Washington State Department of Transportation

SR 520 Bridge Replacement and HOV Program

Medina to SR 202: Eastside Transit and HOV Project

Final Wetland Mitigation Report

Evans Creek Mitigation Site

Addendum

Medina to SR202: Eastside Transit and HOV Project

Washington State Department of Transportation

March 26, 2012

Contents

Introduction 4

Mitigation Site Existing Conditions 4

Mitigation Site Design 5

Construction Related Impacts at Evans Creek Mitigation Site 8

- Access Bridges 8
- Access Roads and Staging Area 12
- Temporary Easements 12
- Instream Work 13
  - Work Window 13
  - Erosion Control 14

Summary of Impacts to Wetlands 15

Mitigation Provided at Evans and Yarrow Creek Mitigation Sites 17

Figures

Figure 1. Evans Creek Mitigation Site Design 7

Figure 2. Environmental Construction Impacts at the Evans Creek Mitigation site. 10

Tables

Table 1. Comparison of 2009 and 2012 Evans Creek Mitigation Site designs. 6

Table 2. Evans Creek Construction Impacts and Mitigation Needs 11

Table 3. Permanent and Temporary Wetland Impacts and Mitigation Needs 16

Table 4. Mitigation provided by Evans and Yarrow Creek Mitigation Sites 17

Appendices

Appendices

Appendix A. Groundwater Data: Piezometer locations and well data

Introduction

The *Medina to SR202: Eastside Transit and HOV Project Final Wetland Mitigation Report* (final mitigation report) was submitted on April 26, 2010. Since the report was drafted additional information has been collected at the Evans Creek Mitigation Site (also known as the Keller Mitigation Site) and several design elements have been updated with more detail. Construction of the wetland mitigation site will result in permanent and temporary impacts to streams and wetlands and associated buffers, primarily through construction of an access bridge and associated smaller temporary work bridge, temporary access roads, and temporary construction staging, as well as impacts to construction easements that were not considered when the plan was initially developed.

This addendum serves to update the original report to provide new information about impacts to wetlands that will occur during construction of the Evan's Creek wetland mitigation site that were not accounted for during the conceptual phase, and an accounting of how those impacts will be mitigated. The information in this report is based on the original impact assessment numbers identified in the Final Wetland Mitigation Report and updated information from the design process for the Evan's Creek Wetland Mitigation site.

Mitigation Site Existing Conditions

The extent of wetlands on the site was shown in Figure 4 of the April 2010 Wetland Mitigation Report. The Wetland Assessment Report dated February 2010 provides details of the delineation and existing wetland conditions. The report identified a narrow band of upland 50-100 feet wide on the east bank of Bear Creek. Hydrology data collected from groundwater wells since that delineation reveal that groundwater levels are regularly within one foot of the soil surface for extended periods during the growing season throughout the area identified as wetland in the April 2010 mitigation report. A summary of this hydrology data is presented in Appendix A.

Mitigation Site Design

The original mitigation site design in the final mitigation report stated that within the 30.56 acres that will be rehabilitated at the mitigation site, 25.48 acres will be wetland rehabilitation, 3.56 acres will be wetland rehabilitation within the site buffer, and 1.52 acres of disturbed riparian upland will be enhanced to a riparian forest condition (Table 1). Within the rehabilitated wetland area the report also identified a backwater stream channel of approximate 0.82 acre and associated streamside riparian area.

A more detailed level of survey and design indicates that the site comprises 30.85 acres, 25.08 of which will be wetland rehabilitation. The narrow strip of riparian upland on the east side of Bear Creek now accounts for 1.3 acres. The backwater channel will be approximately 0.60 acre. Regulatory buffers have been established on the site to protect the functions developed with this project. Wet buffer now comprises 3.54 acres at the site, and upland buffer is 0.33 acres (Table 1 and Figure 1). The ordinary high water mark (OHWM) has been defined for this site as the extent of wetlands associated with Evans Creek; therefore the OHWM line in Figure 1 also delimits existing wetlands on the site.

Piezometer data collected since the final mitigation report was drafted indicate the riparian upland is wetter than originally thought. Changes to site hydrology that will be accomplished through wetland rehabilitation and channel development may establish more wetland conditions along portions of this site. The Year 10 wetland delineation will assess the extent and location of wetlands on the site. If the acreage of rehabilitated wetlands is greater than 25.08 acres then additional wetland rehabilitation value will have been established. Any additional value would only be applied to satisfy the regulatory requirements of the Medina to SR202: Eastside Transit and HOV Project.

Table 1 shows a comparison of mitigation elements between the 2009 Conceptual Plan and the current design. The revised plan summarized in Figure 1 and Table 1 reflects the 60% level of design.

All existing areas of wetland are proposed as wetland rehabilitation of a Category II wetland. This area does not include the 0.60 acre of new stream channel, which has been designed as a backwater channel compatible with the City of Redmond's plans to realign Evans Creek through this area in the future.

Table 1. Comparison of 2009 and 2012 Evans Creek Mitigation Site designs.

