

# Landscaping Long Term Maintenance Plan for Library

June 2024

This Landscaping Long Term Maintenance Plan is submitted to fulfill Special Condition 13 of the Order of Conditions issued by the Shutesbury Conservation Commission on February 16, 2024 (NOI DEP File # 296-0304). As stated in Special Condition 13, this plan covers all areas within the wetland and AURA and includes the following:

- maintenance methods
- replacement of dead/unsuccessful plantings
- who will do maintenance work, and frequency.

This plan was prepared by STIMSON ASSOCIATES LANDSCAPE ARCHITECTS, INC. with supplemental information provided by the Library Building Committee.

We acknowledge that the Conservation Commission reserves the right to require replanting of trees or shrubs that do not remain viable for two full growing seasons.

A list of Native Plants proposed for the site was sent to the Commission in a separate document.

Sections are as follows:

1. Maintenance Areas at a Glance
2. Replacement of Dead/Unsuccessful Plantings
3. Pruning
4. Weeding
5. Mulching
6. Irrigation
7. Fertilization
8. Leaf/Vegetative Debris Removal
9. Tree Preservation
10. Integrated Pest Management
11. Maintenance for Lawn, Meadows and Herbaceous Plantings

**SITE PLAN** *PLEASE SEE ATTACHED PLAN*

## 1. MAINTENANCE AREAS AT A GLANCE

### MEADOWS

- A. Stormwater Basins (BS): The plan to manage this area shall be provided by the project civil engineer.
- B. Low Meadow Seed Mix (LM): The low meadow seed mix is a selection of fescue grass species intended to be a rich green color and reduce mowing by staying relatively low growing typically referred to as "No Mow Fescue." This area requires occasional mowing approximately 3 times per year and routine "inspection" for volunteer weedy and invasive species. A weed control and eradication plan may need to be developed should invasive species be found and presented to the project owner.
- C. Warm Season Grass Seed Mix (WS): is designed to grow in areas with more sun and drier soils. The growth of these species begins in mid to late June, and reach seasonal maturity and express their ornamental and seasonal interest in late summer/ early fall.

## **MAINTENANCE AREAS AT A GLANCE (cont'd)**

1. The grassy meadow areas (BS, LM, WS, and Wetland Meadow Outside of the Limit of Work BVW-1) will be mown by the Highway Department.
2. The newly installed meadows typically require more maintenance during the establishment period which lasts until the seeded grasses reach maturity- typically in the first 3 years after seeding. Maintenance requirements for these areas decline as time passes and the plants root in and reach a general symbiosis; though managing successional volunteer plants is part of any naturalized planting area. A weed control or eradication plan developed to manage troublesome volunteer species or noxious and invasive plants shall be presented to the project owner. The grassy meadow areas listed above have woody trees and shrubs specified in these areas. Please refer to the relevant maintenance sections for “woody” trees and shrubs.
3. Establishment (short term) of a meadow is typically two to three growing seasons and is a critical period for long term success. Mowing, visual inspection and plant identification, and managing weed growth (succession) are common maintenance activities during establishment. Conduct an annual mowing in early spring and seasonal observations to evaluate the composition density and plant matrix as the meadow evolves each year. Special attention should be given to identifying noxious and invasive plant species or typical undesired “weedy” species that could increase in occurrence and density each year.
4. Long term maintenance is limited to occasional (annual or 2 times annual) mowing, monitor and response to invasive species, and plant health evaluations of the “woody” plants

**MOWN TURF AREAS (LL)** The Highway Department will mow these lawn areas that are intended for small gatherings. These are higher maintenance lawns and should be monitored for diseases, pests, and nutrients regularly to maintain a lush green turf. A fertilization and weed control plan may be necessary for all lawns as they mature. Measures to address soil compaction may be developed based on field conditions, routine soil testing, and the health and vigor of the turf over time.

**PERENNIALS, FORBES, AND FERNS (PFF)** alongside the library itself may be cut back along the edges of walkways in order to maintain safety along adjacent pathways. Otherwise, this plant material should only be cut back annually in the early spring season to maintain a wild aesthetic and provide nesting and forage opportunities for birds.

## **2. REPLACEMENT OF DEAD/ UNSUCCESSFUL PLANTINGS**

**TREES AND SHRUBS INSTALLED BY CONTRACTOR:** Trees and shrubs will be assessed at the beginning of the growing season and end of each growing season for 3 years post planting. Any failed planting will be replaced at the earliest time within the growing season that is appropriate for the species. The contractor will replace plants for 1 year warranty period. Any plants planted outside of the landscape contractor’s scope will not be subject to the 1-year warranty and will be replaced by the Town.

