

# Comprehensive Vegetation Management Plan



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**INTRODUCTION:**

The intent of the Comprehensive Vegetation Management Plan is to provide a comprehensive management strategy for City owned areas along scenic routes. Areas included within the plan are: Mirror Lake, St. Jones River (along Park Drive and Silver Lake), State Street Bridge, and Silver Lake Dam. The plan includes graphics of delineated planting zones and vegetation where possible.

All delineated planting zones and/or plant species noted in this plan were retrieved from the original landscaping designs provided by DNREC. Any technical maintenance recommendations and/or requirements listed within the plan will be cited within the text, as well as a full citation included in the references section. The hope is for this plan to streamline the maintenance process for City staff by providing a standard operating procedure for each listed area. A streamlined maintenance process should allow for annual maintenance to be planned and executed.

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# SECTION I

## MIRROR LAKE REMEDIATION AND RESTORATION



*Image of Mirror Lake during the remediation and restoration project.*

- This Section includes vegetation management for planting zones 1, 2, and 3 of the Mirror Lake Remediation and Restoration Project.
- The last chapter of this Section also highlights the delineated “no mow zone”.
- Plant species can be added to the Plan per their approval.
- The original plans for this project can be found [here](#) (link will only work if connected to City of Dover network).



**Standard Operating Procedure:**

This Vegetation Management Plan (herein, "Plan") was developed for staff to be able to identify native plant species that were specifically planted as a remediation and/or restoration project at Mirror Lake. Vegetation management shall occur at least once a year (preferably twice a year, spring and fall - if scheduling allows), bringing the areas back to their intended design. The standard operating procedure for managing vegetation within Mirror Lake is the following:

- I. Flag all desirable vegetation
  - a. The City Environmental Scientist or a member of the Grounds Division staff will inspect the area for any desired plant species before the work crew is scheduled to begin. All species listed within this management plan are desired and shall stay (the green check mark within the Plan symbolizes plants that are desired and should be kept). All desired plants will be flagged with pink surveyors' ribbon.
- II. Removal of flagged vegetation
  - a. Work crews can either spot spray all vegetation not marked and/or remove non-marked vegetation by hand.
  - b. Either the City Environmental Scientist or a Grounds Division staff member will have the Plan on-site as crews are working. If there are any discrepancies regarding the removal of a species or not, the Plan will be referenced.
  - c. No earth disturbing activities (i.e. grading and excavating) are permitted within the areas highlighted in the Plan.
  - d. Vegetation to be removed shall be done by hand and transported to the designated disposal site by wheelbarrow. No heavy equipment and/or trucks are permitted within any of the planting zones listed in this Section's Plan.
- III. Disposal of Removed Vegetation
  - a. All removed vegetation shall be disposed of as yard waste with the City's yard waste pickup. Ultimately, yard waste is disposed of at the Delaware Solid Waste Authority.



## Chapter 1: Planting Zone 1



SECTION 1 - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 1: Planting Zone 1



**Scientific Name:** *Alisma Subcordatum*  
**Common Name:** American water plantain  
**Stem:** 2-4' tall  
**Flowers:** small white (rarely pink)  
**Leaves:** 4.7" long, clumped around flower stem, and dark green.





SECTION 1 - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 1: Planting Zone 1



**Scientific Name:** *Caltha palustris*

**Common Name:** Yellow Marsh  
Marigold

**Stem:** 1-2' tall, grows in a cluster

**Flowers:** clusters of large, showy,  
yellow flowers

**Leaves:** heart shaped



SECTION 1 - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 1: Planting Zone 1



**Scientific Name:** *Nuphar lutea*  
**Common Name:** Yellow Pond Lily  
**Stem:** 1-3' tall, grows in a cluster  
**Flowers:** Yellow  
**Leaves:** Resemble lily pad





SECTION 1 - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 1: Planting Zone 1



**Scientific Name:** *Nymphaea odorata*  
**Common Name:** American White Waterlily  
**Stem:** 0-1' tall, grows in a cluster  
**Flowers:** one white flower per stem  
**Leaves:** round, floating



SECTION 1 - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 1: Planting Zone 1



**Scientific Name:** *Pontederia cordata*

**Common Name:** Pickerelweed

**Stem:** 0-1' tall, grows in a cluster

**Flowers:** one white flower per stem

**Leaves:** round, floating





SECTION 1 - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 1: Planting Zone 1



**Scientific Name:** *Sagittaria latifolia*  
**Common Name:** Broadleaf Arrowhead  
**Stem:** 0-3' tall  
**Flowers:** small, white  
**Leaves:** Arrow shaped





