

**Interstate 5 Everett HOV,
SR526 to SR 2 Vicinity Mitigation Site**

USACE NWP (18) 200401448

Northwest Region

2015 MONITORING REPORT

Wetlands Program

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**Washington State
Department of Transportation**

Environmental Services Office

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USACE NWP (18) 200401448



General Site Information	
USACE NWP 18 Number	200401448
Mitigation Location	Adjacent to Lowell River Park in the city of Lowell, Snohomish County
LLID Number	1221920479525
Construction Date	2008
Monitoring Period	2009-2018
Year of Monitoring	7 of 10
Area of Project Impact¹	0.04 acre
Type of Mitigation	Wetland Establishment
Area of Mitigation²	0.08 acre

^{1,2} Impact and mitigation acreage from Gresham (2004).

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Summary of Monitoring Results and Management Activities (2015)

Performance Standards	2015 Results ¹	Management Activities
Wetland hydrology	Present	
Native facultative or wetter woody species will achieve a minimum of 50 percent coverage in the forested wetland community	58% cover (CI _{80%} = 43-73%)	
Native facultative or wetter herbaceous vegetation will achieve 75 percent coverage in the emergent wetland community	51% cover (CI _{80%} = 27-75%).	Hard stem Bulrush planted in 2015
Snohomish County listed Class A weeds including reed canarygrass, non-native blackberries, and Scot's broom will not exceed 15 percent coverage in the forested and emergent wetland creation area.	5% cover	
Three facultative or wetter native vegetation woody species each will achieve at least 6 percent or greater relative cover in the forested wetland community.	4 species > 6% relative cover	
Native upland buffer woody species will achieve a minimum of 35 percent coverage in the buffer community.	90 % cover	
Snohomish County listed Class A weeds including reed canarygrass, non-native blackberries, and Scot's broom will not exceed 15 percent coverage in the buffer mitigation area.	3% cover	Manual weed control and herbicide application occurred on six separate occasions 2015
Three native woody vegetation species each will achieve at least 6 percent relative cover in the buffer community.	5 species > 6% relative cover	

Report Introduction

This report summarizes seventh-year (year-7) monitoring activities at the Interstate (I) 5 Everett HOV Mitigation Site. Included are a site description, the performance standards, an explanation of monitoring methods, and an evaluation of site development. Monitoring activities in 2015 included vegetation surveys, and photo-documentation. Vegetation monitoring took place August 15, 2015.

¹ Estimated values are presented with their corresponding statistical confidence interval. For example, 58% (CI_{80%} = 43-73% cover) means we are 80% confident that the true cover value is between 43% and 73%.

What is the I-5 Everett HOV Mitigation Site?

This 1.28-acre mitigation site (Figure 1) consists of 1.2 acres of buffer enhancement and 0.08 acre of newly established wetland between the Burlington Northern/Santa Fe railroad tracks and a pedestrian path in the Lowell Riverfront Park in the city of Everett near the Snohomish River. This site was established to compensate for direct impacts to 0.03 acre of wetlands and 0.01 acre of a drainage ditch (regulated as a Water of the U.S.) due to the creation of a stormwater facility. The seasonally ponded depression and surrounding scrub-shrub/forested area is designed to provide mitigation for lost wetland functions including wildlife habitat, biological support, and stormwater control.

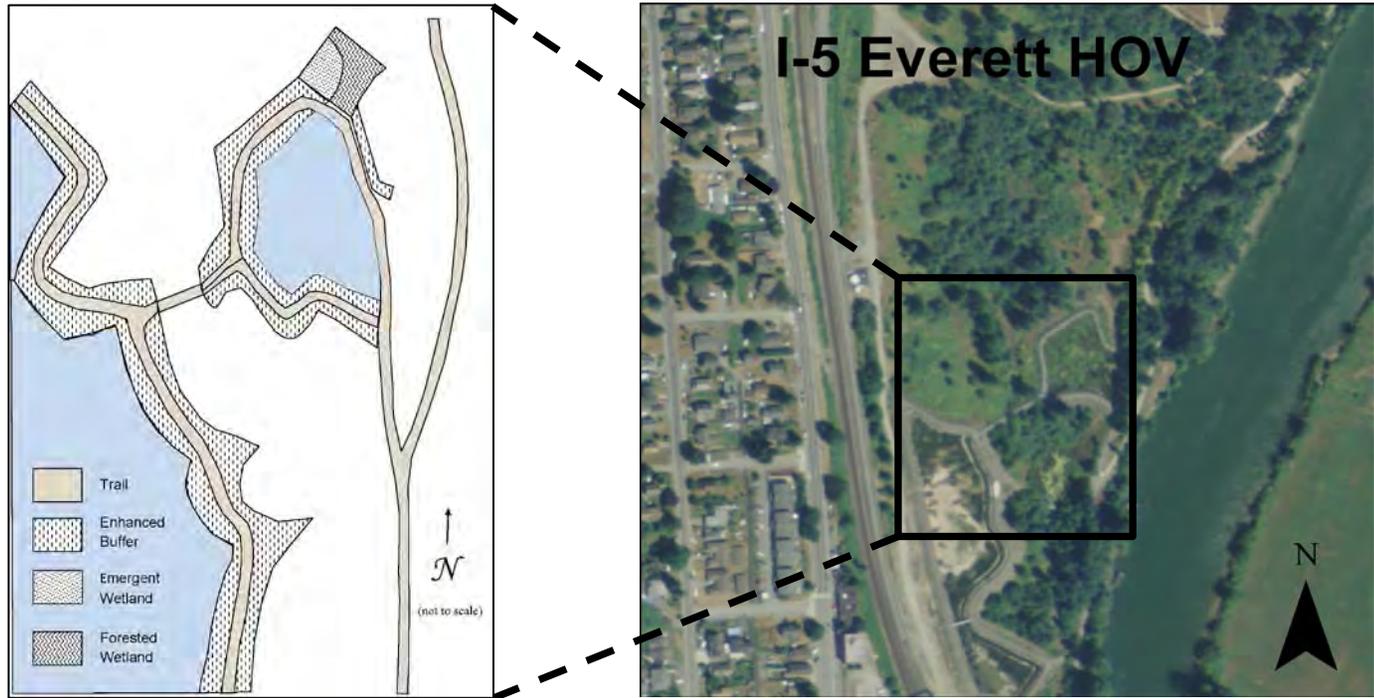


Figure 1 Site Sketch

The I-5 Everett HOV Wetland Mitigation Site includes forested and emergent wetlands with an enhanced buffer along trails and around detention ponds.

