

Appendix B – Mitigation Site Wetland Memoranda

The Wetland Site Assessment Report is provided as separate document

Appendix C – Boring Logs

To be developed as part of the PS&E.

Appendix D – Hydrology Data

To be developed as part of the PS&E.

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Appendix E – Mitigation Plan Design Sheets



SR 520 - Evergreen Point Floating Bridge

WSDOT-OWNED PENINSULA

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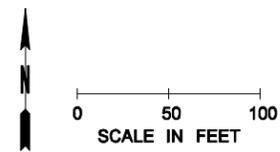
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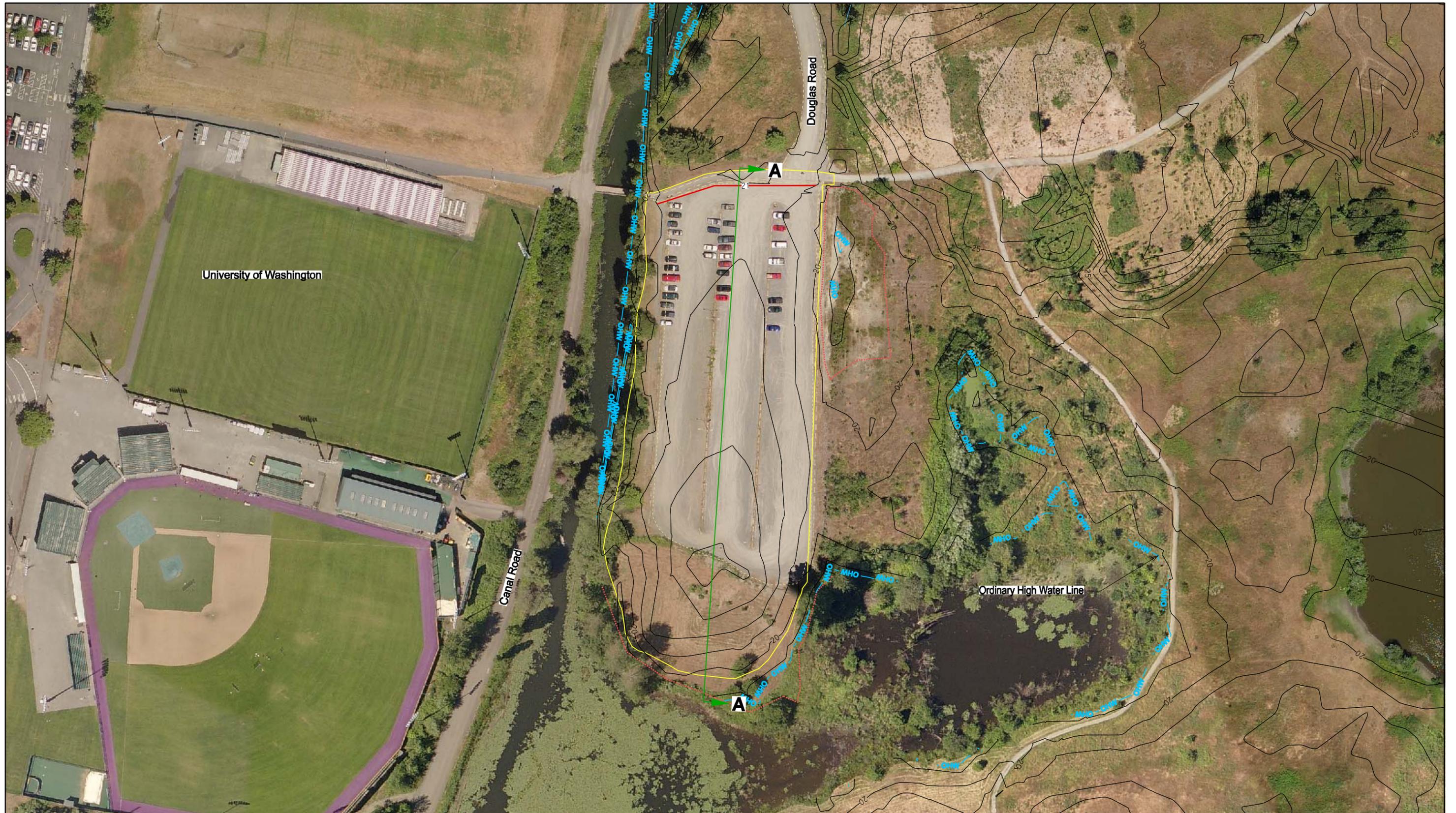
30



- Legend:**
- Proposed Contour —
 - Existing Contour —
 - Wetland Mitigation Areas —
 - Section Cut Line —

Figure E-1
WSDOT-Owned Peninsula Mitigation Site
Grading Plan
 SR 520, I-5 to Medina: Bridge Replacement and HOV Project

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SCALE IN FEET

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- Proposed Contour
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 - Wetland Mitigation Areas
 - Section Cut Line

Figure E-2
Union Bay Natural Area Mitigation Site
Grading Plan
 SR 520, I-5 to Medina: Bridge Replacement and HOV Project

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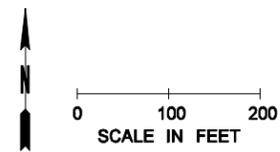
Warren G. Magnuson Park

Culvert

Beach Drive

Lake Washington

Ordinary High Water Line



Legend:

Proposed Contour	
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Wetland Mitigation Areas	
Section Cut Line	

Figure E-3
Magnuson Park Mitigation Site
Grading Plan
 SR 520, I-5 to Medina: Bridge Replacement and HOV Project

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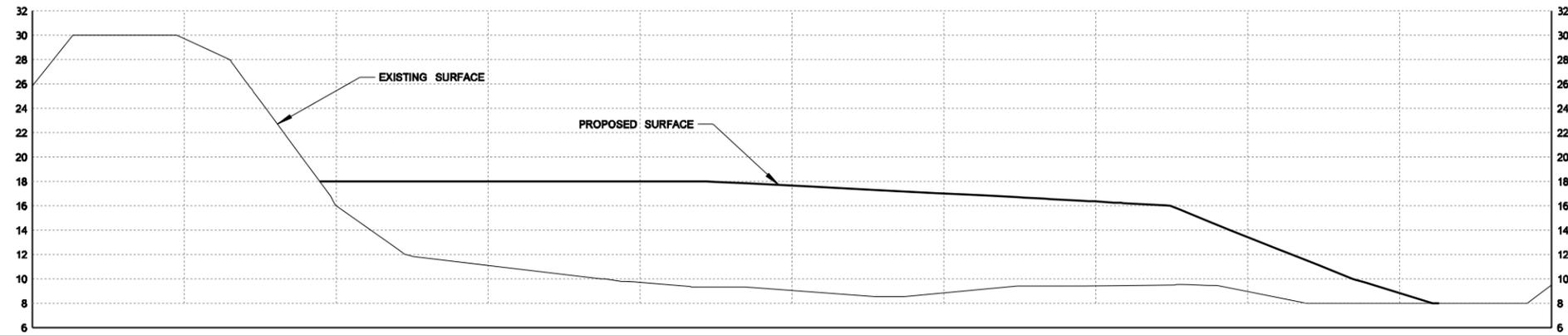
Cedar River / Elliott Bridge Site



Figure E-4
Elliott Bridge Reach Mitigation Site
Draft Grading Plan
SR 520, I-5 to Medina: Bridge Replacement and HOV Project

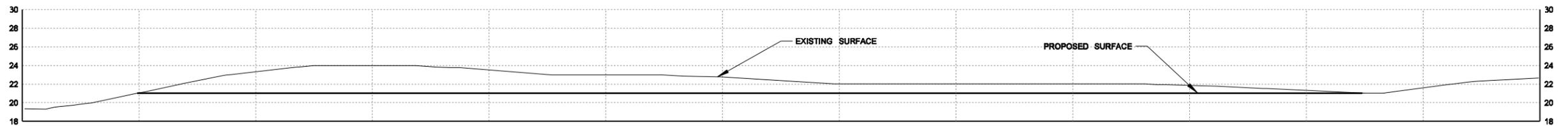
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WSDOT Peninsula Mitigation Site



