SR 3 Crestview Drive, Road Improvement Project & Deer Creek Vicinity Traffic Channelization Project Mitigation Site

USACE NWP (14) 200201304

Olympic Region

2010 MONITORING REPORT

Wetland Assessment and Monitoring Program

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Environmental Services Office

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SR 3 Crestview Drive, Road Improvement Project & Deer Creek Vicinity Traffic Channelization Project Mitigation Site

USACE NWP (14) 200201304

General Site Information		
USACE NWP 14 Number	200201304	
Mitigation Location	North of Crestview Drive at MP 1.98 in Mason County	
LLID Number	1230535472148	
Construction Date	2005	
Monitoring Period	2006-2015	
Year of Monitoring	5 of 10	
Area of Project Impact	0 acre	
Type of Mitigation	Wetland Establishment	Wetland Enhancement
Area of Mitigation	0.6 acre	2.01 acres
Type of Mitigation	Buffer Enhancement	
Area of Mitigation	0.9 acre	

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Summary of Monitoring Results and Management Activities (2010)

Performance Standards	2010 Results	Management Activities
Wetland Hydrology	Present	
80% cover of emergent species in emergent wetland zones	98% cover	
50% cover of woody vegetation in scrub-shrub zone (and Permit Requirement)	95-98% cover	
No more than 15 % cover of non-native and invasive species in wetland creation and enhancement areas(and Permit Requirement)	Creation: 20% cover Enhancement: 75% cover	Weed control
USACE Permit Requirement		
No more than 10 % cover of non-native and invasive species in the buffer	Less than 10% cover	Weed control

Report Introduction

This report summarizes Year-5 monitoring activities at the State Route (SR) 3 Crestview Drive Mitigation Site. Included are a site description, the performance standards, an explanation of monitoring methods, and an evaluation of site development. Monitoring activities included vegetation surveys and photo-documentation on August 4th, and assessments of wetland hydrology in February and March, 2010.

What is the SR 3 Crestview Mitigation Site?

The SR 3 Crestview Mitigation Site is a collaborative effort between Mason County Public Works (MCPW) and Washington State Department of Transportation (WSDOT). This site provides advanced mitigation for future road projects and contains 3.0 acres of wetland preservation and 4.49 acres of buffer preservation (Figure 1). The site was originally intended to provide mitigation for 0.38 acre of transportation related impacts, but the impacts did not occur, and mitigation was not required.