What are the performance standards for this site?

Year 7

Performance Standard 1

The soils will be saturated to the surface, or standing water will be present in a monitoring well at 12 inches below the surface or less, for a consecutive number of days greater than or equal to 12.5% of the growing season.

Performance Standard 2

Native facultative or wetter woody species will achieve a minimum of 50 percent coverage in the forested wetland community. Native colonizing vegetation will be included in this coverage calculation.

Performance Standard 3

Native facultative or wetter herbaceous vegetation will achieve 75 percent coverage in the emergent wetland community. Native colonizing vegetation will be included in this coverage calculation.

Performance Standard 4

Snohomish County listed Class A weeds including reed canarygrass, non-native blackberries, and Scot's broom will not exceed 15 percent coverage in the forested and emergent wetland creation area.

Performance Standard 5

Three facultative or wetter native vegetation woody species each will achieve at least 6 percent or greater relative cover in the forested wetland community.

Performance Standard 6

Native upland buffer woody species will achieve a minimum of 35 percent coverage in the buffer community. Native colonizing vegetation will be included in this coverage calculation.

Performance Standard 7

Snohomish County listed Class A weeds including reed canarygrass, non-native blackberries, and Scot's broom will not exceed 15 percent coverage in the buffer mitigation area.

Performance Standard 8

Three native woody vegetation species each will achieve at least 6 percent relative cover in the buffer community.

Appendix 1 shows the as-built planting plan (WSDOT 2007).

How were the performance standards evaluated?

The site was delineated on November 26, 2013 and has met the final-year year ten wetland acreage requirements. On February 20, 2015 a request to discontinue hydrology monitoring was sent to USACE this request was accepted on February 26, 2015 (Performance Standard 1).

The table and figure below document the sampling methodology utilized for the remaining vegetative performance standards (PS) as required by the mitigation plan and associated permits. For additional details on the methods see the [WSDOT Wetland Mitigation Site Monitoring Methods Paper](#) (WSDOT 2008).

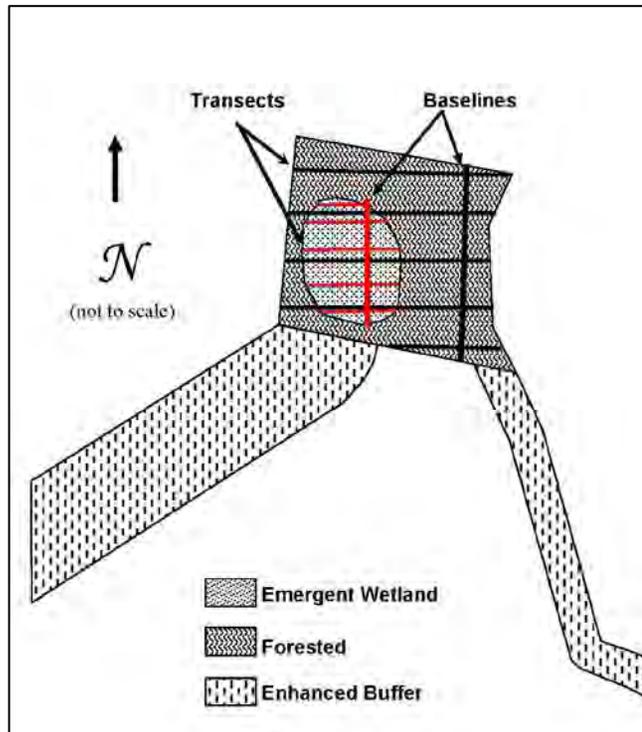


Figure 2 Site Sampling Design (2015)

Placement of Baseline: Both the emergent and native woody baseline was placed on the eastern edge of each respective vegetative zone.

	PS 2 & 5	PS 3	PS 4	PS 6 & 7	PS 8
Attribute	Relative Cover	Cover	Cover	Relative Cover	Cover
Target pop.	Native Woody	Herbaceous	Noxious Weeds/ Invasive sp.	Native Woody	Noxious Weeds/ Invasive sp.
Zone	Wetland	Wetland	Wetland	Buffer	Buffer
Sample method	Line Intercept	Line Intercept	Qualitative	Qualitative	Qualitative
SU length	10 m	4	N/A	N/A	N/A
SU width	N/A	N/A	N/A	N/A	N/A
Points per SU	N/A	20	N/A	N/A	N/A
Total # of SU	5	6	N/A	N/A	N/A

How is the site developing?