2009 Evans Creek Mitigation Concept	Acreage	2012 Evans Creek Mitigation Design	Acreage
Wetland Rehabilitation Area			
Forested Riparian and Scrub Shrub Wetland	24.66	Forested and Scrub Shrub Riparian Wetland	25.08
Channel	**0.82**	Channel	0.60
Riparian Upland Enhancement	**1.52**	Riparian Upland Enhancement	1.30
Total	**27.00**		**26.98**
Upland enhancement and buffer (no mitigation credit)			
Wetland Rehabilitation within Mitigation Site Buffer (no mitigation credit)	**3.56**	Wet Forest Buffer (wetland rehabilitation within the buffer)	**3.54**
Upland buffer			**0.33**
TOTAL	**30.56**	**----**	**30.85**

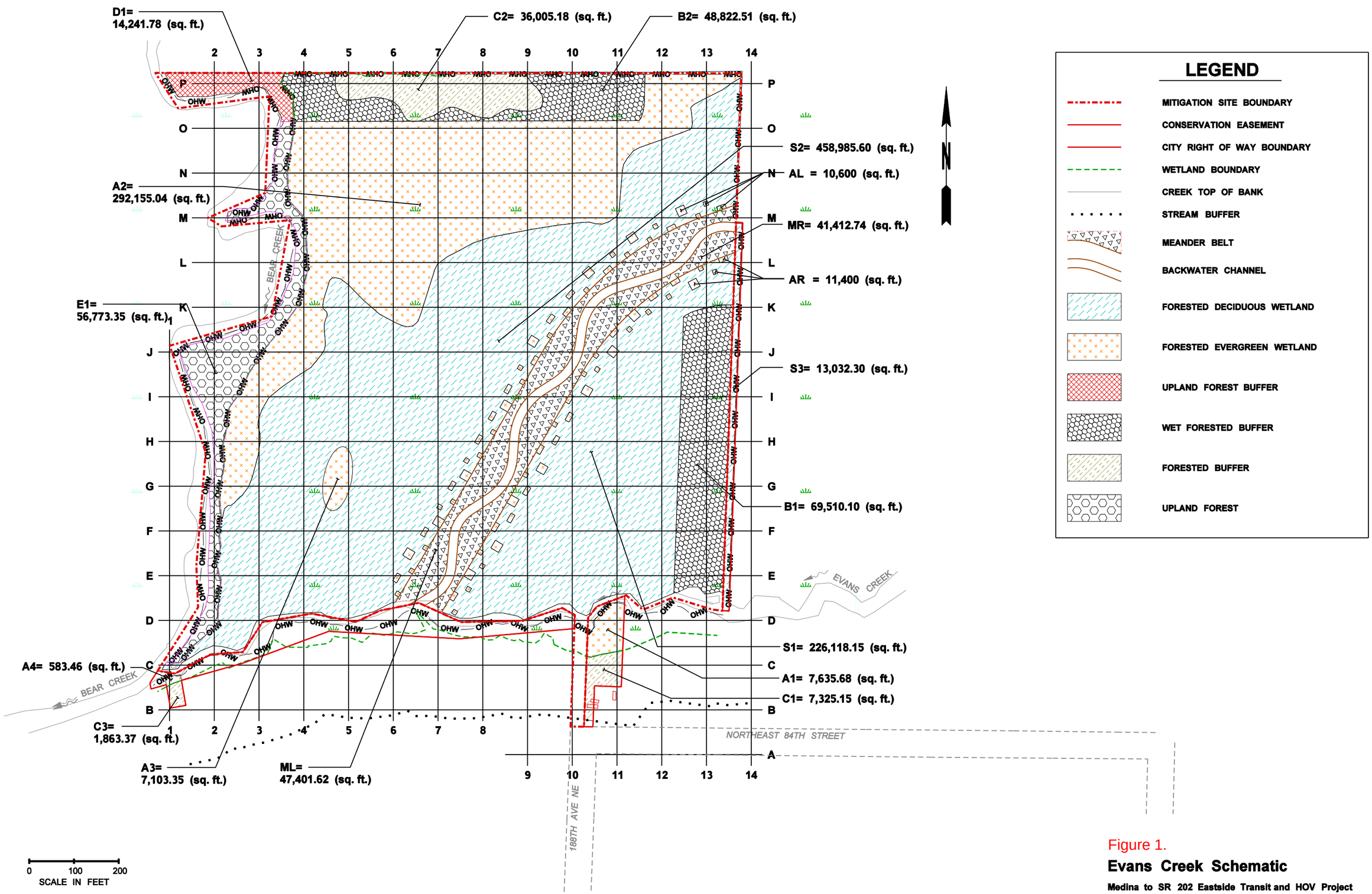


Figure 1.

Evans Creek Schematic

Medina to SR 202 Eastside Transit and HOV Project

FILE NAME: PW:\SpecialProjectsOffice\XL3874_Evans_Creek_Wetland_Mitigation\CADD\Conceptual\Update-BufferSchematics\XL3874_MC_EvansCreek-Schematic.dgn

Construction Related Impacts at Evans Creek Mitigation Site

The following section provides a detailed update of construction related impacts associated with the Evans Creek Mitigation site.

Access Bridges

The conceptual design of the mitigation site stated that construction activities would require a temporary access road and temporary bridge over Evans Creek to allow construction equipment to access the site, resulting in 0.02 acres of long-term temporary wetland impacts and 0.08 acres of temporary stream and wetland buffer impacts. Those numbers were based on the bridge being in place for approximately three years. Further refinement of design has determined the bridge will need to remain in place until the site meets the performance standards provided in the mitigation report (up to 13 years) to allow monitoring and maintenance crews to do any adaptive management of the site as necessary.