Section A-A

Union Bay Natural Area Mitigation Site



Section A-A

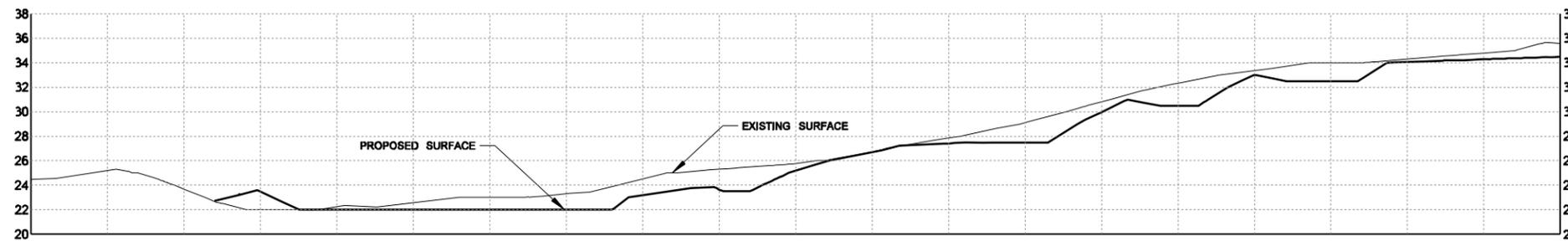
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Figure E-5
Cross Sections

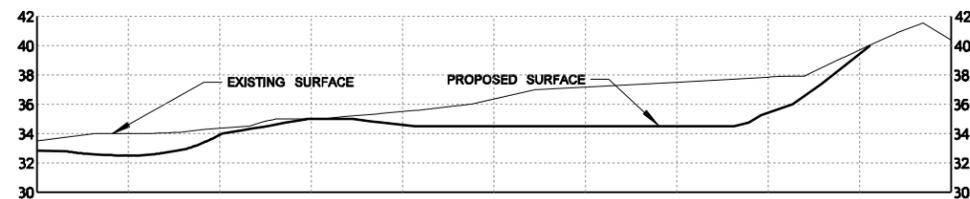
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Magnuson Park Mitigation Site



Section A-A

Magnuson Park Mitigation Site



Section B-B

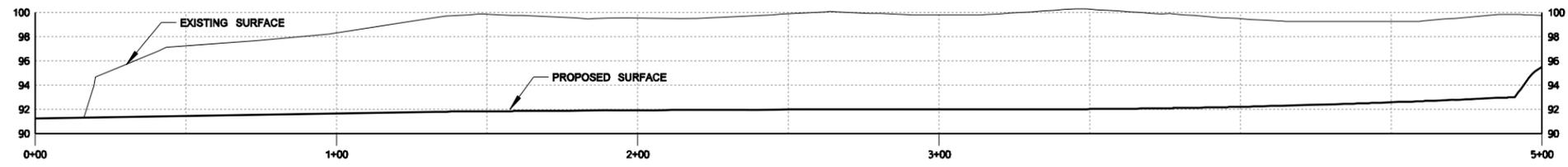
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Figure E-6
Cross Sections

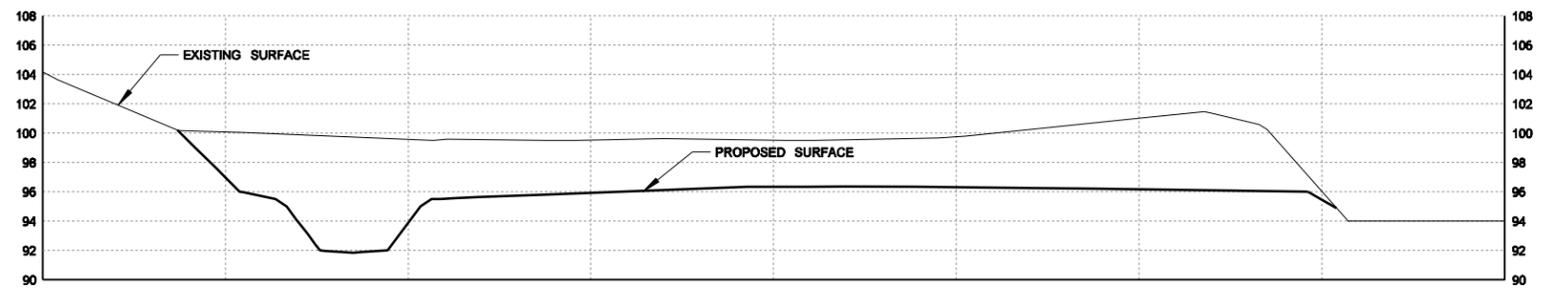
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Elliott Bridge Reach Mitigation Site



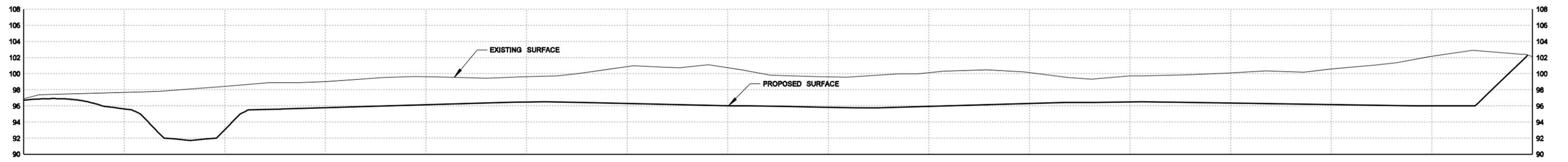
Profile

Elliott Bridge Reach Mitigation Site



Section A-A

Elliott Bridge Reach Mitigation Site



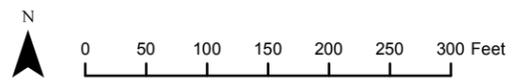
Section B-B

Figure E-7
Cross Sections

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- Legend
- | | | |
|--|------------------------|-----------------------|
| Forested Wetland Planting (Re-establishment and Enhancement) | 10-foot Inner Buffer | Wetland |
| Upland Forested Buffer Planting | Limits of Construction | Water's Edge Planting |

Figure E-8
WSDOT-Owned Peninsula Planting Plan

SR 520, I-5 to Medina: Bridge Replacement and HOV Project

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Plantings in the 10' inner buffer area are based on the wetland plant list, but at 2.5' on center spacing.

Legend

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|---|---------------------------------|-----------------------|
| Forested Wetland Planting (Establishment and Enhancement) | Upland Forested Buffer Planting | Water's Edge Planting |
| Emergent and Water's Edge Wetland Enhancement Planting | Upland Shrub Buffer Planting | Stream |
| 10-foot Inner Buffer | | |

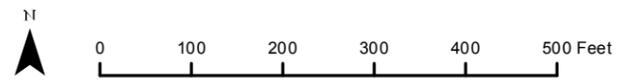


Figure E-9
Union Bay Natural Area Planting Plan

SR 520, I-5 to Medina: Bridge Replacement and HOV Project

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Legend

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|--|---|---|
|  Emergent Wetland Planting |  Emergent Wetland in Buffer Planting |  Wetland |
|  Scrub-shrub Wetland Planting |  Forested Wetland in Buffer Planting | |
|  Forested Wetland Planting |  Upland Forested Buffer Planting | |