In general, with a little bit of assistance the site is on track to meet all of the final-year performance standards in the next three years. The native upland buffer is meeting both cover and diversity final-year performance standards for the third year in a row. The cover and diversity performance standard for native facultative or wetter woody species has been met again this year, however there seems to have been a decrease cover since it was quantitatively estimated in 2013. There has been a substantial die off of black cottonwood (*Populus balsamifera*) since this time, which may have been caused by the longer water retention time in the wetland over the last couple of years. During the winter this area has been holding up to two feet of water with six to eight inches of inundation present in July. In 2014 cottonwood was replaced with redosier dogwood (*Cornus alba*) as it is more conducive to longer periods of inundation. As these develop the cover should increase. Native herbaceous cover in the emergent zone has changed little since 2013 and is still failing to meet the performance standard despite continued efforts at replanting. The emergent zone measures roughly six meters by twelve meters of which one third is predominantly bare ground and moss (Photo 2). The area of bare ground is the lowest spot in the wetland and tends to hold water for the longest duration of the year. Attempts at planting this area with soft-stem bulrush (*Schoenoplectus tabernaemontani*) which is more tolerant of prolonged inundation have proven unsuccessful to date. The other two thirds of the emergent zone have an estimated herbaceous cover of 75 percent.

Results for Performance Standard 1
(Hydrology present):

The site was delineated on November 26, 2013 and has met the final-year year ten wetland acreage requirements. On February 20, 2014 a request to discontinue hydrology monitoring was sent to USACE this request was accepted on February 26, 2014.

Results for Performance Standard 2

(Native facultative or wetter woody species will achieve a minimum of 50% coverage in the forested wetland community):

The woody cover in the wetland is estimated at 58% ($CI_{80\%} = 43-73\%$). This is meeting the Year-7 performance standard but shows a decrease since being sampled in 2013, by ~10 percent.

Results for Performance Standard 3

(At least 75 percent cover of native FAC or wetter herbs in the emergent wetland):

The cover of native FAC or wetter herbs is estimated at 51% ($CI_{80\%} = 27-75\%$). The dominant specie is slough sedge (*Carex obnupta*), the sub-dominant species are nodding beggartick (*Bidens cernua*), and common spikerush (*Eleocharis palustris*).



Photo 1
Native woody cover in the wetland (August 2015)



Photo 2
Emergent cover in the wetland (August 2015)

Results for Performance Standard 4

(Snohomish County listed Class A weeds including reed canarygrass, non-native blackberries, and Scot’s broom will not exceed 15 percent coverage in the forested and emergent wetland creation area):

No King County listed Class A weeds were observed in the wetland creation area. The cover of the remaining listed species is qualitatively estimated at five percent. This consists entirely of reed canarygrass.

Results for Performance Standard 5

(Three facultative or wetter native vegetation woody species each will achieve at least 5 percent or greater relative cover):

The following native facultative or wetter woody species achieved a least five percent or greater relative cover: Hooker's willow (*Salix hookeriana*), Pacific willow (*Salix lasiandra*), Sitka willow (*Salix sitchensis*), and redosier dogwood (*Cornus alba*).

Results for Performance Standard 6

(Native upland buffer woody species will achieve a minimum of 35 percent coverage in the buffer community):

The site has developed more rapidly than anticipated and has been meeting the year-10 final year standard for the buffer, for 3 years. On April 23, 2014 a request to discontinue quantitative sampling for the buffer was sent to USACE this request was accepted on May 22, 2014. The final year standards are still currently being met. The cover of native upland buffer species is estimated at 90 percent cover.



Photo 3
Woody cover in the upland buffer community (August 2015)

Results for Performance Standard 7

(Snohomish County listed Class A weeds including reed canarygrass, non-native blackberries, and Scot’s broom will not exceed 10 percent coverage in the upland buffer community)

No King County listed Class A weeds were observed in the upland buffer community. The cover of the remaining listed species is qualitatively estimated at three percent. This consists of scattered non-native blackberries.

Results for Performance Standard 8

(Three native woody vegetation species each will achieve at least 5 percent relative cover in the buffer community)

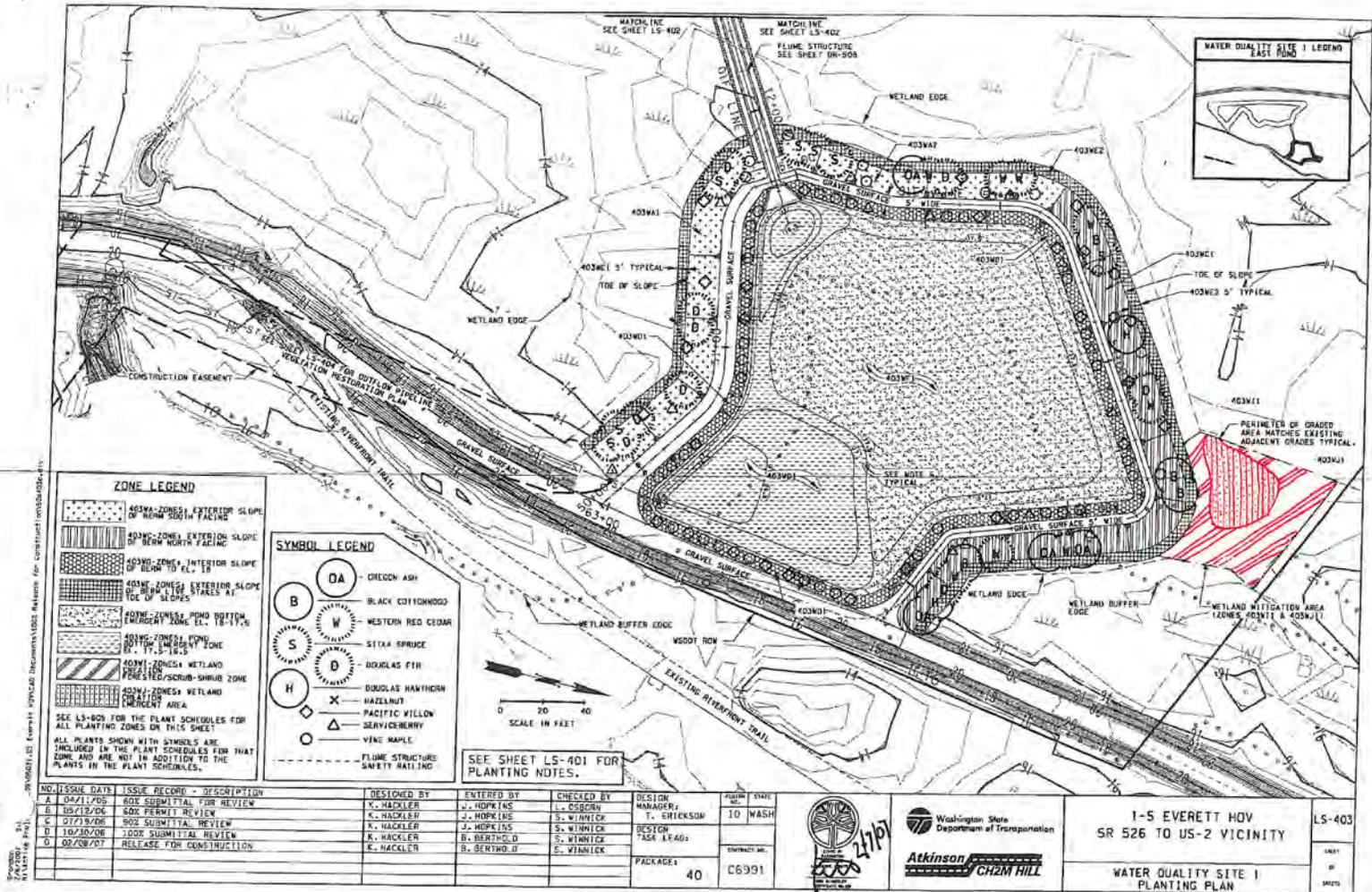
The following eight native woody species achieved at least five percent relative cover in 2013: Red alder (*Alnus rubra*), snowberry (*Symphoricarpos albus*), Nootka rose (*Rosa nutkana*), thimbleberry (*Rubus parviflorus*), twinberry honeysuckle (*Lonicera involucrata*), and tall oregongrape (*Mahonia aquifolium*). The buffer remains diverse and qualitatively does not appear to have significantly changed since 2013.