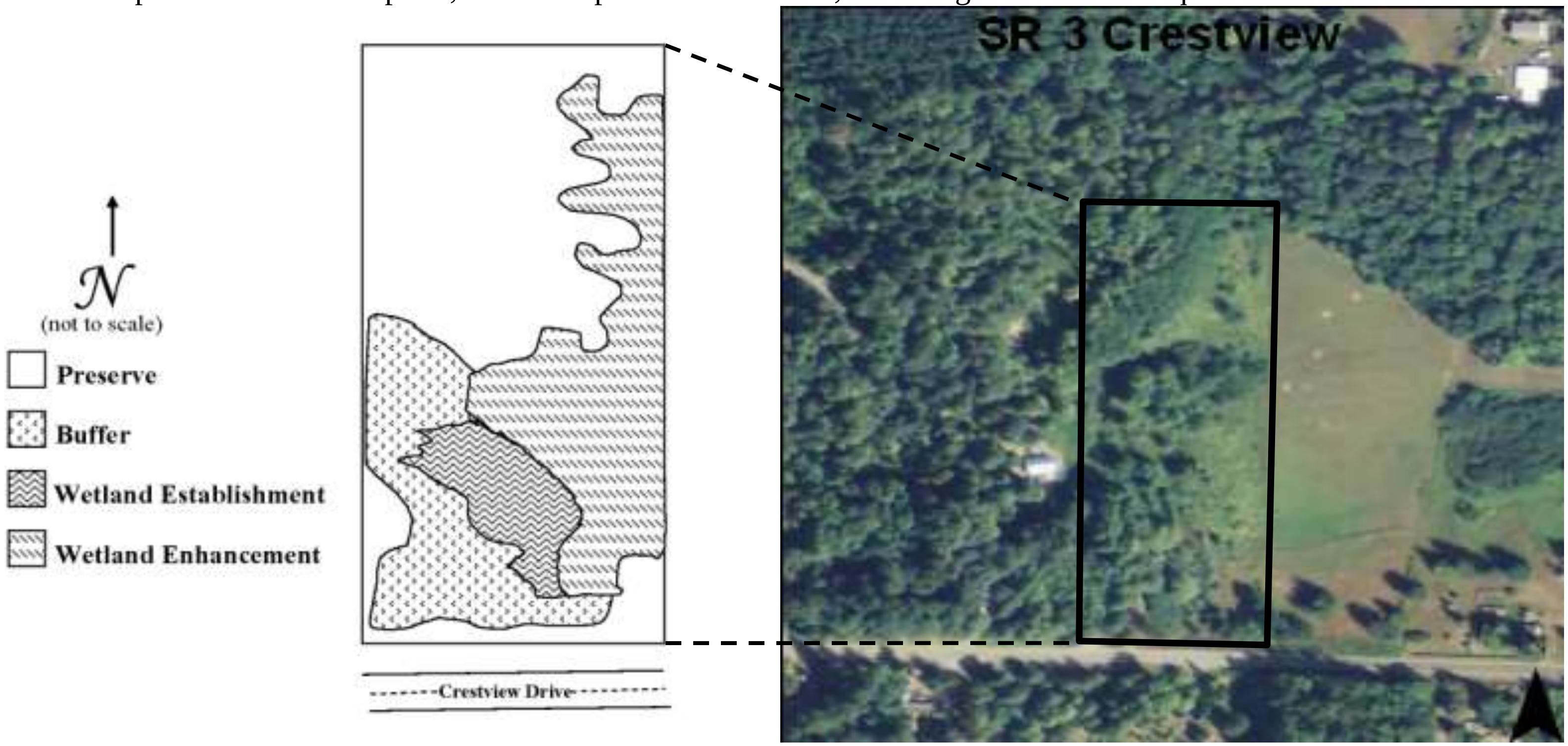


Figure 1 Site Sketch

The 11.0-acre SR 3 Crestview Mitigation Site is located north of Crestview Drive at Milepost (MP) 1.98, south of Oakland Bay. It includes a terraced wetland establishment area surrounded by buffer and enhanced wetland areas. The northwest corner of the site is wetland preservation.

What are the performance criteria for this site?

Performance Standard 1

Water level monitoring will occur during the first month of the growing season for monitoring years 1, 3, 5, 7, and 10 and entail digging a soil pit at the wetland monitoring sample plots and recording the water level in the hole. It will also include documentation of other indicators of surface and/or below surface wetland hydrology.

Performance Standard 2

Within emergent wetland zones, emergent vegetation cover will be at least 80 percent by the fifth year.

Performance Standard 3 (and Permit Requirement)

Within scrub/shrub wetland zones, woody vegetation cover (shrubs and trees) will be at least 50 percent by the fifth year.

Performance Standard 4 (and Permit Requirement)

The percentage of the area covered by invasive and non-native species (e.g., Japanese knotweed, reed canarygrass, Himalayan blackberry) will not exceed 15 percent of total cover within the wetland creation or enhancement areas throughout the monitoring.

Permit Requirement

The percentage of the area covered by invasive and non-native species (e.g., Japanese knotweed, reed canary grass, and Himalayan blackberry) will not exceed 10% of total cover within the mitigation area buffers.

Appendix 1 provides the complete text of the performance criteria for this project, and Appendix 3 shows the as-built planting plan (MCPW 2004).

How were the performance standards evaluated?