SECTION 1 - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 1: Planting Zone 1



**Scientific Name:** *Scirpus pungens*  
**Common Name:** Broadleaf  
Arrowhead  
**Stem:** 0-3' tall  
**Flowers:** small, white  
**Leaves:** Arrow shaped





## Chapter 2: Planting Zone 2



SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 2: Planting Zone 2



**Scientific Name:** *Carex lurida*  
**Common Name:** Lurid Sedge  
**Stem:** 2.5' tall with an equal spread  
**Flowers:** Spikelets, as seen in picture to left  
**Leaves:** Long and narrow (1' long)





SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 2: Planting Zone 2



**Scientific Name:** *Hibiscus moscheutos*  
**Common Name:** Swamp Rose Mallow  
**Stem:** 3-8' tall  
**Flowers:** Large, creamy-white  
**Leaves:** Large heart-shaped leaves





SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 2: Planting Zone 2



**Scientific Name:** *Juncus effusus*  
**Common Name:** Common Rush  
**Stem:** grass-like stem  
**Flowers:** Greenish-brown, scaly  
flowers near top of stalk  
**Leaves:**





SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 2: Planting Zone 2



**Scientific Name:** *Iris versicolor*  
**Common Name:** Blue Iris  
**Stem:** 2-3' tall  
**Flowers:** violet-blue  
**Leaves:** sword-leaved plant





SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 2: Planting Zone 2



**Scientific Name:** *Scirpus pungens*  
**Common Name:** Three-square  
**Stem:** Sharply triangular, 3' tall  
**Flowers:** Cluster of brown spikelets  
**Leaves:** 8" long and strongly folded





SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 2: Planting Zone 2

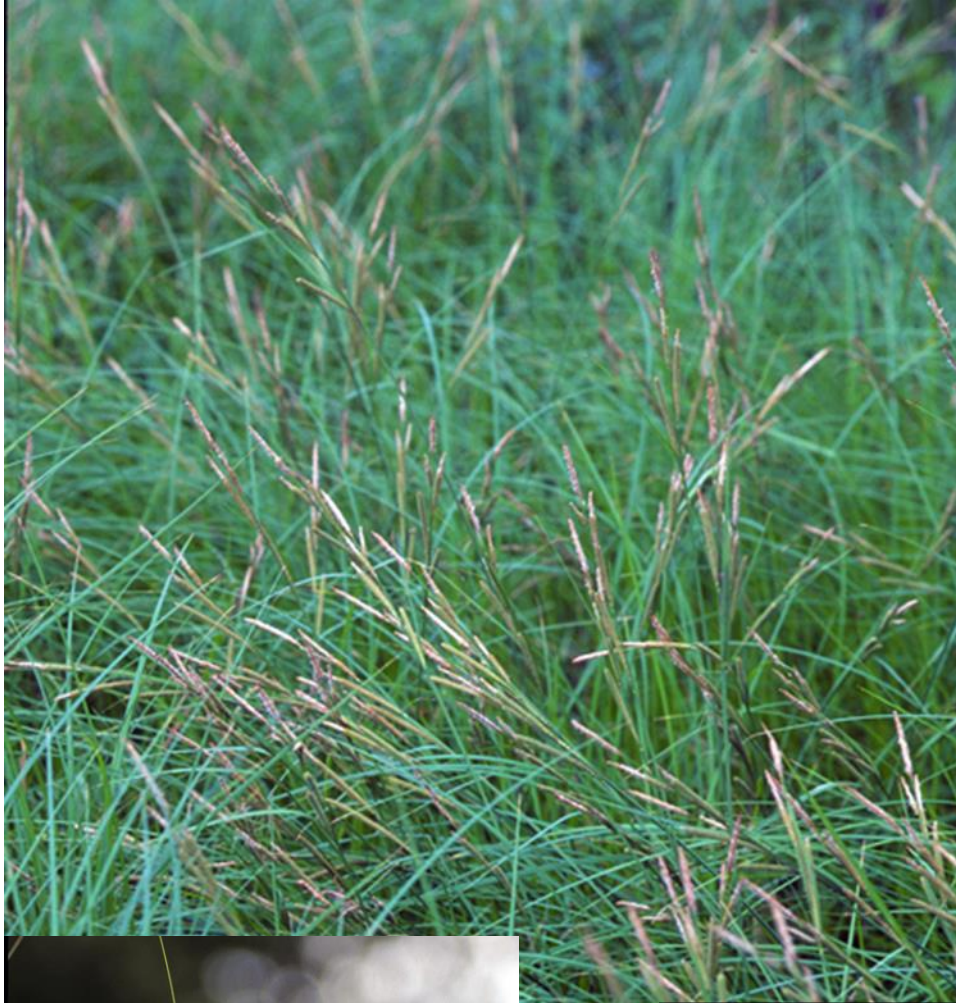


**Scientific Name:** *Solidago sempervirens*  
**Common Name:** Seaside Goldenrod  
**Stem:** 2-8' tall  
**Flowers:** dense flowering head, yellow flowers  
**Leaves:** Evergreen basal leaves





SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 2: Planting Zone 2



**Scientific Name:** *Spartina pectinata*  
**Common Name:** Freshwater  
Cordgrass  
**Stem:** 5-6' tall  
**Flowers:** Tan colored spikelets  
arranged on-top  
**Leaves:** Tough leaves





## Chapter 3: Planting Zone 3



SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 3: Planting Zone 3



**Scientific Name:** *Clethra alnifolia*  
**Common Name:** Coastal  
Pepperbush  
**Stem:** 6-12' tall  
**Flowers:** upright and spike-like  
clusters of white flowers  
**Leaves:** Oval leaves with serrated  
edges



SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 3: Planting Zone 3



**Scientific Name:** *Ilex glabra*  
**Common Name:** Inkberry  
**Stem:** Mound shaped, colony-forming shrub 6-12' tall  
**Flowers:** upright and spike-like clusters of white flowers  
**Leaves:** Lance-shaped, sparingly toothed, glossy, and leathery leaves





SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 3: Planting Zone 3



**Scientific Name:** *Lobelia cardinalis*  
**Common Name:** Cardinal flower  
**Stem:** 1-6' tall  
**Flowers:** Red, clustered  
**Leaves:** Lance-shaped



SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 3: Planting Zone 3



**Scientific Name:** *Onoclea sensibilis*

**Common Name:** Sensitive fern

**Stem:** Height varies from a few inches to more than 3'

**Flowers:** None

**Leaves:** Light to brown-mottled green and deeply cut into long lobes





SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 3: Planting Zone 3



**Scientific Name:** *Rosa palustris*  
**Common Name:** Swamp rose  
**Stem:** Upright shrub, 6-8' tall  
**Flowers:** Dark rose-pink  
**Leaves:** Dark green, pinnately compound



SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 3: Planting Zone 3



**Scientific Name:** *Rudbeckia hirta*  
**Common Name:** Black-eyed Susan  
**Stem:** 1-3'  
**Flowers:** Bright yellow with dark center  
**Leaves:** vibrant green





SECTION I - MIRROR LAKE RESTORATION AND REMEDIATION  
Chapter 3: Planting Zone 3



**Scientific Name:** *Solidago sempervirens*  
**Common Name:** Seaside Goldenrod  
**Stem:** 2-8' tall  
**Flowers:** dense flowering head, yellow flowers  
**Leaves:** Evergreen basal leaves