What is planned for this site?

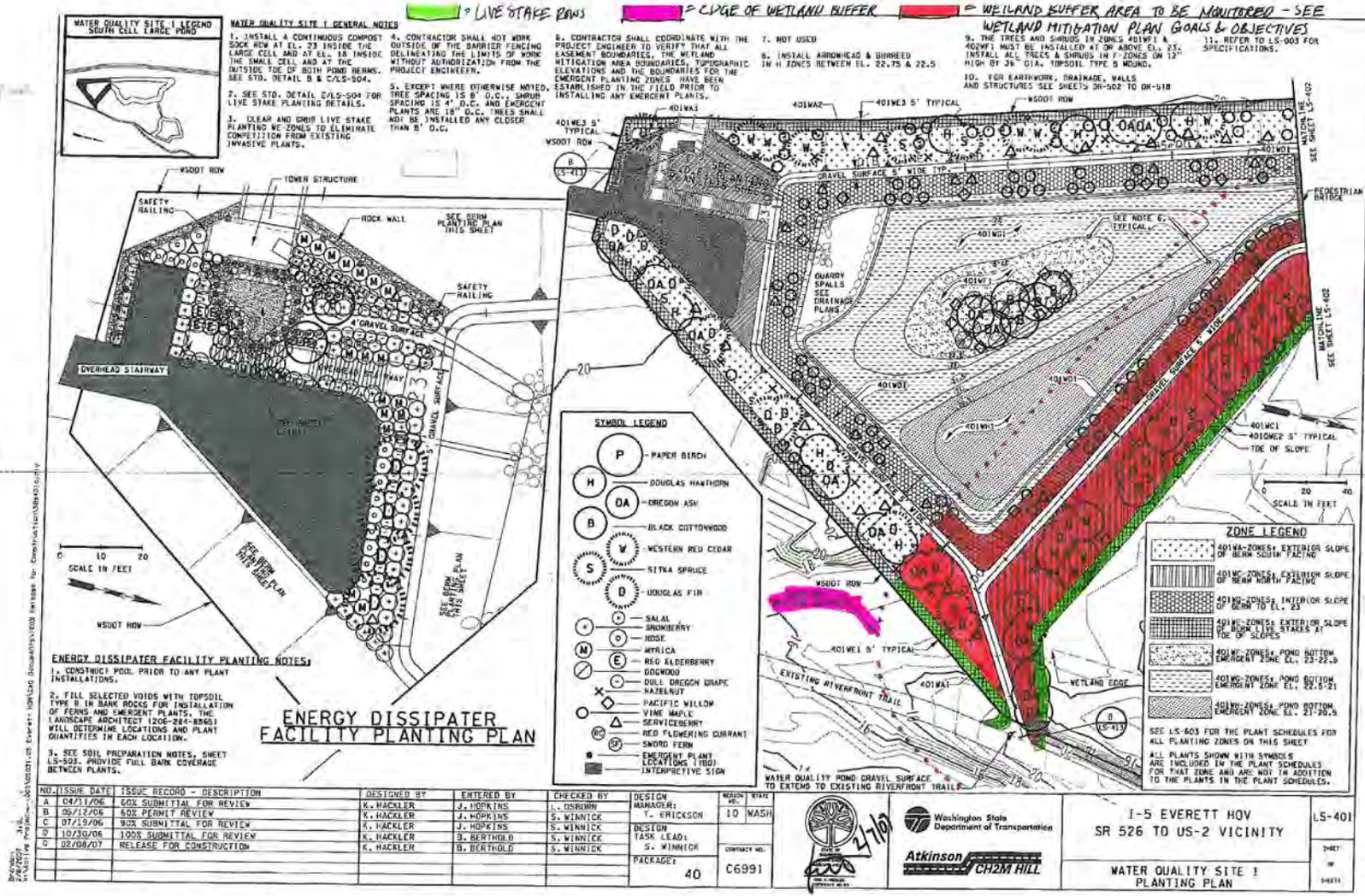
The region has tentative plans to re-attempt to establish softstem bulrush in the emergent zone and continue weed control as needed.