WSDOT staff collected hydrology data using methods described in the *Washington State Wetlands Identification and Delineation Manual* (Ecology 1997) (Performance Standard 1). Four permanent hydrology pit locations were established in Year-1 of monitoring and recorded on a map. During each monitoring visit, visual observations are made to determine the extent of inundation and surface saturation. Depth and location of standing water is recorded. At each pit location, in the absence of inundation or surface saturation, subsurface observations are made.

Performance Standards 2 through 4 and the Permit Requirement were assessed qualitatively due to the presence of dense herbaceous and woody vegetation.

For additional details on the methods, view the WSDOT Wetland Mitigation Site Monitoring Methods Paper (WSDOT 2008).

How is the site developing?

This site has developed into a diverse and robust wetland. The herbaceous community consists of both planted and naturally colonizing species. Cover of native species in the herbaceous establishment community is high and non-native and invasive species cover is kept low. The scrub-shrub community is robust as well with very high cover values. The woody species in this area are less diverse, but the community is thriving. A total of 150 western red cedar (*Thuja plicata*) were planted in the establishment area in October of 2010.

The forested zone in the enhancement area is not as successful as the scrub-shrub. There is not a performance standard for this zone for the current year, but there is for the next monitoring cycle (2012). With cover values in this zone estimated at 10 percent, this area is not on track to meet the Year-7 and Year-10 performance standards. Two hundred redosier dogwood (*Cornus sericea*), and 300 willow (*Salix* spp.) stakes were installed in December of 2010 to provide additional cover and diversity to this area.

Non-native and invasive species cover across the site remains high, specifically in the enhancement area. Reed canarygrass (*Phalaris arundinacea*) is the dominant non-native species providing cover across the site.

Results for Performance Standard 1
(Wetland Hydrology):

Based on two hydrology visits in the months of February and March, 2010 (Appendix 2) we achieved the hydrology standard this year. In every formal monitoring year (1, 3, and 5) this site has met the hydrology standard (Photo 1). This site does not have problematic hydrology and supports a variety of hydrophytic vegetation.

Results for Performance Standard 2
(80% cover of emergent species in emergent wetland zones):

A portion of the establishment area (labeled Creation area on planting plan) was planted with emergent species. The cover in this area is estimated at 98 percent. The dominant species include soft rush (*Juncus effusus*), small-fruited bulrush (*Scirpus microcarpus*), and slough sedge (*Carex obnupta*) (Photo 2).

Results for Performance Standard 3 and Permit Requirement
(50% cover of woody vegetation in scrub-shrub zone):

The cover of woody species in the scrub-shrub zone is estimated to be between 95 and 98 percent (Photo 2). The dominant species in this community include Sitka willow (*Salix sitchensis*), red alder (*Alnus rubra*), redosier dogwood (*Cornus sericea*), and Pacific willow (*Salix lucida* ssp. *lasiandra*).

Photo 1
Wetland hydrology (February 2010)

Photo 2
Emergent and woody cover in established wetland (August 2010)

Results for Performance Standard 4 and Permit Requirement
(No more than 15 % cover of non-native and invasive species in wetland creation and enhancement areas):

Cover of invasive and non-native species in the wetland enhancement area is estimated to be 75 percent (Photo 3) and the cover in the establishment area is estimated to be 20 percent. Species observed include reed canarygrass (*Phalaris arundinacea*), Himalayan blackberry (*Rubus armeniacus*), cutleaf blackberry (*Rubus laciniatus*), paleyellow iris (*Iris pseudacorus*), and Canada thistle (*Cirsium arvense*). The site is surrounded by reed canarygrass (*Phalaris arundinacea*) on adjacent properties making eradication difficult.

Photo 3
Reed canarygrass in the enhanced wetland (August 2010)

Results for USACE Permit Requirement
(No more than 10 % cover of non-native and invasive species in the buffer):

The cover of non-native and invasive species in the buffer is less than 10 percent. This value is just under the threshold set by the permit requirement. Most of the buffer has a thick population of red alder (*Alnus rubra*) trees, but in areas where the trees thin out, the reed canarygrass (*Phalaris arundinacea*) is encroaching.