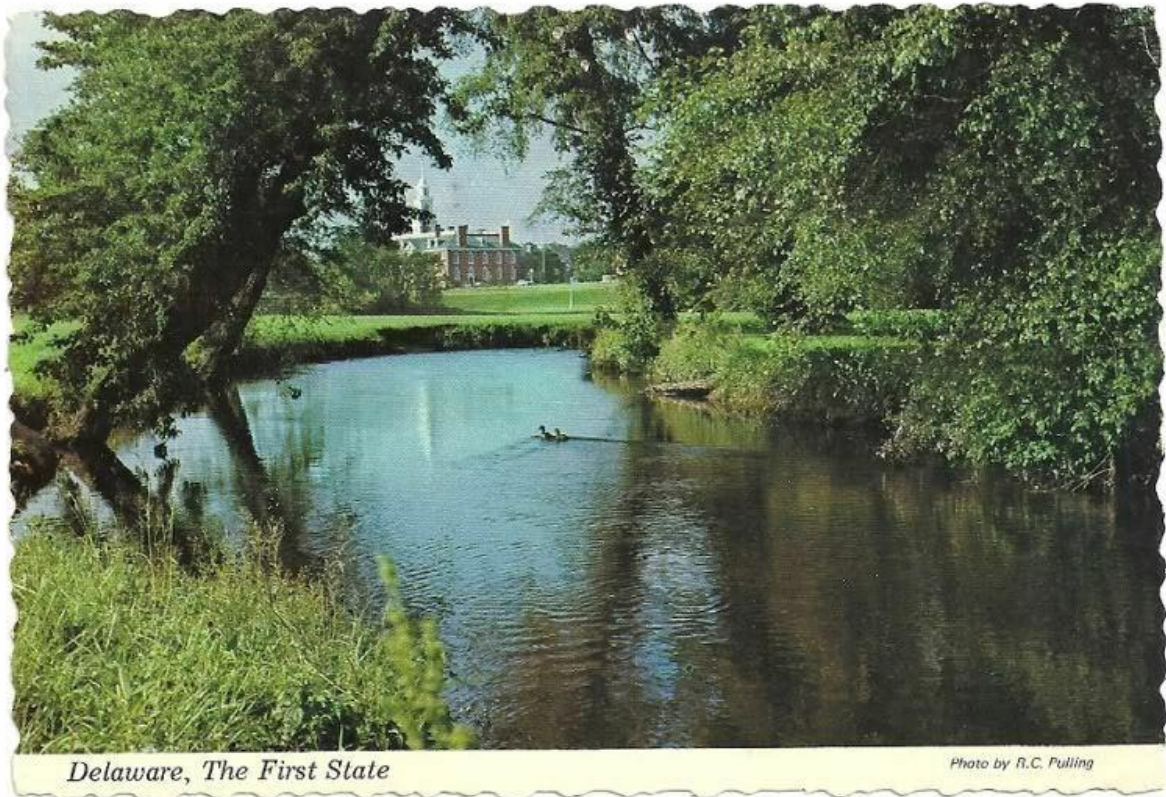
## Chapter 4: No Mow Zone

The no mow zone is a natural area meant to provide a vegetated buffer along Mirror Lake. Undesired plants may be removed from this zone. Bushes and/or shrubs may also be trimmed to a desirable height. However, please do NOT mow within the delineated area.



## SECTION II

### Park Drive



- This Section includes vegetation management for Park Drive Peninsula and the Park Drive Shoreline.
- The last chapter of this Section also highlights the delineated “no mow zone”.
- Plant species can be added per their approval.
- The original plans for this project can be found [here](#) (link will only work if connected to City of Dover network).

**Standard Operating Procedure:**

This Vegetation Management Plan (herein, "Plan") was developed for staff to be able to identify native plant species that were specifically planted as a remediation and/or restoration project at Park Drive. Vegetation management shall occur at least once a year (preferably twice a year, spring and fall - if scheduling allows), bringing the areas back to their intended design. The standard operating procedure for managing vegetation within Park Drive is the following:

- I. Flag all desirable vegetation
  - a. The City Environmental Scientist or a member of the Grounds Division staff will inspect the area for any desired plant species before the work crew is scheduled to begin. All species listed within this management plan are desired and shall stay (the green check mark within the Plan symbolizes plants that are desired and should be kept). All desired plants will be flagged with pink surveyors' ribbon.
- II. Removal of flagged vegetation
  - a. Work crews can either spot spray all vegetation not marked and/or remove non-marked vegetation by hand.
  - b. Either the City Environmental Scientist or a Grounds Division staff member will have the Plan on-site as crews are working. If there are any discrepancies regarding the removal of a species or not, the Plan will be referenced.
  - c. No earth disturbing activities (i.e. grading and excavating) are permitted within the areas highlighted in the Plan.
  - d. Vegetation to be removed shall be done by hand where feasible and transported to the designated disposal site. If hand removal of vegetation is not feasible, a York rake attachment may be used on a tractor to rake out large sections for disposal.
- III. Disposal of Removed Vegetation
  - a. All removed vegetation shall be disposed of as yard waste with the City's yard waste pickup. Ultimately, yard waste is disposed of at the Delaware Solid Waste Authority.



