Northland Newton Development
Invasive Plant Species Control Plan

The Northland Newton Development (the Project) includes an opportunity to rehabilitate the slopes and a portion of the Riverfront Area (RA) adjoining a portion of South Meadow Brook, which is daylighted for approximately 420 linear feet in between two culverted sections (the Project Site). The area is currently degraded and colonized largely by invasive species. This narrative provides an invasive species control plan to prevent recolonization by invasive plants.

Introduction

The Project proposes work within the RA to South Meadow Brook, including a public access space with viewing and seating areas and a pedestrian connection to the Upper Falls Greenway multi-use path. The Project will improve the existing RA by removing approximately 15,000 square feet of impervious area. The Project will also improve stormwater treatment, resulting in an improvement to water quality.

The daylighted section of the stream has steep banks approximately 10-15 feet high, above which is an upper terrace that ranges from approximately 30 to 50 feet wide with gentler slopes. The approximate divide between these two areas is shown on the revised Site Plan as a line labeled "Existing Slope Break Line." Within the upper terrace are several large piles comprised of old concrete, asphalt, brick, and other fill and construction debris mixed with soil. The dominant vegetation in these areas consists of invasive species[1] including Norway maple (*Acer platanoides*), Asiatic bittersweet (*Celastrus orbiculatus*), winged euonymus (*Euonymus alatus*), glossy buckthorn (*Frangula alnus*), common buckthorn (*Rhamnus cathartica*), and garlic mustard (*Alliaria petiolata*).

Proposed Work

All work will be overseen by a qualified environmental scientist. The work plan will remove the invasive species, re-establish native vegetation for habitat and long-term

[1] Massachusetts Invasive Plant Advisory Group: https://www.massnrc.org/mipag/invasive.htm, accessed 6/1/22.

slope stability, and create an engaging park-like setting with meandering walking path and small "pocket parks" along the upper terrace of the brook. The Project proposes to remove the construction debris fill piles on the upper terrace and then regrade the area with plantable soil to the grades shown in the revised Project Plans. Slight variations in topography will bound the new meandering walking path for interest. ~~A few existing~~The native trees within the ~~project l~~jurisdictional limits ~~have been identified on the plans to~~will be preserved; these trees include northern red oak (*Quercus rubra*) and American elm (*Ulmus americana*). By aggressively removing all Norway maple trees and other invasive plant material and fully replanting with native species, the Riverfront Area will have a much better chance at resisting recolonization by invasive species.

While some of the Norway maple trees in the area are mature with a tree canopy that provides some limited wildlife habitat, any left behind would be a significant seed source that would be counterproductive to the project purpose. Removing the existing invasive plant material should be completed before they set seed to reduce the seed stock of these undesirable species. The tree canopy will eventually be replaced in full by the new plantings as they mature.

Existing ~~mature~~ native trees will be saved, and a measure of additional canopy will be created by installing a selection of larger caliper trees early in the early stages of the program to provide some immediate vertical stratification in the area. To protect new plantings, erosion controls (staked compost filter tube and/or silt fencing, with an additional visual barrier of construction netting) will be employed along the top of the slope to prevent any unintended construction disturbances within the mitigation areas until final construction of South Meadow Brook Park amenities in the last stages of the program.

The Applicant proposes to remove the Norway maples from the steepest slopes by cutting the trunks just above ground level and simultaneously lifting the trees out of the area by crane to minimize soil disturbance. This will leave the stump with roots in place to keep the slope stable as new plant material becomes established. Trees will be fed into a chipper and the material will be removed from the Project Site. Other invasive species will be either pulled by hand (herbaceous perennials) or cut at ground level and removed by hand (shrubs and herbaceous annuals before setting seed), to minimize soil disturbance. This approach is proposed along both sides of South Meadow Brook. No trees on the eastern side of the brook, and no trees on the very steep slopes will be removed by pulling or pushing with construction equipment. If necessary, a licensed herbicide applicator may be retained to spot treat individual invasive stems or areas to control invasive regrowth.

