

**2020 TREE REMOVAL AND TRIMMING PLAN**

**SUBMITTED TO**

**THE DELAWARE AND RARITAN CANAL COMMISSION**

**JANUARY 15, 2020**

**SUBMITTED BY THE NEW JERSEY WATER SUPPLY AUTHORITY**

**AND**

**DEPARTMENT OF ENVIRONMENTAL PROTECTION,  
DELAWARE AND RARITAN STATE PARK**

**IN ACCORDANCE WITH SCHEDULE B, SECTION I, SUBSECTION C(2)**

**OF**

**PROPERTY LEASE AGREEMENT**

**BETWEEN THE**

**DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**AND**

**NEW JERSEY WATER SUPPLY AUTHORITY**

**DATED JUNE 17, 1986**

## **D&R Canal Tree Removal and Trimming Plan 2020**

Prepared by:

New Jersey Water Supply Authority (“Authority”)

New Jersey Department of Environmental Protection, Delaware and Raritan Canal State Park (“Park”)

Introduction:

The Authority is responsible for maintaining the “transmission complex facilities” of the D&R Canal to ensure the transfer of up to 100 million gallons of water per day from the Delaware River Watershed, which begins at Bulls Island, to the Raritan River watershed, which ends at Landing Lane. This activity provides up to 1.5 million central New Jersey residents with a raw water source of drinking water and irrigation. The “transmission complex facilities” include the waterway, embankments, flood guard banks, hydraulic and flow control structures, and land necessary to operate and maintain the Canal as a water supply system. A part of this maintenance responsibility is management of trees that currently threaten to damage or will threaten to damage in the future, the transmission complex facilities. To the extent the presence of trees is impeding the flow of water, is preventing Authority personnel from observing the embankments for evidence of seepage or burrowing animals, has or will cause extensive damage when undermined by age or storm, is harming or will harm structures, or is hindering the ability to perform other routine maintenance, the removal or trimming of trees and other vegetation is necessary.

Tree maintenance work by the Authority may be categorized as either ‘Planned’ or ‘Emergency’ work. Planned work typically occurs in the winter months. A section of the Canal targeted for planned work may not be completed in one season, and the Authority may work in portions of several sections in one season. Planned work may include the removal of select limbs or removal of the entire tree. The removal of other woody material such as vines, shrub like plants and brush, normally included in routine embankment maintenance, may be necessary in order to access targeted trees during planned tree maintenance. Emergency work may occur at any time of year, may last for months, can occur anywhere, and may preempt planned work. Emergency work may

also be dictated by weather and may include work on trees in Planned work areas. Emergency work includes removing downed trees and limbs, stump grinding, root plate repairs, and most likely also includes towpath repairs.

The Delaware and Raritan Canal State Park is responsible for management, maintenance, development, stewardship and operation of the Canal for public recreation for present and future generations. Park Service staff responsibilities include, but are not limited to, the creation of wildlife habitats, suppression of pest outbreaks, restoration of ecologically significant areas and insurance of public safety.

#### Tree Management:

1. Tree trimming/removal consideration factors:
  - 1.1. Embankment protection/restoration
  - 1.2. Public safety
  - 1.3. Maintenance of water flow through Canal
  - 1.4. Passage of Authority, Park and/or designee vehicles for maintenance or emergency work
  - 1.5. Allowing for a comprehensive visual inspection of the embankment to ensure it continues to impound the water of the Canal and to prevent waters from adjacent waterways from damaging the Canal or its structures
  - 1.6. Improved access for embankment/prism maintenance
2. Authority, Park staff or their designees shall be allowed to remove trees that meet any of the categories below:
  - 2.1. Ash trees.
  - 2.2. Less than 4 inches d.b.h.
  - 2.3. Threatening public safety
  - 2.4. Inhibiting the ability of equipment to traverse the towpath or as necessary to maintain and carry out operations
  - 2.5. Inhibiting the ability of equipment to access other portions of the embankment that are in need of maintenance
  - 2.6. Inhibiting the ability of Canal staff to make a necessary repair to the embankment

- 2.7. Dead
- 2.8. Dying
- 2.9. Damaged
- 2.10. Damaging the embankment or any structure
- 2.11. Severely leaning over Canal (imminent danger of falling into canal)
- 2.12. Severely leaning over towpath (potential safety issue)
- 2.13. Invasive species
- 3. Emergency work:
  - 3.1. Storm damage – In the case of storm damage, Park Service and Authority staff often need to remove fallen and/or damaged trees. As stated above, other trees may need to be removed to safely fell partially downed or damaged trees to either access them or to do so in a safe manner.
  - 3.2. Park Service and Authority staff shall remove any limbs or trees that have snapped or fallen over
  - 3.3. Emergency embankment or structure repair
    - 3.3.1. In the case of emergency repairs to embankments or structures such as seepage or slumping, trees may need to be removed to allow for a proper repair to be diagnosed and/or accomplished.
- 4. Planned work: the following are the areas generally planned for targeted tree removal/trimming beginning in 2020 as resource availability permits.