## Chapter 1: Park Drive Peninsula



SECTION II - PARK DRIVE  
Chapter 1: Park Drive Peninsula

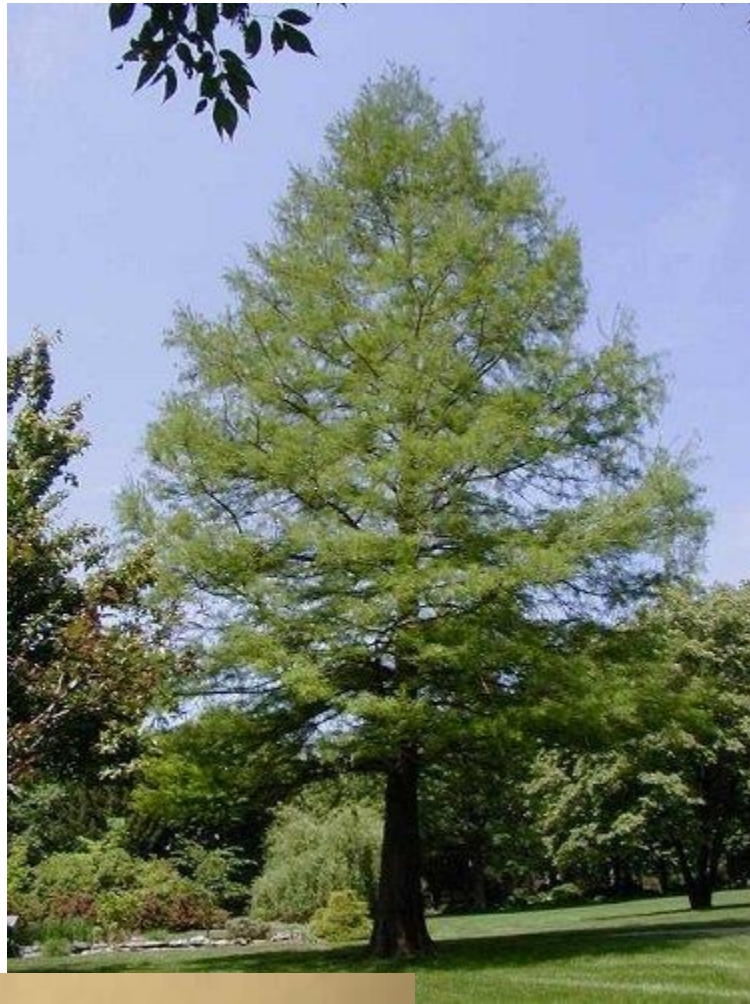


**Scientific Name:** *Betula nigra*  
**Common Name:** River birch  
**Mature Size:** height of 40-70',  
spread of 40-60'  
**Leaves:** Glossy green, 2-3" long and  
somewhat triangular





SECTION II - PARK DRIVE  
Chapter 1: Park Drive Peninsula



**Scientific Name:** *Taxodium distichum*

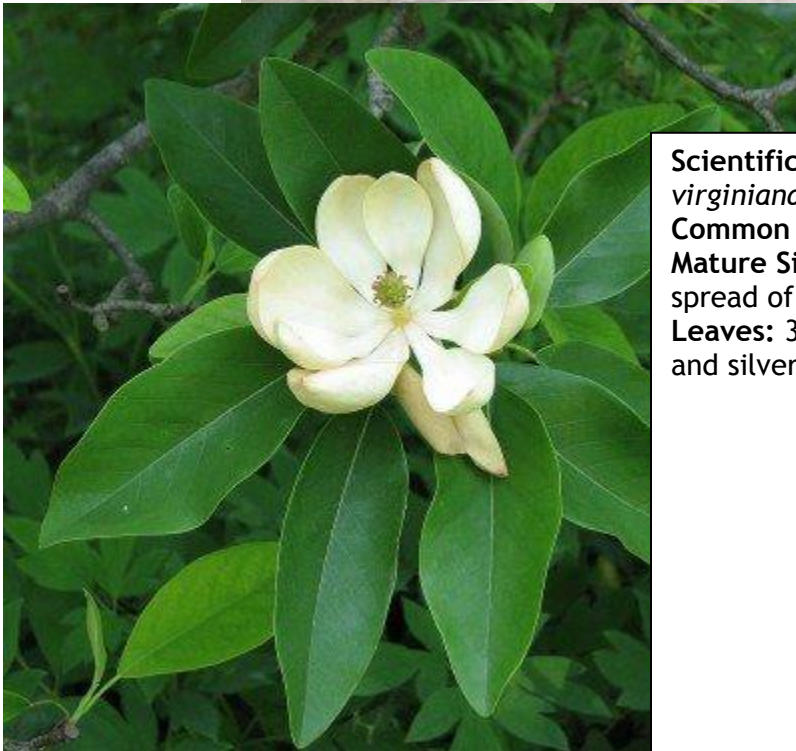
**Common Name:** Bald cypress

**Mature Size:** height of 50-70', spread of 25'

**Leaves:** Short needles arranged in pairs, often yellow-green



SECTION II - PARK DRIVE  
Chapter 1: Park Drive Peninsula



**Scientific Name:** *Magnolia virginiana*  
**Common Name:** Sweetbay magnolia  
**Mature Size:** height of 10-20', spread of 10-20'  
**Leaves:** 3-5" in length, dark green, and silvery underside





SECTION II - PARK DRIVE  
Chapter 1: Park Drive Peninsula



**Scientific Name:** *Ilex verticillata*  
**Common Name:** Winterberry  
**Mature Size:** 6-10' tall  
**Fruit:** red berries very noticeable after first frost throughout winter.