**LAWN AND MEADOWS INSTALLED BY CONTRACTOR:** The Lawn and Low Mow Meadow areas will be seeded by the General Contractor. The contractor is responsible for establishment and survival for one year. After one year, the Town will assume responsibility.

**WARM SEASON MEADOW INSTALLED BY CONTRACTOR** The General Contractor will install the Warm Season Meadow (native seed bioswale Native Seed Bioswale). The contractor is responsible for establishment and survival for two years.

**PLANTINGS INSTALLED BY TOWN:** The Town will install additional trees and shrubs post-construction and within the 3-year period covered by the Order of Conditions. The Town will also install all herbaceous plantings near building. Plantings will be assessed at the beginning and end of each growing season. The Town will replace any failed plants for two full growing seasons (both Contractor-planted trees and shrubs that fail after the 1-year warranty and all Town installed plants)

### **3. PRUNING**

Pruning of all material should take place upon installation and be performed according to standard industry practice. Subsequent pruning should occur according to the following guidelines:

Season: Winter [December - February] while plants are dormant

Frequency: Every two to three years for plant health and form

#### **A. TREES**

- Remove all water sprouts [straight thin shoots on top of tree] and sucker growth [shoots at tree base]
- Remove damaged/diseased/dead limbs
- Remove crossing or rubbing limbs to prevent plant injury
- Remove branches or limbs obstructing pathways
- Remove branches with angles less than 45 degrees to the trunk to increase plant's structural strength.
- Thin out overly thick deciduous canopy [EXCEPT multi-stem trees like Serviceberry and Witchhazel] for better air circulation.

#### **B. SHRUBS**

- Thin out any old unhealthy branches on mature shrubs [older than 10 years] that no longer flower or bear fruit by cutting at the base
- Cut out approximately 1/4 of the old wood (the larger stems) to encourage new growth.
- Remove water sprouts (abnormally straight, thin "stress" shoots on top of shrub).
- Remove damaged/diseased/dead branches; remove crossing or rubbing branches to prevent plant self-injury; remove branches obstructing pathways, seating areas, etc.
- Thin out too-dense shrubs (EXCEPT flowering shrubs) for better air circulation to reduce the amount of disease inoculums trapped in leaves.

#### **C. GRASSES, FERNS, AND PERENNIALS (ornamental planting beds, not in grassy meadows)**

- Leave all other grasses, ferns and perennials un-cut throughout the fall and winter for habitat and seasonal diversity
- Cut and remove grasses, ferns and perennials in the early spring (March/April only) as needed to make way for spring growth. Some areas may not need spring cutting, but some seasonal leaf litter may need to be removed
- If deciduous woody ground covers have become leggy and sparse, cut down to 3 to 4 inches above plant base with hand pruners or shearing tools- do not weed whack.
- Remove any dead twigs from woody perennials that have incurred tip die-back. These cuttings will promote new, lush growth.
- In the event of excessive mildew or disease, cut back plants as needed and remove all compromised plant debris in beds to eliminate potential insect and disease habitat.

#### **4. WEEDING**

Season: Late Spring and Summer

Frequency: Annually until all ground cover plants are well-established, following establishment spot weed as needed.

##### **A. GRASSES, FERNS, AND PERENNIALS**

- Do not weed offshoots of planted groundcovers, grasses or perennials
- Weeding should occur aggressively BEFORE weeds go to seed and spread.
- Weeding needs to be performed by staff with the ability to identify plants to avoid unnecessary removal of seedlings and desirable species.
- See Meadow Maintenance Section for weed control specific to naturalized planting areas

#### **5. MULCHING**

The Meadow should be lightly raked or rolled with a cultipacker after seeding to ensure good soil:seed contact. After the seed mixes have been applied to all areas, rake or roll the seeded areas so they are lightly covered with soil, 1/4 – 1/2" deep. Mulch entire area with 1 to 2 in. of wheat straw or salt marsh hay. Ordinary hay mulch shall not be permitted.

Perennial beds will be mulched with 3" bark mulch.

Under the supervision of the Highway Department, volunteers will mulch as specified in this plan.

#### **6. IRRIGATION**

Hand water plants in times of drought if they show signs of stress. A temporary irrigation system will be installed to help plant material establish. After contractors leave the site, all watering will be done by volunteers by hand. A volunteer will create a watering schedule and watering will be done as specified in this plan.