<u>Location</u>	<u>Approx. Stations</u>
4.1. Prallsville Lock to Bridge Street (Stockton)	155 - 178
4.2. Wall on river side bank of Canal from Bridge Street (Lambertville) to lock	357 - 379
4.3. Wall on river side of towpath from South Lambertville into West Amwell	390 - 425
4.4. Passaic Street to Rose Street	1127 - 1158
4.5. Cherry Tree Lane to Route 1 over pass	1271 - 1286
4.6. Carnegie Lake Aqueduct to Kingston Lock	1741 - 1858
4.7. Route 27 to Griggstown Causeway	1862 - 2120
4.8. South Bound Brook Spillway to Queens Bridge	2699 - 2725

5. Tree Removal as part of other individual and/or Capital Projects:
  - 5.1. All other proposed tree removal not subject to sections 2 through 4, as part of a planned individual or capital project shall be reviewed by the D&R Canal Commission with an application for project approval.
6. This is a general plan and is subject to change based on actual weather & Canal conditions. This plan will be reviewed annually or on an as needed basis and updated accordingly.
7. Special planned work: Lambertville Pilot Native Buffer Planting Plan attached.
  - 7.1. Landscaping of warm season grasses and flowering plants over approximately 600 linear feet of canal embankment adjacent to Finkles between Coryell Street and approximate Canal Station 345 pursuant to Schedule B, Section VII, Subsection E of Property Lease Agreement dated June 17, 1986.

# PILOT NATIVE BUFFER PLANTING

---

## LAMBERTVILLE, NEW JERSEY

### Executive Summary

The New Jersey Water Supply Authority operates the Delaware & Raritan Canal as a water supply facility which requires routine vegetation management to maintain the Canal embankments and structures that control water flow. Residents of the City of Lambertville expressed concern about the appearance of the canal embankment as a result of vegetation removal and trimming activities that occurred during the winter/spring of 2018-19 along a section of the Canal that passes through the City. The Authority agreed to develop a buffer plan on a pilot basis for the section of the canal in question that would be designed to establish native plants with pollinator and wildlife value. Given the challenges and site limitations of this area, Authority staff recommended a first year planting of 600 switchgrass “Cloud Nine” (*Panicum Virgatum*) plugs in a single staggered row, two feet off center along the entire 600 foot section of Canal embankment. This recommendation was based on 3 primary considerations: the hardy nature of this switchgrass variety; its ability to out compete the existing invasive plants; and a no use of herbicide policy. The City requested an alternate proposal for both site preparation, and timing and nature of the initial planting. The alternate proposal involved the use of tarps, which after investigation and careful consideration, was determined to be infeasible. The Authority and Parks accepted the proposal to limit switchgrass to 50 percent of the planting and include 10 to 12 species of flowering native plant plugs immediately to enhance the ecosystem. The Authority will procure a planting service through an outside vendor. The Authority Canal staff, in concert with the contractor, will oversee the maintenance of the new planting during the establishment period. The rationale and detailed description of the pilot native buffer planting design/plan is contained in this project proposal.

### Introduction

The New Jersey Water Supply Authority (Authority) operates the Delaware & Raritan Canal (Canal) as a raw water supply for multiple water purveyors and customers in central New Jersey. The sixty-mile long Canal starts at Bulls Island on the Delaware River and terminates at the Raritan River in New Brunswick. Completed in 1832, the Canal is listed on the National and New Jersey Register of Historical Places. Water flow through the Canal is controlled by many structures and protected by several Guard Banks. A multi-use trail, under the jurisdiction of the New Jersey Department of Environmental Protection, Division of Parks and Forestry runs along the Canal. The Canal itself and the adjacent land provide a recreational resource for public enjoyment. It is imperative that the structures and surrounding area be maintained to ensure the Canal’s long term use and its benefits. The responsibility for operation, maintenance and oversight of the Canal is entrusted to 3 State agencies: The New Jersey Department of Environmental Protection (NJDEP), the New Jersey Water Supply Authority (Authority) and Delaware & Raritan Canal Commission (D&R Canal Commission).

## **Background**

The Authority operates and maintains the Canal as a water supply facility under a long-term property lease with the NJDEP for all lands and improvements that comprise the D&R Canal Water Transmission Complex. Further, this lease recognizes the jurisdiction of certain parties - the Authority, the NJDEP and the D&R Canal Commission - and each agency's responsibility for the development, maintenance and operation of the Canal as a water supply facility, and for recreation, conservation and historic purposes.