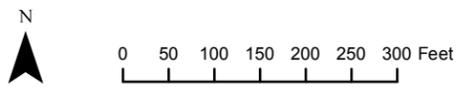
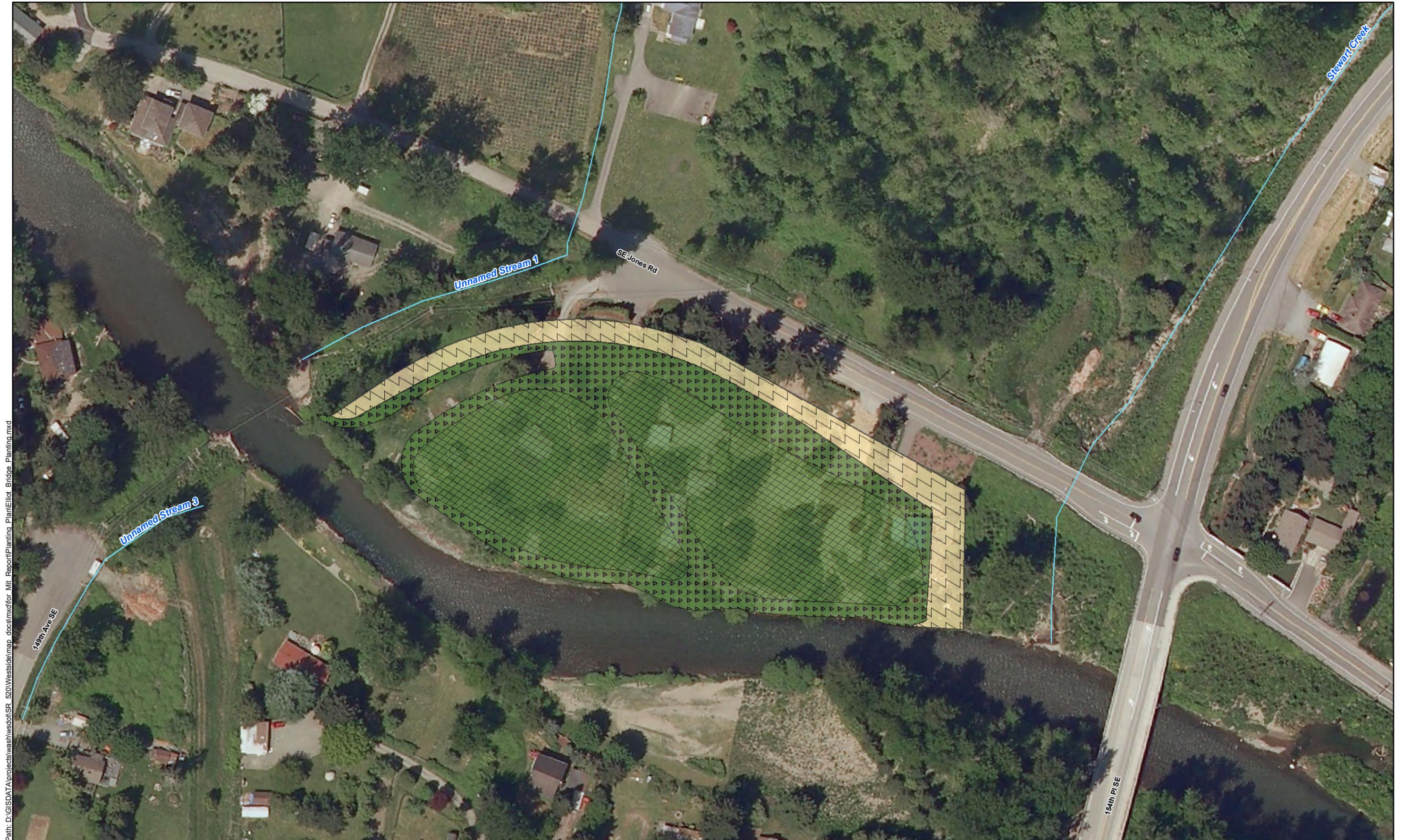


Figure E-10
Magnuson Park Planting Plan

SR 520, I-5 to Medina: Bridge Replacement and HOV Project

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- Legend
- Forested Riparian Wetland Planting
 - Upland Forested Buffer Planting
 - Scrub-shrub Wetland Planting
 - Stream

Figure E-11
Elliott Bridge Reach Planting Plan
 SR 520, I-5 to Medina: Bridge Replacement and HOV Project

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1 **Appendix F – Initial Mitigation Site Selection Process**
2 **and Results**

3

1.1 Introduction

This appendix is intended to provide the reader with a comprehensive overview of the site selection process for candidate wetland mitigation sites in the SR 520, I-5 to Medina: Bridge Replacement and HOV Project. The following sections summarize the site selection process detailed in the *I-5 to Medina Bridge Replacement and HOV Project Initial Wetland Mitigation Report* (WSDOT 2009). This information was also shared with regulatory agencies and the Tribes as part of early agency coordination during the Natural Resources Technical Working Group (NRTWG) meetings.

The appendix is divided into two sections: Methods and Results. The methods section describes the site selection parameters, the process for selecting a preliminary list of sites, and process for winnowing out the most desirable sites for mitigation. The results section shows the end products of this winnowing process. Tables and figures have been used to illustrate the data where necessary.

1.2 Methods

1.2.1. Site Selection Parameters

The Mitigation Team identified eight broad parameters that would define the best sites for the master list of potential mitigation sites. These eight parameters are divided into two sets: (1) opportunity parameters, and (2) risk parameters.

The “opportunity set” consists of four parameters: mitigation type, location, special characteristics, and cost. Size was initially included in this set. However, since so few sites are available due to the urban nature of study area, the minimum size criterion was dropped from the opportunity set. The Mitigation Team used mitigation type, as determined by the joint federal and Washington State guidance (Ecology et al. 2006), to determine which sites were most likely to provide the required mitigation value. The location parameter identified the mitigation site’s location in a Water Resource Inventory Area (WRIA), watershed, and local jurisdiction, and the proximity to the affected wetlands. The Mitigation Team used the special characteristics parameter to identify any key features that might need to match those of the affected site or follow specific regulatory guidance. Examples include hydrogeomorphic class, hydroperiod, and habitat type. The cost parameter was to be used during the final portion of the site analysis and would be based on assessed tax values (early in the site analysis process) or professional assessment (later in the site analysis process).

The “risk set” includes four parameters: availability, hydrology, hazardous materials, and cultural resources. The availability parameter addresses the risk of losing a site. It is common to lose a site during the mitigation process due to development, sale, or an unwilling seller. The hydrology parameter addresses the risk of failure due to insufficient water on the site; sufficient water is critical to wetland creation, rehabilitation, or re-establishment. The Mitigation Team considered only those sites with a

1 high probability of providing sufficient wetland hydrology. Hazardous materials sites pose a high risk of
2 site contamination and high costs, and received more thorough scrutiny. Sites with documented cultural
3 resources were eliminated from further consideration to avoid negative effects on these resources
4 resulting from construction.

5 **1.2.2. Site Selection Process**

6 To identify candidate mitigation sites for the I-5 to Medina: Bridge Replacement and HOV Project, the
7 Mitigation Team used a hierarchical selection process based on the watersheds in the project area. The
8 initial boundaries of the area under consideration for candidate sites for the combined corridor project
9 included all of the Cedar-Sammamish WRIA 8. This area was subdivided into the east side of Lake
10 Washington (for the Medina to SR 202: Eastside Transit and HOV Project) and the west side of Lake
11 Washington (for the I-5 to Medina: Bridge Replacement and HOV Project). This allowed the Mitigation
12 Team to focus on candidate mitigation sites in closer proximity to the project's effects.

13 The limits for the study area for the I-5 to Medina: Bridge Replacement and HOV Project are: I-5 and
14 the western edge of WRIA 8 on the west and the western shoreline of Lake Washington on the east. The
15 drainages that discharge to Lake Washington were evaluated north to the WRIA boundary and south to
16 I-90. The study area was later refined to the King County boundary on the north and the southern end of
17 Lake Washington on the south. Figure F1 shows this study area with drainage basins and incorporated
18 cities.

19 Selection of candidate sites within this study area was based on a review of existing information and
20 supplemented with sites identified by local agency staff. These two processes are described in greater
21 detail below.

22 **Review of Existing Information**

23 The Mitigation Team reviewed public documents, maps, and geographic information system (GIS)
24 layers, including information on the soils, hydrology, topography, land use, wetlands, and streams in
25 selected areas of the watershed. Data sources included the following:

