium canadense*, PA Ecotype (Showy Ticktrefoil, PA Ecotype)
- 0.1% *Monarda fistulosa*, Fort Indiantown Gap-PA Ecotype (Wild Bergamot, Fort Indiantown Gap-PA Ecotype)

Note: Planting details overlaid by ECR onto the NOI plan prepared by Morse Engineering Co., Inc.