The Authority is authorized to maintain features of the Canal that are necessary to operate it, including the Canal's embankments. To the extent the presence of trees and other vegetation is impeding the flow of water, is preventing personnel from observing the embankments for evidence of seepage or burrowing animals, has or will cause extensive damage when undermined by age or storm, is harming or will harm structures, or is hindering the ability to perform other routine maintenance, the removal and/or trimming of trees and other vegetation is necessary.

Accordingly, the Authority carries out routine vegetation management year round such as trimming trees along the Tow Path and Canal and removing downed trees, dead trees and leaning trees as they are observed. Discreet areas along the Canal are scheduled for planned work during the winter months along sections of the Canal from Bulls Island to New Brunswick.

Routine vegetation management along the Canal in the City of Lambertville had not been undertaken in nearly 20 years because of priorities in other areas. As a result, tree root systems along certain sections became well established, threatening the integrity of portions of the existing canal wall. Consequently, tree removal and vegetation management was undertaken during the winter of 2018 into the spring of 2019. Particular attention was given to the stone wall near the Coryell Bridge in order to protect what remains of the structure.

## **Statement of the Problem**

Authority personnel recognize Lambertville residents' aesthetic concerns. The trees that were established during the 20-year interval in routine vegetation management provided a natural buffer that screened industrial buildings proximate to the Canal (Figure 1). However, the Authority has no control over the appearance of a neighboring facility and with 60 miles of Canal to maintain, low maintenance landscaping is a necessity. The Authority does not have the capacity to take on special interest projects on a site specific basis; however, the Authority strives to be a good neighbor and has deliberated over this visual concern.

The Authority is proposing a pilot native buffer planting plan for a portion of the embankment in this area. Once established, this buffer planting is intended to minimize soil erosion, stabilize the embankment, provide food and cover for wildlife and offer a visually pleasing appearance for the benefit of the local community and Park visitors.



Figure 1 Photo of the Canal embankment post routine tree maintenance in Lambertville near Finkles.

## Rationale

This section will provide an explanation for how the Authority developed the design for the proposed pilot native buffer planting.

The Authority's buffer planting targets 600 linear feet of Canal embankment adjacent to Black River & Western Railroad (BR&W) and Finkles' warehouse facility. Unlike other neighboring industrial areas such as the River Horse, up canal from Finkles, where berms and landscaping are attractive, the section of the Canal near Finkles' is steeply sloped and confined to a narrow width due to the presence of the railroad tracks. There is no space for tree or shrub plantings without impacting what is considered the transmission complex of the Canal.

A planting of native grasses and herbs should be able to withstand the conditions in this area but cannot be too dense or tall resulting in interference of Authority engineers' ability to inspect the integrity of the banks. Please see Appendix 4 to review the planting options that the Authority and Parks considered with input from the City of Lambertville.

Invasive species such as porcelain berry, oriental bittersweet, and ailanthus are proliferating at this site (Appendix 2). The Authority pursued the City of Lambertville's proposal to incorporate a tarp into the project design in order to kill or slow the growth of these invasive species. However, after consulting with ecological restoration practitioners at SumCo Eco-Contracting, the Authority was advised against this approach. SumCo advised that there is no tarp or landscape matting material on the market that will prevent these woody species from growing up through. Additionally, due to the steep nature of the



slope and the extent of the targeted area to be tarped, it is not a matter of if, but when the tarp will become displaced due to wind or high flow events in the Canal. Therefore, this option is not feasible, especially since the tarp would be in danger of washing into the Canal. The consultants also cautioned that this additional step would not effectively deplete the seed bank in the underlying soil. Instead, our consultants recommended removing the tarp component of the project and concurrently planting the herbs and native grasses in the spring at a higher density.

A high density planting of native grass plugs will be able to compete for space with existing invasive species because grasses have an established root system and a thick, clump of above ground vegetation (Figure 2). Interspersed with the grasses will be native herb plantings. This methodology will not require the use of herbicides, will give the herb plugs a chance to establish and will limit soil erosion while the wildflowers attempt to take hold.



Figure 2 An example of a plug container of ornamental grass to show size.

The Authority selected *Panicum Virgatum* “Cloud Nine” or Tall Switchgrass for the pilot native buffer planting. This warm season grass can grow from seven to eight feet tall with blooms and is one of the tallest of the switchgrasses. During the growing season, it has stunning blue gray foliage, which turns a deep gold color in the fall. Airy, billowy seed heads appear in mid-summer and remain attractive into the winter (Figures 3 & 4). Tall Switchgrass grows in a loose vase shape and should be allowed some space in the landscape. Tall Switchgrass can tolerate poor soil, dry conditions, and prefers no fertilizer or special care. This section of the Canal has full sun exposure which will encourage strong growth in this species. Please see Figure 5 (from [Hoffman Nursery](#)) for an example of how this species can flourish in one growing season.