What is planned for this site?

The region has plans for continued weed control in the forested zone in order to achieve the Year-7 performance standards.

Appendix 1 – Goals and Performance Standards

The following excerpt is from the Addendum to *Wetland Mitigation Plan for the Crestview Drive, Road Improvement Project & Deer Creek Vicinity Traffic Channelization Project* (MCPW 2003). The performance criteria addressed this year are identified in **bold** font. The standards are further amended by the USACE permit which is referred to below.

GOALS AND OBJECTIVES

The goals of this mitigation plan are:

1. Create 26,094 square feet (0.60 ac.) of replacement wetland in Area A by:
    a. Grading the site to provided seasonal hydrology in the wetland creation area,
    b. Amending the soil with hydric organic soil salvaged from the impact site, or imported as needed,
    c. Planting native trees, shrubs, and herbs to provide the initial revegetation of the site.
2. Enhance 45,542 square feet (1.05 ac.) of cleared wetland in Area C by planting native wetland trees, shrubs, and cuttings and,
3. Enhance 22,030 square feet (0.51 ac)of buffer in Area B, the southeast corner of the site, by;
    a. Amending the soil in graded areas with hydric organic soil salvaged for the impact site
    b. Mulching trees and shrubs with compost to provide necessary plant nutrients,
    c. Planting native trees and shrubs t provide the initial revegetation of the site.
4. Preserve 130,299 square feet of existing wetland.

Wetland Creation – Area A – page 5: the term *seasonal wetland hydrology* is defined as, “encompass(ing) all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season (ACOE 1987 Wetlands Delineation Manual)”. Seasonal wetland hydrology is further defined as a minimum of soil saturation to the surface or inundation for a period of two weeks during the growing season. We have reason to expect 120-days or more of soil saturation during the growing season. One of the goals of this Wetland Mitigation Plan is to maintain a seasonally flooded water regime within the created wetland similar to the water regime presently characterizing the existing adjacent wetland.

Water level monitoring will occur during the first month of the growing season for monitoring years 1, 3, 5, 7, and 10 and entail digging a soil pit at the wetland monitoring sample plots and recording the water level in the hole. It will also include documentation of other indicators of surface and/or below surface wetland hydrology. The monitoring reports shall be submitted to the US Army Corps of Engineers, Department of Ecology (DOE), and Mason County Planning no later than October 31st for the end of growing season monitoring reports in Years 1, 3, 5, 7, and 10, as per *Guidelines for Developing Freshwater Wetlands Mitigation Plans and Proposals* (DOE Publication #94-29)

An over-all pan photo of mitigation site is enclosed.

Performance Standard 1
95 percent of planted species will survive by the end of the first year.

Performance Standard 2
Within emergent wetland zones, emergent vegetation cover will be at least 50 percent by the third year and **80 percent by the fifth year.**

Performance Standard 3
Within scrub/shrub wetland zones, woody vegetation cover (shrubs and trees) will be at least 25 percent by the third year and **50 percent by the fifth year.**

Performance Standard 4
Within forested wetland zones, the canopy will be at least 20 percent by the seventh year and 40 percent by the tenth year.

Performance Standard 5
The percentage of the area covered by invasive and non-native species (e.g., Japanese knotweed, reed canarygrass, Himalayan blackberry) will not exceed 15 percent of total cover within the wetland creation or enhancement areas throughout the monitoring.

In the event that plant survival does not meet the required performance standard, Mason County will supplement its original planting to bring survival up to the required level.

Permanent photo points will be established to provide a visual reference of planting success within and before the end of the first year.