Water only in the following situations:

- High maintenance turf as needed
- Newly planted trees and shrubs for the first two years
- New ground covers, grasses or perennials for the first year
- Rehabilitation of injured plants, unusually dry periods during summer, and extreme drought.
- After heavy rain, do not water for several days.
- Monitor plants during the first three years for signs of over-watering (yellowing leaves)

#### **7. FERTILIZATION**

Fertilize trees and shrubs only as needed per maintenance standards. Fertilizer application in the meadow areas should not be used unless routine visual inspections identify poor plant health and a soil test and report has been performed in these areas. If fertilization occurs, the following applications are recommended:

March-April

Top-dress with compost or apply liquid fertilizer into soil after spring thaw but before significant growth. Fertilize any newly replaced plantings with an appropriate "starter" fertilizer or similar

July-August

If a plant appears to need extra nutrients after spring, use one application of water-soluble fertilizer, however a summer season fertilizer application is not recommended.

## **8. LEAF/VEGETATIVE DEBRIS REMOVAL**

All leaf litter and seasonal vegetative debris should remain in planting beds in order to replenish nutrients in the soil. If branches and larger tree snags fall and become an issue for safe pedestrian passage, prune or remove from site as needed. Leaf litter and vegetative debris must always be removed from the center-line of storm water swales and infrastructure such as inlet and outlet pipes, drain grates, and level spreaders.

## **9. TREE AND SHRUB MAINTENANCE**

Within the first year of planting, trees and shrubs will be watered deeply during any week in which less than 1" of rain falls. For contractor-installed plants, the contractor is responsible for watering during the one-year warranty period. The Town is responsible for watering plantings that they install.

Long term maintenance should include:

- Perform typical visual inspection at an interval determined by consulting arborist- 1 to 2 times per year minimum
- Deep root fertilization
- Minimal pruning to remove dead or diseased limbs for safety
- Monitor for bleeding canker as a result of continually wet soil
- Monitor the southern side of the tree canopy for safety

## **10. INTEGRATED PEST MANAGEMENT**

The project site has been planted with native and disease resistant plants. There is always the likelihood that intervention for pest control may be needed. Integrated Pest Management (IPM) strategies that focus on sustainable, biological, cultural measures and a limited use of chemical controls should always be employed. Use of chemical controls within the AURA will be reviewed and approved by the Conservation Commission prior to use.

## **11. MAINTENANCE FOR LAWNS, MEADOWS AND HERBACEOUS PLANTINGS**

This project uses a variety of grass species from traditional mown turf to a blend of warm and cool season grasses. Each of these areas are unique and require an advanced level of skill in plant identification and technique for managing these areas throughout the season and subsequent years.

### **A. MOWN TURF AREAS**

The mown turf areas will be initially seeded with a 100% fescue mix. Over-seeding or re-seeding may be necessary as site conditions evolve. The chosen seed blend shall be a similar high quality turf type sun/shade blend unless changing site conditions such as increased shade, dictate a different blend or seed species.

#### *WEEKLY*

- Mow each week during the growing season. Clippings shall be entirely mulched into the stand of turf and not visible or clippings removed
- Mow directions shall alternate to encourage plant health and discourage ruts and compaction of soil
- 180 degree turns while mowing shall not rip or tear turf
- Clippings, debris, or wheel tracking that result from mowing activities must be removed

- Evaluate plant health, vigor, plant stress, or any condition in mown lawn areas that might cause plant decline such as weed development or standing water at each mowing
- Sticks, twigs, and leaf litter that cannot be completely mulched by mower shall be removed

#### SEASONALLY

- A light raking using a metal spring tooth rake may be needed to help spring season growth
- A fertilization and weed control plan will likely need to be developed as turf evolves- such a plan shall implement IPM principles and BMP's
- Abscission of leaves, fruit, flowers of debris shall be removed from turf areas and paths; mulching is acceptable in small quantities only and in such a manner as to not affect the crown of the plant or increase compaction