Figure 3 Airy, billowy seed heads appear in mid-summer



Figure 4 Tall Switchgrass has winter interest after it dies back in the fall.



Figure 5 Grass plugs were directly planted in trial garden boxes in May of 2017 and fertilized and irrigated as needed

The Authority and Parks reviewed a list of biodiverse plantings submitted by the City of Lambertville and selected the twelve perennial herbs listed in Appendix 1. These species will bloom or provide foliage color from early May through November. The herbs to be planted can tolerate full sun and the range of soil conditions on site (well-drained to saturated). Overall, the plants can be characterized as low maintenance and can withstand the first year or two maintenance efforts which will involve mowing back the foliage to 8" over the growing season in order to knock back woody vegetation and to support energy and growth to the root systems of the perennials instead of upward to the plant material. They will also handle the annual mowing regime thereafter along the Canal. The plant list was also crosschecked to ascertain that they are commercially available and not cost prohibitive. Please see Appendix 3 for the blooming periods of the chosen herb species.

The Authority has the capacity to maintain this switchgrass and wildflower buffer planting since it will only need to be cut back once in the early spring after the first two years of establishment. We anticipate that the switchgrass and wildflower plugs will form dense clumps that will spread over time to continually outcompete the weeds on site.

## Project Description

The Authority proposes to install a high density buffer of native grasses and wildflowers over 8,581 square feet or 0.197 acres along a 600 linear foot section of the Delaware & Raritan Canal, located in the City of Lambertville, Hunterdon County, New Jersey, between D&R Canal Station 345 and 351. The City of Lambertville requested that switchgrass be limited to 50 percent of the planting and to include 10 to 12 species of flowering native plant plugs to enhance the ecosystem. Please see Figure 6 for a map of the project location.

This pilot planting plan has been approved by the NJWSA and Parks and will be submitted to the DRCC in January 2020 for review and approval. Upon approval by the DRCC, the Authority will competitively procure a contractor in accordance with its statute, policies and by-laws, obtaining competitive pricing. Procurement and contract award will be conducted early in 2020 in order to allow the native planting to occur in the Spring of 2020. The planting area will be mowed low by the New Jersey Water Supply Authority directly prior to contractor mobilization.

The Contractor will provide all labor, materials, equipment, and supervision to install “Premium Quality” switchgrass “Cloud Nine” (*Panicum Virgatum*) and native wildflower plugs. The “Premium Quality” switchgrass “Cloud Nine” (*Panicum Virgatum*) and native wildflower plugs will be planted in a single staggered row, two feet off center from the specified station numbers (345 to 351). Proposed plantings shall be installed with oversized planting excavations, backfilled with imported planting mix and top dressed with natural shredded bark mulch. One additional option may be to seed in native annual herbs for early interest while the planting is becoming established. The contractor shall use all due care so as to not excavate into or in any way disturb the structural integrity of the Canal embankment. All excess soil and debris are to be removed off site by the Contractor.

The City of Lambertville has requested interpretative signage around the planting area. All must be approved by the New Jersey Water Supply Authority and Parks for content, style, placement and size and must be approved by the D&R Canal Commission if the dimensions exceed those allowed in the Commission’s regulations. Contribution to the cost for production of signage remains an outstanding issue and will be discussed with City. All signage must be installed by the New Jersey Water Supply Authority. Only Authority personnel, Parks personnel, and authorized contractors are allowed to work on State owned property.

To the extent the City of Lambertville wishes to engage in public education and outreach about the project, the Authority will include a link on its website to the City of Lambertville’s planting webpage.