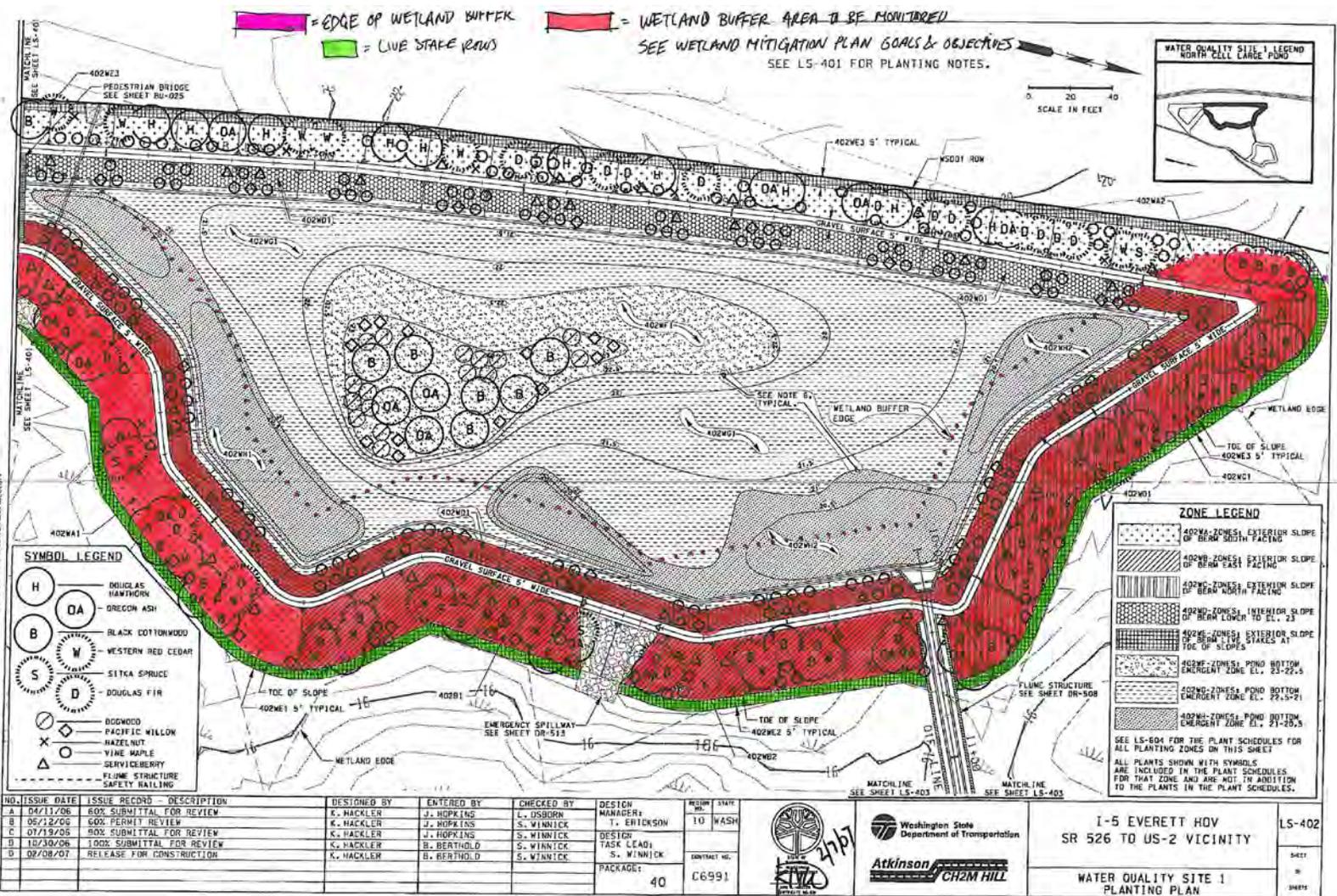
Appendix 1 – As-built Wetland Planting Plan