The slopes will then be planted with a native seed mix specifically formulated to rapidly revegetate and stabilize areas such as New England Conservation/Wildlife Mix and New England Roadside Mix or a similar mix and temporarily stabilized with a

hydraulically applied flexible growth medium (FGM) for increased stability. Seeding will be supplemented by hand planting live stakes of native plant species as shown on the landscape plans. The whips and live stakes will include fast-growing, pioneer species such as willow (*Salix* sp.) and dogwood (*Cornus* sp.).

Work along these steep slopes has been designed to remove invasive plants while minimizing ground disturbance. While herbicide application will be avoided where possible, if needed a licensed applicator will advise on suitable herbicides for use along the stream. Several herbicides exist that do not bioaccumulate in the soil and do not affect animal/aquatic life. The U.S. Army Corps of Engineers has produced a document discussing those herbicides that are safe to use in or near aquatic areas[2]. Techniques such as spot treating and avoiding application when rain and/or high winds are forecast can further refine the ability to target only the plants selected for removal.

Long Term Monitoring

Long term Monitoring of the South Meadow Brook restoration areas is proposed for five years. During this time, a qualified environmental scientist will periodically perform an assessment of the area and note coverage by native plants as well as any invasive species that have regrown or become established elsewhere within the target area. Well-established plants such as Norway maple trunks or large bittersweet vine bases will have a reserve of energy stored in their root material and can resprout if not managed. A landscaping contractor and a licensed herbicide applicator will be retained to perform follow-on work required to remove any reestablished invasive plants at least twice annually. Any indications of new erosion on the slopes will be repaired immediately. All work will be overseen by a qualified environmental scientist and will be performed with respect to the Newton Invasive Plant Control Policy.

For each year of monitoring, the environmental scientist will perform an initial site investigation in late spring or early summer, once plants have had the opportunity to leaf out but generally before vigorous flowering or seed setting. The environmental scientist will identify areas of invasive species that are in need of treatment. For small populations of plants that are easily removed by pulling without major soil disturbance (e.g. individual stems or small areas of garlic mustard), the environmental scientist may hand pull plants, then bag and remove the plant material from the Project Site for disposal. Larger populations of plants and/or plants with substantial stems or deep root systems (e.g. Asiatic bittersweet) will require additional effort to remove. The environmental scientist will note the extent of any such areas of invasives and will coordinate with the landscaping contractor and/or licensed

[2] U.S. Army Corps of Engineers, 2012. Aquatic Herbicides.

applicator selected by the Applicant to assist in plant removal. If possible, the environmental scientist will coordinate with the landscaper and/or licensed applicator to assess and treat the Project Site on the same day. Large stems or trunks that have resprouted will be mechanically cut by hand, or if applicable the root will be removed with hand tools. If necessary, resprouted stems may be removed using handheld power tools, but only in localized areas where native plants will not be affected. Under no circumstances will the area be mowed and no heavy machinery or equipment will be employed. All cut material will be bagged and removed from the Project Site for disposal.

If recommended by the licensed applicator, large cut stems will be treated by local application (i.e. hand-painting or low-pressure spraying of individual stems) rather than broadcast spraying over a large area. This technique is used both to minimize the amount of chemicals used and to avoid treating any desired installed plantings.

Each year of monitoring will include at least one additional site visit later in the season, typically in late summer/early fall. Again, the environmental scientist will assess planted areas along the stream ~~of for (?)~~to determine the extent to which invasive plants have become reestablished and will coordinate with the landscaper and/or licensed applicator for treatment and removal. If herbicide treatment is recommended, areas will be spot-treated as described above. Timing of herbicide application may vary depending on species; treatment for several species is most effective at this time of year when plants are transferring resources into their root systems in preparation for next season. If additional treatments are warranted earlier in the season, this will be decided during the late spring assessment period.

Annual reports on the status of the area and remedial activities will be prepared and submitted to the Newton Conservation Commission following each growing season. ~~.~~ Each report will discuss any remedial actions taken that season and will include before and after photographs to assess the efficacy of treatments. The report will also assess the health of the installed plantings and the overall coverage of the restoration area by native species, whether planted or naturally occurring. The reports will demonstrate that at least 75 percent of the surface of the replication area has become established with native vegetation. Other observations during monitoring will include evidence of wildlife use and stability of the slopes along South Meadow Brook.