PERMIT REQUIREMENTS

The following excerpt is from the **USACE Permit: Ref: 200201304.** The performance criteria addressed this year are identified in **bold** font.

c. The permittee shall implement and abide by the mitigation plan “Wetland Mitigation Plan for Crestview Drive, Road Improvement Project & Deer Creek Vicinity Traffic Channelization Project”, dated November 2002, and addendum dated September 2003. As-built drawings of the mitigation site are due 60 days after construction of the mitigation site is complete. As-built drawings must include a detailed grading plan and overall photo pans of the mitigation area prior to construction and after construction and planting. Mitigation monitoring reports will be due annually for 10 years for years 1, 2, 3, 5, 7, and 10 by November 30, of each year. All reports must be submitted to the U.S. Army corps Engineers (Corps) and must prominently display the reference number 200201304.

d. The permittee will implement the following modified performance standards as part of the approved mitigation plan.

1. Performance Standard 3 – Within scrub/shrub wetland zones, woody vegetation cover (shrubs and trees) will be at least 25% by the third year**, 50% by the fifth year**, 75% by the seventh year and 80% by tenth year.

2. Performance Standard 4 – Within forested wetland zones, tree canopy will be at least 50% by year seven and 80% by year 10.

3. **Performance Standard 5 – The percentage of the area covered by invasive and non-native species (e.g., Japanese knotweed, reed canary grass, Himalayan blackberry) will not exceed 15% of total cover within the wetland creation or enhancement areas throughout the monitoring. The percentage of the area covered by invasive and non-native species (e.g., Japanese knotweed, reed canary grass, and Himalayan blackberry) will not exceed 10% of total cover within the mitigation area buffers.**

e. The wetland mitigation site as described in the final mitigation plan as approved and any subsequent permit mitigation area revisions, shall not be made the subject of a future individual or general Department of the Army permit application for fill or other development, except for the purposes of enhancing or restoring the mitigation associated with this project and will be recorded with the Registrar of Deeds or other appropriate official charged with the responsibility for maintaining records to or interest in real property. Proof of this recorded documentation must be provided to the Corps, within 60 days from the date of permit issuance.

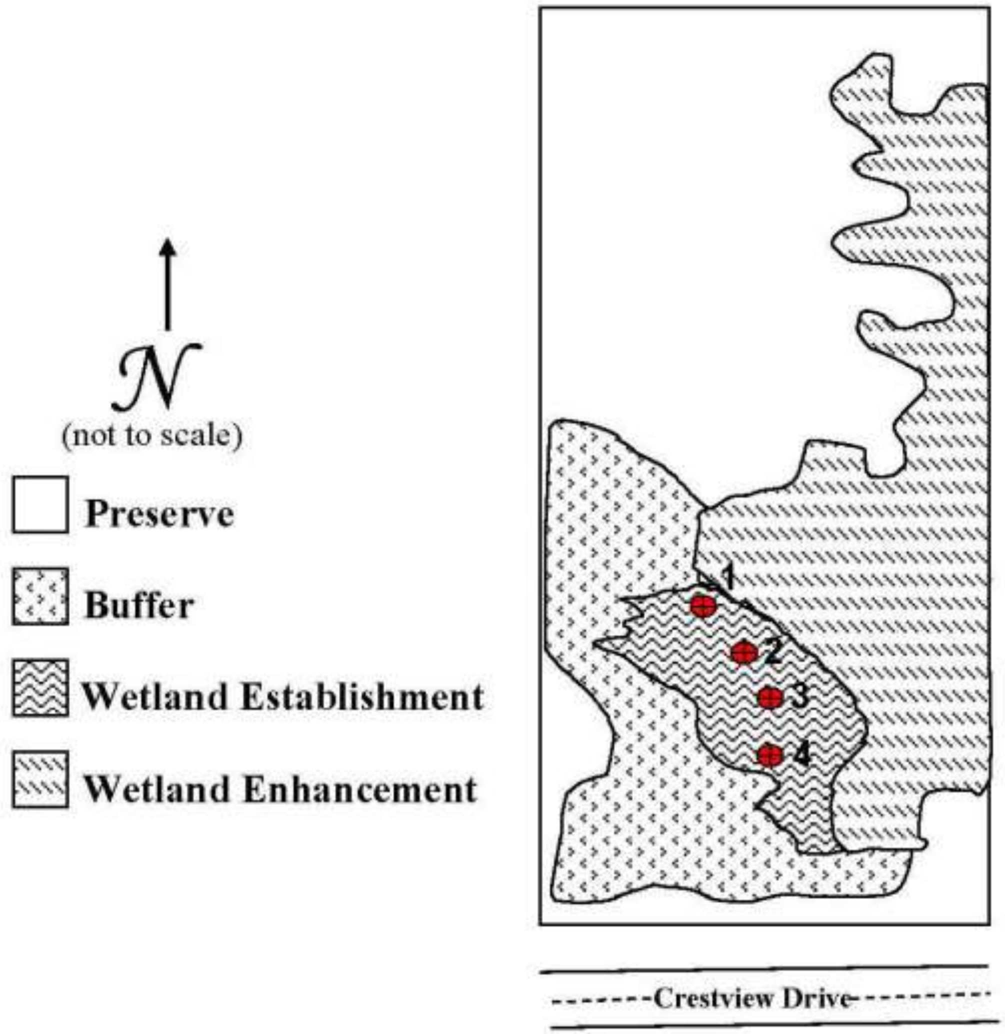
f. A status report on the mitigation construction must be to the Corps, 13 months from the date of permit issuance. Annual status reports on mitigation construction are required until mitigation construct