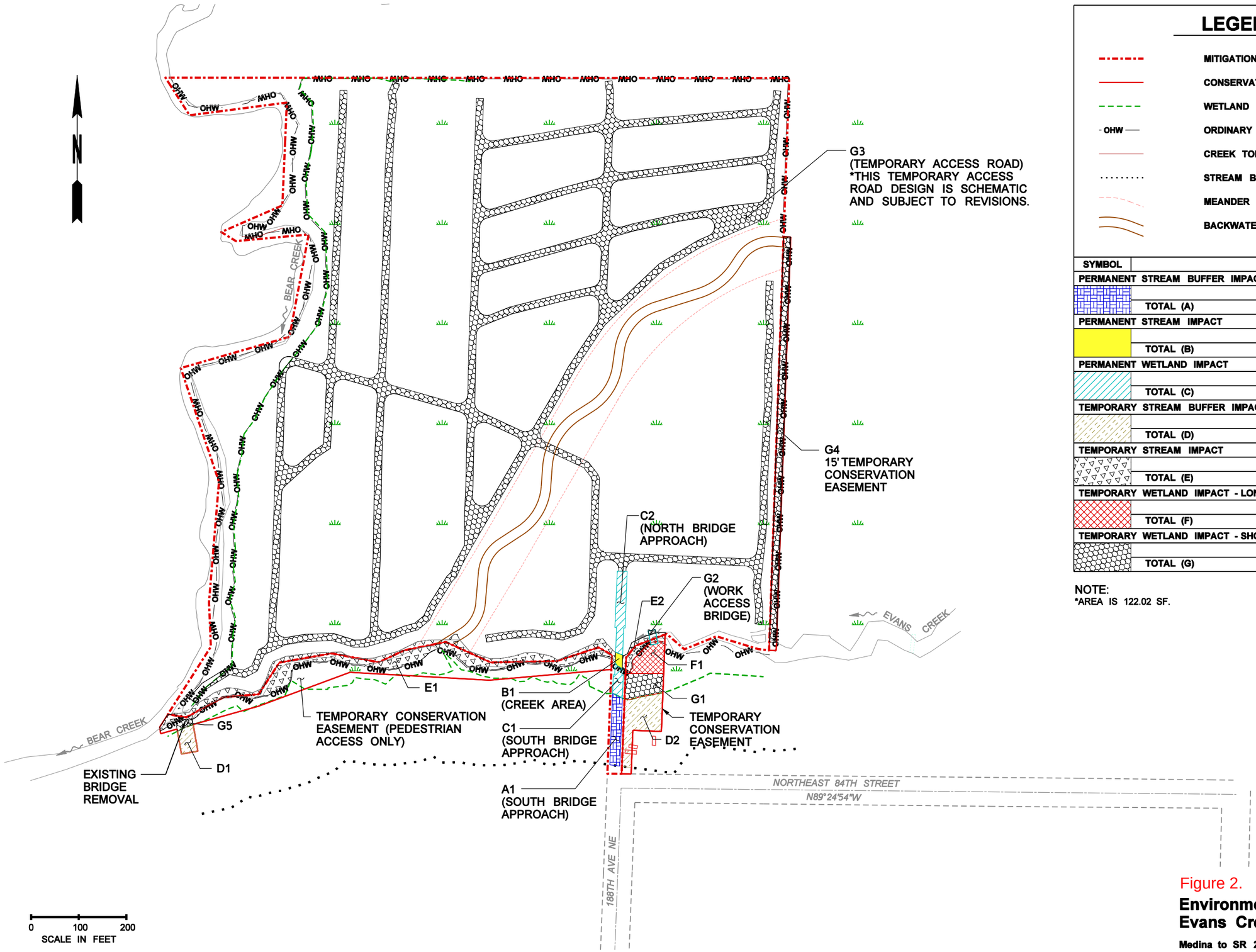
The bridge may be removed early if all performance standards have been met, but the bridge, bridge abutments, and bridge foundation will be considered permanent impacts due to the long-term nature of the structure. Bridge construction will result in direct impacts to the wetland and Evans Creek as well as their buffers due to placement of fill, as well as indirect impacts due to shading. The bridge will be constructed in the first construction season (2012) within the in-water work window specified by WA Department of Fish and Wildlife for Evans Creek. The bridge will be designed by the construction contractor in accordance with WSDOT preliminary designs and contract specifications.

The bridge will need to be a substantial structure to transport heavy machinery to the site and provide access for monitoring and maintenance crews during the ten-year monitoring and maintenance period. The bridge will be approximately 20 feet wide (with a usable width of 15 feet) and 100 feet long, and will span the channel of Evans Creek as well as the floodway. The bottom of the bridge will be approximately one foot above the 100-year flood elevation to ensure high flows and associated debris can pass under the bridge. The bridge foundation is likely to be a driven pile system. Bridge abutments will be welded wire faced structural earth retaining walls approximately six feet high, 24 feet wide, and 120 feet long. Bridge construction will result in approximately 0.01 acres of permanent stream impact, 0.07 acres of permanent stream buffer impact, 0.11 acres of permanent wetland impact, 0.09 acres of long-term temporary wetland

impact (removal of woody vegetation), and 0.09 acres of short-term temporary wetland impact (Figure 2). Permanent and long-term temporary impacts to wetlands on-site will be mitigated for at ratios specified for permanent impacts to Category II wetlands in the 2010 Mitigation Plan (Table 2).