## **Maintenance**

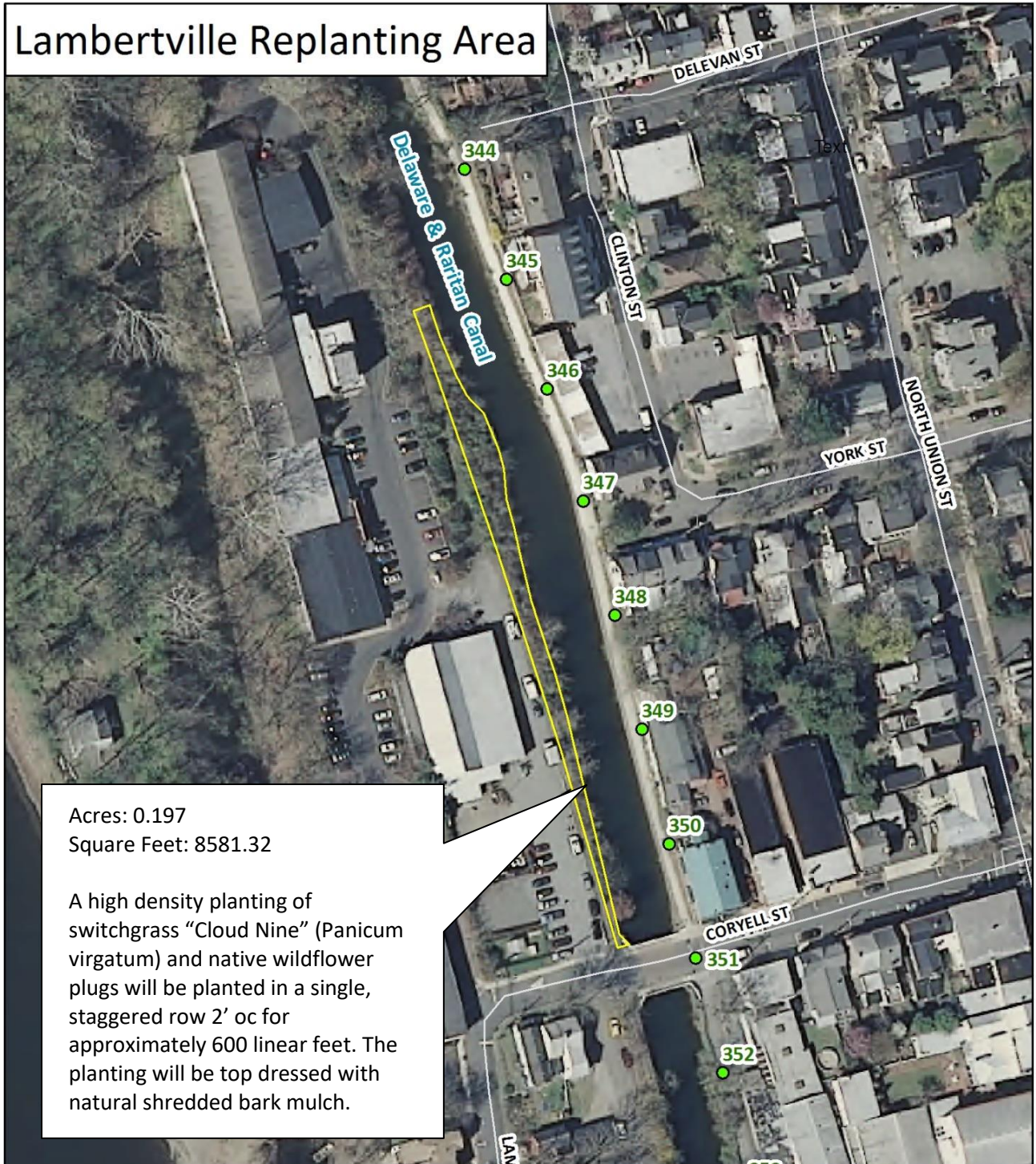
After the Contractor has completed the initial planting and mulching, the Authority will assume responsibility for the long-term maintenance of the planted area post-installation within the limits of its budget and other constraints. The planted area will be mowed down to a height of 8-10 inches once a month during the first growing season to reduce competition with woody vegetation and invasive species. During the second year, the planting will be cut back periodically during the growing season, but less aggressively than the first year. In the third year of the project, the wildflowers and grasses will be allowed to grow unencumbered and flower. Moving forward, the planting will remain at its full height to provide winter interest, but will be cut back in the early spring. During the first year the Authority will monitor for Switchgrass and wildflower mortality and request that the contractor replace any of the plants that do not take according to the survivability clause in the contract. Standard contractual survivability rates are 75 to 80 percent.

## **Evaluation**

After one year, the Authority will organize an additional site walk for all the stakeholders to review the project.

At the end of year three, the plantings should be established. The pilot planting plan will be evaluated periodically with respect to survival rate of the plantings, ability of the plantings to hinder the growth of invasive species, cost to the Authority for installation and long term maintenance, applicability or non-applicability to other areas along the canal. Authority staff considers this to be a pilot program.

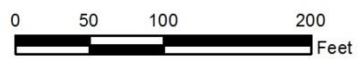
# Lambertville Replanting Area



Acres: 0.197  
 Square Feet: 8581.32

A high density planting of switchgrass "Cloud Nine" (*Panicum virgatum*) and native wildflower plugs will be planted in a single, staggered row 2' oc for approximately 600 linear feet. The planting will be top dressed with natural shredded bark mulch.