Appendix 2 – Data Tables

Table 3 Hydrology Observations

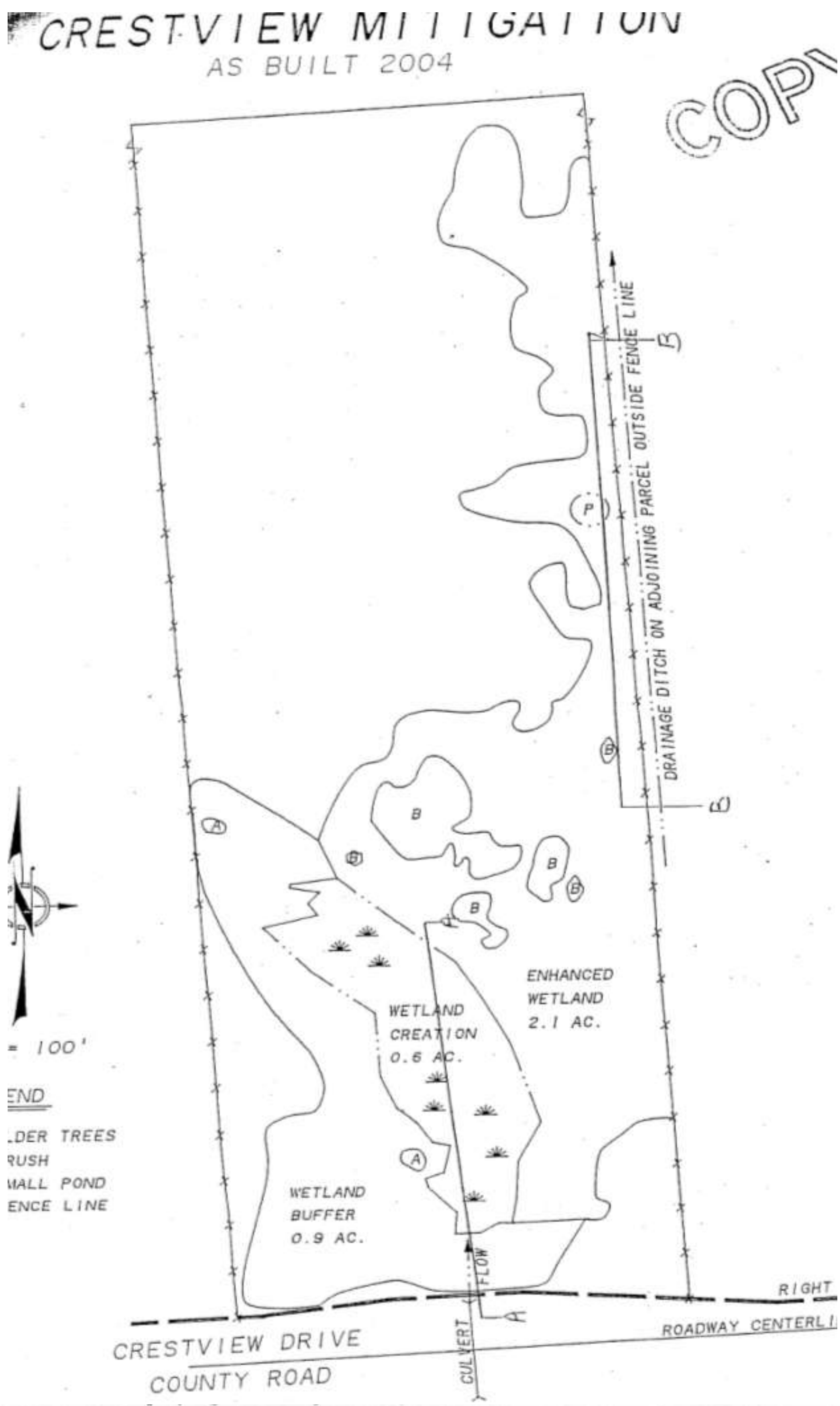
Date	Surface Observations	Subsurface Observations	
2/24/2010	Saturated or inundated to 4” throughout the site.	Pit 1	Not dug, inundated to 3”
		Pit 2	Not dug, saturated to the surface
		Pit 3	Not dug, saturated to the surface
		Pit 4	Not dug, inundated to 4”
3/29/2010	Entire wetland establishment area saturated to soil surface or inundated (up to 5” deep) in troughs.	Pit 1	Not dug, inundated to 3”
		Pit 2	Not dug, saturated to the surface
		Pit 3	Not dug, inundated to 2”
		Pit 4	Not dug, inundated to 3”