The bridge will be removed once it is no longer needed for monitoring and adaptive management. The bridge abutments and above-ground features will be hauled off site; the below-ground pilings will be cut off 2-feet below the finish grade and left in place. The area will be restored by de-compacting soils, grading and planting with native vegetation.

A small short term temporary work bridge will be constructed for access to construct the long term temporary bridge (Figure 2, G2). This short term temporary bridge will completely span Evans Creek; no material will be placed within the creek, and the structure will be constructed within the in-water work window specified by the HPA. This bridge will be removed once construction of the long term temporary bridge is complete, within the first construction season.



LEGEND

- MITIGATION SITE BOUNDARY
- CONSERVATION EASEMENT
- WETLAND BOUNDARY
- OHW — ORDINARY HIGH WATER
- CREEK TOP OF BANK
- STREAM BUFFER
- MEANDER BELT
- BACKWATER CHANNEL

SYMBOL		QUANTITY (acre)				
PERMANENT STREAM BUFFER IMPACT		A1				
		0.07				
	TOTAL (A)	0.07				
PERMANENT STREAM IMPACT		B1				
		0.01				
	TOTAL (B)	0.01				
PERMANENT WETLAND IMPACT		C1	C2			
		0.03	0.08			
	TOTAL (C)	0.11				
TEMPORARY STREAM BUFFER IMPACT		D1	D2			
		0.04	0.17			
	TOTAL (D)	0.21				
TEMPORARY STREAM IMPACT		E1	E2			
		0.55	0.06			
	TOTAL (E)	0.61				
TEMPORARY WETLAND IMPACT - LONG TERM		F1				
		0.09				
	TOTAL (F)	0.09				
TEMPORARY WETLAND IMPACT - SHORT TERM		G1	G2	G3	G4	G5
		0.09	0*	3.78	0.29	0.01
	TOTAL (G)	4.17				

NOTE:
*AREA IS 122.02 SF.

Figure 2.

Environmental Construction Impacts
Evans Creek Mitigation Site

Medina to SR 202 Eastside Transit and HOV Project

FILE NAME: PW:\SpecialProjectsOffice\XL3874_Evans_Creek_Wetland_Mitigation\CADD\Mitigation Plan_EnviroWetland Impact\XL3874_PS_EnviroImpactSheet.dgn

Table 2. Evans Creek Construction Impacts and Mitigation Needs

Construction Impact	Impact (ac)	Area shown in Figure 2	Mitigation Needed (ac)*	Mitigation Strategy
Permanent wetland impacts from bridge	**0.11**	**C1, C2**	**0.66**	Mitigate Category II permanent wetland impacts at 6:1 ratio with wetland rehabilitation.
Long-term temporary wetland Impacts to woody vegetation	**0.09**	**F1**	**0.14**	Mitigate Category II long-term temporary wetland impacts at 1.5:1 ratio with wetland rehabilitation.
Permanent stream impacts from bridge	**0.01**	**B1**	**-**	Creation of new stream channel.
Conversion of wetland to stream channel	**0.60**	**-**	**-**	Restoring a natural stream channel is consistent with the overall rehabilitation of hydrologic processes at this site and is self-mitigating.
Short-term temporary wetland impacts (less than one year) associated with easements and access bridge	**0.39**	**G1, G2, G4, G5**	**-**	Restore grades and revegetate with native wetland vegetation.
Short-term temporary wetland Impacts associated with access roads	**3.78**	**G3**	**-**	Restore grades and plant per site plan for wetland rehabilitation.
Short term temporary stream impacts from temporary stream diversion, bridge construction, and equipment operating in the creek.	**0.61**	**E1, E2**	**-**	Remove temporary diversion and restore streamside vegetation.
Permanent wetland/stream buffer Impact	**0.07**	**A1**	**-**	Establish regulatory buffer areas on site that protect wetlands and streams within site.
Temporary stream buffer impact	**0.21**	**D1, D2**	**-**	Restore native stream buffer vegetation.
Total Mitigation Needs			**0.80**	

*Mitigation needed estimate is based on mitigating with wetland rehabilitation from the Evans Creek site.

Access Roads and Staging Area

Temporary access roads will be necessary to access the site during construction. A network of roads totaling approximately 3.79 acres will be constructed and remain in place for one season, resulting in 3.78 acres of temporary wetland impacts (Figure 2). The extent of access roads has been minimized to the extent possible. The access roads will be made of temporary fill such as hog fuel, quarry spalls or mats and may be installed on top of a construction geotextile to spread the loads. These roads will be restored once the project is complete by removing all the temporary road materials and disposing off site, and per the grading and planting plans for the project. Compacted areas will be de-compacted prior to planting. Impacts for temporary access roads are included in Table 2.