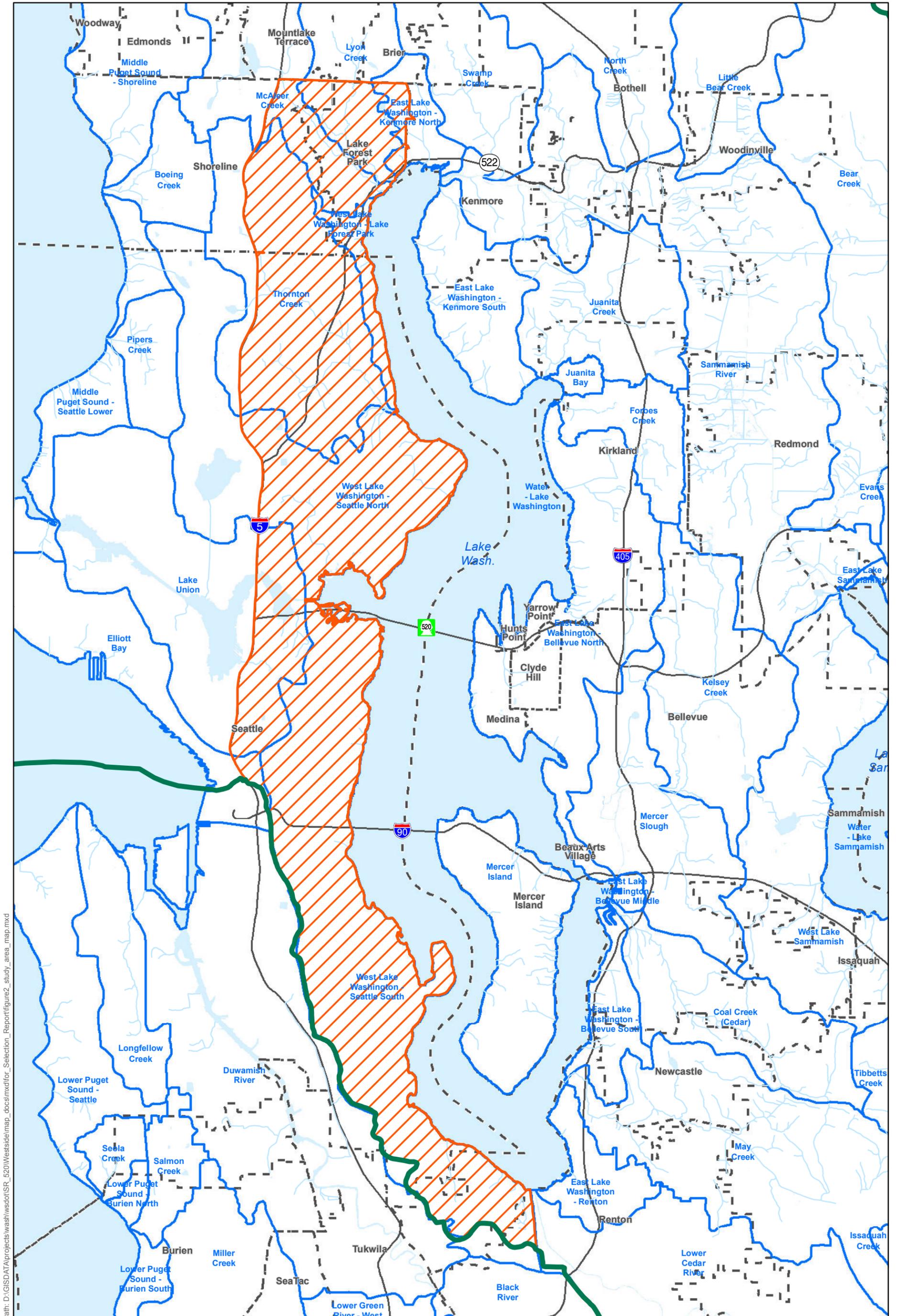
- 26 • Chinook Salmon Conservation Plan – WRIA 8 (February 2005)
- 27 • Puget Sound Nearshore Project Priorities (December 2007)
- 28 • *Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Near Term Action Agenda for Salmon*
29 *Habitat Conservation* (August 2002)
- 30 • *Enhancing Transportation Delivery Through Watershed Characterization: I-405/SR 520 Study*
31 (December 2004)
- 32 • *SR 520 Bridge Replacement and HOV Project EIS: Light Intensity Analysis Technical*
33 *Memorandum* (March 3, 2006)

- 1 • *SR 520 Bridge Replacement and HOV Project EIS: 6-Lane Alternative: Initial Wetland*
2 *Mitigation Plan* (May 17, 2006)
- 3 • *SR 520 Bridge Replacement and HOV Project Draft EIS and Appendix E* (August 18, 2006)
- 4 • WSDOT and King County GIS layers including critical areas, parcels, parks, trails, water
5 system-related data, land use, and zoning (data acquired from WSDOT 2008)
- 6 • Aerial Photography (City of Seattle, 2007, received in March 2009)
- 7 • County Assessor tax parcel information (data acquired from WSDOT, 2006)
- 8 • National Wetlands Inventory (NWI) (U.S. Fish and Wildlife Service)
- 9

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- Legend**
- Study Area
 - WRIA Boundary
 - Municipal Boundary
 - Watershed Boundary
 - Water Body
 - Stream

Figure F1: Study Area Map

Potential/Candidate Mitigation Sites
I-5 to Medina: Bridge Replacement and HOV Project

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1 **Input from Agencies, City of Seattle, and University of Washington**

2 WSDOT established a forum to facilitate early coordination with regulatory agencies and tribes. The
3 Resource Agency Coordination Process (RACP) committee is an interagency committee whose
4 members include WSDOT, USACE, Ecology, Washington State Department of Fish and Wildlife,
5 Muckleshoot Tribe, National Oceanic and Atmospheric Administration, National Parks Service, United
6 States Fish and Wildlife Service (USFWS), City of Medina, City of Bellevue, and the City of Seattle.
7 This standing committee serves as an early permit coordination group to consider a wide range of issues
8 pertaining to the environmental process including effect evaluation and mitigation. The RACP began
9 May 1, 2008 in an effort to provide timely, upfront and coordinated review of the project effects and
10 anticipated permit requirements. Regulatory agencies provided input to the list of potential sites through
11 the RACP coordination efforts.

12 The Mitigation Team also incorporated sites provided by City of Seattle Parks Department staff and the
13 University of Washington staff through their involvement with the I-5 to Medina: Bridge Replacement
14 and HOV Project. Additional sites were added by biologists on the Mitigation Team with extensive
15 experience in the project area through the I-5 to Medina: Bridge Replacement and HOV Project and
16 other local projects.

17 **Potential Site List**

18 Based on the review of information and local agency input, the Mitigation Team developed a list of
19 potential sites within the study area. This master list includes sites that have potential to provide
20 compensatory mitigation for effects related to the I-5 to Medina: Bridge Replacement and HOV Project.
21 The master list is divided into three sub-lists:

22 The *A list* contains the best sites with low risk, based on preliminary screening criteria. The A list
23 is sorted based on the preference criteria to determine the preferred sites.

24 The *B list* contains good sites with low risk. If the A list is reduced following more detailed site
25 analysis or unsuccessful purchase negotiations, then sites from the B list may be used to
26 repopulate the A list. Also, as the project or regulatory requirements become more defined or
27 change, the selection criteria for the A list could change, re-ordering the sites on the A and B
28 lists.

29 The *D list* contains high-risk sites that would require additional detailed analysis in order to be
30 listed on the A or B list.

31 The Mitigation Team has maintained all of the candidate sites on the master list to document the site
32 selection process and to provide flexibility for changes in design or regulatory process.

1 **Paring**

2 The paring process is intended to reduce the number of mitigation sites but still maintain the best sites,
3 providing a wide array of mitigation options. Paring consisted of a five-part process that culled the
4 master list to the best sites for possible acquisition, and sorted the master list to the three sub-lists (see
5 Section 3.3). Pares 1 through 3 removed high-risk sites and sorted the A list to identify the best sites for
6 further analysis. Pares 4 and 5 were not completed for the *Initial Wetland mitigation Plan*, but are
7 intended to focus on detailed site analysis and are intended to identify the five best sites. The remaining
8 sites from each pare were moved to the B list. In this process, candidate sites that are sorted to the B list
9 can be moved back to the A list (or vice versa) as the project design and permit process evolve and as
10 the criteria for mitigation change. A summary of the paring process is shown in Table F1.

11

12

Table 4. Mitigation Site Selection Summary.

	Pare 1	Pare 2 Office	Pare 3 Drive by	Pare 4 Site Availability	Pare 5 Field analysis	Verify Selection Final analysis
Opportunity/Benefits						
Potential mitigation type		Retain sites with mitigation types in the following order of preference: 1. Re-establishment and rehabilitation; 2. Creation; 3. Enhancement. Connectivity to other habitat is also desirable.	Verify and resort A-list. Preliminary Pare to 5 best sites. Others to B list		Conduct detailed reconnaissance level analysis for best sites and estimate mitigation credit. Recommend top sites to Mitigation Planning WG for selection and purchase process	Collaborative selection of top sites.
Special characteristics		Desired habitats: Seattle: lacustrine fringe	Verify	Verify	Verify	
Location		Must fit with local jurisdictions; Others to B	Verify	Verify	Verify	
Cost					Rough Comp from Real Estate Office	Professionally Assessed Value
Risk Factors						
Availability (Risk of loss of site)	Evaluate local restrictions based on agricultural and farm preservation lands. 4f parks areas may be have consistent management plans		Verify	Preliminary contact with owners of best sites. Obtain Right of entry. B-list if denied. Evaluate willingness to sell. B-list unwilling sellers. If less than 5 sites left, elevate top sites from B-list for ROE contact.		WSDOT negotiation with Seller – Identify Easements. If negotiations are successful proceed with detailed conceptual mitigation plan. If negotiations are not successful return to Pare 5 for more sites.
Hydrology (Risk of Failure)			Reliable source of hydrology based on field characteristics – B-list sites with unreliable hydrology to B -list		Evaluate hydrology in the field. B -list sites with unreliable hydrology	
Hazardous Materials	Review Ecology's Toxics Cleanup Program and UST databases D list cleanup sites and LUST sites		Verify		Visual and informal site check for Hazardous Materials	
Cultural Resources	Check Department of Archaeology and Historic Preservation data. No cultural sites known. Locations with a cultural site present are moved to D list..		Verify D-list sites that require excavation other than fill		Informal site check for cultural resources D-list sites that require excavation other than fill.	

