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Springbrook Creek Wetland and Habitat Mitigation Bank Unit E

Informal Year-2 Report
USACE 200600100

Dear Springbrook Creek Wetland and Habitat Bank Oversight Committee Members:

The Washington State Department of Transportation completed qualitative monitoring of the Unit E of the Springbrook Creek Wetland and Habitat Mitigation Bank. Monitoring activities included vegetation observations and photo documentation. This Year-2 report is being issued to document informal monitoring results for compliance with the terms and conditions of the Final Mitigation Bank Instrument. Informal vegetation monitoring occurred on August 9th, 2010.

Because the site has developed so quickly an early assessment was performed to evaluate the quantitative vegetative performance standards associated with Unit E.

	General Site Information	
	USACE Permit Numbers	200600100
	Mitigation Location	Southwest Renton, King County
	Unit E LLID Number	1222324474478
	Monitoring Period	2009-2018
	Year of Monitoring	2 of 10

Summary of Qualitative Monitoring Results and Management Activities

Year 2 Informal Monitoring Tasks	2010 Results	Management Activities
Identify populations of Japanese knotweed, purple loosestrife, English ivy and other Class A and B noxious weeds and remove	Identification and weed control treatment achieved	On-going Weed Control
Conduct early growing season monitoring visits to assess hydrology.	No concerns with hydrology Unit E in years 1 and 2	
Conduct quarterly site visits to assess conditions and identify problems.	Completed, ongoing	Multiple weed control visits

The density of living native woody vegetation is extremely high. A qualitative estimate completed during 2010 monitoring activities placed aerial cover of planted areas at 70 percent in many areas. Invasive cover across the site is very low. The small amounts of invasive species that are present are not currently threatening the establishment of installed native plants.

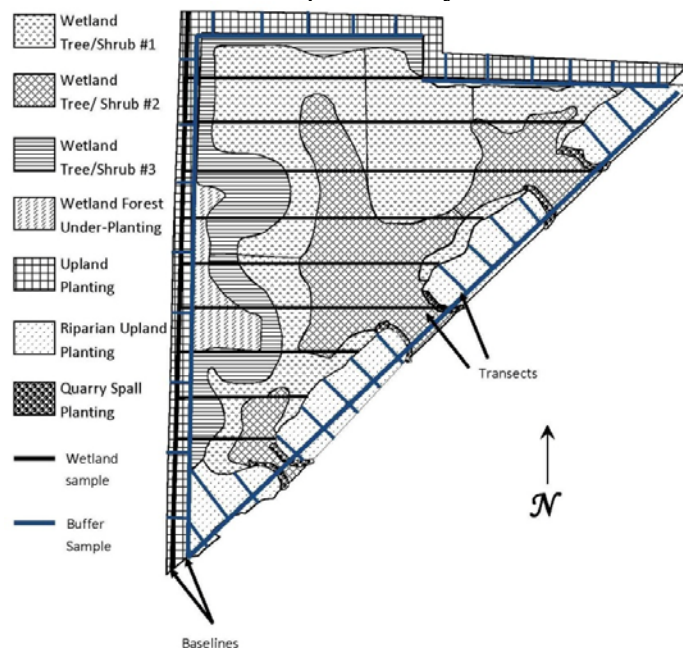
Locations for monitoring hydrology have been determined during year-2 of monitoring. Formal monitoring of hydrology is being conducted for the year-3 report.

Monitoring Methods for Year 2 Early Quantitative Assessment

To evaluate standards for vegetative survival, two separate baselines were established. A 324 meter baseline was established parallel to the western border of the site (Figure 2). Fifteen sampling transects were placed perpendicular to the baseline using the restricted random method. The unequal belt transect method was used to determine woody density the line intercept method was used to sample woody cover. Fifteen 1-meter wide belt transects were placed on each transect for woody density estimates and forty-two 20- meter sample units were randomly placed along the fifteen transects to estimate woody density. A separate 1024 meter baseline was established to sample the buffer. Twenty-nine sampling transects were placed perpendicular to the baseline to sample woody density and woody cover in the buffer. Twenty-nine 1-meter wide belt transects were placed along the transects for woody density estimates, and twenty-nine 10-meter sample units were randomly placed along the transects to estimate woody density.

The cover of non-native invasive species across the site was qualitatively estimated.