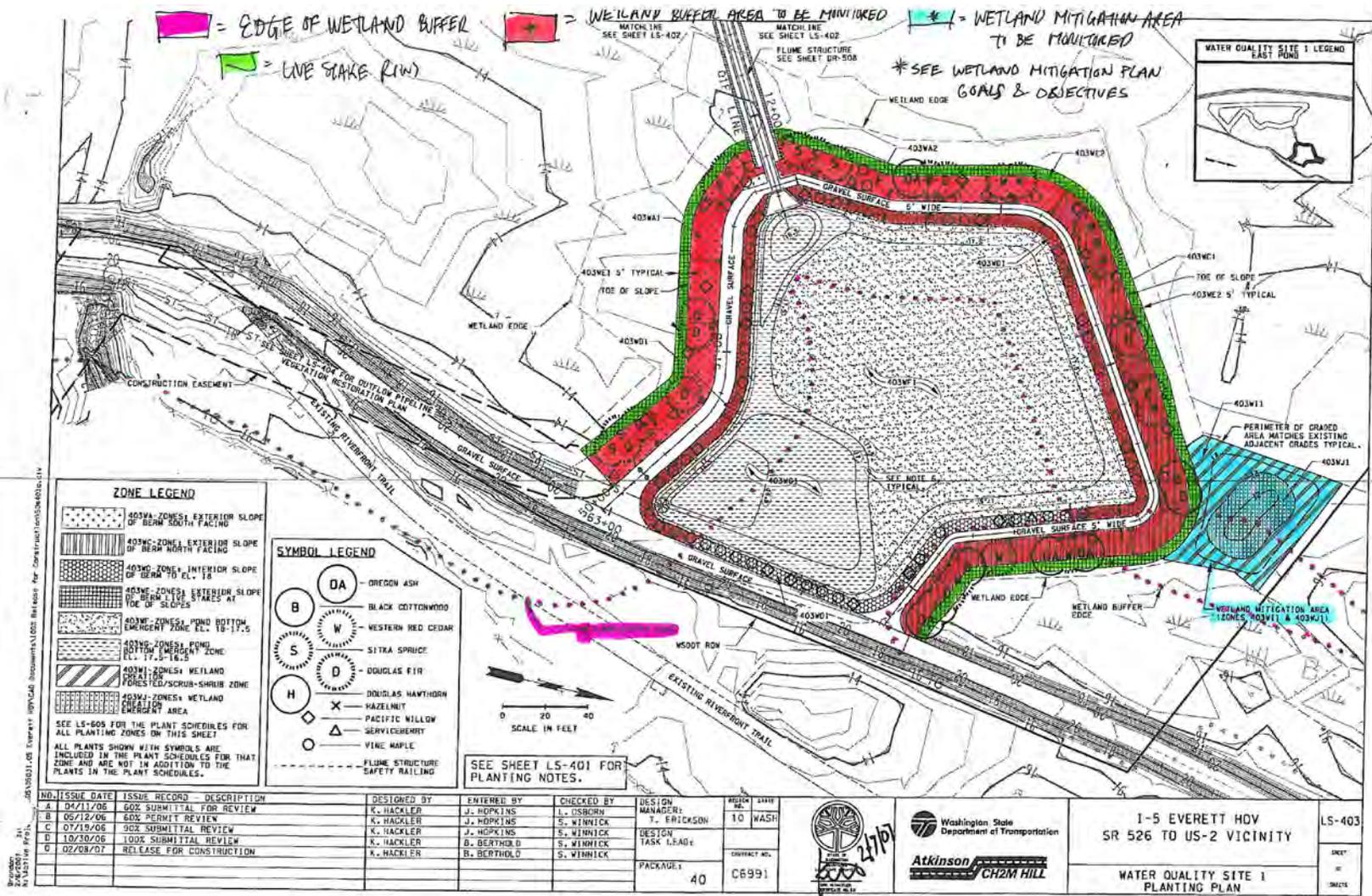
(from WSDOT 2007)



As-built Buffer Planting Plan







ZONE LEGEND

- 403WA-ZONES: EXTERIOR SLOPE OF BEAM SOUTH FACING
- 403WC-ZONES: EXTERIOR SLOPE OF BEAM NORTH FACING
- 403WD-ZONES: INTERIOR SLOPE OF BEAM TO EL. 18
- 403WE-ZONES: EXTERIOR SLOPE OF BEAM TO EL. 18
- 403WF-ZONES: POND BOTTOM EMERGENT ZONE EL. 18-17.5
- 403WJ-ZONES: POND FORESTED/SCRUB-SHRUB ZONE EL. 17.5-16.5
- 403WJ-ZONES: WETLAND FORESTED/SCRUB-SHRUB ZONE
- 403WK-ZONES: WETLAND EMERGENT AREA

SEE LS-609 FOR THE PLANT SCHEDULES FOR ALL PLANTING ZONES ON THIS SHEET
ALL PLANTS SHOWN WITH SYMBOLS ARE INCLUDED IN THE PLANT SCHEDULES FOR THAT ZONE AND ARE NOT IN ADDITION TO THE PLANTS IN THE PLANT SCHEDULES.

SYMBOL LEGEND

- DA - OREGON ASH
- B - BLACK COTTONWOOD
- W - WESTERN RED CEDAR
- S - SITKA SPRUCE
- D - DOUGLAS FIR
- H - DOUGLAS HAWTHORN
- X - HAZELNUT
- ◇ - PACIFIC WILLOW
- △ - SERVICEBERRY
- - VINE MAPLE
- PLUME STRUCTURE SAFETY RAILING

SEE SHEET LS-401 FOR PLANTING NOTES.

NO.	ISSUE DATE	ISSUE RECORD DESCRIPTION
A	04/11/06	60% SUBMITTAL FOR REVIEW
B	06/12/06	60% PERMIT REVIEW
C	07/19/06	90% SUBMITTAL REVIEW
D	10/30/06	100% SUBMITTAL REVIEW
G	02/08/07	RELEASE FOR CONSTRUCTION

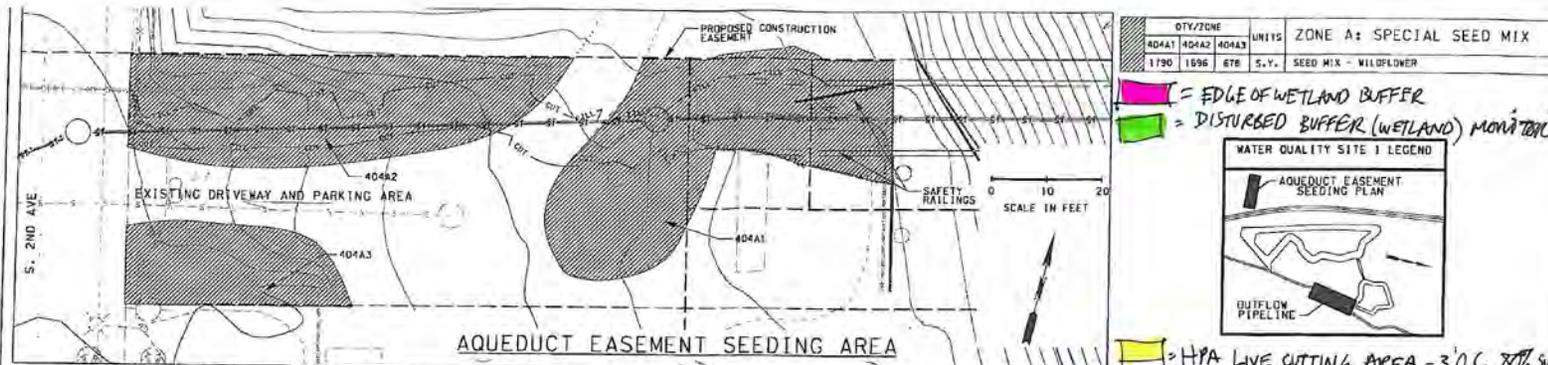
DESIGNED BY	ENTERED BY	CHECKED BY
K. HACKLER	J. HOPKINS	L. OSBORN
K. HACKLER	J. HOPKINS	S. WINNICK
K. HACKLER	J. HOPKINS	S. WINNICK
K. HACKLER	B. BERTHOLD	S. WINNICK
K. HACKLER	B. BERTHOLD	S. WINNICK