SECTION II - PARK DRIVE  
Chapter 1: Park Drive Peninsula



**Scientific Name:** *Hibiscus moscheutos*  
**Common Name:** Swamp Rose Mallow  
**Stem:** 3-8' tall  
**Flowers:** Large, creamy-white  
**Leaves:** Large heart-shaped leaves







**Scientific Name:** *Vernonia noveboracensis*  
**Common Name:** New York ironweed  
**Stem:** 5-8' tall  
**Flowers:** Clump-forming, loosely branched at the top and deep reddish-purple  
**Leaves:** Large heart-shaped leaves



SECTION II - PARK DRIVE  
Chapter 1: Park Drive Peninsula



**Scientific Name:** *Solidago sempervirens*  
**Common Name:** Seaside Goldenrod  
**Stem:** 2-8' tall  
**Flowers:** dense flowering head, yellow flowers  
**Leaves:** Evergreen basal leaves







## Chapter 2: Park Drive Shoreline



SECTION II - PARK DRIVE  
Chapter 2: Park Drive Shoreline



**Scientific Name:** *Betula nigra*  
**Common Name:** River birch  
**Mature Size:** height of 40-70',  
spread of 40-60'  
**Leaves:** Glossy green, 2-3" long and  
somewhat triangular





SECTION II - PARK DRIVE  
Chapter 2: Park Drive Shoreline



**Scientific Name:** *Ilex verticillata*  
**Common Name:** Winterberry  
**Mature Size:** 6-10' tall  
**Fruit:** red berries very noticeable after first frost throughout winter.





SECTION II - PARK DRIVE  
Chapter 2: Park Drive Shoreline



**Scientific Name:** *Phytolacca Americana L.*

**Common Name:** Pokeweed

**Stem:** 6-10' tall

**Flowers:** White to greenish, but can be pink and purplish, producing purple to black baerries





SECTION II - PARK DRIVE  
Chapter 2: Park Drive Shoreline



**Scientific Name:** *Rhus copallinum*  
**Common Name:** Winged sumac  
**Stem:** up to 20-30' tall  
**Leaves:** compound leaves with  
"wing" in middle





SECTION II - PARK DRIVE  
Chapter 2: Park Drive Shoreline





# SECTION III SILVER LAKE PARK - ST. JONES RIVER STABALIZATION



- This Section includes vegetation management for the shoreline of the St. Jones River within Silver Lake Park.
- There is not a delineated “no mow zone” for this chapter, but it should be noted that mowing along the riverbank is not advisable.
- The original plans for this project can be found [here](#) (link will only work if connected to City of Dover network). The original plans were used as a guide for what vegetation is desired. Not sure if this project was implemented?
- Plant species can be added to the Plan per their approval.

**Standard Operating Procedure:**

This Vegetation Management Plan (herein, "Plan") was developed for staff to be able to identify native plant species that were specifically planted as a bank stabilization project along the St. Jones River in Silver Lake Park. Vegetation management shall occur at least once a year (preferably twice a year, spring and fall - if scheduling allows), bringing the areas back to their intended design. The standard operating procedure for managing vegetation within Mirror Lake is the following:

- I. Flag all desirable vegetation
  - a. The City Environmental Scientist or a member of the Grounds Division staff will inspect the area for any desired plant species before the work crew is scheduled to begin. All species listed within this management plan are desired and shall stay (the green check mark within the Plan symbolizes plants that are desired and should be kept). All desired plants will be flagged with pink surveyors' ribbon.
- II. Removal of flagged vegetation
  - a. Work crews can either spot spray all vegetation not marked and/or remove non-marked vegetation by hand.
  - b. Either the City Environmental Scientist or a Grounds Division staff member will have the Plan on-site as crews are working. If there are any discrepancies regarding the removal of a species or not, the Plan will be referenced.
  - c. No earth disturbing activities (i.e. grading and excavating) are permitted within the areas highlighted in the Plan.
  - d. Vegetation to be removed shall be done by hand and transported to the designated disposal site by wheelbarrow. No heavy equipment and/or trucks are permitted within any of the planting zones listed in this Section's Plan.
- III. Disposal of Removed Vegetation
  - a. All removed vegetation shall be disposed of as yard waste with the City's yard waste pickup. Ultimately, yard waste is disposed of at the Delaware Solid Waste Authority.