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1 **Pare 1**

2 During Pare 1, the Mitigation Team evaluated the candidate sites based on a review of existing
 3 databases and regulations. The criteria that were evaluated included (a) the local land use
 4 regulations/site management plans for candidate sites, and (b) databases showing hazardous materials
 5 and (c) cultural resources. Sites failing the local regulation parameter were moved to the B list. Those
 6 sites that did not meet the hazardous materials were either evaluated in greater detail or moved to the D
 7 list. Those locations with cultural sites present were moved to the D list. Details of the parameters and
 8 the criteria used for them are shown in Table F2.

9 **Table F2. Pare 1 Criteria and Data Sources**

Parameter	Criteria	Information Sources
Site availability (regulations)	Evaluate local restrictions based on agricultural and farm preservation lands. Section 4(f) parks areas must have consistent management plans.	Local regulations (city and county); management plans for individual sites
Absence of hazardous materials	No visible hazardous materials generating facilities. Industrial sites, auto yards, gas station, etc., rejected. Sites requiring cleanup and leaking underground storage tank (LUST) sites are reviewed in greater detail or moved to D list.	The Washington State Department of Ecology's (Ecology's) Toxics Cleanup Program and Leaking Underground Storage Tank (LUST) databases (2009)
Absence of known cultural resources	No cultural sites known. Locations with a cultural site present are moved to D list.	Department of Archaeology and Historic Preservation data (2009)

10

11 **Pare 2**

12 Pare 2 further reduced the sites through opportunity-based parameters. These parameters were potential
 13 mitigation type, special characteristics, and location (see Table F3). To analyze these parameters, the
 14 Mitigation Team developed composite maps for each of the candidate sites using Arc/Info® GIS. The
 15 mapped data included parcels, wetlands, and streams based on existing inventories, maps of hydric soils,
 16 and aerial photography. The Mitigation Team estimated potential mitigation types (e.g., creation, re-
 17 establishment, rehabilitation, enhancement, preservation) for each of the candidate sites based on these
 18 composite maps. The Mitigation Team digitized the mitigation types and calculated the corresponding
 19 areas in Arc/Info. The team then used these calculations to estimate the potential mitigation available in
 20 the current joint guidance found in *Wetland Mitigation in Washington State – Part 1: Agency Policies
 21 and Guidance (Version 1)* (Ecology 2006). The candidate sites were then sorted using the estimated

1 mitigation per site. Candidate sites that met the Pare 2 criteria were used as the basis for the Pare 3 field
 2 analysis.

3 **Table F3. Pare 2 Criteria and Data Sources**

Parameter	Criteria	Information Sources
Potential mitigation type	Retain sites with mitigation types in the following order of preference: <ol style="list-style-type: none"> 1. Re-establishment and rehabilitation; 2. Creation; 3. Enhancement. Connectivity to other habitat is also desirable.	Aerial photographs (WSDOT GIS data 2006); digitized information that the Mitigation Team analyzed in Arc/Info
Special characteristics	Desired habitats in Seattle include lacustrine fringe	Aerial photographs (WSDOT GIS data 2006); digitized information that the Mitigation Team analyzed in Arc/Info; information from local inventories
Location	Must fit with local jurisdictions criteria; others to B list.	Aerial photographs (WSDOT GIS data 2006)

4
 5 ***Pare 3***

6 After Pare 2, the Mitigation Team evaluated the remaining sites in the field. The intent of the field
 7 evaluation was to refine the proposed mitigation types, to note the presence of special characteristics, to
 8 verify the location (in this case adjacent land use and regulatory assumptions) and availability, and to
 9 identify the presence of reliable sources of hydrology and the absence of obvious hazardous materials or
 10 cultural resource issues. All the candidate sites are publicly accessible, so each site was evaluated
 11 directly.

12 Potential mitigation type and sources of hydrology were assessed based on the presence of visibly
 13 identifiable characteristics such as existing wetland vegetation (e.g., willow species, soft rush, sedges,
 14 etc.) and the presence of reliable water sources (e.g., visible channels or areas of existing saturation or
 15 inundation, nearby streams or seeps, contributing watershed area). More detailed studies (e.g. test
 16 borings, installation of piezometers) would need to be performed during the design process to accurately
 17 assess the potential hydrology of the sites. The presence of special characteristics, current land use on
 18 the sites and in the adjoining areas, and the presence of hazardous materials were determined based on

1 visible indicators observed from public rights of way or from aerial photographs. Table F4 lists the
2 criteria and data sources for Pare 3.

3

4

Table F4. Pare 3 Criteria and Data Sources

Parameter	Criteria	Information Sources
Potential mitigation type	Consistent with proposed mapping from Pare 2.	Pare 2 GIS analysis; field data sheets
Special characteristics	Confirm desired habitat.	Field review
Location	Confirm consistency with adjoining land use (record recent changes in land use).	Field review
Availability	Verify compliance of proposed action with status/plan for public areas.	Field review
Hydrology	Confirm reliable source of hydrology.	Field review; field data sheets
Hazardous materials	Confirm absence of materials sources on-site.	Field review
Cultural resources	Confirm absence of cultural resources on-site.	Field review

5 To further refine the potential mitigation type, determine site suitability, and rank the sites, the candidate
6 sites were rated in the field using the *Washington State Wetland Rating System for Western Washington*
7 *- Revised*, Washington State Department of Ecology Publication # 04-06-025 (Hruby 2004). This system
8 assigns wetlands a rating of quality (1 through 4) based on the landscape position, source of hydrology,
9 and the performance of three functions (water quality, hydrologic function, and habitat function). These
10 data served as a baseline to determine potential mitigation type and the potential for increase in
11 ecological function at each of the candidate sites.

12 Each prospective wetland mitigation site was also assessed using the Washington State Department of
13 Transportation (WSDOT) Wetland Mitigation Site Evaluation Matrix (WSDOT 2008). WSDOT's
14 Wetland Mitigation Matrix evaluates sites based on the physical setting, biological/watershed criteria,
15 site success/risk criteria, and site constructability/cost criteria. These four areas receive separate scores.
16 Scores were used to assess accuracy of the potential mitigation type and the potential sources of
17 hydrology.

1 ***Pare 4***

2 Pare 4 was not completed for the *Initial Wetland Mitigation Plan* (WSDOT 2009). Pare 4 was intended
3 to assess the potential for risk due to the loss of the site. The results of this pare would be based on
4 preliminary contact with the owner (or owners) of the top 5 candidate sites. Evaluation criteria include
5 the ability to obtain right of entry and the willingness of the owners to sell the candidate site. If the
6 Mitigation Team is unable to obtain right of entry or the owner is unwilling to sell, the candidate site
7 will be moved to the B list. If less than five sites remain at the end of Pare 4, the Mitigation Team will
8 move up the top sites from the A list for right of entry contact.

9 ***Pare 5***

10 Pare 5 was not completed for the *Initial Wetland Mitigation Plan* (WSDOT 2009). This pare consisted
11 of a detailed on-site analysis of the top sites, up to a maximum of 15. Evaluation would include
12 assessment of both opportunities and risks (see Table F5 for criteria and data sources). The Mitigation
13 Team would present the field evaluation results to the Mitigation Planning Working Group for
14 consultation and selection of the top sites for the purchase process.

15 The Mitigation Planning Working Group consists of Bill Leonard (WSDOT, initiation through
16 December 2007), Paul Fendt (Parametrix, initiation through March 2008), Ken Sargent (Headwaters
17 Environmental Consulting), Michelle Steinmetz (WSDOT), Phil Bloch (WSDOT), Shane Cherry
18 (Cherry Creek Environmental), Jeff Meyer (Parametrix), Gretchen Lux (WSDOT, December 2007 to
19 present), Beth Peterson (HDR, December 2007 to present), Pat Togher (HDR, April 2008 to present),
20 and Bill Bumback (Jones & Stokes).

21

1

Table F5. Pare 5 Criteria and Data Sources

Parameter	Criteria	Information Sources
Potential mitigation type	Recommend top to Mitigation Planning Working Group for selection and purchase process.	On-site comprehensive field review
Special characteristics	Verify/identify unique or unusual habitats and species.	On-site comprehensive field review
Location	Verify jurisdictional and land use parameters	On-site comprehensive field review
Cost	Assess parcel costs based on rough comparables from real estate office.	Review of candidate site by real estate office
Hydrology	Verify site hydrology.	On-site comprehensive field review
Hazardous materials	Visually confirm absence of materials sources on-site.	On-site comprehensive field review (visual assessment)
Cultural resources	Visually confirm absence of cultural resources on-site.	On-site comprehensive field review (visual assessment)

2 Field analysis would also include an assessment of site habitat functions, ability to produce specific
3 aquatic and hydrologic regimes, and potential construction techniques needed to achieve mitigation,
4 along with relative costs and feasibility.