Construction staging will occur on the southeast side of the temporary bridge approach (D2, Figure 2). Vegetation will be cleared and temporary fill similar to that used for the access roads will be used as a base. As with access roads, compacted soils will be loosened and the area replanted according to the planting plans once the project is complete.

Both organic materials (such as bark or wood chip mulch and compost) and non-organic imported materials (such as aggregate and gabion baskets) will be staged on-site. Staging will occur below the OHWM and in wetlands, but not in water. In some areas, on-site excavated material will be staged after excavation before it is either removed from the site or re-installed on site. The area for staging of material is included in the temporary access road area.

Staging will only be allowed within the work windows stipulated in the HPA. Staging will be a minimum of 150 feet landward from the top of bank of any creek, and at least 10 feet from the site boundary or easement line. A barrier such as a fabric material or geotextile will be placed on the ground prior to placing staging materials to avoid mixing into the native soil. The barrier will be removed and the ground de-compacted by ripping or other method prior to planting and restoration.

Temporary Easements

Several temporary easements are being acquired from adjoining property owners to facilitate construction activities. The project will acquire two easements on the south side of Evans Creek and two on the east side of the property. One easement south of Evans Creek will be used as a turnaround site for construction equipment and access for construction crews to construct the bridges. The other will be necessary for removal of the existing concrete foot bridge near the

confluence of Bear and Evans creeks and facilitation of a temporary stream diversion for connecting the backwater channel to Evans Creek. The project will also use two narrow (15-foot x 100-feet) easements on the east side of the property boundary to fill in Ditch 6, which extends onto the properties east of the site (Figure 2 and Table 2).

A small area on the southwest corner of the property near the concrete foot bridge (off the mitigation site) is within the City of Redmond's Native Growth Protection Area and will be impacted during bridge removal. This area will be planted with native vegetation once the bridge is removed (area D1, Figure 2).

Instream Work

In-water work will be necessary within Evans Creek (and Bear Creek to a very limited extent) to connect the backwater channel, plug ditches, remove bank hardening structures, and install large woody debris, resulting in temporary impacts not anticipated in the original mitigation report. During in-water work the Evans Creek's flow will be placed in a bypass system that will be routed along the north side of the channel on the mitigation site. Some groundwater will continue to drain into the creek; gravel bag dams or similar methods will be installed at several locations along the creek to intercept groundwater so that it can be pumped from the creek. Installation of the gravel bags and bypass system will result in a small area of temporary stream and stream buffer impacts for several months during one in-water work season (Figure 2, E1; Table 2).

Equipment may need to enter the creek to perform work. Excavators will be used to install log structures, excavate to connect Evans Creek to the new backwater channel, place fill near the creek to fill ditches, remove the pedestrian bridge and log wall retaining structures, and to place gravel bag dams. WSDOT will minimize work within the stream channel, and may only need to use the excavator bucket within the stream.

The pump intake lines for diverting and dewatering Evans Creek will be placed in the channel. The contractor will have to use power equipment such as saws and hammers for removing structures within Evans Creek.

The creek will be restored by removing the gravel bag dams when water is put back into the creek. Areas on Evans Creek where ditches have been filled and bank hardening structures have been removed will be restored and stabilized with coir lifts and native vegetation.

Work Window

The allowed work window for activities below the ordinary high water mark (OHWM) for Evans Creek is July 1 through September 30, and July 1 through September 10 for Bear Creek in accordance with the project Hydraulic Project Approval. A number of activities could safely be performed out of the wetted channel perimeter outside of the in-water work window:

- Constructing the bridge abutments (work will not be done if water is present within the work area);
- Mowing, selective clearing and pruning (no grubbing);
- High visibility fence placement and removal as needed;
- Fence or stake installation;
- Survey staking;
- Placement, removal and maintenance of temporary erosion control BMPs;
- Weed control and herbicide treatment;
- Planting (Ecology has already provided approval for this activity).

Erosion Control

Sod will be placed within the meander portion of the new backwater channel as a temporary erosion and sediment control best management practice (BMP) to cover the soil immediately after construction. The sod is not anticipated to be long-lived since the area will be too wet.

While temporary stabilization with sod is planned, some scour is anticipated around the woody debris to form in stream pools for fish habitat. After construction the channel will act as a back water channel. Scour is expected to be minimal until the upstream portion of Evans Creek is realigned by the City of Redmond, reconnecting the channel so that Evans Creek flows through the site in this new alignment.

Reed canary grass will be mowed and the root mat used as a cover BMP in areas where no excavation will occur. If necessary, sterile wheatgrass will be seeded to cover bare soils if the root mat breaks down more quickly than anticipated.

Summary of Impacts to Wetlands

This section provides a summary of the impacts associated with construction of the Medina to SR202: Eastside Transit and HOV Project and the Evans Creek Mitigation Site associated impacts described in this document. Together they represent the impacts that will require compensatory mitigation.

Impacts to wetland resources associated with construction of the Medina to SR202: Eastside Transit and HOV Project were updated in a project JARPA update in August 2011. The impact summary from that update described no change to permanent or temporary wetland impacts that require compensatory mitigation (see Tables 6 and 7 of the April 26, 2010 Final Wetland Mitigation Plan). There are 6.77 acres of permanent wetland impact and 0.11 acres of long term temporary impact due to construction within the corridor. Construction of the Evans Creek Mitigation Site will result in an additional 0.11 acres of permanent wetland impacts and 0.09 acres of long-term temporary impacts, resulting in a total mitigation need of 26.86 acres (Table 3). All calculations of mitigation needs presented in this addendum use mitigation ratios provided through wetland rehabilitation.