- Canal Station Numbers
- Roads (Hunterdon County)
- Proposed Replanting Area



Map produced - May 2019  
 New Jersey Water Supply Authority  
 Data sources: NJWSA; Hunterdon Co.



Figure 6 A map of the pilot native buffer planting location.

## Additional Recommendations

As stated above, a significant element of the less appealing aesthetics of this section is the presence of the industrial buildings on the west side of the Canal. It may be advantageous for the City and Finkles to collaborate and organize interest in designing and creating an attractive mural on the side of the warehouse building (Figure 7).



Figure 7 The view of Finkles from the Tow Path.

Also, when you look up Canal there are excellent examples of how to buffer the appearance of an industrial campus. These businesses have effectively created berms and landscaped with trees, shrubs, and flowers (Figure 8). Conceivably, Finkles' may be willing to apply this approach to their property to soften the juxtaposition between land uses. In all cases, the Authority prefers small trees that will do less harm to the Canal while growing and when they fall.



Figure 8 Photos of the landscaping in front of the industrial park up Canal.

## Appendix 1



Species	Plant Type	Life Cycle	Height	Pollinator Value	Wildlife Value	Ornamental	Habitat
<a href="#">Blue Flag Iris</a>	Herbaceous Flower	Perennial	Up to 3 ft	Low	X	X	Wet Meadows & Wetlands
<a href="#">Swamp Milkweed</a>	Herbaceous Flower	Perennial	Up to 4.9 ft	Very High	X	X	Wet Meadows & Wetlands
<a href="#">Common Milkweed</a>	Herbaceous Flower	Perennial	Up to 6.5 ft	Very High	X	X	Uplands & Meadows
<a href="#">Beebalm</a>	Herbaceous Flower	Perennial	Up to 9 ft	High	X	X	Wet Meadows
<a href="#">White Turtlehead</a>	Herbaceous Flower	Perennial	Up to 6.5 ft	Medium	X	X	Wet Meadows & Wetlands
<a href="#">Joe-pye-weed</a>	Herbaceous Flower	Perennial	Up to 10 ft	High	X	X	Meadows & Wetlands
<a href="#">Cardinal Flower</a>	Herbaceous Flower	Perennial	Up to 5 ft	High	X	X	Wet Meadows
<a href="#">Green-headed Coneflower</a>	Herbaceous Flower	Perennial	Up to 6 ft	High		X	Wet Meadows
<a href="#">New York Ironweed</a>	Herbaceous Flower	Perennial	Up to 6.5 ft	High	X	X	Meadows & Wetlands
<a href="#">Orange Coneflower</a>	Herbaceous Flower	Perennial	Up to 3.9 ft	Medium	X	X	Uplands & Wetlands
<a href="#">New England Aster</a>	Herbaceous Flower	Annual	Up to 5 ft	High		X	Meadows & Wet Meadows
<a href="#">Showy Goldenrod</a>	Herbaceous Flower	Perennial	Up to 6.5 ft	Very High		X	Uplands & Meadow