5

1 **1.3 Results**

2 The initial list of sites was quite limited due to the heavily developed nature of the study area. Most of
3 the available sites are publicly owned, either by the City of Seattle Parks or by the University of
4 Washington. The initial site list included 11 sites in the vicinity of Seattle; 7 of the sites are lacustrine, 3
5 are primarily riverine, and 1 is primarily palustrine depressional. This initial candidate list and
6 supporting information has been retained, and additional sites can be added to the list for consideration
7 at any time.

8 **1.3.1. Pare 1**

9 During Pare 1, the Mitigation Team evaluated the 11 candidate sites from the initial list. Two candidate
10 sites (W2 – Montlake Playfield and W7 University of Washington Union Bay Natural Area) failed the
11 hazardous materials portion of Pare 1 because they are listed in the hazardous materials site database.
12 However, the Mitigation Team felt that the risks at these sites could be managed during the design
13 process. The W7 site was specifically identified for potential mitigation by the University of
14 Washington and has successfully been used by the University as a demonstration wetland restoration
15 project. This indicates that despite the limitations, the site has the potential to successfully provide
16 mitigation. As a result, both sites will continue through the paring process.

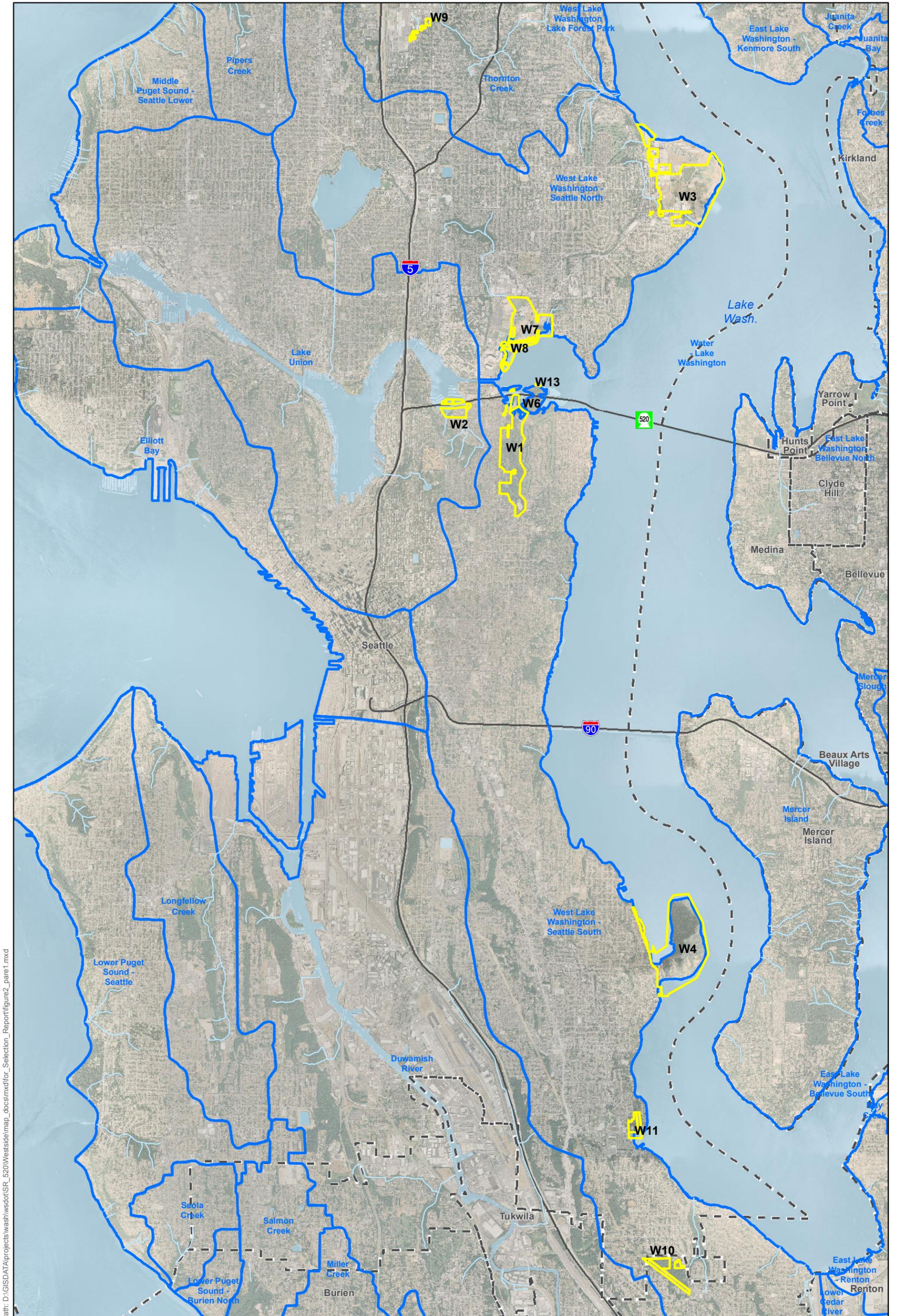
17 Three sites (Sites W1 - Washington Park Arboretum, W6 – WSDOT Owned Peninsula, and W13- Foster
18 Island) have cultural sites present. The consensus of the team was that these risks can also be managed
19 during the design process. As a result, no sites were eliminated due to the presence of cultural resources.

20 All 11 sites remained for further consideration at the end of Pare 1. The 11 sites are shown in Figure F2,
21 and descriptions are provided in the Pare 1 List.

22 **1.3.2. Pare 2**

23 The Mitigation Team evaluated the 11 candidate sites using the Pare 2 criteria, and retained all of the
24 sites. Since no sites were removed during Pare 1, the reader is again referred to Figure 2, which shows
25 all 11 sites. Site details are listed in the Pare 2 list.

26



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- Legend**
- Candidate Site
 - Municipal Boundary
 - Watershed Boundary
 - Water Body
 - Stream

Figure F2: Results of Pare 1 and 2

Potential/Candidate Mitigation Sites I-5 to Medina: Bridge Replacement and HOV Project

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1 **1.3.3. Pare 3**

2 The Mitigation Team visited the 11 candidate sites on June 24, July 1, and July 7, 2009. All of the
3 candidate sites were publicly accessible, so members of the Mitigation Team were able to directly access
4 the areas and evaluate the potential on each site. Formal wetland delineations were not performed for
5 these sites and no formal soil, vegetation, or hydrology sample plots were taken. Ecology wetland rating
6 forms and Wetland Mitigation Site Evaluation Matrix forms were completed for each site. Following the
7 in-office analysis of the information from the field evaluation, one site (W3) was moved to the B List
8 because the current mitigation activities on-site have utilized much of the mitigation potential at the site.
9 Mitigation opportunities at several other sites were either expanded or reduced based on the conditions
10 observed in the field.