Table 3. Permanent and Temporary Wetland Impacts and Mitigation Needs

Corridor Construction Impacts			
Permanent Wetland Impacts		**Mitigation Need**	
Ecology Wetland Category	**Area (ac)**	**Mitigation ratio (Wetland**	**Proposed Rehabilitation Area (ac)**
Category IV	1.94	3:1	5.82
Category III	4.56	4:1	18.24
Category II	0.26	6:1	1.56
Category I	0.01	12:1	0.12
Totals	**6.77**		**25.74**
Temporary Long term Wetland Impacts		**Wetland Area**	
Ecology Wetland Category	**Area**	**Mitigation ratio**	**Proposed Rehabilitation Area**
Category II	0.01	1.5:1	**0.02**
Category I	0.1	3:1	0.3
Totals	**0.11**		**0.32**
Evans Creek Construction Related Impacts			
Permanent Wetland Impacts		**Wetland Area**	
Ecology Wetland Category	**Area**	**Mitigation ratio**	**Proposed Rehabilitation Area**
Category II	0.11	6:1	**0.66**
Temporary Long term Wetland Impacts		**Wetland Area**	
Ecology Wetland Category	**Area**	**Mitigation ratio (¼ of permanent**	**Proposed Rehabilitation Area**
Category II	0.09	1.5: 1	**0.14**
Total acres of wetland rehabilitation needed to compensate for impacts			**26.86**

Mitigation Provided at Evans and Yarrow Creek Mitigation Sites

There are 28.62 acres of wetland rehabilitation at Evans Creek mitigation site, with 3.54 acres of that falling within the regulatory buffer that does not generate any mitigation value, for a total of 25.08 acres (enough to offset 4.28 acres of category II wetland impacts). Additionally, the 1.3 acres of upland buffer enhancement provides 0.13 acres of mitigation for Category II wetland impacts (at a 10:1 ratio; see Table 8 in the final mitigation report) (Table 4).

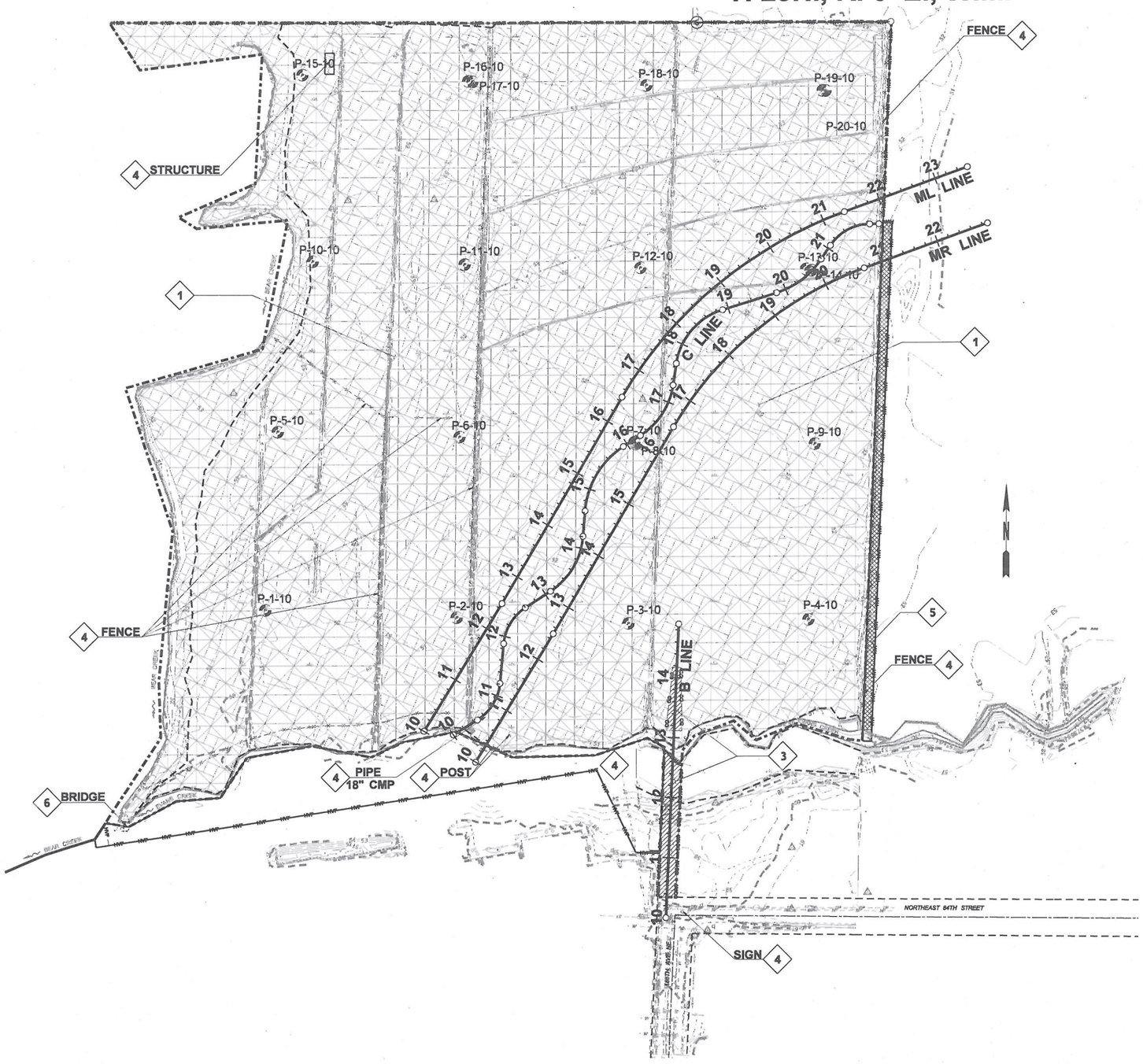
A complete accounting of mitigation for the Medina to SR202: Eastside Transit and HOV Project also includes 0.52 acres of wetland creation and 0.63 acres of wetland rehabilitation mitigation provided at the Yarrow Creek mitigation site, which provides 26.89 acres of mitigation for the entire corridor, enough to offset the 26.86 acres of mitigation required for impacts due to highway construction and construction of the Evans Creek site. (Refer to the final mitigation report for a complete description of the Yarrow Creek site.)