Figure 2. Hydrology Pit Map



Appendix 3 – As-built Planting Plan

(from MCPW 2004)



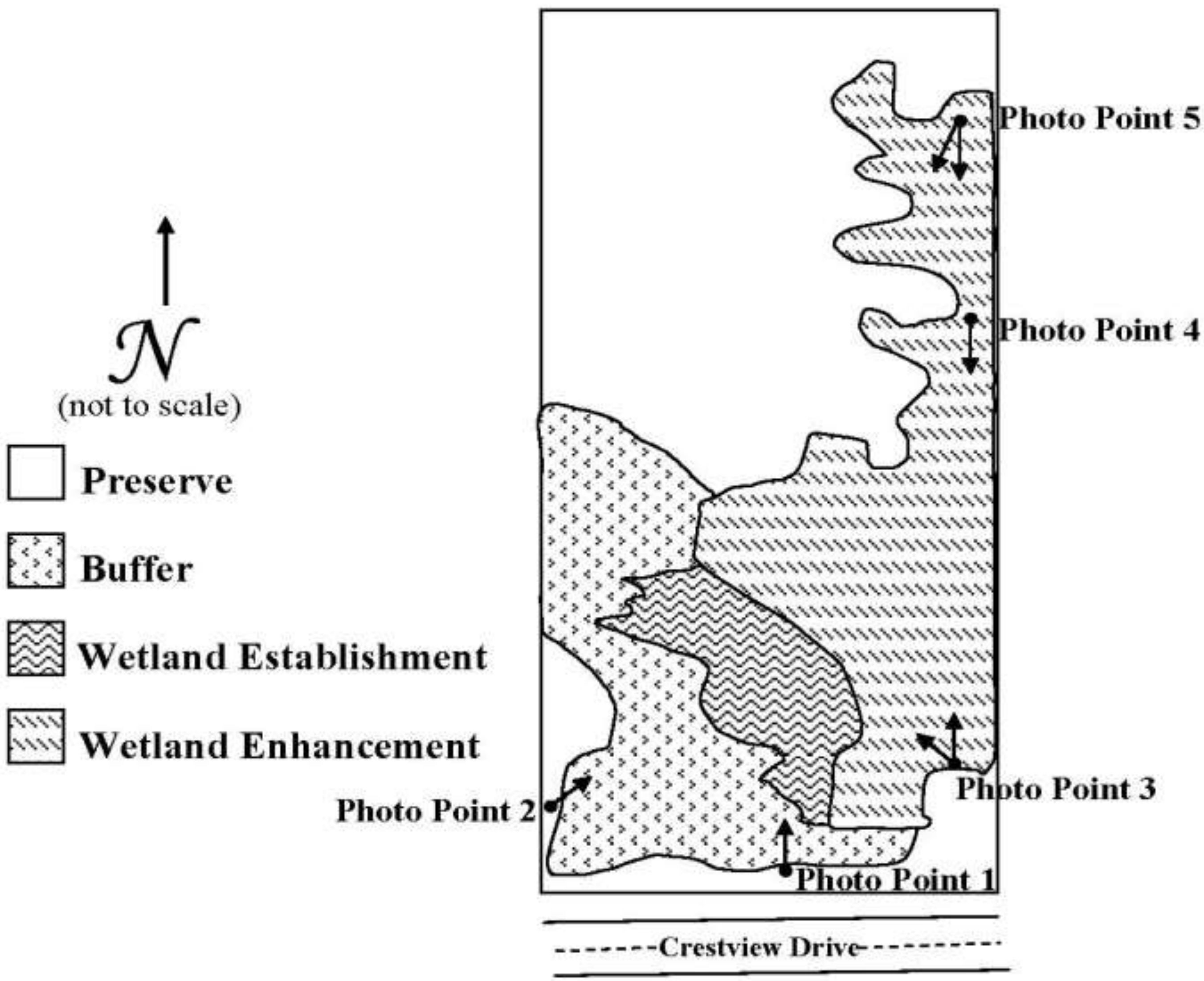
The following are the "as built" plantings.

The Creation Area:
Planted small-fruit bulrush, slough sedge, creeping spike rush, red osier dogwood, Pacific willow, and hard-stem bulrush. We did NOT plant broad-leaf arrowhead, Olney's bulrush, water parsley, or Douglas spiraea.

Buffer Enhancement Area:
Planted as proposed.

Wetland Enhancement Area:
Planted Pacific willow, red osier dogwood, and Oregon ash. We did NOT plant quaking aspen; instead we substituted western red cedar, Sitka spruce, black cottonwood.

Appendix 4 – Photo Points



The photographs below were taken from permanent photo-points on August 4, 2010 and document current site development.

Photo Point 1

Photo Point 2

Photo Point 3a

Photo Point 3b

Photo Point 4

Photo Point 5a

Photo Point 5b

Literature Cited

1. Ecology. See Washington State Department of Ecology.

2. Mason County Public Works Staff. 2004. Wetland Mitigation Plan for the Crestview Drive, Road Improvement Project & Deer Creek Vicinity Traffic Channelization Project. As-built Planting Plan. Mason County Public Works, Shelton, WA.

3. Mason County Public Works Staff. 2003. Addendum to Wetland Mitigation Plan for the Crestview Drive, Road Improvement Project & Deer Creek Vicinity Traffic Channelization Project. Mason County Public Works, Shelton, WA.

4. United States Army Corps of Engineers. 2004. Department of the Army Permit Number 200201304.

5. Washington State Department of Ecology (Ecology). 1997. Washington State Wetlands Identification and Delineation Manual. Publication No.96-94, Olympia, WA.

6. Washington State Department of Transportation (WSDOT) WSDOT Wetland Mitigation Site Monitoring Methods (12 June 2008). http://www.wsdot.wa.gov/NR/rdonlyres/C211AB59-D5A2-4AA2-8A76-3D9A77E01203/0/MethodsWhitePaper052004.pdf