## Chapter 1: Management Zone

SECTION III - SILVER LAKE PARK - ST. JONES RIVER STABILIZATION  
Chapter 1: Management Zone



**Scientific Name:** *Taxodium distichum*

**Common Name:** Bald cypress

**Mature Size:** height of 50-70', spread of 25'

**Leaves:** Short needles arranged in pairs, often yellow-green





SECTION III - SILVER LAKE PARK - ST. JONES RIVER STABILIZATION  
Chapter 1: Management Zone





SECTION III - SILVER LAKE PARK - ST. JONES RIVER STABILIZATION  
Chapter 1: Management Zone



**Scientific Name:** *Chionanthus virginicus*

**Common Name:** Fringe Tree

**Mature Size:** height of 15-30

**Flowers:** Drooping branched clusters of white-to-greenish white





SECTION III - SILVER LAKE PARK - ST. JONES RIVER STABILIZATION  
Chapter 1: Management Zone



**Scientific Name:** *Clethra alnifolia*  
**Common Name:** Coastal  
Pepperbush  
**Stem:** 6-12' tall  
**Flowers:** upright and spike-like  
clusters of white flowers  
**Leaves:** Oval leaves with serrated  
edges





SECTION III - SILVER LAKE PARK - ST. JONES RIVER STABILIZATION  
Chapter 1: Management Zone



**Scientific Name:** *Viburnum dentatum*

**Common Name:** Southern Arrowwood

**Stem:** 6-8' tall

**Flowers:** White flat-topped clusters, followed by dark blue berries





SECTION III - SILVER LAKE PARK - ST. JONES RIVER STABILIZATION  
Chapter 1: Management Zone