Table 4. Mitigation provided by Evans and Yarrow Creek Mitigation Sites

Mitigation Type	Area (acres)	Ratio to make all Rehabilitation	Rehabilitation area
Evans Creek			
Wetland Rehabilitation	25.08	1:1	25.08
Riparian Enhancement	1.3	10:1	0.13
Total	**26.38**		**25.21**
Yarrow Creek			
Re-establishment/creation	0.52	2:1	1.04
Rehabilitation	0.63	1:1	0.63
Total	**1.15**		**1.67**
Total Rehabilitation Area Available			**26.88**
Total Rehabilitation Area Needed			**26.86**
Excess Mitigation Available (rehabilitation area) for Project Impacts			**0.02**

Appendix A. Groundwater data: Piezometer locations and well data

T. 25N., R. 6 E., W.M.



LEGEND

- CLEARING
- CLEARING AND GRUBBING
- PIEZOMETER
- HIGH VISIBILITY FENCE
- REED CANARYGRASS REMOVAL
- SELECTIVE CLEARING (TO BE DETERMINED)

GENERAL NOTES:

1. SEE SHEET GE1 FOR EXISTING FEATURES.
2. LOCATION OF REED CANARYGRASS REMOVAL AREAS AND CLEARING AREAS (CLEARING, SELECTIVE CLEARING, AND CLEARING & GRUBBING) WILL BE FLAGGED BY THE ENGINEER AND FIELD SURVEYED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
3. CLEARED TREES SHALL BE USED FOR HABITAT STRUCTURES. ADDITIONAL TREES OUTSIDE OF THOSE IDENTIFIED WITHIN CLEARING LIMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
4. PRIOR TO ANY CONSTRUCTION, HIGH VISIBILITY FENCE AND TEMPORARY EROSION CONTROL SHALL BE INSTALLED.

CONSTRUCTION NOTES:

1. REED CANARYGRASS REMOVAL AREAS. SEE SPECIAL PROVISIONS, ROADSIDE RESTORATION SECTION.
2. SELECTIVE CLEARING AREAS. SEE SPECIAL PROVISIONS, ROADSIDE RESTORATION SECTION. (TO BE DETERMINED AT 60% SUBMITTAL)
3. CLEARING AND GRUBBING AREAS.
4. REMOVAL OF STRUCTURES AND OBSTRUCTIONS. SEE SPECIAL PROVISIONS REMOVAL OF STRUCTURES AND OBSTRUCTIONS SECTION.
5. CLEARING AREAS.
6. REMOVAL OF EXISTING BRIDGE. SEE SPECIAL PROVISIONS REMOVAL OF STRUCTURES AND OBSTRUCTIONS SECTION.

0 100 200
SCALE IN FEET

FILE NAME	PW:\SpecialProjectsOffice\XL3874_Evans Creek_Wetland-Mitigation\CADD\Migation Plan_Enviro\SP\XL3874_PS_SitePrep_01.dgn			
TIME	4:06:06 PM			
DATE	9/1/2011			
PLOTTED BY	asresm			
DESIGNED BY	S. WEBER			
ENTERED BY	R. PALISOC			
CHECKED BY	K. TOBIN			
PROJ. ENGR.	J. VILLAGER			
REGIONAL ADM.	J. LENZI	REVISION	DATE	BY

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.		LOCATION NO.