11 The 10 sites retained after Pare 3 are shown in Figure F3. These sites include:

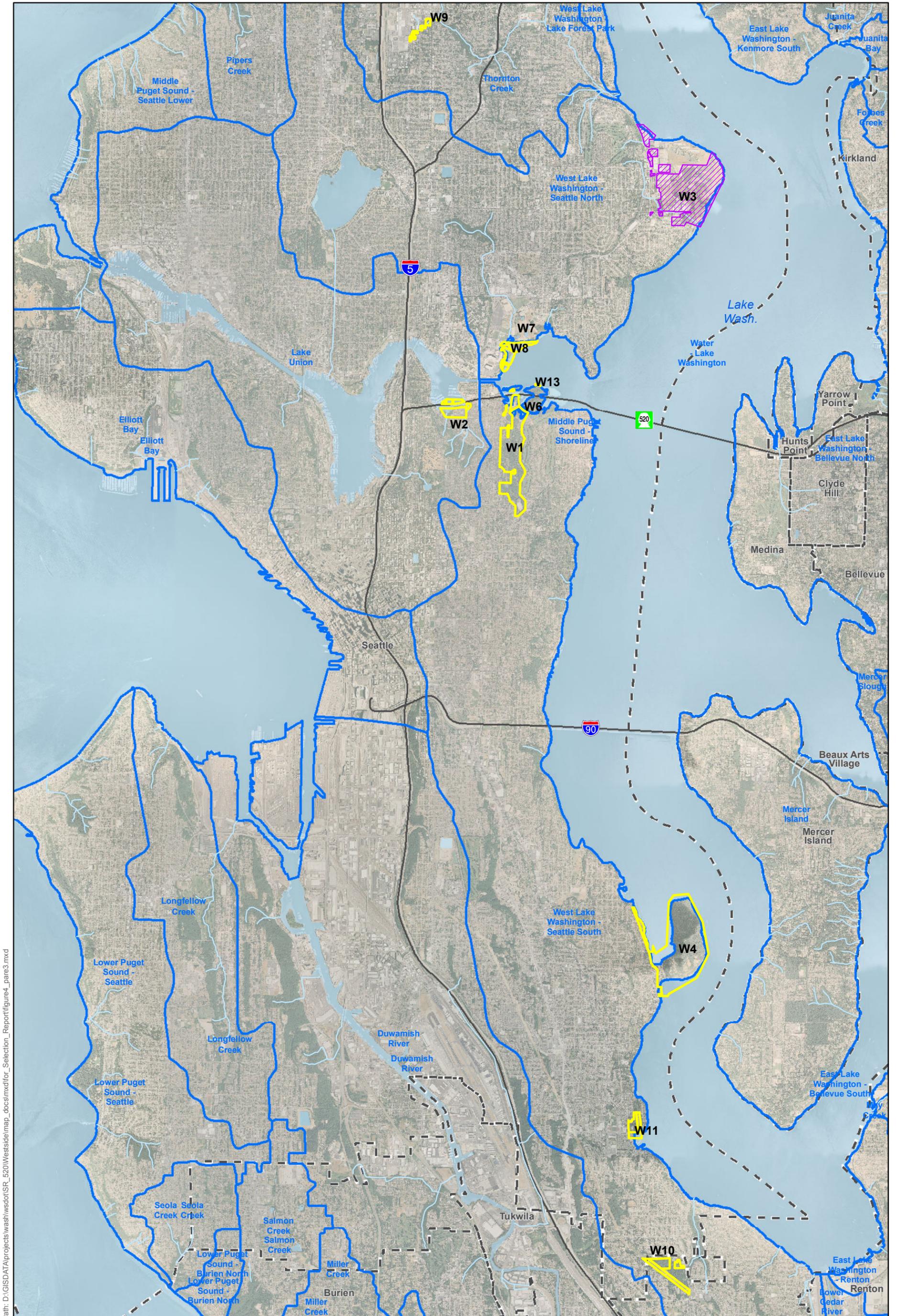
- 12 • Site W1: Washington Park Arboretum
- 13 • Site W2: Montlake Playfield
- 14 • Site W4: Seward Park
- 15 • Site W6: WSDOT-Owned Peninsula
- 16 • Site W7 and W8: University of Washington Union Bay Natural Area and Shoreline Wetland
- 17 • Site W9: Headwaters of Thornton Creek South Fork
- 18 • Site W10: Headwaters of Taylor Creek
- 19 • Site W11: Mapes Creek Shoreline Restoration
- 20 • Site W13: Foster Island Shoreline Restoration

21 A discussion of each of these sites was provided to regulatory agencies in the *Medina to SR 202:*
22 *Eastside Transit and HOV Project Initial Wetland Mitigation Report* (WSDOT 2009).

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- Legend**
- A-List
 - B-List
 - Municipal Boundary
 - Watershed Boundary
 - Water Body
 - Stream

Figure F3: Results of Pare 3

Potential/Candidate Mitigation Sites
I-5 to Medina: Bridge Replacement and HOV Project

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1 **1.3.4. Pare 4**

2 Although Pare 4 was not completed for the *Initial Wetland Mitigation Plan* (WSDOT, 2009), no sites
3 were eliminated due to acquisition limitations, since all of the sites listed would be constructed jointly
4 with the owners, all of which area public agencies or utilities.

5 **1.3.5. Pare 5**

6 Pare 5 was not completed for the *Initial Wetland Mitigation Plan* (WSDOT, 2009). No sites were
7 eliminated from consideration based on costs of the site or the potential for mitigation.

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1.4 Mitigation Site Selection

In the time between the submittal of the *Initial Wetland Mitigation Plan* (October 2009) and the development of the *Draft Wetland Mitigation Plan* (WSDOT February 2011), the wetland impacts from the I-5 to Medina: Bridge Replacement and HOV Project were refined, the concepts for the 10 sites from the sorting and paring process were advanced and revised, and input from the NRTWG members and comments from agency staff and stakeholders was incorporated into the mitigation concept. Based on the advances in project design, a refined understanding of the project's wetland impacts and mitigation needs, and limitations at the proposed mitigation sites, the compensatory mitigation proposed for the project was revised. From the list of 10 sites remaining after the pare 5, three sites were retained. These sites are:

- Site W1: Washington Park Arboretum (retained to meet ESBB 6392, but there is no suitable wetland mitigation credit available at the site)
- Site W6: WSDOT-Owned Peninsula
- Site W7 and W8: University of Washington Union Bay Natural Area and Shoreline Wetland (W7 was combined the northern portion of W8 and retained as one site)

The following six sites were dropped due to limited potential for suitable mitigation activities

- Site W2: Montlake Playfield
- Site W4: Seward Park (retained for aquatic plan)
- Site W9: Headwaters of Thornton Creek South Fork
- Site W10: Headwaters of Taylor Creek
- Site W11: Mapes Creek Shoreline Restoration
- Site W13: Foster Island Shoreline Restoration

Two new sites were added based on comments from agencies and other NRTWG members. The two new sites are:

- Magnusson Park (added to meet local mitigation requirements and provide additional compensatory wetland mitigation)

- 1 • Elliott Bridge Reach (a joint aquatic and wetland mitigation site, added to address watershed
2 needs and provide additional compensatory wetland mitigation)

3 The addition of these 2 sites brings the total number of compensatory wetland mitigation sites to five.

4 The primary factors in recommending the five proposed mitigation sites include:

- 5 • Identification of suitable mitigation opportunities at the sites that meet watershed goals
6 • Previous identification of the sites as suitable for wetland mitigation
7 • The larger size of the parcels provides suitable area for the mitigation needs at applicable ratios
8 • Potential for mitigation that will realize benefits to multiple habitat types (e.g. wetlands and
9 streams).
10 • Location and landscape position of the site
11 • Feasibility of construction at the site
12 • Presence of a suitable source of wetland hydrology
13 • Willingness of current owners to allow WSDOT to the portion of the site suitable for the
14 mitigation needs of the project.
15 • Absence of hazardous materials on site
16 • Absence of culturally significant resources on site

17 The six sites were not recommended for mitigation for various reasons including:

- 18 • More limited options for mitigation
19 • Less desirable mitigation opportunities
20 • Less desirable mitigation ratios
21 • Constraints with existing land use

22 Constraints imposed by adjoining land uses

23

1 **Appendix G –Errata Page List**

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SR 520 Bridge Replacement and HOV Program

I-5 to Medina: Bridge Replacement and HOV Project



Document Name: SR 520 Bridge Replacement and HOV Project JARPA Comments

Document Lead:

Comment Source: Final Wetland Plan (FWMP)