#### B. WARM SEASON MEADOWS

##### Considerations:

- The desired effect is to allow these species to grow to a mature height of 2 to 3 feet (with seed head)
- Cool season grass species will mature in the second growing season and typically develops a seed head in late June
- The warm season grasses typically do not show signs of spring growth until mid to late May, typically take 3 growing seasons to reach maturity, and will develop a seed head in late August
- The grasses are typical of those used across New England for hay production and can withstand occasional mowing
- The cool season grasses in the W1 Meadow spread by rhizomes and are considered "sod-forming" species and have the potential to out-compete the warm season grasses
- The warm season grasses area cespitose, clump forming grass
- The desired effect of blending warm and cool season grasses is to provide multi-season interest with the color and texture changes provided by the leaf and seed head maturation at different times of the year
- Fertilizer is not recommended and should only be used on a critical need such as significant decline of the cool season grasses as a result of low fertility
- Any application of chemical weed control must be applied using IPM and BMP strategies and in accordance with the herbicide label. Chemical control will only be recommended for invasive plants than cannot be controlled through other means. Use of chemical controls within the AURA will be reviewed and approved by the Conservation Commission prior to use.

#### MEADOW ESTABLISHMENT

Establishment of grass and forb meadows typically takes 2 to 3 growing seasons and is dependent on:

1. plant species seeded
2. warm or cool season grass species composition
3. species & growth rate of forbs in composition
4. irrigation
5. seasonal changes in temperature or rainfall
6. soil conditions
7. weed competition

#### Fall/Dormant Seeding

For best results, native meadow seeding should occur in late fall – October to early November - and can

take place into the dormant season until the ground is frozen or snow covered. Many of the seeds require cold scarification for germination. If fall seeding is occurs too early in the season, seeds which do not require cold scarification (approximately 10% of most mixes) may germinate before becoming hardened off and may die from the frost.

### Spring and Early Summer Seeding

Seeding in the spring and early summer is acceptable. While earlier planting is preferred (after the risk of frost), late spring and early summer seeding will require a light layer of weed free straw mulch to conserve soil moisture. If conditions are drier than usual watering may be required

### LONG TERM MEADOW MAINTENANCE

#### A. First Growing Season

Mowing the meadow is an important management practice during the first growing year. Mowing favors perennial meadow species over annual weeds that may be present. The first mowing should start when the tallest growth approaches 12" (mid – late June). Mow at a height of 6" to cut the annual weed flower/seed heads. Continue mowing every 3-4 weeks, as needed until late October, with a mowing height of 6". Most native perennials will not grow taller than 4-6" inches in the first year. Some vegetation such as Black-eyed Susan will grow taller but will not be adversely affected by cutting.

Refrain from mowing the meadow alone after late October until the next growing season. Mowing is extremely important for the first year to control weeds. It is strongly recommended not pull any weeds within the first year as such activity will disturb the native seedlings. These (typically annual) weeds will not present a problem and can be controlled by mowing. Once the meadow has become established the meadow species should out-compete the weeds, except for unusual situations which can be "spot" treated with herbicide, or hand-pulled. Inspection by a trained ecological restoration professional are recommended during the establishment period to advise on mowing regime and weed control. Chemical control will only be recommended for invasive plants than cannot be controlled through other means. Use of chemical controls within the AURA will be reviewed and approved by the Conservation Commission prior to use.

#### B. Second Growing Season

Around April 1 -15 (following the first growing season), the meadow should be mowed to a height of 3-4" and raked lightly to expose the small plants and some soil. Remove the mowing debris if possible. Mowing should only be performed twice throughout the second growing season to a height of 12 inches, which should be sufficient to control annual and biennial weeds. Timing of mowing should correspond to the bloom and seed cycles of biennial weeds such as Sweet clover, Burdock, and Queen Anne's Lace. Rhizomatous weeds such as Canada thistle, Canada goldenrod, and Reed canary grass can be physically removed as needed.

### LONG TERM MEADOW MANAGEMENT: MOWING

The Highway Department will mow the meadows in either late November or mid-April, dependent on favorable conditions. Mowing will be done at a time when there has been no rain for a minimum of 1 week and the ground is firm. The field will be mowed at a minimum height of 4".

## PERENNIALS, FORBES, AND FERNS (PFF) MAINTENANCE

The Town will install all herbaceous plantings post-construction. A volunteer group, with assistance from the Highway Department, will be responsible for planting and maintaining these areas.

- Maintain a 3" layer of mulch in all planting beds until ground covers and herbaceous plants are well established.
- Weekly deep watering of all herbaceous plants for the first full growing season.
- The native plants specified in this plan should not require supplemental watering once they are well established, except in the case of a prolonged drought.
- Plantings will be evaluated each spring to determine if they need to be replaced, divided or otherwise maintained.