PRELIMINARY
NOT FOR CONSTRUCTION

DATE
P.E. STAMP BOX

DATE
P.E. STAMP BOX

Washington State Department of Transportation

SR 520 – EASTSIDE
WETLAND MITIGATION
EVANS CREEK

SITE PREPARATION PLAN

SP1

SHEET OF SHEETS

	P-1-10	P-2-10	P-3-10	P-4-10	P-5-10	P-6-10	P-7-10	P-8-10	P-9-10	P-10-10
Ground Elevation	51.49	51.05	50.81	52.01	52.06	51.42	51.66	51.58	52.01	52.59
	Water Elevation	Water Elevation	Water Elevation	Water Elevation	Water Elevation	Water Elevation	Water Elevation	Water Elevation	Water Elevation	Water Elevation
April	50.41	50.55	51.09	51.33	51.41	51.30	51.47	51.24	52.17	50.67
May	50.20	50.41	51.08	51.22	50.99	51.04	51.30	51.53	52.14	50.38
June	50.37	50.67	51.31	51.48	51.22	51.25	51.61	51.45	52.45	50.88
July	48.27	49.61	50.36	50.00	48.79	48.91	50.19	49.81	51.17	49.07
August	48.00	48.99	48.33	48.46	48.67	48.16	49.24	48.88	49.14	48.99
September	48.00	49.32	49.00	48.86	48.67	48.93	50.06	49.64	50.02	48.99
October	48.29	49.49	47.61	49.92	48.46	50.11	50.33	50.23	51.09	48.78
November	50.32	50.14	49.64	50.79	51.26	51.27	51.02	51.07	52.06	50.99
December	50.91	50.82	50.23	51.17	51.64	51.59	51.49	51.56	52.38	51.64
January	50.81	50.69	50.13	51.51	51.58	51.45	51.55	51.60	52.38	51.62
February	50.53	50.09	49.85	50.72	51.56	51.39	50.96	51.21	52.21	51.19
March	50.71	50.62	50.03	50.73	51.64	51.42	51.19	51.41	52.28	51.37
April	50.51	50.07	49.83	50.48	51.48	51.27	51.20	51.30	52.31	50.92
May	49.90	50.05	49.22	50.33	50.80	50.80	50.76	50.82	52.16	50.06
June	48.84	49.58	48.16	49.77	48.92	49.95	50.34	50.22	51.78	48.86
July	47.94	49.11	47.26	48.48	48.44	48.52	49.83	49.41	50.40	48.76
August	47.77	48.85	47.09	47.60	48.44	48.05	49.56	49.03	49.05	48.76

	P-11-10	P-12-10	P-13-10	P-14-10	P-15-10	P-16-10	P-17-10	P-18-10	P-19-10	P-20-10
Ground Elevation	53.14	52.22	52.03	51.94	52.75	54.58	54.43	53.44	52.71	52.63
	Water Elevation	Water Elevation	Water Elevation	Water Elevation	Water Elevation	Water Elevation	Water Elevation	Water Elevation	Water Elevation	Water Elevation
April	52.18	51.54	51.72	51.38	51.86	52.86	52.65	52.44	52.65	52.56
May	51.86	51.17	51.60	51.15	51.61	52.68	52.41	52.29	52.31	52.13
June	52.23	51.63	52.00	51.41	51.93	52.79	51.76	52.34	52.43	52.29
July	50.14	49.63	50.41	50.13	49.76	50.95	51.04	50.79	50.66	49.92
August	49.98	49.04	49.55	49.21	49.23	50.05	50.89	50.44	50.04	49.71
September	49.98	49.54	50.27	49.39	49.23	50.08	50.87	50.44	49.99	49.71
October	50.01	50.68	50.79	49.54	49.51	50.96	50.91	50.52	50.58	49.98
November	52.31	51.66	51.62	50.04	52.22	52.85	52.58	52.50	52.33	52.37
December	52.58	52.08	52.06	50.35	52.38	53.04	52.73	52.85	52.53	52.56
January	52.59	52.03	52.06	50.19	52.34	53.03	52.70	52.84	52.43	52.46
February	52.47	51.79	51.86	49.80	52.19	52.83	52.47	52.52	52.41	52.45
March	52.57	51.91	51.96	49.74	52.30	52.97	52.57	52.67	52.47	52.50
April	52.26	51.65	51.91	49.52	51.99	52.73	52.32	52.30	52.33	52.38
May	51.46	50.83	51.63	49.01	51.25	52.24	51.83	51.34	51.92	51.95
June	50.31	50.09	51.05	48.43	50.18	51.47	51.04	50.56	50.85	50.59
July	49.77	49.32	50.10	47.59	49.27	50.55	50.52	50.42	50.09	49.55
August	49.75	48.89	49.49	47.09	48.98	49.94	50.47	50.19	49.66	49.47

FILE NAME	PW:\SpecialProjectsOffice\XL3874_Evans Creek_Wetland-Mitigation\CADD\Migation Plan_Enviro\Piezo Data\XL3724_EC_PS_Piezometers.dgn
TIME	2:27:46 PM
DATE	9/1/2011
PLOTTED BY	pallsor
DESIGNED BY	M. ASRES
ENTERED BY	R. PALISOC
CHECKED BY	S. WEBER
PROJ. ENGR.	J. VILLAGER
REGIONAL ADM.	J. LENZI

REVISION | DATE | BY

REGION NO. 10 | STATE WASH | FED.AID PROJ.NO.

JOB NUMBER

CONTRACT NO. | LOCATION NO.

PRELIMINARY
NOT FOR CONSTRUCTION

DATE
P.E. STAMP BOX

DATE
P.E. STAMP BOX

Washington State
Department of Transportation

SR 520 – EASTSIDE
WETLAND MITIGATION
EVANS CREEK

PIEZOMETERIC DATA

SHEET
OF
SHEETS