Comment No.	Comment Reference	Document and Page Reference	Line No. (if applicable)	Comment	Remarks	Included in Errata	Errata Replacement Sheet(s)
1	Ecology	Page iv	lines 19-21	"final mitigation proposed..." Please remove this sentence.	Removed	✓	FWMR - i, ii (back)
2	Ecology	Page 21/Page 22	lines 29-32 / lines 1-5	The numbers in the parentheses add up to 2.43 for Cat II perm shade impacts (versus the total shown of 2.48) and 2.44 for Cat III perm shade (versus the total shown of 2.39). Please revise.	2.43 is correct for Category II vs 2.48, this # will be corrected. For Category III, the total is correct. Aquatic areas in parenthesis should read 1.96. This # will be corrected.	✓	FWMR - 21-22
3	Ecology	Page 39	lines 30-31	The numbers in the parentheses add up to 0.24, where the total shown is 0.29.	0.29 acres is the correct total, 0.05 acre Lacustrine aquatic bed will be added to complete the breakdown.	✓	FWMR - 39, 40
4	Ecology	Page 41/Page 43	Line 30/Line 24	Permanent shading should be 4.87, not 4.84.	These #'s will be corrected.	✓	FWMR - 41 - 44
5	Ecology	Page 72 also p iv.	Table 9	Wetland establishment of UBNA and Magnuson Park add up to 6.96 acres versus the 7.03 acres shown on Page iv, line 7. Also, the total adds up to 9.21 acres in Table 9 versus 9.28 acres on Page iv.	Table 9 is correct. Page iv (7.03 acres) will be corrected to 6.96 acres.	✓	FWMR - iii (front), iv
6	Ecology	Page 87	L. 9 & 10	"As additional hydrologic data become available, this information will be used to revised the grading plan and will be incorporated into PS&E for the site." Hydrology for this site is already known. Please remove this sentence.	Sentence will be removed.	✓	FWMR - 87, 88 (back)
7	Ecology	Page 89	Line 2	"Emergent planting areas are shown in Appendix E." No specific emergent planting areas shown in the planting plan in Appendix E.	Sentence will be removed - emergent species are to be planted on the water line along with live stakes. E-9 has also been revised to show waterline plantings.	✓	FWMR - 89, 90 (back), E-9
8	Ecology	Page 89	Lines 7&8	"Additional modifications to the species selected may be made as additional site design information (particularly hydrology data) becomes available. Please remove "hydrology data."	Sentence will be revised for clarity. Additional analysis of hydrology will be conducted during advanced design phases and will inform final species selection.	✓	FWMR - 89, 90 (back), E-9
9	Ecology	Page 114	Lines 24-26	"As more complete hydrologic data becomes available, this information will be used for PS&E". No hydrologic information data is being collected at this time, so please remove.	Sentence will be removed.	✓	FWMR - 113 (front), 114
11	Ecology	Appendix E	Figure E-5	Only one of the two section cut lines shown from Figure E-2.	The East/west cut doesn't show the extent of earth moving well, so it was replaced with the north to south section. The E/W section cut will be removed from E-2.	✓	FWMR - E-2+back
12	Ecology	Page 72	Table 9/Figure 8	Magnuson Park is shown as having 4.67 acres of wetland establishment, and 2.44 acres of wetland rehabilitation. Figure 8 shows 4.74 acres of wetland establishment and 2.61 acres of wetland rehabilitation. Please revise Figure 8.	The figures you quote from the text are correct. A revised figure has been provided.	✓	FWMR - 133, 134 (back)
13	Ecology	Pgs 149 & 150	Table 22	Various places in the table have 5.26 acres of wetland instead of 5.09 acres.	Areas for these functional descriptions will be corrected to 5.09.	✓	FWMR - 149, 150
14	Ecology	Page 152	Several	Three "5.26" on this page should be changed to "5.09."	Areas for these functional descriptions will be corrected to 5.09.	✓	FWMR - 151 (front), 152
15	Ecology			Please provide the final grading plan that includes hydrologic and stream flow data once it is available for the Elliot Bridge Reach Mitigation Site.	The grading design will be provided during advanced phases of PS&E.		
16	Ecology	Pages 183-184		Please specify which sites will have distinct emergent habitats. Currently only the UBNA and Magnuson Park sites have defined emergent wetland planting areas on the planting plans. Please clearly state in the Wetland Vegetation section on page 183 that the emergent habitats performance standards are only for the UBNA and Magnuson Park. If this standard is also meant for the WSDOT and Elliot sites, they need defined emergent areas on their planting plans.	Will revise text to note that emergent (P183 L 17) performance criteria pertain only to UBNA and Magnuson.	✓	FWMR 183, 184 (back)
17	Ecology	Pages 184-185		The species diversity performance standards don't make sense to me. How will native plant species increase after Year 0 (as-built)? Please explain. This performance standard was not in the August 2011 version of the report.	The purpose of Year 0 is to establish the existing species composition prior to the construction. The definition of Year 0 will be added to the description of the performance standards.	✓	FWMR - 185, 186 (back)

Document Name: SR 520 Bridge Replacement and HOV Project JARPA
Comments

Document Lead:

Comment Source: Final Wetland Plan (FWMP)

Comment No.	Comment Reference	Document and Page Reference	Line No. (if applicable)	Comment	Response	Included in Errata	Errata Replacement Sheet(s)
1	Corps	FWMR - i	4th par.	This paragraph needs to be updated to reflect the selection of the preferred alternative and the issuance of the Record of Decision.	The FWMP will be revised to read: This mitigation plan is based on the preferred alternative identified in the Final EIS; thus, it presents the design and impacts associated with the preferred alternative. A formal decision on the selected alternative was described in the Record of Decision (ROD), issued in August 2011.	✓	FWMR i, ii (back)
2	Corps	FWMR - 11	Fig. 2	Thank you for adding the project delivery schedule by design phase. This partially fulfills comment #4 in the previous comment letter dated September 13, 2011. Please add what the wetland and aquatic impacts will be per design phase.	The impacts by project delivery schedule detailed in Figure 2 will be incorporated into Table 1 of the Final Wetland Mitigation Report with clarifying language added to correlate the impacts to the project delivery phase. An analogous table will replace the existing Table 6-16 in the Final Aquatic Mitigation Plan.	✓	FWMP 23-26, edits on 24-25
3	Corps	FWMR - 25	Table 1	The permanent wetland fill impact shown for Wetland LWS-4A is 0.02 acre, while Sheet 3 of the permit drawings has 0.03 acre. Please revise the document with the incorrect number.	Sheet 3 has been revised to reflect the correct impact number of 0.02 acre. Short term temporary impacts were also clarified.	✓	FWMR 31-34
6	Corps	FWMR - 133	Fig. 8	The buffer along the west edge of Wetland K1/K2 and Wetland K3 may be reduced by to 55 feet using buffer width averaging. If a 55-foot buffer is not feasible, a paper buffer will need to be provided. Please revise Figure 8 and the text as needed.	Road removal will be extended to the north to provide the 55-foot buffer around the NW edge of Wetland K1/K2. Concept figure will be updated to reflect this change. The buffer for Wetland K3 extends into the adjacent Seattle Parks mitigation site. The Parks mitigation site will provide adequate buffer functions for Wetland K3.	✓	FWMR - 69 (total buffer area), 70, 71, 72 (Table 9), 133, 134 (back)
7	Corps	FWMR - 133	Fig. 8	Comment #39 in the previous comment letter dated September 13, 2011, requested the culvert that will convey flows from Wetland J1 to the wetland establishment area contiguous with Wetland K1/K2 be shown on Figure 8. The culvert was added to Figure E-3. Unfortunately Figure E-3 does not show the wetland establishment area. Please add the culvert to Figure 8.	The culvert locations (shown as blue flow arrows) will be confirmed and further clarity will be provided in the associated call-outs.	✓	FWMR - 133 134 (back)
8	Corps	FWMR - 139	2nd par.	The text mentions Wetland J1. Figure 8 does not show a Wetland J1. Please revise Figure 8 or the text to reflect the correct wetland name.	Figure 8 will be revised to show wetland J1.	✓	FWMR - 133 134 (back)
10	Corps	FWMR - 140	line 21	Please add the existing culvert to Figure 8.	The culvert locations (shown as blue flow arrows) will be confirmed and further clarity will be provided in the associated call-outs.	✓	FWMR - 133 134 (back)
11	Corps	FWMR - 140	line 22	Please identify where the existing bunkers are located on Figure 8.	Figure 8 will be revised to show the existing bunker locations.	✓	FWMR - 133 134 (back)
13	Corps	FWMR - 183 FWMR - 184	Wetland Vegetation Performance Standards	The emergent vegetation standards are a lower percent cover than what was proposed in the draft wetland mitigation report. Please change the emergent vegetation performance standard back to what was presented in the draft wetland mitigation report.	This performance standard has been revised based on discussions from USACE.	✓	FWMR - 183 FWMR - 184

SR 520 Bridge Replacement and HOV Program



I-5 to Medina: Bridge Replacement and HOV Project

14	Corps	FWMR - 185	line 3	Does the Year 0 performance standard count the baseline conditions or the as-built conditions? If it reflects the as-built conditions, is achieving this performance standard based on natural recruitment? Please revise the Year 0 performance standard or the preceding paragraph on page 184 to clarify how this performance standard will be monitored.	The purpose of Year 0 is to establish the existing species composition prior to the construction. The definition of Year 0 will be added to the description of the performance standards. The subsequent performance standards would include both planted materials and natural recruitment.	✓	FWMR - 185, 186 (back)
15	Corps	FWMR - Figures	Figures E-8 & E-9	A 10-foot inner buffer is shown on each of these planting plans. Tables 12 and 16 in the text do not have an inner buffer plant assemblage. These planting plans also do not show the emergent and water's edge wetland enhancement plantings proposed in Tables 12 and 16. Please review the tables and/or figures so that they match.	The denser interior plantings are shown on the buffer planting lists Tables 13 and 17. Figure E-8 had been revised to clarify the location of the water's edge planting area. Emergent plantings are shown in Figure E-9 as a single, diagonal hatch. E-9 has also been revised to show the water's edge planting on Lake Washington.	✓	Figures E-8 & E-9