DESIGN MANAGER	PROJECT NO.	STATE
T. ERICKSON	10	WASH

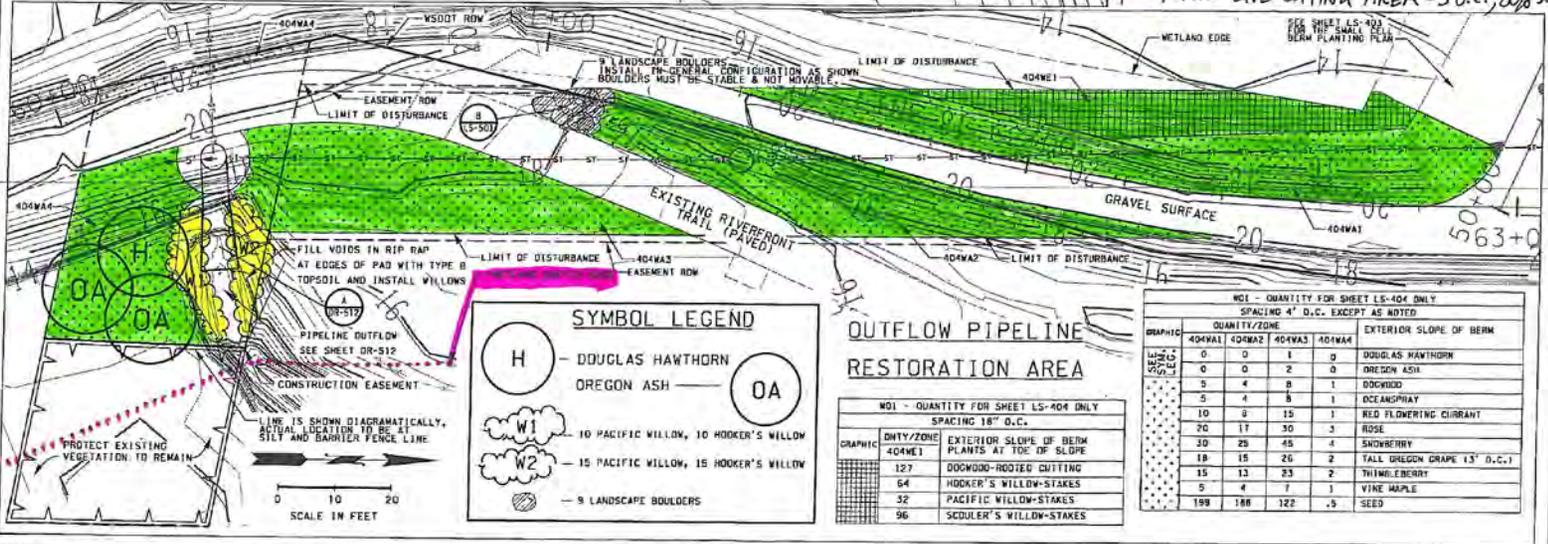
Washington State Department of Transportation

Atkinson CH2M HILL

1-5 EVERETT HOV SR 526 TO US-2 VICINITY	LS-403
WATER QUALITY SITE 1 PLANTING PLAN	



QTY/ZONE	UNIT	ZONE A: SPECIAL SEED MIX
404A1 404A2 404A3	1190 1696 678	S.Y. SEED MIX - WILDFLOWER



SYMBOL LEGEND

- H - DOUGLAS HAWTHORN
- OA - OREGON ASH
- W1 - 10 PACIFIC WILLOW, 10 HOOKER'S WILLOW
- W2 - 15 PACIFIC WILLOW, 15 HOOKER'S WILLOW
- 9 - 9 LANDSCAPE BOULDERS

OUTFLOW PIPELINE RESTORATION AREA

QTY/ZONE	EXTERIOR SLOPE OF BERM PLANTS AT TOE OF SLOPE
404WE1	127 DOGWOOD-ROOTED CUTTING
	64 HOOKER'S WILLOW-STAKES
	32 PACIFIC WILLOW-STAKES
	96 SCUDLER'S WILLOW-STAKES

WQ1 - QUANTITY FOR SHEET LS-404 ONLY

GRAPHIC	404WA1	404WA2	404WA3	404WA4	EXTERIOR SLOPE OF BERM
0	0	1	0	0	DOUGLAS HAWTHORN
0	0	2	0	0	OREGON ASH
5	4	8	1	0	DOGWOOD
5	4	8	1	0	OCCASPIRAT
10	9	15	1	0	RED FLOWERING CURRANT
20	17	30	3	0	ROSE
30	29	45	4	0	SNOWBERRY
18	15	26	2	0	TALL UREGON GRAPE 13' O.C.
15	13	23	2	0	THIMBLEBERRY
5	4	7	1	0	VINE MAPLE
199	188	122	5	0	SEED