Figure 2 Sampling Site Design



Vegetative Performance Standards for Unit E

E-4	In year 3 Wetland Tree/Shrub planting areas will each have at least 2,000 stems of living native woody vegetation per acre.
E-5A	In year 5 native woody vegetation in Wetland Tree/Shrub areas will have at least 50% aerial cover.
E-5B	In year 5 at least 3 native woody species will provide at least 5% aerial cover each within Wetland Tree/Shrub areas.
E-5C	In year 5 native woody vegetation in Upland and riparian Upland areas will have at least 30% aerial cover.
E-5D	In year 5 at least 3 native woody species will provide at least 3% aerial cover each within Upland and riparian Upland areas.
E-6	In year 7 native woody vegetation in Wetland Tree/Shrub areas will have at least 60% aerial cover
E-7A	In year 10 native woody vegetation in Wetland Tree/Shrub areas will have at least 75% aerial cover
E-7B	In year 10 at least 2 native woody species will provide at least 10% aerial cover each within Wetland T/S areas
E-7C	In year 10 native woody vegetation in Upland and riparian Upland areas will have at least 50% aerial cover.
E-7D	In year 10 at least 2 native woody species will provide at least 7% aerial cover each within Wetland T/S areas
E-8	In year 5 and 10 aerial cover of Himalayan Blackberry will not exceed 20%. In years 1-10 remove all Japanese knotweed, English ivy and purple loosestrife.

Results of Early Quantitative Assessment

Wetland Tree/Shrub planting areas

High survival of planted material and significant amounts of naturally recruited willow, alder, cottonwood and Oregon ash have resulted in high native woody plant stem densities in the Wetland Tree/Shrub planting areas of Unit E. This early quantitative assessment provided an estimate of 4,559 (CI_{80%}=3775-5342) stems per acre in the wetland Tree/Shrub planting areas of the site. This is far above the 2,000 stem per acre required by the Year 3 performance standard (E-4).

Aerial cover in the Wetland Tree/Shrub planting areas was estimated at 72% (CI_{90%}=65-80%), higher than the Year 5 and Year 7 aerial cover performance standard requirements (E-5A, E-6). This is closely approaching the 75% aerial cover performance standard required for Year 10 (E-7A).

The early assessment estimated that native woody species in the Wetland Tree/Shrub planting areas with greater than 10 percent cover include: Pacific willow (13%), Sitka willow (12%), scoulers willow (19%) and Black cottonwood (20%). There was also 11 percent combined cover of Nootka rose and peafruit rose. These results meet the Year 5 and Year 10 performance standards (E-5B, E-7B).

Upland and Riparian Upland planting areas

Aerial cover in the Upland and Riparian Upland planting areas is estimated at 49% (CI_{80%}=39-59%). This is only one percent less than the aerial cover standard required for Year 10.

Native woody species in the Upland and Riparian Upland planting areas that contributed significantly to cover included black cottonwood (18%), Douglas fir (5%), red alder (22%), snowberry (4%). This meets the Year-3 performance standard (E-5D) requiring three native woody species with at least three percent aerial cover, and the Year 10 performance standard (E-7D) requiring three native woody species with at least seven percent aerial cover.

Table 2 summarizes results of the early quantitative assessment in comparison to Year-3, Year-5, Year-7 and Year-10 performance standards.

Unit E Performance Standards	Year 3 Required threshold	Year 5 Required threshold	Year 7 Required threshold	Year 10 Required threshold	2010 early Monitoring Results (Year 2)
E-4	2,000				4,559 (CI _{80%} =3775-5342)
E-5A		50%			72% (CI _{90%} =65-80%)
E-5B		3 w/ 5%			4 spp w cover > 11%
E-5C		30 %			49% (CI _{80%} =39-59%)
E-5D		3 w/30%			4 spp w cover > 3 %
E-6			60%		72% (CI _{90%} =65-80%)
E-7A				75%	72% (CI _{90%} =65-80%)
E-7B				2 w/ 10%	5 spp w cover > 10%
E-7C				50%	49% (CI _{80%} =39-59%)
E-7D				2 w/ 7%	2 spp w cover > 7%
E-8				20%	Not evaluated

For questions about monitoring or this report please contact Tony Bush at 360-570-6640 or by email at busht@wsdot.wa.gov. For questions about the status of the bank, please contact Gretchen Lux at 360-704-6328 or by email at luxg@wsdot.wa.gov.

Sincerely,

Tony Bush
Wetland Assessment and Monitoring Program