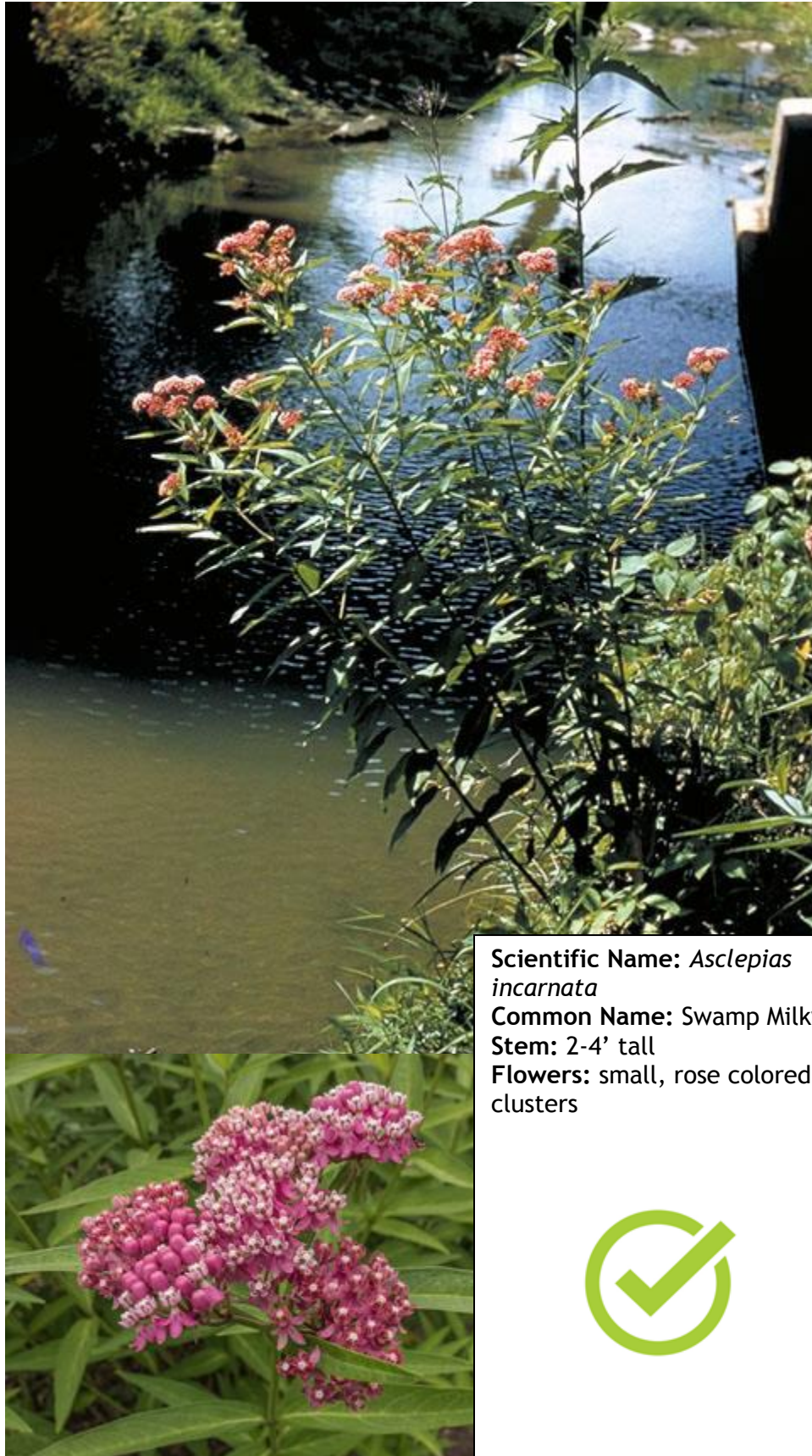


**Scientific Name:** *Cephalanthus occidentalis*  
**Common Name:** Buttonbush  
**Stem:** 6-12' tall  
**Flowers:** dense, spherical cluster  
**Leaves:** Glossy, dark green, up to 8" long, lack fall color





SECTION III - SILVER LAKE PARK - ST. JONES RIVER STABILIZATION  
Chapter 1: Management Zone



**Scientific Name:** *Asclepias incarnata*  
**Common Name:** Swamp Milkweed  
**Stem:** 2-4' tall  
**Flowers:** small, rose colored clusters







**Scientific Name:** *Ilex verticillata*  
**Common Name:** Winterberry  
**Mature Size:** 6-10' tall  
**Fruit:** red berries very noticeable after first frost throughout winter.





## SECTION IV SILVER LAKE PARK DAM



- This Section includes vegetation management for the Silver Lake Dam.
- A memo was sent on July 17, 2019 by Jason Lyon, Assistant Public Works Director, delegating maintenance responsibility. With respect to this Plan the Grounds Division is the responsible party (Lyon, 2019).



**Standard Operating Procedure:**

This Vegetation Management Plan (herein, “Plan”) was developed for staff to be able to identify maintenance tasks related to Silver Lake Dam. Vegetation management along the Silver Lake Dam shall occur at least once a year (preferably twice a year, spring and fall - if scheduling allows), bringing the areas back to their intended design. The standard operating procedure for managing vegetation within the Silver Lake Dam is the following:

- I. Keep riprap free of vegetation (see next page for map outlining riprap areas)
  - a. It is suggested all riprap areas be free of vegetation (JMT, 2019). A Department of Public Works memo outlines the maintenance tasks and responsibility (Lyon, 2019).
  - b. Spray any vegetation growing within riprap
- II. Maintain turf grass
  - a. Maintain turf grass outside of the riprap by routine mowing and seeding when required.

## Silver Lake Dam





## SECTION V STATE STREET BRIDGE



- This Section includes vegetation management for the State Street Bridge right-of-way.
- There are no designed planting zones for this section
- The goal of this Section is to manage the vegetation within the buffer zone, not clear cut all vegetation.

**Standard Operating Procedure:**

This Vegetation Management Plan (herein, “Plan”) was developed for staff to be able to identify maintenance tasks related to the State Street Bridge. Vegetation management along the State Street Bridge shall occur at least once a year (preferably twice a year, spring and fall - if scheduling allows), maintaining a visible site line of the lake, while managing a vegetated buffer. The standard operating procedure for managing vegetation along the State Street Bridge is the following:

- I. Leave mature trees in place (see next page for map outlining vegetation management areas in the right-of-way)
  - a. All mature trees with a diameter of at least 4” should remain
  - b. Mow / cut vegetation less than 4” in diameter to a height between 1-3’
- II. Maintain vegetated buffer
  - a. Repair/stabilize areas of erosion
  - b. Do not blanket spray vegetation, this will kill desired vegetation
  - c. Do not mow / cut vegetation less than 4” in diameter to a height below 1’.





## REFERENCES

Johnson, Mirmiran, and Thompson, Inc. (JMT). 2019. Silver Lake Dam, Dam Safety Inspection Report. Dated: June 28. 2019.

Lyon, Jason. 2019. Subject: Silver Lake Dam Inspection Results. Department of Public Works Memorandum. Dated: July 17, 2019.