NO.	ISSUE DATE	ISSUE RECORD - DESCRIPTION
A	04/11/06	60% SUBMITTAL FOR REVIEW
B	05/12/06	80% PERMIT REVIEW
C	07/19/06	90% SUBMITTAL FOR REVIEW
D	10/30/06	100% SUBMITTAL FOR REVIEW
O	02/08/07	RELEASE FOR CONSTRUCTION

DESIGNED BY	ENTERED BY	CHECKED BY	DESIGN MANAGER	REGION	STATE
K. HACKLER	J. HOPKINS	L. OSBORN	T. ERICKSON	10	WASH
K. HACKLER	J. HOPKINS	S. WINNICK			
K. HACKLER	J. HOPKINS	S. WINNICK			
K. HACKLER	B. BERTHOLD	S. WINNICK			
K. HACKLER	B. BERTHOLD	S. WINNICK			

1-5 EVERETT HOV
 SR 526 TO US-2 VICINITY
 WATER QUALITY SITE 1
 PLANTING PLAN

Appendix 2 – Photo Points

The photographs below were taken from permanent photo-points on August 15, 2015 and document current site development.



Photo Point 1



Photo Point 1b



Photo Point 2a



Photo Point 2b

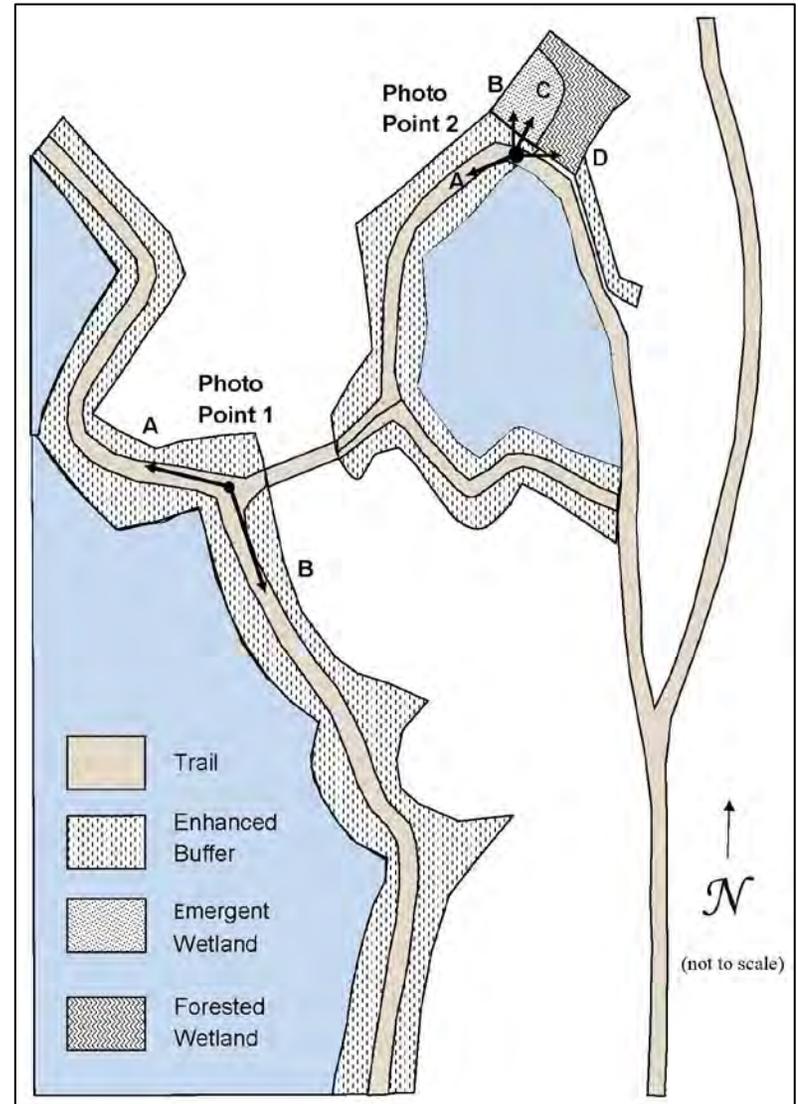
The photographs below were taken from permanent photo-points on August 15, 2015 and document current site development.



Photo Point 2c



Photo Point 2d



Driving Directions:

From I-5 take exit 192 for 41st St. Turn east onto 41st St. Turn right onto S 3rd Ave. Turn left onto Junction Ave. Continue onto S 2nd Ave. Turn left onto Lenora St. Turn left into the parking lot just after crossing the train tracks. The mitigation areas are north of the parking lot adjacent to the stormwater ponds.

Literature Cited

1. Gresham, D. 2004. Wetland Mitigation Plan. Interstate 5 Everett HOV, SR 526 to SR 2 Vicinity. Prepared for WSDOT.
2. [USACE] US Army Corps of Engineers. 2004. Department of the Army Permit Number 200401448.
3. [USACE] US Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), Wakeley JS, Lichvar RW, Noble CV, editors. Vicksburg (MS): US Army Engineer Research and Development Center. ERDC/EL TR-10-3. Available at: http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/west_mt_finalsupp.pdf
4. [WDFW] Washington Department of Fish and Wildlife. Hydraulic Project Approval Permit 100266-1.
5. [WSDOT] Washington State Department of Transportation. 2007. Interstate 5 Everett HOV, SR 526 to SR 2 Vicinity. Mitigation Site As-built Planting Plan.
6. [WSDOT] Washington State Department of Transportation. 2008. WSDOT Wetland Mitigation Site Monitoring Methods. <http://www.wsdot.wa.gov/NR/rdonlyres/C211AB59-D5A2-4AA2-8A76-3D9A77E01203/0/MethodsWhitePaper052004.pdf>