## Appendix 2

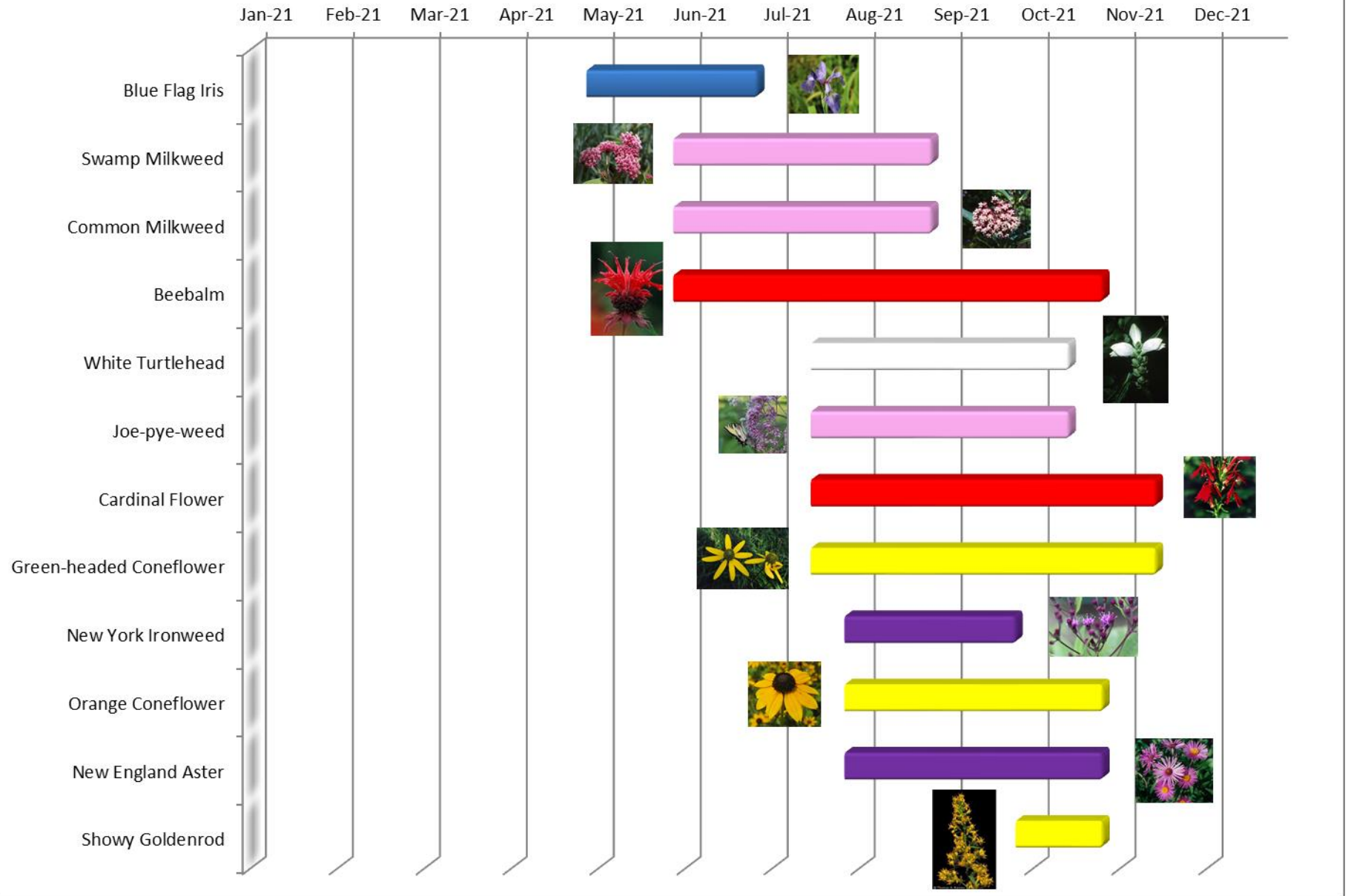
Invasive Species	Abundance	Location	Image
Porcelain Berry	Dense	Finkles	
Tree of Heaven	Dense	Finkles	No photo available.
Oriental Bittersweet	Dense	Finkles	
Butterfly Bush	Moderate	Tow Path	
Japanese Wineberry	Moderate	Finkles	
Mimosa Tree	Moderate	Finkles	
Queen Anne's Lace	Sparse	Finkles	

Invasive Species	Abundance	Location	Image
Japanese Honeysuckle	Sparse	Finkles	 A photograph of a Japanese Honeysuckle plant with green, oval-shaped leaves and small, light-colored flowers, growing in a wooded area with fallen leaves on the ground.
Morning Glory	Sparse	Finkles	 A close-up photograph of a pink Morning Glory flower with a yellow center, being held by a person's hand.
English Ivy	Sparse	Finkles	 A photograph of English Ivy leaves, which are dark green and have a characteristic three-lobed shape, growing in a cluster.
Garlic Mustard	Trace	Finkles	 A photograph of Garlic Mustard leaves, which are bright green and have a heart-shaped, three-lobed appearance, growing in a cluster.
Japanese Knotweed	Trace	Tow Path	 A photograph of a Japanese Knotweed plant with large, green, heart-shaped leaves, growing in a narrow path next to a tree trunk.
Purple Loosestrife	Trace	Finkles	 A photograph of Purple Loosestrife flowers, which are tall, purple, and spike-like, growing in a shallow body of water.

Invasive Species	Abundance	Location	Image
Mugwort	Trace	Finkles	 A photograph of a Mugwort plant (Artemisia vulgaris) with its characteristic deeply lobed, green leaves and a central flowering stalk.
Wild Lettuce (?)	Trace	Tow Path	 A photograph of a Wild Lettuce plant (Lactuca scariola) with its large, deeply lobed, green leaves and a central flowering stalk.

