

MEMO

Date: October 18, 2019
To: Leanne Whitesell, Washington Department of Ecology
From: Lower Columbia Estuary Partnership
RE: Vegetation Maintenance Plan for Burnt Bridge Creek Meadowbrook North – Phase II (OTGP-2020-LCEP-00023)

Summary

The Lower Columbia Estuary Partnership (Estuary Partnership) presents this memorandum to detail Maintenance Plans to the Washington Department of Ecology as part of pre-implementation approval for the Burnt Bridge Creek Meadowbrook North – Phase II. This project is funded by the Washington Department of Ecology and is project number OTGP-2020-LCEP-00023. The project takes place within Vancouver, Washington at Meadowbrook North. The Estuary Partnership and the City of Vancouver are working closely together to implement the project.

Riparian Restoration Plan

The Burnt Bridge Creek Meadowbrook North – Phase II Site Restoration Plan meets all requirements listed in *Appendix G: Riparian Restoration and Planting* of the Washington State *Funding Guidelines State Fiscal Year 2020* document. Appendix G details the following specifications:

- Minimum buffer requirements
- Site-specific planting plans
- Use of genetically-appropriate plant materials
- Early successional plant species

Implementation

The Phase II planting area is a 1.25-acre area on the eastern floodplain which expands existing planting projects in the stream reach. In 2017, the Estuary Partnership planted a 50' buffer along approximately 675' of stream at the downstream portion of the site, in addition to other upstream plantings funded by other entities. Phase II includes expanding this restored riparian buffer to approximately 150' wide to increase water quality benefits, reduce non-native edges, and build on past planting success.

1. **Site Preparation:** Pre-planting site preparation will include the City of Vancouver spraying herbicide on non-native species (mostly lawn grasses and some reed canarygrass) and covering the dead grass with 12-14 inches of mulch. This multi-faceted treatment technique suppressed invasive and non-native weed growth by chemical and 'sheet mulching' type means to effectively kill and smother the weeds. An added benefit of the mulch is it breaks down into nutrient rich organic soil material.
2. **Planting:** Plant species will be native trees and shrubs selected to match the site conditions and habitat needs. Plants will be a mix of bare root, potted and live stake types, ranging in size from 8" to 48" tall. Planting layout will generally exhibit meandering rows parallel to the stream with plants spaced between 5-10' feet apart. Estuary Partnership staff, students, and/or volunteers will plant plants employing a number of different planting methods. The area will be planted with a relatively high density of plants in order to account for some mortality. Planting in high densities also allows us to avoid the use to tubes which are expensive, time consuming to install, and often end up separated from plants and strewn across the site

Post-planting the site will look like a riparian restoration site with native trees and shrubs leafing out and growing. As native plants grow larger, non-native species will be outcompeted and the creek will become

less visible. The trees will shade the stream, provide cover and habitat diversity, and restore the riparian buffer that historically existed along the creek.

- 3. Maintenance:** The City of Vancouver uses a preventative site prep technique that lays a thick, 12-14 inch layer of mulch to suppress invasive plant regrowth. After planting, the City of Vancouver will provide maintenance treatments including targeted spot spray herbicide applications, as needed, to control invasive species re-growth. The mulch also provides an added benefit of moisture retention that reduces the need for additional watering. Over time, the native trees and shrubs will grow and shade out the non-native species. The trees will shade the stream, provide cover and habitat diversity, and restore the riparian buffer that historically existed along the creek.

The Estuary Partnership installs bare root plants at a high plant per acre stem density, to allow for 10-25% loss of plants due to animal herbivory, water stress, or native out-competition. This technique ensures the appropriate stem density for the habitat conditions are maintained in the long term while avoiding the use of a plant tubes which are expensive, time consuming to install, and often end up disconnected from plants and strewn across sites. The City of Vancouver also has the ability and is willing to use an irrigation system or a water truck to provide supplemental irrigation. The City of Vancouver (by themselves and with partners) have been restoring riparian buffers along creeks in the area using a similar project approach, for many years and have had excellent results.

Both our contract revegetation crews and our municipality revegetation management partners are trained, skilled, and experienced in working on riparian revegetation projects. This includes knowledge and experience in plant identification (invasive and native) and proper chemical and manual treatment techniques to manage invasive vegetation. Crews are required (usually by contract) to use caution in their chemical spray treatments and their manual mow treatments and to only target invasive species and avoid any overspray or damage to native plants. Often, our projects will include additional marking of native plants or native plant rows to increase visibility of new plantings.

Monitoring

The Estuary Partnership measures planting effectiveness by documenting site changes in several ways including:

1. **Visual Inspection:** Regular site visits will occur to assess qualitative progress at the site. These visits will include inspection of plants to determine overall vigor and if any maintenance interventions are needed. Staff will note any site changes, plant damage, water stress, or other conditions that may affect plant success.
2. **Photo Point Monitoring:** Estuary Partnership staff will establish 5-10 photo points to document site conditions before restoration. Photo points should be located in areas that are expected to see the most amount of change related to planting. Photo points will be retaken after native plantings are installed and again at the end of the project period to showcase the visual changes at the site as the plants grow and begin to shade the stream.
3. **Quantitative Stem Density Monitoring:** The Estuary Partnership will define the plant density sampling area based on the size of the planting area. Sampling transects will be established within the planting area, and the number of transects will be dependent on the overall size of the planting area. Sampling plots will be established at equal intervals along the sampling transect. To determine plant density, a count of the number of planted stems and determination of the plant status (Live/Dead) will be conducted within each sampling plot. Plant density per acre will be calculated along with estimated survival percent.

Estuary Partnership staff will monitor site progress regularly. Visual inspection will occur once or twice per year during the project period. Photo point monitoring will occur before site prep, after planting and at the end of the project period. Quantitative stem density monitoring will occur the first summer after the entire site has been planted, the 3rd year after the site has been planted and the 5th year after the site has been planted.

Additional information including plant list, photos and maps can be found in the Riparian Planting Plan, submitted for this project.