## Appendix 3

### Lambertville Native Wildflower Blooming Period



## Appendix 4 Planting Options Originally Considered

Mix/Species	Plant Type	Life Cycle	<2 Feet	Pollinator Value	Wildlife Value	Ornamental	Habitat	Cost
<a href="#">Low-Growing Wildflower &amp; Grass Mix</a>	Grass & Herbaceous Flowers					X	Uplands & Meadows	\$11.60/lb
<a href="#">Showy Northeast Native Wildflower &amp; Grass mix</a>	Grass & Herbaceous Flowers			High		X	Uplands & Meadows	\$37.35/lb
<a href="#">Riparian Buffer Mix</a>	Grass & Herbaceous Flowers			High	X		Riparian	\$31.71/lb
<a href="#">Warm Season Grass Mix</a>	Grass	Perennial					Uplands & Meadows	\$3.73/lb
<a href="#">Right-of-Way Native Woods Mix w/Annual Ryegrass</a>	Grass & Legumes						Woodland Openings	\$9.06/lb
<a href="#">Floodplain Mix</a>	Grass	Annual/Perennial			X	X	Riparian Sites	\$39.88/lb
<a href="#">Nodding Onion, OH Ecotype</a>	Grass & Grasslike	Perennial	X	High		X	Uplands & Meadows	\$231.00/lb
<a href="#">Nodding Onion, PA Ecotype</a>	Grass & Grasslike	Perennial	X	High		X	Uplands & Meadows	\$231.00/lb
<a href="#">Goldenmane Tickseed</a>	Herbaceous Flower	Annual	X	Medium		X	Uplands & Meadows	\$30.80/lb
<a href="#">Canadian Anemone</a>	Herbaceous Flower	Perennial	X	Medium		X	Wet Meadows & Wetlands	\$418.00/lb
<a href="#">Sensitive Pea</a>	Herbaceous	Annual	X	High			Uplands & Meadows	\$66.00/lb

	Legume							
<a href="#">Fringed Bluestar</a>	Herbaceous Flower	Perennial	X	X		X	Uplands & Meadow	\$352.00/lb
Mix/Species	Plant Type	Life Cycle	<2 Feet	Pollinator Value	Wildlife Value	Ornamental	Habitat	Cost
<a href="#">Tall Elephants Foot</a>	Herbaceous Flower	Perennial	X	Medium			Uplands & Meadow	\$264.00/lb
<a href="#">Narrow Leaf Blue-eyed Grass</a>	Grass & Grasslike	Perennial	X	Medium		X	Uplands & Meadows, Wet Meadows & Wetlands	\$176.00/lb
<a href="#">Buffalo Grass</a>	Grass & Grasslike	Perennial	X		X		Uplands	\$17.60/lb
<a href="#">Buffalo Grass, Texoka</a>	Grass & Grasslike	Perennial	X		X		Uplands	\$17.60/lb
<a href="#">Chicory</a>	Grass & Grasslike	Perennial	X		X		Uplands	\$11.00/lb
<a href="#">Blue Grama</a>	Grass & Grasslike	Perennial	X				Uplands & Meadow	\$11.00/lb
<a href="#">Chufa (Nutsedge)</a>	Grass & Grasslike	Perennial	X		X		Facultative Wetlands	\$3.52/lb
<a href="#">Creeping Red Fescue</a>	Grass & Grasslike	Perennial	X				Facultative Uplands	\$2.26/lb
<a href="#">Creeping Red Fescue, 'Pennlawn'</a>	Grass & Grasslike	Perennial	X		X		Facultative Uplands	\$2.64/lb
<a href="#">Junegrass</a>	Grass & Grasslike	Perennial	X		X		Uplands & Meadows	\$66.00/lb
<a href="#">Clarkia</a>	Herbaceous Flower	Annual	X			X	Uplands & Meadows	\$26.40/lb
<a href="#">California Orange Poppy</a>	Herbaceous Flower	Annual/Perennial	X			X	Uplands & Meadows	\$26.40/lb
<a href="#">Perennial Gaillardia (Blanketflower)</a>	Herbaceous Flower	Perennial	X			X	Uplands & Meadows	\$35.20/lb
<a href="#">Annual Gaillardia (Indian Blanket)</a>	Herbaceous Flower	Perennial	X			X	Uplands & Meadows	\$33.00/lb
<a href="#">Showy Indian Primrose</a>	Herbaceous Flower	Perennial	X			X	Uplands & Meadows	\$55.00/lb
<a href="#">Clasping Coneflower</a>	Herbaceous Flower	Annual	X			X	Uplands & Meadows	\$26.40/lb
Serviceberry	Flowering tree	Woody Plant		X	X	X	Uplands & Wetlands	

Mix/Species	Plant Type	Life Cycle	<2 Feet	Pollinator Value	Wildlife Value	Ornamental	Habitat	Cost
Redbud	Flowering tree	Woody Plant		X		X	Uplands	
Dogwood	Flowering tree	Woody Plant		X	X	X	Uplands & Wetlands	
Red Twig Dogwood	Shrub	Woody Plant				X	Uplands & Wetlands	